

[COMMITTEE PRINT]

94TH CONGRESS }  
1st Session }

SENATE

{ REPORT  
No. 94-00

NURSING HOME CARE IN THE UNITED  
STATES: FAILURE IN PUBLIC POLICY

---

Supporting Paper No. 5

THE CONTINUING CHRONICLE OF NURSING HOME  
FIRES

---

PREPARED BY THE  
SUBCOMMITTEE ON LONG-TERM CARE  
OF THE  
SPECIAL COMMITTEE ON AGING  
UNITED STATES SENATE



AUGUST 1975

Printed for the use of the Special Committee on Aging

NURSING HOME CARE IN THE UNITED  
STATES: FAILURE IN PUBLIC POLICY

---

Supporting Paper No. 5

THE CONTINUING CHRONICLE OF NURSING HOME  
FIRES

---

PREPARED BY THE  
SUBCOMMITTEE ON LONG-TERM CARE  
OF THE  
SPECIAL COMMITTEE ON AGING  
UNITED STATES SENATE



AUGUST 1975

Printed for the use of the Special Committee on Aging

---

U.S. GOVERNMENT PRINTING OFFICE  
WASHINGTON : 1975

55-924

## SPECIAL COMMITTEE ON AGING

FRANK CHURCH, Idaho, *Chairman*

HARRISON A. WILLIAMS, Jr., New Jersey	HIRAM L. FONG, Hawaii
JENNINGS RANDOLPH, West Virginia	CLIFFORD P. HANSEN, Wyoming
EDMUND S. MUSKIE, Maine	EDWARD W. BROOKE, Massachusetts
FRANK E. MOSS, Utah	CHARLES H. PERCY, Illinois
EDWARD M. KENNEDY, Massachusetts	ROBERT T. STAFFORD, Vermont
WALTER F. MONDALE, Minnesota	J. GLENN BEALL, Jr., Maryland
VANCE HARTKE, Indiana	PETE V. DOMENICI, New Mexico
CLAIBORNE PELL, Rhode Island	BILL BROCK, Tennessee
THOMAS F. EAGLETON, Missouri	DEWEY F. BARTLETT, Oklahoma
JOHN V. TUNNEY, California	
LAWTON CHILES, Florida	
DICK CLARK, Iowa	

WILLIAM E. ORIOL, *Staff Director*

DAVID A. AFFELDT, *Chief Counsel*

VAL J. HALAMANDARIS, *Associate Counsel*

JOHN GUY MILLER, *Minority Staff Director*

PATRICIA G. ORIOL, *Chief Clerk*

---

## SUBCOMMITTEE ON LONG-TERM CARE

FRANK E. MOSS, Utah, *Chairman*

HARRISON A. WILLIAMS, Jr., New Jersey	CHARLES H. PERCY, Illinois
FRANK CHURCH, Idaho	HIRAM L. FONG, Hawaii
EDMUND S. MUSKIE, Maine	EDWARD W. BROOKE, Massachusetts
EDWARD M. KENNEDY, Massachusetts	J. GLENN BEALL, Jr., Maryland
CLAIBORNE PELL, Rhode Island	PETE V. DOMENICI, New Mexico
THOMAS F. EAGLETON, Missouri	BILL BROCK, Tennessee
JOHN V. TUNNEY, California	DEWEY F. BARTLETT, Oklahoma
WALTER F. MONDALE, Minnesota	
LAWTON CHILES, Florida	
DICK CLARK, Iowa	

## PREFACE

Federal support of long-term care for the elderly has, within a decade, climbed from millions to billion of dollars.

What is the Nation receiving for this money?

This report explores that, and related questions.

It concludes that public policy has failed to produce satisfactory institutional care—or alternatives—for chronically ill older Americans.

Furthermore, this document—and other documents to follow—declare that today's entire population of the elderly, *and their offspring*, suffer severe emotional damage because of dread and despair associated with nursing home care in the United States today.

This policy, or lack thereof, may not be solely responsible for producing such anxiety. Deep-rooted attitudes toward aging and death also play major roles.

But the actions of the Congress and of States, as expressed through the Medicare and Medicaid programs, have in many ways intensified old problems and have created new ones.

Efforts have been made to deal with the most severe of those problems. Laws have been passed; national commitments have been made; declarations of high purpose have been uttered at national conferences and by representatives of the nursing home industry.

*But for all of that, long-term care for older Americans stands today as the most troubled, and troublesome, component of our entire health care system.*

It is costly and growing costlier.

It is increasing in numbers, already providing more beds than there are beds in general hospitals.

And there is every reason to believe that many more beds will be needed because the population of old persons in this Nation continues to grow faster than any other age group.

Nursing home care is associated with scandal and abuse, even though the best of its leaders have helped develop vitally needed new methods of care and concern for the elderly, and even though—day in and day out—underpaid, but compassionate, aides in many homes attempt to provide a touch of humanity and tender care to patients who, though mute or confused and helpless, nevertheless feel and appreciate kindness and skill.

This industry, which has grown very rapidly in just a few decades—and most markedly since 1965, when Medicare and Medicaid were enacted—could now take one of three courses:

It could continue to grow as it has in the past, spurred on by sheer need, but marred by scandal, negativism, and murkiness about its fundamental mission.

It could be mandated to transform itself from a predominantly proprietary industry into a nonprofit system, or into one which takes on the attributes of a quasi-public utility.



Or it could—with the informed help of Government and the general public—move to overcome present difficulties, to improve standards of performance, and to fit itself more successfully into a comprehensive health care system in which institutionalization is kept to essential minimums.

Whatever course is taken, it is certain that the demand for improvement will become more and more insistent.

Within the Congress, that demand has been clearly expressed in recent years. But often congressional enactments have been thwarted by reluctant administration, or simply have been ignored. Now, facing the prospect of early action upon a national health program for all age groups, the Congress must certainly consider long-term care a major part of the total package. Wisely used, the momentum for a total health care package could be used to insure better nursing home care.

Within the administration, there has been drift and unresponsiveness to congressional mandate since 1965. There are signs, however, that rising costs and rising public concern have aroused certain members of the executive branch to see the need for long-term care reform more clearly than before. Their actions and initiatives are welcome, but it is essential that the Department of Health, Education, and Welfare take far more effective, well-paced action than it has thus far.

Everywhere, the demand for reform is intensifying. People know that a nursing home could be in everyone's future.

They ask why placement in such a home should be the occasion for despair and desperation, when it should be simply a sensible accommodation to need.

The Subcommittee on Long-Term Care of the Senate Special Committee on Aging continually has asked the same question.

Care for older persons in need of long-term attention should be one of the most tender and effective services a society can offer to its people. It will be needed more and more as the number of elders increases and as the number of very old among them rises even faster.

What is needed now? As already indicated, the forthcoming debate over a national health program will offer opportunity for building good long-term care into a comprehensive program for all Americans.

But the issues related to the care of the chronically ill are far from simple. Tangled and sometimes obscure, technical questions related to such matters as reimbursement, establishment of standards, enforcement, and recordkeeping, often attract the attention of policymakers, to the exclusion of other questions, such as:

Could nursing homes be avoided for some, if other services were available?

What assurance is there that the right number of nursing homes are being built where they are most needed?

What measures can Government take to encourage providers themselves to take action to improve the quality of nursing home care?

What can be done to encourage citizen action and patient advocacy at the local level?

Such questions intrude even when the best of care is given. In other settings, however, scandal and calamity enter the picture, and dark new questions emerge.

The Subcommittee, in this report and succeeding Supporting Papers, recognizes the importance of the nursing home industry, and it pledges every effort to continue communication with representatives of the industry and with members of the executive branch.

For these reasons, the Subcommittee has devised an unusual format; After publication of the Introductory Report, a series of followup papers on individual issues will follow; then we will publish a compendium of statements invited from outside observers; after this will come our final report. In this way, the Subcommittee can deal with the many parts needed to view long-term care as a whole.

Testimony from many, many days of hearings and other research have been tapped for this report, which is extensive and heartfelt. Concern about people has been at the heart of this effort. The Subcommittee has, therefore, been especially dependent upon responsive staff effort. Mr. Val Halamandaris, associate counsel for the Senate Special Committee on Aging, deserves specific mention for his role in assuring that Subcommittee inquiries remained directed at their real target: to wit, people in need of good care. Mr. Halamandaris has had the primary responsibility for directing the Subcommittee's hearings; he is responsible for the excellent research on data and for writing this report. He is more than a skilled and attentive attorney; his investigatory skills are rooted in concern and, when necessary, outrage. He has made it possible for this Subcommittee to compile and offer more information and insights into the nursing home industry than the Congress has ever had before.

He has been helped considerably by other Committee personnel. Staff Director William Oriol has provided guidance and consultation leading to the design and special points of emphasis in this report. Committee Counsel David Affeldt has given generously of his legislative expertise, as well as painstaking attention to detail.

Particularly fortunate for the Subcommittee was the fact that a professional staff member, John Edie, had special qualifications for making a substantial contribution to this effort. Mr. Edie, an attorney, formerly served as counsel to a program on aging in Minneapolis, Minn. When the Subcommittee went to that city for intensive hearings on scandalous shortcomings in nursing home care there, Mr. Edie testified and then continued his efforts on behalf of reform. In the preparation of this report, he has worked closely and at length with Mr. Halamandaris and his associates.

The Subcommittee also stands in debt to a select group in the nursing home industry and within the executive branch. Usually without much attention or encouragement, these public servants have stubbornly refused to compromise their goal of seeking high, but reasonable, standards of care.

With the publication of the Introductory Report, the Subcommittee began a final exploration of issues. We will publish responsible comments on findings expressed in this document and the Supporting Papers which precede and will follow. And we will, in our final report, make every effort to absorb new ideas or challenges to our findings.

The care of chronically ill older Americans is too serious a topic for stubborn insistence upon fixed positions. Obviously, changes are needed. Obviously, those changes will occur only when public understanding and private conscience are stirred far more than is now the case.

FRANK E. MOSS,  
*Chairman, Subcommittee on Long-Term Care.*

# CONTENTS

	Page
Preface -----	III
Supporting Paper No. 5: The Continuing Chronicle of Nursing Home Fires:	
About this report-----	XI
The factual underpinning of this study-----	XI
Organization of this study-----	XII
Major points of this Supporting Paper-----	XII
Major points of Introductory Report-----	XIV
Major points of Supporting Paper No. 1-----	XVI
Major points of Supporting Paper No. 2-----	XVII
Major points of Supporting Paper No. 3-----	XIX
Major points of Supporting Paper No. 4-----	XX
Major points of forthcoming supporting papers:	
Supporting Paper No. 6: What can be done in nursing homes: Positive aspects in long-term care-----	XXII
Supporting Paper No. 7: The role of nursing homes in caring for dis- charged mental patients-----	XXIII
Supporting Paper No. 8: Access to nursing homes by U.S. minorities-----	XXIII
Supporting Paper No. 9: Profits and the nursing home: Incentives in favor of poor care-----	XXIV 455
Introduction -----	455
<b>PART 1</b>	
Nursing Home Fires: Dimensions and recent examples-----	457
1. Largo, Fla.—March 29, 1953-----	458
2. Warrenton, Mo.—February 17, 1957-----	458
3. Fitchville, Ohio—November 23, 1963-----	459
4. Fountaintown, Ind.—December 18, 1964-----	459
5. Marietta, Ohio—January 9, 1970-----	459
6. Buechel, Ky.—January 14, 1971-----	460
7. Salt Lake City, Utah—September 15, 1971-----	460
8. Texas Township, Pa. (near Honesdale)—October 19, 1971-----	460
9. Lincoln Heights, Ohio—January 26, 1972-----	461
10. Rosecrans, Wis.—April 4, 1972-----	461
11. Springfield, Ill.—May 5, 1972-----	461
12. Kearney, Nebr.—November 27, 1972-----	462
13. Madison, Wis.—January 8, 1973-----	462
14. Charleston, W. Va.—January 14, 1973-----	462
15. Addison, N.Y.—January 15, 1973-----	462
16. Pleasantville, N.J.—January 29, 1973-----	462
17. New Haven, Ky.—April 21, 1973-----	463
18. Philadelphia, Pa.—September 13, 1973-----	463
19. Wayne, Pa.—December 4, 1973-----	463
20. Brookhaven, Miss.—August 16, 1974-----	463
21. St. Joseph, Mo.—September 9, 1974-----	464
A summary of past fire experience-----	464
<b>PART 2</b>	
Nursing home patients: A special problem-----	465
A. The patient: Largest obstacle to fire safety-----	465
B. Related problems-----	468
Inadequately trained personnel-----	468
Housekeeping and maintenance-----	469
Problems caused by smoking-----	470
Sedation-----	470
The use of restraints-----	472
Summary -----	474

## VIII

### PART 3

	Page
Modern fire safety techniques and their limitations.....	475
Protection .....	475
Detection .....	476
Extinguishment .....	478
Automatic sprinkler systems: The question of cost.....	480
Confinement and control.....	480
Summary .....	481

### PART 4

The Federal response:	
A. The present standards.....	482
Medicare and Medicaid.....	482
Medicare .....	482
Medicaid .....	483
Certification procedures.....	483
What is the Life Safety Code?.....	484
1. Standards for Skilled Nursing Facilities.....	486
2. Intermediate Care Facilities.....	487
3. Shelter care and personal care homes.....	488
4. Boarding homes and hotels.....	488
B. The evolution of fire safety standards.....	489
1965 .....	489
1967 .....	490
1970 .....	491
The "pill test".....	492
1971 .....	493
1972 .....	493
1973 .....	494
1974 .....	496
1975 .....	500
1967 Life Safety Code.....	503
1973 Life Safety Code.....	503
C. Shortcomings in existing fire safety policies.....	507
1. The need for more uniform interpretation of the Life Safety Code.....	507
2. The need for enforcement of standards.....	510
3. HUD should upgrade minimum property standards.....	512
4. The need for further study.....	513
Summary .....	513

### PART 5

Bootleg nursing homes: A special problem.....	514
The Life Safety Code.....	514
The old age assistance loophole and the new SSI program.....	514
Summary .....	521

### PART 6

The continuing controversy over carpeting.....	522
The current standards:	
A. Nursing homes.....	525
B. Homes for the aged.....	525
C. Protections for consumers in general.....	525
D. No standards for smoke generation .....	526
Summary .....	526

### PART 7

What we still don't know: New concern about toxicology.....	528
-------------------------------------------------------------	-----

### PART 8

Recommendations .....	531
-----------------------	-----

## IX

## APPENDIXES

Appendix 1:		
	Letter and statistics on nursing home fires; from A. Elwood Willey, assistant director, engineering services, National Fire Protection Association; to Senator Frank E. Moss, dated November 21, 1974...	Page 533
Appendix 2:		
	Letter from Robert D. Riddell, fire marshal, State of Utah, regarding interpretation of Life Safety Code; to Robert J. Thompson, secretary on Safety to Life Committee, National Fire Protection Association, dated May 6, 1974.....	539
Appendix 3:		
	Memorandum from American Nursing Home Association, dated February 21, 1975.....	541
Appendix 4:		
	Letter from Richard E. Stevens, assistant vice president, standards, National Fire Protection Association; to Senator Frank E. Moss, dated April 28, 1975.....	543
Appendix 5:		
	Letter from Charles S. Morgan, president, National Fire Protection Association; to Hon. Caspar W. Weinberger, Secretary, Department of Health, Education, and Welfare, dated June 4, 1975.....	545
Appendix 6:		
	State requirements for sprinkler installations in nursing homes.....	546
Appendix 7:		
	Letter from Frank C. Carlucci, under secretary, Department of Health, Education, and Welfare; to Senator Charles H. Percy, dated November 18, 1974.....	547
Appendix 8:		
	Letter from Constance Beaumont, director for public policy, National Association of Homes for the Aging; to Val Halamandaris, Senate Special Committee on Aging, dated August 6, 1975.....	550
Appendix 9:		
	Letter from J. Albin Yokie, executive vice president, American College of Nursing Home Administrators; to Senator Frank E. Moss, dated August 15, 1975.....	553
Appendix 10:		
	Magazine article entitled "Of Satraps and Firetraps"; from <i>Hospital Practice</i> , February 1974.....	554
	Dr. Edwards on Nursing Home Fires.....	557
Appendix 11:		
	Magazine article entitled "Poison Gas Hazards From Burning Plastics Concern Fire Researchers"; from <i>Medical World News</i> , September 20, 1974.....	559
Appendix 12:		
	Newspaper article entitled "Researchers Fear Some Flame-Resistant Goods May Give Off Noxious Gases in Intense Fires"; from <i>The Wall Street Journal</i> , December 10, 1973.....	562
Appendix 13:		
	Magazine article entitled "Smoke of Burning Synthetic Carpet Held Lethal Hazard"; from <i>Medical Tribune</i> , dated November 14, 1973....	566
Appendix 14:		
	Magazine article entitled "Expert Says Homes Need Drills. Detectors and Sprinklers"; from <i>Modern Nursing Home</i> , April 1972.....	568
	Tests show sprinklers are not total answer.....	573
	General fire safety rules.....	574
Appendix 15:		
	Letter from Richard E. Stevens, assistant vice president, standards, National Fire Protection Association; to Dave Long, AHCA project director, American Nursing Home Association, dated May 5, 1975..	576

# NURSING HOME CARE IN THE UNITED STATES: FAILURE IN PUBLIC POLICY

---

## SUPPORTING PAPER NO. 5

---

### THE CONTINUING CHRONICLE OF NURSING HOME FIRES

#### ABOUT THIS REPORT

To deal with the intricate circumstances and governmental actions associated with nursing home care in this Nation, the Subcommittee on Long-Term Care of the U.S. Senate Special Committee on Aging is issuing several documents under the general title of *Nursing Home Care in the United States: Failure in Public Policy*.

An Introductory Report, published in November, declared that a coherent, constructive, and progressive policy on long-term care has not yet been shaped by the Congress and by the executive branch of this Nation.

Examining the role of Medicare and Medicaid in meeting the need for such care, the report found that both programs are deficient.

Further, it raised questions about current administration initiatives originally launched personally by President Nixon in 1971.

These shortcomings of public policy, declared the report, are made even more unfortunate by the clear and growing need for good quality care for persons in need of sustained care for chronic illness. It called for good institutions and, where appropriate, equally good alternatives, such as home health services.

(A more detailed summary of major findings from the Introductory Report appears later in this section of this report.)

Supporting Paper No. 5 describes the dimensions of nursing home fires. It is a collection of lessons learned in past fires and an analysis of present Government policy, with suggestions for improvement. It also deals with several significant problems which up to now have received little attention.

#### THE FACTUAL UNDERPINNING OF THIS STUDY

Sixteen years of fact-gathering preceded publication of this report. In 1959, the Senate Committee on Labor and Public Welfare established a Subcommittee on Problems of the Aged and Aging. Findings from subcommittee reports and hearings have been evaluated. That subcommittee acknowledged in 1960, as this report acknowledges in 1975, that nursing homes providing excellent care with a wide range of supportive services are in the minority.

With the establishment of the U.S. Senate Special Committee on Aging in 1961, additional hearings were conducted. The most recent phase began in 1969 with hearings on "Trends in Long-Term Care." Since 1969, 22 hearings were held and some 3,000 pages of testimony were taken, as of October 1973.

These hearing transcripts have provided valuable information and expert opinions, as have several supplementary studies by the Subcommittee staff, the General Accounting Office, and private groups such as Ralph Nader's Study Group on Nursing Homes in 1971. The Library of Congress and other congressional committees, as well as professional organizations such as the American Nursing Home Association, have also been helpful. Finally, a great portion of the data is from the Department of Health, Education, and Welfare and other administrative or independent agencies, such as the Securities and Exchange Commission. The assistance of State officials proved especially helpful.

### ORGANIZATION OF THIS STUDY

This Supporting Paper will be followed by other Supporting Papers to be published at approximately monthly intervals over the next few months. Each will deal with a fairly specific issue, and each of these issues will be examined in the detail needed for understanding, not only by legislative and health specialists, but by laymen.

A study of this magnitude would be incomplete without reaction by the nursing home industry and by representatives of the executive branch. Accordingly, national organizations and appropriate governmental units will be invited to submit statements within 2 months after publication of the final Supporting Paper. Finally, the Subcommittee will issue a concluding report intended to update earlier information and to analyze the situation at that time.

The format is unusual, perhaps unprecedented. But the nursing home industry is too vital a part of our health system and of the national scene for lesser treatment.

### MAJOR POINTS OF THIS SUPPORTING PAPER

Older Americans make up 10 percent of the population but 30 percent of the deaths by fire. They are involved in 59 percent of all clothing fires, having a 73 percent mortality rate in such fires as compared to 23 percent for younger persons.

Nursing home patients present a particular problem because of several factors: (1) Their advanced age (average 82); (2) their failing health (average four disabilities); (3) their mental disabilities (55 percent are mentally impaired); (4) their reduced mobility (less than half can walk); (5) their sensory impairment (loss of hearing, vision, or smell); (6) their reduced tolerance to heat, smoke, and gases; and (7) their greater susceptibility to shock.

Some patients resist rescue. They are reluctant to leave their room and few possessions. In other cases, those rescued have inexplicably run back into burning buildings.



Despite much progress in recent years, nursing homes and related facilities still rank number one on the list of unsafe places to be from a fire safety point of view. Six patients die in nursing home fires for every one in a hospital fire.

In 1973 there were 6,400 nursing home fires (17.5 each day of the year) causing \$3.6 million in damage. An estimated 500 persons lost their lives in single-death institutional fires. Fifty-one persons lost their lives in multiple-death fires (those killing three or more). These figures represent sharp increases from 1971, when there were 4,800 fires and 31 persons killed in multiple-death fires.

Because nursing home patients often cannot take action to protect themselves in case of fire, they must rely upon the help of others. In most cases such help has not been available. There are few nursing personnel available (particularly at night), and most are untrained in rescue and firefighting techniques. Compounding the problem, many patients are under sedation or bound with restraints.

Because the elderly cannot protect themselves and nursing home personnel often prove incapable of taking action to save them in case of fire, automatic detection, alarm, and extinguishment are recommended. Sprinkling systems, while far from a panacea, are, by and large, the difference between life and death.

Over the years, 33 percent of all nursing home fires have been caused by smoking or matches; heating or electrical problems followed next with 18 and 15 percent, respectively. Eight percent were labeled "suspicious"—a suggestion that arson was the fire's cause. Fires most frequently began in patients' rooms (35 percent) and most often took place from midnight to 6 a.m. (42 percent). Some 35 percent of all nursing home fires occur in wood-frame buildings; only 3 percent in fire-resistive buildings.

Greater emphasis must be placed on the installation of fire-retardant furnishings. Too often fire-resistive buildings are constructed only to be filled with flammable carpets, curtains, vinyl upholstery, and the like. The Department of Commerce has yet to promulgate the fire safety standards with respect to carpets (for all age groups) that they promised at hearings on the Marietta fire. There is no emphasis on the hazard of smoke production or on the effect of toxic gases on humans. Recent research demonstrates that deadly gases such as phosgene and cyanide are released when various plastics, acrylics, and nylons are burned. Many such products are found in nursing homes.

Some 7,200 of the Nation's 23,000 long-term care facilities (personal care and shelter care homes) do not participate in Federal programs, and therefore meet only such standards as are promulgated by the States. All too often, such standards are weak or nonexistent. There are even fewer standards for boarding homes and old hotels which, more and more, are absorbing the thousands of patients discharged yearly from State mental institutions. In some cases the States are placing Medicare and/or Medicaid patients in these facilities; the use of such "bootleg" nursing homes (so named because they are not certified under Federal requirements) is a violation of law.

The 15,800 Skilled Nursing Facilities and Intermediate Care Facilities participating in Medicare and Medicaid must comply with the Life Safety Code of the National Fire Protection Association. This requirement was enacted in 1967 but far too many nursing homes fail to comply. In 1971 and again in 1975, U.S. General Accounting Office audits found 50 and 72 percent (respectively) of the nursing homes in their studies had one or more violations of major code provisions. The Department of Health, Education, and Welfare estimated 59 percent had deficiencies in 1974 and notes two-thirds have "several" (four or more) deficiencies in 1975.

Not only are standards not being enforced, there is a lack of uniformity in the interpretation and application of the code by State surveyors who inspect nursing homes applying the Federal fire safety standards. Only 22 percent of those doing fire inspections had backgrounds qualifying them to do so; 78 percent were nurses, sanitarians, and members of other professions, including State police or detectives. Some HEW regional offices are overzealous while others are complacent. As further evidence that State surveyors are not adequately performing their jobs, fully 89 percent of the deficiencies reported by the GAO earlier this year had not been discovered by State surveyors.

HEW must take action to insure that Federal fire safety standards are enforced; eight years is too long to wait. HEW must undertake measures to insure uniform enforcement of the code among the 50 States. One such measure might be the mandatory training of State surveyors. If such measures do not prove workable, then HEW should suggest the need for direct Federal inspection to the Congress.

---

## MAJOR POINTS OF INTRODUCTORY REPORT

(Issued November 19, 1974)

Medicaid now pays about 50 percent of the Nation's more than \$7.5 billion nursing home bill, and Medicare pays another 3 percent. Thus, about \$1 of every \$2 in nursing home revenues is publicly financed.\*

---

There are now more nursing home beds (1.2 million) in the United States today than general and surgical hospital beds (1 million).

---

In 1972, for the first time, Medicaid expenditures for nursing home care exceeded payments for surgical and general hospitals: 34 percent to 31 percent.

---

\*The Committee's Introductory Report, as released on November 19, 1974, incorporating the latest statistics from HEW, reported that total revenues for the nursing home industry in 1972 were \$3.2 billion and \$3.7 billion for 1973. Subsequent to publication of this report the Social Security Administration released new estimates for 1974. Total expenditures are estimated at \$7.5 billion. This change reflects spending for the Intermediate Care program, which until recently was a cash grant program to old age assistance recipients. With its change to a vendor payments program such expenses are properly countable as nursing home expenditures. Consequently, changes were made in this report.

Medicaid is essential for growing numbers of elderly, particularly since Medicare nursing home benefits have dropped sharply since 1969. Average Social Security benefits for a retired couple now amount to \$310 a month compared to the average nursing home cost of \$600. Medicaid (a welfare program) must be called upon to make up the difference.

---

The growth of the industry has been impressive. Between 1960 and 1970, nursing home facilities increased by 140 percent, beds by 232 percent, patients by 210 percent, employees by 405 percent, and expenditures for care by 465 percent. Measured from 1960 through 1973, expenditures increased almost 1,400 percent.

---

Despite the heavy Federal commitment to long-term care, a coherent policy on goals and methods has yet to be shaped. Thousands of seniors go without the care they need. Others are in facilities inappropriate to their needs. Perhaps most unfortunate, institutionalization could have been postponed or prevented for thousands of current nursing home residents if viable home health care and supportive services existed. Although such alternative forms of care may be more desirable from the standpoint of elderly patients—as well as substantially less expensive—the Department of HEW has given only token support for such programs.

---

Despite the sizable commitment in Federal funds, HEW has been reluctant to issue forthright standards to provide patients with minimum protection. Congress in 1972 mandated the merger of Medicare and Medicaid standards, with the retention of the highest standard in every case. However, HEW then watered down the prior standards. Most leading authorities concluded at Subcommittee hearings that the new standards are so vague as to defy enforcement.

---

There is no direct Federal enforcement of these and previous Federal standards. Enforcement is left almost entirely to the States. A few do a good job, but most do not. In fact, the enforcement system has been characterized as scandalous, ineffective, and, in some cases, almost nonexistent.

---

The President's program for "nursing home reform" has had only minimal effect since it was first announced in 1971 and actions in 1974 fall far short of a serious effort to regulate the industry.

---

The victims of Federal policy failures have been Americans who are desperately in need of help. The average age of nursing home

patients is 82; 95 percent are over 65 and 70 percent are over 70; only 10 percent are married; almost 50 percent have no direct relationship with a close relative. Most can expect to be in a nursing home over 2 years. And most will die in the nursing home. These patients generally have four or more chronic or crippling disabilities.

---

Most national health insurance proposals largely ignore the long-term care needs of older Americans. Immediate action is required by the Congress and executive branch to improve past policies and programs which have been piecemeal, inappropriate, and short lived.

---

## MAJOR POINTS OF SUPPORTING PAPER NO. 1

(Issued December 17, 1974)

### "THE LITANY OF NURSING HOME ABUSES AND AN EXAMINATION OF THE ROOTS OF CONTROVERSY"

The Subcommittee's Supporting Paper No. 1 reveals the following were the most important nursing home abuses:

- Negligence leading to death and injury;
- Unsanitary conditions;
- Poor food or poor preparation;
- Hazards to life or limb;
- Lack of dental care, eye care or podiatry;
- Misappropriation and theft;
- Inadequate control of drugs;
- Reprisals against those who complain;
- Assault on human dignity; and
- Profiteering and "cheating the system."

The inevitable conclusion is that such abuses are far from "isolated instances." They are widespread. Estimates of the number of substandard homes (that is, those in violation of one or more standards causing a life-threatening situation) vary from 30 to 80 percent. The Subcommittee estimates at least 50 percent are substandard with one or more life-threatening conditions.

These problems have their roots in contemporary attitudes toward the aging and aged. As Senator Frank E. Moss, chairman of the Subcommittee on Long-Term Care, has said:

It is hell to be old in this country. The pressures of living in the age of materialism have produced a youth cult in America. Most of us are afraid of getting old. This is because we have made old age in this country a wasteland. It is T. S. Eliot's rats walking on broken glass. It's the nowhere in between this life and the great beyond. It is being robbed of your eyesight, your mobility, and even your human dignity.

Such problems also have their roots in the attitudes of the elderly toward institutionalization. Nursing home placement often

is a bitter confirmation of the fears of a lifetime. Seniors fear change and uncertainty; they fear poor care and abuses; loss of health and mobility; and loss of liberty and human dignity. They also fear exhausting their savings and "going on welfare." To the average older American, nursing homes have become almost synonymous with death and protracted suffering before death.

However, these arguments cannot be used to excuse nursing home owners or operators or to condone poor care. Those closest to the action rightly must bear the greatest portion of responsibility.

To deal with the litany of abuses, action must be taken immediately by the Congress and the executive to: (1) Develop a national policy with respect to long-term care; (2) provide financial incentives in favor of good care; (3) involve physicians in the care of nursing home patients; (4) provide for the training of nursing home personnel; (5) promulgate effective standards; and (6) enforce such standards.

---

## MAJOR POINTS OF SUPPORTING PAPER NO. 2

(Issued January 17, 1975)

### "DRUGS IN NURSING HOMES: MISUSE, HIGH COSTS, AND KICKBACKS"

The average nursing home patient takes from four to seven different drugs a day (many taken twice or three times daily). Each patient's drug bill comes to \$300 a year as compared with \$87 a year for senior citizens who are not institutionalized. In 1972, \$300 million was spent for drugs, 10 percent of the Nation's total nursing home bill.

---

Almost 40 percent of the drugs in nursing homes are central nervous system drugs, painkillers, sedatives, or tranquilizers.

---

Tranquilizers themselves constitute almost 20 percent of total drugs—far and away the largest category of nursing home drugs.

---

Drug distribution systems used by most nursing homes are inefficient and ineffective. An average home of 100 beds might have 850 different prescription bottles and 17,000 doses of medication on hand. Doctors are infrequent visitors to nursing homes. Nurses are few and overworked. All too often, the responsibility for administering medications falls to aides and orderlies with little experience or training.

---

Not surprisingly, 20 to 40 percent of nursing home drugs are administered in error.

Other serious consequences include: the theft and misuse of nursing home drugs; high incidence of adverse reactions; some disturbing evidence of drug addiction; and lack of adequate controls in the regulation of drug experimentation.

---

Perhaps most disturbing is the ample evidence that nursing home patients are tranquilized to keep them quiet and to make them easier to take care of. Tragically, recent research suggests that those most likely to be tranquilized sometimes may have the best chance for effective rehabilitation.

---

Kickbacks are widespread. A kickback is the practice whereby pharmacists are forced to pay a certain percentage of the price of nursing home prescription drugs back to the nursing home operator for the privilege of providing those services.

---

The atmosphere for abuse is particularly inviting when reimbursement systems under Federal and State programs allow the nursing home to act as the "middle man" between the pharmacy (which supplies the drugs) and the source of payment (private patient, Medicare, or Medicaid).

---

Kickbacks can be in the form of cash, long-term credit arrangements, and gifts of trading stamps, color televisions, cars, boats, or prepaid vacations. Additionally, the pharmacist may be required to "rent" space in the nursing home, to furnish other supplies free of charge, or to place nursing home employees on his payroll.

---

The average kickback is 25 percent of total prescription charges; over 60 percent of 4,400 pharmacists surveyed in California reported that they had either been approached for a kickback or had a positive belief that kickbacks were widespread; these same pharmacists projected \$10 million in lost accounts for failure to agree to kickback proposals.

---

In order to lower costs to meet kickback demands, pharmacists admitted numerous questionable, if not illegal, practices such as: billing welfare for nonexistent prescriptions, supplying outdated drugs or drugs of questionable value, billing for refills not dispensed, supplying generic drugs while billing for brand names, and supplying stolen drugs which they had purchased.

Congressional action in 1972 to make kickbacks illegal has had little effect. HEW has yet to announce regulations to implement this law.

---

## MAJOR POINTS OF SUPPORTING PAPER NO. 3

(Issued March 3, 1975)

### “DOCTORS IN NURSING HOMES: THE SHUNNED RESPONSIBILITY”

Physicians have shunned their responsibility for nursing home patients. With the exception of a small minority, doctors are infrequent visitors to nursing homes.

Doctors avoid nursing homes for many reasons:

- There is a general shortage of physicians in the United States, estimates vary from 20,000 to 50,000.

- Increasing specialization has left smaller numbers of general practitioners, the physicians most likely to care for nursing home patients.

- Most U.S. medical schools do not emphasize geriatrics to any significant degree in their curricula. This is contrasted with Europe and Scandinavia where geriatrics has developed as a specialty.

- Current regulations for the 16,000 facilities participating in Medicare or Medicaid require comparatively infrequent visits by physicians. The some 7,200 long-term care facilities not participating in these programs have virtually no requirements.

- Medicare and Medicaid regulations constitute a disincentive to physician visits; rules constantly change, pay for nursing home visits is comparatively low, and both programs are bogged down in redtape and endless forms which must be completed.

- Doctors claim that they get too depressed in nursing homes, that nursing homes are unpleasant places to visit, that they are reminded of their own mortality.

- Physicians complain that there are few trained personnel in nursing homes that they can count on to carry out their orders.

- Physicians claim they prefer to spend their limited time tending to the younger members of society; they assert there is little they can do for the infirm elderly. Geriatricians ridicule this premise. Others have described this attitude as the “Marcus Welby Syndrome.”

---

The absence of the physician from the nursing home setting leads to poor patient care. It means placing a heavy burden on the nurses who are asked to perform many diagnostic and therapeutic activities for which they have little training. But there are few registered nurses (65,235) in the Nation's 23,000 nursing homes. These nurses are increasingly tied up with administrative duties

such as ordering supplies and filling out Medicare and Medicaid forms. The end result is that unlicensed aides and orderlies with little or no training provide 80 to 90 percent of the care in nursing homes.

---

It is obvious that the physician's absence results in poor medical and to some degree in poor nursing care. Poor care has many dimensions, it means:

- No visits, infrequent, or perfunctory visits.
  - The telephone has become a more important medical instrument in nursing homes than the stethoscope.
  - No physical examinations, pro forma or infrequent examinations.
  - Some patients receive insulin with no diagnosis of diabetes.
  - Significant numbers of patients receive digitalis who have no diagnosis of heart disease.
  - Large numbers of patients taking heart medication or drugs which might dangerously lower the blood pressure, do not receive blood pressure readings even once a year.
  - Some 20 to 50 percent of the medication in U.S. nursing homes are given in error.
  - Less than 1 percent of all infectious diseases in the United States are reported—a special problem in nursing homes where patients have advanced age and lessened resistance. This fact was graphically proven in 1970 when 36 patients died in a Salmonella epidemic in a Baltimore, Md., nursing home.
  - Physicians do not view the bodies of patients who have died in nursing homes before signing death certificates.
- 

The need for physicians to exercise greater responsibility for the 1 million patients in U.S. nursing homes is abundantly clear from these and other facts. Until doctors take a greater interest the litany of nursing home abuses will continue, the majority of America's nursing homes will be substandard, and the quality of patient care will be unacceptable.

---

## MAJOR POINTS OF SUPPORTING PAPER NO. 4

(Issued April 24, 1975)

### “NURSES IN NURSING HOMES: THE HEAVY BURDEN (THE RELIANCE ON UNTRAINED AND UNLICENSED PERSONNEL)”

There are few nurses in the Nation's 23,000 nursing homes. Of the 815,000 employed registered nurses (RN's) in the Nation, only 65,235 can be found in U.S. long-term care facilities.

There are many reasons why this is true:

- There is a general nurse shortage. The U.S. Department of Labor estimates the need for 150,000 more RN's. Others claim it



is simply a matter of maldistribution or that the 400,000 RN's presently out of the work force could be induced into service—given better wages and working conditions. Still others assert that if there is a shortage it is because nurses are required to spend their time with administrative duties and paperwork rather than with patients.

● Few nurses are required by law. At present the Federal standard requires only the 7,300 Skilled Nursing Facilities in the United States to have an RN as their highest nursing officer—and this only applies to the day shift. The 8,200 Intermediate Care Facilities are required to have only a licensed practical nurse in charge—again only during the day shift. The remaining 7,500 facilities need have no “licensed” nursing officer at all. To make matters worse, there are no requirements for ratios between nurses and patients in Federal regulations. By contrast the State of Connecticut requires one RN for every 30 patients on the day shift, one for every 45 on the afternoon and one for every 60 in the evening.

● Poor working conditions. RN's working in nursing homes do not have the support of physicians and trained personnel that they find in hospitals. Many nursing homes are poorly administered and there is a lack of authority vested in the nursing service department. A very real problem is the fact that nursing homes are isolated from other health care facilities.

● Nursing homes have a poor image. “Hospitals have their pick while nursing homes take what they can get,” is a common statement among nursing home employees. An RN who goes to work in a nursing home will often be asked, “Why are you here? Where did you foul up?”

● Wages and fringe benefits are low. The consensus is that nursing homes do less well in compensating nurses than other health care entities. Many nursing homes also lag behind in fringe benefits, stimulating nursing personnel to seek work elsewhere.

● Nurses have little training in geriatrics and the needs of nursing home patients and are therefore unprepared to work in long-term care facilities. Of the over 1,000 schools of nursing surveyed by the Subcommittee, only 27 responded that they had a program wherein geriatrics was treated as a specialty.

● There are no graduate programs in geriatric or gerontology nursing. Federal Government programs likewise neglect geriatrics. In 1970 there were 144 programs for the training of nurses and health care personnel administered by 13 agencies. None of these programs emphasized geriatrics.

● It goes without saying that the few nurses working in nursing homes are grossly overworked. Because they are overworked or simply not present in significant number, the result is the reliance on aides and orderlies to provide 80 to 90 percent of the care in nursing homes.

● Only one-half of the 280,000 aides and orderlies are high school graduates. Most have no training. Most have no previous experience. They are grossly overworked and paid the minimum wage. It is little wonder that they show a turnover rate of 75 percent a year. Put simply, the absence of RN's and the reliance

on untrained aides and orderlies result in poor care. Poor care runs the gamut from essential tests not being performed to negligence leading to death and injury.

- In Illinois, an investigator sought employment as a nursing home janitor. Within 20 minutes he was hired, not as a janitor, but as a nurse; he carried the keys to the medication and narcotics cabinet on his belt and distributed drugs to patients. His references were never checked. He never represented that he had any prior experience.

- In Minnesota, aides were instructed how to distribute drugs "in case of an emergency." The "emergency" began the next day; aides continued distributing drugs even though this constituted a violation of Federal regulations and Minnesota law.

- A recent national HEW study notes that some 37 percent of the patients taking cardiovascular drugs had not had a blood pressure reading for more than a year. More than 25 percent of this number who were receiving heart medication had no diagnosis of heart disease on their charts. Some 35 percent of those taking tranquilizers which might lower the blood pressure markedly had not had a pressure reading in more than a year.

---

The solution for these problems lies in greater emphasis on geriatrics in schools of nursing and in government programs training health care personnel. Funds should also be provided for the in-service training of nursing home personnel.

---

This paper also contains a major report analyzing the role of nurses in long-term care facilities prepared by the Committee on Skilled Nursing of the American Nurses' Association. See highlights, part 2, pages 385-417.

---

### **MAJOR POINTS OF FORTHCOMING SUPPORTING PAPERS**

#### **Supporting Paper No. 6**

#### **"WHAT CAN BE DONE IN NURSING HOMES: POSITIVE ASPECTS IN LONG-TERM CARE"**

It is unjust to condemn the entire nursing home industry. There are many fine nursing homes in America. A growing number of administrators are insisting upon positive approaches to therapy and rehabilitation, innovations in physical structure of the physical plant; employee sensitivity training and cooperative agreements with local schools of nursing; and even self-government and other activities for the patients.

“Ombudsman” programs have been established by Presidential direction and are making some headway. In some States, the nursing home industry has launched an effort to upgrade its facilities by establishing directories, rating systems, and a “peer review” mechanism. These efforts offer the prospect of improving nursing home conditions if conducted in a vigorous and effective manner. In Chicago, nursing homes have a “cool line” telephone number for relatives, visitors, or patients who have complaints.

---

#### Supporting Paper No. 7

### “THE ROLE OF NURSING HOMES IN CARING FOR DISCHARGED MENTAL PATIENTS”

Thousands of elderly patients have been transferred from State mental institutions to nursing homes. The number of aged in State mental hospitals decreased 40 percent between 1969 and 1973 according to Subcommittee data, dropping from 133,264 to 81,912. This trend is caused partially by progressive thinking intended to reduce patient populations in large impersonal institutions. Another powerful reason, however, may be cost and the desire to substitute Federal for State dollars. It costs the States an average of \$800 per patient per month to care for mental patients in State hospitals while these same individuals can be placed in boarding homes at a substantially reduced cost. Charges of “wholesale dumping” of patients have been made in several States. Acute problems have been reported, most notably in California, Illinois, and New York.

---

#### Supporting Paper No. 8

### “ACCESS TO NURSING HOMES BY U.S. MINORITIES”

Only 4 percent of the 1 million nursing home patients in the United States are members of minority groups, even though their health needs are proportionately greater. Part of the problem is caused by cost obstacles or lack of information about Medicaid. Discrimination is the greatest obstacle to greater utilization by blacks. But discrimination need not be overt; often relatives are made to feel that their parent or grandparent would not be made comfortable. In the case of Asian-Americans and Spanish-speaking Americans, language barriers often cause insurmountable difficulties. Cultural and other problems, including rural isolation, cause problems to American Indians.

Members of minority groups at Subcommittee hearings have been sharply critical of the Nixon administration’s nursing home “reforms.” They protested the “arbitrary and punitive” closing of a few minority owned nursing homes that do exist and the absence of assistance to help upgrade standards.

## Supporting Paper No. 9

**“PROFITS AND THE NURSING HOME: INCENTIVES IN FAVOR OF POOR CARE”**

Profits by nursing homes have occasioned serious and persistent controversy. Nursing home administrators say that Medicaid reimbursement rates are low and that they can hardly become the basis for profiteering. Critics say that the economics of nursing home operation, supported in such large measure by public funds, should be examined more closely and publicly than they now are.

On the basis of available evidence, including a Subcommittee survey made in 1973-74, the Subcommittee has found that the 106 publicly held corporations controlled 18 percent of the industry's beds and accounted for one-third of the industry's \$3.2 billion in revenue (as of 1972). Between 1969 and 1972 these corporations experienced the following growth:

- 122.6 percent in total assets;
- 149.5 percent in gross revenues; and
- 116 percent in average net income.

One recent HEW study, however, shows marginal rates of return in a sample of 228 nursing homes. Thus, the issue is far from settled. But a joint study—conducted by the General Accounting Office and the Subcommittee—suggest significant increases in total assets, revenues, and profits for individual operators as well.

---

*Two final documents will be issued as part of this study: A compendium of statements by national organizations and administration spokesmen, and a final report by the Subcommittee on Long-Term Care.*

NURSING HOME CARE IN THE UNITED STATES:  
FAILURE IN PUBLIC POLICY  
SUPPORTING PAPER NO. 5

---

THE CONTINUING CHRONICLE OF NURSING HOME  
FIRES

---

—Ordered to be printed

---

Mr. Moss, from the Special Committee on Aging,  
submitted the following

REPORT  
INTRODUCTION

Few issues have stirred so much legislative and regulatory concern as fatal fires in nursing homes.

On the Federal level, multideath tragedies of this kind have instigated investigations, hearings, and legislation intended to spur corrective action.

And—in 1967, 1971, and 1972—significant action was taken by Congress to raise safety standards to new and more satisfactory levels.

**But this Supporting Paper must report that serious gaps still exist in overall protection. In fact, because of a trend toward placement of long-term care patients in boarding homes or similar establishments, many patients who once had protection may now be without it. In addition, exceptions to current requirements are so numerous as to cause constant concern about the prospect of new tragedies.**

Briefly, the current regulatory situation is this:

—Of the Nation's 23,000 long-term care facilities, the 7,300 classified as "skilled" must comply—under Medicare and Medicaid—with what is known as the Life Safety Code. (This is a set of standards devised by the National Fire Protection Association, or NFPA, to assure protection of persons; it differs from other standards which are concerned primarily with protection of property.)

- Adoption of the Life Safety Code, after years of effort, was welcome, but the code is susceptible to varying interpretations among the States. Numerous waivers have been granted which seriously diminish the protection the code usually offers. (See part 4-C, page 597, for details.)
- In addition to the 7,300 skilled facilities, there are 8,500 Intermediate Care Facilities (ICF's) which participate in Medicaid only. But full compliance with the code for these facilities is not required until January 1977. In addition, three major exceptions have been granted. (See part 4 for details.)
- Approximately 7,200 facilities participate in neither Medicare nor Medicaid: personal care homes, boarding homes, and "bootleg" nursing homes, which care for patients but which do not meet Federal Medicare-Medicaid standards. State licensure of such facilities is sparse, anything but uniform and comprehensive.

**It is to such lesser facilities that patients from State mental hospitals are often discharged.**

**And it is in such facilities that Federal dollars—authorized under the Supplementary Security Income Program which took effect in January 1974—are often used to pay monthly charges.**

Regulatory actions to date have dealt with such matters as the type of construction, alarm and detection systems, and fire evacuation procedures. Comparatively little attention has been given to the fire characteristics of flammable furnishings such as curtains, rugs, wallpaper, furniture, and clothes, which fill nursing homes.

Similarly, even at this late date, little is known about what happens in the course of a major nursing home fire. Still less is known about the gases released during a fire and their effect on human beings. While most nursing home fire victims die from smoke inhalation, Federal and State standards largely ignore the smoke production factor of materials used in the construction of nursing homes. (See part 4 for more details.)

This paper will document: (1) Inadequacies of present methods used to determine combustibility; (2) inadequacies related to enforcement of flammability safety legislation; and (3) inadequacies in present knowledge about the effects on human beings of gases emitted by the burning of a wide variety of materials, especially man-made plastic substances.

## PART 1

### NURSING HOME FIRES: DIMENSIONS AND RECENT EXAMPLES

"It is a blemish on the American conscience that those who contributed to our prosperity are allowed to live their retiring years where even minimal fire safeguards are absent."

—Report of the National Commission on Fire Prevention and Control, May 1973.

In 1971 there were 4,800 nursing home fires; 31 people died in multiple-death fires (those killing 3 or more persons); and an estimated \$3.5 million loss was directly attributable to nursing home fires. Comparable figures for 1973 reveal an estimated total of 6,400 fires causing \$3.6 million in damage and claiming the lives of 51 elderly in multiple-death fires.<sup>1</sup> In addition, it is estimated that 500 people a year lose their lives in single-death institutional fires.<sup>2</sup>

The fire safety record of nursing homes and related facilities is truly alarming; *it has occupied more of the Subcommittee's time than any other single issue in the field.*

As far back as 1964, the Subcommittee heard convincing testimony clearly illustrating the relative dangers from fire encountered by those living in nursing homes. Mr. Richard Stevens, now assistant vice president for standards of the National Fire Protection Association (NFPA), told the Subcommittee that 228 persons died in 41 multiple-death nursing home fires during the period 1953 through 1963. He said:

When one compares this fatal fire record with the record of fatal fires in other types of property, it becomes clear that nursing homes are extremely unsafe places to live.<sup>3</sup>

In a 1964 speech before the American Nursing Home Association, Mr. Rexford Wilson, field representative for the NFPA, echoed these same concerns over comparative dangers. He reported:

. . . six patients die in nursing home fires for every one in a hospital fire: nursing homes are by far the most serious killers of institutional occupants.<sup>4</sup>

These facts—together with the Subcommittee's investigation of the Fitchville, Ohio, and Fountaintown, Ind., fires—led directly to the

<sup>1</sup> Letter to Senator Frank E. Moss, Nov. 21, 1974; from A. Elwood Willey, assistant director of engineering services of the National Fire Protection Association. See appendix 1, p. 533.

<sup>2</sup> J. Armand Burgun, *NFPA Journal*, November 1971, p. 31. See also *America Burning*, the report of the National Commission on Fire Prevention and Control, U.S. Government Printing Office, March 1972, p. 128.

<sup>3</sup> "Nursing Homes and Related Long-Term Care Services," hearings before the Senate Subcommittee on Long-Term Care, Part 1: 88th Cong., 2d sess., p. 38.

<sup>4</sup> "Conditions and Problems in the Nation's Nursing Homes," hearings before the Subcommittee on Long-Term Care, part 1, Indianapolis, Ind., Feb. 11, 1965, p. 85.

enactment of legislation, introduced by Senator Frank E. Moss, chairman of this Subcommittee, to require minimum Federal fire safety standards for nursing homes participating in the Medicaid program.<sup>5</sup> This 1967 Moss amendment to the Social Security Act requires Medicaid facilities to comply with the Life Safety Code (21st edition) as promulgated by the National Fire Protection Association.

In spite of this attempt to give every State uniform and reasonable standards for fire safety, the chronicle of serious nursing home fires continued unabated, for two major reasons: (1) Code provisions were not enforced by the States and HEW, and (2) several types of long-term care facilities (boarding homes, personal care homes, shelter care homes, and Medicare facilities) are excluded from coverage.

The Subcommittee's efforts in this area since 1967 have been directed toward extending the coverage of the Life Safety Code to previously excluded institutions, and urging more vigorous enforcement. The application of the Life Safety Code will be examined in more detail in part 4 of this Supporting Paper.

Five years after the Life Safety Code had become a Federal requirement, Senator Moss was forced to conclude: "Nursing homes still rank number one on the list of unsafe places to live."<sup>6</sup>

**The following brief descriptions of major fires in nursing homes and related facilities are offered to acquaint the reader with specific examples of what has happened. In later discussion of issues in this Supporting Paper, reference will be made to these specific fires. This data is derived from NFPA reports and/or Subcommittee investigations. Examples of early fires are included to make important points and to show the evolution of fire prevention techniques.**

### 1. LARGO, FLA.—MARCH 29, 1953

Converted from a one-story roadside fruit store, Littlefield's Nursing Home was the scene of the death of 33 of 45 residents. The fire started at 3:15 a.m. in this rural, wood-frame structure with no fire protection system other than three fire extinguishers. The cause of the fire was undetermined. Adding to the death toll was the fact that not one attendant was on duty and the fire department did not reach the home for more than 30 minutes after the fire began.

### 2. WARRENTON, MO.—FEBRUARY 17, 1957

Seventy-one out of 149 nursing home residents perished in the Katie Jane Nursing Home from a fire believed to have been caused by faulty wiring. The home was a 12-story, 65-year-old, former college building constructed of brick exterior on wood joists. It had open stairways, no fire escapes, and fire protection equipment consisting merely of several fire extinguishers. The fire started at 2:30 p.m., and the fire department arrived 20 minutes later.

### 3. FITCHVILLE, OHIO—NOVEMBER 23, 1963

Eight months after an inspection and approval by the State fire marshal, the Golden Age Nursing Home fire claimed the lives of 63

<sup>5</sup> Public Law 90-248, section 234.

<sup>6</sup> Press release May 5, 1972.



of 84 residents. Originally a toy factory, this building was converted into a nursing home in 1953, and was constructed of concrete block walls with wood joists and aluminum siding. Again, improper wiring was listed as the cause of fire. At the time of the fire, 5 a.m., three employees were on duty. The only fire protection equipment available consisted of three portable fire extinguishers. The fire department arrived on the scene at 5:10 a.m.

#### 4. FOUNTAINTOWN, IND.—DECEMBER 18, 1964

An overheated oil furnace was the apparent cause of a fire resulting in the death of 20 of the 34 residents in the Maples Convalescent Home. When the fire began at 2:30 a.m., three employees were in the building—one on duty and two were asleep. This 60-year-old, wood-frame residence, with a concrete block addition, had passed a State fire inspection 6 months earlier.

#### 5. MARIETTA, OHIO—JANUARY 9, 1970

The Harmer House Convalescent Home was an unlikely site for a tragic nursing home fire. This relatively brandnew (built in 1966), non-combustible structure boasted the most advanced technology, design, and building materials. The latter included solid-core doors, brick veneer and gypsum-board walls, roof of plywood on steel stresses, concrete floor covered with noncombustible tile and/or nylon carpet with sponge-rubber backing. This home also had rate-of-rise and fixed temperature heat detectors connected to an internal alarm system with manual pull stops. There were no sprinklers or smoke detectors, and the alarm system was not tied in to the fire department. Thirty-two of the 46 residents died of smoke inhalation in spite of these precautions, even though there were four regular employees and two private-duty nurses in the home when the fire broke out at 9:57 p.m. The probable cause of the fire was a cigarette thrown into a trash-filled plastic wastebasket, which, in turn, ignited the sponge-rubber carpet backing, causing considerable smoke throughout the building. The fire department's relatively late arrival (at 10:15) was due in part to the fact that the employees tried to fight the fire and evacuate residents before calling for assistance.

#### 6. BUECHEL, KY.—JANUARY 14, 1971

Westminster Terrace Presbyterian Home for Senior Citizens was a modern, four-story, fire-resistive building. It was made of 8-inch concrete block with a 4-inch brick veneer, and equipped with rate-of-rise and fixed-temperature heat detection devices and automatic smoke-stop partitions. Sprinklers were installed in laundry and rubbish areas; there was a manual alarm but no direct tie to the fire department. Two nurses were on duty at 2:23 p.m. when the fire began, and the fire department responded in less than 3 minutes. Some 13 fire-trucks and 150 firefighters responded to the blaze, as did 46 emergency vehicles. In spite of these efforts, 10 of the 94 residents perished. The cause of the fire is not known but experts have labeled the fire "suspicious"—indicating that arson is suspected. This fire demonstrates

the folly of constructing fireproof buildings and filling them full of flammable furnishings and combustible interior finishes.

#### 7. SALT LAKE CITY, UTAH—SEPTEMBER 15, 1971

The Lil-Haven Nursing Home was a two-story, wood-frame converted residence with a brick veneer. The interior boasted vinyl tile and nylon carpet. It was equipped with manual pull-boxes, fire alarm bells, as well as rate-of-rise and fixed-temperature heat detectors which were tied directly to the fire department. The heat detector reported the fire at the local fire station at 12:41 a.m. The fire chief and a company of firefighters were on their way back from another alarm at that time. In fact, they were only about a mile away. The fire chief arrived at the scene at 12:42 and the firetruck at 12:43. Despite this rapid response, 6 of the 19 patients died. The fire was started by a 92-year-old patient who poured flammable liquid on the floor and ignited it with a match. An open stairwell contributed to the spreading of the fire from the first to the second floor. One attendant was on duty in the staff sleeping room at the time of the fire. This fire demonstrated that fire detectors, in and of themselves (even if tied to the fire department), are ineffective and inadequate fire protection. As a result of the fire, Utah's Governor Calvin Rampton issued a directive requiring all of Utah's long-term care facilities to have automatic sprinkler systems.

#### 8. TEXAS TOWNSHIP, PA. (NEAR HONESDALE)— OCTOBER 19, 1971

The Gieger Nursing Home was a two-story, wood-frame farmhouse converted into use as a long-term care facility. Two single-story flat roof additions were added to the original structure, the first in 1959 and the second in 1965. The former being 1/2-inch gypsum board on wood studs with wood sheathing and asbestos shingles. The latter consisted of 1/4-inch plywood paneling on 2 by 4 studs in the interior, with 1/2-inch insulation board, aluminum foil and pressed-wood siding completing the exterior. It had no sprinkler, no fire detection system, and no evacuation plans. The fire began about 8:10 p.m. The response of the fire department was rapid but there was delay in reporting the fire. The one LPN on duty said she had tried unsuccessfully to reach the fire department. The cause of the fire was initially laid to a defective clothes dryer, but 4 years after the fire, the Wayne County coroner's jury ruled that the fire had been "deliberately set by a person or persons unknown." The coroner ruled that the death of all 15 patients was a result of fire and that the manner of death was homicide. Firemen reported having difficulty evacuating patients because all patients were given sedatives before bedtime. Moreover, some patients were in restraints.

#### 9. LINCOLN HEIGHTS, OHIO—JANUARY 26, 1972

All 10 patients in the Green Nursing Home died in a fire which began at 2:40 a.m. on January 26, 1972. Only one LPN was on duty at the time. Upon the discovery of the fire, the attendant called the care-

taker, who went to fight the fire and instructed the attendant to call the fire department. No such call was recorded by the fire department. A passing police car called in the message. The delay in reporting the fire was blamed for the high death toll. The cause of the fire was a mechanical failure or malfunction in the home's heating system. The converted wood-frame residence had no fire detection system or other precautions, except portable fire extinguishers.

#### 10. ROSECRANS, WIS.—APRIL 4, 1972

Constructed in 1893 as a two-story farmhouse with basement and attic, the Fair Hills Boarding Home was made of brick with wood joists. It had been converted to a 29-bed nursing home but was dropped to the class of boarding home by the State of Wisconsin in 1967 because the facility could not comply with new Federal fire safety requirements. There were no automatic detection or alarm systems. The manual alarm system was not connected to the local fire department. The only other protection were fire extinguishers. The fire is thought to have begun at 11:15 p.m. in an upholstered chair where one of the residents is believed to have been smoking. One person was required to be on duty from 10 a.m. to 5 p.m. each day. However, from 5 p.m. until 10 a.m., a 70-year-old male resident was in charge. The fire department did not receive the alarm until 11:35 p.m. Ten of twelve residents died. The State of Wisconsin established that three of the patients were physically ill and should have been transferred to nursing homes.

#### 11. SPRINGFIELD, ILL.—MAY 5, 1972

The Carver Nursing Home had been charged with poor care in 1971 hearings conducted by the Subcommittee on Long-Term Care in Chicago, Ill. These hearings, to some degree, sought to highlight the problem presented by placing discharged mental patients into nursing homes. Ironically, just a year later 10 of the 41 patients in this facility died. Most of the residents were discharged mental patients. The building was a 70-year-old, 11-room house that had functioned as a nursing home since 1951. It was a two-story, wood-frame structure. In 1953, a block-concrete addition was added and a second story added to that in 1957. The facility was equipped with heat detectors which were tied to the local fire department. Two nurses' aides were on duty when the fire broke out at 5:35 a.m. and the response of the fire department was prompt. The cause is unknown, but the fire is labeled "suspicious." The home had been given a provisional license by the State of Illinois to meet the requirements of the Life Safety Code by January 1975 or downgrade and become a shelter-care facility.

#### 12. KEARNEY, NEBR.—NOVEMBER 27, 1972

The State fire marshal ordered the Sexton Nursing Home to close its doors in March of 1972. The facility appealed, but the State health department denied rehearing, ordering all patients out of the facility by May 7, 1972. The case was referred to the county attorney and the State attorney general for enforcement. A few months later, 4 of the 18 patients died from fire in this converted single-story, wood-frame build-

ing. The facility had an automatic detection system consisting of heat detectors connected to the local fire department; one person was on duty. The cause was a cigarette which ignited a bundle of wearing apparel. It was accidentally dropped or thrown by someone in the facility. The fire began at 4 a.m. and the fire department's response was quick—the fire station was only five blocks away.

### 13. MADISON, WIS.—JANUARY 8, 1973

Three of the 75 residents in this comparatively new 10-story (10-year-old) fire-resistive apartment house with residential care facilities died in the fire. The cause of the fire was smoking in bed. In fact, 3 months previously the same occupant had been blamed for a mattress fire which caused \$100 damage. The building was equipped with fire extinguishers, a manual alarm system, a public address system, posted evacuation plans, and sprinklers in stairways of the 1st-, 2d-, and 10th-story levels. A switchboard operator alerted a new part-time employee that one of the residents had complained of fire. The student went to investigate; consequently, there was delay in reporting. The fire department did not reach this fire, which began at 9:58, until 10:15 p.m.

### 14. CHARLESTON, W. VA.—JANUARY 14, 1973

Six patients died in the Tuscawilla Nursing Home.

### 15. ADDISON, N.Y.—JANUARY 15, 1973

A two-story, wood-frame building used as a boarding home had no sprinklers, but it did have heat and smoke detectors and a local alarm system. The fire began at 1:55 a.m.; three of seven patients died. The cause of the fire is unknown.

### 16. PLEASANTVILLE, N.J.—JANUARY 29, 1973

Ten of sixteen residents in Steel's Rest Home died. The home was a two-story, wood-frame building converted for use as a long-term care facility. Four additions were principally wood frame, with  $\frac{1}{8}$ -inch plywood paneling and bare wood floors. It had a manual alarm system and a heat and smoke detection system tied to the local fire department, but it apparently did not operate. The fire was reported at 12:42 a.m. by a passing policeman. The nearest hydrant was 3,200 feet away. Although the fire department arrived quickly, it had only 1,100 gallons of water available. One woman attendant was on duty and another employee was asleep on a couch. Someone started the fire by igniting some bedding with a match in the basement of the home.

### 17. NEW HAVEN, KY.—APRIL 21, 1973

This building was a one-story, wood-frame motel converted for use as a boarding home. Because it was a boarding home (it offered no nursing care), it was restricted by State law from housing nonambulatory patients. When the fire occurred at 5 a.m., starting somewhere in the kitchen, 22 of the 25 patients escaped. The three who died were

nonambulatory patients. Most of the patients were mentally handicapped. The home was equipped with a heat detection system which was not tied to the fire department and did not operate during the fire. The system was checked by a serviceman 5 days before the fire. After the fire, the standby batteries for the system were found disconnected. One attendant was on duty at the time of the fire.

#### 18. PHILADELPHIA, PA.—SEPTEMBER 13, 1973

The fire in the Washington Hill Nursing Home began at 4:50 a.m. The fire department responded within 3 minutes and three nurses' aides were on duty, but still 11 of the 51 patients died. The three-story facility was of masonry construction with wood joists and was built near 1900. It had wood paneling and vinyl tile on the inside. It was equipped with manual and automatic alarm systems, the latter being tied to the fire station. Two months prior to the fire, the facility was cited for lack of a sprinkler system and was given until September 1 to get one—or close its doors. The home's operator said the \$20,000 cost was prohibitive.

#### 19. WAYNE, PA.—DECEMBER 4, 1973

On July 12 an inspection by the Pennsylvania Department of Labor and Industry revealed 13 violations of the Life Safety Code in the Caley Nursing and Rehabilitation Center, which was given 6 months to comply. The fire began at 8:57 a.m. in a clothes closet; 15 people died. The fire department responded within 4 minutes. Several employees were on duty including a physician who pulled the manual alarm to report the fire. The facility was also equipped with heat detectors. The building was a three-story-and-attic converted mansion of cut stone with wood-frame interior walls and was used as a nursing home since 1951. An addition was added in 1966, largely of noncombustible material such as concrete floors and steel-deck roofs. The critical defect was the lack of sprinklers.

#### 20. BROOKHAVEN, MISS.—AUGUST 16, 1974

Moore's Rest Home was a one-story, wood-frame structure built near 1900 with two additions added later. It had fixed-temperature heat detectors and a local alarm system. There was no direct connection with the fire department. The fire began at 2 a.m. in a supply closet. The fire is labeled "suspicious." One nurses' aide was on duty who was credited with saving 9 of the 15 lives. Six patients died. The aide reported that the six would not go with her to safety.

#### 21. ST. JOSEPH, MO.—SEPTEMBER 9, 1974

Seven died in this boarding home, a one-story, wood-frame ranch-house, with combustible wall and floor covering throughout. No sprinkler, detection, or alarm systems were installed. The fire was ignited by an individual who confessed to starting four other fires. The fire began at midnight and burned over one-half hour before it was discovered.

## A SUMMARY OF PAST FIRE EXPERIENCE

Over the years, 33 percent of multideath nursing home fires were caused by smoking or matches; heating or electrical problems followed next with 18 and 15 percent, respectively. Eight percent were labeled "suspicious"—a suggestion that arson was suspected or assigned cause. Fires most frequently begin in patient's rooms (35 percent) and most often took place from midnight to 6 a.m. (42 percent). Some 35 percent of all nursing home fires occurred in wood-frame buildings; only 3 percent happened in fire-resistive buildings.<sup>7</sup>

---

<sup>7</sup> *Fire Protection Handbook*, 13th edition, 1969 National Fire Protection Association, pp. 1-53.

## PART 2

### NURSING HOME PATIENTS: A SPECIAL PROBLEM

Statistics compiled by the National Fire Protection Association and presented to the Senate Special Committee on Aging demonstrated conclusively that the elderly present a special fire safety problem. Older Americans constitute 10 percent of the U.S. population but 30 percent of the Nation's deaths by fire.<sup>8</sup> The vulnerability of the aged is also apparent in statistics relating to flammable fabrics, as compiled both in the United States and in the United Kingdom. Some 59 percent of the fires relating to clothing ignition involved individuals age 65 and over. There is a mortality rate of 73 percent for the elderly in such fires, as compared with a 23 percent mortality rate for younger people in clothing fires.<sup>9</sup>

While the elderly themselves present a special fire safety problem, older Americans in nursing homes present an even greater problem. The President's Commission on Fire Safety and Control recognized this need in their 1973 report:

Among fires' victims, one large group stands out as a special and growing concern: the occupants of nursing homes and homes for the elderly.<sup>10</sup>

#### A. THE PATIENT: LARGEST OBSTACLE TO FIRE SAFETY

Mr. Richard Stevens, managing engineer of the National Fire Protection Association, provided the Subcommittee on Long-Term Care with the following insights into this problem:

Fire experience has shown that the primary problem in providing a reasonable degree of life safety from fire in this type of occupancy is the patient himself.

The facts show that the patient is generally incapable of any act of self-preservation in an emergency situation due either to his own mental or physical infirmities or to conditions which are forced upon him. He will frequently observe the starting and progression of a fire without taking any action of self-preservation or of sounding an alarm to alert

---

<sup>8</sup> "Flammable Fabrics and Other Hazards Affecting Older Americans," hearings by the Senate Committee on Aging, p. 31.

<sup>9</sup> Page 2, references cited in footnote 8. In 1954, which was the peak year for the poliomyelitis epidemic, the Nation was shocked by the fact that about 18,000 individuals were paralyzed by the disease and 589 had died. A national epidemic was proclaimed which led to an all-out attack on the disease and the development of the Salk vaccine. In 1970, there were 50,000 individuals crippled because of fire, and 8,000 deaths; and yet, curiously, there is no sense of urgency in the Nation to end this visible epidemic even despite an estimated \$2.5 billion loss annually.

<sup>10</sup> *America Burning*, see footnote 2, p. 127.

others. The patient often will not follow verbal instructions to evacuate the building and, if forced to leave, will often struggle with those who attempt to move in. Furthermore, once evacuated, a patient is very apt to reenter the building if not restrained. This means that evacuation of these places—the usual course to follow in a fire emergency in a building—becomes practically an impossibility with the limited staff available.

In further support of this statement, I ask you to consider also the fact that elderly people are extremely susceptible to fire effects and that in this type of occupancy the patients are frequently under sedation, especially at night. In addition, many patients are strapped in their beds or otherwise restrained at night, as was the case in the Marietta, Ohio, fire.

Since many of the patients do not possess the mental and physical abilities that they once enjoyed, they are apt to be the originators of fires either through acts of carelessness, overt acts, or physical inability to deal with a situation.

It is my opinion, therefore, that the patient is the primary reason that these places are unique amongst all occupancies when considering the problem of life safety from fire.<sup>11</sup>

Patients themselves are the largest obstacle to nursing home fire safety because of:

**Advanced age.**—The average age of nursing home patients is 82; 95 percent are over 65; and 70 percent are over 70.<sup>12</sup>

**Failing health.**—Nursing home patients average four or more chronic and crippling disabilities. Cardiovascular disease ranks first, experienced by 65 percent of all patients.<sup>13</sup>

**Mental disabilities.**—A majority of nursing home patients are mentally impaired. Conservative Public Health Service estimates place the number at 55 percent. Other studies contend that as high as 80 percent of all nursing home patients suffer some form of mental disability.<sup>14</sup>

**Reduced mobility.**—Less than half of all nursing home patients can walk without assistance. Those who can walk may do so with difficulty. Some studies suggest that as many as 35 percent of the ambulant population over age 65 have trouble climbing stairs and performing more complex movements (such as climbing through windows). Still other factors should be emphasized. The elderly tend to lift their feet only half the distance of younger persons, dictating care in changes of level, thresholds, and so on. Decreased psychomotor functions coupled with loss of strength diminishes their sense of balance, making negotiation of stairs and the assumption of awkward positions difficult.<sup>15</sup>

**Sensory impairment.**—Age often brings with it an impairment of one or several senses, all of which are essential to detection of fire and

<sup>11</sup> "Trends in Long-Term Care." hearings by the Subcommittee on Long-Term Care, part 4, Washington, D.C., Feb. 9, 1970, p. 428.

<sup>12</sup> *Nursing Home Care in the United States: Failure in Public Policy*, Introductory report, Subcommittee on Long-Term Care, p. 16.

<sup>13</sup> Page 17, reference cited in footnote 12.

<sup>14</sup> Page 17, reference cited in footnote 12.

<sup>15</sup> Page 17, reference cited in footnote 12.



to taking action for life preservation. Sensory impairments may lead to disorientation, a particularly significant problem in time of fire.

② **Hearing problems.**—A study of persons in nursing homes by the Public Health Service found that 10 percent of all persons in the 65–74 age bracket and 26 percent of those over 85 suffer serious impairments of hearing. Other studies indicate that by age 80, two-thirds of all persons have “significant” hearing problems. These impairments are particularly important during fires. A person with poor hearing may not hear the alarm, shouted directions, or the fire itself.<sup>16</sup>

③ **Vision.**—Large numbers of nursing home patients suffer from poor eyesight. In one study of 3,805 patients, 18 percent were legally blind and 16 percent more were in the low-vision category.<sup>17</sup> Even in those who are not blind the speed in the accommodation to bright light often begins to decrease, caused by eye muscles which begin to atrophy. This means the elderly are more susceptible to the danger of “blinding” by fire and flame.<sup>18</sup>

④ **Sense of smell.**—A person’s sense of smell usually undergoes a general and progressive decline with age. The reduced sensitivity of olfactory nerves lessens the change of the detection of fire and its products by the elderly.<sup>19</sup>

**Reduced tolerance to fire.**—Statistics cited earlier stress that the elderly are much more likely to die from clothing which is ignited than are younger people. Generally speaking, tolerance to fire decreases directly with age, as detailed below.

⑤ **Heat.**—The heat produced by a fire can be dangerous in two ways. First it can inflict burns. One authority reports that second-degree burns can occur in 20 seconds at 130 degrees Fahrenheit and first-degree burns at 160 degrees in 1 second. Second, heat can damage the respiratory tract through inhalation. Both the length of exposure and the moistness of the air are factors. A range of 155- to 160-degree exposure for a few minutes will probably do “irreversible damage.” As temperatures lower and the air becomes more moist, the range may drop as low as 130 degrees (or lower with increasing moisture) for the elderly.<sup>20</sup>

⑥ **Smoke.**—Many studies have indicated that smoke makes conditions intolerable before unbearable temperatures are reached. While inhalation of smoke is dangerous, its effects on vision and visibility may be more crippling as the occupant tries to escape. When visibility is cut to 4 feet or less, most escape routes become useless.<sup>21</sup>

⑦ **Gases.**—Along with smoke, gases are “killers” among fire products. Gases present a double danger to the patient: in low concentrations they are irritating, causing gasping (and the inhalation of more gases) and blinding. In higher concentrations, they are fatal poisons. The most common cause of death is carbon monoxide gas which is the product of incomplete combustion. It has no odor or color; a concentration of 1.28 percent can cause death in 3 minutes. Carbon dioxide

<sup>16</sup> *Life Safety From Fire: A Guide for Housing the Elderly*, U.S. Department of Housing and Urban Development, Federal Housing Administration, Washington, D.C., p. 24.

<sup>17</sup> “Joint Study of Vision Problems of South Dakota Nursing Home Residents,” a joint effort by the Lion’s Sight and Service Foundation, the South Dakota Optometric Association, the South Dakota Association for the Blind, the Governor’s Advisory Council on Aging, and the South Dakota Service to the Visually Impaired, Feb. 12, 1973.

<sup>18</sup> Page 24, reference cited in footnote 16.

<sup>19</sup> Page 25, reference cited in footnote 16.

<sup>20</sup> Page 25, reference cited in footnote 16.

<sup>21</sup> Page 25, reference cited in footnote 16.

is less dangerous, but its presence in abnormal concentrations increases the rate of breathing, as do other gases that are inhaled (a 3-percent concentration increases the breathing rate 100 percent). A 10-percent concentration can cause death in a few minutes. Oxygen depletion, also common, produces fatigue, faulty judgment, collapse, and death unless vital oxygen is made available to the patient. Other generated gases include hydrogen sulfide, sulphur dioxide, and hydrogen cyanide. All of these are lethal, even in small amounts.<sup>22</sup>

**Greater susceptibility to shock.**—Shock is the unpredictable and often inexplicable physiological reaction to disaster or emergency. It may be brought on by any of the gases described above, but may be caused by the sight of, or the psychological reaction to, the presence of fire. It may be related to heart failure, an ever-present threat for many elderly persons in nursing homes.<sup>23</sup>

## B. RELATED PROBLEMS

Dangers from nursing home fires are not solely caused by inherent mental and physical characteristics in the patients themselves. The general atmosphere of nursing homes—and especially of those that are substandard—contribute other factors. By simple definition, the admission to a nursing home implies the need to depend upon others for protection and care. By logical extension—in extreme cases—this protection may require the use of restraints or the tranquilization of certain patients.

### INADEQUATELY TRAINED PERSONNEL

Supporting Paper No. 4 in this series points out that 80 to 90 percent of the care provided in today's nursing homes is provided by aides and orderlies, most of whom have no training or prior experience. Relying on this kind of unskilled, poorly paid staff causes a multiplicity of problems, not the least of which is inadequate fire safety prevention.

The Subcommittee has also documented in numerous circumstances the added complication of homes that are understaffed. The combination of inadequate numbers of employees with inadequate training can have disastrous effects.<sup>24</sup>

- In the Lincoln Heights, Ohio, fire, only 1 nurse's aid was on duty to help 10 patients when fire broke out at 2:40 a.m.

- In the Rosecrans, Wis., fire, no one was on duty as 10 of 12 patients perished at 11:15 p.m.

- Only two nurse's aides were on duty at 5:35 a.m. in the Springfield, Ill., fire that claimed the lives of 10 of 41 patients.

- The 8:10 p.m. fire in Honesdale, Pa., killed all 15 patients where a licensed practical nurse was the only employee on duty.

- The nursing home owner was the only person on duty in the Salt Lake City, Utah, fire that began at 12:41 a.m., claiming 6 of 19 patients. Dr. Bruce Walter of Utah's Bureau of Medical Care Services

<sup>22</sup> Pages 25 and 26, reference cited in footnote 16.

<sup>23</sup> Page 26, reference cited in footnote 16.

<sup>24</sup> See Supporting Paper No. 1, *The Litany of Nursing Home Abuses and an Examination of the Roots of Controversy*, Subcommittee on Long-Term Care, December 1974.

was critical of the poor supervision over nursing home patients, especially late at night. He said:

. . . lack of supervision . . . is a major problem in many of our nursing homes, and especially in intermediate-care facilities.<sup>25</sup>

The fires referred to above involved untrained personnel in short supply. Nevertheless, a serious fire can take many lives even where there is a high ratio of trained employees on duty to patients.

Specifically, in the Marietta, Ohio, fire, 32 patients perished despite the presence of 4 regular employees and 2 private-duty nurses to cover 46 patients (a ratio of 1 to 7.7). The Marietta fire proves conclusively that it is a false hope to expect a nursing home staff to evacuate patients when confronted with an uncontrolled fire.

Mr. Richard Stevens added to this conclusion by saying:

Even in situations where employee training is outstanding, human frailties are generally inevitable during emergencies.<sup>26</sup>

The Marietta fire is a case in point. After the fire, one of the aides admitted her error in not closing the door of the room where the fire originated. She explained that in the excitement of rescuing the patient, she did not think to close it. After close examination, experts agreed that had the door to the room of origin been closed, the fire could have been contained in the one room with no loss of life.<sup>27</sup>

## HOUSEKEEPING AND MAINTENANCE

The Subcommittee has documented in some detail the abuses that can occur when a home skimps on housekeeping and regular maintenance of the physical plant (see Supporting Paper No. 1). Any building will become more susceptible to fire where housekeeping is poor and maintenance is tardy or ignored; however, in long-term care facilities there is a particular problem because too often not enough employees are hired to get the job done and the patients cannot do it themselves.

Several nursing home fires have been attributed to improper maintenance and housekeeping. Maintenance is used here in the sense of keeping machinery and electrical equipment in good working order. The Honesdale fire, for example, was initially blamed on a defective clothes dryer. Two fires were the result of defective heating systems: Fountaintown, Ind., and Lincoln Heights, Ohio. The cause of the Fitchville, Ohio (claiming 63 lives), and the Warrenton, Mo., fires (claiming 57 lives) was defective electrical wiring.

Good housekeeping becomes important especially in removing flammable material from storage closets that are easily accessible to patients. Wastepaper baskets and laundry chutes become less hazardous if emptied often. Trash and debris, if allowed to accumulate, create a natural fire hazard.

As noted, the Marietta fire began in a plastic wastebasket full of refuse. The Kearney, Nebr., fire originated in a pile of clothes that was ignited by a cigarette. A clothes closet was the point of fire origin for

<sup>25</sup> Pages 1651 and 1654, reference cited in footnote 11, part 16.

<sup>26</sup> Page 429, reference cited in footnote 11.

<sup>27</sup> Page 404, reference cited in footnote 11.

the fire in Wayne, Pa., and a supply closet fire started the damage in Brookhaven, Miss.

A patient with access to a flammable liquid started the fire in Salt Lake City, Utah, which claimed six lives.

### PROBLEMS CAUSED BY SMOKING

Smoking and matches stand out as the principal cause of nursing home fires. Some 33 percent of all fires are caused by smoking.<sup>28</sup> Smoking has been the primary reason for the nursing home fires in Rosecrans and Madison, Wis., Kearney, Nebr., and Marietta, Ohio.

In Marietta, experts concluded that either the patient was trying to smoke unassisted or an aide had emptied a "hot" cigarette into a plastic wastebasket filled with paper.<sup>29</sup> Because of the Marietta experience and the general inability of the comparatively few nurses and aides to supervise the smoking of patients, some experts have testified in favor of banning smoking in patients' rooms. Mayor John Burnworth of Marietta testified:

However, now let me get to the root of the problem. I submit to you that, had smoking not been permitted in this nursing home, this fire would not have occurred. I strongly urge that laws be enacted which would prohibit any type of smoking in nursing homes, hospitals, or, for that matter, any place that houses persons who are totally or partially immobile except in areas specially designed and set aside for the purpose of smoking.

It is my opinion that no employee, patient, or visitor should ever be allowed to smoke in a patient's room, under any circumstances.<sup>30</sup>

State Fire Marshal Samuel Sides concurred in this recommendation and recommended its enactment to the legislature in Ohio.<sup>31</sup> A survey by *Modern Nursing Home* indicates that administrators dislike smoking but generally permit it, subject to some restrictions. Of the 222 homes replying, few (69) permit smoking in patients' rooms but less (8) ban smoking altogether. Because so many fires begin with smoking, remedial measures are necessary.<sup>32</sup>

### SEDATION

In addition to the inherent physical limitations which come with advanced age and the reliance on others for assistance, there are still other factors which make nursing home patients particularly vulnerable to fire. For example, the average nursing home patient takes four different drugs, some two and three times a day. Studies by the Subcommittee on Long-Term Care indicate that some 40 percent of the \$300 million spent on nursing home drugs annually is for central nervous system drugs. In short, there are \$120 million in tranquilizers,

<sup>28</sup> Reference cited in footnote 7.

<sup>29</sup> Pages 409-414, reference cited in footnote 11.

<sup>30</sup> Page 382, reference cited in footnote 11.

<sup>31</sup> Page 422, reference cited in footnote 11.

<sup>32</sup> April 1972, p. 14.

sedatives, and painkillers funneled through the 23,000 U.S. nursing homes each year.<sup>33</sup>

Studies by the Subcommittee further indicate that—given this tremendous supply of drugs, the few trained employees, and generally loose control of nursing home drugs—there is a good possibility that sedated nursing home patients may be unable to respond when fire threatens. Indeed, there are numerous references in the fires investigated by the Subcommittee to the fact that certain (and sometimes all) of the patients in the facility had been given sleeping pills at bedtime and, therefore, could not be aroused. The National Fire Protection Association's report of the Honesdale fire provides one such example, crediting sedation as having a major part in the death of 15 patients. Speaking of the LPN on duty, the report states:

Around 8 p.m. she was at the nurses' station, completing the records of medication given to the patients, when she heard glass break in the vicinity of the utility room and went to investigate. As she reached the point where the corridors of the two additions joined, she looked toward the utility room and saw heavy smoke at the end of the corridor. She tried to rouse the patients by shouting, and she entered most of the patient rooms in an unsuccessful effort to awaken them (she later admitted that all the patients had been given sedatives or sleeping pills when they went to bed—which would account for her inability to rouse them). On returning to the nurses' station she dialed the fire department.

This fire emphatically points out that patients cannot be expected to respond in a normal manner in a fire situation. These patients had been given tranquilizers and sleeping pills approximately an hour before the fire; they were too drugged to respond to the nurse's attempt to awaken them. Because patients in nursing homes may be drugged, and because they may be otherwise physically or mentally handicapped, fires must be controlled in the incipient stage, and they must be controlled automatically. The best method of doing this is through use of automatic sprinklers. A single person on duty in such a facility is not capable of taking decisive action toward evacuation or of assisting patients during an emergency and cannot be expected to perform any duty besides notifying the fire department or, possibly, isolating the fire by immediately closing doors, to safeguard patients' lives.<sup>34</sup>

In testimony after the Salt Lake City fire, Dr. Walter reported the increasing trend to house patients with mental impairment and mental disabilities in nursing homes. Such discharged mental patients are generally given large amounts of antipsychotics (tranquilizers) and sometimes receive sedatives at night in addition. Dr. Walter emphasized the need to protect such patients in the event of fire.<sup>35</sup>

<sup>33</sup> See Supporting Paper No. 2, *Drugs in Nursing Homes: Misuse, High Costs, and Kick-backs*; Subcommittee on Long-Term Care, January 1975.

<sup>34</sup> Page 1751, reference cited in footnote 11, part 16.

<sup>35</sup> Page 1664, reference cited in footnote 11, part 16.

The following recorded testimony of Doris Watts, a nurse's aide on duty at the time of the Marietta fire, provides additional perspective:

Mayor BURNWORTH. Doris, one final question that I am sure the committee is concerned with. Do you think that by the time the fire occurred that most of the people were sleeping?

Miss WATTS. Yes. Yes.

Mayor BURNWORTH. Because they were in bed for quite a while before the fire occurred.

Miss WATTS. Yes.

Mayor BURNWORTH. Because of some people's condition you would give them sleeping pills?

Miss WATTS. Uh-huh.

Mayor BURNWORTH. So your opinion is most of them were asleep at the time of the fire.

Let me ask you an opinion from just having been up there in direct relationship. Do you think that very many of the people woke up, or do you think they probably got the smoke in their sleep?

Miss WATTS. I think they must have gotten it in their sleep because I have heard the morgue say that they never got a more relaxed bunch of corpses. As far as I was concerned, you know, I really would not know if they were all asleep but usually at that time of night most of them were asleep.<sup>36</sup>

## THE USE OF RESTRAINTS

The Subcommittee has received many complaints about the use of restraints. A restraint is any technique, device, or drug which interferes with the free movement of a person and which cannot be easily removed by such person.<sup>37</sup> Restraints may be categorized as follows:

- (1) Mechanical, an apparatus or device such as straps, strait-jackets, or handcuffs;
- (2) Manual (the use of attendants to grasp or hold a patient);
- (3) Seclusion, physical separation from others, including isolation;
- (4) Hydrotherapy, water treatment which usually involves hot or cold baths (continuous or not), wet sheets or cold packs; and
- (5) Chemical, which includes drugs and sedatives to stimulate or suppress motor functions.

All types of restraints mentioned above have been used in nursing homes.<sup>38</sup> Almost all States require a physician's order before an individual can be restrained. Most State laws prohibit the use of some types of restraints and most require careful monitoring of patients. For example, Arizona, Idaho, Indiana, Pennsylvania, and Wisconsin require that restrained patients be checked every hour. Maine requires supervision every half hour. Alabama, Delaware, Illinois, Maryland, New Jersey, and Tennessee limit the use of restraints to 24 hours—a physician must review and revalidate restraint orders each day. Minnesota requires that a special attendant be on duty on each floor where a patient is restrained.<sup>39</sup>

<sup>36</sup> Page 380, reference cited in footnote 11.

<sup>37</sup> Page 188, reference cited in footnote 24.

<sup>38</sup> Page 188, reference cited in footnote 24.

<sup>39</sup> Page 188, reference cited in footnote 24.

The Subcommittee has received fewer complaints related to the use of restraints in the past few years than in previous years. There apparently is a decided trend toward the use of tranquilizing drugs instead. Nevertheless, there were several examples received by the Subcommittee in which manual restraints inhibited the efforts of firefighters to evacuate patients in the course of a major fire.

Ohio has a statute requiring a physician's authorization before an individual can be restrained but the Subcommittee was unable to determine how many of the seven patients tied to their beds in the Marietta fire were restrained with the permission of physicians. What is clear is that the restraints severely impeded the evacuation of patients. Six out of the seven patients perished in the fire.<sup>40</sup> Fire Chief Beman Biehl of Marietta testified:

If I recall correctly, this patient had restraining straps tied to the bottom of the bed and it was difficult to get him or her out of the bed. I finally broke the strap on each side and started to lift the patient out the window to someone outside. There was no one outside at first so I called for help. I then climbed out the window and started for the next room. In this room I felt the first bed and this patient was in bed with restraining straps. I immediately broke these and passed this patient out the window.<sup>41</sup>

In a June 21, 1970, fire in Portsmouth, Va., a patient who was restrained ignited his clothing with matches, presumably left behind by visitors.<sup>42</sup> Moreover, at least one patient in the Honesdale fire was restrained. The NFPA report states:

Arriving firefighters found flames coming from the windows and the exit nearest the utility room, which was at the rear of the building. They entered first through the old farmhouse section and from there entered the older patient sections. Their attempts to remove the first patient they located (in room 1) were futile, as the patient was in bed restrained, a fact not readily evident in the dark, smoky conditions.<sup>43</sup>

Mr. Theodore Cron, president of the American Patients' Association, testified at the Marietta hearing and was especially critical of the failure of Medicare regulations to address the issue of restraints. His comments are still apropos today:

Mr. Chairman, the fire safety conditions under the Medicare law are not unique. The same looseness and potential for tragedy exists in the matter of patient restraints. Some patients in Harmar House were tied to their beds. Nothing in the Medicare regulations speaks to the use of such restraints. This is not a technicality for patients and their families. Ohio has a requirement that restraints be used only with a signed physician's order. But those records, if indeed they ever did exist, were supposedly burned in the fire—a fire that did little structural damage, by the way.

<sup>40</sup> Page 406, reference cited in footnote 11.

<sup>41</sup> Page 370, reference cited in footnote 11.

<sup>42</sup> *NFPA Fire Journal*, January 1972, p. 22.

<sup>43</sup> Page 1750, reference cited in footnote 11, part 16.

Are there copies of such orders? Do the families of the aged victims have copies? Indeed, does the Federal Government have it in file records of such orders?

We firmly believe that a specific standard be set which requires a physician's order for restraints to be on file, that the file be open to Federal audit, that there be a time limitation for the order to be effective, and that a copy of the order be transmitted to a patient's family, if possible.<sup>44</sup>

### SUMMARY

**As the President's Commission on Fire Prevention and Control has stated:**

**It is not difficult to see why the elderly are especially prone to tragic fire accidents. Many lack the physical coordination to handle matches, cigarettes, or hot appliances safely. Others, mentally impaired or despondent, set fires deliberately. When a fire occurs, physical or mental impairment can hamper the chances of escape. As firefighters have discovered over and over, many elderly patients are reluctant to leave the room that houses their few worldly possessions. Compounding the problem of fires in nursing homes is the fact that many homes are sparsely staffed, especially during the nighttime hours.<sup>45</sup>**

---

<sup>44</sup> Page 444, reference cited in footnote 11, part 5.

<sup>45</sup> Page 129, reference cited in footnote 10.



## PART 3

# MODERN FIRE SAFETY TECHNIQUES AND THEIR LIMITATIONS

Modern technology has brought with it significant advances in the protection of life, safety, and the limitation of property damage caused by fires. The philosophy of fire prevention and control has several components. Each component has its own advantages and limitations. Approaches to fire safety can be grouped under the following headings: protection, detection, alarm, escape, refuge, confinement, control, and extinguishment.<sup>46</sup> The effectiveness and the limitations of these approaches are detailed below.

### PROTECTION

Protection in its broadest sense includes legislation, education, planning, and evacuation preparation.

The enactment and enforcement of fire safety legislation at the local, State, and Federal levels provides essential tools for fire prevention.<sup>47</sup> Codes and regulations (especially fire safety codes, building codes, and licensing regulations) are required by law in every local area. These legal requirements have a strong influence on design, planning, construction, and maintenance of almost every type of building. Frequently, however, the requirements often represent only minimum standards and they seldom recognize the special occupancy needs of older persons in nursing homes. One widely accepted fire code, the Life Safety Code developed by the National Fire Protection Association, has been incorporated into certain requirements under Federal law and has been adopted by other jurisdictions as well.<sup>48</sup> Legislation without strong and continuous enforcement is of little value, but inspection and enforcement is deficient in many States.<sup>49</sup>

Educational programs which include evacuation plans and drills are helpful in making both personnel and occupants aware of particular fire hazards and prepared to act quickly when fire does break out.

Very fundamental planning decisions can also have a direct bearing on the fire safety capabilities of a particular building. Examples of decisions that can affect fire safety include: How many and what types of occupants will live there? How far will the building be from the nearest fire department? What are the contours of the site; can fire-fighting equipment maneuver easily? Is there money enough to provide the many safety features that are needed?

---

<sup>46</sup> Part 3 of this report relies heavily on the publication *Life Safety From Fire*. See footnote 16.

<sup>47</sup> Page 44, reference cited in footnote 16.

<sup>48</sup> See part 4, p. 482, for a detailed discussion.

<sup>49</sup> See part 4, p. 482, for a detailed discussion.

Protection, in short, is the beginning of fire safety. But as the Marietta, Ohio, fire illustrated so clearly, fire drills and evacuation, or building design, or reliance on sufficient numbers of well-trained staff is not the full answer. The infirm elderly, often hampered by sedation or restraints, cannot be evacuated in time. In nursing homes, there must be a strong emphasis on early detection and early extinguishment.

## DETECTION

The length of time allowed between a fire's beginning and its first detection can have a critical effect on the lives saved and the damage sustained. Basically, there are two means of detection: human and automatic. Reliance on human detection alone is asking for trouble in the nursing home setting. As discussed previously, decreased physical and mental capabilities often make it difficult or impossible for a nursing home patient to sound an alarm or put out a fire alone. Not infrequently, the patient cannot even summon help. Even when a nursing home is not short-handed and attendants are well trained, emergency conditions can create human errors or panic. Employees sometimes forget to pull a manual alarm or neglect to call the fire department immediately, thus wasting precious minutes.

In short, the far wiser course of fire safety in nursing homes is to provide some form of automatic detection. There are a wide variety of automatic detection devices on today's market, all with advantages and limitations.

The heat-activated detector is the simplest; it is usually the least expensive and the slowest to react because the fire must be well developed before it is activated. There are two types of heat detectors: fixed-temperature and rate-of-rise. Simply explained, the fixed-temperature detector is designed to sound an alarm at a predetermined temperature (usually in the 135° to 165° range). The rate-of-rise detector will trigger an alarm whenever there is an abnormal rise in the heat level (usually 15° to 20° a minute). This type of detector is normally faster in detecting fire.

Smoke-activated detectors make use of photoelectric cells to detect *visible* carbon particles in the air. It should be noted that many dangerous gases emitted in a fire are invisible and not detectable by this type of device. Nevertheless, they are very effective in detecting smoke, and are generally more responsive than heat detectors.

Gas-activated detectors (sometimes called products of combustion detectors), while more expensive than smoke detectors, are even more effective. These devices produce a steady flow of ions from a radioactive source. When this flow comes into contact with invisible gases from combustion, the gases become electrical conductors and are thereby "visible" to the detector. Like the smoke detectors, these products require regular maintenance to prevent false alarms.<sup>50</sup>

Automatic detection devices, while they provide quicker and more reliable detection of a fire, do not put the fire out. If the fire department is needed, their response time may not be sufficient to prevent a multideath fire. One method of cutting down this response time has been used effectively. By simply connecting the automatic detector-

<sup>50</sup> Pages 48-53, reference cited in footnote 16; contains a detailed discussion of detection system.

alarm system directly to the nearest fire department, firefighters can be on the scene with a minimum of delay. Establishing this connection with the fire department is a relatively inexpensive procedure,<sup>51</sup> yet it is infrequently arranged. Even with such a precaution, however, serious fires are not always preventable.

What does the recent history of major fires in nursing homes tell us about automatic detection devices, their reliability, and their limitation?

● They are infinitely more effective than manual alarm systems that rely on human response. This conclusion is heavily underscored by a close look at past fires. In the 1957 Warrenton, Mo., fire, where 71 patients died, and in the 1963 Fitchville, Ohio, fire, where 63 persons perished, the only protection was portable fire extinguishers. Clearly, early warning by automatic detection systems would have lessened the tragic results of these major fires.

● Alarmingly, many nursing homes are still without any form of automatic detection. Witness the 1971 Honesdale, Pa., fire and the 1972 Lincoln Heights, Ohio, fire.

● Even where homes have carefully been provided with automatic detection systems, they have not taken the relatively simple, further step of connecting the system directly to the fire department. In the Marietta fire, heat detectors set off an alarm at 9:57 p.m. Yet, the fire department did not arrive until 10:15 p.m. Their delay was due in large part to a failure by the employees to relay the alarm, choosing instead to fight the fire and evacuate the patient from the room of origin. Once again, this fire is a clear example of the hazards inherent in relying on human response. Similarly, in the Buechel, Ky., fire an automatic detection system was not connected to the fire department.

● An automatic detection system, like any other mechanical device, is subject to malfunction. For example, in the Pleasantville, N.J., fire the combined heat and smoke detection system (tied to the local fire department) failed to operate. In New Haven, Ky., the home was equipped with a heat detection system that failed, even though the complete system was checked by a serviceman 5 days before the fire. After the fire, the standby battery system was found disconnected.

● Even under the best of circumstances, when the automatic detection system is functioning well and is directly connected to the fire department, tragedy can occur. The fire in Philadelphia claimed 11 lives, even though the detection system worked perfectly and alerted the fire department automatically. The Salt Lake City fire is a classic case where the detection system could not have functioned better. Testifying before the Subcommittee, Fire Marshal Ben Andrus explained:

Our district chief in this area was coming back from another alarm at approximately eight-tenths of a mile away from the Lil-Haven when the warning on the dispatch came in. This dispatch took 50 seconds from the time they made the preliminary warning until they completed, and gave the time as 0041 or 12:41 a.m. The district chief arrived at 0042, or 58 seconds from the conclusion of the preliminary warning.

<sup>51</sup> "Fire Safety in Highrise Buildings for the Elderly," hearings before the Subcommittee on Housing for the Elderly, part 2, Feb. 28, 1973, p. 82. HUD estimates this cost at \$200 per building.

The first engine company arrived at 0043, 1 minute behind him, and the first ladder company arrived at 0044. So within 3 minutes of dispatch we had a chief officer, one pumper and one ladder company on the scene.

We then had two more engines and another ladder company, with a special dispatch on the second ladder company. The fire took approximately 10 minutes to get under control.<sup>52</sup>

In this case, the fire department could not have arrived quicker unless they had set the fire themselves, and still 6 of 18 patients died.

**The Subcommittee, in short, must conclude that automatic detection systems, even when operating properly and when connected directly to the fire department, are not adequate, *in and of themselves*, to protect the lives of nursing home patients.**

### EXTINGUISHMENT

As is evident from prior fire experience, neither the patient nor the nursing home staff are capable of taking action to prevent loss of life in a major nursing home fire. Automatic detection systems are helpful, but the best fire safety approach incorporates automatic extinguishment as well as automatic detection. As Professor Irving Einhorn of the University of Utah has stated:

No single system is foolproof but, by and large, sprinklers are the difference between life and death. They are the difference between heavy and light property loss as well.<sup>53</sup>

Most people probably are familiar with automatic sprinkler systems but basically they are a network of pipes and distributing heads designed to distribute water in sufficient quantity to put a fire out. The heads are usually activated by fusible links which melt at a predetermined temperature (usually about 165 degrees); however, they may also be activated by automatic detectors of any type.

By and large, most experts agree that in the nursing home context, the best technological solution to fire safety is a fully automatic sprinkler system. This is small wonder since this system has several distinct advantages. For example:

- The life safety record of sprinklers is statistically impressive. There is no record of multiple life loss in fully sprinklered buildings.
- In the large majority of fires, only one or two heads are activated, holding water damage to a minimum.
- The system can successfully monitor and extinguish or control fire in unobserved or hazardous areas.
- Its relatively high initial cost can usually be amortized in insurance savings in from four to a dozen years.<sup>54</sup>

Is there evidence that sprinklers are effective? The answer from the Subcommittee's hearings and investigations is an overwhelming "Yes." Here are some examples:

<sup>52</sup> Page 1629, reference cited in footnote 11, part 16.

<sup>53</sup> *Modern Nursing Home*, April 1972, pp. 47-51.

<sup>54</sup> Page 85, reference cited in footnote 16.

After the NFPA staff investigation of the Marietta fire, Mr. Stevens testified:

I think the sprinkler would have stopped all production of smoke and fire once it had operated in that room; plus, of course when this happens, that is the end of everything.<sup>55</sup>

Testifying with respect to the Salt Lake City fire, Mr. Willey of NFPA stated:

In my opinion, these deaths at the Lil-Haven Nursing Home would not have occurred if automatic sprinkler protection had been provided.<sup>56</sup>

In both the Marietta and Salt Lake City fires, State fire marshals testified that additional nursing home fires had occurred within a few days of the tragedies. Ohio Fire Marshal Samuel Sides told the Subcommittee of a fire in Milford, Ohio (21 days after the Marietta fire), where a nursing home sprinkler system put out a fire caused by a defective television set without loss of life or major property damage.<sup>57</sup> In a similar statement, Utah Fire Marshal Tanner reported a fire in a Salt Lake County nursing home days after the Lil-Haven Nursing Home fire. Sprinklers contained the fire, with only \$250 worth of damage.<sup>58</sup>

Many recognized national organizations with expertise in this field has endorsed the concept of fully automatic sprinkling systems for nursing homes. Endorsements have come from:

1. The National Safety Council.
2. The National Fire Protection Association.
3. The Fire Marshals of North America.
4. The Joint Commission on the Accreditation of Hospitals.
5. American College of Nursing Home Administrators.<sup>59</sup>

The National Commission on Fire Prevention and Control recommends automatic sprinkler protection not only for nursing homes but for all types of units designed for the elderly. In testimony before the Senate Subcommittee on Housing for the Elderly, Commission Chairman Richard E. Bland stated:

I submit to this subcommittee . . . that the requirement of complete automatic sprinkler systems is the available technical solution toward control of fire in housing for the elderly. I make no distinction between the types of care or housing unit.<sup>60</sup>

The American Health Care Association (formerly American Nursing Home Association) has endorsed the use of sprinklers as required by the NFPA Life Safety Code, 1967 edition.<sup>61</sup>

<sup>55</sup> Page 430, reference cited in footnote 11.

<sup>56</sup> Page 1657, reference cited in footnote 11, part 16.

<sup>57</sup> Page 418, reference cited in footnote 11.

<sup>58</sup> Page 1636, reference cited in footnote 11, part 16.

<sup>59</sup> *Saving Lives in Nursing Home Fires*, 16th report by the House Committee on Government Operations, Aug. 9, 1972, p. 8, U.S. Government Printing Office. See also, appendix 9, p. 553, letter to Senator Moss from J. Albin Yokie, American College of Nursing Home Administrators.

<sup>60</sup> Page 39, reference cited in footnote 51.

<sup>61</sup> *Modern Nursing Home*, March 1972, p. 34.

The Special Studies Subcommittee of the House Government Operations Committee has looked into the problem of nursing home fire safety. In its reports issued in 1972 and in 1974, the committee recommends that all nursing homes receiving public funds provide complete automatic sprinkler protection.<sup>62</sup>

### AUTOMATIC SPRINKLER SYSTEMS: THE QUESTION OF COST

Automatic sprinkler systems are not without their disadvantages, principal of which is cost. Other drawbacks include:

- Unless specially activated by detectors the normal relatively high fixed temperature heads are not activated by slow or smoldering gaseous fires.
- Under normal operating conditions, critical levels are frequently reached in the immediate area of the fire.
- A sprinkler system requires a positive and relatively large reservoir of water, which is becoming increasingly difficult to obtain in rural areas.<sup>63</sup>

With respect to cost of sprinklers and their installation, there is little agreement. Estimates from the American Health Care Association place the cost at \$400 a bed.<sup>64</sup> The House Special Studies Subcommittee estimates \$800 a bed.<sup>65</sup> The U.S. General Accounting Office received estimates placing the cost from \$1 to \$4 per square foot.<sup>66</sup> The National Fire Protection Association took exception, stating:

These estimates are quite a bit higher than the averages we have received in this office. Costs submitted to us by sprinkler companies indicate a cost range between 50 cents and \$1 per square foot.<sup>67</sup>

In order to help nursing homes purchase sprinklers, automatic detection systems, and other fire safety equipment, Senator Moss introduced a bill, S. 512, which was signed into law in 1973.<sup>68</sup> The new law authorizes FHA-insured loans for equipment defined broadly in regulations to cover many "fire safety related improvements." Both for-profit and non-profit sponsors are eligible. Most mortgages are amortized over a 15-year period and interest cannot exceed 9 percent. Many providers are presently making use of this new provision to upgrade their facilities.

### CONFINEMENT AND CONTROL

Confinement and control both relate to building structure and, in turn, to the type of materials and furnishings used in any building.

<sup>62</sup> Page 10, reference cited in footnote 59; and *Fire Safety Deficiencies in Nursing Homes*, report by the House Government Operations Committee, Dec. 13, 1974, p. 9.

<sup>63</sup> Reference cited in footnote 54.

<sup>64</sup> Statement on "Problems of Nursing Home Fire Safety," presented to the National Commission on Fire Prevention and Control, June 27, 1972, by Dr. Thomas G. Bell, executive vice president, American Health Care Association.

<sup>65</sup> Page 9, reference cited in footnote 59.

<sup>66</sup> *Study of Health Facilities Construction Costs*, U.S. General Accounting Office, Nov. 20, 1972, p. 46.

<sup>67</sup> See appendix XIX, p. 160, of reference cited in footnote 66.

<sup>68</sup> Public Law 93-204.

Architects, builders, and owners alike are involved. Taken in the abstract, a nursing home built of brick is less likely to burn than a similar facility built of wood. This simple fact is reflected in building codes which insist upon features designed to confine or help control a fire. One of the most common forms of confinement is compartmentation.

Compartmentation requires dividing the building into completely enclosed segments. These segments are enclosed by partitions (including walls, floors, and ceilings) which will resist the spread of fire and gases from one part of the building to another. As *America Burning* says:

Compartmentation is important to life safety, not just as a method for containing fire, hoping that it will burn itself out, but also as a barrier to spread, that will hold up at least long enough to protect occupants evacuated to an adjoining fire area. Compartmentation buys time for survival by extending the critical time in the adjoining areas of refuge.<sup>69</sup>

Compartmentments can be rooms; they can be wings or sections of a building or individual floors. The most common example is a door to cut off stairwells and stop the spread of fire from one story to another. Similarly, long corridors or wings may be equipped with automatic doors which close and separate the building in case of fire. One disadvantage is that doors are often propped open and do not contain the fire. As with detection systems, this liability can be overcome by automatic door closers which are activated by an alarm system connected to an automatic detection device.

### SUMMARY

**Nursing home patients are unable to protect themselves in case of fire and must look to others for their protection. Past history with nursing home fires indicates that the nursing home staff cannot be counted upon to rescue patients even when staffing is at a high level. Therefore, it is essential in the nursing home setting to place reliance on automatic alarm, detection, and extinguishment devices. Sprinklers are no panacea but, by and large, make the difference between life and death. Ideally, nursing homes should attack the problem of fire safety on all levels instead of placing total reliance on any one system which may malfunction.**

<sup>69</sup> Page 70, reference cited in footnote 16.

## PART 4

### THE FEDERAL RESPONSE

The Federal Government's response to the fire safety problems presented by nursing homes is a complex subject. To simplify, this part is divided into three sections. Section A sets forth the current fire safety requirements for U.S. long-term care facilities. Section B is the chronological exposition and development, tracing the evolution of these standards. Section C examines the shortcomings of the existing requirements.

#### A. THE PRESENT STANDARDS

There are some 23,000 long-term care facilities in the United States. Some 7,300 are Skilled Nursing Facilities (SNF's); another 8,500 are Intermediate Care Facilities (ICF's); and the remaining 7,200 are shelter care or personal care homes.

While the fire safety standards and requirements for participation in the Medicare and Medicaid program are the same, almost all of the 7,300 Skilled Nursing Facilities participate in the Medicaid program but only about 4,000 of this same number also participate in the Medicare nursing home program. Most of the 8,500 Intermediate Care Facilities participate in Medicaid; none participate in Medicare because there is no intermediate care benefit under Medicare. The remaining 7,200 personal care homes participate neither in Medicare nor in Medicaid.

#### MEDICARE AND MEDICAID <sup>70</sup>

The Social Security Amendments of 1965 established two health benefit programs—Medicare and Medicaid—under which care in skilled nursing homes is available.

##### MEDICARE

Medicare is a federally defined, uniform package of medical care benefits for most persons age 65 and over. Effective July 1, 1973, the Social Security Amendments of 1972 extended Medicare protection to (1) individuals under age 65 who had been entitled to social security or railroad retirement benefits for at least 24 consecutive months because they were disabled, and (2) insured individuals under age 65 who had chronic kidney disease.

Medicare, administered by HEW's Social Security Administration (SSA), provides two forms of insurance protection. One form, hospital insurance benefits for the aged and disabled (part A), covers

<sup>70</sup> For a fuller discussion of these programs, see pp. 29-54, reference cited in footnote 12.



inpatient hospital services and posthospital care in a Skilled Nursing Facility or in a beneficiary's home. Part A benefits pay for all covered services in a Skilled Nursing Facility for the first 20 days after a hospital stay and all but \$10.50 a day for up to 80 more days during a benefit period.

The second form of protection, supplementary medical insurance benefits for the aged and disabled (part B), covers physicians' services and certain other medical and health benefits.

### MEDICAID

Medicaid is a Federal-State medical assistance program which allows each State, within certain limits, to define the extent of health care benefits to be provided to the financially and/or medically needy. Medicaid is administered at the Federal level by HEW's Social and Rehabilitation Service (SRS), but the States are primarily responsible for its operation.

Medicaid authorizes medical care to certain categories of persons entitled to public assistance under the Social Security Act. In addition, States may provide services to persons whose incomes or other financial resources exceed State public assistance standards but are insufficient to provide needed medical care.

The Social Security Act requires that State Medicaid programs provide:

- inpatient and outpatient hospital services;
- laboratory and X-ray services;
- skilled nursing home services;
- early and periodic screening, diagnosis, and treatment of persons under age 21;
- family planning services;
- physician services; and
- home health care services.

States may also provide additional services specified by the act, such as dental services and supplying prescription drugs.

### CERTIFICATION PROCEDURES

As will be seen, the fire safety requirements for nursing homes participating in Medicare or Medicaid are roughly equal. This is true whether a facility is an SNF or an ICF. Facilities participating in either program must be inspected at least annually by State inspectors to determine whether they comply with the Life Safety Code of the National Fire Protection Association (21st edition, 1967).

Only those facilities in full compliance with the code's provisions can be certified for participation in Federal programs. However, homes not in full compliance may be certified for a limited period of time under both Medicare and Medicaid.

Prior to February 19, 1974, HEW regulations provided that a nursing home with Life Safety Code deficiencies could be certified under Medicaid for no more than two consecutive 6-month periods unless the deficiencies were corrected. Certification for the second 6-month period could be provided only under certain conditions, in-

cluding evidence of progress having been made in correcting the deficiencies.

In July 1973, HEW published in the *Federal Register* proposed Medicaid regulations providing that nursing homes completing the second 6-month agreement, under provisions for certification in effect prior to July 1, 1973, could be given up to 1 additional year to correct previously identified deficiencies if the State found that the nursing home was providing safe and adequate patient care and progressing toward correcting deficiencies. Although the regulations were in proposal form, they were applicable immediately. The Commissioner of HEW's Medical Services Administration advised State agencies of this provision on June 29, 1973.

Thus, the States were permitted to extend, by up to a full year, the certification period for Medicaid homes which had failed to comply with their plans of correction during two previous 6-month periods. As a result, even though deficiencies were uncorrected, Medicaid homes could have been certified for up to 2 years under certain circumstances.

Before February 19, 1974, Medicare regulations did not place an absolute time limit on the nursing homes for correcting deficiencies; Medicare nursing homes could continue to be certified for Federal financial participation as long as they were making progress toward correcting the deficiencies.

Current HEW regulations for both Medicare and Medicaid, effective February 19, 1974, provide for automatic cancellation of a home's certification if deficiencies noted during the inspections have not been corrected within a specific time—including approved extensions.

### WHAT IS THE LIFE SAFETY CODE?

The Life Safety Code is promulgated by the National Fire Protection Association (NFPA) and specifically the association's Committee on Safety to Life which analyzes the causes of fires where deaths are recorded. After years of experience, the NFPA has established standards for various kinds and types of construction that form the basis of the code. The code is revised periodically, the 23d edition in 1973, being the most recent. The purpose of the code is to prevent loss of life, not only property damage.

The code requires automatic sprinkler protection throughout all nursing homes with two exceptions: those of 2-hour "fire-resistive" construction and those of one-story, 1-hour "protected noncombustible" construction (see illustration).

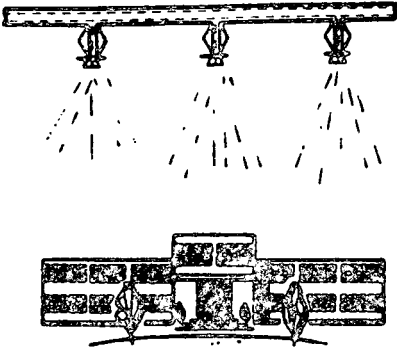
The National Fire Protection Association defines the ratings of building materials in terms of hours. The ratings are the result of standard fire tests in which the materials are subjected to controlled fire conditions. The length of time the materials maintain their structural integrity under fire test conditions is the basis of the rating. The performance is expressed as "2-hour," "4-hour," "1½-hour," and so forth.

In short, the fire resistance of a building varies with the susceptibility to fire damage of the building materials used and the degree of fire protection, if any, provided for the structural members.

A building classified as "fire resistive" is one in which the structural members, including walls, partitions, columns, floors, and roofs,

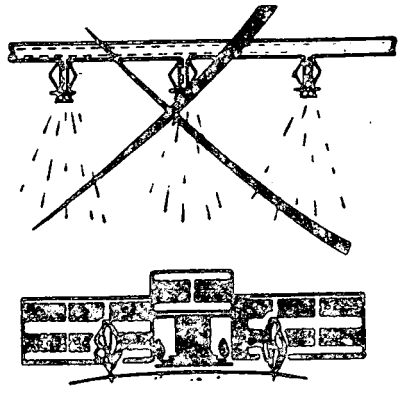
## MEDICARE AND MEDICAID SPRINKLER REQUIREMENTS FOR SKILLED NURSING FACILITIES

### SPRINKLERS REQUIRED



1. PROTECTED NONCOMBUSTIBLE (MULTISTORY)
2. UNPROTECTED NONCOMBUSTIBLE
3. PROTECTED ORDINARY
4. PROTECTED WOOD FRAME
5. HEAVY TIMBER

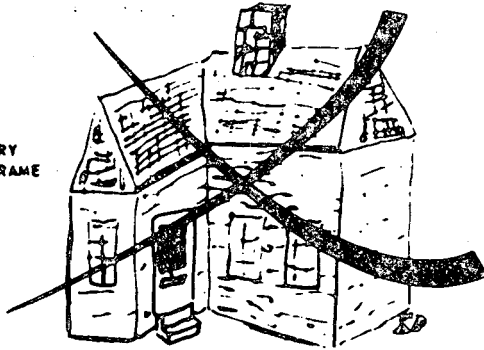
### SPRINKLERS NOT REQUIRED



1. FIRE RESISTIVE
2. PROTECTED NONCOMBUSTIBLE (SINGLE STORY)

### NOT PERMITTED IN MEDICARE AND MEDICAID PROGRAMS

1. UNPROTECTED ORDINARY
2. UNPROTECTED WOOD FRAME



Source: March 18, 1975, GAO Report.

are of materials having fire-resistance ratings ranging from 1½ to 4 hours as required by the standards.

A building may be classified as "protected noncombustible" if it is constructed of materials having a minimum fire-resistance rating of from 1 to 2 hours, as required.

The requirements for these two classifications are directed toward limiting the spread of fire and maintaining building integrity, should

fire occur, to permit adequate time to safely evacuate nursing home patients.

**The following are examples of specific code provisions:**

1. That the building construction complies with the requirements of the Life Safety Code;
2. That corridors are separated from sleeping rooms and treatment areas by construction having at least a 1-hour fire resistive rating;
3. That doors to patient rooms and diagnostic and treatment areas are 1¾ inch solid wood bonded core doors;
4. That if the building shares a common wall with a nonconforming structure, the wall is at least a 2-hour fire rated partition, with all doors being a Class B, 1½ hour door and self-closing;
5. That each stairway between stories is enclosed with partitions having at least a 1-hour fire resistance rating;
6. That doors in stairway enclosures are not equipped with devices to hold them open;
7. That doors in walls separating hazardous areas are not equipped with devices to hold them open;
8. That smoke barriers divide corridors into sections of not more than 150 feet in length;
9. That smoke barriers have at least a ½ hour fire rating and are continuous from exterior wall to exterior wall and floor to floor or roof deck above;
10. That elevator shafts, laundry chutes, and other vertical openings between stories are protected with construction having at least a 1-hour fire resistive rating;
11. That any linen or trash chute which opens directly on to a corridor is sealed by a Class B fire rated door assembly;
12. That doors in fire and smoke partitions are self-closing upon activation of the fire alarm system, and that they may be held open only by approved electric hold-open devices; and
13. That every hazardous area has automatic fire protection or is separated by construction having at least a 1-hour fire resistance rating.<sup>71</sup>

## 1. STANDARDS FOR SKILLED NURSING FACILITIES

As noted, SNF's, whether participating in Medicare, Medicaid, or both, must comply with the provisions of the Life Safety Code. However, the law and regulations allow the States, with the permission of HEW, to waive one or several of the provisions of the code.

HEW regulations, like the statute, spell out that waivers may be granted when the "regulations, if rigidly applied, would result in unreasonable hardship on the facility," *but only* if such waivers "will not adversely affect the health and safety of patients." Moreover, the States (with HEW's approval) may waive compliance with the code or any of its provisions when a State has its own (equivalent) fire safety standards which "adequately protect patients."<sup>72</sup>

<sup>71</sup> These 13 major code provisions were selected by the General Accounting Office for their evaluation of skilled nursing homes. GAO concluded that 72 percent of the nursing homes in their sample had one or more violations of these standards.

<sup>72</sup> *Federal Register*, Jan. 17, 1974.

The above regulations and waivers have been sharply criticized. One reason is that the terms "unreasonable hardship" and "adequately protect patients" which appear in the regulations are left undefined. Second, the regulations permit waivers up to 2 years—"for such periods as the States deem appropriate."

Finally, there has been little guidance from HEW as to what constitutes equivalent fire safety standards.<sup>73</sup>

## 2. INTERMEDIATE CARE FACILITIES

There are some 8,300 ICF's in the United States. Since there is no ICF benefit under Medicare, most of these facilities participate in the Medicaid program. The ICF's participating in Medicaid must comply with the provisions of the Life Safety Code. However, full compliance with the code is not required until January 1977 for ICF's.<sup>74</sup> As in the case of SNF's, there are several exceptions to the code which permit the States to grant generous waivers. Until February 1975, the States had absolute power to grant waivers. In February, HEW assumed this power and the States may only "recommend" waivers which HEW may, or may not, ratify.<sup>75</sup> The exceptions found in ICF regulations are similar to exceptions allowed for SNF's:

No. 1. In the case of small homes with 15 beds or less housing the mentally retarded or those with related conditions, as to these facilities the States may apply the residential occupancy sections of the Life Safety Code rather than the institutional occupancy sections upon a finding by the State that the individuals in such facilities are capable of following direction in an emergency and are ambulatory.

No. 2. States may waive the application of the Life Safety Code provisions, for such periods as they deem appropriate, if the code provisions when rigidly enforced would result in unreasonable hardship on the facility but only if such waiver will not adversely affect the health and safety of residents.

No. 3. States may waive compliance with the Life Safety Code entirely if the Secretary of HEW makes a determination that their own fire codes protect patients equally as well.<sup>76</sup>

In its report, *Developments in Aging, 1973*, the Senate Special Committee on Aging commented:

The three exceptions to the requirement effectively nullify the standard. Exception No. 1 does substantial damage in exempting buildings which are often the most susceptible to fire. This exception applies to homes of 15 beds or less which house the mentally retarded and those with related conditions, that is, cerebral palsy and epilepsy. It is doubtful that many of these individuals will be both ambulatory and capable of following directions for self-preservation in an emergency.

Exception No. 2 allows the waiver of the code up to 2 years upon a showing of unreasonable hardship to the facility if the

<sup>73</sup> See *Developments in Aging: 1973 and January-March 1974*, a report by the Senate Committee on Aging, p. 64.

<sup>74</sup> S. 1938, introduced by Senator Henry Bellmon of Oklahoma, would postpone compliance with the code's provisions for 12 months.

<sup>75</sup> The *Federal Register* of Feb. 11, 1975, sets forth preliminary regulations, which are not finalized at this time, p. 6368.

<sup>76</sup> See reference in footnote 72.

code provisions are rigidly enforced, provided that such a waiver will not adversely affect the health and safety of the residents. The same reservations as expressed in discussion of SNF exceptions about the use of these terms are repeated here.

Exception No. 3 allows the States still another way around the provisions of the Life Safety Code which is to obtain the Secretary's finding that their own State fire code protects patients equally as well. Unless such findings of "equivalency" are carefully evaluated and sparingly given by HEW, the effect will be total obscuration of this standard.

Parenthetically, the reason for the generous waivers from the fire safety provisions is that comparatively few ICF's presently meet the existing standards as mandated by Congress. A recent HEW study detailed that 59 percent of the SNF's in the Nation were not in compliance with the Life Safety Code and it was projected that an even greater number of ICF's do not comply.<sup>77</sup> However, by not enforcing standards, HEW and the States are guaranteeing tomorrow's nursing home fires.

### 3. SHELTER CARE AND PERSONAL CARE HOMES

There are some 7,200 of these facilities across the Nation; most are small, often converted residences. They present high fire risks. Unfortunately, they do not participate in Federal programs (Medicare and Medicaid) and therefore are exempt from meeting Federal fire safety standards. Some States have comprehensive regulations applying to such facilities, but most do not. Quite often such facilities have been unable to meet Federal standards and have been "downgraded" to their current status. The most common rationalization offered for not requiring their rigid compliance with a comprehensive fire safety code is that the patients housed in such facilities are ambulatory and capable of taking action to preserve their lives in case of an emergency.

Unfortunately, too many States have yielded to the temptation to save dollars and have placed nonambulatory, physically ill patients into such facilities. The Rosecrans, Wis., fire is a good case in point. Ten of twelve patients in that facility perished on April 4, 1972. The Wisconsin Department of Health determined that three were nonambulatory and physically ill and should have been in a nursing home. Similarly, a year later in New Haven, Ky., fire broke out in a converted motel which was restricted by State law from housing nonambulatory patients. Some 22 of 25 patients escaped. The three who died were nonambulatory.

Personal care homes or other facilities which are used to house the nonambulatory and physically ill are sometimes called "bootleg nursing homes." As described later, such facilities present significant problems.

### 4. BOARDING HOMES AND HOTELS

No one knows for sure how many boarding homes there are in the United States. But the Subcommittee is aware that their numbers have

<sup>77</sup> *Enforcement of Life Safety Code Requirements in Skilled Nursing Facilities*, Office of Nursing Home Affairs, Public Health Service, Office of the Assistant Secretary for Health, Office of the Secretary, Department of Health, Education, and Welfare, Rockville, Md. In committee files.

been growing sharply and that they now house large numbers of elderly. Two factors explain this trend: (1) the inception of the Supplementary Security Income (SSI) Program, and (2) the pressure to move inpatients from State mental hospitals into smaller community-based facilities. In brief, this means moving the mentally retarded or mentally impaired aged from State hospitals to boarding homes or to old hotels. These patients cost the States an average of \$750 in State money in the hospital while they can be placed in a boarding house for \$151 a month in Federal SSI money. Significantly, few States even license boarding homes or similar facilities. New Mexico and California are two exceptions. Boarding homes have the least fire protection of any class of occupancy. They are the most likely candidates for serious institutional fires.<sup>78</sup>

## B. THE EVOLUTION OF FIRE SAFETY STANDARDS

Despite significant progress in improving fire safety requirements in American nursing homes over the past 10 years, many facilities still fall far short of meeting minimum requirements. In short, it has taken much too long for far too little to happen. This conclusion is no more clearly illustrated than by two recent reports: the U.S. General Accounting Office in 1975 estimated that 72 percent of this country's skilled nursing homes have one or more major fire safety deficiency; similarly, HEW reported this year in their nationwide survey of 295 skilled facilities that two-thirds of the homes had "several" deficiencies in the Life Safety Code.<sup>79</sup> This disturbing lack of compliance in the wake of many serious nursing home fires in recent years can better be understood by taking a close chronological look at the causes and true dimensions of this bureaucratic tangle.

1965

• Medicare was enacted authorizing up to 100 days posthospital "skilled nursing care" for patients housed in facilities meeting rigid Federal standards. Qualifying facilities were known as extended care facilities (ECF's).

• Medicaid was enacted authorizing Federal matching funds to States that provide skilled nursing care to needy indigents.

• Senator Stephen Young of Ohio succeeded in persuading the Senate to bar Medicare funds from facilities that do not meet reasonable Federal fire protection standards as promulgated by the Secretary.<sup>80</sup>

• Senator Robert Kennedy added an amendment to the Medicare Act (now section 1863) which specifies that where a State has higher standards than the proposed Medicare standards, the higher State standards should prevail.<sup>81</sup>

<sup>78</sup> See part 5 of this report, p. 514.

<sup>79</sup> *Long-Term Care Facility Improvement Study*, interim report, March 1975, Office of Nursing Home Affairs, Public Health Service, U.S. Department of Health, Education, and Welfare, p. 9.

<sup>80</sup> See *Congressional Record*, Senate, June 9, 1965.

<sup>81</sup> See *Congressional Record*, Senate, July 8, 1965.

● Medicare standards for ECF's were promulgated. Fire safety provisions read as follows:

405.1134 Condition of Participation—Physical Environment.—The extended care facility is constructed, equipped, and maintained to insure the safety of patients and provides a functional, sanitary, and comfortable environment. The following standards are guidelines to help State agencies to evaluate existing structures which do not meet Hill-Burton construction regulations<sup>82</sup> in effect at the time of the survey, and to evaluate in all facilities those aspects of the physical environment which are not covered by such Hill-Burton regulations. They are to be applied to existing construction with discretion and in light of community need for service.

(a) *Standard; Safety of Patients.*—The extended care facility is constructed, equipped, and maintained to insure the safety of patients. It is structurally sound and satisfies the following conditions:

(1) The facility complies with all applicable State and local codes governing construction.

(2) Fire resistance and flamespread ratings of construction, materials, and finishes comply with current State and local fire protection codes and ordinances.

(3) Permanently attached automatic fire-extinguishing systems of adequate capacity are installed in all areas considered to have special fire hazards including but not limited to boiler rooms, trash rooms, and nonfire resistant areas or buildings. In an extended care facility of two or more stories fire alarm systems providing complete coverage of the building are installed and inspected regularly. Fire extinguishers are conveniently located on each floor and in special hazard areas such as boiler rooms, kitchens, laundries, and storage rooms. Fire regulations are prominently posted and carefully observed.

(4) Doorways, passageways, and stairwells are wide enough for easy evacuation of patients and are kept free from obstruction at all times. Corridors are equipped with firmly secured handrails on each side. Stairwells, elevators, and all vertical shafts with openings have fire doors kept normally in closed position. Exit facilities comply with State and local codes and regulations.

(5) Unless the facility is of fire resistive construction, blind and nonambulatory or physically handicapped persons are not housed above the street level floor.

(6) Reports of periodic inspections of the structure by the fire control authority having jurisdiction in the area are on file in the facility.

(7) The building is maintained in good repair and kept free of hazards such as those created by any damaged or defective parts of the building.

<sup>82</sup> Standards for the construction of nonprofit nursing homes administered by the Public Health Service, U.S. Department of Health, Education, and Welfare.



(8) No occupancies or activities undesirable to the health and safety of patients are located in the building or buildings of the extended care facility.

• At this time, Medicaid was seen primarily as a State program and no Federal fire safety standards were required. Senator Moss added amendments to the 1967 Social Security Act requiring that Medicaid skilled nursing homes meet a comprehensive series of Federal minimum standards as a precondition of participating in the Federal-State program. The fire safety provisions of his amendment incorporated the 1967 Life Safety Code. Full compliance was required by January 1970.<sup>83</sup>

• Senator Jack Miller of Iowa added an amendment to the same Social Security Act authorizing Federal old age assistance funds (under title 16 of the Social Security Act) to be paid for nursing home care less acute than skilled nursing care. This level of care was called intermediate care and the facilities that were to provide it are called Intermediate Care Facilities.<sup>84</sup>

### 1970

• The Marietta, Ohio, fire on January 9 and the hearings of this Subcommittee a month later brought together a number of alarming revelations as follows:

1. Despite the requirements of the 1965 Young amendment, there were no Federal minimum fire safety standards for Medicare nursing homes. The language in the regulations (see section 405.1134 reprinted above) simply refers States back to their own fire safety statutes. Moreover, they contain the following double disclaimer:

The following standards are *guidelines* to help State agencies to evaluate existing structures which do not meet Hill-Burton construction regulations. . . . *They are to be applied to existing construction with discretion* and in light of community need for service.<sup>85</sup> [Emphasis added.]

At the February 1970 hearings, Senator Moss pointed out the difference between regulations, which have the force of law, and guidelines, which are mere suggestions to the State.

2. Although all Medicaid nursing homes were required to comply with the Moss amendments, including the Life Safety Code, by January 1970, HEW had not yet announced one final regulation in implementation of the Moss measures.

3. By virtue of the 1967 Moss amendment, nursing homes in all States had to comply with the 1967 Life Safety Code. Thus, in effect, the Life Safety Code became State law. This brought into play section 1863, the 1965 Kennedy "comparability" provision. Since State law (Medicaid) was higher than Medicare, Federal Medicare standards had to be at least as high as Medicaid. This meant Medicare was obligated to adopt the 1967 Life Safety Code. Medicare had not done so at the time of the fire.

4. There were no flammability standards with respect to carpeting installed in nursing homes. The single exception was the Hill-Burton

<sup>83</sup> Public Law 90-248, section 234.

<sup>84</sup> Public Law 90-248, section 250.

<sup>85</sup> Page 352, reference cited in footnote 11.

construction program which allowed only carpeting with a flame spread rating of 75 or less as measured on the so-called tunnel test. (For further details see part 6, page 522.)

5. As of February 1970, the Secretary of Commerce had promulgated only one proposed standard under the Flammable Fabrics Act of 1967. In December of 1969, he offered a proposed test for carpets and rugs using the so-called pill test to screen qualifying carpets and rugs. This test is described below. It was criticized at the hearings as being a very limited test which measured only ease of ignition, not flammability. Department of Commerce spokesmen acknowledged this fact and noted that they were working on "second generation" tests to protect the consumer from the hazards of unsafe carpets and rugs.<sup>86</sup>

#### THE "PILL TEST"

A 9-inch square specimen of the carpet to be tested is dried at 221° F. This is placed in an open-top box to protect it from drafts. A quarter-inch-thick steel plate, also 9 inches square with an 8-inch diameter hole, is placed on top of the carpet to hold the specimen flat.

In the center of the hole in the steel plate, there is placed a small (approximately aspirin size) tablet, which goes by the name "methenamine" and is composed of the chemical compound hexamethylenetetramine. This tablet, colloquially called a pill, weighs approximately one two-hundredths of an ounce, and, when ignited, burns with a small (approximately match size) flame for about 100 seconds.

The tablet is ignited, and all burning of the tablet and the carpet is permitted to continue until the flame extinguishes itself.

If the specimen burns 3 inches or more in any direction, it is deemed to have failed the test. If it burns less than 3 inches, it has passed. In order to test a carpet or rug, this procedure is carried out on eight specimens, and seven of the eight must pass if the carpet or rug is to be deemed acceptable under the proposed standard.<sup>87</sup>

• Just days before their appearance at a May 7 hearing called by the Subcommittee, HEW announced the first final standards in implementing the 1967 Moss amendments. Noting that 28 months had passed since the enactment of these provisions, Senator Moss denounced the unreasonable delay and exacted promises that HEW would soon implement additional Moss amendments and begin to enforce the law.<sup>88</sup>

• In June 1970, HEW ruled that the 1967 Miller amendment did not provide the basis for Federal regulation of Intermediate Care Facilities and allowed the States to establish their own standards.<sup>89</sup>

<sup>86</sup> See part 6 of this report page 522.

<sup>87</sup> See complete report on the Marietta fire as prepared by Underwriters Laboratories, Inc., on pp. 77-487 of "Trends in Long-Term Care," part V.

<sup>88</sup> Page 623, reference cited in footnote 11, part VII.

<sup>89</sup> Page 40, reference cited in footnote 12.

1971

● 1971 brought with it a number of significant nursing home fires (Salt Lake City and Honesdale, among others) as well as a Presidential initiative to eliminate substandard nursing homes. President Nixon announced his concern on July 25 and followed up on August 6 with an 8-point reform plan to be carried out by HEW.<sup>90</sup>

Senator Moss had scheduled a September hearing in which witnesses from the Department of Health, Education, and Welfare would be called to explain the President's plan. However, the Utah fire intervened. The Subcommittee held hearings on the causes of that fire on September 29.<sup>91</sup> Thereafter, Senator Moss invited Under Secretary John Veneman of HEW to testify before the Subcommittee on October 28.

On October 19, a few days before HEW's scheduled appearance, 15 elderly died in the Honesdale fire.

Testifying at the October 28 Subcommittee hearing, Mr. Veneman denounced the poor enforcement of Federal standards by the States. He said that "reliance on State enforcement machinery has led to widespread nonenforcement of Federal standards."<sup>92</sup>

Mr. Veneman also took the occasion to notify the Subcommittee that HEW was that day promulgating regulations to require Medicare nursing homes (like Medicaid facilities) to comply with the provisions of the 1967 Life Safety Code. As was explained above, this change was required by the Kennedy "comparability" amendment of 1965.

In short, it took the Department of Health, Education, and Welfare 21 months after Marietta (and several other major nursing home fires) to take action which they were already required to take by law.

● The U.S. General Accounting Office issued its May 28 report charging that 50 percent of the nursing homes in its sample did not meet the Federal minimum fire safety standards.<sup>93</sup>

● In December 1971, the Congress enacted Public Law 92-223, authorizing the participation of Intermediate Care Facilities in the Medicaid program. The law's main effect was to make possible Federal minimum standards.

1972

● Some 500 nursing homes dropped out of Medicare and Medicaid (some voluntarily and some by HEW action). Most could not comply with the provisions of the Life Safety Code.<sup>94</sup>

● HEW announced new rules insisting that States apply Federal criteria in their inspection of nursing homes. The common practice had been to inspect a home for purposes of State licensure using State criteria and then automatically certifying the facility for participation in Medicare or Medicaid.<sup>95</sup>

<sup>90</sup> Pages 90-108, reference cited in footnote 12.

<sup>91</sup> See reference cited in footnote 11, part 16.

<sup>92</sup> Page 1976, reference cited in footnote 11, part 18.

<sup>93</sup> *Problems in Providing Proper Care to Medicaid and Medicare Patients in Skilled Nursing Homes*, report of the U.S. General Accounting Office, May 28, 1971.

<sup>94</sup> Page 104, reference cited in footnote 12.

<sup>95</sup> Page 1977, reference cited in footnote 11, part 18.

● HEW gave numerous facilities provisional (6-month) provider agreements (instead of a year) and announced that no home would receive more than two successive 6-month agreements unless the deficiencies were corrected.

1973

● In July 1973, HEW published proposed regulations providing that nursing homes completing their second 6-month agreement, under provisions for certification prior to July 1, 1973, could be given up to 1 additional year to correct previously identified deficiencies if the State found that the nursing home was providing safe and adequate patient care and progressing toward correcting deficiencies. Although the regulations were in proposed form, they were applicable immediately. The Commissioner of HEW's Medical Services Administration advised State agencies of this provision on June 29, 1973.<sup>96</sup>

● Following the December 4 nursing home fire in Wayne, Pa., the National Consumer League, through its president, Esther Peterson, called for a congressional inquest into nursing home fire safety. In a letter to Senator Frank E. Moss, Mrs. Peterson wrote:

DEAR SENATOR MOSS: Two Pennsylvania nursing home fires in the last 3 months are convincing proof that patient protections mandated by law and reinforced by the President's 1971 promises are not working in Medicare and Medicaid.

In the midst of the heating season, when nursing home fires become more likely, thousands of elderly patients are literally on the brink of disaster because of regulatory failure.

Besides these potential personal disasters, there is an equally grave crisis in the administration of Federal programs and the integrity of legislative and executive processes.

Essentially, the law and the commands of the President have been somehow set aside.

On December 4, nine aged persons died in a Medicare-certified home near Philadelphia. The deaths at the Caley Nursing and Convalescent Center may all have been unnecessary, had the law been carried out. I refer to the amendments on fire safety you introduced and carried successfully to passage in 1967. Seven of the nine deaths would have been prevented by fire doors, a recognized fire-safety expert says.

The fact that a \$400 set of fire doors were absent in the facility in violation of the fire-safety code your amendments incorporated in Federal law is sufficient proof that the officials charged with Medicare enforcement did not do their duty.

The September lethal fire at Washington Hill Nursing Home in west Philadelphia is likewise proof that Medicaid is not working in that State, and possibly elsewhere, to protect the elderly.

<sup>96</sup> Report to the Congress: *Many Medicare and Medicaid Nursing Homes Do Not Meet Federal Fire Safety Requirements*, Department of Health, Education, and Welfare, by the Comptroller General of the United States, March 18, 1975, p. 3.

Where are the Medicare and Medicaid officials who are responsible for enforcing the law? Have they been asleep for the 4 years since 32 people suffocated to death in a Marietta, Ohio, Medicare facility that also lacked fire doors?

Signed into law January 2, 1968, your amendments became part of the Social Security Act in an effort to assure fire safety. President Nixon in 1971 declared that Federal subsidies would not go into substandard facilities. But that is exactly what has gone on in Pennsylvania and, we suspect, elsewhere.

We think, therefore, that the time has come for a national inquest into the failure of this Government to assure safety and decency in the Nation's federally aided nursing homes.

We suggest that you undertake to organize a joint congressional investigation of what has happened to the enforcement process and why not even the express command of the President and Congress is followed by the Federal and State bureaucracies.

We think you should consider bringing together the committees most concerned with the programs and the defense of the elderly. Specifically, members of the Senate Finance Committee, the House Ways and Means Committee, the House Special Studies Subcommittee and the Senate Aging Committee should form a special group to conduct the inquest, so that jurisdictional lines will not hinder full consideration and action by Congress.

We believe that, among the factors to be considered are: the fragmentation of responsibility among Federal and State agencies, the penchant for compromise in the Federal bureaucracy, the conflict of interest that States have between holding down their budgets and providing sufficient funds for decent care of the elderly, and the attacks on standards enforcement by nursing homes that cannot meet them.

When Congress passes a law and when the President states policy, action must follow in the bureaucracy to get the results. Since 1970, the league has seen and complained about Federal temporizing with the safety of the elderly.

Such temporizing must stop. Protection for the elderly must become a reality throughout our Nation.

We hope you will find it possible to act quickly upon our suggestion. The league respectfully offers its services to you for any assistance we may provide.<sup>97</sup>

Senator Moss responded favorably to the suggestion from the league but could not bring together several committees of the Congress. He noted that the General Accounting Office was conducting an investigation in this area in conjunction with the House Special Studies Subcommittee and that HEW would soon release a report of its own. Senator Moss pointed out that this Subcommittee had completed its analysis of the lethal laziness of public servants charged

<sup>97</sup> Letter to Senator Frank E. Moss, Dec. 18, 1973. See *Hospital Practice* editorial, reprinted as appendix 10, p. 554.

with seeing that the law is carried out.<sup>98</sup> The result was the Subcommittee's Introductory Report and this Supporting Paper.

● In December, President Nixon signed into law a Moss bill to make available FHA insurance for the purchase of fire safety equipment.<sup>99</sup>

1974

● In January, HEW announced the results of its fire safety survey of the 7,318 Skilled Nursing Facilities in the United States. They found:

1. There were 4,307 SNF's certified with deficiencies (59 percent of total). Of these, 1,199 or 27.8 percent had incomplete or no plans of correction in the file.

2. There were 2,120 SNF's certified with waivers (29 percent of total). Of these, 450 or 21 percent had incomplete or no justification for granting waivers.

3. For 306 SNF's (4.2 percent of total) the State fire authority indicated that Life Safety Code requirements were not met, yet most of the facilities were certified.

4. 3,694 SNF's (50 percent of total) were identified as requiring automatic sprinkler protection throughout. Of these, 1,347 or 36.5 percent had no sprinkler protection.<sup>100</sup>

The Associated Press reported:

More than half of the Nation's 7,318 certified skilled nursing homes failed to meet fire safety requirements 2 years after President Nixon declared war on warehouses for the unwanted . . . dumping grounds for the dying, according to an unpublished Federal survey.<sup>101</sup>

Noting that 59 percent of the facilities failed to comply with the Life Safety Code, the Associated Press continued:

Faye G. Abdallah, Assistant Surgeon General and Director of HEW's Office of Nursing Home Affairs, wrote the report. She said in an interview that she presumes noncompliance is even more widespread among the Nation's 8,500 intermediate care facilities.<sup>102</sup>

● On January 17 (one day later), HEW announced new unified standards for nursing homes in Federal programs. The term "extended care facility (ECF)" was dropped. Facilities offering skilled care, whether in Medicare or Medicaid, were to be known as Skilled Nursing Facilities (SNF's). The Life Safety Code was continued as the standard for Skilled Nursing Facilities under both Medicare and Medicaid as well as for ICF's under Medicaid. However, liberal waiver provisions were granted as noted on page 486, supra.

● On February 18, Under Secretary Frank Carlucci of HEW responded to his copy of the December 18, 1973, letter from the National Consumer League to Senator Moss. He said in part:

Over the past 2 years, the Department has taken a number of steps intended to improve the enforcement program and

<sup>98</sup> Jan. 5, 1974, letter from Senator Moss to Esther Peterson.

<sup>99</sup> Public Law 93-204.

<sup>100</sup> Page 3, reference cited in footnote 77.

<sup>101</sup> *Washington Post*, Jan. 16, 1974, p. A9.

<sup>102</sup> *Washington Post*, Jan. 16, 1974, p. A9.

to bring substandard nursing homes into compliance. Training programs on Life Safety Code requirements and survey documentation for State surveyors were conducted in the spring and fall of 1972 and in the summer of 1973. Approximately 750 State fire safety surveyors have attended these training programs. In 1972, the Department initiated a special program intended to insure that States had the necessary administrative mechanism to survey and certify nursing homes and that all homes participating in the Medicaid program were properly certified. As a result of this effort, over 500 nursing homes were terminated, most of them because they could not meet Federal standards.<sup>103</sup>

● Gregory Ahart, Director, Manpower and Welfare Division of the General Accounting Office, testified before Representative Floyd Hicks and the House Special Studies Subcommittee detailing the results of their 11-State nursing home fire safety audit. In measuring compliance with 13 of the most significant provisions of the Life Safety Code, GAO found that 72 percent of the facilities surveyed had from one to seven deficiencies. Fully 89 percent of these code violations had not previously been identified by State nursing home inspectors.

The most common violations related to lack of appropriate construction classification and the lack of automatic sprinkler protection. More specifically, the Life Safety Code states that a facility should have complete sprinkler systems unless it is fire resistive or is a protected noncombustible building of one story. Proper classification is, therefore, a very important factor in life safety. Unfortunately, 41 percent were found by the GAO sample to be improperly classified and 28 percent should have been classified as construction types required to have sprinklers.<sup>104</sup>

HEW contends that only 4 percent of the Nation's skilled nursing homes have specifically been given waivers from complying with the automatic sprinkler requirement and then only when they meet four equivalency factors promulgated by HEW. These factors are: (1) That all hazardous areas have automatic extinguishment devices, (2) that automatic fire detection devices be installed throughout the facility, (3) that patient rooms be separated from all other areas by 1-hour, fire-resistive construction, and (4) that the local fire department capability is adequate to provide an acceptable level of protection.

GAO, however, discovered that 4 percent does not accurately indicate the number of sprinkler waivers granted, simply because the States were issuing waivers without notifying HEW. They found, further, that 85 percent of the homes which were granted waivers on the basis of the equivalency criteria were deficient in one or more of the four equivalency criteria.<sup>105</sup>

● Partly in reaction to GAO's analysis of the enforcement of fire safety standards enacted in 1967, Under Secretary Carlucci, in a June 21 speech, announced a long-term care improvement plan.

<sup>103</sup> Feb. 18, 1974, letter to Senator Moss.

<sup>104</sup> "Errors in Fire Safety Inspections of Nursing Homes," hearing before a Subcommittee on Government Operations, House of Representatives, June 11, 1974, p. 6.

<sup>105</sup> Page 7, reference cited in footnote 104.

Major provisions, as refined in subsequent editions of the *Federal Register*, follow below:

1. Unannounced inspection of 304 randomly selected nursing homes around the Nation by HEW validation teams. Each team was to have a physician, a registered nurse, a physical therapist, a nutritionist, a pharmacist, a fire and safety engineer, and a health care facility administrator. The teams were to spend a minimum of 2 days in each facility, assessing the quality of nursing home care. A long-term care management information system was to be created which could supply information rapidly about surveys, certification, inspections, and the status of individual homes.

2. Organization in regional offices of long-term care standards enforcement units and confirmation of responsibilities (see *Federal Register*, June 13, 1974).

3. The August 30, 1974, *Federal Register* contains details of HEW's latest reorganization giving the Office of Nursing Home Affairs greater authority. Two divisions were created within the agency: (1) The Division of Standards Enforcement, and (2) the Division of Policy Development, and interagency advisory group under the chairmanship of the Office of the Under Secretary and the Office of Nursing Home Affairs, to coordinate long-term care activities.

4. Continuation of health facility surveyor improvement program as well as training of nursing home provider personnel.

5. The development of uniform inspections and a system of uniform ratings for nursing homes. A "scoreboard" rating of "A" for a facility would carry the same meaning in every State.

6. The establishment of monthly cost of care indices with separate estimates for skilled nursing care and intermediate care.<sup>106</sup>

Nos. 2, 3, and 4 of the Carlucci plan were efforts to gear up the enforcement of Federal standards. While assuring the States that they will continue to have the responsibility for assessing compliance with standards and for certifying facilities participating in Medicare and Medicaid, HEW made it clear that it was ready to play a larger role.

To facilitate the enforcement of standards, HEW reorganized the Office of Nursing Home Affairs, extending the line of authority directly into the Office of the Secretary of Health, Education, and Welfare. Authority for overseeing enforcement was placed in the hands of the HEW Regional Directors, and standards enforcement units were set up in each region.

● Further evidence of HEW's resolve came on October 16, when the Department brought suit to cut off funds to the State of Pennsylvania.

The Department of Justice, acting for HEW, brought the suit. Specifically asking for an injunction requiring the State to perform its functions in certifying nursing homes under Title XVIII (Medicare) and Title XIX (Medicaid) of the Social Security Act. HEW's brief cites the example of two nursing home fires in Pennsylvania in 1974.

<sup>106</sup> Page 107, reference cited in footnote 12.



One home was allowed to participate in Medicaid without a valid provider agreement principally because the home could not meet Federal minimum fire safety requirements. The second home participated in both Medicare and Medicaid although it could not comply with the fire safety provisions.

In all, HEW cites 134 Pennsylvania homes allowed to participate in Medicaid without the required valid provider agreements. Some 52 facilities were allowed to participate in Medicare without providing HEW with assurances that they qualify for certification in the program.

HEW withheld \$12 million in Federal matching funds because the homes to receive the money had not been satisfactorily inspected and certified in compliance with Federal standards as required by law.

Obviously, the State of Pennsylvania has its own version of these facts and is vigorously contesting the HEW action in the Federal District Court for Middle Pennsylvania.<sup>107</sup>

● One month later the Subcommittee issued its Introductory Report, *Nursing Home Care in the United States: Failure in Public Policy*. It concluded:

**Despite the sizable commitment in Federal funds, HEW has been reluctant to issue forthright standards to provide patients with minimum protection. Congress in 1972 mandated the merger of Medicare and Medicaid standards, with the retention of the highest standard in every case. However, HEW then watered down the prior standards. Most leading authorities concluded at Subcommittee hearings that the new standards are so vague as to defy enforcement.**

**There is no direct Federal enforcement of these and previous Federal standards. Enforcement is left almost entirely to the States. A few do a good job, but most do not. In fact, the enforcement system has been characterized as scandalous, ineffective, and, in some cases, almost nonexistent.**

**The President's program for "nursing home reform" has had only minimal effect since it was first announced in 1971 and actions in 1974 fall far short of a serious effort to regulate the industry.<sup>108</sup>**

The report called the nursing home inspection and enforcement system a national farce, reporting HEW nonaction in the fire safety area as one example. Several reasons are set forth explaining these failures: (1) inspections are infrequent in some States and surveyors are untrained; (2) some States do not have enough surveyors to do the job; (3) advance notice of inspection is routinely given; (4) inspections are bureaucratic rituals—they were cursory or pro forma; (5) the recommendations of the inspectors were often ignored; (6) there is fragmentation for inspection among State agencies as well as between the State and Federal governments on one hand and local

<sup>107</sup> Oct. 16, 1974, letter to Senator Frank Church from Secretary Caspar Weinberger, includes a copy of HEW's brief against Pennsylvania. In committee files.

<sup>108</sup> Page 6, reference cited in footnote 12.

governments on the other; (7) too often inspections emphasized the physical plant rather than patient care; (8) total reliance on State inspectors to do Federal inspections was a major problem; (9) the States lack methods with which to enforce regulations short of the ultimate sanction of closing a home; (10) there is a lack of self-regulation; and (11) political influence too often intervenes to prevent discipline and to keep homes open.<sup>109</sup>

HEW officials took exception to the Subcommittee's characterizations of their efforts with respect to nursing home fire safety.<sup>110</sup>

● Late in 1974, the *New York Times* carried a series of articles reporting its investigation of New York nursing homes. The disclosures of fraud and abuse on an elaborate scale led Senator Moss on December 18 to announce hearings in New York City.<sup>111</sup>

1975

● Also in reaction to the *New York Times* disclosures which received wide publicity across the Nation was a January 8 move by HEW to cut off funds from specific nursing homes.

Despite the clear language of a 1967 Moss amendment requiring the Secretary to cut off Federal funds to facilities which did not fully meet State licensure requirements, HEW has contended that it lacks authority to cut off funds from specific homes. Until January 1975, HEW officials reasoned that they could cut off funds only to an entire State (such as Pennsylvania). Clearly this action can be criticized as unfair, as it is impractical except in large-scale cases involving violations by a great many facilities.

This reasoning on the part of HEW was reinforced by recent court decisions which have held that a nursing home license (and even a certification for participation in Medicare and/or Medicaid) is a property right which cannot be breached without due process of law. The extreme case is probably before the California Supreme Court.<sup>112</sup> In that case the provider agreement between the facility and the State expired.

The State announced its intention not to renew the contract. The nursing home brought suit, charging that the decision not to renew (as opposed to terminating an agreement presently in force) was a property right secured by the due process clause. The State contends that no administrative hearing is necessary in its decision not to renew the contract for participation in Medicaid. The nursing home claims the opposite.

In New York a similar suit has been brought by the nursing home association against the HEW January action cutting off Federal funds to specific homes. The association suit employs the same due process argument. HEW relies heavily on the Federal fire safety standards (compliance with the Life Safety Code of the National Fire Protection Association). HEW contends that the Secretary of HEW has

<sup>109</sup> Pages 76-84, reference cited in footnote 12.

<sup>110</sup> See Nov. 18, 1974, letter to Senator Charles Percy from Under Secretary Frank Carlucci, reprinted as appendix 7, p. 547.

<sup>111</sup> "Developments in Aging: 1974 and January-April 1975," a report of the Special Committee on Aging of the U.S. Senate, June 24, 1975, pp. 51-53.

<sup>112</sup> *Paramount Nursing Home v. Department of Health Care Services*; no opinion has been rendered as of this date.

specific authority to accept or deny waivers of Life Safety Code requirements granted by the States. Moreover, according to Federal regulations HEW can cut off Federal funds to individual homes 30 days after it notifies the State of the termination of a home's certification.<sup>113</sup>

● The February 11, 1975, *Federal Register* carries proposed regulations transferring authority for allowing waivers from State agencies to the Secretary of Health, Education, and Welfare. The Secretary had such authority with respect to Skilled Nursing Facilities and now claimed it with respect to Intermediate Care Facilities.

Not all parties have been happy about this transfer of authority. Many States have written protesting HEW "usurpation of State police power." HEW responds that the action is intended to insure uniformity in the waiver procedure which GAO reported was so often abused.

One of those opposing the transfer was Utah's director of health, Dr. Lyman J. Olsen, who wrote:

In accordance with the provisions contained in the *Federal Register*, volume 40, No. 29, Tuesday, February 11, 1975, the State of Utah *strongly* objects to the proposed regulatory change transferring the power to modify or waive safety and environmental standards for intermediate care facilities with Medicaid patients *and* skilled nursing facilities certified in the Medicaid program *from* the individual States to the Secretary of DHEW.

It is our position that the proposed regulatory change increases inordinate concentration of Medicaid program authority in DHEW and is a diminution and breach of States' rights. Additionally, it is our belief that Federal legislation does not provide the Secretary, DHEW, with an option of assuming such authority over these facilities.<sup>114</sup>

The reasons for Dr. Olsen's letter are complex and require explanation. After the Lil-Haven fire in 1971, Utah's Governor Calvin Rampton ordered each long-term care facility in the State of Utah to install automatic sprinkler systems or close its doors. All Utah homes complied.

In 1974, personnel from the Denver Regional HEW Office took a closer look at the compliance of Utah's nursing homes with the provisions of the Life Safety Code. Almost all Utah homes had complete sprinkler protection, but were found to be out of compliance with the code because they had hollow-core doors instead of the 1¾-inch solid doors required by the code. Utah's fire marshal, Robert Riddell, argued that complete automatic sprinkler protection more than made up for the absence of solid core doors. He added that the installation of solid doors would be costly and create undue hardships on the facilities which had only recently faced the need to install sprinklers.

<sup>113</sup> See *Federal Register*, Nov. 13, 1974, and HEW press release dated Jan. 8, 1975. Issued at New York press conference by Peter Franklin, Special Assistant to the Secretary. See also *Federal Register*, Feb. 11, 1975, for proposed regulations transferring authority for allowing waivers from State agencies to the Secretary of HEW.

<sup>114</sup> Mar. 11, 1975, letter to the Administrator of the Social and Rehabilitation Service, Department of Health, Education, and Welfare.

In support of his position, the fire marshal supplied a letter from Lloyd G. Ryan, the president of the Fire Marshals Association of North America, which said in part:

The Fire Marshals Association of North America hereby goes on record as supporting the concept that an approved automatic sprinkler system throughout institutional care facility occupancies adequately compensates for hollow core door assembly use in patient room-corridor door arrangements in existing occupancies that are in substantial conformance with the 1967 Safety to Life Code.

HEW has resisted this argument, relying upon the National Fire Protection Association position that the doors are necessary. Mr. Stevens of NFPA wrote to Senator Moss:

This requirement is in line with the approach in the code to a system for life safety. That approach makes provision for the possible failure of a part of the system and in that event alternates are required to assure the continuity of the system . . . HEW apparently is not willing to grant a waiver on this matter. This, in my opinion, is understandable and is a correct application of the code.<sup>115</sup>

Compounding the problem, an employee of the Denver HEW office was dispatched to Utah. He was hired by the State and paid by HEW. He set up shop in the State fire marshal's office. The official reportedly followed the State fire marshal on every job and canceled almost every waiver the marshal was prepared to offer even after the marshal had determined that there was little danger such waiver would adversely affect the health and safety of patients. The official was ultimately expelled from the fire marshal's quarters and is now located in the State division of health office.<sup>116</sup>

The behavior of the HEW official greatly offended Utah officeholders. They claimed the official was acting arbitrarily and capriciously. They claimed HEW was being overzealous in the case of Utah because of Senator Moss' sponsorship of the code and his forthright criticism of HEW's enforcement efforts.

Senator Moss asked HEW for a more uniform application of the code, insisting that the standards be applied with the same vigor in every State instead of "making an example" of Utah. He has introduced a bill, S. 1563, to upgrade and modernize nursing home fire safety requirements.<sup>117</sup> The Moss bill, if enacted, would substitute the 1973 edition of the code for the 1967 edition presently required by law. Utah's State fire marshal, Robert Riddell, supported this measure as one solution to the present dilemma. The 1973 code gives States greater flexibility in their interpretation of some code provisions.<sup>118</sup> Critical differences in the 1967 and 1973 versions are set forth below (see letter, appendix 2, p. 539). NFPA officials have also supported

<sup>115</sup> April 28, 1975, letter to Senator Moss from Richard E. Stevens, assistant vice president, National Fire Protection Association. See appendix 4, p. 543.

<sup>116</sup> See memorandum to Val. J. Halamandaris from Bruce D. Thevenot, Legislative Services Department, the American Health Care Association. See appendix 3, p. 541.

<sup>117</sup> *Congressional Record*, Apr. 29, 1975, p. S6932.

<sup>118</sup> Nov. 1, 1974, letter to Senator Moss from Robert D. Riddell, State Fire Marshal, State of Utah. See appendix 2, p. 539.

Moss bill S. 1563 because it reflects many technological advances and new developments. According to NFPA officials, the adoption of the 1973 version would lessen the confusion because many States have already adopted the 1973 edition, so there now exists a double standard—one at the State level and one at the Federal level.<sup>119</sup> The bill is still pending before the Senate Finance Committee.

### 1967 LIFE SAFETY CODE

10-1332 An institutional sleeping room shall be provided with a substantial door, such as a 1¾-inch solid wood bonded core door, with openings therein, if any, limited to 1,296 square inches and glazed with wired glass in approved metal frames. These doors shall be provided with latches of a type suitable for keeping the door tightly closed and acceptable to the authority having jurisdiction.

#### 10-212 *Modification of Retroactive Provisions*

10-2121 The authority having jurisdiction may modify the general rule of 10-2111, above, under two conditions: (a) If the building in question was occupied as a hospital, nursing home or residential-custodial care institution prior to adoption or amendment of these requirements. (b) Only those requirements whose application would be clearly impractical in the judgment of the authority having jurisdiction shall be modified.

10-2122 In such cases the requirements may be modified by the authority having jurisdiction to allow alternative arrangements that will secure as nearly equivalent safety to life from fire as practical; but in no case shall the modification be less restrictive or afford less safety than compliance with the corresponding provisions contained in the following part of this code. Some of the following requirements are the same as for new hospitals and nursing homes. This has been done to facilitate the use of the code by locating all requirements for existing occupancies in one section.

### 1973 LIFE SAFETY CODE

10-2327 Corridors in existing institutional occupancies shall be separated from use areas by walls constructed to resist the passage of *smoke*. Doors in such corridor partitions, other than those serving exits or hazardous areas, shall be at least 1¾-inch solid bonded wood core or equivalent. Doors shall be provided with latches of a type suitable for keeping the door tightly closed and acceptable to the authority having jurisdiction.

#### 10-212 *Modification of Retroactive Provisions*

10-2121 The requirements of this section may be modified if their application would be clearly impractical in the judgment of the authority having jurisdiction and if the resulting arrangement could be considered as presenting minimum hazard to the life safety of the occupants. The requirements may be modified by the authority having jurisdiction to allow alternative arrangements that will secure as nearly equivalent safety to life from fire as practical; but in no case shall the modification afford less safety than compliance with

<sup>119</sup> See reference cited in footnote 115 and appendix 5, p. 545.

the corresponding provisions contained in the following part of this code.

10-2122 A limited but reasonable time shall be allowed for compliance with any part of this section, commensurate with the magnitude of expenditure and the disruption of services.

10-2123 When alternate protection is installed and accepted, the institution shall be considered as conforming for purposes of this code.

● Early in 1975, the American Health Care Association (formerly American Nursing Home Association) completed 14 full-scale fire safety tests in an abandoned nursing home in Liberty Township, Ind. The purpose of the tests was to study the validity of certain provisions of the 1967 Life Safety Code. The Department of Health, Education, and Welfare provided \$70,000 for this study. Gage-Babcock and Associates, Inc., designed the experimental program, analyzed and interpreted the data. IIT Research Institute set up all the tests and recorded the data. Vitronics, Inc., produced the television video tape recordings of the tests. In addition, an ad hoc advisory committee was convened to provide guidance and direction. Mr. Richard Amirikian of HEW served as project director.

The Gage-Babcock report for the American Health Care Association concludes:

One of the objectives of this program was to validate provisions of the 1967 Life Safety Code which are applicable to nursing homes. Based on the findings presented in section 5.0, the following provisions are considered partially or completely invalid. The portion of each numbered section that is considered invalid is that which is described below:

1. 6-6111 The requirement for maximum possible tightness in smoke-stop doors.
2. 10-1313 Requirement for smoke-stop barriers to be of 1-hour, fire resistance and be continuous from the floor to the underside of the floor above.
3. 10-132 Requirements for 2-hour, fire-resistive construction for nursing homes.
4. 10-1232 Allowing increased travel distance because sprinklers are installed.
5. 10-1324 Requires only noncombustible partitions in fire resistive buildings.
6. 10-1332 Requirement for a door equivalent to a 1 $\frac{3}{4}$ -inch solid core wood door with special latch on patient room doors.
7. 10-1351 Requirements in this section which limit the use of interior finish in patient rooms in sprinklered buildings to a flame spread of 75.
8. 10-1351 The requirement for any flame spread index on carpeting.
9. 10-1351 The allowance that any interior finish with a flame spread of 25 or less can be used in corridors.
10. 10-136 Determination of whether or not a building has to be sprinklered by the construction of the building.

11. 17-412 Operational procedures in case of fire.
12. 17-415 Requirement for fire-retardant drapes and cubicle curtains.

The following provisions of this code were validated :

1. 10-131 The requirement that smoke-stop partitions be provided.
2. 10-132 The section of this provision that requires a 1-hour ceiling construction in patient rooms.
3. 10-2213 The requirement for patient room windows that can be opened.
4. 10-2331 The allowance that a 200 flame spread finish may be retained in existing patient rooms of a building protected with automatic sprinklers.<sup>120</sup>

*Modern Health Care*, April 1975, carried an interview with Mr. Amirikian which summarizes the test results. Amirikian stated :

The conclusion we are coming to is that automatic sprinkler protection throughout a facility is a must. We have shown that structural systems play a very insignificant role in reducing the potential loss of life. This is true whether you're talking about a hospital, a nursing home, or a home health facility.

My professional opinion is that, because of the characteristics of elderly patients, it is essential to have automatic sprinklers in all nursing homes.<sup>121</sup>

Noting that hollow-core doors contained the fire and repelled smoke just as well as solid-core doors, he also observed that there was no tendency for the fire to burn through the walls even though they were less than 1-hour protected. He concluded :

The current emphasis in the Life Safety Code on structural compliance is a disservice to the public and the health field.

The dogmatic application of the Life Safety Code is causing chaos out there. We've got people in the department who are not well versed in the code, but who suddenly become self-styled fire experts. They are causing a waste of money—a waste of providers' money as well as taxpayers' money. We're trying to upgrade the level of fire protection, but we're not being practical. If we coupled model building codes with a requirement for automatic sprinklers and nothing else, I think we'd be better off. As far as I'm concerned, that's the practical solution.<sup>122</sup>

**Mr. Richard Stevens of NFPA took sharp exception with the conclusions in the Gage-Babcock report. In a May 5, 1975, letter to Mr. Dave Long, Project Director for the American Health Care**

<sup>120</sup> *Full Scale Fire Tests in a Nursing Home Patient Room*, prepared for the American Health Care Association by Gage-Babcock and Associates, Inc., Mar. 18, 1975. In committee files.

<sup>121</sup> *Modern Health Care*, April 1975, p. 24.

<sup>122</sup> *Modern Health Care*, April 1975, p. 24. For further insight along these lines, see appendix 8, p. 550.

**Association (see appendix 15, p. 576, for full details), Mr. Stevens said in part:**

(a) I think that fire experience refutes conclusion No. 2 and as a specific example I would refer you to the fire of January 14, 1971 in Buechel, Ky., reported in the May 1971 *Fire Journal*. This was a case where the smoke partition did not extend through the suspended ceiling.

(b) In my opinion there were no tests conducted or reported in this report which had any bearing on conclusion No. 3 unless one wishes to refer to test No. 8 where the building was totally destroyed.

(c) It is my opinion also that there were no tests conducted in this series that have any bearing upon conclusion No. 5.

(d) To my knowledge, there is no requirement in the Life Safety Code for a special latch on patient room doors, as referred to in conclusion No. 6.

(e) Fire experience shows that paragraph 10-1351 of the Life Safety Code, as indicated in conclusion 8, is necessary.

(f) Again, it is my opinion that there was no test conducted in this series that has any relationship to the validity of paragraph 10-136 of the Life Safety Code as indicated in conclusion 10.

(g) Conclusion 11 is mystifying since it makes no reference as to what operational procedures are in question and I did not see any indication in the test report that operational procedures were investigated.

(h) It seems to me that test No. 6 refutes conclusion 12 and, furthermore, without knowing the background of the reasons for paragraph 17-415 of the Life Safety Code, I do not see how the tests can speak to the validity of that requirement.

● On March 18, 1975, the GAO issued its review of fire safety compliance among a sample of the 7,000 U.S. Skilled Nursing Facilities. GAO reported: <sup>123</sup>

1. 72 percent of the sample homes had one or more deficiencies.
2. 41 percent were improperly classified.
3. 28 percent should have been classified as construction types requiring sprinklers.
4. 79 percent of the facilities which were granted waivers of sprinkler requirements on the strength of their compliance with four so-called equivalency criteria did not actually meet such criteria.
5. HEW's finding of State enforcement problems included:
  - Lack of appropriate management supervision and control.
  - Inadequate staff.
  - Inadequate understanding of the code and the relation between the code survey and the certification process.
  - The need to obtain properly qualified surveyors and to provide additional training.
6. That too often State surveyors had questionable backgrounds [qualifications] to conduct fire safety inspections. Many of the inspectors who completed fire safety surveys had expertise in other disciplines

<sup>123</sup> Pages i-v, reference cited in footnote 96.



but not necessarily in fire safety. These included sanitarians, assistant State fire marshals, State police troopers, and detective sergeants.

● In April 1975, HEW announced the results of its detailed audit of 295 Skilled Nursing Facilities first announced by Under Secretary Carlucci in June 1974. With respect to fire safety the report notes that two-thirds of the nursing homes surveyed had several (more than four) fire safety deficiencies.<sup>124</sup>

### C. SHORTCOMINGS IN EXISTING FIRE SAFETY POLICIES

Most of the shortcomings with respect to the fire safety of nursing homes relate to the enforcement of the Life Safety Code. Even the most cursory glance at the preceding chronology will reveal that standards are not effectively enforced by the States and the Department of Health, Education, and Welfare, and that interpretations of the code are anything but uniform because of the reliance on State inspectors, many of whom are improperly prepared to assume their duties. The major problem areas are:

#### 1. THE NEED FOR MORE UNIFORM INTERPRETATION OF THE LIFE SAFETY CODE

The need for a more uniform interpretation of the code is more than adequately detailed in the preceding example of the controversy between the State of Utah and HEW. The primary contention is that HEW regional offices may be overzealous in one region and less demanding in another region.

GAO recently analyzed the need for a more uniform interpretation of the code in their March 1975 audit. They noted that some 87 percent of the deficiencies they found in their study had not been discovered by State inspectors. The GAO concluded:

We believe that the differences between the HEW and State inspection reports resulted, in part, from the differing interpretations of the Life Safety Code requirements and the inspectors' different backgrounds, qualifications, and experience.<sup>125</sup>

The GAO added:

Personnel at a home in Connecticut expressed frustration with Federal, State, and local inspections they have been subjected to primarily because of different Life Safety Code requirement interpretations by different inspectors.

In Florida, an HEW inspector and a deputy State fire marshal disagreed about several Life Safety Code provisions. The HEW inspector said State inspectors have problems classifying the nursing homes as to construction type because the Life Safety Code is vague. He also said that experts from the State fire marshal's office and the HEW regional office do not agree on what constitutes fire resistiveness.

Another Florida deputy State fire marshal said the State inspectors are "on their own" when inspecting nursing homes.

<sup>124</sup> See reference cited in footnote 79.

<sup>125</sup> Page 15, reference cited in footnote 96.

They have to use their judgment and experience to apply the Life Safety Code provisions on a case-by-case basis. He said that guidance and interpretations from the HEW regional office and the State fire marshal's office are often contradictory.<sup>126</sup>

A recent report by the Special Studies Subcommittee of the House Government Operations Committee underscored these same points. The report notes that an assistant State fire marshal was asked to comment about several apparent violations of the code. He stated that the items were mere technical violations and not really safety deficiencies. He was then asked to comment about five homes that had not installed sprinklers as required by law. He replied that four of the homes, which were one-story, protected wood frame buildings, were not safety hazards merely because they did not install sprinklers. According to the subcommittee the four homes required sprinklers under the code.<sup>127</sup> The committee commented :

Undoubtedly the assistant fire marshal felt that he had good grounds for saying that these homes are safe, but that is not the real issue. The regulations under which these homes operate require that they be sprinklered. If individual judgments, regardless of their merit in a particular case, are permitted to replace the standards of the Life Safety Code, serious question is raised about the ability to obtain a consistent level of inspection by State officials. This example does not involve an inspector who does not understand the Life Safety Code requirements, but an individual who is the second ranking officer in that field in his State.

This would seem to suggest that interpretation of the Life Safety Code and HEW regulations by 50 different State inspection agencies can result in 50 different standards rather than one national standard. It may be argued that the Life Safety Code training program begun by HEW in 1972 had not been in operation for a sufficient time to show results. The issue raised in this case, however, is not lack of training, but eliminating improper diversity.<sup>128</sup>

According to HEW's Office of the Assistant Secretary for Health, a Life Safety Code survey should be made by an individual with experience as:

- a fire protection engineer;
- a registered professional engineer;
- a registered architect; or
- a graduate engineer with at least 1 year in which fire protection has been a primary responsibility.

The 1975 GAO report quotes a nationwide survey of health facility surveyors prepared by HEW. These surveyors conduct onsite surveys of health care facilities to determine by direct observation, interview,

<sup>126</sup> Page 15, reference cited in footnote 96.

<sup>127</sup> Page 15, reference cited in footnote 62.

<sup>128</sup> Page 15, reference cited in footnote 62.

and documentation the degree of compliance with State and Federal requirements for participation in specific health care programs. The study shows:

Of the 1,551 respondents nationwide who were health facility surveyors, 766 made nursing home fire safety surveys. Of these 766 inspectors, only 171 [28 percent] had disciplines that, in our opinion, were closely associated with the backgrounds HEW has said are appropriate for conducting Life Safety Code surveys. The disciplines of these 171 inspectors were as follows:

Fire inspectors-----	93
Engineers -----	41
Architects -----	19
Building inspectors-----	18
<b>Total -----</b>	<b>171</b>

The balance of the fire safety surveyors included 209 registered nurses, 178 sanitarians, and 208 from various other disciplines.

The State agencies responsible for making the Life Safety Code surveys in the States included in our review varied widely. In California, Florida, and Minnesota, the State fire marshal's office made the surveys; in Connecticut and Michigan, the State police department made them; and in New York, the department of health made them.

The inspectors making the State surveys were listed on the State survey forms as being sanitarians, assistant State fire marshals, State police troopers, and detective sergeants.<sup>129</sup>

The HEW study is reinforced by this Subcommittee's 1975 survey of 400 surveyors in 10 States. Some 34 percent of the inspectors had no formal training; 55 percent had completed only the basic 4-week course; only 11 percent had any advanced training.<sup>130</sup>

As a result, Senator Moss introduced S. 1574 to require that all surveyors receive minimum training and meet minimum qualifications as established by the Secretary of HEW.<sup>131</sup> This approach is recommended by the House Special Studies Subcommittee.

**The House subcommittee adds that if this approach does not work, "there is only one logical conclusion—the replacement of the present system by direct Federal inspection in the first instance."<sup>132</sup>**

Senator Moss' bill, S. 1578, would authorize a cadre of Federal inspectors to conduct spot checks of Medicare and Medicaid facilities to test the quality of State inspection procedures.<sup>133</sup>

<sup>129</sup> Page 16, reference cited in footnote 96.

<sup>130</sup> *Congressional Record*, Apr. 29, 1975, S6932 and following.

<sup>131</sup> *Congressional Record*, Apr. 29, 1975, S6932 and following.

<sup>132</sup> Page 15, reference cited in footnote 62.

<sup>133</sup> See reference cited in footnote 130.

## 2. THE NEED FOR ENFORCEMENT OF STANDARDS

The need for more vigorous and rational enforcement of nursing home standards is apparent from the preceding chronology. It can be further proven through statistics or through the weight of authority.

Testifying at the Marietta hearings, Mr. Theodore Cron told the Subcommittee:

The health program that endangers patients is a cruel hoax. No one—in or out of government—wants to be a part of such a program. Yet, that is what has developed because standards have been termed as “guidelines,” specifics have been ignored, and permissiveness has replaced legitimate concern.<sup>134</sup>

Mr. Stevens of the NFPA added:

Sometimes we have sort of token compliance that occurs in the absence of adequate enforcement. This is a problem in some of our smaller States. Manpower and money is the crux of the problem, but since the Federal Government is involved to the extent we are, the Government ought to come forward with the sufficient financial support and reinforcement so that these improvements can be accomplished to enable us to assure safety for our elderly citizens.<sup>135</sup>

This problem was put into perspective by Mr. Thomas Bell, executive vice president of the American Health Care Association, who began his statement to the National Commission on Fire Prevention and Control with this conclusion:

There are far too many buildings in use as nursing homes which are substandard from a fire safety standpoint.<sup>136</sup>

He explained:

The enforcement of the fire safety standards is generally the responsibility of State or local agencies. However, under present conditions it is impossible to rely on at least some of the inspecting personnel to intelligently enforce the codes and standards. Most enforcing agencies are understaffed, personnel are not properly trained, and the generally prevalent low salaries mitigates against obtaining highly qualified people. One nursing home operator reports that he was inspected by 11 different inspectors in 1 year. Some of the inspectors were not sure of the standards to be enforced and at least two cited conflicting requirements.

Standards by themselves cannot achieve fire safety. The provisions of the standards must be followed, and this can be assured only with adequate inspection and enforcement practices.<sup>137</sup>

<sup>134</sup> Page 444, reference cited in footnote 11, part 5.

<sup>135</sup> Page 474, reference cited in footnote 11, part 5.

<sup>136</sup> Page 3, reference cited in footnote 64.

<sup>137</sup> Page 31, reference cited in footnote 64.

The Ohio Nursing Home Association was even more specific. Executive Director Gary Shepherd told the Special Studies Subcommittee:

A majority of the Nation's nursing homes are substandard from a fire safety standpoint.<sup>138</sup>

The statistics support these judgments. For example, the GAO, in its May 1971 audit, concluded that 50 percent of the nursing homes in its sample were deficient from the fire safety point of view. The 1974 HEW study found that 59 percent of U.S. Skilled Nursing Facilities had one or more violations of the Life Safety Code. The March 1975 GAO audit notes that 72 percent of the homes in its sample had one or more deficiencies of significant code provisions. Finally, as noted, HEW's elaborate study, concluded in April 1975, that two-thirds of U.S. nursing homes have several violations of the Life Safety Code.

The only conclusion is that the 1967 law is still not being enforced by the States and HEW and that thousands of patients in many non-complying homes are in immediate jeopardy.

But what of HEW's suit against the State of Pennsylvania and its efforts to cut off Federal funds from individual New York nursing homes?

Consumer spokesmen appear to be of two minds. On the one hand they feel that HEW must be applauded. The HEW actions, however limited, are more than HEW had done before. Moreover, these actions may prove to be important precedents.

On the other hand, overall shortcomings in performance by HEW have led consumer spokesmen to be critical. They point out that the law, sponsored by Senator Moss, requiring HEW to cut off funds from substandard facilities was enacted in 1967. Eight years have passed and HEW has not recognized its responsibility. To some observers, the New York action is suspect because they claim most of the homes which HEW cut off were already being forced out of business by the State of New York. They see the action against the State of Pennsylvania as "political," pointing out that there are several States in the Union with more flagrant violations than Pennsylvania which have not been the subject of HEW's solicitous concern.<sup>139</sup>

HEW could do much to disarm its critics by taking vigorous action against health care providers and/or States which abuse Federal programs. In its 1975 audit the GAO suggests several actions which could be taken by HEW to improve its enforcement capability. GAO stated:

HEW needs to improve its administration and enforcement of Federal fire safety requirements to insure the safety of nursing home patients and its monitoring of State inspection and certification activities. Many Skilled Nursing Facilities

—did not meet fire safety standards;

—were improperly classified as to construction type, resulting in some being improperly exempted from the sprinkler requirement;

<sup>138</sup> *Modern Nursing Homes*, March 1972, p. 34.

<sup>139</sup> See *Washington Report on Long Term Care*, July 4, 1975, No. 149, McGraw-Hill.

- were improperly granted sprinkler requirement waivers; and
- had not complied with plans to correct fire safety deficiencies.

HEW needs to insure that States follow its procedures for recommending waivers. HEW regional personnel should grant waivers only after a home corrects its deficiencies to meet waiver requirements rather than on the basis of a home's plan of correction.

HEW should increase its efforts to insure that nursing homes comply with their plans of correction.

Neither HEW nor the States have sufficiently motivated many nursing home administrators to correct fire safety deficiencies or established adequate procedures for following up to determine whether the homes have corrected the deficiencies.<sup>140</sup>

### 3. HUD SHOULD UPGRADE MINIMUM PROPERTY STANDARDS

In its recent report, the Special Studies Subcommittee of the House Government Operations Committee detailed the need for the Department of Housing and Urban Development (HUD) to upgrade minimum property standards (MPS)—requirements which must be met by nursing homes built under HUD's section 232 program. HUD took the position that its MPS "are at least as good, if not better than the equivalent portions of the Life Safety Code."<sup>141</sup> Despite the request for reform from that subcommittee, HUD issued its revised regulations in 1974 without change.

The House subcommittee counts this as unfortunate, pointing out that since Public Law 92-603, virtually all nursing homes must now comply with the code. Even homes which are built under HEW's Hill-Burton program must comply. Their report continues:

Homes can be approved for HUD insurance even though they will not meet Life Safety Code standards. For example, HUD allows three-story noncombustible construction (type 2 in the MPS) without complete automatic sprinkler systems; the MPS would require sprinklers up to the door of the patient's room but not in the room itself. HUD recognizes the efficacy of complete automatic sprinklering in noncombustible construction by allowing a 50-percent increase in the area of each floor of a completely sprinklered structure. But in allowing partially sprinklered three-story noncombustible construction, HUD's MPS authorize homes that would not conform with the 1967 Life Safety Code nor even the 1973 code, which allows three-story protected noncombustible construction only if equipped throughout with automatic extinguishing systems.

<sup>140</sup> Page 36, reference cited in footnote 96.

<sup>141</sup> Page 21, reference cited in footnote 62.

First, this raises a safety issue. Second, some of the construction loans that HUD will insure will be for homes that subsequently may want to accept Medicare or Medicaid patients. The MPS give no warning of the different requirements. Thus, an applicant may build a home in conformance with HUD requirements only to find out that he is barred from accepting Medicare or Medicaid patients. HEW's position, reiterated in its recently issued *Long-Term Care Manual*, is that code waivers cannot be granted for new construction. \* Extending sprinkling into patients' rooms, of course, will be much more expensive after the home is built should the operator decide to bring it up to code standards <sup>142</sup>

#### 4. THE NEED FOR FURTHER STUDY

The findings of the American Health Care Association's study as conducted by Gage-Babcock (even though rebutted by NFPA (see appendix 15, p. 576)) suggest the need for further study with respect to nursing home fire safety. There have been many technological improvements in this field in the past few years and there is a continuing need to reevaluate and to upgrade existing requirements.

Gage-Babcock's report suggests, in essence, that the present Life Safety Code emphasis on structural protections is misplaced. For example, they claim that hollow-core doors contain smoke and fire as well as solid-core doors. They suggest that there are some "trade-offs." By that they mean if a nursing home has a complete sprinkler system, it will make up for the absence of other code requirements—such as solid-core doors.

As stated earlier, the accepted position among experts is that there are no trade-offs. The code is designed on the "failsafe" principle. It is assumed that certain parts of the overall system will fail during the course of a major fire. The code compensates with a backup protection. Following this analysis, the best protection is provided by a combination of the approaches detailed in part 3. None by itself is a panacea. The installation of sprinkler systems, important as they are, is not in and of itself the total answer. Neither is the installation of smoke or heat detectors.

#### SUMMARY

Given the above facts, the Subcommittee concludes that the provisions of the Life Safety Code should continue to be enforced. The 23d edition of the code should be substituted for the 21st now required in law. HEW should undertake measures to insure uniform interpretation of it. Moreover, greater attention should be given to possible smoke emissions and to the toxicological effects of burning gases. Only through continuing research and study can the expertise be developed to prevent further loss of life in nursing home fires. (See part 7, p. 528.)

\* Changed by regulations in late 1974.

<sup>142</sup> Page 22, reference cited in footnote 62.

## PART 5

### BOOTLEG NURSING HOMES: A SPECIAL PROBLEM

Public Law 92-603 contained several provisions which forced the shift of patients from higher levels of nursing care into lower levels. Patients are being moved from hospitals to Skilled Nursing Facilities, from Skilled Nursing Facilities to Intermediate Care Facilities and all too often from ICF's into boarding homes or bootleg nursing homes. Among these provisions were:

#### ***The Life Safety Code:***

P.L. 92-603 requires that Intermediate Care Facilities comply with the provisions of the Life Safety Code. This amendment was added after several fires in ICF's were reported in the public press. As reported earlier, full compliance with the provision of the code has been delayed for 3 years and is subject to liberal exceptions because of HEW regulations. However, when this requirement is enforced it is likely that thousands of facilities will not be able to meet the Federal standards. In all likelihood, many will either go out of business or seek refuge as unlicensed "bootleg" nursing homes or boarding homes.

#### ***The Old Age Assistance Loophole and the New SSI Program:***

One unanticipated result of the shift to ICF's has been the diversion of benefits paid under *other* Federal programs. The Federal Government had provided the States with matching funds under titles I, X, XIV, and XVI of the Social Security Act. Basically these are cash grants to individuals who are aged, blind, and disabled. An individual receiving such cash grant generally is free to do with it as he chooses. He can purchase his own housing, food, etc. However, in the case of individuals who are under some physical or mental disability, many States have placed such persons in specific boarding homes, rest homes, or unlicensed nursing homes. This technique or loophole allows the States to escape responsibility for these individuals and to use cheaper facilities which are not required to meet State licensure requirements. These facilities are known as "bootleg" nursing homes and they are in wide use in many States.

Recent fires in Honesdale, Pa., and Rosecrans, Wis., brought this practice out into the open. In Honesdale, where 15 patients died, the State of Pennsylvania was found to be using old age assistance (title I of the Social Security Act) funds to support individuals in what the State called a "skilled nursing home." In reality, it was little more than a boarding home. Title I typically provided a cash payment to individuals who are free to find their own housing. As practiced in Pennsylvania, individuals were given a cash payment under title I



but placed in specific facilities. A similar pattern emerged in Wisconsin where 10 elderly persons died. Seven of the home's residents were supported by old age assistance funds; three actually needed skilled nursing as determined by a State nurse the day before the fire.

The January 16, 1973, editorial in the *St. Louis Globe Democrat* asserts that there are at least 755 unlicensed and substandard "boot-leg" facilities in the State of Missouri which house about 10,000 patients.

There is also ample evidence that States have used cash assistance and old age assistance funds to pay for the care of individuals discharged from State mental hospitals. The cost of caring for a patient in a State mental hospital is typically about \$800 a month, compared with \$151 in a foster care or boarding home. Consequently, there is strong motivation for such transfers. Moreover, the provision (section 207) in P.L. 92-603, which reduces Federal matching by one-third to individuals with mental illness, has helped accelerate this procedure.

In 1972, the Congress moved to close this loophole with section 249D of this law. This section prohibits the use of cash assistance payments for individuals who could be cared for under the Medicaid program. Perhaps even more significant, this law "federalized" title I, the old age assistance program and now establishes a minimum \$151 per month floor under the incomes of the needy aged. The program is called Supplementary Security Income (SSI).

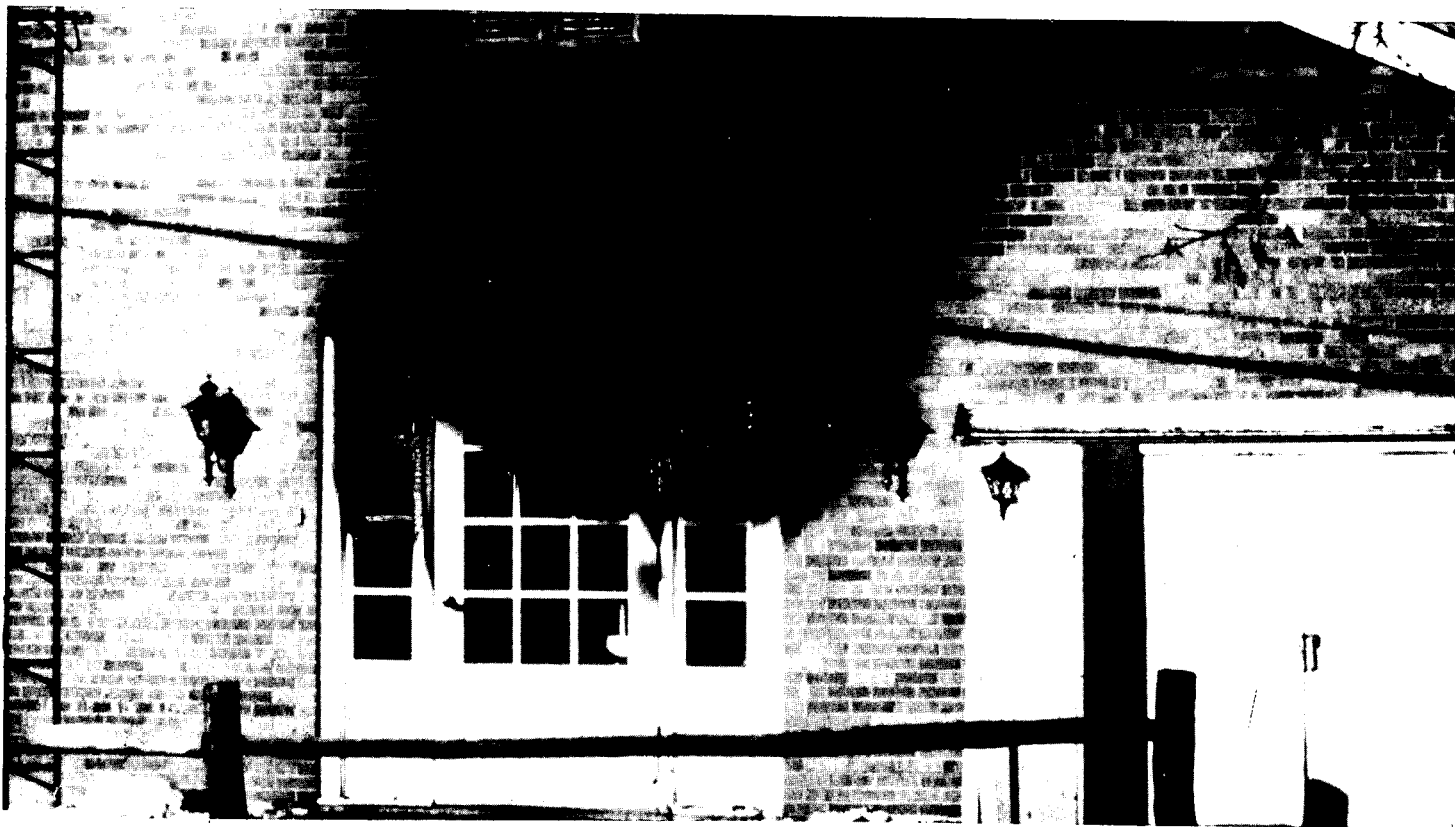
**The advent of SSI, unfortunately, has accelerated the transfer of patients from State hospitals to boarding homes, and has stimulated the rapid development of a for-profit boarding home "industry."**



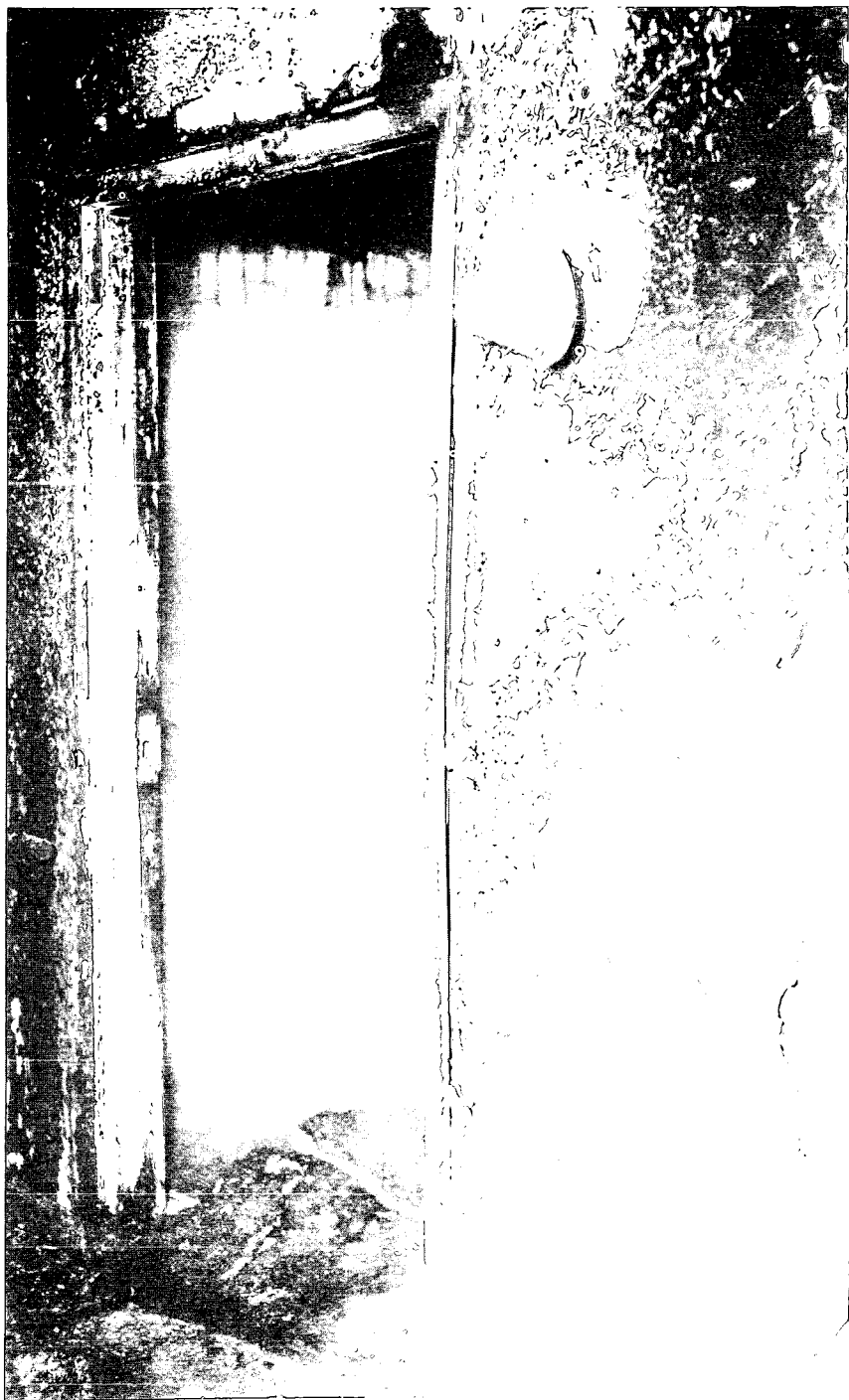
Seven died in a rest home for the mentally retarded in Taft, Calif., February 19, 1971.



The aftermath of the Fountaintown, Ind., fire, December 18, 1964.



Heavy smoke claimed the lives of 32 patients in Marietta, Ohio, January 9, 1970.



The Marietta fire began in this room.

In the past, the cost of old age assistance was shared between the States and the Federal Government. Under SSI, the Federal Government pays the full amount. Therefore, the option of the State to move a patient from its mental hospital (estimated at \$800 per month in State money), is all the more tempting.

There have been serious institutional fires caused by the mentally impaired or those with related conditions. A former mental patient admitted responsibility for the Salt Lake City nursing home fire. On December 15, 1971 two patients died in a fire in a so-called foster care home in the District of Columbia.<sup>143</sup> Former mental patients were suspected of causing fires in Springfield, Ill., and Pleasantville, N.J.

Moreover, a 1974 fire in another District of Columbia foster care home (actually a boarding home to receive discharged mental patients) recently brought forth city inspectors who were shocked to find 40 persons confined behind closed doors. The conditions were described as dingy and vermin infested. There are 175 boarding homes in the District of Columbia. Owners receive from \$150 to \$300 a month to care for each patient.<sup>144</sup>

These issues were highlighted in a November 20-21, 1973, conference on "Access to Nursing Homes: Care of the Spanish-Speaking Aged in the Southwest." The conference was conducted by the National Council of La Raza and funded by a grant from the Department of Health, Education, and Welfare.

The report, prepared by the council, carries the same name as the conference and notes the frustrations of a great many California board and care home operators. As indicated, California is one of the few States that license such facilities, but severe problems remain. Board and care operators reported several sources of income: (1) the Supplementary Security Income program; (2) Medicaid (called Medi-Cal in California); (3) Medicare; (4) Social Security; (5) veterans' benefits; (6) other pension benefits; and (7) subsidies from the State department of mental health. Operators reported being unsure about how to handle payments for medicine and services under these programs. They protested differing rates of payment. "You can't have one patient paying \$180 and another paying \$300 [a month] and both receiving the same care and food. Then one is eating off the other."

If this report can be taken at face value, the State of California may be using Medi-Cal funds (Medicaid) to pay for patients in board and care facilities. In restatement, this would be a violation of law. Such facilities must be inspected and certified as meeting Federal standards before they can legally receive Medicaid funds.

Perhaps even more serious, operators were unsure of the existing standards applicable for their type of facility. Reportedly, there are no formal or specific admission requirements for patients who wish to enter board and care homes. No guidelines exist for determining how much care the patient needs. Ability to pay was reported as the most important consideration prerequisite to admission. The report adds:

<sup>143</sup> *Washington Evening Star*, Dec. 15, 1971, p. A1.

<sup>144</sup> *Washington Post*, Feb. 16, 1973, p. A1.

According to the operators, they are not required to have any special training to run a board and care home. In applying for a license, some questions as to previous experience are asked, but they do not seem to have any bearing on the final decision. One operator pointed out that some training was promised for operators, but neither the nature nor the extent was mentioned, and it has not been proposed again. Another operator mentioned that she had to take a physical examination (including X-ray for tuberculosis), but no other operators mentioned being requested to take such an examination.

The national situation was summed up in a Senate Committee on Aging staff report written in 1974:

The increased use of boarding homes has serious implications. Most States do not license boarding homes. When States do require licenses, standards are weak and oftentimes unenforced. Nationally, the result may be what committee investigators found in New Mexico: Poor food, negligence leading to death or injury, deliberate physical punishment inflicted by operators upon their residents, poor care (for example: allowing patients to sit in their own urine, binding them to the toilet with sheets, not cutting toenails to the point where they curl up under the feet, making walking impossible), cutting back on food, electricity, water and heat to save money, and housing people in makeshift facilities, such as a former chicken coop or a rundown mobile home.<sup>145</sup>

It goes without saying, that such facilities provide no significant fire safety protections to their residents.

In short, the interaction of several provisions of the 1972 law will continue to force the downgrading of homes and the transfer of patients. Few will qualify for SNF care. Most will be ICF patients, and thousands will be relegated to boarding homes. In addition, the number of boarding home residents will increase as States continue their large-scale "dumping" from State hospitals to take advantage of SSI cost savings.

### SUMMARY

**It is evident that boarding homes are the bottom line, the last repository for the elderly. Changes in Federal regulations must be effected, but until the States enact effective statutes which are regularly enforced, more and more senior citizens will be relegated to boarding homes—often the least suitable, the least qualified, the least regulated, and always the least expensive answer to their needs.**

<sup>145</sup> Cited in report on the New Mexico Boarding Home Association, presented to Hon. Pete V. Domenici from Val J. Halamandaris, associate counsel, U.S. Senate Special Committee on Aging, May 25, 1974, at hearing in Santa Fe, N. Mex., "Barriers to Health Care for Older Americans," part 12.

## PART 6

### THE CONTINUING CONTROVERSY OVER CARPETING

Both the Marietta, Ohio, and the Beuchel, Ky., fires serve to emphasize the point that fireproof buildings can become fire hazards if they are filled with flammable furnishings. The most popular and prominent of nursing home furnishing is carpeting. Despite the major role of carpeting in several institutional fires, there has been a distinct dearth of forthright Government policies to limit the installation of flammable carpeting.

In Marietta, a cigarette dropped into a refuse-filled plastic waste container started the fire. The burning wastebasket created sufficient heat to ignite the carpeting with its integrally bonded foam rubber backing. After investigating, Ohio State Fire Marshal Samuel T. Sides concluded:

It is the feeling of these investigators that the carpeting and the rubber backing on the carpet contributed to the spread of the fire and was the cause of the heavy dense smoke.<sup>146</sup>

On the basis of "these and similar experiences" the State fire marshal recommended:

- All waste containers in patients' rooms should be metal. Plastic type containers should be prohibited.
- That all carpeting be prohibited in nursing homes, hospitals, and similar types of institutions.<sup>147</sup>

When asked about his recommendation the fire marshal added:

. . . I think carpeting should be prohibited except if the industry can show that it has been submitted to some nationally recognized testing laboratory and shown to be safe from fire and toxic gases.

Senator Moss. So your recommendation is a qualified one, carpeting should be prohibited until such time as its flammability can be reduced much below what it is now required by the standards we have under the Flammable Fabrics Act?

Mr. Sides. Yes, sir; I believe when you hear the report from the Underwriters Laboratory and from this other testing laboratory you will find this was highly smoke-producing and fast-burning material.

<sup>146</sup> Page 426, reference cited in footnote 11.

<sup>147</sup> Page 427, reference cited in footnote 11.



Senator Moss. Is this type of carpeting rather common now in Ohio in use in public buildings?

Mr. SIDES. Senator, I am sorry to say I found it is in my own office.<sup>148</sup>

Mr. Jack Bono, managing engineer for Underwriters Laboratory, was asked to describe the results of flammability tests which he had conducted on the Marietta carpet. He first gave this description of the test procedures employed :

The Steiner tunnel test is a national standard used for the measurement of flame spread and smoke developed of interior finish materials. It essentially consists of a rectangular furnace in which the test sample is mounted on the lid of the furnace and exposed to an igniting fire from the underside.

As the test material begins to contribute to the igniting fire, flame spreads down the sample. Observations are made of the time and distance of the flame spread and a rating is assigned, based on a scale in which a noncombustible material has a zero rating and red oak flooring has a 100 rating. This equipment is also used to measure smoke generation during a test, and the rating scale again has zero for noncombustible material and 100 as the smoke developed rating for red oak flooring.

A numerical limitation of 75 for the flame spread rating has been specified by the U.S. Public Health Service for regulating floor coverings in hospitals receiving aid under the Hill-Burton Act.<sup>149</sup>

The tests on the Marietta carpeting produced the following results :

The tunnel test again demonstrated an increase in flame spread produced when the insulative backing material was part of the test sample. That two samples selected from unaffected rooms in the convalescent home were without the backing which had been torn loose during removal from the floor. The flame spread values for these samples were 105 and 140. The sample with a backing resulted in a flame spread of 275.

All of the tunnel test flame spread classification results for the nylon carpeting tested, were in excess of the "Hill-Burton" limitation of 75 and were greater than 100 for red oak flooring.

The presence of the combustible black foam rubber integral backing on one of the tunnel test samples caused a significant increase in smoke generation. Without backing, the carpet samples produced less smoke than red oak in the 10-minute exposure. With backing, in only 4 minutes, the carpet sample produced  $3\frac{1}{2}$  times as much smoke as that generated with red oak in a 10-minute test. Some additional smoke would have developed had the test been continued.

The larger fire exposure in the tunnel test induced flame propagation over the entire length of the sample with backing in 2 minutes.<sup>150</sup>

<sup>148</sup> Page 422, reference cited in footnote 11.

<sup>149</sup> Page 460, reference cited in footnote 11, part 5.

<sup>150</sup> Page 454, reference cited in footnote 11, part 5.

Under this test, scores from zero to 25 provide a rating of class A, 25-75 is class B; 75 to 200 is class C; above 200 is class D. As can be seen from these standards, the samples of the Marietta carpet tested by Underwriters Laboratories without the rubber backing were in the class C range, but samples with the backing received a score of 275, placing the sample into the extremely flammable class D range.

The position of the carpet industry was that the tunnel test was too severe and not representative of actual fire conditions. They favored instead the so-called "pill test" described in detail on page 492 of this report. Essentially it involves igniting a small methenamine pill with a match. If a flame propagates and burns a hole 3 inches in diameter, the carpet upon which this test is being conducted, fails.

This test came in for heavy criticism at the Marietta hearings. Consumer and senior citizen spokesmen were adamant that the pill test did not afford adequate protection. The Department of Commerce attempted to explain away this criticism stating that the pill test was only a "first generation" test and a test for "ease of ignition." Spokesmen for the Department explained that second generation tests for flammability would follow in the near future.<sup>151</sup>

The carpet industry took a different view, seeing the pill test as *the* Government's test for *flammability*. For example, in its defense, the manufacturer of the carpet, Dan River Mills, issued a statement through their attorney, Arnold B. Christen. The statement notes that in 1966 when the carpet was installed, the product selected was as safe as the technology of our industry could provide at the time. Mr. Christen added:

Since the acquisition of Kingston Mills, Inc., in 1964, Dan River has consistently and aggressively remained abreast of all developments affecting the safety and quality of our products. For example, the methenamine pill test referred to above is the very test the Carpet & Rug Institute and various Government agencies have developed as a reliable flammability standard test for carpets and rugs intended for use as floor coverings.<sup>152</sup>

This discrepancy prompted this exchange between Senator Moss and Mr. Malcolm Jensen of the Department of Commerce:

It does not sound as though they thought this was just a first generation test, rather they believe that the test was going to clear them in their product.

MR. JENSEN. I can answer the last part of his statement; he is absolutely right. Apparently it does pass the test. The first part of his statement is yet to be proved.<sup>153</sup>

**The supreme irony is that the Marietta carpet, which greatly contributed to the deaths of 32 elderly citizens, passed the pill test, the Government's only test for carpet safety. To this date the Department of Commerce has still to promulgate "second generation" tests for flammability.**

<sup>151</sup> Page 456, reference cited in footnote 11, part 5.

<sup>152</sup> Page 463, reference cited in footnote 11, part 5.

<sup>153</sup> Page 456, reference cited in footnote 11, part 5.

## THE CURRENT STANDARDS

The current carpet standards with respect to nursing homes, homes for the aged, and consumers in general are set forth below.

### A. NURSING HOMES

Skilled Nursing Facilities participating under both Medicare and Medicaid, and Intermediate Care Facilities which participate in Medicaid only, must all confirm to the provisions of the Life Safety Code. The code has a provision on floor coverings which calls for the application of the tunnel test, *where in the judgment of fire authorities, floor covering does cause a potential hazard in the facility*. Under the terms of the tunnel test, which measures how fast various products burn, a fully sprinklered building may have a carpet with a flame spread rating as high as 200. In nonsprinklered buildings the cut off point is a score of 75.<sup>154</sup>

The above standard provides wide latitude for discretion. It is far removed from the forthright Hill-Burton standard, which simply does not permit nursing home carpeting with a flame spread rating higher than 75.

Personal care and shelter care facilities, which account for more than 7,000 of the U.S. long-term care facilities, need not meet any Federal standards. They are required to meet only such standards as set forth in State law. State laws generally provide no guidance with respect to carpeting.

### B. HOMES FOR THE AGED

Despite the 1972 Baptist Towers fire in Atlanta, Ga., where 10 persons perished, there are no standards for carpeting in apartment buildings designed for the elderly. Carpeting played a major role in that fire contributing to the fire spread and generating the smoke which is credited with most of the deaths. The carpeting in question had the highly flammable flame spread rating of 334 as measured on the tunnel test.<sup>155</sup> On March 8, 1974, the Department of Housing and Urban Development released its revised minimum property standards for the construction of low-rent public housing and housing approved for mortgage assistance by the Federal Housing Administration. It neglected to mention carpets or floor coverings.

### C. PROTECTIONS FOR CONSUMERS IN GENERAL

As has already been explained, the pill test has received widespread criticism.

One additional complaint is that to date no "second generation" tests for flammability have been announced by the Department of Commerce. As a result, consumers have little protection against the hazards from highly flammable carpeting.

<sup>154</sup> Page 2456, reference cited in footnote 11, part 21.

<sup>155</sup> Mar. 14, 1973, letter to Senator Harrison A. Williams, Jr., from A. Elwood Willey, fire record specialist, NFPA Fire Record Department, National Fire Protection Association.

In October of 1972, Senator Warren G. Magnuson, Chairman of the Senate Commerce Committee, took the Senate floor to protest the delay in second generation tests for carpet flammability. He said that the carpet industry had protested the tunnel test as "too severe." He added that pressure from the carpet industry was the reason that the Department of Commerce accepted the inadequate "pill test" instead of the "more realistic 'tunnel test' which more closely approximates a real fire situation."

Senator Magnuson charged that the Nixon administration promised to postpone effective regulations for carpeting in order to get campaign contributions of \$94,590 from a carpet manufacturer on behalf of the industry. The Senator told the Senate that President Nixon's campaign finance chief, former Secretary of Commerce Maurice Stans, "set up a hush-hush, high level White House meeting to assure that such effective regulations would not be forthcoming." William N. Letson, general counsel of the Commerce Department acknowledged a meeting but denied that it was secret or that any favors were offered. Witnesses before the Commerce Committee from the Department of Commerce explained the delay in life saving carpet standards to the complexity of the issues involved and the lack of money available for research.<sup>156</sup>

#### D. NO STANDARDS FOR SMOKE GENERATION

Despite the importance of smoke as the major cause of fire deaths in the United States, there are currently no national standards governing the smoke generation properties of furnishings including carpets and floor coverings. There are accepted test procedures which measure maximum optical density of smoldering materials in a test chamber. This test provides the basis of comparison for smoke generation. The higher the number in the test the greater the amount of smoke developed. Under one such test (ASTM D-2843) red oak is the traditional touchstone with the lowest rating 0.015. The foam rubber backing from the Marietta carpet received a smoke density score of 83.<sup>157</sup> Restating, zero is the least amount of smoke obscuration possible and a score of 100 is the maximum.

#### SUMMARY

**It is clear that the Department of Commerce must act immediately to protect the general public from the hazards of flammable carpeting. More than 5 years after the Marietta fire, so-called "second generation" tests which will inform the public as to the flammability characteristics of carpeting have yet to be announced. The "pill test" is little or no protection, particularly since (a) rugs larger than 8 feet are exempt from it, and (b) since rugs which fail are not removed from the market.**

**The Department of Health, Education, and Welfare should promulgate forthright standards limiting carpet in nursing homes to a score of 75 or less on the tunnel test. The Department should**

<sup>156</sup> *Washington Post*, Oct. 7, 1972, p. A1.

<sup>157</sup> Page 433, reference cited in footnote 11.

undertake tests to determine if the States are allowing unsafe carpeting in their facilities under the discretionary authority presently permitted under the 1967 edition of the Life Safety Code.

The State should insure that there are appropriate fire safety and carpeting standards applicable to their personal care and shelter care homes as well as homes for the aged. With respect to the latter, the Department of Housing and Urban Development should promulgate new rules which incorporate the Hill-Burton standard of 75 on the tunnel test.

Both the Department of Health, Education, and Welfare and the States should incorporate standards for smoke generation into their fire safety regulations.

## PART 7

### WHAT WE STILL DON'T KNOW: NEW CONCERN ABOUT TOXICOLOGY

Under the prevailing American philosophy toward fire prevention and control, first priority is placed on prevention of fire and retarding flammability. However, there is a small but growing number of scientists who assert that in our effort to make products less flammable, we have introduced products which release large amounts of smoke and poisonous gas. Scientists, such as Dr. Ann Phillips of Harvard University and Massachusetts General Hospital, have urged Federal agencies to pay greater attention to the toxicological effects of products, as well as their relative flammability.<sup>158</sup> She points out that 50 percent of all nursing home deaths and about 5,000 of the 8,000 U.S. total fire deaths are attributable to smoke inhalation.

A synonym for smoke inhalation is carbon monoxide poisoning. However, Dr. Phillips and some of her colleagues are quick to point out that both terms are scientifically imprecise. This is true because comparatively little is known about what gases and other products are contained in lethal smoke and their specific effects on humans. Dr. Phillips testified that only three persons survived the infamous Boston Coconut Grove fire. They were people who covered their faces with a cloth. Since smoke can penetrate most fabrics, it is not known what particles might have been repelled by the screening, thus saving lives.<sup>159</sup> Similarly, the thick black smoke produced by the burning foam rubber backing of the carpeting was the "killer" in the Marietta nursing home fire, but it is not known which products of thermal degradation the smoke might have been carrying.

It is simple enough to say that smoke replaces the oxygen that is needed for life. It can be said that carbon monoxide (which is blamed for most of the deaths) usurps the rightful place of hemoglobin molecules in the bloodstream and further reduces the oxygen carried to the victim's brain, distorting judgment and coordination so that escape is impossible. But there is more to it than that.

Professor Irving Einhorn, director of the University of Utah's Flammability Research Center, testified:

Essentially, anything we do to a material to retard flame propagation increases smoke. If a material burns readily, it does not smoke. If burning is retarded, it smokes, carbon monoxide increases and the materials given off become more toxic.<sup>160</sup>

<sup>158</sup> Pages 17 and 18, reference cited in footnote 8.

<sup>159</sup> Pages 17 and 18, reference cited in footnote 8.

<sup>160</sup> *Modern Nursing Home*, April 1972, p. 50 (see appendix 14, p. 563).

The worries of scientists, like Dr. Einhorn center around new types of materials that appear in large quantities where Americans work and live. These materials are also common in nursing homes. Among such products are polyurethane plastic foam insulation and cushioning, and acrylic and nylon substances found in many carpets, blankets, draperies, and the like. Of even greater concern perhaps, are various chemical sprays that impart flame resistant properties to many plastics and synthetic fabrics. Plastics themselves have proven to be products of concern to researchers.

It is worth reemphasizing that such products abound in nursing homes. For example the Marietta carpet, with its foam rubber backing, caused a significant amount of smoke. Burning carpet also was a severe problem in the Baptist Towers highrise fire in Atlanta, Ga., which occurred in November 1972, killing 10 residents of an apartment building designed for older persons.<sup>161</sup> In an effort to measure how much smoke the Marietta carpet produced the State fire marshal commissioned tests by several independent laboratories. In one test for smoke obscuration, the carpet with backing scored 83 of the maximum 100. In another test, so much smoke was produced in 3½ minutes of a scheduled 10-minute test that the machine had to be turned off and the experiment terminated. Other products played a significant role in the Marietta fire including a plastic waste container, and a plastic covered hospital chair. In the Rosecrans fire an upholstered chair, combustible plastic draperies and fiber tile ceiling each played their role. Clearly, products made from petroleum burn like petroleum, and commonly release several poisonous gases.

Dr. Donald Dressler, assistant clinical professor of surgery at the Harvard Medical School, and others have pointed out that burning plastics can produce a wide variety of lethal gases.<sup>162</sup> For example the common plastic ABS (acrylonitrile-butadiene-styrene) when burned yields deadly hydrogen cyanide gas. Dr. Einhorn told the Subcommittee that burning synthetic fibers such as acrylics and nylon carpeting have produced lethal gases causing the death of small animals within 2 minutes even at room temperature; mortality increased even more with higher temperatures and greater exposure time.<sup>163</sup> Dr. Einhorn also tested a fire-retardant material for the space program and found it gave off a type of phosgene gas (a fluoride homolog of phosgene). Phosgene was used as a war gas and the related product (homolog) from the fire-retardant is 100 times more dangerous according to Professor Einhorn:

The corneas of laboratory rats were completely etched in 15 seconds when exposed to it. Other toxic material was also produced. Small amounts of any one could cause death.<sup>164</sup>

Other products released in major fires include carbon dioxide which, although nontoxic, serves to stimulate respiration, which increases the intake of other gases. Sulfur dioxide is one such gas. It is a heavy pungent product extremely toxic to humans. Combined

<sup>161</sup> See reference cited in footnote 155.

<sup>162</sup> *Medical World News*, Sept. 20, 1974, p. 30 (see appendix 13, p. 566).

<sup>163</sup> Prepared statement by Irving N. Einhorn, research professor of materials science and engineering; adjunct professor of chemical engineering; director, Flammability Research Center, University of Utah, Salt Lake City; *Combustion of Polymeric Materials and the Physiological and Toxicological Aspects of Flammability*, as it appears in reference cited in footnote 11, part 16, p. 1666.

<sup>164</sup> *Modern Nursing Home*, April 1972, p. 50.

with water it forms extremely corrosive sulfuric acid. Similarly, hydrogen chloride, combined with water produces hydrochloric acid; and hydrogen fluoride, another deadly gas, combines with water to form hydrofluoric acid. Also produced are hydrogen sulfide, aliphatic hydrocarbons and aromatic hydrocarbons along with hydrogen chloride, and vinyl chloride.<sup>165</sup>

It is alarming that so little is known about the toxic consequences of combustion. Researchers point out the difficulty of isolating the literally hundreds of compounds that are given off in the course of any major fire involving synthetics. Professor Einhorn emphasizes that efforts to reduce flammability often increases substantially the production of smoke and the dangers from toxic gases. He stresses the need for greater emphasis on the toxicological effects of fires.

While many scientists insist that not enough is known about this subject to take action, Dr. Einhorn disagrees. He notes conclusive evidence that lethal doses of hydrogen cyanide were found in the bodies of several air crash victims. He cites evidence from at least two accidents, the 1965, 727 crash in Salt Lake City<sup>166</sup> and the 727 crash at Midway Airport in Chicago on December 8, 1972.

With respect to the Midway crash, Dr. Andrew J. Tolman, a medical examiner, disclosed that sufficient quantities of cyanide were found in the blood streams of some victims to have caused death. Dr. Tolman said the cyanide fumes were inhaled by victims along with the smoke from the fire caused by the crash. He attributed the poisonous fumes to burning foam rubber seats and to plastic coatings used in the curtains and the seats.<sup>167</sup>

Since many products in nursing homes are covered with similar coatings to make them flameproof and other plastics and synthetic products abound, it is obvious that some action should be taken to insure the lives of patients. Unfortunately, there is little or no attention at the present time anywhere in the Federal Government to the effects of smoke and dangerous gases on human beings. Mr. Malcolm W. Jensen, deputy director of the Institute for Applied Technology in the Department of Commerce, told the Subcommittee that there should be greater emphasis on these points:

We agree with the suggestion, and the National Bureau of Standards does have a smoke box; we can measure smoke emission. We have not yet attempted to analyze gases for toxicity as this is really a medical problem, as you know, sir.<sup>168</sup>

Unfortunately, few or no programs followed.

Likewise the chemical and carpet industry has not yet given any investment of time or resources to examining the question of toxicology. A spokesman for the Stauffer Chemical Co. was quoted as saying:

The first priority in fire-retarding material was to minimize the fire and give the potential victim a chance to get away from the flame. The next priority will be to study and try to solve the danger of releasing toxic substances.<sup>169</sup>

For some of the patients in long-term care facilities, such efforts may well come too late.

<sup>165</sup> Pages 1703-1710, reference cited in footnote 11, part 16.

<sup>166</sup> Page 1684, reference cited in footnote 11, part 16.

<sup>167</sup> *Washington Post*, Jan. 29, 1973, p. A3.

<sup>168</sup> Page 428, reference cited in footnote 11, part 5.

<sup>169</sup> *The Wall Street Journal*, Dec. 10, 1973, p. 32.



## PART 8

### RECOMMENDATIONS

1. Nursing home providers, State and Federal Government officials must work together to create an all-out effort to eliminate serious fire loss in nursing homes and related facilities. This coordinated attack must proceed on every level, encompassing the latest technology with respect to fire prevention, detection and alarm, confinement and control.

2. Although the Life Safety Code now applies to all facilities participating in Government programs (Medicare and Medicaid), the code's provisions must be enforced. It is evident the majority of America's nursing homes have one or more major life threatening fire safety problems. Accordingly, as the General Accounting Office has recommended, HEW must improve (a) its administration and enforcement of Federal life safety requirements to insure the safety of nursing home patients, and (b) monitoring of State inspection and certification activities.

3. HEW needs to insure that States follow its procedures in recommending waivers.

4. HEW and the States should increase their efforts to motivate nursing home administrators to correct their deficiencies. Adequate followup procedures should be developed to determine whether homes have corrected deficiencies.

5. HEW must clarify directives to HEW regional offices to insure uniformity of enforcement procedures among the States. HEW personnel from Washington should periodically review the judgments and determinations of regional offices.

6. HEW needs to take other action to insure uniform interpretation of the Life Safety Code. These procedures should include seminars for administrators and compulsory Federal minimum training for State inspectors.<sup>170</sup>

7. A cadre of Federal inspectors should be created to conduct a spot check of Medicare and Medicaid facilities to test the quality of State inspection procedures.<sup>171</sup>

8. All States should enact legislation requiring automatic sprinkler systems in each of their long-term care facilities.

9. States should take action to insure that the more than 7,000 personal care, shelter care, and related facilities providing care and assistance to the elderly meet minimum fire safety standards. HEW should develop procedures to insure that such facilities are not receiving Supplemental Security Income Program funds and operating as "bootleg" nursing homes.

<sup>170</sup> See Moss bill S. 1574, introduced Apr. 29, 1975.

<sup>171</sup> See Moss bill S. 1578, introduced Apr. 29, 1975.

10. The States should develop procedures to insure that former mental patients discharged from State mental hospitals are housed in safe environments.

11. Legislation should be enacted to help nursing homes repair and renovate to meet Federal minimum standards.<sup>172</sup>

12. State and Federal fire safety officials should place greater emphasis on the flammability of nursing home furnishings. Only carpets which meet the Hill-Burton standard of 75 or less on the "tunnel test" should be permitted in long-term care facilities. Plastic wastepaper baskets should be prohibited. (Some States, Utah for example, already require the tunnel test.)

13. State and local jurisdictions should consider banning cigarette smoking in patients' rooms. An exception should be allowed if a patient is bedridden. In this case smoking should be permitted only when there is adequate supervision.

14. In view of the significant problems in past nursing home fires, States should review their legislation with respect to restraints. A patient should not be placed in restraints except by a physician's order. Such order should be time-limited. State regulations should also specify frequent checking of the restrained person by appropriate personnel.

15. The Department of Housing and Urban Development should upgrade its minimum property standards and require that nursing homes built under its programs comply with the Life Safety Code.

16. States and the Federal Government should adopt the 23d (1973) edition of the Life Safety Code and make provisions to review and adopt subsequent editions when promulgated.<sup>173</sup>

17. States should undertake training programs for nursing home employees to assist them in the prevention of nursing home fires and in the evacuation of patients. Drills should be conducted regularly. Training should be provided primarily by local fire departments several times a year. Such fire departments should establish contingency plans to deal with possible emergencies in long-term care facilities.

18. A greater research effort is needed with respect to the adequacy and appropriateness of current fire safety protections for nursing home patients. Smoke production standards should be created. State and Federal policymakers should place much greater emphasis on the toxicological effects of fire on humans.

19. The Department of Commerce should come forward with the "second generation" standards with respect to the flammability of carpeting which they promised in 1970. The Steiner tunnel test has proven to be an effective method and has been adopted by virtually every other branch of Government. The Department should grade carpeting according to the values established by this test. High risk (flammable) carpeting should be removed from the market. The Department should require a label to advise consumers on the flammability propensities of the carpeting which will allow the consumer an informed choice in the selection of carpeting for his home.

<sup>172</sup> See Moss bills S. 1582, S. 1583, and S. 1584, introduced Apr. 29, 1975.

<sup>173</sup> See Moss bill S. 1563, introduced Apr. 29, 1975.

# APPENDIXES

## Appendix 1

### LETTER AND STATISTICS ON NURSING HOME FIRES; FROM A. ELWOOD WILLEY, ASSISTANT DIRECTOR, EN- GINEERING SERVICES, NATIONAL FIRE PROTECTION ASSOCIATION; TO SENATOR FRANK E. MOSS, DATED NOVEMBER 21, 1974

DEAR SENATOR MOSS: Mr. Stevens asked me to reply to your letter of November 5th concerning an update of statistics on nursing home fires.

I have enclosed an updated listing of multiple-death fires occurring in nursing homes and homes for the aged which includes the most recent fires which occurred in Brookhaven, Miss. and St. Joseph, Mo. In answering your specific questions, I have also enclosed a copy of the report, "Fires and Fire Losses Classified" for 1973. You will note that in 1973 there were an estimated 6,400 fires in such occupancies causing \$3,600,000 damage, and in comparison, the total U.S. fire loss for 1973 was \$3,020,800,000. Concerning multiple-death fires over the last 10 years, 1964 to 1974, there were 255 deaths in multiple-death nursing home fires.

I have also enclosed copies of recent reports on nursing home fires investigated by the NFPA.

If I can be of any further assistance, please contact me.

Sincerely,

A. ELWOOD WILLEY,  
*Assistant Director, Engineering Services.*

[Enclosures]

*Multiple death fires,<sup>1</sup> nursing homes and homes for the aged. United States  
1951-74, as reported to the NFPA Fire Analysis Department*

<i>Date and location</i>	<i>Number killed</i>
January 30, 1951: Hogwam, Wash.....	21
June 18, 1951: Colesville, Md.....	4
May 1, 1952: Bradford, Conn.....	3
October 31, 1952: Hillsboro, Mo.....	20
January 14, 1953: Warren, Pa.....	7
January 25, 1953: Billings, Mont.....	6
March 29, 1953: Largo, Fla.....	33
February 19, 1954: Watervliet, Mich.....	8

<sup>1</sup> A multiple death fire is defined as a fire in which 3 or more persons receive casualties which become fatal within one year of the fire.

*Multiple death fires,<sup>1</sup> nursing homes and homes for the aged, United States  
1951-74, as reported to the NFPA Fire Analysis Department—Continued*

<i>Date and location</i>	<i>Number killed</i>
May 7, 1954: Houston, Tex.....	3
September 17, 1954: Kincaid, Kan.....	7
December 6, 1954: Germantown, Md.....	7
December 19, 1954: New Orleans, La.....	6
February 11, 1955: Brownwood, Tex.....	4
March 5, 1955: Edmeston, N.Y.....	3
December 17, 1955: Beaumont, Tex.....	4
June 22, 1956: Princeton, N.J.....	3
July 30, 1956: Puxico, Mo.....	12
February 13, 1957: Council Bluffs, Iowa.....	15
February 17, 1957: Warrenton, Mo.....	72
June 23, 1957: Chicago, Ill.....	3
December 12, 1957: Bardstown, Ky.....	5
January 6, 1959: Martinsburg, W. Va.....	5
January 30, 1959: Glen Ellyn, Ill.....	9
March 13, 1959: Aurora, Ill.....	4
February 1, 1961: Washington, D.C.....	7
December 16, 1961: Sheridan, Wyo.....	4
December 31, 1961: Roundup, Mont.....	3
April 2, 1962: Yeadon, Pa.....	9
August 24, 1962: Electra, Tex.....	5
December 20, 1962: Hudson, Mass.....	9
February 1, 1963: Mount Vernon, Mo.....	3
September 17, 1963: Pinehurst, Idaho.....	7
November 23, 1963: Fitchville Township, Ohio.....	63
January 2, 1964: Columbia, Miss.....	3
March 12, 1964: Cleveland, Ga.....	4
July 23, 1964: Ardmore, Okla.....	4
October 23, 1964: Syracuse, N.Y.....	4
October 30, 1964: Colusa, Calif.....	7
December 17, 1964: Winfield, Ill.....	4
December 18, 1964: Fountaintown, Ind.....	20
January 16, 1965: Near Linn, Mo.....	5
March 27, 1965: South Boston, Mass.....	3
February 7, 1966: Bay Shore, L.I., N.Y.....	6
February 8, 1966: Clinton Corner, N.Y.....	4
February 8, 1967: North Strafford, N.H.....	4
May 20, 1967: Princeton, W. Va.....	4
September 23, 1967: Tuscon, Ariz.....	4
January 18, 1969: Greenville, Miss.....	7
March 18, 1969: Marshalltown, Iowa.....	5
April 11, 1969: Fishersville, Va.....	3
July 3, 1969: Harding, Pa.....	4
January 9, 1970: Marietta, Ohio.....	31
January 14, 1971: Buechel, Ky.....	10
September 15, 1971: Salt Lake City, Utah.....	6
October 19, 1971: Texas Twp., Pa.....	15
January 26, 1972: Lincoln Heights, Ohio.....	10
April 4, 1972: Rosecrans, Wis.....	10
May 5, 1972: Springfield, Ill.....	10
November 27, 1972: Kearney, Nebr.....	4
January 8, 1973: Madison, Wis.....	3
January 14, 1973: Charleston, W. Va.....	6
January 15, 1973: Addison, N.Y.....	3
January 29, 1973: Pleasantville, N.J.....	10
April 21, 1973: New Haven, Ky.....	3
September 12, 1973: Philadelphia, Pa.....	11
December 4, 1973: Wayne, Pa.....	15
August 16, 1974: Brookhaven, Miss.....	6
September 9, 1974: St. Joseph, Mo.....	7

## Fires and Fire Losses Classified, 1973

The NFPA makes annual estimates of the numbers of fires, fire deaths, fire injuries, and fire losses in the United States during the past year. The estimates for 1973 are summarized in the tables accompanying this article.

The important points are as follows:

- Fire deaths in 1973 declined to 11,700 from 1972's 11,900. This is encouraging, but certainly not a dramatic reduction—only 1.7 percent.

- Fire injuries increased to 117,000 from the 112,000 reported in 1972. As in previous years more than half the injured were firefighters.

- 62.1 percent of the fire deaths occurred in residential occupancies. Most of these, 55.5 percent, were in private dwellings and apartments.

- Incendiary fires—fires that were intentionally set—continue to increase at an alarming rate. The number of incendiary fires was up 12 percent over last year, and up 205 percent over 1963. Losses from such fires showed a similar increase.

- Large fires continued to cause a disproportionate share of losses. In 1973, there were several group fires and one large-scale urban conflagration. These were only 0.2 percent of all the fires—yet they caused nearly one-sixth of the estimated total loss.<sup>1</sup>

One hopes these estimates will aid all those who are interested in improving the Nation's fire record. Concerted action directed toward meaningful objectives can result in dramatic reductions in all the kinds of losses listed above.

Fires in buildings in 1973 increased by only 3.4 percent . . . whereas the number of fires in residential occupancies showed a sharp increase—nearly 8.2 percent. Principal categories in that larger residential total were private dwellings, apartments, hotels and motels. Fires in places of public assembly and storage occupancies showed apparently significant decreases of 10 percent or more. The reasons for these changes are not clear. In general, dollar losses followed the trends in numbers of fires, at least when compared on an occupancy-by-occupancy basis.

Another large decrease occurred in outside (i.e., nonbuilding) fires, which decreased by nearly 6 percent. The greatest reduction in this group was in rubbish and brush fires. Forest fires also decreased slightly. The number of motor vehicle fires and their losses increased substantially.

Overall, the total number of fires decreased by 5.9 percent and fire deaths decreased by 1.7 percent. Fire-related injuries increased by 4.5 percent, and dollar losses by 3.2 percent. The increase in dollar losses would diminish to nearly nothing if the effects of inflation were taken into account.

The data used in compiling this summary of fires and fire losses was obtained from a survey of 2,000 fire departments in the United States. The departments that responded protect populations ranging from 8,000,000 to 50,000 and are located in all 50 States. Additional information was obtained from the reports of State fire marshals and fire departments. The information obtained from these sources was ex-

<sup>1</sup> See "1973 Large-Loss Fires, United States and Canada," *Fire Journal*, Vol. 68, No. 4 (July 1974), p. 77.

tended by recognized statistical techniques, and allowances for unreported fires and losses were included.

The National Fire Protection Association wishes to thank all those who contributed the data that made these estimates possible. Their help is deeply appreciated.

TABLE 1.—ESTIMATED U.S. BUILDING FIRE LOSSES BY CAUSE, 1973

Cause	Number of fires	Estimated loss
Heating and cooking equipment.....	165,800	\$189,700,000
Equipment defective or misused.....	97,500	126,800,000
Chimneys and flues.....	23,900	17,700,000
Hot ashes and coals.....	6,500	3,700,000
Combustibles near heaters and stoves.....	37,900	41,500,000
Smoking-related.....	115,200	100,700,000
Electrical.....	170,700	331,500,000
Wiring and general equipment.....	106,700	213,300,000
Motors and appliances.....	64,000	118,200,000
Trash burning.....	35,200	2,400,000
Flammable liquids <sup>1</sup> .....	67,300	61,200,000
Open flames and sparks <sup>1</sup> .....	70,000	99,500,000
Sparks and embers.....	6,500	7,000,000
Welding and cutting.....	9,800	34,400,000
Friction, sparks from machinery.....	16,200	17,100,000
Thawing pipes.....	5,500	11,100,000
Other open flames.....	32,000	29,900,000
Lightning.....	21,600	41,900,000
Children and fire.....	70,800	76,300,000
Exposure.....	25,200	23,200,000
Incendiary and suspicious.....	94,300	320,000,000
Spontaneous ignition.....	14,900	25,500,000
Gas fires and explosions <sup>1</sup> .....	9,600	23,400,000
Explosions from fireworks, explosives.....	4,300	5,200,000
Miscellaneous known causes.....	70,500	191,400,000
Unknown causes.....	150,500	1,045,300,000
<b>Total building fires.....</b>	<b>1,085,900</b>	<b>2,537,200,000</b>

<sup>1</sup> Does not include fires originating in heating and cooking equipment.

Note: These estimated figures are intended to show the relative order of magnitude of fire losses by cause, and to indicate year-to-year trends. While they are reasonable approximations based on experience in typical States, they should not be taken as exact records for each class. The figures by themselves do not show the relative safety in use of various types of materials, devices, fuels, or services, and they should not be used for that purpose. Reproduction of this table, in whole or in part, is authorized only with written permission from the Association and with the following identification of figures: National Fire Protection Association estimates.

TABLE 2.—ESTIMATED UNITED STATES FIRE LOSSES BY OCCUPANCIES, 1973

Occupancy.	Number of fires	Estimated loss
Public assembly occupancies.....	34,100	\$155,000,000
Amusement centers, ballrooms.....	2,300	10,700,000
Auditoriums, exhibition halls.....	600	5,600,000
Bowling establishments.....	800	9,500,000
Churches.....	3,900	28,400,000
Clubs, private.....	3,000	14,500,000
Restaurants, taverns.....	19,500	54,900,000
Theaters, studios.....	1,100	13,500,000
Transportation terminals.....	500	2,600,000
Other public assembly occupancies.....	2,400	15,300,000
Educational occupancies.....	24,100	99,000,000
Schools, through 12th grade.....	18,900	81,900,000
Other schools.....	5,200	17,100,000

TABLE 2.—ESTIMATED UNITED STATES FIRE LOSSES BY OCCUPANCIES, 1973—Continued

Occupancy	Number of fires	Estimated loss
Institutional occupancies.....	21, 600	\$23, 900, 000
Rest and nursing homes.....	6, 400	3, 600, 000
Hospitals.....	10, 700	12, 400, 000
Mental institutions.....	800	1, 500, 000
Other institutions.....	3, 700	6, 400, 000
Residential occupancies.....	795, 800	1, 103, 400, 000
Apartments.....	138, 000	265, 300, 000
Dwellings, 1- and 2-family.....	587, 200	700, 700, 000
Hotels and motels.....	21, 700	42, 200, 000
Mobile homes.....	25, 100	57, 800, 000
Other residential occupancies.....	23, 800	37, 400, 000
Mercantile and office occupancies.....	76, 100	366, 700, 000
Appliance and furniture stores.....	4, 100	27, 500, 000
Clothing stores.....	4, 500	20, 900, 000
Department and variety stores.....	4, 500	40, 700, 000
Drugstores.....	2, 900	11, 400, 000
Grocery stores and supermarkets.....	6, 900	35, 900, 000
Motor vehicle sales and repair facilities.....	9, 600	34, 100, 000
Offices and banks.....	15, 900	47, 300, 000
Service stations.....	5, 300	11, 100, 000
Other mercantile occupancies.....	22, 400	137, 800, 000
Basic industry, defense and utility occupancies.....	6, 900	76, 300, 000
Electric powerplants.....	3, 000	22, 900, 000
Laboratories and data-processing centers.....	800	2, 600, 000
Mines and mineral product plants.....	1, 600	41, 400, 000
Nucleonic facilities.....	100	1, 500, 000
Other basic industry occupancies.....	1, 400	7, 900, 000
Manufacturing occupancies.....	40, 400	364, 400, 000
Beverage, tobacco, and essential oil plants.....	900	5, 100, 000
Drug, chemical, paint, and petroleum plants.....	3, 600	89, 000, 000
Food product plants.....	3, 600	39, 600, 000
Laundry and dry cleaning plants.....	3, 300	9, 200, 000
Metal and metal product plants.....	4, 000	51, 700, 000
Paper and paper product plants.....	3, 100	11, 000, 000
Plastic and plastic product plants.....	1, 900	16, 700, 000
Printing plants.....	1, 600	6, 100, 000
Textile and textile product plants.....	3, 500	15, 700, 000
Wood and wood product plants.....	3, 100	43, 600, 000
Other manufacturing occupancies.....	11, 800	76, 700, 000
Storage occupancies.....	57, 300	300, 000, 000
Barns and stables.....	14, 800	74, 400, 000
Bulk plants and tank farms.....	1, 100	9, 300, 000
Garages and residential parking.....	20, 000	27, 900, 000
Grain elevators.....	1, 800	39, 300, 000
Lumber and building materials storage.....	1, 000	18, 900, 000
Sheds and farm storage buildings.....	10, 800	27, 600, 000
Other storage buildings.....	7, 800	102, 600, 000
Other buildings (not included above).....	30, 200	48, 500, 000
Total building fires.....	1, 085, 900	2, 537, 200, 000
Nonbuilding occupancies:		
Standing crops.....	21, 000	32, 000, 000
Forests.....	119, 000	126, 000, 000
Grass, brush, and rubbish.....	891, 200	.....
Motor vehicles.....	574, 000	135, 300, 000
Ships.....	500	12, 500, 000
Railroad rolling stock.....	2, 250	27, 800, 000
Aircraft, aerospace vehicles.....	250	150, 000, 000
Total nonbuilding fires.....	1, 608, 200	483, 600, 000
Total fires.....	2, 694, 100	3, 020, 800, 000

Note: These estimated figures are intended to show the relative order of magnitude of fire losses by occupancies. While they are reasonable approximations based on experience in typical States, they should not be taken as exact records for each class. Any reproduction of these figures should be identified as follows: National Fire Protection Association estimates.

TABLE 3.—*Estimated activities of fire departments in the United States, 1973*

Legitimate fire calls.....	2,710,000
Malicious false alarms.....	820,000
Assistance to other fire departments.....	75,500
Other calls <sup>1</sup> .....	2,660,000

<sup>1</sup> Includes rescue, medical assistance, public service and similar calls.



## Appendix 2

### LETTER FROM ROBERT D. RIDDELL, FIRE MARSHAL, STATE OF UTAH, REGARDING INTERPRETATION OF LIFE SAFETY CODE; TO ROBERT J. THOMPSON, SECRETARY ON SAFETY TO LIFE COMMITTEE, NATIONAL FIRE PROTECTION ASSOCIATION, DATED MAY 6, 1974

DEAR MR. THOMPSON: May we respectfully request an official opinion as to the validity of the following matter:

As sections 10-1332 (1967 Life Safety Code) and 10-2327 (1973 Life Safety Code) state, "Doors in corridor partitions other than those serving exits or hazardous areas shall be at least 1 $\frac{3}{4}$ " solid bonded wood core or equivalent." Sections 10-2121 and 10-2122 (1967 Life Safety Code) and 10-2121, 10-2122, and 10-2123 (1973 Life Safety Code) permits modification of any sectional requirement when the authority having jurisdiction feels meeting the requirement is impractical and a reasonable equivalency can be made which permits a minimum hazard to the life safety of the occupants.

This office has felt for some time that a better than equivalent alternative to solid core doors in corridors of existing nursing homes is a hollow core door in combination with complete automatic sprinkler protection.

From numerous observations and thorough knowledge of the fire mechanism, we feel the hollow core door with sprinkler protection on each side would undoubtedly surpass the protection provided by the solid core door alone. We, of course, feel that this equivalency should only be made on corridor doors in existing nursing homes where undue hardship exists in enforcing the code as written.

Utah's nursing homes are particularly applicable in that all are fully sprinklered and most have hollow core doors on patient rooms. We have been led to believe that other States are confronted by the same situation. Most operators have expressed a very deep concern that meeting the solid core door requirement would be very difficult, if not impossible financially. As these facilities are meeting the code in nearly every other way, we feel this modification is more than justified.

Another point which should be mentioned is that the Life Safety Code does not require corridor doors to be self-closing. In that a door might be left open during a fire, any door would be useless in such a situation. A hollow core door in conjunction with complete automatic sprinkler protection would at least greatly reduce this hazard.

We are supported in this feeling by not only fire officials in other States, but recently by endorsement of the Fire Marshal's Association of North America. A copy of that endorsement is enclosed. It is not our intent to influence your decision by mention of the above, but only to inform you of the widespread feeling on this matter.

Could we ask that this opinion be made in reference to the 1967 Life Safety Code, as this is the standard adopted for nursing homes nationwide by Health, Education, and Welfare. A response would be appreciated at the earliest date possible, as this decision will directly affect certification of most nursing homes in Utah.

This letter is a result of a meeting held May 2, 1974, in the State Department of Social Services Offices. Present were Dr. Rulon R. Garfield, Regional Director of Health, Education, and Welfare; Allen Buckingham, Director, Nursing Home Program, Region VIII; Paul Rose and Dale Williams, Department of Social Services; Robert D. Riddell and David M. Pingree, State Fire Marshal's Office; and Dr. Bruce A. Walter, Deputy Director, State Department of Health. At this meeting it was decided to ask this official opinion to solve a long standing disagreement between the State and the Department of Health, Education, and Welfare on the solid core door requirement.

Respectfully yours,

ROBERT D. RIDDELL,  
*Utah State Fire Marshal.*

### Appendix 3

#### MEMORANDUM FROM AMERICAN NURSING HOME ASSOCIATION, DATED FEBRUARY 21, 1975

To: Val J. Halamandaris, Associate Counsel, Senate Special Committee on Aging.

From: Mark K. Steinberg, acting director, Government Relations Department, and Bruce D. Thevenot, Director, Legislative Services Department.

Subject: Fire Safety Compliance in Utah Nursing Homes.

Our discussions with individuals in the nursing home industry in Utah and the State fire marshal indicate a significant possibility that as many as 53 facilities in Utah will face decertification at an indeterminate time because of problems with fire safety standards.

The following are key elements of the controversy:

(1) While all nursing homes in the State have been fully equipped with automatic sprinkler systems, many smaller and older facilities are not able to comply with currently applicable life safety standards because of deficiencies in the following areas: (a) width of corridors, (b) size of doorways and door construction, (c) ground level access, and (d) minimum patient room size.\*

(2) Heretofore the State fire marshal, Robert D. Riddell, has been granting various waivers to the Life Safety Code.

However, Mr. Riddell informs us that his determinations are currently being overturned by the Denver regional office which is acting on information it receives from its own Life Safety Code inspector which the Department has assigned to work in Utah on a permanent basis. This gentleman . . . according to Mr. Riddell, is now housed at the State division of health office on the HEW payroll after having been discharged from a similar position in Mr. Riddell's office.

The resulting confusion of authority with respect to the granting of waivers has caused great uncertainty for the State of Utah and the nursing homes.

(3) Aside from the confusion about authority, a more fundamental problem exists, i.e., does the installation of sprinkler systems per se guarantee an acceptable level of life safety? If not, what additional code requirements must be met and which of these requirements, if any, should be waived? In any case, a uniform method of interpretation is urgently needed.

---

\* Utah's Fire Marshal Robert Riddell notes that another issue in Utah is certification of 2-story buildings of combustible construction which the 1973 code allows if they have full sprinkler protection. With respect to door and corridor widths, he comments:

"It will be noted when speaking of corridor and door widths, the code only refers to nonambulatory patients. There are many nursing homes that only take care of ambulatory patients, and in this case only would I request a waiver for door and corridor widths."

(4) Current waivers are being granted only for one year, so providers are understandably reluctant to commit themselves to the significant expenditure of funds to make corrections.

(5) Fire Marshal Riddell informs us that the 1973 code is preferable to the 1967 edition in terms of recognizing safety equivalency. It is our judgment that the Secretary has the authority under present law to recognize the adoption by a State of the 1973 code in lieu of the 1967 edition.

(6) DHEW has proposed new regulations under which the regional offices will assume final waiver authority under title XIX based on the State survey recommendations. The Secretary presently exercises this power with respect to facilities participating in title XVII only or in both programs, but not for XIX only facilities.

The assumption of authority could result in a more flexible, predictable and uniform system of granting waivers—or it could result in arbitrary and inflexible enforcement.

In summary, we believe that a clear line of authority must be established immediately with respect to Utah and the Denver regional office. In addition, uniform and realistic interpretations of safety equivalency must be implemented. In the absence of these actions, the Utah situation will be repeated to a greater or lesser degree in every State.

#### Appendix 4

### **LETTER FROM RICHARD E. STEVENS, ASSISTANT VICE PRESIDENT, STANDARDS, NATIONAL FIRE PROTECTION ASSOCIATION; TO SENATOR FRANK E. MOSS, DATED APRIL 28, 1975**

DEAR SENATOR MOSS: Please forgive the delay in responding to your letter of March 7 addressed to Elwood Willey. The letter was held for my response and I have been traveling out of the country on business.

The suggested solution to the problem in Utah in enforcing the 1967 edition of the Life Safety Code by adopting the 1973 edition of the code is interesting since the requirements of the two editions of the code pertaining to the problems indicated in the correspondence that you sent have not been changed significantly. Nevertheless, I do believe that it would be helpful to the owners of the facilities that must meet the requirements of the Life Safety Code if the Department of Health, Education, and Welfare would recognize that the level of protection (and thus the requirements) of the 1973 edition of the code is equivalent to the 1967 edition. Each new edition of the code reflects improvements based on research and experience. Improvement does not necessarily infer new requirements. To the contrary, improvement generally reflects changes in the state of the art brought about by new knowledge, new developments in systems and devices and new techniques in administering to the infirm and the aged. I do not propose that facilities that have met the provisions of the 1967 Life Safety Code be required to reassess their facilities on the basis of the 1973 edition of the code, but I do believe that the 1973 edition would be more applicable to the facilities that have not yet met the 1967 edition of the code and to facilities not yet built. Rather than cause greater confusion than now exists, recognition of the 1973 edition of the code could result in less confusion because many of the States have adopted that edition so there now exists a double standard; one at the State level and one at the Federal level.

I regret that we are not in a position to speak to the situation in Utah. We simply are not familiar with it and have no authority to investigate it.

I have reviewed the material that you sent pertaining to the problems in Utah and perhaps the following personal observations will be helpful.

The memorandum to Mr. Halamandaris from the American Nursing Home Association refers to (a) width of corridors, (b) size of doorways and door construction, (c) ground level access, and (d) minimum patient room size.

The Life Safety Code does have requirements for the width of corridors and the size of doorways so that patients can be moved (sometimes in their beds) in a fire emergency. The code also has requirements on patient room doors which I will discuss later in this letter. The reference to ground level access confuses me, so I will not speak to it. Requirements for the minimum patient room size is *not* a part of the Life Safety Code.

The correspondence from the Utah Nursing Home Association to the American Nursing Home Association again pertains to requirements for the space required per patient and the number of patients per room. These are not requirements of the Life Safety Code.

You undoubtedly have noted the letter sent to our office from the Utah State fire marshal requesting an official opinion on the matter of the "equivalency" of solid core doors versus hollow core doors in facilities that are sprinklered. We responded to the fire marshal that decisions on "equivalency" must be made by the authority having jurisdiction. The fire marshal's letter is, perhaps, indicative of the waiver situation which appears to be the basic problem between the fire marshal's office and the regional HEW office. The Life Safety Code requires 1 $\frac{3}{4}$ -inch solid core doors on patient rooms in existing buildings whether or not the building is sprinklered. This requirement is in line with the approach in the code to a "system for life safety." That approach makes provision for the possible failure of a part of the system and in that event alternates are required to assure continuity of the "system." Recognizing this fact, and charged with administering the Life Safety Code, HEW apparently is not willing to grant a waiver on that matter. This, in my opinion, is understandable and is a correct application of the code.

Frankly, I do not believe that replacing hollow core doors with solid core doors is a relatively large expense. The hardware from the existing door can probably be used on the new door. The only complication that can arise is if the existing hollow core doors are only 1 $\frac{3}{8}$ -inches thick in which case the rabbet in the existing door frame would not be deep enough to accept the 1 $\frac{3}{4}$ -inch door.

It seems to me that there needs to be a meeting between the fire marshal's office and officials from HEW at which a clear understanding and continued cooperation can be established. I do not know of any other way to alleviate the apparent current untenable situation. I might point out that it is my understanding that HEW does provide reasonable time for compliance providing that evidence is submitted that plans are under way by the facility owner to have the necessary changes made to comply. In addition, I believe that Federal loans are available to assist the facility owner, financially, in meeting the requirements of the code.

I hope these comments will be helpful.

Sincerely yours,

RICHARD E. STEVENS,  
*Assistant Vice President, Standards.*

## Appendix 5

### LETTER FROM CHARLES S. MORGAN, PRESIDENT, NATIONAL FIRE PROTECTION ASSOCIATION; TO HON. CASPAR W. WEINBERGER, SECRETARY, DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE, DATED JUNE 4, 1975

DEAR MR. SECRETARY: Concern is frequently expressed by State and local officials and by nursing home owners over continued use of the 1967 edition of the NFPA Life Safety Code by HEW while the code has been through revisions of 1970 and 1973. I am referring specifically to the statutory provisions in the social security amendments requiring that nursing homes comply with the 1967 Life Safety Code in order to qualify for Federal funds under the Medicare and Medicaid programs. Of course, I am pleased that Congress saw fit to provide for safety from fire for the elderly by requiring that Medicare and Medicaid homes comply with the 1967 Code, but do feel that the best interests of all concerned would be served by reference to the 1973 Life Safety Code.

I strongly urge that the Department of Health, Education, and Welfare adopt the current (1973) edition of the Life Safety Code (NFPA 101) or seek congressional authority to do so, if necessary. I would suggest if legislative authority is necessary, that it provide for adoption of "the 1973 Life Safety Code (NFPA 101) of the National Fire Protection Association, or later editions as determined by the Secretary of Health, Education, and Welfare." This wording, I believe, would permit the Secretary of HEW to enforce the current standard after its date of adoption, yet give him necessary and legal flexibility in the future.

Facilities that have already complied with the 1967 Life Safety Code should, of course, be exempt from compliance with the 1973 code. Existing facilities that have not yet complied with the 1967 code, and new facilities, should be required to comply with the 1973 edition when adopted.

Each new edition of the code reflects improvements based on research and experience. Improvement does not necessarily imply new or additional requirements. To the contrary, improvement generally reflects changes in the state-of-the-art brought about by new knowledge, new developments in systems and devices, and new methods of building construction. Adoption of the 1973 code would also result in less confusion and greater ease in enforcement since many State and local governments have adopted the 1973 edition of the code.

I have enclosed a copy of the 1973 code and material describing the National Fire Protection Association and its standards-making system. If I can be of assistance to you or your staff, please let me know.

Sincerely yours,

CHARLES S. MORGAN.

## Appendix 6

### STATE REQUIREMENTS FOR SPRINKLER INSTALLATIONS IN NURSING HOMES

#### I. COMPLIANCE WITH LIFE-SAFETY CODE

Alabama	Maine	Tennessee
Alaska	Maryland	Utah
Florida	Montana	Washington
Georgia	New Hampshire	West Virginia
Hawaii	New Mexico	Wyoming
Louisiana	Oklahoma	

#### II. NO SPRINKLER REQUIREMENTS OF ANY KIND

Arizona	Mississippi	Texas
Colorado	New Jersey	
Kansas	North Dakota	

#### III. PARTIAL REQUIREMENT FOR INSTALLATION

Arkansas	Massachusetts	Oregon
California	Michigan	Pennsylvania
Connecticut	Minnesota	Rhode Island
Delaware	Missouri	South Carolina
Idaho	Nebraska	South Dakota
Illinois	Nevada	Vermont
Indiana	New York	Virginia
Iowa	North Carolina	Wisconsin
Kentucky	Ohio	

Source : *Fire Journal*, November 1971, page 56.

(546)



## Appendix 7

### LETTER FROM FRANK C. CARLUCCI, UNDER SECRETARY, DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE; TO SENATOR CHARLES H. PERCY, DATED NOVEMBER 18, 1974

DEAR SENATOR PERCY: Thank you for your letter of November 1 which transmitted the response of the Subcommittee staff to the Department comments on the draft Subcommittee report on long-term care. We are pleased that so many of our suggested modifications will be incorporated in the final report. Several major concerns with the draft Subcommittee report remain. I would like to briefly outline these concerns.

First, we believe that the report seriously misrepresents the Department's vigorous and sincere efforts and accomplishments during the past several years to improve the quality of care provided to patients in the Nation's nursing homes. For example, the draft report asserts that the nursing home improvement program initiated by the administration in 1971 has had "only minimal effect" and that it falls "far short of a serious effort to regulate the industry." Related to this statement is the assertion that enforcement of Skilled Nursing Facility standards has been "generally inadequate . . . made only worse by the continued inconsistency of directions from Washington."

We believe these statements fail to give credit to the efforts of the administration to upgrade nursing homes over the last 3 years with which the Committee and its staff are thoroughly familiar. We would only summarize at this point by stating that in the last 3 years the Department has established new standards for both Skilled Nursing Facilities and Intermediate Care Facilities which are considerably strengthened over the previous standards.

In addition the Department has centralized its focus of responsibility for the nursing home improvement program in my office to assure consistency in policy development and operations between the Office of Nursing Home Affairs, the Bureau of Quality Assurance, the Social Security Administration, and the Social and Rehabilitation Service.

Of particular concern is the draft report's inference that the Department's ICF regulations permit serious exceptions to the Life Safety Code and thus are endangering the lives of many patients. We designed the ICF regulations so that exceptions to the code would be permitted only where they do not adversely affect the safety of the patients. As you know, we have testified on this subject on several occasions within the last year.

Another concern relates to the report's inference that discrimination against minority group members in need of nursing home care is prevalent under Medicaid. We have indicated to the Committee staff

that the phenomenon of small numbers of minority patients in Skilled Nursing Facilities is being studied by the black caucus under a DHEW contract and that the findings of this study should be reviewed before such generalizations are made. In addition, DHEW conducts an annual on-site visit to each facility participating in Medicare and Medicaid for the purpose of assuring that discrimination is not practiced by the management of the facility. Finally, as we indicated previously, the DHEW regional office staff is responsible for providing technical assistance to all nursing home administrators who request such aid. We believe the statements in the draft report that minority-owned homes have been arbitrarily closed and the reference to the "absence of assistance to upgrade standards" is not supportable.

A third concern relates to the inference that PSRO review will duplicate present UR and MR activities under Medicare and Medicaid; the report reads, "PSRO's add yet a third layer of patient review." Even though the Department staff has informed the Committee staff that PSRO review would not duplicate, but would replace, present MR and UR review, this fact has not been incorporated into the final report. This concerns us especially because the PSRO program has been the object of considerable misunderstanding and we would regret any action which would increase such misunderstanding of the program.

A fourth concern relates to the reference that the new SNF and ICF regulations, together with the advent of the SSI program is, as the draft report states, "forcing the downgrading of thousands of patients to lower levels of care." The report suggests that the remedy to this problem is to modify the Federal regulations. Frankly, we believe the report is inconsistent here, for on the one hand the Department is criticized for diluting the SNF regulations and not vigorously enforcing such regulations, and on the other hand, the situation in which thousands of patients are being placed in lower level of care facilities (presumably because of the vigorous enforcement efforts initiated by the regulations) is criticized and a recommendation is made that "changes in Federal regulations must be effected."

Presumably the recommendation is for a liberalization of the regulations to permit persons who, in fact, do not need SNF care or other medical or rehabilitative care to become inpatients of ICF's or SNF's. We agree with the report that there is a problem. As we have indicated and as the report recognizes, the States are responsible for the placement of individual patients in facilities appropriate to their medical or other needs. It is illegal under section 1616(e) of the Social Security Act for States to place a Medicaid-eligible patient with medical or rehabilitative needs in a facility which is not certified as a Medicaid-participating facility. We believe the report fails to adequately discuss the factors of this important problem.

Our final comment relates to the statement in the report that the Department has no "coherent policy on goals and methods" with respect to its long-term care program and that "only token support" has been given to home health care and other supportive services for the elderly. We believe the nursing home improvement program has defined very specific goals and methods which the Department has met or is meeting. In addition we are actively involved in plans which will encourage the expansion of home health services provided under

Medicare and Medicaid. With respect to other supportive services for the elderly, as the Committee knows, there are legal constraints (under Medicare) and jurisdictional constraints (under Medicaid) which limit the reimbursement for such services under these two health financing programs.

Thank you for your continuing interest in this area.

Sincerely,

FRANK C. CARLUCCI.

## Appendix 8

### LETTER FROM CONSTANCE BEAUMONT, DIRECTOR FOR PUBLIC POLICY, NATIONAL ASSOCIATION OF HOMES FOR THE AGING; TO VAL HALAMANDARIS, SENATE SPECIAL COMMITTEE ON AGING, DATED AUGUST 6, 1975

DEAR MR. HALAMANDARIS: This is in response to your expression of interest in problems with the Life Safety Code and its enforcement. Some of the major problems which frequently seem to be overlooked are as follows:

#### 1. APPLICATION OF HOSPITAL FEATURES TO LONG-TERM CARE FACILITIES

As is true of so many of the Federal standards for long-term care institutions, the chapter of the Life Safety Code which pertains to them [the Institutional Occupancies Chapter] is based on what is appropriate for a hospital. Other types of institutions are included in this chapter simply because they are institutions. Although nursing homes, homes for the aging, and small personal care homes have in common with hospitals the one feature of providing health services, the *primary* purposes of the occupancies are different. People do not live in hospitals whereas they do in long-term care institutions. The fundamental difference in primary function between hospitals and long-term care institutions was not considered when the chapter on institutional occupancies was developed. Thus we find today that requirements for 8-foot wide corridors and 44-inch wide doors—features which I am told are designed to permit the evacuation of orthopaedic patients in frames by wheeling them out in beds—are applied to settings whose primary function is to provide a *residence* with varying degrees and types of health, social, and other supportive services.

#### 2. A LOSS OF PERSPECTIVE AND BALANCE

The several nursing home exposés of the last 2 years have resulted in public demands for *tangible* improvements in nursing homes. This pressure for immediate and tangible improvements has caused HEW and State officials to emphasize those aspects of the standards which are the simplest and easiest to measure, such as door and corridor dimensions. The natural tendency of those reacting to this political pressure to show quick and measurable results is reinforced by the publicity of fire safety deficiencies as illustrations of deficiencies in standards enforcement. Thus enforcement of fire safety standards has become equated with enforcement of standards in general. Many government officials seem to have lost the perspective that there are many

other features in a long-term care institution which are as important or more important and that enforcement of Life Safety Code provisions sometimes must be balanced with the loss of other desirable features.

It almost seems as if, in their efforts to produce tangible results quickly, Federal and State officials have equated enforcement of the Life Safety Code with quality care. A sense of balance and of the relative importance of Life Safety Code enforcement has been lost.

One incident recently brought to my attention illustrates this point. An older home in New York, after having spent large sums of money to make extensive renovations in an effort to meet the code and still failing to meet all the provisions, decided to close. The home's 63 residents were transferred from the older building where they had private rooms and were allowed to have their own furniture, to a modern and elaborately equipped facility where they had to share a room and could not have their own furniture. The first day after the transfer, one of the patients tried to commit suicide. Four months later, 17 of the 63 patients transferred died.

The residents may have been better protected from fires in the new building, but they also lost the benefit of a more personal, private, and familiar environment.

Although the newer buildings can more easily meet the various code provisions, many of them also tend to be very sterile and institutional looking, particularly from the standpoint of many elderly people. Also, the costs of building today sometimes rule out the possibility of private rooms and other desirable features.

To point all of this out is not to argue against enforcement of the code, but rather to illustrate that enforcing it does sometimes require such tradeoffs as the loss of private rooms, the destruction of some very beautiful buildings with character, abrupt patient relocations and readjustments at a time when such changes can be traumatic, and that these things should be considered and thought about in the process of ensuring fire safety.

### 3. MISINTERPRETATION OF THE LIFE SAFETY CODE

A third problem is the widespread misinterpretation and misapplication of the code. Many of the people employed at the local level as inspectors do not fully understand the code and do not have the technical training necessary to make the judgments which the code calls for. One of the common misapplications is the use of new construction standards for existing buildings. We have had many reports from our members of inspectors' insistence on meeting provisions of Chapter 10-1, such as the requirement for 44-inch doors, which do not appear in Chapter 10-2.

Another example was the insistence that one of our member homes enclose the gift shop because it was a "hazardous area." The code requires that areas such as gift shops be either sprinklered or enclosed with 1-hour construction, but not both. Although this home was fully sprinklered, it was told that enclosing the gift shop was required. This was done at considerable expense, and ironically, the construction which was approved by the inspectors does not provide 1-hour fire resistance. So, in the end, nothing was accomplished but institutionalizing the appearance of the gift shop.

Most administrators of homes are not, themselves, expert in fire protection engineering and therefore assume that the instructions they are given by the fire safety inspectors are correct and required. As a result, there are many instances of unnecessary but very costly building alterations and equipment installations.

The costs of long-term care services are already beyond the reach of many elderly persons and are straining States' medicaid budgets, so much so that it seems that public officials and advocates for the aging should be more concerned about and interested in eliminating unnecessary or wasteful expenditures.

#### 4. IMPACT UPON HOMES SERVING LOW-INCOME POPULATIONS

Even if all of the changes to existing buildings were actually required by the code, the cost for many homes would still be substantial. Federal financial assistance to enable long-term care facilities to purchase fire safety equipment is effectively not available. These costs are borne ultimately by the residents or their families. More often than not, it is the homes serving low-income and minority populations that have the most fire safety deficiencies and the least financial resources to enable them to meet the code. They face the unhappy dilemma of closing and leaving their residents in an even worse situation or of closing their doors to the low-income and of restricting their services to the poor. In this connection, Senator Moss' bill to provide low-interest loans to homes serving minority areas is very much needed.

These, then, are some of the problems with the way in which the code is currently being implemented and which I hope can receive greater attention.

With best wishes. Sincerely,

CONSTANCE BEAUMONT.

**Appendix 9**

**LETTER FROM J. ALBIN YOKIE, EXECUTIVE VICE PRESIDENT, AMERICAN COLLEGE OF NURSING HOME ADMINISTRATORS; TO SENATOR FRANK E. MOSS, DATED AUGUST 15, 1975**

DEAR CHAIRMAN MOSS: The American College of Nursing Home Administrators supports the concept of maximizing fire safety in nursing homes by all methods. We, therefore, endorse the concept of fully automatic sprinkling systems as a means of achieving this end.

Yours truly,

J. ALBIN YOKIE,  
*Executive Vice President.*

(553)

## Appendix 10

### MAGAZINE ARTICLE ENTITLED "OF SATRAPS AND FIRE-TRAPS"; FROM HOSPITAL PRACTICE, FEBRUARY 1974

*This editorial is by Mal Schechter, Hospital Practice  
Senior Editor in Washington, D.C.*

Certain facets of a story sometimes bring it to life for a reporter. In January 1970, a Medicare nursing home in Marietta, Ohio, burned—with loss of 32 lives. The facet: firemen on their hands and knees could barely breathe or see as they moved down a corridor filled with the dense smoke of burning carpet in attempts to reach victims. In December 1973, a fire investigator reports that seven lives in Philadelphia-area nursing home fire could have been saved—if there had been \$400 worth of fire doors.

Three years ago, the jarring picture of able-bodied firemen unable to move through a facility for the infirm aged set *Hospital Practice's* Government impact department on a course of finding out the underlying reasons for failure to protect patients. The particular story we found ourselves covering was the implementation of the Social Security Act's provisions that require Medicare and Medicaid to enforce the Life Safety Code of the National Fire Protection Association, 1967 edition.

The topic may have appeared far afield for a medical publication. Though physicians obviously have an interest in the safety of institutions housing their patients, another reason predominated in our thinking. We wondered what happens to a law after enactment, the point at which much of Washington journalism stops. We found ourselves on an excursion into the field of public administration, the arts of which increasingly affect physicians under the rubrics of public accountability, medical audit or PSRO, cost controls, utilization review, and national health insurance.

The absence of those fire doors suggested that something clearly is amiss in that area where public administration crosses into health care. Despite a Federal law signed in 1968 by President Johnson and despite a promise of vigorous enforcement in 1971 by President Nixon, the \$400 fire doors never were installed.

The basic reason, we submit, is that the interests of patient safety were submerged beneath bureaucratic infighting among Federal agencies seeking to display "leadership," beneath concession-mindedness by government officials accosted by lobbyists representing nursing homes, carpet makers, and State agencies, and beneath the seemingly inherent frictions at the Federal-State interface.

In short, we think there are institutional incentives for government to break its trust relationship with patients. And we believe this is cause for concern by physicians as well as patients.



A set of specific facts may illustrate the problem: The 96-bed Caley Nursing and Convalescent Center outside Philadelphia, which burned Dec. 4, 1973, had been a Medicare facility since 1967. It entered the program after State inspectors found it in compliance with the then-existing fire safety standards, which were virtually meaningless. These standards, in effect if not by design, helped Medicare enlist plenty of bed space in the 1966-67 winter, when hospitals were expected to be deluged by the elderly. Instead of 800 "extended-care facilities," a term originally defining hospital progressive-care facilities, Medicare got 4,000 nursing homes.

The Life Safety Code should have become effective in Medicare and Medicaid on Jan. 1, 1970. The Social Security Administration was asleep at the switch, but even when it woke up it saw that tough application would drive out many homes, an implicit reproach to past policy. For Medicaid, the Medical Services Administration issued the necessary regulations roughly on time. But Medicaid is a Federal-State program and the States resisted tough standards because of the greater costs their portion of the program would have to bear in terms of institutional charges, and because of a conflict of interest.

The force that should have tipped the balance for the patient was the Secretary of Health, Education, and Welfare. But, in the Nixon regime, with emphasis on decentralizing Federal functions to regional offices and on handing Federal powers to the States, the idea of tough enforcement of Federal standards was incongruous. The HEW regional offices, moreover, were far more sensitive to States' needs than to Washington.

No wonder then that enforcement languished. In the meantime, this publication and other parties sought to get at the facts of enforcement despite a Social Security secrecy statute. We went to court, and the few bits of evidence eventually obtained suggested malfeasance in standards enforcement.

Even as this is written, no outsider can look at the records of the Caley inspections since 1967. Nonetheless, a brief review provided by the Social Security Administration shows that Pennsylvania inspectors did incompetent fire surveys until mid-1972, reporting "sprinklers" where there were none and finding no deficiencies when there obviously were plenty. The Federal regional SSA office let it all go by.

One reason why a thoroughgoing survey was absent before mid-1972 is that SSA procrastinated for 22 months in publishing regulations. Ignoring expert opinion from the chief fire safety consultant of the U.S. Public Health Service, the SSA seemingly sought solutions that would show its "leadership" and not upset carpet makers, States, nursing homes, and disputatious fire safety interests. In the end, second-guessing the law led SSA to misinterpret the Life Safety Code and into an unnecessary confrontation early in 1971 with Senator Mike Mansfield (D-Mont.) over the code's application to certain hospitals and nursing homes in Montana. The Senator went so far as to introduce legislation to repeal the code, but Senator Frank Moss (D-Utah) saved the day. He made clear that SSA's fallacious attempt to make sprinklers a panacea for the multifaceted code was at the heart of the trouble.

Meanwhile, giving more weight to the law than SSA, the Medical Services Administration found itself frequently overruled in interpret-

ing the code. By early 1972, the then HEW Secretary Elliot Richardson shut off internal debate by accepting SSA approaches on key issues. At this point, forms for conducting code surveys were distributed to Pennsylvania and other States. And that was when the serious violations at Caley were first reported.

But, having found the violations, the State did nothing for 12 months. In mid-1973, it took the legally dubious step, in the absence of a fresh survey, of telling the Caley home to make corrections within 6 months. The home plaintively replied that it had been waiting a year for survey findings.

When the fire occurred, virtually none of the requested corrections had been made. One of those requests concerned the \$400 fire doors.

There is yet one additional ingredient to the story. As pointed out in the November 1973 Government Impact column, the State of Pennsylvania has been allowed by HEW to thwart Federal regulations in Medicaid without losing Federal grant money. As one HEW official put it, "Pennsylvania acted as if there was a law exempting it from HEW regulations, and HEW acted that way, too." Relatively weak steps against Pennsylvania had been taken by HEW, even when the Philadelphia regional office surprisingly called for strong ones last summer. The State's resistance to Federal requirements and HEW's reluctance to take hard steps carried over into Medicare.

Like icing spread over this "cake" of intrigue, procrastination, and bureaucratic doubletalk is the claim that to enforce the code is to throw the aged into the streets. Such an argument carries little weight in the absence of surveys to show that there is a shortage of safe bed space either in nursing homes or in hospitals. Nor can one morally accept the consequences of the argument even if a shortage is granted. Would it be conscionable to permit elderly patients to remain in hazardous nursing homes while safe bed space in hospitals is given over, for example, to elective surgery? Nor do we know how much nursing home bed space can be rendered safe by the addition of \$400 doors and other remedies less drastic than reconstructing facilities.

The issues were not squarely faced in 1970.

We doubt that they are being coped with now.

What needs to be found is a governmental mechanism that will work for upholding standards and patient safety. This obviously will not be found in the Nixonian thrust of decentralization and States' primacy.

The rationale of such a mechanism should be that there is a national set of standards for institutional fire safety. It should be enforced by a national agency with unfragmented responsibility for its judgments based upon the annual surveys of its own well-trained inspectors.

Everyone in this chain should be subject to criminal liability for false statements and incomplete justifications of decisions. All documents should be publicly available.

It is now axiomatic: Every multiple-death nursing home fire, *prima facie*, represents a failure to enforce the law.

## Dr. Edwards on Nursing Homes Fires

DEAR SIR:

The journalists who developed the material for "Nursing Home Fires—Dx: Chronic Disease—Rx: ????" (HP, November 1973) are to be commended for the thoroughness with which they developed such a full chronology of the events surrounding the tragedy at the Washington Hill Nursing Home in Pennsylvania. A fair picture has been presented illustrating how enforcement of the Life Safety Code as a condition for skilled nursing homes to receive Federal funds depends on the cooperation of State, private, official, regional, and Federal agencies.

Your article is testimony to the fact that we have a long way to go before all the Nation's long-term care facilities can be regarded as safe and healthful.

Information supplied to the Congressional Special Studies Subcommittee, which conducted hearings in late October on fire safety in nursing homes, reaffirmed the Secretary's intent to bring substandard nursing homes into compliance with the Life Safety Code standards. The option to terminate Federal funds to nursing homes in Pennsylvania or any other State that does not have proper certification status remains available to the Secretary. The Department of Health, Education, and Welfare is committed to bringing all nursing homes in Pennsylvania and other States into compliance. In Pennsylvania, some homes have been closed or have withdrawn from the Medicaid program. The \$100-million bond proposal for loans to facilities to make the necessary corrections is in the process of being considered by the State legislature.

Throughout the country, over 120 nursing homes have been cut off from receiving Medicare payments; and over 900 skilled nursing homes have been terminated or have withdrawn from the Medicaid program.

The department maintains and monitors a continuing survey and certification program under which qualified State agency surveyors make determinations as to whether Federal standards are being met. Each of the 10 Public Health Service regional directors has been given the responsibility for survey, certification, and all standards enforcement operations in long-term care facilities in that region. Effective January 1, 1974, skilled nursing homes participating in Medicaid and Medicare programs will provide services under time-limited agreements based on a compliance survey, not to exceed 12 months.

In 1972, the department initiated training programs for State and Federal personnel engaged in fire safety surveillance. To date, 750 State fire safety surveyors have been trained under a department contract with the National Fire Protection Association.

The inclusion of the Life Safety Code requirement into the department's regulations for intermediate care facilities will make it possible to extend protection to 8,000 long-term care facilities not currently subject to Federal safety requirements. These regulations were scheduled for publication in the *Federal Register* on January 15,

1974. In addition, Senator Moss introduced Senate bill 513, which has been enacted and authorizes insured loans to provide for the installation of fire safety equipment. This should make it possible for smaller facilities to correct deficiencies rather than withdraw from the Medicaid and Medicare funding programs.

In addition to placing emphasis on enforcement of the Life Safety Code, about 30,000 employees of nursing homes, of all disciplines and levels, have received training to upgrade their skills. We agree that the presence of life safety equipment and emergency procedures are of little effect without a prepared, well-motivated team on duty.

On November 11, I issued a directive placing the Office of Nursing Home Affairs within my immediate office, and appointed Dr. Faye G. Abdellah, Assistant Surgeon General and Chief Nurse Officer, U.S. Public Health Service, as its director. By this action, it is my expectation that the nursing home improvement program will be closely integrated at State, regional, and Federal levels, and that the interests and efforts of private and professional agencies concerned will also be integrated into a total long-term care program in the department.

You and your magazine have performed an important service in bringing to the attention of the nation the need for concerted actions at every level.

CHARLES C. EDWARDS, M.D.

*Assistant Secretary for Health,*

*U.S. Department of Health, Education, and Welfare.*

EDITOR'S NOTE: *While we appreciate Dr. Edwards' generous comments, we feel it necessary to point out that his letter seems to fail to come to grips with the core question raised by the original article: "Why has HEW been so lax in enforcement of the laws designed to protect nursing home patients in the face of a veritable 'epidemic' of nursing home fires?"*

## Appendix 11

### MAGAZINE ARTICLE ENTITLED "POISON GAS HAZARDS FROM BURNING PLASTICS CONCERN FIRE RESEARCHERS"; FROM MEDICAL WORLD NEWS, SEPTEMBER 20, 1974

Official fire department reports are studded with mentions of firemen "overcome by smoke" or of fire victims, untouched by flames, who died of "carbon monoxide poisoning."

But growing numbers of fire researchers are now questioning the real meaning of such reports. They suspect that these phrases, though accurate as far as they go, really cover up scientific ignorance in the vast and barely scratched area of the smoke and gases thrown off by burning materials—especially plastics.

Dr. Donald Dressler is quick to point out that very little is known about the effects that the components of burning plastics have on human beings. "Of course we know carbon monoxide, hydrogen cyanide, and hydrogen chloride, among other substances, are given off," says the assistant clinical professor of surgery at Harvard Medical School, a longtime fire researcher. "But plastics differ greatly and the real question is what happens to them, not in a carefully controlled lab setting but during the blaze itself."

In an effort to find out, he and his team at Youville Hospital in Cambridge have been forcing rats locked in special experimental chambers to breathe the combustion products of nylon and acrylics. "Very often," he says, "the animals become unconscious before the smoke gets very dense and before the carbon monoxide level gets very high. But we still don't know what knocks them out. We assume it's something in the plastics, but we don't know what."

Are people affected the same way? Dr. Dressler thinks so. About half of the 12,000 people felled in fires each year are unable to get out of burning buildings. "Why do they open the wrong door? Why don't they escape? I'm sure the smoke, confusion, and panic are part of the answer," he says. "But they are often written off as drunk, or as having been smoking in bed—I think they may have been affected by something else."

Also concerned about "the subtle combustion products of polymers that haven't been studied yet" is Dr. John W. Lyons, director of fire programs for the National Bureau of Standards (NBS). He will be chairman of a new nine-member Product Research Committee (five public representatives, four from industry), directing a \$5-million study of product flammability and ways to minimize its hazards.

This study, with the money to be provided by manufacturers, was part of the plastics industry's recent settlement with the Federal Trade Commission. Under its terms 25 companies are to warn consumers that

some plastic building materials they have promoted for years as safe and fire-resistant are actually flash-fire hazards that give off toxic gases. The materials involved are such foamed plastics as polyurethane and polystyrene, used in everything from furniture and plumbing fixtures to pipes and insulation.

Reports have been coming to him periodically, Dr. Lyons says, of "strange effects" on people caught in fires where at least some plastic materials were on the scene. Firemen on clean-up details are particularly vulnerable, he finds.

"They tend to take their protective equipment off when they're on these details, after the fires are out but debris is still smoldering. The firemen are then overcome by gases, or they act very strangely, not quite knowing who or where they are. We don't know what causes this. Just to add to the confusion someone may look around, find some plastic material there, and decide it's the cause of the problem. But the truth is we simply don't know what role they play. At this point we don't even have animal studies to help guide us."

The NBS, engaged in extensive fire testing of its own at its new Gaithersburg, Md., research center, is also supporting an independent large-scale test now underway at the University of Utah. Directed by Dr. Irving N. Einhorn, professor of materials science and engineering and head of the flammability research center, the Utah study is testing the effects of burning plastics on rats.

Both during and after exposure to these agents the animals' physiological reactions are carefully monitored, including the response to pain and nuzzling behavior, in the hope of picking out the results of exposure to the combustion products.

Planned next is a program of animal screening to determine which combustion products of which polymers are potentially most dangerous and therefore most in need of intensive study.

Reporting on his work at the Conference on Public Health Implications of Components of Plastics Manufacture in Pinehurst, N.C., Dr. Einhorn—who is also a deputy State fire marshal—said that analysis of fire deaths indicates most result "from the production of CO, nitrogen oxides, and such additional combustion products as aldehydes, low-molecular-weight alcohols, hydrogen cyanide, and many other noxious species."

Part of the problem is that determining specific hazards from burning plastics is extraordinarily difficult when literally hundreds of compounds are being given off by reinforcing fibers, fillers, coupling agents, plasticizers, colorants, halogen stabilizers, antioxidants, ultraviolet absorbers, biological preservatives, lubricants, flow controls, flame retardants, peroxides, antistatics, and other materials involved in the blaze.

These added substances can present a totally different picture of the dangers, declares Dr. Rudolph Jaeger, assistant professor of toxicology at Harvard's School of Public Health. Carbon monoxide, for example, is a prime killer of people exposed to fire gases. But in fires involving a lot of plastic materials—and given their popularity, this includes most blazes—there's invariably a "big gray area" surrounding the dangers to people from gases given off by burning plastics, he says.

Consider, for example, hydrogen cyanide gas. It's given off, Dr. Jaeger points out, by burning acrylonitrile-butadiene-styrene (ABS), a very common plastic now being tested for use as a beverage-container material. But all nitrogenous materials, if burned, will give off some cyanide, he notes. How do you determine which—ABS or a nitrogenous agent—is responsible for the gas?

Dr. Edward P. Radford, professor of environmental medicine at Johns Hopkins University School of Hygiene and Public Health, says his team's investigation of 85 fires that killed 106 persons has yielded no clear indication yet of any significant differences in health hazards between fires involving plastic materials and those that don't.

"We have found evidence of respiratory irritation in a significant fraction of the people we've examined in both types of fires," he says. Still, he concedes, survivors of most any kind of fire would demonstrate irritated respiratory tracts. Similarly, there would be some evidence of cyanide both in fires that involved plastics and those in which such nonplastics as wool burn.

The Hopkins group says carbon monoxide "contributed to or caused the death of" as many as 80 victims of the fires they studied. And "a substantial fraction of our cases" involved death without any significant amount of skin burning. That means, Dr. Radford explains, the victims must have been far from the flames when they died.

He suspects that respiratory tract irritation may be a significant factor in whether one survives a fire, but cautions that his evidence is "still pretty shaky."

And Dr. John Peters, associate professor of occupational medicine at Harvard's School of Public Health, who has studied the acute and chronic pulmonary effects of smoke on members of Boston's 1,800-man fire department, points out that polymers give off many different toxic substances when burned.

These include such lung irritants as phosgene and chlorine (both used as poison gases in World War I), nitrogen dioxide, and hydrochloric acid. All of them can cause pulmonary edema. A second very dangerous group comprises the asphyxiants, primarily carbon monoxide and hydrogen cyanide.

The acute effects of smoke are pretty well known, Dr. Peters says, but his research group is particularly interested in what happens to firemen after 10 or 20 years of inhaling smoke. "We can document the statement that their lungs are affected by their occupation," he asserts.

## Appendix 12

### NEWSPAPER ARTICLE ENTITLED "RESEARCHERS FEAR SOME FLAME-RESISTANT GOODS MAY GIVE OFF NOXIOUS GASES IN INTENSE FIRES"; FROM THE WALL STREET JOURNAL, DECEMBER 10, 1973

*By Jeffrey A. Perlman,<sup>o</sup>  
Staff Reporter of The Wall Street Journal*

Scientists are starting to worry that all those supposedly flame-resistant carpets, insulation, furniture and other materials going into American homes and offices may be the source of a new type of fire hazard.

There are some strong indications that many of these materials, specially treated to retard the spread of flames, may give off noxious gases in intense fires. The gases are of the kind that could either kill a person or cause such mental confusion that a person wouldn't be able to escape.

"We're concerned about whether the danger to life is decreased or really increased by the presence of flame retardants," says Clayton Huggett, a researcher at the National Bureau of Standards, where Federal flammability guidelines are developed.

Researchers are quick to emphasize that the safety value of the new flame-resistant children's pajamas far outweighs any potential danger from the small amount of noxious gases that might be given off. Under new regulations of the U.S. Consumer Product Safety Commission, all children's sleepwear up to size six extra large must be made of fabrics treated with flame retardants. This is to prevent the tragedy, repeated hundreds of times a year, of a child standing too close to a heater and suddenly being enveloped in a flash of flame.

#### ORDINARY HOUSEHOLD ITEMS

Instead, the scientists' worries are centered on the new types of materials that are appearing in large quantities where Americans work and live, such as polyurethane plastic foam insulation and cushioning and acrylic and nylon indoor-outdoor carpets, blankets, drapes and the like.

Increasingly, these materials are being made so they resist bursting into flames, unlike such materials as wool, cotton, nylon, rayon and kapok. When the new products are touched with a match, they may smolder or melt for a second or two but then the flame quickly dies out. Flame has to be applied constantly for the materials to be destroyed.



Treatment with special chemicals imparts flame-resistant properties to many plastics and synthetic fibers. Companies such as Stauffer Chemical Co. and Monsanto Co., which make these flame retardants, say business is booming. Moreover, they expect sales to rise dramatically during the next few years, spurred largely by anticipated legislation requiring flame-retardant treatment for ladies' dresses, children's clothing, upholstered furniture and other products not currently under regulation. Stauffer predicts the flame-retardants market, currently about \$90 million, or 330 million pounds, should double by 1978.

Safety experts maintain that the flame-retardant materials make chances of fire far less likely, and they say the increased use should help reduce the 13,000 deaths caused yearly by fires in the U.S. But Irwin N. Einhorn, director of the federally financed Flammability Research Center at the University of Utah, suggests that in an intense fire where there is little oxygen available, the materials will start giving off such deadly gases as carbon monoxide and hydrogen cyanide.

While he hastens to add that ordinary wood and other natural products also emit harmful fumes when burned, Mr. Einhorn has strong clues that some airplane-crash deaths have been due to cyanide and carbon monoxide poisoning, presumably produced by the burning of flame-resistant airplane seats, trays and paneling. He says autopsies have produced "conclusive evidence" of lethal doses of hydrogen cyanide in victims of several crashes, including a 1965 Salt Lake City crash that claimed the lives of 41 passengers aboard a United Air Lines 727. He believes the fumes, rather than the impact, caused at least some of the deaths. Similarly, U.S. Navy researchers have indications that these toxic gases are emitted by fire-retardant materials used in submarines and ships.

Animal studies tend to support the researchers' suspicions. "I've seen rats killed in less than a minute by the toxic gases," says Dr. Donald Dressler, a staff surgeon at Mt. Auburn Hospital and Harvard Medical School in Cambridge, Mass. Suspecting that certain synthetic materials might emit fumes in fires, Dr. Dressler took a piece of supposedly flame-resistant indoor-outdoor carpeting from his office floor and burned it. "Although the carpet fibers themselves didn't catch fire at first, when I put a match under the carpet backing, it ignited like a torch and then the carpet fibers themselves caught it," he explains.

Subsequently, he began a series of experiments in which he exposed 750 rats to the fumes of burning nylon and acrylic carpeting, as well as polymethyl methacrylate, a widely used building material more commonly known by the Rohm & Haas Co. trade name, Plexiglas. Depending on their size and the material to which they were exposed, all the rats died in seven minutes or less. The deadly test results prompted Dr. Dressler to have his new office carpeting removed. And, after discovering that the paint being applied to his office walls contained chemicals similar to those in the carpeting, he called a halt to the painting, too. Manufacturers generally maintain the fumes from these products are no more lethal than those of wood or paper.

## EXPLOSION ON STATEN ISLAND

"There are some materials that shouldn't be allowed on the market at all and others that need to be restricted," Dr. Dressler says. He's pushing for new government flammability standards that would supplement the current test of burning rates with an evaluation of biological effects of the flame-retardant materials.

Polyurethane, one of the new flame-resistant plastic materials, has heightened the mystery surrounding the deaths of 40 workmen last March on Staten Island, N.Y. The men were repairing the urethane lining on the inside walls of an empty liquefied-natural-gas storage tank when the tank exploded. The workers were either burned fatally or were crushed to death by falling metal and concrete. A grand jury probe is under way into possible criminal negligence in the case. According to sources close to the investigation, it is suspected that the supposedly flame-resistant urethane liner flashed because it was saturated with a residue of gas absorbed when the tank was full. A final report concerning the causes of the explosion is expected soon.

Household furnishings made of polyurethane foams or polystyrene are potentially dangerous, according to Gwendolyn L. Ball, a researcher at the University of Michigan's Environmental and Industrial Health Department. Because these plastics are capable of generating "significant quantities" of toxic gas, she says, "there is some hazard associated with improper burning, such as placing them in a fireplace, barbecue grill, or campfire." She says it is very unlikely that death or even injury could result in this manner, but she warns that the public should exercise caution nonetheless.

The industry is investigating charges that flame retardants might be hazardous. A Stauffer Chemical spokesman says, "The first priority in fire-retarding materials was to minimize fire and give the potential victim a chance to get away from the flame. The next priority will be to study and try to solve the danger of releasing toxic substances."

Scientists admit they don't know what mechanism causes the release of toxic fumes. "We just don't know what role is played by the flame-retardant chemical agents themselves," Dr. Dressler says. He believes intense heat, coupled with the lack of oxygen during a fire, may cause the hydrocarbon molecules in the flame retardants to reformulate into a highly potent anesthetic drug. But some scientists think the intense heat alone may be enough to trigger the reaction.

The absence of technical knowledge hasn't prevented a spate of court suits against manufacturers of polyurethane foams and polystyrene for allegedly misrepresenting their products' flame-resistant properties.

In New York, Country Club Acres Inc. filed a \$30 million suit against PPG Industries Inc., Olin Corp., Reichhold Chemicals Inc., the Society for Testing and Materials (a national test standards organization) and the Society of the Plastics Industry, a trade group. The suit charges these parties with selling or misrepresenting fire-retardant materials used in the construction of Country Club Acres' nursery-garden center. The center was recently destroyed by fire, and Country Club Acres claims the materials caused excessive heat and toxic gases that prevented firemen from saving the structure.

Last May, the Federal Trade Commission filed complaints against 26 industrial concerns on nearly identical grounds. The FTC complaints allege that the polyurethane and polystyrene materials involved burn readily or contribute to fire hazards under certain circumstances, despite manufacturers' advertising claims to the contrary.

The companies named in the suit and complaints deny any wrongdoing and say they didn't misrepresent their products, which meet industry-wide standards approved by independent testing laboratories. The suits, which are still pending, could help settle the issues by delving into the adequacy of government and industry testing procedures to determine just how real the health hazards are.

"The use of flame retardants is increasing at a prodigious rate each year," observes Mr. Einhorn. "Unfortunately," he concludes, "as may happen on occasion, the treatment may bring about another hazard equal to the problem that originally required the treatment."

## Appendix 13

### MAGAZINE ARTICLE ENTITLED "SMOKE OF BURNING SYNTHETIC CARPET HELD LETHAL HAZARD"; FROM MEDICAL TRIBUNE, NOVEMBER 14, 1973

CHICAGO.—Animal experiments showing the death-dealing potential of smoke produced by flaming acrylic and nylon carpeting were reported here by a Harvard Medical School investigator, who urged that standards of biologic tolerance be established for synthetic fibers.

Tests of flammability are not adequate, Dr. Donald P. Dressler told the Clinical Congress of the American College of Surgeons.

Rats invariably die—often in less than two minutes—after inhaling smoke from ignited acrylic carpeting at a temperature otherwise compatible with survival.

Dr. Dressler pointed out that synthetic fibers, such as acrylic, are now replacing wool in carpeting in schools, commercial buildings, and homes.

Emphasizing that smoke inhalation accounts for more than 5,000 deaths each year, he said the studies he conducted jointly with Drs. Edna Butaney and Anne W. Phillips "clearly demonstrate that indiscriminate use of building and decorating materials may result in lethal hazards."

#### 750 RATS EXPOSED TO SMOKE

In the experiments, some 750 rats were exposed in a controlled-atmosphere chamber to smoke produced by standard acrylic rugs, wool rugs, or white pine wood. Temperature and humidity as well as smoke concentrations could be controlled and monitored.

Each type of material was either ignited or allowed to smoulder in a combustion chamber. The smoke produced was cooled or heated as desired and then introduced into the animal chamber at a rate of 40 cubic feet per minute.

"Smoke from smouldering material, whatever its source, caused no deaths if inhaled at room temperature," Dr. Dressler said. "As could be expected," he added, "the higher the temperatures, the greater the mortality, and mortality increased with length of exposure at any given temperatures."

But tests made of smoke from ignited—rather than smouldering—materials revealed that the acrylic carpeting was deadly even at room temperature (25° C., 77° F.). All animals inhaling such smoke at this temperature died, and they frequently did so within two minutes. Later tests showed that nylon carpeting appears to be "even more dangerous on ignition," according to Dr. Dressler.

By comparison, smoke from ignited wood or ignited wool carpeting caused no deaths during the test period in the chamber at the same temperature of 25° C.

In an interview with *Medical Tribune*, Dr. Dressler commented that solid data are lacking on the part played by building and decorative materials in the smoke inhalation deaths resulting from such disasters as airplane crashes and fires in offices, houses, or nursing homes.

"What the animal studies indicate," he said, "is that the chances for escape and survival are good if a person is exposed only to smoke produced by smouldering, provided the temperature remains fairly cool.

"But if synthetic fibers like acrylic are ignited, you're in trouble," he continued. "The 'escape time' for a rat is one or two minutes. We don't know about the human being—it's hard to extrapolate from animal to man—but certainly the margin of safety is small once the material is ignited."

## Appendix 14

### MAGAZINE ARTICLE ENTITLED "EXPERT SAYS HOMES NEED DRILLS, DETECTORS AND SPRINKLERS"; FROM MODERN NURSING HOME, APRIL 1972

A NOTED SCIENTIST EXPLAINS THE DYNAMICS OF NURSING HOME FIRES AND REVIEWS STUDIES THAT INDICATE HAZARDS OF FIRE-RESISTIVE PRODUCTS

*By Gregg W. Downey*

In the view of one of the Nation's most distinguished flammability experts, more and more nursing home owners and administrators possess a profound determination to prevent the multiple-death fires that have been the scourge of their field.

Prof. Irving N. Einhorn, director of flammability research at the University of Utah, said the knowledge and technology exist that can accomplish that goal. The reluctance of administrators to spend money is not what's holding back progress, he said. Rather, the major obstacle is that nursing home people lack the information necessary to turn their commitment into well-advised action.

Professor Einhorn's interest in health facility fire problems results from years of research in the broader fields of materials combustion. His degree is in chemistry, Temple University, 1950, and in addition to his research at Utah, he has done work in chemical engineering and plastics at Temple, Wayne State University, and the University of Detroit. He serves on the editorial boards of numerous scientific journals, is a consultant to many corporations, and holds membership in a variety of scientific societies. His field of specialization is polymer science, and he organized and coordinates the annual Polymer and Materials Conference Series, which attracts scientists from all over the world.

At the University of Utah's Center for Flammability and Research, Professor Einhorn directs work in numerous areas relating to fires, combustion and the resistance of materials to combustion. His best known research has been conducted under contract with the U.S. Air Force to study the chemistry and mechanics of rocket engine combustion, with the Federal Aviation Agency to study smoke emissions by fire-resistant materials in aircraft cabins, and with the National Aeronautics and Space Administration to study low-density fire retardants.

Recently, Professor Einhorn has been asked by Members of Congress and officers of the American Nursing Home Association to sit on a national committee that would advise nursing homes on fire safety. He told *Modern Nursing Home* he would gladly participate with the other experts on the committee, which has recently been

appointed. He is frequently called on by investigators to give scientific opinion following institutional fires, and he was involved in the inquiries that came in the wake of a nursing home fire tragedy in Salt Lake City last year. In November 1971, he was a speaker at the ANHA convention at Anaheim, Calif. These experiences enable Professor Einhorn to assess the attitudes of those in the nursing home field.

"Apathy and callousness are not the problems," he said. "Two or three hundred people talked to me at Anaheim. Many said they were going to install sprinklers. Others said they already had sprinklers, as well as carbon monoxide detectors and smoke detectors." He said most people want to know two things: (1) What should be done to prevent fires and to deal with them if they do occur, and (2) do the frequently encountered recommendations represent the reasonable approach?

Professor Einhorn gave detailed, often uncommon, answers to both those questions, but in order to understand his responses properly, it is necessary first to consider his explanation of the factors involved in a confined-space fire such as would take place in a nursing home or hospital:

1. Of primary importance is the fact that, in this type of fire, oxygen decreases while the level of carbon monoxide rises. This can result in asphyxiation, or carbon monoxide poisoning, which is believed to be the major cause of death in fires. As Professor Einhorn noted: "Most people require a 21 percent oxygen content in the air. Normally, at 14 to 15 percent oxygen, a person becomes sluggish; at 12 percent, mental clarity is lost, and at 7 percent, death occurs in 6 to 8 minutes.

2. Temperature is the next factor to consider. In the daytime, a fire that began on the first floor of a two-story structure would probably be discovered quickly, the scientist said. At night, however, it may not be. There is often a long induction period during which the fire goes unnoticed, allowing temperatures to climb to intolerable levels. "Your survival time at night might be 3 to 5 minutes if you were in a second-floor bedroom with the door open. If the door were closed, you might have 10 minutes," he said. "Temperature levels after 10 minutes could be anywhere from 800 to 1,000 degrees." Beyond 300 degrees death occurs in minutes. Sufficient oxygen and tolerable temperatures are probably the most critical factors to life support, Professor Einhorn said.

3. Smoke is also very important. "If smoke is hot," he noted, "it makes little difference what its chemical components are because it sears the mucous membranes and death occurs. If smoke is cool, however, it may cause edema or chemical pneumonia. There are long-lived particles in smoke that may interact harmfully with body tissue over an extended period. In addition, smoke may prevent egress and keep firemen from locating and containing the fire at its source."

4. Flame is always a danger, he pointed out, but people rarely die in the flame itself: "They're generally dead long before flames reach them."

5. Toxicity is related to the hazards of smoke, but not enough is known about this factor, Professor Einhorn said. Toxicity becomes extremely important when fire-retardant materials are exposed to

heat and flame, and much of his work deals with acquiring more data on this subject. He cited recent statistics drawn from studies of 114 fire deaths to illustrate one form of a phenomenon known as synergistic toxicity: "About 60 of the 114 persons had a blood-alcohol content high enough that a state trooper would say they were intoxicated." Alcohol in the blood causes carbon monoxide to be absorbed more readily, he explained. Substances such as alcohol in the body can increase the danger of persons exposed to the materials produced by fire, but Professor Einhorn said research in this area was just beginning.

Early detection, early alarm, and some type of localized fire fighting device are needed to offset the hazards of confined-space fires, he stated. The specialist delineated the types of equipment and the techniques that would help to overcome the five factors endangering life and property in health facilities:

"I would recommend a rate-of-rise heat detector, an ionization detector for smoke, and a carbon monoxide detector. I have all three in my house. Any of these should be able to set off an alarm. I certainly think sprinklers are necessary throughout the institution. Some States require magnetic door closers, fire doors, and smoke partitions. I'm sure those are important, but I don't have enough personal experience with them to know if they're essential. Obviously, an automatic fire door would be useful where there is a room with highly flammable material, such as cleaning agents or oxygen. There must be ample escape routes and enclosed stairwells. Staff members should be totally familiarized with escape routes by means of frequent drills, both at night and in the daytime. Enough personnel must be on duty to evacuate patients. One nurse, for instance, can't evacuate 15 patients by herself. Exit routes should be clearly marked, but continuous hand rails that lead to safety are also a good idea, because smoke can make visibility impossible. Fire extinguishers should be available. Fire-resistant construction, building contents, and good housekeeping and maintenance are also important."

Professor Einhorn was thoroughly aware that such protection is expensive, although perhaps not as expensive, he said, as a destroyed facility nor as costly as the \$150 to \$200 a day for intensive care, extended rehabilitation, and plastic surgery that may be required for survivors of a fire. In Utah, where many of the precautions described are mandatory, health facilities have enjoyed significant decreases in their insurance rates, it was reported. Professor Einhorn enthusiastically supported Senate Resolution 2923, which would make guaranteed loans available for the installation of fire safety equipment.

Although the professor frequently emphasized the importance of fire sprinklers, his position was tempered by realism. "No single system is fail-proof," he said. "You could have a situation in which solvents in 55 gallon drums caught fire in a room with sprinklers. They'd be overwhelmed by that kind of fire. But, by and large, sprinklers are the difference between life and death. They are often the difference between heavy and light property loss as well."

At the ANHA convention Professor Einhorn was assailed by the association's former fire consultant about the necessity of sprinklers. The scientist said one of the arguments that was used in the attempt



to show that these devices are not needed was that proper in-service training could take their place. (He said he understood ANHA no longer holds that view.) Far from being against in-service education, he nonetheless insisted that the human alternative is ineffective and gave examples from nursing home disasters to make his point:

"The nurse at Harmar House [Marietta, Ohio; Jan. 9, 1970; 31 dead] was trained, but she forgot to close the fire door. The nurse at Geiger [Honesdale, Pa.; Oct. 19, 1971; 15 dead] was trained, but she panicked and ran 1,000 yards away from the patients, trying to call help. What happened at Lil-Haven [Salt Lake City; Sept. 15, 1971; 6 dead]? The orderly there was credited with saving some of the patients.

"We tend to understaff nursing homes, especially at night. You have people who are under sedation, many of whom are also non-ambulatory. You have patients who are old, many who are senile, and some who are mentally retarded—how can a staff member get them all out in time?

"As far as I'm concerned, at Harmar House there was human failure; at Lil-Haven there was human failure because one lone orderly cannot evacuate 17 patients; at Geiger there was human failure. Now, conceivably, sprinklers, automatic detectors, and automatic alarm systems all could fail, too, but it's not as likely. People panic, but with early detection and an immediately available means to stop at least the spread of the fire, you've got a chance."

The professor recommended connecting the in-house alarm with the fire department, but he observed that there are serious drawbacks regarding fire fighters in some localities. "In the State of Utah, for example, there are only three paid fire departments," he said. "In areas where there are volunteer companies, the firemen may be called elsewhere or there may be no one at the station to receive the alarm. Such circumstances make automatic sprinklers even more vital." The recent nursing home fire that killed nine patients in a Cincinnati suburb may prove his point. A controversy developed there about whether or not the volunteer fire department responded with sufficient speed. In any case, the unsprinklered building was razed.

Fire retardants and fire-resistant materials, such as pajamas and bedding, were items conspicuously absent from Professor Einhorn's description of the ideally outfitted facility, and although many other experts set great store by fire retardants, he offered seemingly powerful arguments against relying on them too much—at least until they are more completely studied and developed. At present, he said, they may actually increase the danger of a fire:

"Essentially, anything we do to a material to retard flame propagation increases smoke. If a material burns readily, it doesn't smoke. If burning is retarded, it smokes, carbon monoxide increases, and the materials given off become more toxic."

He said that when a fire-retardant material for the space program was tested in his laboratory, it was found to give off the fluoride homolog of phosgene. Phosgene was used as a war gas, and the related product from the fire retardant is 100 times more dangerous. Professor Einhorn said: "The corneas of laboratory rats were completely etched in 15 seconds when exposed to it. Other highly toxic materials were

also produced. Small amounts of any one of these materials could cause death."

Even the widely acclaimed fire-retardant fabrics currently used in many health facilities can pose hidden dangers. "While it's true that they burn more slowly than cotton or nylon do," said Professor Einhorn, "there are definitely problems of heat transference. Flight suits are made of such materials, but if you made the suits thick enough to stop heat transference, pilots would find them unbearably hot and fly in their underwear. In addition, these pajamas, blankets and sheets are not particularly comfortable, and they're also expensive."

Besides all that, Professor Einhorn said ignition is not necessarily the principal problem in nursing home and hospital fires. "Ninety-nine percent of the mattresses used today will burn. You drop a cigaret on a mattress and it will burn, but it may take 3 to 5 hours before the flame bursts out. The heat sinks down and builds up inside the mattress. A person dies in 45 minutes because of carbon monoxide poisoning. The mattress never ignites until he's long dead."

He gave another example: "Even with flame-retardant fabrics, you could have somebody who drops a match into a polypropylene wastepaper basket—that's what happened at Marietta. So the patient wears fire-retardant pajamas and dies of asphyxiation." (In 100 out of 100 tests at his laboratory, a match dropped into a polypropylene basket resulted in the basket becoming a molten pool of liquid that burned anywhere from 45 minutes to 2 hours, he said.)

There are two types of retardants that are used in a wide variety of materials. There is the additive type, such as the phosphate retardants, and the reactive type, Professor Einhorn explained. In a fire that starts in a patient's room and travels toward a corridor, superheated gases can precede the fire, rendering an additive retardant ineffective before the flames reach it. Under such circumstances, he said, the treated materials burn more readily than do those that are untreated. On the other hand, he noted, the reactive types, which are supposed to be activated by heat and retard fire, may fail to function quickly enough. In that case, the material is destroyed before the retardant works.

"There are optimum points when the first retardant burns off," he said, "then the second is activated, and finally maybe a third. Unless these various retardants are put into materials with this in mind, they don't do any good. There's a false feeling of security."

He voiced a final word of caution about retardants: "Administrators have to read labels." "Treated sleep wear" he remarked, "is a good example. The government tests samples of a treated garment to determine whether it retains its phosphate retardant. Fifty washings were the number set for the test, and that seemed reasonable," he said, "but it was 50 washings in a phosphate detergent. Phosphate detergents aren't being used any more, and if you wash that pair of pajamas just once in a carbonate detergent, the valence of the phosphoric acid derivatives changes and the retardant doesn't work. So the administrator paid extra money for something he thought would protect the patients, but one washing and the effectiveness is gone. It's indicated on the label, but who takes the time to read labels?"

If health facility administrators simply can't keep up with what goes on at the forward edge of fire research, Professor Einhorn recom-

mended that the national and State associations do it for them. There are indications that this is happening, he said: "Right now, however, there's nowhere the average administrator can get the information he needs. Perhaps associations should begin to recommend certain types of carpets, ceiling tiles, and other materials on the basis of fire safety."

Were this done, it appears likely that Professor Einhorn would be among those advising the associations. "It's not a question of making a list" he said, "but it may be possible to recommend how and where to use, or not to use, certain materials and suggest design and safety considerations."

"Soon we must have much greater interaction among laboratories, government and industry," he said. "There must also be a coordination of data on fires that reveals the characteristics and occurrences statistically, so scientists can determine what specific problems exist and learn better how to deal with them," he said. "We're beginning to do this with the help of computers."

Using the data now available and the information that will become available in the future, Professor Einhorn recommended, health associations should direct their first efforts toward educating their members. A second phase for health groups might be to provide fire specialists for consultation with individual administrators who are contemplating purchases and want advice about fire safety.

"In 1954, there were 5,500 deaths as a result of poliomyelitis," he pointed out. "There were 18,000 people crippled. We called that an epidemic, and we mustered vast forces to overcome it."

"Every year since then we've had some 14,000 deaths from fire. There are 2 million burn injuries a year, and 300,000 of those result in some form of crippling for life. More than \$10 billion is lost to fire annually, health facilities accounting for about \$9 million a year. Is that an epidemic, too?"

---

### Tests Show Sprinklers Are Not Total Answer

In the course of the continuing debate about automatic fire protection systems in health facilities, the Southwest Research Institute study on "Fire Tests in a Hospital Room" has often been cited as a repudiation of arguments in favor of sprinklers, but no such repudiation is contained in the SwRI report itself. The report disclaims generalizations and specifically withholds recommendations concerning any choice among various types of equipment: "Neither fire detectors nor automatic sprinklers in themselves represent the optimum fire protection system for all parts of all hospitals."

What the SwRI tests—conducted June 2, 1971, in a simulated patient room at Iowa Lutheran Hospital, Des Moines—did do was put in focus the limitations and advantages of the two principal types of automatic fire protection systems. Essentially, the study indicated that where there are several types of detectors, efficient and calm internal alarm procedures, alert and well-trained personnel in plentiful numbers around the clock, and no extraordinarily flammable materials "the nature of the hazard does not appear to justify redundancy in protective systems." This judgment was based on two tests, one involv-

ing a bedding fire and the other a fire beginning in a wastebasket and spreading to a nearby bed.

In SwRI's first test, one minute and 10 seconds elapsed between the time a thin column of smoke was produced by bedding combustion and the time a photoelectric smoke detector was activated. An institutional fire brigade was summoned and arrived with fire extinguishers in two minutes and 37 seconds. After bedding combustion was speeded up and the smoldering material ignited, a combustion products detector was activated in one minute and 17 seconds. That was six minutes and 20 seconds after the first sustained traces of smoke appeared. Eight minutes and two seconds after ignition, the sprinkler head was activated. That was 14 minutes and 45 seconds after the first smoke. The dummy patient in the bed was by then completely involved in the fire. In one minute and 10 seconds from the time the sprinkler came on, no more flames were visible. A physician implied that burns indicated on the dummy would have been extensive enough to kill a human being.

In the second test, conducted at night, just five seconds elapsed between ignition of materials in a wastebasket and reaction of ionized particle detectors. An infrared flame detector was triggered in 10 seconds. The fire brigade arrived in one minute and 50 seconds. The sprinkler was activated in 11 minutes, and flames were no longer visible one minute later.

Excerpted from the report, here is what SwRI said about the test results:

"A conscious patient probably would detect a bedding fire and call for help long before any installed device would be actuated. If asleep, heavily sedated, or rendered unconscious by smoke, he could be severely imperiled, and unless automatic detection were provided, the incipient fire might progress into flames without discovery by hospital personnel, especially during nighttime hours. The operation of a sprinkler system should limit the fire to the room of origin and extinguish it, but during the time required for actuation the patient could easily suffer a fatal exposure. With properly installed automatic detection, the probability is excellent that the hazard situation would be signaled to personnel on duty and corrective action taken well within the time when first aid fire extinguishers in the hands of hospital personnel would be completely adequate."

In comparing sprinklers to detectors, SwRI said this:

"Each approach has specific advantages, and the choice between them should be made on the basis of fire probabilities for the space involved, the expectable nature of the fire, the life-safety exposure to the occupants, especially if nonambulatory, and the chances of fire spread."

SwRI is an independent research group based in San Antonio, Tex. The tests were conducted at the request of the Des Moines Hospital Council, Des Moines, Iowa.

---

### General Fire Safety Rules

- Don't use high-pile carpet. The greater the surface area, the more it burns. Tight industrial weaves are better.

- Don't use paper gowns and draperies.
- Don't use carpets in hallways and access routes.
- Don't use flexible methane foam in furniture.
- Don't use indoor-outdoor carpeting, some of which is highly flammable.
- Don't use polypropylene wastebaskets.
- Avoid electric overloads. Especially in rural areas, there is a tendency to overload electric systems.
- Unplug televisions that have quick-warm-up equipment. Some new models maintain a low level of current in the tubes at all times. They have been involved in an unusually high number of fires.
- Consider providing an exit to the outdoors in each ground-level patient room. Someone could be assigned to open the doors from the outside in an emergency and evacuation problems might be reduced.
- Inspect detection and alarm devices, sprinkler systems, and electric wiring frequently.
- Make sure circuit breakers work.
- Be extremely cautious with hypodermic syringes and the substances in them. They may pose a greater fire threat than anesthetics.
- Be extremely cautious with cork bulletin boards. Hung vertically, they will burn to ashes in less than 60 seconds, tests have shown.
- Restrict smoking to specially designated, low-combustion areas.
- Comply with the Life Safety Code of the National Fire Protection Association (Professor Einhorn said that this compliance might be the simplest way to be better protected from fire.)

## Appendix 15

### LETTER FROM RICHARD E. STEVENS, ASSISTANT VICE PRESIDENT, STANDARDS, NATIONAL FIRE PROTECTION ASSOCIATION; TO DAVE LONG, AHCA PROJECT DIRECTOR, AMERICAN NURSING HOME ASSOCIATION, DATED MAY 5, 1975.

DEAR MR. LONG: I regret the delay in responding to your request for comments on the preliminary draft of the test report conducted under contract HSA 105-74-116. I have been out of the country on a business trip which explains this delay.

My comments are as follows:

1. Although each test apparently included automatic fire detection devices, I could not find any detailed information on the response of those devices. There is a general statement but no tabulation of the response times of the various devices.

2. On page 23, there is a statement pertaining to vinyl waterproof mattress covering. It may be interesting for you to review the test conducted recently by the Bureau of Standards to simulate the fire that occurred in Osceola, Mo., and which involved a styrene butadiene rubber-type mattress with a mattress cover (see May 1975 *Fire Journal*).

3. Under findings, I have the following comments:

(a) Under No. 4, I would suggest a review of the report titled, "Doors as Barriers to Fire and Smoke," published by the Building Research Division, Institute for Applied Technology, National Bureau of Standards, March 25, 1966. Those tests showed that a conventional wood panel door and frame assembly cannot be expected to act as an effective fire barrier for more than about 5 minutes under conditions of the standard fire test. The results of the Bureau tests showed that the application of a conventional commercial fire retardant paint did not provide any significantly greater protection. However, a panel door with a fire retardant paint coating containing glass fiber reinforcement acted as a fire barrier for 16 minutes.

(b) I assume the statement in paragraph 5 includes the results of test 10 where the hollow core door was nailed flush against the wall. I do not consider such an arrangement as indicative of the response of a hollow core door to standard fire test conditions. I note also that in tests 7 and 8 the hollow core doors were not installed between the corridor and the patient room.

(c) Finding No. 10 does not agree with tests conducted by Underwriters' Laboratories as reported in UL Bulletin of Research No. 6, "Fire Exposure Tests of Ordinary Wood Doors." The findings in that test series showed that panel doors failed by allowing the passage of flame in substantial amount in  $8\frac{1}{2}$ ,  $4\frac{3}{4}$ , and  $7\frac{1}{2}$  minutes, respectively. The panels in the doors tested were thicker than  $\frac{1}{4}$  inch.

(d) I find the statement of finding 13 to be particularly confusing if one examines the results of test No. 6 where apparently the draperies and the cubicle curtain materially affected the test results.

(e) Before making the statement in finding 14, I would suggest a review of the test conducted by the National Bureau of Standards previously referred to and contained in the May 1975 *Fire Journal*.

4. The following are my comments on the conclusions:

(a) I think that fire experience refutes conclusion No. 2 and as a specific example I would refer you to the fire of January 14, 1971, in Buechel, Ky., reported in the May 1971 *Fire Journal*. This was a case where the smoke partition did not extend through the suspended ceiling.

(b) In my opinion there were no tests conducted or reported in this report which had any bearing on conclusion No. 3 unless one wishes to refer to test No. 8 where the building was totally destroyed.

(c) It is my opinion also that there were no tests conducted in this series that have any bearing upon conclusion No. 5.

(d) To my knowledge, there is no requirement in the Life Safety Code for a special latch on patient room doors, as referred to in conclusion No. 6.

(e) Fire experience shows that paragraph 10-1351 of the Life Safety Code, as indicated in conclusion 8, is necessary.

(f) Again, it is my opinion that there was no test conducted in this series that has any relationship to the validity of paragraph 10-136 of the Life Safety Code as indicated in conclusion 10.

(g) Conclusion 11 is mystifying since it makes no reference as to what operational procedures are in question and I did not see any indication in the test report that operational procedures were investigated.

(h) It seems to me that test No. 6 refutes conclusion 12 and, furthermore, without knowing the background of the reasons for paragraph 17-415 of the Life Safety Code, I do not see how the tests can speak to the validity of that requirement.

5. Under that statement pertaining to the provisions of the code that were validated, there is a statement indicated as No. 2 and referring to requirement for a 1-hour ceiling in patient rooms. First, I was not aware that there are any ceilings that have been tested to determine their fire resistance, and, second, I find no reference in 10-132 to ceilings per se.

6. In the section of the report titled "Other Conclusions," the comment listed as No. 2 about automatic door closers on all patient rooms is interesting when one considers that the operators of nursing homes are violently opposed to the installation of automatic door closers for operational reasons.

"Other Conclusion No. 3" refers to wastebaskets and I would call your attention to the fact that the Life Safety Code refers to NFPA No. 82 which in turn recommends the use of noncombustible wastebaskets.

7. Listed under "Other Conclusions," is a statement pertaining to waivers based on the response distance of the public fire department. I would point out that this is not a waiver that is in the Life Safety Code. I hope you will find these comments helpful.

Very truly yours,

RICHARD E. STEVENS,  
Assistant Vice President, Standards.