

Encouraging families to move from poor neighbourhoods reduces obesity

Encouraging people to move out of poor neighbourhoods had a discernible effect on their risk of obesity and diabetes in a randomised social experiment from the USA.

The experiment began in 1994 in public housing developments where more than 40% of families were living below the US government's poverty threshold. Just under 4500 women with young children agreed to take part, and roughly a third were given vouchers to subsidise their rent on the condition that they moved to a more affluent neighbourhood. Another third were given similar vouchers with no strings attached, and the final third (controls) received nothing.

Between 10 and 15 years later, 31.1% of the women encouraged to move had a body mass index of 35 or more compared with 35.5% of control women — a significant difference. Rent vouchers for more affluent neighbourhoods were also associated with a slightly but significantly lower prevalence of severe obesity (body mass index of at least 40), and diabetes (glycated haemoglobin of at least 6.5%). Women given the rent subsidy to use wherever they wanted also looked healthier than controls at the end of follow-up, but the differences were smaller and not statistically significant.

We know that being poor is a risk factor for obesity and diabetes. This novel social experiment suggests that the environment of poor neighbourhoods is probably part of the problem, and that giving families the opportunity to move out can help, say the authors. Roughly half of the families took advantage of the opportunity in this study.

Ludwig J et al. *N Engl J Med* 2011;365:1509-1519.

Finally, a vaccine against malaria

GlaxoSmithKline has developed a malaria vaccine directed against sporozoites, the parasitic stage injected into humans by feeding mosquitoes. This isn't the only vaccine in the pipeline, but it is the first to reach phase III trials, and preliminary results look promising. RTS,S/AS01 was 50.4% (95% CI 45.8 - 54.6%) effective against falciparum malaria in 6 000 African children aged 5 - 17 months. It was 45.1% (23.8 - 60.5%) effective against severe malaria.

The trial still has a long way to go, however. Researchers recruited close to 16 000 children in two age groups, and results for younger infants aged 6 - 12 weeks won't be available for at least another year. RTS,S/AS01 was 34.8% (16.2 - 49.2%) effective against severe malaria in an analysis combining available data from both age groups.

The older children in this report had three doses of RTS,S/AS01 over 3 months, with or without a booster 18 months later. Older controls received a rabies vaccine. Younger controls were vaccinated against meningococcal meningitis group C.

A malaria vaccine has been a long time coming, and we may finally be getting somewhere, says a linked editorial. This vaccine looks reasonably effective so far, although results are too preliminary to inform policy at this stage. Safety issues to watch out for in later reports include a higher risk of febrile reactions and seizures in children given the new vaccine, and a higher risk of meningitis, which is harder to explain (11/5949 v. 1/2974 in older children; relative risk 5.5, 0.7 - 42.6).

The RTS,S Clinical Trials Partnership. *N Engl J Med* 2011; doi:10.1056/NEJMoa1102287

HPV vaccine prevents anal intraepithelial neoplasia in young gay men

Cervical and anal cancers have much in common. Both develop from intraepithelial neoplasia and are associated with human papillomavirus (HPV) infection, most notably types 16 and 18. Anal cancer is rare, but its incidence has been increasing by about 2% each year, both among men and women. Men who have sex with men, people with HIV, women with cervical or vulvar cancer, and people taking immunosuppressants are at increased risk compared with the general population.

A trial tested the quadrivalent HPV vaccine against placebo in 602 healthy men who have sex with men. All were 16 - 25 years old. During 3 years of follow-up, no occurrences of anal cancer were seen either in those randomised to the vaccine or in those who received placebo. However, anal intraepithelial neoplasia developed in 74/275 men in the vaccine group compared with 103/276 in the placebo group, giving the efficacy of the vaccine for any type of HPV as 25.7% (95% CI 1.1 - 45.6%). The difference was more pronounced for anal intraepithelial neoplasia associated with types 16 and 18 HPV (12/275 and 27/276; 55.2%, 8.5 - 79.3%). Persistent infection with any type of HPV was seen in 51/275 of those allocated to the vaccine, compared with 113/276 with placebo, a reduction of 59.4% (43.0 - 71.4%). In the analysis by type of HPV, persistent infection with type 18 (7/275 and 26/276; 73.6%, 37.5% to 90.3%) was reduced the most.

Results of the per protocol analyses, comprising about two-thirds of all participants, showed even more convincingly the potential of the quadrivalent HPV vaccine to protect against anal intraepithelial

neoplasia and persistent infection with HPV, and thus possibly against anal cancer.

No serious adverse effects were recorded in the placebo group compared with two in the vaccination group — an allergic reaction to peanuts and a seizure caused by fever related to varicella.

Palefsky JM et al. *N Engl J Med* 2011;365:1576-1585.

No evidence of link between cell phone use and nervous system tumours

Patrizia Frei and colleagues assessed the risk of tumours in the central nervous system among Danish mobile phone subscribers using a nationwide cohort study in Denmark.

The participants were all Danes aged ≥ 30 and born in Denmark after 1925, subdivided into subscribers and non-subscribers of mobile phones before 1995.

The main outcome measures were risk of tumours of the central nervous system, identified from the complete Danish Cancer Register. Sex-specific incidence rate ratios were estimated with log linear Poisson regression models adjusted for age, calendar period, education and disposable income.

The investigators found that 358 403 subscription holders accrued 3.8 million person years. In the follow-up period 1990 - 2007, there were 10 729 cases of tumours of the central nervous system. The risk of such tumours was close to unity for both men and women. When restricted to individuals with the longest mobile phone use — that is, ≥ 13 years of subscription — the incidence rate ratio was 1.03 (95% confidence interval 0.83 - 1.27) in men and 0.91 (0.41 - 2.04) in women. Among those with subscriptions of ≥ 10 years, ratios were 1.04 (0.85 - 1.26) in men and 1.04 (0.56 - 1.95) in women for glioma and 0.90 (0.57 - 1.42) in men and 0.93 (0.46 - 1.87) in women for meningioma. There was no indication of dose-response relation either by years since first subscription for a mobile phone or by anatomical location of the tumour — that is, in regions of the brain closest to where the handset is usually held to the head.

In this update of a large nationwide cohort study of mobile phone use, there were no increased risks of tumours of the central nervous system, providing little evidence for a causal association.

Frei P et al. *BMJ* 2011;343:bmj.d6387

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