

## Chapter 13

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# A VISION FOR THE FUTURE: A FRAMEWORK FOR ACTION TO PROMOTE BONE HEALTH

The major messages of this Surgeon General's report are as follows: 1) that bone health is essential to the general health and well-being of all Americans; 2) that great progress has been made in the last several decades in understanding and promoting bone health and in preventing, diagnosing, and treating bone disease; 3) that most individuals have the opportunity to make lifestyle choices that can result in stronger, healthier bones throughout life; and 4) that health care professionals, health systems, communities, and a variety of other stakeholders have critical roles to play in supporting individuals in making appropriate choices and in promoting timely preventive, diagnostic, and therapeutic interventions in those who have or who are at risk of developing bone disease.

However, these messages are not yet widely understood. As a result, the bone health status of Americans remains in jeopardy today, and without concerted action it will get worse in the future. Far too few Americans follow the dietary and physical activity guidelines that can help promote bone (and overall) health. Health care professionals can do a better job in paying attention to the bone health of their patients. Many individuals do not receive timely diagnostic tests and preventive and

therapeutic measures that can serve to minimize the impact of bone disease. The net result is unnecessary pain, suffering, and complications that can imperil overall health and well-being, along with financial and social costs that diminish the quality of life for individuals and burden both individuals and society at large.

Improving the bone health and well-being of Americans requires actions at all levels of society, including individuals and neighborhoods, local communities, health systems, cities, States, and the Nation as a whole. A coordinated effort can overcome the barriers—be they educational, social, systemic, policy-related, or financial—that have created a population whose bone health status is at risk.

### A Framework for Action

This Surgeon General's report looks upon the Nation's at-risk bone health status as an opportunity to do better. **A national action plan for bone health** can benefit all Americans. This plan can be aimed at improving overall health and quality of life by enhancing the underlying bone health of all individuals, including men, racial and ethnic minorities, the uninsured, and

the underinsured. Everyone has a role to play in improving and promoting bone health, including families and individuals, health care professionals, hospitals and rehabilitation centers, academic medical centers, the research community, health systems, managed care organizations and insurance companies, public and private purchasers, private industry, community-based organizations, State and local public health departments, voluntary health organizations, professional associations, policymakers, and agencies at all levels of government. These stakeholders can work together to broaden the public's and providers' understanding of the importance of bone health and its relevance to general health and well-being and to promote policies and programs to ensure that existing and future preventive, assessment, diagnostic, and treatment measures for bone diseases and disorders are made available on a timely basis to all Americans. This approach can serve as the primary vehicle for improving bone health in this country.

### Key Action Steps

**□ Increase awareness of the impact of osteoporosis and related bone diseases and how they can be prevented and treated throughout the lifespan.**

While much valuable work is already underway, more needs to be done to change the perception that osteoporosis is an inevitable part of aging. On the contrary, like heart disease, it needs to be thought of as a preventable chronic disease, the roots of which begin at a fairly young age even though symptoms may not manifest until later in life. Like heart disease and other chronic conditions, there needs to be a better understanding of how much can be done throughout life to prevent its eventual onset.

**□ Change the paradigm of preventing and treating fractures.**

Fractures, especially in the elderly, need to be thought of by both the public and practitioners as a sentinel event that probably signals the presence of a frail skeleton and an increased risk of future fractures. Much as a first heart attack is thought of as an opportunity to intervene to prevent future heart attacks, an individual's first fracture must be seized upon as an opportunity to intervene to prevent future fractures. Suffering one fracture is more than enough for any individual, and therefore treating fractures should go beyond the orthopedic aspect of setting and fixing the bone. Rather, fractures should be considered a red flag for the potential for bone disease and therefore should be a catalyst for further assessment, diagnosis, prevention, and treatment of bone disease. Patients who suffer non-spine fractures represent one of the easiest high-risk groups to identify and target for intervention, since most fracture patients seek medical care for their injury. Health care practitioners and the public at large must recognize that fractures caused by weakened bones do not always manifest as broken arms, broken wrists, or other easy-to-recognize problems. Rather, they can occur "silently" in the spine with the collapse of spinal vertebrae. Individual patients may not recognize them as fractures, but rather may come into the office complaining of back pain or discomfort. Today these warning signs are too often dismissed by individuals and health professionals. As a result, too many patients end up suffering multiple fractures before anyone considers the possibility of bone disease. Individuals, especially elderly individuals, must recognize that recurrent back pain could be a signal of a bone-related problem, and practitioners that attend to individuals with back pain must consider the possibility of a spine compression fracture and hence the need for further assessment of the potential for metabolic bone disease.

**□ Continue to build the science base on the prevention and treatment of bone diseases.**

Further work is needed in the area of basic research, clinical and epidemiological research, health system-based research, and population-based research, including community intervention trials. Specific research questions in each of these areas are discussed in relevant chapters of this report. A broad message of this report is that the Nation is not doing equally well in all areas of research and prevention. While extensive work is being done in the area of basic research, the translation of this research to clinical practice often lags behind. Clinical and epidemiological research and evaluation enjoy significant support as well. More needs to be done, especially with respect to research related to men and racial and ethnic minorities and how best to translate basic and clinical research findings into everyday practice. While much of this basic, clinical, and epidemiological research will be focused on osteoporosis, it is important to remember that research breakthroughs in osteoporosis (e.g., the development of bisphosphonates) are already paying dividends for the treatment of other bone diseases, and these benefits will likely continue in the future. More health system- and population-based research in the area of bone health is needed as well. One of the biggest voids is in the area of population-based research on behavior change, where little is known about how to get people to adopt bone-healthy behaviors. Fortunately, many of the behaviors that promote bone health also promote other aspects of health, including cardiovascular health. The goal going forward should be to integrate bone and musculoskeletal health into larger studies that are evaluating these behavioral issues in other disease areas. Within the area of health systems-based research, much more needs to be known about the most efficient and effective ways

to use the various risk assessment, diagnostic, and therapeutic tools available in bone health today. As noted, insights from basic and clinical research need to find their way into everyday practice. There are two components to this issue. First, within a given disease area, many insights from basic and clinical research are never applied in practice. For example, research might show that a particular drug, administered in a particular dose, is effective in treating a specific population. Once these findings are published, practitioners often do not know how to use this population-based information when assessing and treating individual patients. They may not know if a specific patient's situation applies and, if so, how long to use the drug in question. Second, in some situations insights from research into the prevention of other chronic diseases will have applications in the prevention of bone disease. These insights frequently do not become known to health care professionals responsible for bone health. Much more needs to be done to address both of these problems. Work should focus on stimulating the translation and application of basic research into clinical research and to promote the use of basic and clinical research findings in everyday practice. The research community should be encouraged to play a larger role in translating their findings into usable knowledge that helps a health care professional.

**□ Support the integration of health messages and programs on physical activity and nutrition relating to other chronic diseases.**

As noted earlier, many of the behaviors that prevent bone disease are also critical for preventing other diseases and chronic conditions, including asthma, diabetes, obesity, heart disease, and stroke. Thus, it is absolutely essential that information directed toward the public and physicians about the behaviors that optimize

health be integrated. These integrated educational messages need to promote all aspects of health for individuals in various stages of life, including infancy, childhood, adolescence, young adults, middle-aged adults, and the elderly. For the most part, the critical messages in each of these disease areas will be the same. The key is to maintain a healthy weight and diet, avoid smoking, and engage in regular physical activity. For example, the bone health community could join forces with other organizations promoting healthy lifestyles and the prevention of chronic diseases, such as the National Cancer Institute's *5 A Day for Better Health* campaign to advocate consumption of fruits and vegetables and the American Heart Association's efforts to promote cardiovascular health through physical activity, diet, and smoking cessation. The goal should be to ensure that their messages emphasize the bone-health benefits of whatever is being promoted, be it following an appropriate diet, exercising on a regular basis, or other bone-healthy behaviors. These integrated messages will help both the public and practitioners to understand that there is not a different "recipe" for keeping different parts of the body healthy, and that therefore it is not an all-consuming task to do what is needed to maintain one's health. Rather, the message will be a much more positive one—that following healthy behaviors is relatively easy to do and that focusing on a few critical elements such as nutrition and physical activity can go a long way toward achieving overall health and well-being.

**□ Act now, as we know more than enough.**

While there will always be a need for more research and a greater understanding of bone health and bone disease, more than enough is known today to get started on any of a variety of critical actions that are needed to enhance the bone health status of Americans.

## The Roles of Key Stakeholders

Many fruitful activities are already underway in the area of bone health. Advocacy groups, medical and science organizations, and others have been working diligently to promote better bone health for all Americans, including underserved populations. This Surgeon General's report can be a catalyst to build upon, broaden, and expand these efforts. To that end, this report calls for public and private stakeholders in the area of bone health to join forces in the development of a national action plan. The goal of this effort would be to forge consensus on the different action steps that are needed and to determine which stakeholders are best equipped to take responsibility for their execution. Because every stakeholder has an important role to play, this comprehensive effort should include a wide variety of organizations, including those representing families and individuals, health care professionals, hospitals and rehabilitation centers, skilled nursing facilities, academic medical centers, the research community, health systems, managed care organizations and insurance companies, public and private purchasers, private industry, community-based organizations, State and local public health departments, voluntary health organizations, professional associations, policymakers, and agencies at all levels of government. Some of the most important action steps for the key stakeholders are highlighted below:

### Individuals and Families

Because many individuals may not realize that they are at risk of bone disease and may not take action (e.g., begin engaging in physical activity) until they are motivated to do so, individuals and families need to:

- Educate themselves on the importance of bone health and to recognize that bone

health is a lifelong issue and that osteoporosis is not just a women's disease.

- Set the stage during infancy, childhood, and adolescence for their children to have healthy bones throughout their lives.
- Encourage their middle-aged and elderly parents to take actions to maintain healthy bones and to prevent bone disease and fractures later in life.
- Recognize that, regardless of their age, gender, or racial and ethnic background, they are at risk of getting bone disease and therefore should consider making a lifelong commitment to doing what is necessary (e.g., getting adequate nutrition and physical activity) to maintain strong bones. Doctors cannot do this for their individual patients, although health care professionals clearly have a role in encouraging their patients to adopt bone-healthy behaviors.

### Health Care Professionals

All health care professionals, including physicians, nurses, nurse practitioners, physician assistants, dietitians/nutritionists, physical and occupational therapists, social workers, dentists, optometrists, and pharmacists can play a critical role in promoting the bone health of their patients. They need to recognize the potential for bone disease in men and racial and ethnic minorities. While the underlying risk in these population groups may be lower than for White women, the potential for bone disease is still real, particularly in the elderly and the poor.

Primary care providers have an especially critical role to play. They need to:

- Pay close attention to bone health issues when conducting wellness visits and treating people with other illnesses.
- Emphasize the basics of good bone health during their interactions with patients,

including appropriate nutrition and levels of physical activity.

- Recognize red flags and risk factors that might signal the potential for osteoporosis and other bone diseases and take necessary action or refer at-risk patients to other providers for the appropriate work-up.

Health care professionals working in emergency departments and orthopedic practices also have an important role. They must:

- Recognize that many bone fractures signal the potential for metabolic bone disease.
- Go beyond fixing patients' bones by referring them, when appropriate, to another health care professional for further assessment of the potential for bone disease.

Finally, regardless of the setting, consideration should be given to increasing the role of mid-level providers as a way of promoting bone health and minimizing the impact of bone diseases.

### Health Systems

Health systems, including hospitals, organized delivery systems, and health plans and insurers, can do much to promote bone health in the populations they serve, including:

- Help individuals practice bone-healthy behaviors.
- Assist health care professionals in promoting such behaviors in all patients and in identifying and treating bone disease in a timely manner. For example, these organizations can help practitioners to identify and implement tools that aid in the diagnosis and treatment of bone disease and can point them to credible sources of information on prevention, assessment, diagnosis, and treatment.
- Implement a comprehensive, systems-based approach to promoting bone health (assuming they have a large enough population of at-risk individuals

to justify it). This approach may include: reminder systems that alert providers of the need for certain services in individual patients; systematic quality measurement and improvement; disease management programs focused on bone health; and/or the setting of appropriate financial incentives for providers and individuals.

- Consider adoption of coverage policies that provide payment for appropriate, evidence-based preventive, diagnostic, and therapeutic services within the area of bone health.

### Health Care Purchasers

Health care purchasers, including public and private employers that buy health coverage on behalf of their employees, can use their power both individually and collectively to influence bone health. More specifically, they can do the following:

- Like health plans and insurers, consider adoption of coverage policies that allow for the appropriate provision of evidence-based preventive, diagnostic, and therapeutic services to all who need them.
- Use their purchasing clout to encourage providers to adopt policies and programs that promote bone health and overall health.
- Develop on-site physical activity and nutrition programs.

### Communities and Community-Based Organizations

Communities consist of multiple components, including individuals, faith-based and other community organizations, employers, and government agencies. Working together these organizations can:

- Develop a forum in which the public can discuss bone health status and the bur-

den of bone disease and fractures in their community.

- Assess the resources currently available for improving the bone health status of the community, including public education and treatment.
- Evaluate, and if necessary refine, current policies and programs for enhancing the bone health status of the community.
- Promote daily physical activity in schools at all grade levels.
- Make available user-friendly facilities for physical activity for all age groups, such as walking trails and gymnasiums.

### Government

Governments at every level—local, State, and Federal—have a vital leadership role to play in promoting bone health. To play this role effectively, elected policymakers and other government leaders need to recognize the long-term financial and social costs of the status quo (less-than-optimal bone health status), and appreciate the potential to reduce these costs and improve quality of life through prevention, early detection, and early treatment. Local public health departments and government agencies—especially those serving the elderly—have an especially important role to play in developing and implementing a public health approach to bone health promotion at the community level. Specific roles that government can play include:

- Promote public education, public awareness campaigns, and treatment services.
- Coordinate actions needed to improve bone health across the public and private sectors. These actions could include the formation of State or local task forces, steering committees, or advisory committees related to bone health, and

the development of strategic plans for improving the bone health status of the population and at-risk groups.

- Support the creation of an environment in which bone-healthy dietary and physical activity options are readily accessible, and needed preventive, diagnostic, and therapeutic services are readily available and affordable to all who need them.
- Promote research on basic bone biology, new approaches to diagnosis and treatment of bone disease, and the translation of research findings into practice.
- Promote research on the effects of community- and population-based interventions on the community and at-risk populations, including their impact on: the prevalence of bone disease and fractures; diet and physical activity; and access to and use of appropriate preventive, diagnostic, and treatment measures.
- Communicate with one another and coordinate activities to ensure that the actions and policies of various levels of government are complementary. The overall goal should be greater harmonization of government activities, thus ensuring more cost-effective and higher-quality services to the public.
- Use the most current, credible evidence when making policy and program decisions related to bone health.

### **Voluntary Health Organizations**

Voluntary health organizations play important roles in promoting bone health. They are often able to reach the public and providers with critical information quickly and with fewer constraints than can government organizations.

More specifically, they can:

- Raise public awareness about specific health problems such as bone disease. By including individuals who have personally been touched by bone disease, these organizations are uniquely positioned to provide important guidance to other sectors of the health system regarding the real-life impact of bone disease on individuals, families, and communities.
- Work with residents in the local community to adopt the lifestyle changes necessary to prevent the onset or progression of bone and other diseases.
- Promote the availability of information and resources related to the prevention, diagnosis, and treatment of bone disease.

### **Professional Associations**

Professional associations play a critical role in promoting bone health. They can:

- Facilitate the training of health professionals needed to address the prevention, diagnosis, and treatment of bone disease.
- Promote changes in the curricula of professional schools and provide continuing education to practicing bone health professionals.
- Develop evidence-based guidelines along with standards of care for bone health. These guidelines help to ensure that individuals who have or are at risk of getting bone disease can benefit from the best practices related to prevention, assessment, diagnosis, and treatment.

### **Academic Institutions**

Academic institutions can be critical facilitators through their two core missions of

education and research. With respect to osteoporosis and bone health, they can:

- Develop bone-health specific curricula for the education and training of physicians, nurses, nurse practitioners, physician assistants, dietitians/nutritionists, physical and occupational therapists, social workers, dentists, optometrists, and pharmacists.
- Develop the professional skills needed to become effective members of a health care team that focuses on improving bone health and preventing adverse outcomes. For example, trainees from different disciplines (e.g., medical students and residents, nurse practitioners, physician assistants) could be given the opportunity to rotate through osteoporosis clinics.
- Educate the general public by teaching lifestyles that promote bone health in primary and secondary schools and colleges. Schools can play a role in promoting and supporting good dietary habits and regular physical activity, beginning in childhood.
- Advance research on bone health. To date, such research has focused primarily on laboratory studies and clinical trials. Some academic institutions have active research programs on epidemiology, health care delivery, and outcomes as well. These should be expanded to include research on prevention strategies and on men and racial and ethnic minorities.

### Industry

Industry also has an important role to play in promoting bone health. They can:

- Reduce the consequences of poor bone health through the development and pro-

motion of drugs, devices, and other diagnostic and treatment technologies.

- Provide information to health care professionals and the public on the appropriate use of pharmaceutical agents to prevent and treat bone disease. This information needs to be part of a comprehensive approach to promoting bone health that includes education on appropriate diet and physical activity.
- Provide disease-management services that focus on managing osteoporosis and bone health in at-risk populations.

### The Importance of Partnerships Among Stakeholders

While the roles and contributions of the individual stakeholders cited above are undoubtedly important, public-private partnerships will also be critical to the successful development and execution of a **national action plan for bone health**. These partnerships can build and strengthen cross-disciplinary, culturally competent, community-based efforts to promote bone-healthy behaviors and support the early identification and treatment of bone disease. There is no question that the collective and complementary talents of both public and private stakeholders will be vital to achieving the goal of improving the bone health status of all Americans.

### Conclusion

Significant strides have been made in understanding bone health and bone disease over the past few decades. Much is known about how to keep bones healthy throughout life and how to prevent and treat bone disease and fractures in those whose bone health deteriorates. Yet too few people—individuals



and health professionals alike—make use of this information. As a result, too many people have or are at risk of getting bone disease. The time has come to address this problem, to “get the word out” about the importance of bone health and the serious consequences and significant costs of bone

disease and fractures. The time has come for everyone—including individual citizens, solo practitioners, the heads of major public and private sector organizations, and the leaders of governmental agencies—to do his or her part in promoting the bone health of all Americans.