

Anaesthetic care in UK is consultant delivered and very safe

The Royal College of Anaesthetists and the Association of Anaesthetists of Great Britain and Ireland have completed a comprehensive survey of UK anaesthetic activity (Sury et al, 2014), which forms part of the 5th National Audit Project (NAP5). NAP5 studies accidental awareness during anaesthesia.

The study is the most detailed and complete survey ever performed of a nation's anaesthetic activity. With a 98% return rate and data from all UK NHS hospitals it captures detailed information on anaesthesia for 20 400 cases, and provides a wealth of infor-

mation about current anaesthetic processes and techniques.

The survey demonstrates that anaesthetists are responsible for the care of more than 3.5 million patients per year. This means that in a given year 1 in 20 of the population will require an anaesthetic.

The study reveals that three quarters of patients undergo general anaesthesia while the other quarter have their procedure either awake or sedated. Almost a quarter of procedures are emergencies.

Senior doctors were present for 87% of all anaesthetics and for three quarters of those administered out of hours. In

patients requiring immediate surgery, the study identified areas where delivery of anaesthesia by senior staff could be further improved.

The 15 460 survey returns after general anaesthesia recorded just nine deaths while the patient was under the care

of the anaesthetist – a mortality rate of 0.06% or 1 in 1700. Most of the patients who died were elderly, infirm and undergoing emergency surgery.

Lead author Dr Mike Sury, Consultant Anaesthetist at Great Ormond Street Hospital, London, stated: 'The findings contrast interestingly with other studies that have looked at mortality after surgery throughout a hospital stay, such as the European Surgical Outcomes Trial (EuSOS) which reported a 3.6% (1 in 28) mortality. The current survey covers a broader group of patients, but for a shorter period of time, and the mortality is notably lower.'

Dr Mike Sury, Consultant Anaesthetist, Great Ormond Street Hospital, London



Sury MRJ, Palmer JHMG, Cook TM, Pandit JJ (2014) The State of UK anaesthesia: a survey of National Health Service activity in 2013. *Br J Anaesth* (doi: 10.1093/bja/aeu292)

Counselling of limited benefit for young people misusing alcohol

A systematic review (Foxcroft et al, 2014) found that motivational interviewing did not substantially reduce drinking or alter alcohol-related behaviour in young people.

The researchers reviewed evidence from 66 trials involving a total of 17 901 young people aged 25 years and under. Many of the studies recruited young people who were at high risk of alcohol-related problems.

In 49 trials, those involved attended one individual session. In the others, they attended group sessions or a mixture of group and individual sessions.

Four months later, participants who underwent counselling had only slightly reduced the amount they drank and how often they drank compared with people who were untreated.

On average participants who had counselling had about 1 and a half fewer drinks per week than those who had no counselling (12.2 drinks *vs* 13.7). The effect of counselling on the number of drinking days was also very small: 2.57 days per week compared to 2.74 in untreated people.

Participants slightly reduced their maximum blood alcohol levels from 0.144% to 0.129%, but average blood alcohol levels did not change.

Motivational interviewing had no effect on alcohol-related problems, binge drinking, drink-driving and other risky behaviours related to alcohol.

Foxcroft DR, Coombes L, Wood S, Allen D, Almeida Santimano NML (2014) Motivational interviewing for alcohol misuse in young adults. *Cochrane Database Syst Rev* 8: CD007025 (doi: 10.1002/14651858.CD007025.pub2)

Progress in the fight against *Candida glabrata* infections

An international study has researched new tolerance and virulence genes in *Candida glabrata* (Schwarzmueller et al, 2014). Genetic methods were used to generate one of the world's largest libraries of 'knock-out fungi'. More than 600 fungus mutations were created from which a single gene was specifically removed.

Molecular analysis of the *C. glabrata* fungus mutations revealed 28 new genes that confer anti-fungal tolerance, especially to the popular drug caspofungin.

The study, in which coordinators from the Max F. Perutz Laboratories in Vienna collaborated with groups from

the Johns Hopkins University, the Institut Pasteur in Paris, the Fraunhofer Institute in Stuttgart, Imperial College in London and the Genomics Institute in Barcelona, also identified new intracellular stress sensors and signal transmitters in *C. glabrata*.

Removing these characteristics genetically leads to marked sensitivity to all of the anti-fungal medications currently used in clinical practice, including caspofungin.

Schwarzmueller T, Ma B, Hiller E et al (2014) Systematic phenotyping of a large-scale *Candida glabrata* deletion collection reveals novel antifungal tolerance genes. *PLoS Pathogens* 10: e1004211 (doi: 10.1371/journal.ppat.1004211)

Breech babies have higher risk of death following vaginal birth than caesarean

While a rise in caesarean section delivery rates as a result of breech presentation has improved neonatal outcome, 40% of term breech deliveries in the Netherlands are planned vaginal deliveries.

According to a new Dutch study (Vlemmix et al, 2014), there is a 10-fold increase in fetal mortality in vaginal delivery for breech presentation compared to elective caesarean section.

For this retrospective study, researchers studied 58 320 women who had term breech deliveries at hospitals in the Netherlands. The group included singleton term breech babies delivered between 37 and 42 weeks, but excluded infants who had any birth defects or stillbirths. Researchers used

data from the Dutch national perinatal registry from 1999 to 2007, which includes 96% of all births in the Netherlands.

Elective caesarean section rates increased from 24% to 60%, resulting in a decrease of infant mortality from 1.3/1000 to 0.7/1000. Perinatal mortality remained the same in the group of planned vaginal deliveries. Researchers determined that there needed to be 338 caesareans to prevent one perinatal death. Further analysis could not identify pregnancy-related factors that placed women at low *vs* high risk of poor neonatal outcome during vaginal breech birth.

'While elective caesarean section has improved neonatal outcomes there is still a good number of women who

attempt vaginal birth,' concluded Dr Floortje Vlemmix from the Department of Obstetrics and Gynecology, Academic Medical Center, University of Amsterdam in the Netherlands. 'Our findings suggest there is still room for improvement to prevent unnecessary risk to the infant. We recommend using measures to turn the baby (external cephalic version) to prevent breech presentation at birth and counselling women who want to proceed with a vaginal breech birth.'

Vlemmix F, Bergenhenegouwen L, Schaaf JM et al (2014) Term breech deliveries in the Netherlands: did the increased cesarean rate affect neonatal outcome? A population-based cohort study. *Acta Obstet Gynecol Scand* **93**: 888–96 (doi: 10.1111/aogs.12449)

New atypical antipsychotic for adults with schizophrenia

Lurasidone (Latuda), a new once-daily oral treatment, is now available in the UK for the treatment of schizophrenia in adults. Lurasidone was effective in adult patients with schizophrenia, with negligible effects on weight and minimal effects on cardiometabolic parameters, such as glucose and cholesterol.

Monoclonal antibody licensed to treat ulcerative colitis and Crohn's disease

Vedolizumab (Entyvio) has been licensed as a new treatment for moderately to severely active ulcerative colitis and Crohn's disease. Vedolizumab is a humanised monoclonal antibody with a novel mode of action that enables an gut-selective anti-inflammatory effect.

Low levels of vitamin D linked to higher risk of dementia

A British study (pii: 10.1212/WNL.0000000000000755) of 1658 patients has found that those with low levels of vitamin D in the blood were 53% more likely to develop any form of dementia and those with severe vitamin D deficiencies were at 125% greater risk.

High-intensity exercise is safe and effective in long-term heart transplant patients

High-intensity exercise can help stable heart transplant patients reach higher levels of exercise capacity, and gain better control of their blood pressure than moderate intensity exercise, investigators report (Dall et al, 2014).

Researchers from Bispebjerg Hospital, University of Copenhagen, Denmark, investigated whether people who have received a new heart gain similar benefits from high-intensity interval training, or whether they should exercise at moderate intensity as currently recommended.

The team compared the effects of 12 weeks of high-intensity interval training *vs*

continued moderate training in 16 stable heart transplant recipients who had lived with their new heart for over 1 year.

The trial revealed that high-intensity interval training is safe in heart transplant patients. VO₂ max, or maximal oxygen uptake, increased by 17% in patients performing high-intensity interval training compared with 10% in patients performing continued moderate training.

Systolic blood pressure decreased significantly in patients in the high intensity group, but remained unchanged in patients in the moderate intensity group. Peak heart rate also increased

in the high intensity group but not in the moderate intensity group. Heart rate recovery improved in both groups.

Lead researcher Christian Dall commented: '...This new study documents that stable heart transplant recipients benefit from this type of training more than from the moderate training that has been recommended so far. Importantly, the training is also safe and well received by patients.'

Dall CH, Snoer M, Christensen S et al (2014) Effect of high-intensity training versus moderate training on peak oxygen uptake and chronotropic response in heart transplant recipients: a randomized crossover trial. *Am J Transplant* (doi: 10.1111/ajt.12873)

One in six patients with systemic lupus erythematosus is readmitted to hospital within 30 days of discharge

A new study reveals that one in six patients with systemic lupus erythematosus is readmitted to the hospital within 30 days of being discharged (Yazdany et al, 2014). Up to 25% of systemic lupus erythematosus

Dr Jinoos Yazdany, Associate Professor of Medicine, Division of Rheumatology, University of California, San Francisco



patients require treatment in the hospital each year, accounting for more than 140 000 hospitalizations in the USA.

Researchers examined 55 936 hospitalizations using hospital discharge databases that included roughly 85% of American hospitals. The team analysed data from 31 903 lupus patients readmitted between 2008 and 2009 from five states – California, Florida, New York, Utah and Washington. Analyses included systemic lupus erythematosus patients 18 years of age or older who were readmitted to the hospital and excluded hospital transfers, discharges to nursing or rehabilitation facilities, maternity-related admissions or patients who died.

There were 9244 (17%) readmissions into the hospital

within 30 days of discharge, involving 4916 individual patients with systemic lupus erythematosus.

Clinical features most associated with readmission included patients with lupus nephritis, serositis and thrombocytopenia. Age was inversely related to readmission, suggesting that severe organ involvement in younger patients with systemic lupus erythematosus may be partly to blame.

Further analyses show risk-adjusted readmission rates were lower in New York and higher in Florida, compared to California.

Hospitals with higher readmissions for systemic lupus

erythematosus did not have higher admissions for other chronic conditions such as heart failure or pneumonia, which the authors believe is condition-specific to systemic lupus erythematosus readmissions and warrants further study.

Dr Yazdany concluded: 'The significant geographic and hospital-level variation in readmission rates signals a need for quality improvement efforts in lupus.'

Yazdany J, Marafino BJ, Dean ML, Bardach NS, Duseja R, Ward MM, Adams Dudley R (2014) Thirty-day hospital readmissions in systemic lupus erythematosus: Predictors and hospital and state-level variation. *Arthritis Rheumatol* (doi: 10.1002/art.38768)

Mechanisms of hearing loss triggered by loud noise

Many people listen to loud music without realizing that this can affect their hearing. This could lead to difficulties in understanding speech during age-related hearing loss which affects up to half of people over the age of 65 years.

Research has examined the cellular mechanisms that underlie hearing loss and tinnitus triggered by exposure to loud sound, demonstrating that physical changes in myelin itself affect our ability to hear (Brown and Hamann, 2014).

The research has shown the closer links between a deficit in the myelin sheath surrounding the auditory nerve and hearing loss.

'This research is innovative because data modelling (sim-

ulations) was used on previous morphological data and assessed that physical changes to the myelin coat were the principal cause of the deficit,' commented Dr Martine Hamann, Lecturer in Neurosciences at the University of Leicester.

'We have come closer to understanding the reasons behind deficits in auditory perception. This means that we can also get closer to target those deficits, for example by promoting myelin repair after acoustic trauma or during age related hearing loss,' she said.

Brown AM, Hamann M (2014) Computational modeling of the effects of auditory nerve dysmyelination. *Front Neuroanat* 8: 73 (doi: 10.3389/fnana.2014.00073)

Robot-assisted prostate removal increasing in USA

A new study reveals that the USA has seen widespread adoption of robot-assisted prostate removal surgery to treat prostate cancer in recent years (Chang et al, 2014). While such surgeries are more expensive than traditional surgeries, their costs are decreasing over time.

The team analysed 489 369 men who underwent non-robotic-assisted (i.e. open or laparoscopic) radical prostatectomy or robotic-assisted radical prostatectomy to treat prostate cancer in the United States from 2003 to 2010.

During the study period, robotic-assisted radical prostatectomy adoption (defined as performing more than 50% of annual radical prostatectomies with the robotic approach) increased from 0.7% to 42% of surgeons

performing radical prostatectomies. Surgeons who performed at least 25 radical prostatectomies each year were more likely to adopt robotic-assisted radical prostatectomy.

Robotic-assisted radical prostatectomy was more costly, disproportionately contributing to the 40% increase in annual prostate cancer surgery expenditures; however, robotic-assisted radical prostatectomy costs generally decreased and plateaued at slightly over \$10 000 while non-robotic-assisted radical prostatectomy costs increased to nearly \$9000 by the end of the study.

Chang SL, Kibel AS, Brooks JD, Chung BI (2014) The impact of robotic surgery on the surgical management of prostate cancer in the USA. *BJU Int* (doi: 10.1111/bju.12850)

Socioeconomic status and gender associated with differences in cholesterol levels

A long-term lifestyle study has found that men in social classes (based on occupation) with manual jobs had lower cholesterol levels than their counterparts in non-manual social classes. In contrast, women's low-density lipoprotein cholesterol levels were more closely tied to their educational level than men.

Researchers from the University of Cambridge performed a cross-sectional study as part of the European Prospective into Cancer involving 22451 participants aged 39–79 years old from the Norfolk cohort in the UK. Each participant indicated what their alcohol consumption was and their body mass index was calculated.

Participants completed a survey that measured socioeconomic status using three factors: social class, education

level, and the level of deprivation in the area they lived.

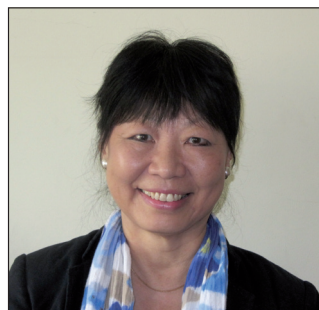
This is the first time that socioeconomic status has been looked at assessing these three factors independently. Blood samples were also taken to determine levels of total cholesterol, high-density lipoprotein cholesterol, triglycerides and low-density lipoprotein cholesterol.

Lead researcher Professor Kay-Tee Khaw said: 'We observed sex differences in the lipid patterns according to social class and education. The association of some adverse lipid parameters with social class and in particular, educational status in women was much stronger than for men. If we wish to reduce health inequalities we need to understand the reason for these health inequalities. Future studies need to

look at men and women separately and explore the reasons for these sex differences.'

Shohaimi S, Boekholdt MS, Luben R, Wareham N, Khaw KT (2014) Distribution of lipid parameters according to different socioeconomic indicators- The EPIC-Norfolk prospective population study. *BMC Public Health* 14: 782 (doi:10.1186/1471-2458-14-782)

Professor Kay-Tee Khaw, Professor of Clinical Gerontology, Cambridge Institute of Public Health, University of Cambridge, Cambridge



Previous pulmonary disease linked to increased risk of lung cancer

Links between a number of common respiratory diseases and an increased risk of developing lung cancer have been found in a pooled analysis of seven studies involving more than 25 000 individuals.

Data on previous chronic bronchitis, emphysema, tuberculosis, pneumonia or asthma were collected by self-report. Statistical analyses were adjusted for study centre, age, employment in an occupation with an excess risk of lung cancer, level of education and detailed smoking habits.

In analyses adjusting for other respiratory diseases and smoking, chronic bronchitis and emphysema were positively associated with lung cancer, with odds ratios among men of 1.33 (95% confidence interval 1.20–1.48) for bronchitis and 1.50 (95% confidence interval 1.21–1.87) for emphysema. A positive association was also found between pneumonia diagnosed two or fewer years prior and lung cancer (odds ratio=3.31; confidence interval 2.33–4.70 for men).

Asthma had an inverse association with lung cancer risk, and no association was found between tuberculosis and lung cancer.

Denholm R, Schüz J, Straif K et al (2014) Is previous respiratory disease a risk factor for lung cancer? *Am J Respir Crit Care Med* 190(5): 549–59 (doi: 10.1164/rccm.201402-0338OC)

Long-term effect of a hospital pay-for-performance programme on mortality in England

A pay-for-performance programme was introduced in all hospitals in north west England in 2008 and was associated with a short-term (18-month) reduction in mortality. Kristensen et al (2014) analysed the long-term effects of this programme.

The authors analysed 30-day in-hospital mortality among 1825 518 hospital admissions for eight conditions, three of which (heart attack, pneumonia and heart failure) were covered by the financial incentive programme. They studied 24 hospitals that were participating in the programme and 137 elsewhere in England.

Difference-in-differences regression analysis was used to

compare risk-adjusted mortality for 18 months before the programme with subsequent mortality in the short term (the first 18 months of the programme) and the longer term (the next 24 months).

Throughout the short and long term, the performance of hospitals in the incentive programme continued to improve and mortality for the three conditions covered by the programme continued to fall. However, the reduction in mortality among patients with these conditions was greater in hospitals not participating in the programme than in the hospitals that were participating (by 0.7 percentage points; 95% confidence interval 0.3–1.2).

By the end of the 42-month follow-up period, the reduced mortality in participating hospitals was no longer significant (-0.1 percentage points; 95% confidence interval -0.6–0.3).

Professor Matt Sutton, University of Manchester, who led the previous study, said: '... in the longer-term, although death rates in the north west continued to fall, the reductions for the conditions linked to the incentives were no longer larger than the national trend.'

Kristensen SR, Meacock R, Turner AJ, Boaden R, McDonald R, Roland M, Sutton M (2014) Long-term effect of hospital pay for performance on mortality in England. *N Engl J Med* 371(6): 540–8 (doi: 10.1056/NEJMoa1400962)