

Abstracts

Cognitive function in two cohorts born 10 years apart

Many more people in high-income countries are surviving into their 90s. As a result, there is concern that the basis for this is the survival of frail and disabled people into extreme old age. A recent study in the *Lancet* compared the cognitive and physical functioning of two cohorts of Danish nonagenarians, born 10 years apart.

Those in the first cohort were born in 1905 and assessed at the age of 93 years. Those in the second cohort were born in 1915 and assessed at the age of 95. Eligibility for the study did not depend on where the participants lived – around 50% were in residential care.

Cognitive functioning was assessed using the mini-mental state examination and a composite of five cognitive tests that are sensitive to age-related changes. Physical functioning was assessed by scoring activities of daily living and by physical performance tests such as grip strength, ability to stand up out of a chair and how fast the person was able to walk.

The first interesting finding was that the chance of surviving from birth to 93 years was 28% higher in the 1915 cohort than in the 1905 cohort and the chance of reaching 95 years was 32% higher in the 1915 cohort. The 1915 cohort scored significantly better on the mini-mental state examination than the 1905 cohort and a substantially higher proportion of participants born in 1915 obtained maximum scores. Those born in 1915 also performed significantly better in the composite cognitive scores. However, although the 1915 cohort had better activities of daily living scores, they fared no better in the physical performance tests.

The interpretation is that even though the 1915 cohort were, on average, 2 years older than the 1905 cohort, this study suggests that more people are living to older ages with better overall functioning – at least in Denmark.

Christensen K, et al. *Lancet*, Early Online Publication, 11 July 2013. [[http://dx.doi.org/10.1016/S0140-6736\(13\)60777-1](http://dx.doi.org/10.1016/S0140-6736(13)60777-1)]

Global association of air pollution and heart failure

This systematic review and meta-analysis examines the association between air pollution and acute decompensated heart failure, including hospitalisation and heart failure mortality. The authors searched five databases for studies that investigated the association between daily increases in gaseous (carbon monoxide, sulphur dioxide, nitrogen dioxide, ozone) and particulate air pollutants and heart failure and associated morbidity and mortality.

The authors found that heart failure, hospitalisation or death was associated with increased carbon monoxide, sulphur dioxide and nitrogen dioxide, but not ozone. Increasing concentrations of particulate matter were also associated with heart failure hospitalisation or death. The strongest associations were seen on the day of exposure.

The public health policy implications of these associations are clear.

Shah ASV, et al. [[http://dx.doi.org/10.1016/S0140-6736\(13\)60898-3](http://dx.doi.org/10.1016/S0140-6736(13)60898-3)]

Rapid diagnosis of pulmonary TB in African children using Xpert MTB/RIF

This study assesses the diagnostic accuracy of Xpert MTB/RIF in children in primary care, where most children in Africa receive care.

The prospective study obtained repeat induced sputum and nasopharyngeal aspirate specimens from children aged <15 years with suspected pulmonary tuberculosis (PTB) at a clinic in Khayelitsha, Cape Town. The authors compared the diagnostic accuracy of Xpert MTB/RIF with a reference standard of culture and smear microscopy on induced sputum specimens. The main analysis – the specificity of Xpert MTB/RIF versus liquid culture – was only done on children who had 2 interpretable Xpert MTB/RIF and induced sputum culture results.

The study took place between 1 August 2010 and 30 July 2012 and enrolled 384

children who had one paired induced sputum and nasopharyngeal specimens – 309 of the children had two paired specimens. Five children tested positive for TB by smear microscopy, 26 tested positive by Xpert MTB/RIF and 30 tested positive by culture. Using Xpert MTB/RIF testing on two induced sputum specimens detected 11 of 28 culture-confirmed cases. The test's specificity on induced sputum was 98.9% and on nasopharyngeal aspirates 99.3%

The conclusion is that the Xpert MTP/RIF rapid test on respiratory secretions is a useful test for rapid diagnosis of paediatric pulmonary TB.

Zar HJ, et al. *Lancet Global Health* 2013;1(2):e97-e104. [[http://dx.doi.org/10.1016/S2214-109X\(13\)70036-6](http://dx.doi.org/10.1016/S2214-109X(13)70036-6)]

Daily iron supplementation in children 4 - 23 months

About 47% of pre-school children worldwide are anaemic and daily oral iron supplementation is commonly recommended. What we do not know is the efficacy and safety of iron supplementation programmes.

The authors of this study systematically reviewed the evidence for benefit and safety of daily iron supplementation in children aged 4 - 23 months. Trials involving 42 306 children were identified as eligible, according to the authors' search strategy. However, only 9 out of 35 studies were judged to be at low risk of bias.

While the analysis showed that daily iron supplementation effectively reduces anaemia, there was no evidence for any changes in other end-points such as psychomotor or mental development or final length-for-age or final-weight-for-age.

The authors concluded that the adverse effect profile of iron supplements and effects on development and growth are uncertain and that adequately powered trials are needed to establish the non-haematological benefits and risks of this type of supplementation in pre-school children.

Pasricha S-R, et al. *Lancet Global Health* 2013;1(2):e77-e86. [[http://dx.doi.org/10.1016/S2214-109X\(13\)70046-9](http://dx.doi.org/10.1016/S2214-109X(13)70046-9)]