

Wearable tech could help older people manage diabetes

A mixed methods feasibility study has found that older people with diabetes, particularly those with memory problems, would benefit from using wearable glucose monitors (<https://doi.org/10.1136/bmjopen-2019-032037>).

The devices help people with diabetes manage their condition by reducing the need for finger-prick blood tests. But while these devices have been approved by the NHS, mainly for younger adults, they are not universally available. Qualitative interviews found that the device did not interfere with daily activities, usability and comfort was positive, and it was helpful for carers in monitoring participants' glucose concentrations.

Up to one in five patients treated for idiopathic normal pressure hydrocephalus also develop Alzheimer's disease

Up to one in five patients treated for idiopathic normal pressure hydrocephalus also develop Alzheimer's disease, according to a new study from researchers in Finland and Sweden (<https://doi.org/10.3233/JAD-190334>).

The study followed patients with idiopathic normal pressure hydrocephalus after they had been treated with shunt surgery.

During follow up, the researchers found that up to one in five patients with normal pressure hydrocephalus were later diagnosed with Alzheimer's disease. At the end of the follow-up (median 5.3 years), patients with normal pressure hydrocephalus were more frequently diagnosed with Alzheimer's disease than the general population.

The researchers were able to predict the development of Alzheimer's disease by using the Disease State Index. This combines patient-specific data including the patient's pre-surgery symptom profile, brain tissue samples and brain magnetic resonance images.

Six months paid leave for palliative carers could produce long-term economic benefits

A study evaluating carer support in the UK and five other countries has emphasized the potential long-term benefits of secure, paid leave for palliative carers (<https://doi.org/10.1177/2F0269216319861925>).

The researchers surveyed palliative care experts from the UK, Australia, New Zealand, Ireland, Canada and the United States. Financial support, benefits and welfare for individuals providing end of life care to a family member were compared both within and between each country.

Although all six nations provided some form of financial aid to family carers, the extent of this support was found to vary, often with complex eligibility criteria and inconsistent access, even within countries.

Access to support could also depend on the diagnosis of the affected family member; the study found that individuals caring for relatives with terminal cancer were more likely to receive benefits than those caring for family members with other conditions. In the UK, carers were usually obliged to leave paid



Dr Clare Gardiner, Senior Research Fellow, The School of Nursing & Midwifery, University of Sheffield, Sheffield

employment entirely in order to receive any benefits, while leave lengths and pay varied enormously. An estimated 500 000 people act as the primary carer of a family member approaching the end of life each year in the UK alone, saving the NHS approximately £132 billion in care costs.

Dr Clare Gardiner, Senior Research Fellow, The School of Nursing & Midwifery, University of Sheffield, Sheffield and senior author of the study, recommends the more centralised system of carer support found in Canada.

This entitles carers to 6 months leave on a reduced salary, with a guaranteed job to return to, ensuring that home care remains a feasible option for family members.

'In the long run [this approach] provides huge economic benefits as people are more likely to remain in work, or return to work after caring,' explains Dr Gardiner. 'It's not just about providing welfare, it's about recognising the valuable service family caregivers contribute to our society.'

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Stress-related disorders associated with subsequent risk of life-threatening infections

A population and sibling matched cohort study was carried out in Sweden to assess whether severe psychiatric reactions to trauma and other adversities are associated with subsequent risk of life-threatening infections (<https://doi.org/10.1136/bmj.l5784>).

A total of 144 919 individuals with stress-related disorders (post-traumatic stress disorder, acute stress reaction, adjustment disorder, and other stress reactions) were compared with 184 612 siblings and 1 449 190 matched individuals from the general population.

The main outcome measure was a primary diagnosis of severe infections with high mortality rates (i.e. sepsis, endocarditis, and meningitis or other CNS infection), and deaths from these infections or infections of any origin.

The average age at diagnosis of a stress-related disorder was 37 years. During a mean follow up of 8 years, the incidence of life-threatening infections per 1000 person years was 2.9 in individuals with a stress-related disorder, 1.7 in siblings without a diagnosis, and 1.3 in matched individuals.

Stress-related disorders were associated with all studied life-threatening infections, with the highest relative risk for meningitis and endocarditis. Younger age at diagnosis of a stress-related disorder and the presence of psychiatric comorbidity, especially substance use disorders, were associated with higher hazard ratios.

The authors concluded that stress-related disorders were associated with a subsequent risk of life-threatening infections.

Taking statins may protect men from fatal forms of prostate cancer

Research indicates that men who take statins may be less likely to develop aggressive forms of prostate cancer.

Usually prescribed to lower blood cholesterol, statins can produce a number of additional health benefits. As well as reducing the risk of heart attacks, strokes and heart disease, previous studies have indicated that statins play a role in slowing the growth of various types of cancers.

Dr Emma Allott of the Centre for Cancer Research and Cell Biology, Queen's University Belfast, worked alongside colleagues from Northern Ireland, the Republic of Ireland and the United States of America to analyse data from over 44 000 men participating in the Health Professionals Follow-up Study (<https://doi.org/10.1158/1078-0432.CCR-19-2853>).

Although the overall rates of prostate cancer development were not affected, regular statin



Dr Emma Allott, Centre for Cancer Research and Cell Biology, Queen's University Belfast, Belfast

use appeared to reduce the risk of terminal prostate cancer by 24% over 24 years.

'Some prostate cancers are slow growing and will not affect the man over the course of his lifetime, but others are aggressive and often deadly,' explained Dr Allott. 'We were able to see that statin use may affect inflammation and immunity levels in the prostates of some men, as well as having an effect on the characteristics of the tumour itself.'

Although these findings are still in their early stages, the researchers were able to identify a link between individuals with mutations in the protein phosphatase and tensin homolog (PTEN) and the anti-cancer effects of the statin. This has useful implications for future clinical trials exploring statins as a potential preventative medication for prostate cancer.

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Gluten-free diets do not benefit people who do not have clinical gluten sensitivity

Healthy people who avoid gluten by choice may not get any benefit from this dietary restriction, according to new research (Croall et al, 2019). Participants who took part in a randomized control trial did not report any stomach problems associated with gluten consumption, compared to a gluten-free control group.

Healthy volunteers who did not have a clinical diagnosis of coeliac disease or gluten sensitivity were asked to adopt a gluten-free diet in the 2 weeks preceding the start of the trial in order to establish baseline scores for stomach complaints such as abdominal pain, constipation, diarrhoea and reflux.

The volunteers were then randomized into two groups, receiving either organic gluten or gluten-free blend in the form of flour sachets to add to their diet twice daily for 2 weeks while otherwise continuing their gluten-free diet. The test group who took gluten did not report any

ill effects compared to the control group.

Professor David Sanders, Honorary Professor of Gastroenterology at the University of Sheffield and Consultant Gastroenterologist at Sheffield Teaching Hospitals NHS Foundation Trust, said: 'The results of the paper show that "going gluten-free" may not have any health benefits for many of those who avoid it in their diet on the belief that gluten is intrinsically "bad" for the human gut. Gluten does not cause stomach problems in individuals who don't have a physiological susceptibility to it.'

On the basis of these data, the authors suggest that the assertion that a gluten-free diet is beneficial can also be challenged.

Croall ID, Azi, I, Trott N, Tosi P, Hoggard N, Sanders DS. Gluten does not induce gastrointestinal symptoms in healthy volunteers: a double-blind randomized placebo trial. *Gastroenterology* 2019. <https://doi.org/10.1053/j.gastro.2019.05.015>

Guidelines to help make awake tracheal intubation safer

New guidelines from the Difficult Airway Society aim to encourage more anaesthetists to manage a patient's airway before he/she has been anaesthetised (<https://doi.org/10.1111/anae.14904>). Awake tracheal intubation is low risk and avoids the consequences of difficult airway management in an anaesthetised patient.

Supporting older people to live healthier for longer

A report from the British Geriatrics Society (<https://www.bgs.org.uk/sites/default/files/content/resources/files/2019-11-04/BGS%20Healthier%20for%20Longer.pdf>) examines how messages of prevention and healthy ageing apply to an older population group that may already be ill and frail, and to the health-care professionals who care for them.

Depth of anaesthesia for major surgery not linked to risk of complications

An international randomized controlled trial compared all-cause 1-year mortality in older patients having major surgery under light or deep general anaesthesia ([https://doi.org/10.1016/S0140-6736\(19\)32315-3](https://doi.org/10.1016/S0140-6736(19)32315-3)). Among patients at increased risk of complications, light general anaesthesia was not associated with lower 1-year mortality than deep general anaesthesia.

Probiotics did not improve gastrointestinal symptoms in patients with systemic sclerosis but may alter immune parameters

As changes in the intestinal microbiota have been associated with the pathogenesis of systemic sclerosis and probiotics act by modulating the microbiome and the immune response, a study evaluated the efficacy of probiotics on gastrointestinal symptoms and immune responses in patients with systemic sclerosis (<https://doi.org/10.1093/rheumatology/kez160>).

A total of 73 patients were randomized to receive probiotics (*Lactobacillus paracasei*, *L. rhamnosus*, *L. acidophilus* and *Bifidobacterium lactis*; $n = 37$) or placebo ($n = 36$). After 8 weeks, there was no difference in gastrointestinal symptoms between the groups; the probiotic group had a significant decrease in the proportion of Th17 cells vs placebo ($P = 0.003$), but no difference in the proportion of Th1, Th2 and regulatory T cells.

While probiotics did not improve gastrointestinal symptoms in these patients, the reduced Th17 cell levels suggest an immunomodulatory effect of probiotics on systemic sclerosis.

Guideline emphasizes treatment of drug-resistant tuberculosis with all-oral regimens

The American Thoracic Society, Centers for Disease Control and Prevention, European Respiratory Society and the Infectious Diseases Society of America have published an official clinical guideline on the treatment of drug-resistant tuberculosis (Nahid et al, 2019).

The guideline makes new recommendations for the choice and number of drugs, as well as the duration of treatment for drug-resistant tuberculosis. These recommendations prioritize the use of medications that can be administered orally.

The guideline makes clear that treatment should be tailored based on drug-susceptibility testing, and that individuals should not receive medicines to which the *Mycobacterium tuberculosis* strain is resistant.

The guideline includes two other new recommendations. It recommends that all infected contacts of patients with multidrug-resistant tuberculosis are treated with a later-generation fluoroquinolone, rather than undergoing watchful observation, and for the first time it provides evidence-based guidance for the treatment of pregnant women



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with multidrug-resistant tuberculosis.

‘The individual patient data level analyses conducted by investigators at McGill University were essential to the development of our recommendations, representing a substantial analytic advance over prior approaches that relied on aggregate data,’ said Dr Barbara Seaworth, guideline committee co-chair and medical director of the Heartland National TB Center, at the University of Texas Health Science Center at Tyler, Texas, USA.

She emphasized, however, that: ‘the certainty in the evidence for observational studies is lower than for clinical trials, and much greater investment is urgently needed to allow the tuberculosis research community to conduct high-quality randomized, interventional tuberculosis clinical trials that will define safe and effective all-oral regimens for treatment of all patients with drug-resistant tuberculosis.’

Nahid P, Mase SR, Migliori GB et al. Treatment of Drug-Resistant Tuberculosis. An Official ATS/CDC/ERS/IDSA Clinical Practice Guideline. *Am J Respir Crit Care Med.* 2019 Nov 15;200(10):e93-e142. <https://doi.org/10.1164/rccm.201909-1874ST>

Gastric bypass more effective in inducing remission of diabetes and on β -cell function in patients with type 2 diabetes than sleeve gastrectomy

A single-centre, triple-blind, randomized trial was carried out at Vestfold Hospital Trust, Tønsberg, Norway, to compare the effects of the two most common bariatric procedures – gastric bypass and sleeve gastrectomy – on remission of diabetes and β -cell function ([https://doi.org/10.1016/S2213-8587\(19\)30344-4](https://doi.org/10.1016/S2213-8587(19)30344-4)). Patients (aged ≥ 18 years) with type 2 diabetes and obesity were randomly assigned to receive gastric bypass or sleeve gastrectomy.

The primary clinical outcome was the proportion of participants with complete remission of type 2 diabetes 1 year after

surgery. The primary physiological outcome was disposition index (a measure of β -cell function) 1 year after surgery, as assessed by an intravenous glucose tolerance test.

Between 2012 and 2017, 1305 patients who were preparing for bariatric surgery were screened, of whom 319 consecutive patients with type 2 diabetes were assessed for eligibility. Of these, 109 were enrolled and randomly assigned to gastric bypass ($n=54$) or sleeve gastrectomy ($n=55$), and 107 (98%) completed 1-year follow up. In the intention-to-treat population, diabetes

remission rates were higher in the gastric bypass group than in the sleeve gastrectomy group and the disposition index increased in both groups; results were similar in the per-protocol population.

Gastric bypass was superior to sleeve gastrectomy for remission of type 2 diabetes 1 year after surgery, and the two procedures had a similar beneficial effect on β -cell function. The use of gastric bypass as the preferred bariatric procedure for patients with obesity and type 2 diabetes could improve diabetes care and reduce related societal costs.

Research highlights possibility that smoking cessation interventions should be gender specific

A Canadian study, presented at the 2019 Canadian Cardiovascular Conference, revealed that women are significantly less likely to benefit from smoking cessation programmes than men, leading researchers to suggest that such programmes should take sex and gender into account.

The study, which analysed the outcomes of 223 patients over 10 years, investigated the effectiveness of a smoking cessation programme at St Michael's Hospital, Toronto. The findings support the

positive impact that such interventions can have: a high number of clinic appointments was the strongest predictor of success.

However, the programme was found to be less effective for women – female patients were only half as likely as men to quit (or significantly reduce) their smoking habits.

Reasons for this gender imbalance remain unclear. However, it could be linked to rates of



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depression and anxiety, which were 20% higher among female patients and may have disturbed the cessation process. Gender-specific hormonal and social factors may also play a role.

'Our observational study cannot answer why, but it speaks to the need for gender analysis and treatment specific to sex,' said senior author Dr Carolina Gonzaga Carvalho.

This study was one of the first to examine the impact of smoking cessation interventions on specific

populations.

The two other key factors that this study found were predictive of smoking cessation or reduction were medication affordability and access to varenicline. This suggests that socioeconomic variables also contribute to an intervention's success rate, which may have important implications for policymakers.

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Testosterone replacement therapy beneficial for young men who survive cancer

Young men who survive cancer may significantly benefit from testosterone replacement therapy – especially after testicular cancer – according to the first randomized double-blind placebo-controlled study of testosterone replacement in survivors with borderline low testosterone levels (<https://doi.org/10.1371/journal.pmed.1002960>).

Low levels of testosterone can be caused by cancer and associated therapies such as chemotherapy and radiotherapy. It causes problems that impact the health of cancer survivors, including changes in body composition. Young men with low testosterone levels carry on average more fat mass and less lean body mass than their peers, which is linked with a higher risk of heart disease, a significant cause of death in cancer survivors.

Over 6 months, half of the 136 men (aged 25–50 years) received testosterone replacement

therapy, with the other half receiving a placebo. Nine out of 10 of these men had been treated for testicular cancer. At the end of the trial, those on hormone replacement therapy had on average lost 1.8 kg of fat mass and gained 1.5 kg in lean body mass. Decrease in fat mass was greatest in those with high levels of fat around their waists.

'These late effects of cancer on the health of cancer survivors are increasingly being recognised,' commented corresponding author Professor Richard J Ross, Head of the University of Sheffield's Academic Unit of Diabetes, Endocrinology and Reproduction and Honorary Consultant at Sheffield Teaching Hospitals NHS Foundation Trust.

He added: 'The results of this study have significant benefits alongside improvements in body composition, potentially offsetting the risk of increased mortality from heart disease.'

Increase in misuse of non-opioid medications

A new analysis of the non-opioid medications, gabapentin and baclofen, shows increases in related suicide attempts and hospital admissions in American adults since 2013 – coinciding with a decrease in opioid prescriptions (Reynolds et al, 2019).

With the risks of opioid medications widely publicised, there has been a dramatic decline in prescriptions of these drugs in the United States of America since they peaked in 2010–12. However, prescriptions for gabapentin increased 64% from 39 million in 2012 to 64 million by 2016.

Researchers looked at over 90 000 cases of exposure to the medications and saw large increases in misuse and toxicity – with isolated abuse instances of using gabapentin (from 2013 to 2017) rising by 119.9%, and isolated abuse instances of using baclofen (from 2014 to 2017) rising by 31.7%.

Reviewing the data, collected in the National Poison Data system of trends in exposures reported to US Poison Centers, these results show that all American states have seen increases in gabapentin exposures. Most also saw increases in baclofen exposures, gabapentin misuse or abuse, and baclofen misuse or abuse over the study period. Co-ingestions of sedatives and opioids were common for both medications.

The authors concluded that gabapentin and baclofen misuse, toxicity, use in suicide attempts, and associated health-care utilization among adults in the United States of America have significantly increased since 2013. Careful consideration and risk-benefit analysis should be undertaken when prescribing these medications.

Reynolds K, Kaufman R, Korenoski A, Fennimore L, Shulman J, Lynch M. Trends in gabapentin and baclofen exposures reported to U.S. poison centers. *Clin Toxicol*. 2019 <https://doi.org/10.1080/15563650.2019.1687902>