

Books & electronic media

Screening: evidence and practice

Authors: Angela E Raffle & JA Muir Gray
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Screening (secondary prevention) is one of the four pillars of cancer control, the others being prevention (primary prevention), treatment and palliative care. For many, screening is an attractive option; finding a cancer (or preferably a cancer precursor) early carries the promise of reduced mortality and simpler treatment. If finding precursors is the objective of screening, reduced cancer incidence should follow. This has led to people referring to such screening as cancer prevention, by which they mean prevention of progression to invasive cancer.

Unfortunately, for screening to be effective in a population, large numbers of healthy people have to be tested; many of them will be found to have abnormalities, most not cancers or their precursors; and substantial costs will be incurred. All this would be worthwhile if cancer mortality and morbidity are thus reduced. But, as Raffle & Gray point out, such an outcome is not inevitable, even if cancers are found. There are various reasons for this. First, the cancers may have been curable had they been allowed to progress and present normally. Second, death may occur despite screening. Third, and perhaps even worse, had screening not been carried out, the cancers might never have presented clinically in the individuals' lifetime – a situation that applies to a certain extent to all cancers for which there are screening programmes, and which is termed overdiagnosis. Overdiagnosis differs from lead time, which is simply bringing forward the time of diagnosis for a cancer that was destined to present clinically, and has been observed whenever screening has been carried out. This causes the "popularity paradox", which Raffle & Gray put as follows: "The greater the harm through overdiagnosis

and overtreatment from screening, the more people there are who believe they owe their health, or even their life, to the programme." This is particularly the case for prostate cancer, since there is no unequivocal evidence from randomized screening trials that prostate-specific antigen (PSA) screening reduces prostate cancer mortality; however, many men whose cancers have been detected by such screening, together with their relatives and urologists, believe that their lives have been saved by PSA screening. Such individuals tend to be members of groups that advocate for PSA screening, and those who point out the lack of evidence, including Raffle & Gray and myself, find themselves at the receiving end of great hostility. This conflict between the sceptics, on the one hand, and the enthusiasts (patients whose cancers are detected by screening), the advocacy groups they belong to, and the many clinicians who do not understand screening, on the other hand, is not resolved in this book, and may in fact be irresolvable, but it is important that it be recognized. To read this book is to be reminded again and again that, sadly, the concept of requiring an evidence-base for screening runs counter to the beliefs of the public in many countries, nearly all politicians, and many health professionals.

Raffle & Gray devote much of the book to the need to organize screening. They emphasize the system performance aspects and give good coverage of all the consequences of screening, the harms as well as benefits. However, it is important to note that many of their

comments apply to the situation in the United Kingdom, which may limit the usefulness of the book in other settings, particularly for readers in developing countries who want more guidance on establishing or revising screening programmes than they can obtain from WHO publications. Thus, some reservations are needed in recommending the book in its entirety, especially to developing country programme managers.

Nevertheless, this is a book that clinicians, public health officers and others who are introducing a screening programme should read, even though their own circumstances may differ from those described in this book, since they need to understand the many common pitfalls that confront programme managers no matter what the setting. Those who want to learn about screening at the basic level should probably start with a standard epidemiology textbook before progressing to this book and use it to test their understanding using the examples provided at the end of each chapter.

Raffle & Gray have years of experience at the regional and national levels in trying to solve the problems they describe. Their solutions may not work everywhere, but they give us pause for thought, and if we recognize the dilemmas they have faced, and difficulties they have solved, we will be much closer to achieving the cost-effective approach to screening that they advocate, and we should desire. ■

Anthony Miller^a

Letter

Please visit <http://www.who.int/bulletin/volumes/86/4/en/index.html> to read the following letters received in response to *Bulletin* papers:

Defeating dengue: new mosquito genome, old promise? by Thomas C Erren & Michael Erren,

responding to:

Orozco J. Defeating dengue: a difficult task ahead. *Bull World Health Organ* 2007;85:737-8. PMID:18038050

^a University of Toronto, Toronto, ON, Canada.

Correspondence to Anthony Miller (e-mail: ab.miller@sympatico.ca).