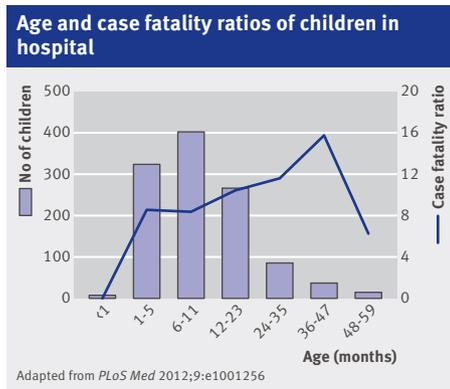


All you need to read in the other general medical journals
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Salmonella and shigella cause lethal diarrhoea in children in rural Kenya

In the Nyanza province of western Kenya more than one in 10 babies dies in infancy and a quarter die in childhood. Diarrhoea is a leading cause of death. Researchers who tracked all 1146 preschool children admitted with diarrhoea to two local hospitals between 2005 and 2007 reported 107 deaths. Children aged 2-4 years had the highest case fatality ratio, peaking at around 16%.

Rotavirus was the most common pathogen identified from stool samples (196/1021). But species of shigella and non-typhoidal salmonella were more lethal (case fatality ratios 28.6% (95% CI 14.9% to 42.2%) and 20.3% (13.1% to 27.6%)). Both pathogens were significantly associated with mortality in fully adjusted analyses. Non-typhoidal salmonella increased the odds of death for infants under 1 year. Shigella increased the odds of death for all children under 5. Malnutrition, dehydration, oral thrush, and a previous visit to hospital during the index illness were other independent predictors of death in this cohort. Children usually died quickly, after just three days in hospital on average.

The two hospitals struggled to provide essentials such as oral rehydration solution and intravenous fluids during the study. They often ran out of needles and sterile tubing, say the researchers. Oral rehydration was also hard to find in community pharmacies in Nyanza. Strengthening the supply chain is an important component of a new national strategy to combat diarrhoeal illnesses among Kenya's children, they write.

PLoS Med 2012;9:e1001256

Intermittent iron supplements may be enough for pregnant women

Few pregnant women enjoy taking daily iron supplements because they cause nausea and constipation. Supplements once or twice a week may work equally well, according to a meta-analysis of 18 randomised trials. Women who took intermittent supplements were no more likely to be anaemic at term than those who took the same supplements every day. In addition, they reported significantly fewer side effects (average relative risk 0.56, 95% CI 0.37 to 0.84). Taking supplements less often had no discernible effect on the risk of prematurity or low birth weight. Women in both groups had similar haemoglobin concentrations at term.

Most trials in the review compared daily with weekly or twice weekly supplements—usually iron or iron plus folic acid. All trials were conducted in developing countries, where daily iron supplements are recommended for most pregnant women. The trials were generally small, short term, unblinded, and limited by missing data. None was big enough to explore the effects of intermittent supplements on malaria, other infections in pregnancy, maternal or neonatal deaths, and congenital abnormalities. More work needs to be done, say the authors—future trials need to be bigger, better, and to follow up women and their babies for longer.

In the meantime, intermittent supplements are beginning to look like a feasible alternative to unpopular daily regimens. Women at low risk of anaemia could try this approach, but the authors urge others to wait for a more secure evidence base. *Cochrane Database Syst Rev* 2012;7:CD009997

No increased risk for Jehovah's Witnesses selected for cardiac surgery

Between 1983 and early 2011, 359 Jehovah's Witnesses had cardiac surgery at the Cleveland Clinic in the US. They had no blood transfusions, but they did better postoperatively than transfused controls in a carefully matched analysis. The 322 Jehovah's Witnesses in the analysis had significantly fewer postoperative complications including myocardial infarctions. They recovered faster, went home sooner, and had better survival during the first year after surgery (95%, 95% CI 93% to 96% v 89%, 87% to 90%; $P=0.007$). The two groups had comparable long term survival.

The authors used state of the art propensity scoring to compare two groups of 322 patients matched precisely for factors that characterise Jehovah's Witnesses, including higher preoperative haematocrit, less frequent use of the internal thoracic artery during coronary artery bypass grafting, older age, and worse symptoms. Most patients in the analysis had coronary artery bypass grafting or valve surgery.

This natural experiment adds to mounting evidence that limiting the use of blood products might be good for all cardiac surgery candidates, says a linked comment (doi:10.1001/archinternmed.2012.2458). But, in common with other studies of Jehovah's Witnesses, the authors weren't able to explore the effects of special measures used by Jehovah's Witnesses and their surgeons. These measures include preoperative use of erythropoietin, intraoperative blood salvage, and transfusions of autologous blood. Selection bias is also hard to rule out, says the comment, because Jehovah's Witnesses who are judged unlikely to survive surgery without transfusion may never make it to the operating theatre.

Arch Intern Med 2012; doi:10.1001/archinternmed.2012.2449

Only high doses of vitamin D prevent fractures

Scores of trials and many meta-analyses have tried to find out who should take vitamin D, how much, how often, and whether calcium should be taken at the same time. This enormous effort has generated a great deal of heat and very little light, says one commentator (p 77). This is probably because two key elements are missing from most studies—careful consideration of baseline concentrations and of the adequacy of the dose being tested.

Authors of the latest meta-analysis managed to retrieve baseline concentrations of vitamin D for just 4383 of the 31022 adults analysed. They did better with dose, analysing actual intake rather than assigned dose, and report that vitamin D prevents fractures only at an intake of 800 IU a day or more (hazard ratio 0.70, 95% CI 0.58 to 0.86 for hip fractures and 0.86, 0.76 to 0.96 for non-vertebral fractures). The authors pooled source data from 11 randomised trials of vitamin D with or without calcium. Most of the participants were older women (91%; mean age 76 years). Controls took a placebo or calcium alone.

The new findings are broadly in agreement with



“Despite increasing emphasis on the role of clinical decision-support systems for improving care and reducing costs, evidence to support widespread use is lacking”

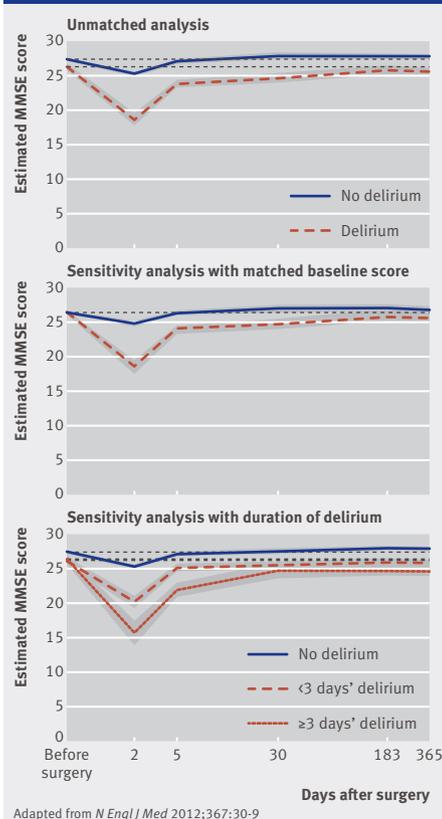
Richard Lehman's blog at www.bmj.com/blogs

international guidelines, says the commentator. Women who need vitamin D should make sure they take enough to make a difference. Other big questions will remain unanswered until researchers design trials that take full account of the biology of supplementation. We know that, unlike therapeutic drugs, the impact of a nutritional supplement depends crucially on the level of deficiency (baseline concentration), as well as the dose.

N Engl J Med 2012;367:40-9

Delirium after cardiac surgery associated with enduring cognitive impairment

Estimated cognitive function before and after surgery



The delirium that often follows cardiac surgery is usually short lived, but it can be associated with enduring cognitive impairment, according to a study from the US. Detailed preoperative and postoperative assessments of 225 people aged 60 years or more showed that cognitive function fell significantly more sharply after surgery and recovered significantly more slowly in the 103

(46%) patients who developed postoperative delirium, compared with the 122 who did not.

The difference in cognitive trajectory between the two groups was most obvious during the first six months after surgery, and it was confirmed in analyses that were adjusted for preoperative cognitive function (which was significantly worse in adults who developed postoperative delirium). Forty per cent of those with delirium had still not recovered their preoperative cognitive function six months after surgery, compared with 24% of those without delirium ($P=0.01$). The authors used the mini-mental state examination (MMSE) to track participants' cognitive function.

Delirium after cardiac surgery is potentially preventable and treatable, say the authors. We should try harder to identify those at risk and find ways to help protect them. Adults who do develop postoperative delirium may need longer and more intense follow-up, with a sharper focus on cognitive rehabilitation.

The adults in this cohort had a mean age of 73 years. Nearly four fifths had elective coronary artery bypass surgery alone. They had a mean MMSE score of 27 out of a possible 30 before surgery.

N Engl J Med 2012;367:30-9

Poor vaccine coverage hampers polio eradication in Afghanistan and Pakistan

Wild type polio virus is still circulating in southern Afghanistan and in some regions of Pakistan, and a study reports that the incidence of polio has gone up recently in these regions despite the introduction of better vaccines. Not enough children are being vaccinated, say the authors. They blame armed conflict and national insecurity for this poor coverage, which has declined still further since 2006 in affected regions. In 2011, less than a third of eligible children in Balochistan and the Federally Administered Tribal Areas of Pakistan had been vaccinated adequately against polio.

Serotype 1 caused most of the 883 cases of poliomyelitis reported in Pakistan and Afghanistan between 2001 and 2011. Newer monovalent and bivalent vaccines looked statistically equivalent in a case-control analysis (effectiveness against serotype 1 34.5% (95% CI 16.1% to 48.9%) and 23.4% (10.4% to 34.6%), respectively). Both were more effective against serotype 1 than the older trivalent

vaccine (12.5%, 5.6% to 18.8%). The authorities in Pakistan plan to use the bivalent vaccine in six of the eight extra vaccination campaigns planned for this year, say the authors.

Newer vaccines were instrumental in eradicating polio from India. It is still possible they could do the same for Pakistan and Afghanistan if enough children can be reached. They estimate that eradication would be achievable if nine out of 10 children were protected against serotype 1. *Lancet* 2012; [http://dx.doi.org/10.1016/S0140-6736\(12\)60648-5](http://dx.doi.org/10.1016/S0140-6736(12)60648-5)

Plasma concentrations of saturated fatty acids linked to heart disease

It is surprisingly hard to prove a consistent association between heart disease and dietary intake of different fats, partly because estimates of dietary intake are always imprecise. So researchers have begun looking instead at plasma concentrations of different fatty acids.

In a case-control study from the UK, risk of coronary heart disease went up in line with plasma concentrations of saturated fatty acids (odds ratio comparing top and bottom quarters 1.75, 95% CI 1.27 to 2.41) but was inversely associated with concentrations of omega-6 polyunsaturated fatty acids (0.77, 0.60 to 0.99). Associations between new heart disease and other fatty acids were inconsistent or absent. The total concentration of fatty acids was not linked to heart disease in this study, which compared 2424 older men and women with incident heart disease (cases) and 4930 controls without.

Cases and controls were nested in a much larger community cohort recruited in the 1990s and followed up for a mean of 13 years. Analyses were adjusted for more than a dozen social, demographic, and clinical factors known to influence risk of heart disease. These included age, sex, smoking, alcohol intake, body mass index, physical activity, and serum concentrations of vitamin C and cholesterol.

These results would support recommendations to replace dietary saturated fats with omega-6 polyunsaturated fats from vegetable oils, nuts, and seeds, say the authors. We don't yet know how the balance of fats in the diet influences the balance of fatty acids in the blood, however. Fatty acid metabolism is important too.

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