

Challenges to Consider in Practicing Specialized Medicine

W. B. Kannel, MD, MPH, FACC

Professor Emeritus, Boston University; Senior Investigator, The Framingham Study, Framingham, MA

2008 OCHSNER HOUSE STAFF EDUCATION CONVOCAATION ADDRESS

There are many challenges that should be faced in engaging in the practice of specialized medicine. Chief among these is how to practice your specialty more like a profession and less as a business. This entails finding a way to resist doing unnecessary profitable procedures you will be tempted or required to do. You should consider an overt clinical event more as a medical failure rather than the first indication for treatment. Optimal medical practice should incorporate a substantial preventive medicine component into your specialty practice. It is important to understand that modifying adverse personal behavior has a greater impact on the population's health than even excellent medical care.

I urge you to get involved in research in your specialty. You will find clinical and population research both enlightening and gratifying. You should try to practice medicine beyond your specialty, but know your limits. The patient is more than your organ of choice. Set up realistic patient appointment schedules; the patient's time is also valuable.

It is vital to have an open mind since progress often comes from the unorthodox point of view, but it is also important to practice evidence-based medicine. Develop or learn to use multivariable risk assessment in your specialty. This reduces the number of patients you need to treat to prevent one clinical event and helps to avoid overtreatment or undertreatment. You don't want to needlessly alarm or falsely reassure your patients. Consider a career in academia if you don't mind being self-sustaining.

Address correspondence to:

W. B. Kannel, MD, MPH, FACC
Senior Investigator Framingham Study
Professor Emeritus Boston University
The Framingham Study
73 Mount Wayte Avenue
Framingham, MA 01702
Tel: (508) 935-3442 or (508) 935-3434
Fax: (508) 626-1262
Email: billkannel@yahoo.com
CC Email: eshindle@bu.edu

Is specialty training to provide good health care enough? Not really, if you reflect on the big picture. Actually, modifying disease-promoting behavior has the greatest impact on the health of the population. The United States spends more on health care than any other nation in the entire world, yet it ranks poorly on every measure of health status. Even where health care is important, many Americans do not receive it, receive it too late, or receive poor quality health care.¹ Anyway, the pathways to better health do not depend largely on better health care.

Among the 30 nations comprising the Organization for Economic Cooperation and Development, the United States ranks near the bottom on most standard measures of health status. Among the 192 nations for which 2004 data are available, the United States ranks 23rd in average life expectancy from birth and 25th in infant mortality. Even when comparisons are limited to white Americans, our performance is dismal.¹

According to McGinnis et al,² there are 5 major population attributes that influence health. In terms of the proportional contribution to premature death, behavioral patterns are the most influential, responsible for 40%, followed by genetic predisposition (30%), social circumstances (15%), health care (10%), and environmental exposure (5%). As an example, the Framingham Study found that there is a spread of obesity through social ties. Weight gain in a person was found to be related to weight gain in his or her friends, siblings, and spouse. The chance of becoming obese if a friend became obese increased by 57%; if a sibling became obese, it increased by 40%; if a spouse became obese, chances increased by 37%. Effects were not seen among neighbors, and persons of the same sex had a relatively greater influence.³

Furthermore, spouses in the Framingham Study were found to share the major risk factors for coronary disease, and if either spouse had a coronary event the other was at doubled risk.⁴

Although inadequate health care accounts for only 10% of premature deaths, it receives the greatest share of resources (\$2.1 trillion, accounting for 16% of our gross domestic product). Health care for cardiovascular disease (CVD) is estimated to account for only half of the 40% decline in mortality over the past 2 decades. The greatest opportunity to improve the health of the population and reduce premature deaths

lies in modifying personal behavior that accounts for about 40% of all deaths in the United States. The top behavioral causes of premature death are unrestrained weight gain, physical inactivity, and smoking.^{1,2}

There are multi-specialty health consequences of obesity. In cardiology, obesity is recognized to promote hypertension, dyslipidemia, coronary disease, heart failure, and stroke. In endocrinology, it is a powerful predisposing factor for diabetes and insulin resistance. In gastroenterology, it is important for gallstones and cholecystitis. In rheumatology, obesity is central to gout and osteoarthritis. In respiratory disease, it is a contributor to obstructive sleep apnea and asthma. For the oncologist, it is important for development of endometrial, breast, prostate, and colon cancers. For the obstetric/gynecologic specialist, it is a nemesis for complications of pregnancy such as gestational diabetes, hypertension, and preeclampsia, as well as complications in Cesarean section delivery, menstrual irregularities, infertility, and irregular ovulation. The urologist contends with obesity regarding bladder control (stress incontinence) and uric acid nephrolithiasis. The psychologist engages it regarding psychological disorders such as eating disorders, distorted body image, and low self-esteem.⁵

In the highlights of *The Health Consequences of Smoking: A Report of the Surgeon General*,⁶ it is noted that smoking harms many organs of the body and quitting has immediate and long-term benefits. Smoking is designated a *multi-specialty problem*. The list of specialty diseases caused by smoking is expanded to include: for cardiology, abdominal aortic aneurysm; for hematology, acute myeloid leukemia; for ophthalmology, cataract; for oncology, cervical cancer, kidney cancer, pancreatic cancer, and stomach cancer; for pulmonary and internal medicine, pneumonia; and for dentistry, periodontitis.

Diseases *previously* shown to be caused by smoking include: for oncology, bladder, esophageal, laryngeal, lung, oral, and throat cancers; for pulmonary medicine, chronic lung diseases (bronchitis, asthma, emphysema); for cardiology, coronary and CVD; for obstetrics/gynecology, reproductive effects; and for pediatrics, sudden infant death syndrome.

Many regard the Framingham Study with which I have been associated since its inception in 1950 as an epidemiologic investigation relevant only for prevention of CVD. However, NJ Mehta⁷ recognized its greater potential. He cited the study as “One of the most impressive medical works in the 20th century. The 1961 report *Factors of risk in the development of coronary heart disease—six year follow-up experience. The Framingham Study* showed that high blood pressure, smoking, and high cholesterol are major

cardiovascular risk factors.⁸ From this report the *concept of risk factors* emerged and with further elaboration, health professionals were provided with *multifactorial CVD risk profiles* enabling identification of candidates likely to benefit from preventive measures. The study created a *revolution in preventive medicine* and changed the ways in which the medical community and general population view the genesis of disease. It has served as a *model for many other longitudinal cohort studies* and the first that included *women*.⁷

There is the perception that basic research is the premier research and that applied or population research is second-rate research. Many have denigrated population research as simply an attempt to imply guilt by association, rather than viewing it as a true science such as basic research. I believe Louis Pasteur voiced the proper perspective on this issue. “There are not two sciences. There is only one science and the application of science and these two are linked as the fruit is to the tree.” He also correctly observed that “To him who devotes his life to science, nothing can give more happiness than increasing the number of discoveries, but his cup of joy is full when the results of his studies immediately find practical applications.”

There have indeed been major contributions to cardiology such as proposal of the *multivariable risk factor concept* of the etiology of atherosclerotic CVD and its application for risk assessment. It corrected *clinical misconceptions* about the role of blood pressure, lipids, diabetes, obesity, proteinuria, left ventricular hypertrophy, atrial fibrillation, and exercise in the promotion of CVD. It provided important *clues to the pathogenesis* of atherosclerotic CVD, aroused interest in *preventive cardiology*, and established *epidemiology* as its basic science. It redefined *acceptable values* for predisposing risk factors from designating usual values as “normal” to optimal values as a means to avoid CVD.

However, the Framingham study has also served as a population research laboratory for investigation of prostate cancer, dementia and Alzheimer disease, cognitive performance, auditory impairment, osteoarthritis, osteoporosis, sleep disturbance, respiratory disease, cataracts, tooth retention, breast cancer, thyroid disease, menopause, and estrogen replacement therapy, among too many others to cite.⁹⁻¹⁸ This demonstrates the potential value of population research in all specialties.

A major challenge to providing preventive care in all specialties is to overcome the serious barriers that exist. These include the fact that insurers won't pay for it, the lack of health care coverage, gaps between clinical trials and community programs, inadequate

patient education about disease prevention, family and close friends with poor health behavior, and the need to swim upstream against the culture to derive the benefit. There has been a notable lack of success in modifying behavior to achieve sustained weight loss, healthy diet, quitting smoking, more daily exercise, and a less male macho attitude about health.

Congratulations on successfully completing the rigorous training in your specialty. However, be mindful of the fact that in medicine the learning experience should never end.

REFERENCES

- Schroeder SA. Shattuck Lecture. We can do better—improving the health of the American people. *N Engl J Med*. 2007;357:1221–1228.
- McGinnis JM, Williams-Russo P, Knickman JR. The case for more active policy attention to health promotion. *Health Aff (Millwood)*. 2002;21:78–93.
- Christakis NA, Fowler JH. The spread of obesity in a large social network over 32 years. *N Engl J Med*. 2007;357:370–379.
- Haynes SG, Eaker ED, Feinleib M. Spouse behavior and coronary heart disease in men: prospective results from the Framingham Heart Study. I. Concordance of risk factors and the relationship of psychosocial status to coronary incidence. *Am J Epidemiol*. 1983;118:1–22.
- National Institutes of Health. *Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults*. Bethesda, MD: Department of Health and Human Services, National Heart Lung and Blood Institute; 1998.
- The Health Consequences of Smoking: A Report of the Surgeon General*. Atlanta, GA: Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health; 2004.
- Mehta NJ, Khan IA. Cardiology's 10 greatest discoveries of the 20th century. *Tex Heart Inst J*. 2002;29:164–171.
- Kannel WB, Dawber TR, Kagan A, Revotskie N, Stokes J 3rd. Factors of risk in the development of coronary heart disease—six year follow-up experience. The Framingham Study. *Ann Intern Med*. 1961;55:33–50.
- Zhang Y, Kreger BE, Dorgan JF, et al. Parental age at child's birth and son's risk of prostate cancer. The Framingham Study. *Am J Epidemiol*. 1999;150:1208–1212.
- Seshadri S, Wolf PA, Beiser A, et al. Lifetime risk of dementia and Alzheimer's disease. The impact of mortality on risk estimates in the Framingham Study. *Neurology*. 1997;49:1498–1504.
- Elias PK, Elias MF, D'Agostino RB, Silbershatz H, Wolf PA. Alcohol consumption and cognitive performance in the Framingham Heart Study. *Am J Epidemiol*. 1999;150:580–589.
- Gates GA, Cobb JL, Linn RT, Rees T, Wolf PA, D'Agostino RB. Central auditory dysfunction, cognitive dysfunction, and dementia in older people. *Arch Otolaryngol Head Neck Surg*. 1996;122:161–167.
- Felson DT, Zhang Y, Hannan MT, et al. Risk factors for incident radiographic knee osteoarthritis in the elderly. *Arthritis Rheum*. 1997;40:728–733.
- Gottlieb DJ, Whitney CW, Bonekat WH, et al. Relation of sleepiness to respiratory disturbance index: the Sleep Heart Health Study. *Am J Respir Crit Care Med*. 1999;159:502–507.
- Zhang Y, Kreger BE, Dorgan JF, et al. Alcohol consumption and risk of breast cancer: the Framingham Study revisited. *Am J Epidemiol*. 1999;149:93–101.
- Hiller R, Podgor MJ, Sperduto RD, et al. A longitudinal study of body mass index and lens opacities. The Framingham Studies. *Ophthalmology*. 1998;105:1244–1250.
- Krall EA, Dawson-Hughes B, Hannan MT, Wilson PW, Kiel DP. Postmenopausal estrogen replacement and tooth retention. *Am J Med*. 1997;102:536–542.
- Dowd JE, Manton KG. Forecasting chronic disease risks in developing countries. *Int J Epidemiol*. 1990;19:1019–1036.