

The periodic health examination:

3. An evolving concept

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The integration of preventive activities and curative medicine in the clinical practices of physicians is not a new concept: Yankauer and Charap^{1,2} have traced the idea back to the mid-1800s.^{3,4} The "annual check-up" for healthy individuals was the primary practical expression of this trend. Although its effectiveness was not clearly established, its concept progressively permeated major medical bodies, and by 1922 the American Medical Association had become convinced of the long-term health benefits of the annual check-up and officially supported it.⁵

Although the extent to which physicians went along with their associations' enthusiasm in promoting periodic monitoring of healthy individuals was never documented, they appear not to have recognized its value as a preventive measure and were never very systematic in their efforts to implement it.⁶ The acceleration of biomedical research and the major technologic breakthroughs that followed World War II endowed curative medicine with a glamour that overshadowed the merits of preventive medicine and prevailed, unquestioned, until the early 1970s.

The soaring cost of health care, measured against shrinking resources, has triggered worldwide critical reflection on future health

care strategies. In Canada a unified concept of health and health care was described in "A New Perspective on the Health of Canadians. A Working Document",⁷ in which the "health field" is regarded as comprising human biology, environment, lifestyle and health care organization. This conceptual framework provides a useful approach to health-related problems.

In an era when the benefits of curative medicine are being questioned, renewed interest in the potential gains from the periodic monitoring of healthy individuals is emerging. Since the critical pioneering review of periodic health screening by Frame and Carlson,⁸ a number of documents defining preventive activities in clinical practice have appeared.⁹⁻¹⁴ Although the opinions in these reports are not unanimous,¹⁴ there is now a body of knowledge that professional organizations are likely to draw upon in establishing their own guidelines on prevention.^{15,16}

The periodic health examination is aimed at asymptomatic individuals. The mandate of the Canadian Task Force on the Periodic Health Examination is to create a lifetime health care plan based on the use of a set of age- and sex-specific health protection packages that remedy the deficiencies of the nontargeted, conventional annual check-up. The task force believes that the plan should combine counselling for primary prevention and case-finding for secondary prevention, and that it should be based on the assumption that any doctor-patient encounter is an opportunity for prevention.

The first report of the task force was published in 1979;¹² its worldwide diffusion testifies to the increasing interest of physicians in prevention. The report suggested guidelines for preventive practices based on the best available scientific evidence on their efficacy, effectiveness, efficiency and safety. The guidelines were presented not as rigid protocols but as a resource for

practising physicians and researchers. The task force has been reconvened by the Canadian federal government and has embarked on a dual process of updating the initial recommendations and reviewing new conditions. The first set of revisions appears in this issue of *CMAJ* (pages 1278 to 1285).

Although the mandate of the task force is to formulate guidelines for preventive practice rather than implementation strategies, the latter have always been of great concern to its members. Moreover, it quickly became obvious that the recommended approach would fail to gain widespread acceptance by clinicians in the absence of sound operational means of translating the theory into practice.

Patterns of prevention in clinical practice

Medical practices in a number of countries have been studied with several different approaches. In three such studies, direct observation of clinical performance was used.¹⁷⁻¹⁹ Assessment of the preventive practices of physicians was only one aspect of these extensive studies; the main focus was on the assessment, investigation and treatment of symptomatic patients. All three studies found less than optimal performance in relation to explicit standards of good practice.

A review of physicians' records has been widely used to evaluate physicians' performance,²⁰⁻²² but its value is limited by the incompleteness and illegibility of the records and by uncertainty about how accurately the records reflect the actual practices of the physicians. To remedy this problem, Kessner and co-workers²³ developed a method using tracer conditions. When they implemented this method, they found that medical care processes, including screening, were poorly performed.²⁴ Similar findings have been reported by other investigators.²⁵⁻³¹

An assessment of the performance

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of internists in North Carolina in 1981³² revealed substantial disagreement with respect to several of the recommendations in the published reports of three groups of experts.^{9,11,12} In addition, when performance was compared with self-established criteria of preventive practice, important discrepancies were documented that underscored major flaws in the transmission of new knowledge and subsequent changes in physicians' behaviour.

Several surveys of physicians have been conducted to determine their knowledge of and attitudes towards prevention.³³⁻³⁵ The results suggest that physicians lack adequate information about prevention and that they generally underestimate the importance of their role in that area.

A recent study of patterns of preventive practice among primary care physicians in Quebec provides additional information for the ongoing debate concerning the integration of preventive and curative medicine.^{36,37} A total of 480 physicians in general practice, stratified and selected at random, were interviewed about the methods they used in the prevention of cancer in four anatomic sites. Several differences between the practices in use and those recommended by the Canadian Task Force on the Periodic Health Examination were identified; more important, such preventive practices as were in use were found to be carried out almost exclusively in the context of major encounters with patients, such as general check-ups. Thus, it was estimated that not more than 28% of the population is reached by this strategy for prevention. The studies also found that salaried physicians in community health centres and physicians in family medicine teaching centres who were reimbursed per session were more likely to comply with the guidelines for preventive practice and to pursue preventive activities in a broader range of patient encounters than physicians paid on a fee-for-service basis.

Integration of preventive care in clinical practice

It is generally agreed that preventive and curative services are fundamental ingredients of good health

care. Their integration in medical practice, however, seems difficult and is not always possible.³⁸ The reasons for this situation may be related to patients, to health care providers or to the organization of different practice settings.^{39,40}

Issues related to patients

The health care system has traditionally been viewed by the public as offering curative services, and the attitude of patients seeking alleviation of illness has essentially been passive. As was correctly suggested by Carter and associates,⁴⁰ a patient role that is appropriate for an illness-based encounter might not be optimal for prevention; therefore, a more participatory role for the patient should be encouraged. The assumption of responsibility and initiative in determining the course of one's health is essential for individuals to become more aware of prevention and more exacting in their expectations of preventive care from health care providers.

Effecting such a major behavioural change is a long-term endeavour. Investigators attempting to explain and predict health-related behaviour have examined a wide range of demographic, situational, educational and motivational factors that might be effective in inducing change.⁴¹⁻⁴³ It is widely accepted that an individual's subjective perception of a situation is a more potent determinant of behaviour than the objective features of the situation. Further, it is clear that many factors may modify the patient's predisposition to preventive activities. The decision to act seems to result from the combined effect of the value an individual places on a particular outcome and the degree of expectancy that a given action will result in that outcome. It has been suggested that behavioural changes related to health care can be most effectively triggered when an individual is aware of an impending threatening situation and believes it could be avoided by taking appropriate action, the perceived benefits of which outweigh the costs.⁴¹ However, the long-term benefit of preventive action is frequently elusive and intangible when compared with the cost, which may be immediate. The phy-

sician clearly plays an important role in influencing the patient's participation in preventive activities.

Issues related to health care providers

Uncovering the determinants of medical practice amounts to understanding the behaviour of physicians. While most behavioural models have been developed to understand consumer behaviour, some of the concepts they embody may be equally applicable to health care providers who attempt to initiate, integrate and maintain new activities in their practices.

Bandura's suggestion that there is a dynamic reciprocal interaction between personal and situational factors and behaviour⁴⁴ helps to clarify what is involved in the integration of preventive activities into medical practice. Stated simply, individuals use and maintain behaviour patterns that are reinforced and that can be integrated into their current practices.

The relation between knowledge and behavioural change is unclear; a physician's knowledge that preventive activities are important is necessary but may not be sufficient for a change to occur. A health care provider's personality, practice preferences, educational background, age, moral and ethical values, attitudes and health-related beliefs are inherent in his or her predisposition to engage in preventive activities.

Practice-related determinants will interact with these individual determinants. The priorities and facilities of a rural practice, for example, are likely to be markedly different from those of an urban practice. The populations served are not the same and their socioeconomic status may play an independent role. Where poor socioeconomic conditions prevail, individuals may be disinclined to take action about health matters unless their capacity to work or their survival is threatened. Patients' expectations, level of knowledge and response to preventive measures will greatly influence the implementation of such measures.

Preventive activities may be influenced by the method by which physicians are paid as well as by the practice setting. One of us (R.N.B.)

and Spitzer³⁷ found a higher frequency of such activities when fee-for-service did not apply and when other health care professionals were able to contribute to patient care. The system of health care delivery determines what activities and roles will be compensated, and it influences the level of public awareness of preventive measures through its public health activities.

The identification of possible avenues through which to influence change in clinical behaviour is only a preliminary step. The most important consideration in initiating and maintaining changes in physicians' behaviour is the recognition of the need for reinforcement. Although all the factors we have cited, acting independently or in combination, reinforce or discourage the need for specific preventive activities, additional positive reinforcement is required if physicians are to adopt new attitudes toward preventive activities. It might take the form of positive patient response, specific compensation through the health care system, improved outcomes for patients and improved personal satisfaction. Such rewards and reinforcements are not obvious features of the current cure-oriented health care delivery system.

Issues related to organization of practice settings

The concept that any medical encounter is an opportunity to carry out preventive activities is very attractive. Given what we know about the care-seeking behaviour of individuals,^{45,46} physicians are destined to remain the principal gateway to the health care system; their chief endeavour is to cure illness, and for most people they are the main source of information on health. Nevertheless, a considerable amount of primary care is delivered in walk-in clinics and emergency rooms, where prevention is not a priority. When preventive activities, such as blood pressure measurements, are done, linkage of the results to a regular source of care and follow-up is both difficult and infrequent.

The inclusion of counselling or case-finding as part of a continuing doctor-patient relationship is only partially realized. The constraints of

a daily practice schedule prevent even the most well intentioned physician from discussing preventive issues with a patient. Too often there is no time to discuss prevention once the patient's problem has been addressed. In addition, when the patient is anxious about a specific problem the effectiveness of counselling is substantially diminished.

Many have proposed that allied health care practitioners, rather than busy and "expensive" primary care physicians, should deliver preventive health care. Even though the limited data available suggest that the use of allied health care professionals is effective^{47,48} and widely accepted by the public,^{49,50} more work has to be done to be certain that such an approach would be successful on a larger scale. More important, to attain greater integration of preventive and curative medicine, ways of ensuring collaboration between physicians and other health care professionals should be sought. This would avoid the pitfall of isolating these two essential components of health care.

If the foregoing problems were solved, primary care practitioners would still be faced with the difficulty of effectively reaching target populations. The failure to reach high-risk groups has been an important problem in many screening programs,^{29,30,51,52} and we cannot expect that it would be easier for clinicians who deal with their own heterogeneous populations rather than with well identified populations. The inclusion of preventive activities in daily primary care may not be merely a dream; it will, however, require a significant reorientation of present practices and the development of new reimbursement schemes.

Integration of preventive care in primary health care

Despite the best intentions of physicians to provide quality patient care, there is considerable evidence that new knowledge and recommendations about measures to improve health care, even if widely diffused, are not universally, extensively or quickly adopted.^{32,36,37,53,54} Strategies for improving this situation might be directed toward three areas: knowledge, attitudes and behaviour. The

critical problem, however, lies in modifying the behaviour of health care providers so that they will apply their new knowledge and attitudes to patient care; the same is true for patients.

Although the recommendations of the Canadian Task Force on the Periodic Health Examination will enhance our knowledge, they are unlikely to be sufficient on their own. Strategies to increase the awareness of both physicians and patients must also be considered. The task of changing attitudes is probably more complex. Opportunities should be generated for physicians to discuss the recommendations, their merits and the concerns they may generate. Exchanges of this type in the scientific literature should be encouraged, nationally by the larger medical associations and locally by academies of medicine and hospital associations. Responses from physicians who are regarded by their peers as leaders should be invited and discussed. Greater activity by the lay press as a channel for increasing public awareness of the task force's recommendations should also be explored.

Direct efforts to encourage physicians to change their professional behaviour are probably the most complex and critical components of any strategy; however, without such efforts it is unlikely that any energy devoted to enhancing knowledge and modifying attitudes will result in improved patient care. One approach is to develop specific means of facilitating the application of the task force's recommendations. Cohen and collaborators⁵⁵ found it useful to attach special reminders to the patient's regular clinical chart. Age- and sex-specific flow charts could easily be designed from the task force's recommendations and could be distributed to encourage their widespread use. The College of Family Physicians of Canada has taken very positive steps in this regard by displaying the recommendations in such a way that they blend more directly with patient care procedures in the office.¹⁶ Programs to reinforce the use of preventive activities could also be provided to interested physicians. The increasing availability of microcomputers in physicians offices should promote

additional opportunities and options.

Current fee schedules do not adequately or overtly support the preventive activities required by the periodic health examination; thus, physicians may be biased towards activities directly related to treating disease. There is evidence that suggests that appropriate financial support for preventive patient care may be a critical issue in the implementation of the task force's recommendations.³⁷

Much is known about strategies to improve compliance in patients taking medication;³⁶ many of these might be applied to changing patient behaviour regarding the preventive aspects of the periodic health examination. Some have suggested that patients be provided with minirecords not only to keep them aware of their health but also to involve them in its care and maintenance.³⁷

Research priorities

The first report of the task force identified several research priorities that were largely concerned with the substantive formulation of guidelines for preventive practices. The establishment of these priorities has led to the development of related research projects, such as the ongoing Canadian randomized controlled trial of screening for breast cancer in women.³⁸

The area of prevention is in a very dynamic state. Research priorities also evolve and need to be redefined periodically. Four main research streams can be identified at present. First, research into the efficacy and effectiveness of preventive activities should be pursued further. Counselling activities for primary prevention and early detection procedures for secondary prevention should be carefully evaluated in terms of their potential beneficial or harmful impact on the health of individuals. This type of research is crucial in gaining new knowledge and in updating the current recommendations. Second, in a cost-conscious society, the need to balance the costs and benefits of preventive measures gains singular importance. The efficiency of alternative detection procedures should be explored to provide decision-makers with objective information that could lead to better

allocation of resources. Third, more research is needed to establish the existing degree of integration of preventive and curative practices and to improve our understanding of the determinants of integration. The diffusion of new knowledge in clinical practice should be further examined to identify the points at which intervention could enhance the translation of recommendations into practice. Finally, implementation strategies should be devised and evaluated, and continuing education efforts should be intensified. Operational tactics, such as the use of flow sheets in medical records or of "health passports" by patients, should be examined. Incentive-oriented methods of reimbursement should be explored and the services of physicians and other health care professionals better coordinated.

Conclusions

The periodic health examination is an evolving concept. The importance of pursuing a selected number of early detection procedures in asymptomatic individuals is not in doubt. However, the role of health care professionals in conveying information through counselling must be emphasized.

The ongoing revisions in the recommendations of the Canadian Task Force on the Periodic Health Examination reflect the dynamic state of this concept. The accrual of new knowledge, however, has some drawbacks for clinicians; new evidence will inevitably lead to some modification of previous practice guidelines and will understandably generate some unrest among health care providers and patients. The task force is acutely aware of these problems and will modify its recommendations only after careful assessment of relevant new evidence. Its efforts to systematically organize knowledge on prevention are aimed at the establishment of practice guidelines rather than rigid protocols; it does not intend that the guidelines should replace sound clinical judgement.

Better coordination of the several bodies that make such recommendations would promote greater uniformity in setting the guidelines and would probably avoid the confusion

resulting from conflicting guidelines from different sources. The first step in that direction has recently been taken by the Canadian Task Force on the Periodic Health Examination and the Preventive Services Task Force in the United States. They have established functional links to effect the exchange of information and the joint formulation of recommendations. A North American consensus on preventive practice guidelines would foster the integration of prevention into clinical practice.

The acquisition of a knowledge base is necessary in any effort to alter behaviour, but it will fall short of its ultimate objective if implementation issues are not properly addressed. Hence, several approaches should be tested and evaluated. The challenge ahead is to translate theory into effective practice.

We gratefully acknowledge the significant contributions made to the preparation of this paper by Dr. Walter O. Spitzer, Dr. Jo Hauser, the members of the Task Force on the Periodic Health Examination and Dr. N. Jack B. Wiggin.

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