

## An ounce of prevention

*A pound of cure for an ailing health care system*

Stephen J. Genuis MD FRCSC DABOG

*Prevention is better than cure.*  
Desiderius Erasmus (1466-1536)

Among first-world countries blessed with abundance, as well as within developing nations struggling to move forward, achieving and sustaining acceptable health care services are priorities for civic leaders, medical workers, and citizens. When epidemiologic trends, including escalating rates of chronic illness,<sup>1,2</sup> rapidly aging populations, and greater-than-ever health care use, are juxtaposed with a milieu of limited funding and resources, the sustainability of public health systems becomes a concern. Inadequate numbers of medical personnel to care for increasing numbers of patients has facilitated the genesis of “fast-food” medical encounters where provision of care is sometimes aimed at quickly addressing signs and symptoms rather than uncovering and managing the causes of affliction. With escalating health care costs, with some public health care systems in relative disarray, and with compelling research delineating specific determinants of much contemporary affliction, it is time for the medical community to revisit the current clinical practice construct—incorporating preventive medicine should be considered.

### Symptom-relief approach

With proliferation of walk-in clinics in some jurisdictions and increasing use of emergency departments for non-urgent problems, many people now expect to consume medical services in much the same way they consume fast food: quick service, short encounters, good value, and immediate satisfaction. In an age of direct-to-consumer pharmaceutical advertising, many patients think about instant gratification and immediate relief rather than long-term health and wellness. They can achieve considerable satisfaction from going to a doctor, walking out with a piece of paper, taking a medication, and feeling better. Effective medication provides rapid relief of symptoms, which makes patients happy and furnishes positive feedback for doctors. Prescriptions are quick and easy to dispense and require no prolonged investigation into causes of affliction, but a scan of recent epidemiologic data reveals some disquieting information.

Among both adults and children, rising rates of iatrogenic illness have become increasingly evident<sup>3,4</sup>;

medical errors and adverse drug reactions currently account for alarming rates of morbidity and mortality.<sup>5,6</sup> With the perception that some medical treatments are contributing to the burden of illness, complementary and alternative health services have received unprecedented attention. The meteoric rise in consumption of homeopathic, naturopathic, herbal, and other nonpharmaceutical therapies reflects increasing dissatisfaction with the outcome of some medical interventions.

Epidemiologic data also confirm that symptom-relief medicine might facilitate camouflage responses. The word symptom may be defined as “warning sign”—by quickly relieving symptoms with powerful therapies, the underlying origins might remain unchecked, allowing disease processes to insidiously persist, with potentially disastrous long-term outcomes. The latent sequelae of failing to address the etiology of various health problems are becoming increasingly evident.

Contemporary medicine is witnessing the juxtaposition of increased life expectancy and reduced mortality from acute illness alongside staggering rates of chronic degenerative affliction and disability among both the young and the old.<sup>1,2</sup> The World Health Organization (WHO) recently released an important document entitled *Preventing Chronic Diseases: A Vital Investment*,<sup>1</sup> that expounds on the global pandemic of chronic affliction, as chronic disease now accounts for an estimated 72% of the global burden of illness in adults 30 years old and older.<sup>7</sup> Recent American figures reveal that, in the pediatric domain, about 3% of children were born with major congenital anomalies,<sup>8</sup> about 17% of children have experienced developmental disorders,<sup>9</sup> the incidence of childhood cancer increased by 27.1% between 1975 and 2002,<sup>10</sup> and an unprecedented 1 in 12 children lived with a mental or physical disability.<sup>11</sup> Among adults, chronic illnesses, including cardiovascular disease, diabetes, arthritic ailments, mental health disorders, and rapidly escalating levels of cancer,<sup>12</sup> are dominating medical practice. With escalating costs, more sick people, a pandemic of prescription-related illnesses,<sup>13</sup> and limited resources, a thrust toward incorporation of preventive health programs should be considered.

### Preventive medicine

Contemporary medical education and clinical practice allocate consistent attention to relief of suffering, providing ongoing care for the infirm, sustaining life, and

Cet article se trouve aussi en français à la page 605.

attending to the needs of dying patients—the health professions prepare for illness with resources, diligence, and creativity. Prevention of illness and promotion of health maintenance, however, are often not pressing priorities.

Much illness originates in alterable lifestyle factors; the way individuals choose to live often determines the way they die and their health and well-being along the way. Escalating pediatric malignancy and neurologic illness from prenatal exposure to toxicants,<sup>14,15</sup> pervasive cardiovascular and respiratory disease related to chosen habits,<sup>16</sup> exploding rates of diabetes subsequent to sedentary lifestyles and poor dietary behaviour, and major congenital anomalies consequent to maternal nutritional deficiencies<sup>17</sup> and exposures<sup>18</sup> demonstrate that health is often a matter of decision making, not a fluke of nature or predetermined genomic destiny. With high rates of preventable illness, many health care advocates are demanding intervention-by-prevention and health promotion in such areas as lifestyle, environment, and nutrition, so that, as well as dealing with illness, physicians will need to become skilled at facilitating optimal health. There are substantial challenges, however, with increased focus on preventive health care, as it is questionable whether people in our contemporary culture can be maneuvered into healthy lifestyles.

While suffering patients might be motivated toward action to feel better, people who are not suffering might not. Many consider health and illness to be entirely independent of behaviour and, regardless of unhealthy practices, perceive that health can be purchased in a medicine bottle. The far-distant benefits of health education are commonly not a priority in a culture where dietary and lifestyle recommendations are looked upon as primitive therapy and where success is celebrated by a nonevent. Even among afflicted patients, health promotion through lifestyle intervention can be a difficult sell. Because the rewards of good habits are often intangible in the short-term and because the effects of unhealthy behaviour do not subside immediately, there is often no instantaneous relief.

For physicians, it can be awkward to challenge apparently healthy individuals with undesired intrusions into their lives, especially when assistance is not requested. Patients cannot usually be enticed to revolutionize their modes of living when they see no need for such revolution. Health providers are frustrated because patients are often not compliant with lifestyle interventions, in-depth education is labour- and time-intensive, and patients expecting magic bullets might question the proficiency of doctors who dispense pharmaceuticals cautiously. Therapeutic action by prescription provides hope of rapid resolution and is rewarded with gratitude; a lack of pharmaceutical intercession might be met with disappointment and dissatisfaction with the caregiver.


Recognition of the urgent need for health promotion and preventive medicine as necessary elements in a

sustainable health care system, however, does not represent an epiphany; such admonitions have been expressed before. Although common sense and extensive research behoove the medical establishment and governments to promote interventions and health policies designed to supplant injurious circumstances with salubrious ones, current educational and economic policies fail to provide a milieu conducive to implementing such initiatives. Most clinical research (predominantly funded by industry) focuses on lucrative maintenance therapies rather than preventions and cures,<sup>19</sup> most medical education focuses on sickness rather than health, most medical journals publish articles about disease management rather than about strategies to promote health and wellness,<sup>20</sup> and most publicly funded health care systems reimburse physicians to treat disease, not to prevent it. In fact, many remuneration schemes do not consider preventive medicine to be medically required and therefore exclude funding—thus penalizing doctors who take time and expend effort to educate patients about strategies to avoid illness.

### Primary care and prevention of illness: quo vadis?

In response to the fast-food approach to infirmity, various national and international bodies are calling for education and policy interventions aimed at promoting health and preventing illness.<sup>21</sup> The recently approved international diet and lifestyle program announced by the WHO<sup>22</sup> and myriad campaigns relating to injury prevention are milestones on this path. Many other initiatives might assist practitioners with integrating prevention into their delivery of individual and public health care.

Annual checkups provide an opportunity to educate parents about health matters pertaining to children. Some practitioners proactively educate by authoring articles on health maintenance for community publications, while others lecture at schools, at conferences, and in public forums. An innovative program entitled “Do Bugs Need Drugs?” was instituted in one Canadian jurisdiction to prevent antibiotic overuse—by educating elementary schoolchildren, antibiotic consumption declined almost immediately. Some physicians are using human exposure assessment tools from the Ontario College of Family Physicians<sup>23</sup> or WHO environmental health modules to diminish patient risk from disease-causing toxicants. Securing adequate intake of basic nutrients, such as vitamin D and  $\omega$ -3 fatty acids, has been shown to prevent myriad health problems. Preconception care can prevent congenital affliction, and many physicians have begun using allied health professionals, such as nutritionists, to proactively educate patients with various health concerns. Public policy input is also possible—by attenuating risk factors for disease and facilitating conditions for health through legislation, such as seat-belt regulation, asbestos restriction, and trans-fat elimination, much illness can be averted.

Within the many dimensions of health care provision and public education, a concerted focus on health promotion is urgently required. In order to move preventive medicine from the realm of academic discourse into the sphere of routine medical practice, however, pronounced efforts in medical education, physician remuneration, and public policy are essential. 

**Dr Genuis** is an Associate Professor at the University of Alberta in Edmonton.

**Correspondence to:** Dr Stephen Genuis, 2935—66 St, Edmonton, AB T6K 4C1; telephone 780 450-3504; fax 780 490-1803; e-mail [sgenius@ualberta.ca](mailto:sgenius@ualberta.ca)

**The opinions expressed in commentaries are those of the authors. Publication does not imply endorsement by the College of Family Physicians of Canada.**

## References

1. World Health Organization. *Preventing chronic diseases: a vital investment. A WHO global report*. Geneva, Switz: World Health Organization; 2005.
2. Horton R. The neglected epidemic of chronic disease. *Lancet* 2005;366:1514.
3. Ebbesen J, Buajordet I, Erikssen J, Brors O, Hilberg T, Svaar H, et al. Drug-related deaths in a department of internal medicine. *Arch Intern Med* 2001;161:2317-23.
4. Moore TJ, Weiss SR, Kaplan S, Blaisdell CJ. Reported adverse drug events in infants and children under 2 years of age. *Pediatrics* 2002;110:e53.
5. Classen DC, Pestotnik SL, Evans RS, Lloyd JF, Burke JP. Adverse drug events in hospitalized patients. Excess length of stay, extra costs, and attributable mortality. *JAMA* 1997;277:301-6.
6. Lazarou J, Pomeranz BH, Corey PN. Incidence of adverse drug reactions in hospitalized patients: a meta-analysis of prospective studies. *JAMA* 1998;279:1200-5.
7. Strong K, Mathers C, Leeder S, Beaglehole R. Preventing chronic diseases: how many lives can we save? *Lancet* 2005;366:1578-82.
8. Lary JM, Paulozzi LJ. Sex differences in the prevalence of human birth defects: a population-based study. *Teratology* 2001;64:237-51.
9. Boyle CA, Decoufle P, Yeargin-Allsopp M. Prevalence and health impact of developmental disabilities in US children. *Pediatrics* 1994;93:399-403.
10. Birnbaum LS. The impact of early environmental chemical exposure on carcinogenesis. Presented at Cancer and the Environment Conference. Tucson, Ariz: 2005 October 27-30.
11. Cohn D. Disability rate of children, teens up sharply—to 1 in 12. *Washington Post* 2002 July 6.
12. World Health Organization; Stewart BW, Kleihues P, editors. *World cancer report*. Lyon, France: International Agency for Research on Cancer; 2003.
13. McGavock H. Prescription-related illness—a scandalous pandemic. *J Eval Clin Pract* 2004;10:491-7.
14. Knox EG. Childhood cancers and atmospheric carcinogens. *J Epidemiol Community Health* 2005;59:101-5.
15. Grandjean P, Landrigan PJ. Developmental neurotoxicity of industrial chemicals. *Lancet* 2006;368:2167-78.
16. Hawamdeh A, Kasasbeh FA, Ahmad MA. Effects of passive smoking on children's health: a review. *East Mediterr Health J* 2003;9:441-7.
17. Barkai G, Arbuzova S, Berkenstadt M, Heifetz S, Cuckle H. Frequency of Down's syndrome and neural-tube defects in the same family. *Lancet* 2003;361:1331-5.
18. Khattak S, Moghtader GK, McMartin K, Barrera M, Kennedy D, Koren G. Pregnancy outcome following gestational exposure to organic solvents: a prospective controlled study. *JAMA* 1999;281:1106-9.
19. Genuis SJ. The proliferation of clinical practice guidelines: professional development or medicine by numbers? *J Am Board Fam Pract* 2005;18:419-25.
20. Woolf SH, Johnson RE. A one-year audit of topics and domains in the *Journal of the American Medical Association* and the *New England Journal of Medicine*. *Am J Prev Med* 2000;19:79-86.
21. World Health Assembly. *Global strategy on diet, physical activity and health*. WHA57.17. Geneva, Switz: World Health Organization; 2004.
22. Phillips MW Jr. The WHO's global health strategy: a call to arms for dietetics professionals. *J Am Diet Assoc* 2004;104:520-3.
23. Marshall LM. *Exposure history*. Toronto, Ont: Ontario College of Family Physicians; 2004. Available from: [www.ocfp.on.ca/local/files/EHC/Exposure%20Hx%20Forms.pdf](http://www.ocfp.on.ca/local/files/EHC/Exposure%20Hx%20Forms.pdf). Accessed 2006 October 9