

EDITORIALS

General health checks don't work

It's time to let them go

Peter C Gøtzsche *professor*, Karsten Juhl Jørgensen *doctor*, Lasse T Krogsbøll *doctor*

Nordic Cochrane Centre, Rigshospitalet, Blegdamsvej 9, DK-2100 Copenhagen, Denmark

We check our cars regularly, so why shouldn't we also check our bodies so that we can find and treat abnormalities before they cause too much harm? It seems so easy, but the human body is not a car, and, in contrast to a car, it has self healing properties. Actually, the first thing we know about screening is that it will cause harm in some people. This is why we need randomised trials to find out whether screening does more good than harm before we decide whether to introduce it.

Doctors realised this early on and embarked on 16 randomised trials of general health checks between 1963 and 1999. A Cochrane review from 2012 that included 11 940 deaths did not find an effect of general health checks on total mortality (risk ratio 0.99, 95% confidence interval 0.95 to 1.03) or on mortality due to cardiovascular disease (1.03, 0.91 to 1.17) or cancer (1.01, 0.92 to 1.12).^{1 2}

These trials were carried out in Europe and in the United States. The most recent one, the Danish Inter99 trial, which started in 1999, reports its results in this issue of *The BMJ* (doi:10.1136/bmj.g3617).³ It investigated the effect of systematic screening for risk factors for ischaemic heart disease and lifestyle counselling up to four times over a five year period. People at high risk were additionally offered group based counselling. This trial also failed to find an effect on total mortality; 3163 deaths occurred, and the hazard ratio was 1.00 (0.91 to 1.09). It also failed to find an effect on its primary outcome, the incidence of ischaemic heart disease, for which the hazard ratio was 1.03 (0.94 to 1.13).

That health checks do not work is counterintuitive. We know, for example, that even brief counselling about smoking will make some people abandon their habit. A meta-analysis of 17 trials showed that the chance of quitting increased by 66% (risk ratio 1.66, 1.42 to 1.94),⁴ and the Inter99 trial and several of the previous trials included counselling about smoking and other unhealthy lifestyles.

Two main likely explanations exist for the lack of effect. Firstly, many physicians already carry out testing for cardiovascular risk factors or diseases in patients whom they judge to be at risk when they see them for other reasons.^{1 2} This is often considered an integral part of primary care, and adding a systematic screening approach is not beneficial. Secondly, beneficial effects of screening could be outweighed by harmful ones, and type 2

diabetes might be an example. Our drug regulators approve diabetes drugs solely on the basis of their glucose lowering effect without knowing what they do to patients. The only large trial of tolbutamide was stopped prematurely because the drug increased cardiovascular mortality,⁵ but nothing material happened with its regulatory status and people continued to use it. More recently, rosiglitazone, which was the most sold diabetes drug in the world, was taken off the market in Europe, as it causes myocardial infarction and cardiovascular death,⁶ and pioglitazone could also face trouble, as it has been linked to heart failure and bladder cancer.^{7 8}

People who accept an invitation to a health check tend to have higher socioeconomic status, lower cardiovascular risk, less cardiovascular morbidity, and lower mortality than others.^{1 2} Attendance predominantly by the worried well could be a contributing cause to the lack of effect of health checks. However, in the absence of even a trend towards benefit, this seems an unlikely explanation, as some of those who did turn up were at high risk.

Screening programmes for healthy people are justifiable only when randomised trials clearly show that benefits outweigh harms. For health checks, the trials seem to show the opposite. No discernible benefits were seen, and, although harms were inadequately reported, health checks would be expected, like other screening tests, to increase overdiagnosis and overtreatment, with their associated side effects and psychological consequences.

Doctors should not offer general health checks to their patients, and governments should abstain from introducing health check programmes, as the Danish minister of health did when she learnt about the results of the Cochrane review and the Inter99 trial.

Current programmes, like the one in the United Kingdom, should be abandoned. This might be difficult. Some doctors believe strongly in the benefits of health checks, some earn a living through them, and there are many faces to be saved. We therefore have no doubt that the methods and results of the Inter99 trial will be heavily debated, but it is worth considering what this might lead to. We now have 15 103 deaths from trials that spanned 50 years and found not a trace of an effect on mortality. No amount of criticism of the trials can render this

negative result positive. However, interesting factors might turn up that could be useful if anyone wished to embark on yet another trial. Additional trials of general health checks are hardly worth while; we should focus our efforts on conducting trials of those individual components that look most promising.

In clinical practice, we should use only interventions that work. Our Cochrane review did not include trials of geriatric screening, as they evaluated many other interventions in addition to screening, such as falls prevention and specialist drug review. A meta-analysis of 89 trials including 97 984 people aged 65 and above showed that community based multifactorial interventions significantly increased the chance of living at home and reduced falls and hospital admissions.⁹

Competing interests: We have read and understood the BMJ Group policy on declaration of interests and declare the following interests: none.

Provenance and peer review: Commissioned, not externally peer reviewed

- 1 Krogsbøll LT, Jørgensen KJ, Grønhøj Larsen C, Gotzsche PC. General health checks in adults for reducing morbidity and mortality from disease. *Cochrane Database Syst Rev* 2012;10:CD009009.
- 2 Krogsbøll LT, Jørgensen KJ, Grønhøj Larsen C, Gotzsche PC. General health checks in adults for reducing morbidity and mortality from disease: Cochrane systematic review and meta-analysis. *BMJ* 2012;345:e7191.
- 3 Jørgensen T, Jacobsen RK, Toft U, Aadahl M, Glümer C, Pisinger C. Effect of screening and lifestyle counselling on incidence of ischaemic heart disease in general population: Inter99 randomised trial. *BMJ* 2014;348:g3617.
- 4 Stead LF, Buitrago D, Preciado N, Sanchez G, Hartmann-Boyce J, Lancaster T. Physician advice for smoking cessation. *Cochrane Database Syst Rev* 2013;5:CD000165.
- 5 Nissen SE. Cardiovascular effects of diabetes drugs: emerging from the dark ages. *Ann Intern Med* 2012;157:671-2.
- 6 Nissen SE, Wolski K. Effect of rosiglitazone on the risk of myocardial infarction and death from cardiovascular causes. *N Engl J Med* 2007;356:2457-71.
- 7 Moynihan R. Rosiglitazone, marketing, and medical science. *BMJ* 2010;340:c1848.
- 8 Hillaire-Buys D, Faillie JL. Pioglitazone and the risk of bladder cancer. *BMJ* 2012;344:e3500.
- 9 Beswick AD, Rees K, Dieppe P, Ayis S, Gooberman-Hill R, Horwood J, et al. Complex interventions to improve physical function and maintain independent living in elderly people: a systematic review and meta-analysis. *Lancet* 2008;371:725-35.

Cite this as: *BMJ* 2014;348:g3680

© BMJ Publishing Group Ltd 2014