

GUIDELINES FOR
PROTECTING THE SAFETY AND HEALTH OF
HEALTH CARE WORKERS

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
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PREFACE

The purpose of the Occupational Safety and Health Act of 1970 (Public Law 91-596) is to ensure safe and healthful working conditions for every working man and woman in the Nation and to preserve our human resources by providing medical and other criteria that will ensure, insofar as practicable, that no workers will suffer diminished health, functional capacity, or life expectancy as a result of their work experience. The Act authorizes the National Institute for Occupational Safety and Health (NIOSH) to develop and establish recommended occupational safety and health standards, and to conduct the necessary research and experimental programs to develop criteria for new and improved occupational safety and health standards. Although this document does not recommend a new standard, it does present guidelines for reducing the incidence of injury and disease among health care workers. Every effort was made to address all major health and safety hazards that might be encountered in hospitals or other health care centers. The document is not intended to affect patients directly, but implementing the guidelines will generally benefit patient care.

The present document is a major revision of an earlier draft and incorporates the most recent NIOSH recommended standards, the Occupational Safety and Health Administration regulations, and Centers for Disease Control guidelines. Also included is specific information from the Joint Commission on Accreditation of Healthcare Organizations (formerly the Joint Commission on Accreditation of Hospitals), the National Fire Protection Association, the U.S. Environmental Protection Agency, and other agencies. State and local regulations are not addressed, however, and should be consulted where applicable.

ABSTRACT

These guidelines provide information needed to protect the health and safety of health care workers in hospitals and other health care facilities. The document includes an overview of hospital hazards; methods for developing hospital safety and health programs; discussions of safety hazards, infectious diseases, and noninfectious health hazards; methods for disposing of hazardous wastes; and a list of occupational safety and health agencies and resource organizations. Because no single set of health and safety regulations applies to all aspects of hospital work or health care delivery, the guidelines presented here were compiled from many sources, including the National Institute for Occupational Safety and Health, the Centers for Disease Control, the Occupational Safety and Health Administration, the U.S. Environmental Protection Agency, the Joint Commission on Accreditation of Healthcare Organizations, and others. Adherence to these guidelines should reduce the risk of injury and disease among health care workers.

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ABBREVIATIONS

AAMI	Association for the Advancement of Medical Instrumentation
ACGIH	American Conference of Governmental Industrial Hygienists
ACIP	Immunization Practices Advisory Committee of the U.S. Public Health Service
ADA	American Dental Association
AHA	American Hospital Association
AIDS	acquired immunodeficiency syndrome
AIHA	American Industrial Hygiene Association
AMA	American Medical Association
ANSI	American National Standards Institute
BCG	bacille Calmette-Guerin
BLS	Bureau of Labor Statistics
CAP	College of American Pathologists
CAT	computerized axial tomography
cc	cubic centimeter
CDC	Centers for Disease Control
CFR	Code of Federal Regulations
CMV	cytomegalovirus
CPC	chemical protective clothing
CPR	cardiopulmonary resuscitation
dB	decibel
DNA	deoxyribonucleic acid

EDTA	ethylene diaminetetraacetic acid
EEG	electroencephalogram
EPA	U.S. Environmental Protection Agency
f	fiber
FA	fluorescent antibody
FDA	Food and Drug Administration
GFCI	ground fault circuit interrupter
HAV	Hepatitis A virus
HBIG	Hepatitis B immune globulin
HBV	Hepatitis B virus
HBeAg	Hepatitis B "e" antigen
HBsAg	Hepatitis B surface antigen
HHE	health hazard evaluation
HI	hemagglutination-inhibition
hr	hour
HRA	Health Resources Administration
HRSA	Health Resources and Services Administration
HSV	herpes simplex virus
HTLV-III/LAV	human T-lymphotropic virus type III lymphadenopathy-associated virus
Hz	hertz
IAHS	International Association of Healthcare Security
IARC	International Agency for Research on Cancer
ICU	intensive care unit
IDLH	immediately dangerous to life or health
IG	immune globulin

IHSSF	International Healthcare Safety and Security Foundation
in	inch
IR	infrared
ISG	immune serum globulin
JCAH	Joint Commission on Accreditation of Hospitals
kHz	kilohertz
LCM	lymphocytic choriomeningitis
LPG	liquid propane gas
LPN	licensed practical nurse
LVN	licensed vocational nurse
m	meter
MeV	million electron volts
mg/m³	milligram per cubic meter
min	minute
mm	millimeter
MMWR	Morbidity and Mortality Weekly Report
M-M-R	measles, mumps, and rubella vaccine
mrem	millirem
MSDS	Material Safety Data Sheet
MSHA	Mine Safety and Health Administration
mW	milliwatt
NANB	non-A, non-B viral hepatitis
NCRP	National Council on Radiation Protection and Measurements
NEC	National Electrical Code
NFPA	National Fire Protection Association
NICU	neonatal intensive care unit

NIH	National Institutes of Health
NIOSH	National Institute for Occupational Safety and Health
nm	nanometer
NMR	nuclear magnetic resonance
NOHS	National Occupational Health Survey
NRC	Nuclear Regulatory Commission
NSC	National Safety Council
NTP	National Toxicology Program
OSHA	Occupational Safety and Health Administration
pa	posterior and anterior view
μ Pa	micropascal
PAA	peracetic acid
PEL	permissible exposure limit
PMR	proportionate mortality ratio
PPD	purified protein derivative
PPD-S	purified protein derivative-standard
ppm	part per million
psi(a)	pound per square inch (absolute)
ptAP	para-tertiary amyphenol
ptBP	para-tertiary butylphenol
QNFT	quantitative fit testing
RAD	radiation absorbed dose
RDL	respirator decision logic
REL	recommended exposure limit
rem	roentgen equivalent man
RF	radiofrequency

RN	registered nurse
RSV	respiratory syncytial virus
RTECS	Registry of Toxic Effects of Chemical Substances
SCE	sister chromatid exchange
SI	Systeme International d'Unites
STEL	short-term exposure limit
TB	tuberculosis
TLD	thermoluminescent dosimeter
TLV®	threshold limit value
TLV-C	threshold limit value - ceiling
TLV-skin	threshold limit value - skin adsorption
TLV-STEL	threshold limit value - short-term exposure limit
TU	tuberculin unit
TWA	time-weighted average
UV	ultraviolet
V	volt
VDT	video display terminal
VZV	varicella zoster virus
μW	microwatt
WBGT	wet bulb globe temperature

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GUIDELINES FOR HEALTH CARE WORKERS

INTRODUCTION

Health care facilities present workers with a myriad of potential health and safety hazards. Compared with the total civilian workforce, hospital workers have a greater percentage of workers' compensation claims for sprains and strains, infectious and parasitic diseases, dermatitis, hepatitis, mental disorders, eye diseases, influenza, and toxic hepatitis.

This document contains guidelines for reducing the incidence of injury and disease among health care workers. Although much of the information here was obtained from studies conducted in hospitals, it can also be applied to health care workers in other settings, including outpatient clinics, nursing homes, acute care centers, physicians' and dentists' offices, blood banks, and private residences. Workers who provide emergency medical services outside health care facilities have not been addressed because of the unique nature of their work, but medical technicians and others who occasionally provide emergency medical treatment (first aid) may benefit from these guidelines.

Hospitals are regulated and guided in their operations by a wide variety of local, State, and Federal agencies and organizations. As a consequence, no single set of health and safety regulations applies to all aspects of hospital work or health care delivery. The health and safety guidelines in this document were compiled from many sources, including the National Institute for Occupational Safety and Health, the Centers for Disease Control (CDC), the Occupational Safety and Health Administration, the Joint Commission on Accreditation of Healthcare Organizations, the National Fire Protection Association, and the U.S. Environmental Protection Agency.

The document has seven sections. Section 1 is an overview of hospital hazards, and Section 2 contains methods for developing hospital safety and health programs. These sections are organized so that the user can follow a logical progression of recognition, evaluation, and control of hazards. Section 3 focuses on safety hazards such as fires, flammable and explosive materials, electricity, and assaults. Section 4 refers readers to CDC guidelines for protecting workers from selected infectious diseases, including acquired immunodeficiency syndrome (AIDS). The applicable CDC guidelines are reprinted in the Appendices. Section 5 contains discussions of noninfectious health hazards, including chemical agents and dusts, physical agents, mutagenic and teratogenic agents, skin irritants, and stress. Section 6 outlines procedures for hazardous waste disposal, and Section 7 contains a directory of occupational safety and health agencies and resource organizations.

