

SHORT CUTS

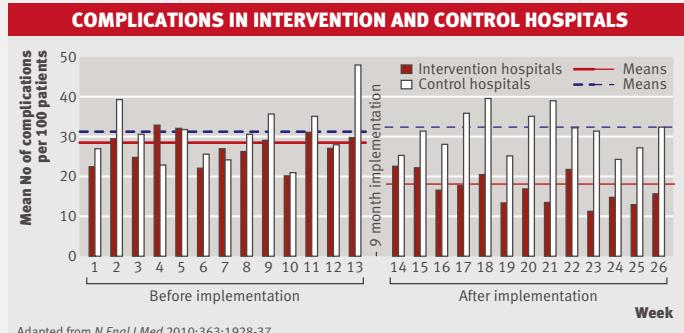
ALL YOU NEED TO READ IN THE OTHER GENERAL JOURNALS

Alison Tonks, associate editor, *BMJ* atonks@bmj.com

Surgical checklists prevent complications, save lives

When six academic hospitals in the Netherlands introduced a comprehensive system of checklists for surgical patients, complication rates fell from 27.3 per 100 patients (95% CI 25.9 to 28.7) to 16.7 (15.6 to 17.9) in three months. Deaths in hospital fell from 1.5% (1.2 to 2.0) to 0.8% (0.6 to 1.1). Both changes were significant. Complications and deaths remained essentially the same in five control hospitals. Surgical checklists should be elevated from a good idea to gold standard, says an editorial (p 1963). This large controlled study makes a persuasive case that checklist procedures improve surgical safety and save lives.

It took staff nine months to implement the new system, which required nurses, anaesthetists, surgeons, and operating assistants to fill in a total of 11 checklists covering each patient's journey from admission, through surgery, to recovery, then discharge. All complications, including process errors such as a postponed procedure, were recorded, as before, on an established national register of adverse events. The checklists were associated with reductions in 11 of 12 categories of complications, including wound infections, dehiscence, cardiac and pulmonary problems, and urinary tract infections. Even factors more usually associated with surgical skill such as bleeding and anastomotic leaks were



Adapted from *N Engl J Med* 2010;363:1928-37

significantly less common in the three months after the new system was fully operational. It is not yet clear why—possibly surgeons had fewer interoperative distractions and interruptions after the changes.

Hospitals should make surgical checklists a priority now, says the editorial, while we wait for further studies exploring simpler systems. We also need longer studies to find out whether complication rates creep up again when staff become tired of ticking boxes.

N Engl J Med 2010;363:1928-37

Diuretics look best for preventing heart failure in adults with hypertension

Hypertension causes heart failure, and antihypertensive drugs help prevent it. Some work better than others, according to a network meta-analysis of 26 trials. Diuretics looked best at preventing heart failure, followed by angiotensin converting enzyme inhibitors and angiotensin receptor blockers. Firstline treatment with β blockers or α blockers looked no more effective than placebo in these analyses, whereas calcium channel blockers worked better than placebo, definitely worse than diuretics, and probably worse than inhibitors of the renin-angiotensin system.

The authors couldn't tell whether the differential effects on heart failure were linked to differential effects on blood pressure, but they think it unlikely. Patients with hypertension and a high risk of heart failure should probably start with diuretics or an inhibitor of the renin-angiotensin system, they write. More than 200 000 patients took part in these trials. Almost 4% (8554/223 313; 3.8%) developed heart failure during follow-up. The results were broadly comparable in men and women.

Heart failure is a neglected consequence of hypertension, and these findings should

help raise its profile, says a linked comment (doi:10.1001/archinternmed.2010.414). But doctors on the front line are also trying to prevent stroke, heart attack, and cardiovascular deaths while at the same time protecting quality of life. As usual, they must juggle with medical history, likely complications, other drug treatments, and patient preferences when deciding between first line agents for high blood pressure.

Arch Intern Med 2010; doi:10.1001/archinternmed.2010.427

Weekly texts could improve antiretroviral treatment for HIV

A simple text message reading "How are you?" in Kiswahili had a measurable impact on viral suppression in HIV infected adults in Kenya. In a recent trial, nurses or health officers sent the messages each Monday morning to adults who had recently started antiretroviral therapy. Participants were asked to send a single word reply—"Sawa," meaning I am fine, or "Shida," indicating a problem. Those with problems and those who did not reply were telephoned.

Adults who received weekly texts had significantly lower viral loads after one year than con-

trols (viral suppression to <400 copies/ml: 57% (156/273) v 48% (128/265); relative risk for virological failure: 0.84, 95% CI 0.71 to 0.99). They also took more of their tablets (relative risk for non-adherence 0.81, 0.69 to 0.94), although adherence was only better in primary, not secondary analyses. Participants were judged to be adherent if they reported taking at least 95% of their tablets in the previous month.

Most adults in Kenya have a mobile phone, or at least access to one. So this simple intervention could be scaled up relatively easily, says a linked comment (doi:10.1016/S0140-6736(10)62046-6). It would also be cheap at around \$8 (£5; €6) per patient each year. The authors estimate that a single nurse could manage 1000 patients and expect to call only 33 of them each week.

Lancet 2010; doi:10.1016/S0140-6736(10)61997-6

Lower cholesterol, lower risk

Researchers recently completed a forensic examination of 26 trials of statins in close to 170 000 adults. Powerful analyses confirmed that the risk of any major vascular event, including death, falls by about a fifth for every 1 mmol



**"They told us he had ITP,
His platelet count was very wee;
Doctor, I thought we'd nearly lost him,
But then they gave him romiplostim"**

Richard Lehman's journal blog at www.bmjjournals.org/blogs

reduction in low density lipoprotein (LDL) cholesterol (rate ratio 0.78, 95% CI 0.76 to 0.80). They also confirmed that intensive treatment drives down risk by 15% more than less intensive treatment (4.5% v 5.3%; 0.85, 0.82 to 0.89), and that the benefits extend to a wide range of patients with a wide range of baseline lipid profiles, including those with LDL concentrations less than 2 mmol/l. A fifth of all the participants had diabetes, half had heart disease, and 41% had no history of vascular disease. A quarter of the participants were women.

Statins reduced all cause mortality by 10% for each 1 mmol/l reduction in LDL cholesterol (0.90, 0.87 to 0.93), mostly by preventing deaths from coronary heart disease. Statins did not prevent deaths from stroke. The researchers found no evidence of a link with traumatic deaths or cancers. They weren't able to comment on risk of liver disease or myopathy, but a new trial published at the same time (and included in the pooled analyses) found that 80 mg of simvastatin caused significantly more myopathy than 20 mg in patients with a history of myocardial infarction (0.9% (53/6031) v 0.03% (2/6033)). The authors of that trial say there are safer ways to intensify statin therapy, including treatment with more potent agents such as rosuvastatin (doi:10.1016/S0140-6736(10)60310-8).

Lancet 2010; doi:10.1016/S0140-6736(10)61350-5

Hospitals should reconsider use of automatic defibrillators

Automatic external defibrillators can save lives when deployed in public places. A large study from the US suggests they are much less useful in hospitals. Patients resuscitated with an automatic device during a cardiac arrest were less likely to survive to hospital discharge than patients resuscitated without one (16.3% v 19.3%; adjusted rate ratio 0.85, 95% CI 0.78 to 0.92). Outcomes were even worse for patients with asystole or pulseless electrical activity (10.4% v 15.4%; 0.74, 0.65 to 0.83). The analysis included more than 11 000 cardiac arrests occurring on the general wards of 204 US hospitals. Automatic defibrillators were available in all of them.

The researchers used state of the art adjustments to minimise confounding. They are confident that the link between these devices and

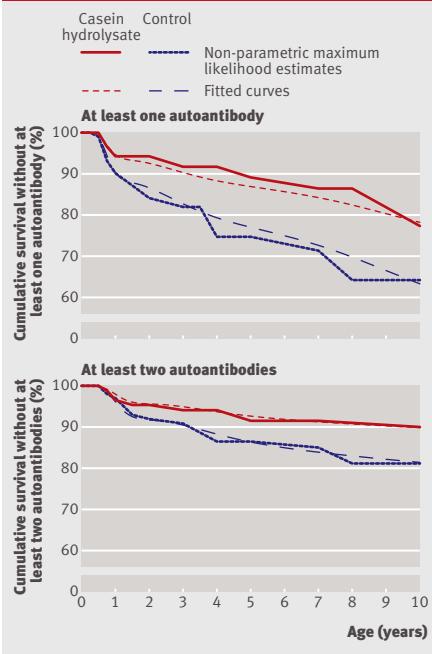
worse outcomes is real enough to take seriously. It is certainly plausible. Automatic devices take longer than manual ones to diagnose rhythm, and chest compressions must stop while they do it. Continuous chest compressions are a top priority in any arrest situation, says an editorial (p 2178). Long interruptions reduce the chance of a good outcome.

An increasing number of hospitals are installing automatic defibrillators in general wards and other areas in response to public and professional concern about poor survival rates from arrests in hospital, say the researchers. It is probably time to rethink that strategy. These devices may have unintended consequences, particularly for patients with unshockable rhythms, who accounted for four fifths of the patients in this analysis.

JAMA 2010;304:2129-36

Preliminary data link early diet with diabetic autoantibodies in children

CUMULATIVE INCIDENCE OF AUTOANTIBODIES



Adapted from *N Engl J Med* 2010;363:1900-8

Type 1 diabetes has genetic and environmental triggers. Could the complex foreign proteins in formula milk be one of them? In a preliminary trial, breastfed infants weaned on to conventional formula developed more autoantibodies

linked to diabetes than infants weaned on to an extensively hydrolysed formula based on casein. All 230 infants had a first degree relative with type 1 diabetes and a high risk HLA genotype. Researchers took blood for antibody testing repeatedly over 10 years. Infants given the hydrolysed formula were 49% less likely than controls to develop at least one autoantibody by the end of the trial (adjusted hazard ratio 0.51, 95% CI 0.28 to 0.91).

The results weren't clear cut, however, and an editorial warns that we will have to wait for this pilot's bigger sister before jumping to conclusions (p 1961). Researchers have already recruited more than 2000 children from 15 countries to look for incident diabetes rather than antibodies linked to diabetes. But it will take until 2017 for full follow-up. In the meantime, these new data add to other circumstantial evidence that early diet can influence risk of type 1 diabetes, at least in babies with a genetic predisposition.

N Engl J Med 2010;363:1900-8

Fish oil fails to prevent recurrence of atrial fibrillation

There are good physiological reasons why fish oils might help suppress atrial fibrillation, although a clinical effect has been hard to prove in randomised trials. Even 4 g a day of omega 3 fatty acids did not reduce recurrent fibrillation or flutter in the latest trial. This high dose worked no better than placebo for adults with recent paroxysmal atrial fibrillation (52% (135/258) v 48% (129/269); hazard ratio 1.15, 95% CI 0.9 to 1.46) or a smaller number with a recent history of persistent atrial fibrillation who were in sinus rhythm after treatment (1.64, 0.92 to 2.92, favouring placebo).

The participants were relatively young and fit, with no evidence of structural heart disease. Just under half (45%; 298/663) were taking statins, and 39% (259/663) were taking inhibitors of the renin-angiotensin system. Only 13% (83/663) took antiarrhythmic drugs during the six month trial.

The authors were a little overoptimistic in their sample size calculation so their trial was weaker than planned. An effect is still possible, they write, although it looks unlikely.

JAMA 2010; doi:10.1001/jama.2010.1735

Cite this as: *BMJ* 2010;341:c6530