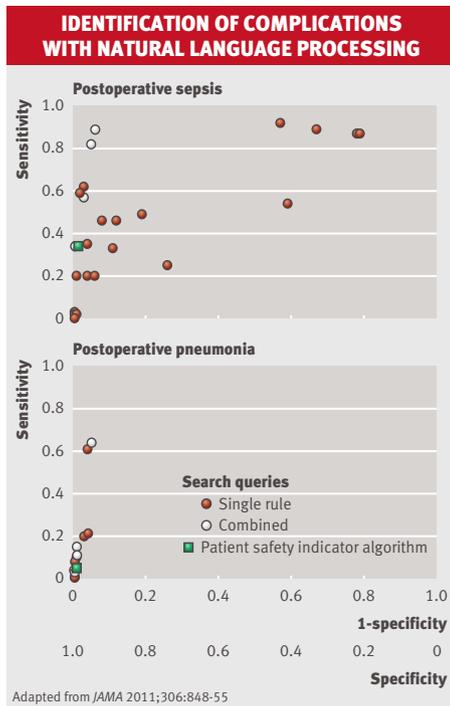


# SHORT CUTS

ALL YOU NEED TO READ IN THE OTHER GENERAL JOURNALS

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## Free-text analysis improves detection of postoperative complications



Searches of electronic medical records to detect postoperative complications usually rely on specific administrative data codes assigned at discharge from hospital. On the basis of such codes, 20 “patient safety indicators” have been developed for screening for adverse events. However, free-text searches of narrative clinical notes might complement or even surpass use of patient safety indicators.

To test this, a study used data for nearly 3000 patients who underwent surgery in six US medical centres. Trained nurses reviewed all complications in the 30 days after surgery. The researchers then compared the accuracy of detecting postoperative complications with patient safety indicators against that with a natural language processing approach that analysed free text in discharge summaries, progress and operative notes, microbiology reports, imaging reports, and outpatient visit notes.

Overall, natural language processing showed twofold to 12-fold better sensitivities than safety indicators, which in turn showed 4% to 7% higher specificities. Natural lan-

guage processing correctly identified 82% (95% CI 67% to 91%) of cases of acute renal failure, versus 38% (25% to 54%) with patient safety indicators, and also proved better at identifying cases of venous thromboembolism (59% (44% to 72%) v 46% (32% to 60%)), pneumonia (64% (58% to 70%) v 5% (3% to 9%)), sepsis (89% (78% to 94%) v 34% (24% to 47%)), and postoperative myocardial infarction (91% (78% to 97%) v 89% (74% to 96%)).

One of the advantages of the natural language processing approach is the possibility of real-time quality assurance, say the authors. This assumes prospective monitoring and identification of complications while a patient is still in the hospital.

*JAMA* 2011;306:848-55

## Modern cigarettes linked with more bladder cancer

We’ve long known that smoking is the most important modifiable risk factor for bladder cancer. A new study quantifies the excess risks in contemporary populations. Nearly half a million US citizens in the National Institutes of Health Diet and Health Study cohort reported their smoking habits and were then followed up over 11 years. During that period new bladder cancer was recorded in about 4500 participants.

Compared with people who had never smoked, those who had reported smoking regularly had a fourfold increased risk of bladder cancer, with a number needed to harm of 727. The risk was doubled in former smokers compared with never smokers; for every 1250 former smokers, one extra bladder cancer was diagnosed.

About half of all bladder cancers could be avoided among both men and women if everyone stopped smoking. This contrasts with earlier studies, where the population attributable risk of bladder cancer for tobacco smoking was estimated at 50% to 65% in men and 20% to 30% in women. As these studies had found weaker associations between smoking and bladder cancer, the researchers hypothesise that changes in cigarette design may account for the differences. Modern cigarettes contain less nicotine and tar, but are richer in some known bladder carcinogens, such as  $\beta$ -naphthylamine. Better detection efforts

among smokers could also explain the stronger association.

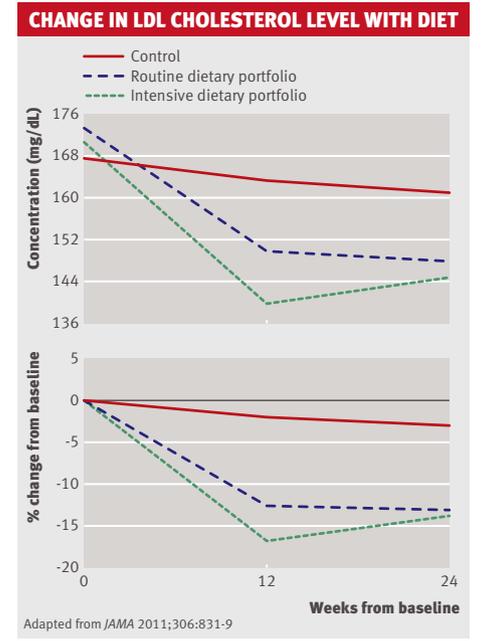
The US Preventive Services Task Force recently reviewed the evidence on screening for bladder cancer in asymptomatic adults (*Ann Intern Med* 2011;155:246-51). The evidence was deemed insufficient to assess the balance of benefits and harms.

*JAMA* 2011;306:737-45

## How to improve blood lipid profiles through diet

A portfolio of diets rich in plant sterols, fibres, soy, and nuts lowered blood cholesterol levels more than a healthy dietary pattern that included low fat dairy products, whole grain cereals, and plenty of fruits and vegetables. This was found in a trial involving 351 people with high blood lipids. The method of delivering the dietary portfolio was tested in two separate arms, which included two or seven visits to the clinic over six months. All diets were vegetarian and aimed at maintaining weight. Still, participants in all three arms dropped weight, by an average of about 1.5 kg over the six months of the study.

Compared with the control dietary pattern, both methods of delivering the dietary portfolio led to greater improvements in low density lipoprotein (LDL) cholesterol levels and in the





**“The idea of having to lie there helplessly and listen to several hours of surgical banter is enough to put anyone off ever having an operation”**

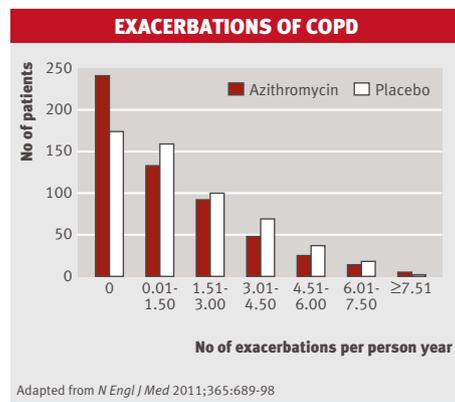
Read Richard Lehman's journal blog at [bmj.com/blogs](http://bmj.com/blogs)

ratio of total cholesterol to high density lipoprotein cholesterol. The more intensive intervention lowered systolic blood pressure by 2.6 mm Hg more than the control diet and diastolic pressure by 2.1 mm Hg, but only the latter difference reached statistical significance. Both interventions conferred about 11% benefit in the 10 year Framingham cardiovascular risk score, compared with the control diet.

The reductions in cholesterol seen with the dietary portfolio interventions, which emphasised foods recognised by the US Food and Drug Administration as beneficial for heart health, are about half of those observed in early statin trials, which reduced mortality from coronary heart disease by some 20%.

*JAMA* 2011;306:831-9

## Long term azithromycin reduces exacerbations of COPD



Meta-analyses of earlier studies did not support long term use of antibiotics to prevent acute exacerbations of chronic obstructive pulmonary disease (COPD), but newer macrolides may work better due to their immunomodulatory and anti-inflammatory effects. A trial showed that, compared with placebo, azithromycin increased the time from baseline to the first exacerbation of COPD, and improved quality of life.

Over one year, 570 participants took 250 mg a day of azithromycin and 572 took placebo, in addition to usual care. The median time from baseline to the first exacerbation was 174 days (95% CI 143 to 215) with placebo and 266 days (227 to 313) with azithromycin.

Fewer exacerbations occurred with azithromycin than with placebo (1.48 per patient year v 1.83). More participants receiving azithromycin achieved a clinically meaningful improvement in quality of life as measured by the St George's respiratory questionnaire (43% v 36% with placebo).

Harms need to be considered too. Hearing worsened in 142 (25%) of the participants allocated to azithromycin, compared with 110 (20%) of those taking placebo. Population impact on antibiotic resistance remains unknown, but newly found colonisation of the nasopharynx with bacteria resistant to macrolides was twice as common in the azithromycin group as the placebo group (81% v 41%). *N Engl J Med* 2011;365:689-98

## Pegloticase shows promise for people with severe refractory gout

Allopurinol doesn't help about 3% of people with severe gout because of its poor tolerability, failure to reduce plasma levels of uric acid below the limit of solubility, or contraindications. For these patients, a new drug may improve matters. Pegloticase mimics a uricase enzyme that occurs naturally in non-primate mammals, and which converts uric acid in the blood into its soluble metabolite allantoin. The enzyme is inactive in humans and other primates because of a mutation.

Two randomised, placebo controlled trials tested pegloticase for reducing plasma levels of uric acid below a target threshold of 6.0 mg/dL (350 µmol/L) in patients with severe gout. In both trials, two drug regimens were tested—biweekly or monthly intravenous infusions of pegloticase. None of the participants receiving placebo achieved the target concentration at six months. In one trial, the biweekly regimen was more effective, with 20/43 (47%) of participants reaching the target, compared with 8/41 (20%) of those receiving monthly infusions. In the other trial, however, the monthly regimen was better: 16/42 (38%) achieved the target concentration with the biweekly regimen, compared with 21/43 (49%) with the monthly regimen. Improvements in secondary outcomes were also seen, such as better resolution of tophi, fewer flares, and improved quality of life.

Pegloticase was stopped, because of reactions related to perfusion, in one in 10 participants allocated to either intervention regimen. Five anaphylactic reactions were seen, two in each intervention arm and one in the placebo arm. Seven people died during the study, of whom four had received pegloticase and three placebo.

*JAMA* 2011;306:711-20

## Early plasma exchange helps in *E coli* haemolytic uraemic syndrome

During a recent outbreak of infection with *Escherichia coli* releasing Shiga toxin, four women and one man with diarrhoea associated haemolytic-uraemic syndrome were treated in one centre in Denmark. Aside from enteritis, bloody diarrhoea, acute haemolytic anaemia, thrombocytopenia, and acute kidney injury, the symptoms included drowsiness, stupor, tremor, ataxia, and diffuse dysfunction of the central nervous system. Patients were between 44 and 70 years old.

All patients received plasma exchange immediately after the diagnosis was made, which was quickly followed by rises in platelet counts and glomerular filtration rates, decreases in concentrations of lactate dehydrogenase (an indicator of haemolysis, systemic ischaemia, microvascular occlusion, and consecutive tissue injury), and improvements in neurological status.

The earlier that plasma exchange was given after the onset of bloody diarrhoea, the quicker patients recovered. After three to six exchanges of one plasma volume per day, by centrifugation and substitution with fresh frozen plasma, all patients were discharged with a normal neurological status.

Shiga toxin leads to excessive activation of the complement system and this adds to vascular damage. Thus eculizumab, a drug that blocks the complement system, could have also been considered as an adjuvant treatment (see linked commentary doi:10.1016/S0140-6736(11)61217-8). A paper published earlier this year suggested a combination of plasmapheresis and eculizumab helped treat three young children with *E coli* haemolytic-uraemic syndrome.

*Lancet* 2011 doi:10.1016/S0140-6736(11)61145-8

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