Summary points

Methods of communicating health risks to health policy makers have been neglected

Decision makers require easily understandable measures that show the impact of risk factors for disease on populations to help guide the allocation of resources according to local health needs

The population impact number of eliminating a risk factor (PIN-ER-t) is "the potential number of disease events prevented in your population over the next t years by eliminating a risk factor"

The PIN-ER-t can be used to show the impact of a range of risk factors in different populations and to compare the potential benefits of individual and population approaches to prevention

We have reported that individual clinicians are not as influenced by the presentation of risk in population terms as they are by relative risk (Heller et al, submitted for publication), while others have found that the "number needed to treat" statistic (which also relies on measures of absolute risk) is poorly understood by doctors and lay people.^{29 30} It remains for us to examine whether new measures of population impact like PIN-ER-t can be more easily understood and used in health policy related decision making than traditional methods of communicating risk. We are developing a research programme to explore this further.

Contributors and sources: The authors work at the Evidence for Population Health Unit, aiming to develop a public health counterpart to evidence based medicine. The measure described here is one of a series of population impact measures developed to use evidence combined with routinely collected data to provide local context to measures of risk and benefit and support public health policy decision making.

Competing interests: None declared.

- 1
- Edwards A, Elwyn G, Mulley A. Explaining risks: turning numerical data into meaningful pictures. *BMJ* 2002;324:827-30. Fahey T, Griffiths S, Peters TJ. Evidence based purchasing: understanding results of clinical trials and systematic reviews. *BMJ* 1995;311:1056-9. 9 3
- Last JM. A dictionary of epidemiology. Oxford: Oxford University Press 2001 4
- McPherson K, Britton A, Causer L. Coronary heart disease. Estimating the impact of changes in risk factors. London: Stationery Office, National Heart Forum, 2002.
- Schoenbach VJ. Relating risk factors to health. Epidemiolog.net 2002. www.epidemiolog.net/evolving/RelatingRiskFactorstoHealth.pdf (last 5 updated 23 Jun 2003). Gail MH, Benichou J. Encyclopaedia of epidemiologic methods. Chichester:
- John Wiley, 2000. Cook R, Sackett D. The number needed to treat: a clinically useful meas-
- 7 ure of treatment effect. *BMJ* 1995;310:452-4. Milward L, Kelly M, Nutbeam D. *Public health intervention research: the evi-*8
- dence. London: Health Development Agency, 2001. Levin ML. The occurrence of lung cancer in man. Acta Unio Int Contra 9
- Cancrum 1953;19:531. 10 Walter SD. Choice of effect measures for epidemiological data. J Clin Epi-
- Watter SD. Choice of effect measures for epidemiological data. J Can Epidemiol 2000;52:931-9.
 Miettinen OS. Proportion of disease caused or prevented by a given exposure, trait or intervention. Am J Epidemiol 1974;99:325-32.
 Armitage P, Berry G, Matthews JNS. Statistical methods in medical research. Oxford: Blackwell Science, 2002.
 Holler PE Debeno AI Artia I. Berge IM Jernard numbers: processory of rick.
- 13 Heller RF, Dobson AJ, Attia J, Page JH. Impact numbers: measures of risk factor impact on the whole population from case control and cohort studies. *J Epidemiol Community Health* 2002;56:606-10.
 14 Department of Health. *Compendium of clinical and health indicators 2001*.
- London: DoH, 2002. (http://nww.nchod.nhs.uk)

- Heller RF, McElduff P, Edwards R. Impact of upward social mobility on population mortality: analysis with routine data. *BMJ* 2002;325:134.
 Walker A, O'Brien M, Traynor J, Fox K, Goddard E, Foster K. *Living in Britain 2001: health survey for England 2001.* London: Stationery Office,
- Office for National Statistics, 2002. 17 Marang-van de Mheen PJ, Davey-Smith G, Hart CL. The health impact of smoking in manual and non-manual social class men and women: a test of the Blaxter hypothesis. Soc Sci Med 1999;48:1851-6.
- 18 Department of Health. Health survey for England 1998: cardiovascular dis-Rese. London: Station Product Volta (1999). Kannel WB, Neaston JD, Wentworth D, Thomas HE, Stamler J, Hulley SB,
- et al. Overall coronary heart disease mortality rates in relation to major risk factors in 325,348 men screened for MRFIT. Am Heart J 1986-112-825-36
- 20 Chen Z, Peto R, Collins R, MacMahon S, Lu J, Li W. Serum cholesterol concentration and coronary heart disease in populations with low chol-esterol concentrations. *BMJ* 1991;303:276-82.
- 21 Rose G. Sick individuals and sick populations. Int J Epidemiol 1985;14:32-8.
- 22 Murray CJ, Lauer JA, Hutubessy RCW, Niessen L, Tomijima N, Rogers A, et al. Effectiveness and costs of interventions to lower systolic blood pressure and cholesterol: a global and regional analysis on reduction of cardiovascular-disease risk. *Lancet* 2003;361:717-25.
- Cardiovascular-disease risk. Lancet 2003;561:717-25.
 Ezzati M, Lopez AD. Measuring the accumulated hazards of smoking: global and regional estimates for 2000. Tobacco Control 2003;12:70-85.
 Peto R, Lopez AD, Boreham J, Thun M, Heath C Jr. Mortality from tobacco in developed countries: indirect estimation from national vital statistics. Lancet 1992;339:1268-78.
 Welter CD. Descution for public designed. Am. J. Etidamid.
- Walter SD. Prevention for multifactorial diseases. Am J Epidemiol 251980;112:409-16.
- 26 Morgenstern H, Bursic E. A method for using epidemiologic data to estimate the potential impact of an intervention on the health status of a tar-
- get population. J Community Health 1982;7:292-309.
 Heller RF, Page JH. A population perspective to evidence based medicine: "evidence for population health." J Epidemiol Community Health 1980;7:2014-7-64 2002;56:45-7.
- 28 Heller RF, Edwards R, McElduff P. Implementing guidelines in primary care: can population impact measures help? *BMC Public Health* 2003;3:7. http://www.biomedcentral.com/1471-2458/3/7
- Nexoe J, Gyrd-Hansen D, Kragstrup J, Kristiansen IS, Nielsen JB. Danish GP's perception of disease risk and benefit of prevention. *Fam Pract* 29 2002:19:3-6
- 30 Kristiansen IS, Gyrd-Hansen D, Nexoe J, Nielsen JB. Number needed to treat: easily understood and intuitively meaningful? Theoretical considerations and a randomised trial. J Clin Epidemiol 2002;55:888-92. (Accepted 19 August 2003)

Corrections and clarifications

Parathyroid hormone alone is as effective as combination in treating osteoporosis

We enthusiastically added a reference to this news article by Scott Gottlieb to help readers locate the study being reported (27 September, p 700). Unfortunately, although we got the year and volume of the New England Journal of Medicine right, we published the wrong page numbers. The correct reference is 2003;349:1207-15.

ABC of subfertility: male subfertility

Two errors crept into in this article by Anthony Hirsh (20 September, pp 669-72). Firstly, we incorrectly inserted an extra word in the caption to the figure on page 670; the caption should read: "Autosomal Robertsonian translocations may be associated with poor sperm quality and subfertility." Secondly, we made a dog's dinner of the caption to the figure on page 671. The photograph in fact shows a "microsurgical vasovasostomy for vasectomy reversal."

General practitioners and occupational health professionals

We inadvertently typed the word "health" instead of "medicine" when we inserted the competing interests for one of the authors of this editorial by Jeremy Beach and David Watt (9 August, pp 302-3). Professor Beach is in fact an assistant editor of the journal Occupational Medicine.