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Realising the potential benefit of screening

Comment on the outcomes of the first Austrian Screening Guidelines Consensus Conference

All screening programmes do harm. To realise the potential that screening undoubtedly offers to populations and individuals, it is essential to identify which programmes do more good than harm and then ensure that they are delivered to the population at a high level of quality. The United Kingdom has experienced many problems in the development of its National Screening Programme, not all of which have been overcome, but lessons have been learned from mistakes and successes.

Doing more good than harm at reasonable cost

From the 1950s onwards, the general enthusiasm for science and technical developments such as multiphasic biochemical testing led to an uncritical enthusiasm for population screening programmes, many of which were introduced without adequate evidence of their effect.

Starting at the end of the 1960s the need for rigorous evaluation of proposals to introduce new screening programmes was felt. This was principally because the apparent benefit that was observed when disease was diagnosed at an early stage was not necessarily an indication that health outcomes were better, largely because of what is sometimes called lead time bias, namely the fact that the diagnosis of a disease at a pre-symptomatic stage may merely increase the length of time that the individual knows that he or she has the disease without improving outcome [1]. As an article in *Lancet Oncology* recently pointed out, one thing that PSA testing has achieved has been the elimination of asymptomatic prostatic cancer, for every man whose prostate cancer would have remained asymptomatic throughout life who has had a PSA test now knows that he has prostate cancer without any assurance that he will benefit from this knowledge which inevitably causes anxiety and depression [2].

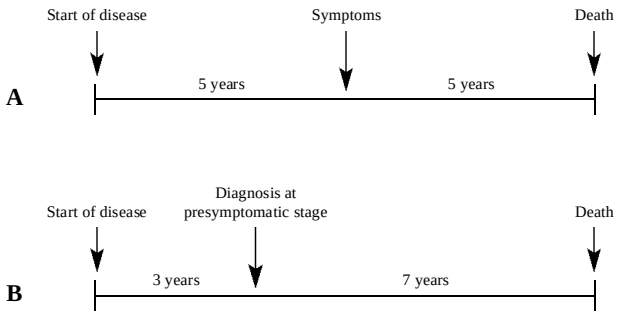

Fig. 1

The phenomenon of lead time bias is easily illustrated diagramatically (Fig. 1) [3].

Snails versus evangelists

There had always been a concern in the United Kingdom that screening had a different ethical contract than clinical practice because the screener inviting an apparently healthy person to come for a test and follow up treatment if required was in a different position from the clinician responding to the plea for help from a patient. In clinical practice some of the people with health problems do have side effects of treatment but they accept this as part of the contract when they give consent to treatment. However, many of the people who suffer the side effects of screening, which may be physical or psychological or both, are people who stand no chance at all of benefiting because they do not have the disease for which screening is taking place.

For these reasons a National Screening Committee was set up in the United Kingdom, based on the experience of a major programme of work leading to the development of national breast and cervical screening programmes.

Policy-making and quality management

The National Screening Committee has two main responsibilities – policy-making and quality management.

Policy-making

New research pours off the production line and most countries now have systems in place to manage new knowledge and new technology. The National Screening Committee monitors new knowledge as it appears in the journals and research reports, appraises its relevance for the UK population, and assesses the feasibility of reproducing research results in the ordinary service setting, if not perfectly, at least sufficiently to ensure that a screening programme does more good than harm in the ordinary service setting when it is being delivered in a different environment from the special circumstances of a research project.

The National Screening Committee gives advice to the Health Ministers of the four UK countries.

This advice may be:

– to stop a programme from drifting into practice, e.g. prostate cancer screening;
– to start stopping a programme that has been in place for many years, e.g. distraction testing for hearing loss in infants;
– continue a programme even though there is criticism in the scientific literature, e.g. breast cancer screening;
– modify a programme to take into account new research, e.g. screening for coronary heart disease;
– start a programme correctly.

The Breast Cancer Screening Programme in the UK was started with tight central control, a central budget, and careful planning and implementation, and the results have been excellent.

Improving quality

Managing new technology is only one aspect of the work of the National Screening Committee. Many of the programmes in place at present are unco-ordinated with no data to allow their quality and therefore their effectiveness to be appraised. Such programmes might be doing more harm than good, they might be doing more good than harm, but nobody knows.

Accordingly a major programme of quality assurance is in place to ensure that every screening programme has:
– explicit standards,
– an information system that allows performance to be compared with standards, and
– authority to take action if work is substandard.

When inviting healthy people to expose themselves to the risks of healthcare technology, with only a probability of benefit, it is our duty to ensure that we are doing more good than harm at reasonable cost.

UK/Austria links and the Austrian Screening Guidelines Consensus Conference in June 2000

The National Screening Committee of the United Kingdom welcomed the opportunity of meeting colleagues from different disciplines in Graz in June 2000 to share experiences and problems in screening policy-making and quality management.

The final nomination of the Austrian delegates followed the advice of key persons in the field like the chair of the society for surgical oncology, the head of the department of internal medicine of the University Clinic of Graz, and so on. The organiser, the "Land Steiermark", tried to include every university clinic of Austria, and all large specialities of medicine but keep at the same time the working group small enough to deliver a result within one day.

The consensus conference's objectives were to discuss and define in a stepwise fashion the basic requisites for population screening in Austria. Basic, short and general Austrian criteria, comparable in standard and quality to the ones proposed by a prominent Evidence Based Health Care institution (Oxford University) in one EU-country should be the product of the conference. In order that nobody in the field of Health Care would feel excluded (exempt) from the guidelines, no specific screening programmes or disease should be mentioned or aimed at in the final consensus document. The participants were encouraged to go beyond their speciality and think of the whole body of medicine and health care in regard to screening. The conference started with a short survey of the status of population screening in Austria. It was characterised as opportunistic screening in contrast to planned efforts in many fields of medicine. Exception is the field of screening of new-borns for metabolic disorders. The conference worked then on a adaptation of the British criteria from the 1990s for Austria in 21st Century [3]. The final German version was accepted unanimously by all the participants. The final version can be found in this edition of the Wiener klinische Wochenschrift and on the internet (http://www.stmk.gv.at/gesundheit … screening guidelines).

The Austrian Screening Principles 2000 are now open to comments for improvement and for detailing in the different specialities of medicine. From now on all running screening programmes and programmes planned should be matched with the principles derived in June in Graz to produce factual evidence on their harm and benefit. As consumer and press interest in medical matters and medical mistakes inevitably increases, it is in the interests of the profession as well as in the interests of the general public to take screening seriously and improve its value and quality.

J. A. Muir Gray,
CBE, DSc, MD, FRCP (Glas&Lond)
Director – National Screening Committee, UK, and

Franz Piribauer,
MD, MPH, Vice Director for Public Health,
Government of Styria, Austria

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Correspondence: Franz Piribauer, MD, Paulustorgasse 4, A-8010 Graz, Austria, E-mail: franz.piribauer@stmk.gv.at

Appendix 1

Results of the Austrian Screening Guidelines Consensus Conference (ASGCC) on 16th of June 2000 in Graz, Austria

Punkt	Detail
1.	Liegen gesicherte Ergebnisse in Form randomisierter kontrollierter klinischer Studien guter Qualität vor, welche nach dem „intention to treat"-Prinzip analysiert wurden, die belegen, dass das vorgeschlagene Screening-Programm die Morbidität oder die Mortalität reduziert?
2.	**Falls die Antwort auf die obige Frage „Nein" ist, gibt es keinen Grund für eine Umsetzung des Programmes.**
3.	**Falls die Antwort „Ja" ist, sind folgende Fragen zu beantworten:**
4.	Wieviele Personen müssen in diesem Programm gescreent werden, um einen Erkrankten zu finden oder einen Todesfall zu verhindern [number needed to treat; NNT]?
5.	Wieviele Personen werden einen Nachteil aus dem Screening-Programm erleiden (bezogen auf tausend Gescreente und auf ein gerettetes Leben)?
6.	Wie groß ist der Vertrauensbereich des errechneten Nutzens (95% Konfidenz-Intervall) und folglich im ungünstigsten Fall die Anzahl derer:
7.	ı die gescreent werden müssen (NNT)
8.	ı die Anzahl der nachteilig Betroffenen (diese Frage ist von besonderer Bedeutung, weil das Ausmaß des Effektes, der unter Studienbedingungen gefunden wurde, im Routine-Screening nicht reproduziert werden kann)
9.	Wie groß ist der Aufwand für das Screening-Programm und welcher Gesundheitsnutzen könnte erzielt werden, wenn diese Ressourcen statt für das Screening-Programm für eine der folgenden drei Optionen verwendet würden:
10.	ı Andere Maßnahmen anstelle des Screening-Programms, um das betreffende Gesundheitsproblem zu verringern.
11.	ı Maßnahmen, aber andere Gesundheitsprobleme betreffend, für die selbe Zielgruppe
12.	ı Maßnahmen für andere Bevölkerungsgruppen außerhalb der Zielgruppe des Screening-Programms

Appendix 2

Final panel (Participants) of the Austrian Screening Guidelines Consensus Conference (ASGCC) on 16th of June 2000 in Graz, Austria

Actual Delegates – contributing and voting in the consensus panel

Participants and their main institutional affiliation (in German) in relation to the topic of the conference

Univ.-Prof. Dr. med. **F. Allerberger,** MPH, Institut f. Hygiene und Sozialmedizin, Univ. **Innsbruck** (Leiter Prof. Dierich)

Univ.-Prof. Dr. med. **J. A. Muir Gray,** CBE, MD, FRCP, Joint Programme Director National Screening Committee, Institute for Health Sciencies, **Oxford** University

Univ.-Prof. Dr. med. **G. Haidinger,** Abteilung für Epidemiologie, Inst. f. Krebsforschung, Univ. **Wien** (Leiter Prof. Vutuc)

Univ.-Prof. Dr. med. **Friedrich Herbst,** FRCS, Chirurgische Universitätsklinik **Wien,** Präsident der Arbeitsgemeinschaft Chirurgische Onkologie (ACO) der österr. Gesellschaft für Chirurgie

Univ.-Prof. Dr. med. **C. Marosi,** Klinik f. Innere Medizin I, Onkologie, Univ. **Wien** (Leiter Prof. Zielinsky)

Univ.-Prof. Dr. med. **W. Muntean,** Univ.-Klinik f. Kinder- und Jugendheilkunde, **Graz,** Abtlg. Allgemeine Pädiatrie (Leiter Prof. Kurz)

Univ.-Prof. Dr. med. **T. R. Pieber,** Medizinische Universitätsklinik **Graz** (Leiter Prof. Krejs)

Univ.-Prof. Prim. Dr. med. **W. Sperl,** Landesklinik f. Kinder- und Jugendheilkunde, Landeskliniken **Salzburg**

Host and facilitator: Dr. med. **F. Piribauer,** MPH, Referatsleiter Qualitätsmanagement/Gesundheitsförderung der Fachabteilung f. d. Gesundheitswesen, **Land Steiermark,** (Leiter Landessanitätsdirektor Feenstra)