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Scottish Pharmacy Review

ISSUE **119** - 2018

THE NHS AT 70

SCOTLAND CELEBRATES

BEHIND THE PAIN

New channels for familiar challenges

CERVICAL CANCER

Barriers to Scotland's screening uptake

FENO TESTING

A useful tool in primary care?

ALCOHOL AVAILABILITY

Demands for better national direction

WIDER CHOICE, GREATER SAVINGS FROM THE ZERODERMA RANGE

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"'Emollient prescribing has been a useful area to address as part of QIPP. The focus has been on optimising patient care by offering emollient products that patients are happy to use. Feedback from GPs has been positive and changes have been simple to implement. Patient care has not been compromised and changes to the product prescribed have been acceptable to most patients.'"

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1. PCA data, June 2017. 2. Study to determine the effect of two moisturisers, data on file. 3. Data on file, T&R, 2015

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WELCOME

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EDITOR'S LETTER

Welcome to the latest edition of Scottish Pharmacy Review!

Incessant rambling, a terrible taste in music, and a 'minor' stationery obsession: these are just a few of my less favourable qualities which my poor family, friends, and colleagues are forced to put up with.

Recently climbing the list of irritations, however, has been my repetitive – and over-dramatic (Meryl Streep, eat your heart out) – exclaiming that 'time really does fly!'.

Despite being a staunch believer of this, it still amazes me as to just how gaping our progression over time has been – a thought which is especially poignant as we approach 70 years of the NHS, which celebrates its birthday on 5th July.

The journey through the past seven decades has been hugely formative. It's hard to imagine a time before Andrew Lloyd Webber had been alive to shape the face of theatre; before Scrabble had been around as a key cause of arguments in households; and when the concept of an 'iPad' could be simply presumed as a type of mascara removal.

But despite how far we've come, and the gratitude which is undoubtedly due for this high quality, low cost healthcare access, the NHS's endurance doesn't mean that the system is by any means perfect. It's still plagued with many snags – including those which are afflicted from its own success, such as the population's longer life-expectancy.

With these thoughts front and centre, in this issue, we home in on the momentous milestone, what it means for its service users, and the changes which have driven it so far (beginning on page 20).

We also investigate the latest in advice and support for those caring for and treating people with Parkinson's (page 14), break down FeNO testing in our need-to-know guide (page 17), and recap the important role which pharmacists have to play in the future of biosimilar medicines (page 23).

Don't forget to check out, too, the innovative technology that's aiding the recovery of injury survivors (page 38), how you can join Jo's Cervical Cancer Trust's efforts to forge a future where cervical cancer is a disease of the past (page 10), and Superintendent Pharmacist for M Farren Ltd, Allana Wilson's, insight into how her workload is affected by the seasonal shift (page 34).

Happy reading!

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WANT MORE?

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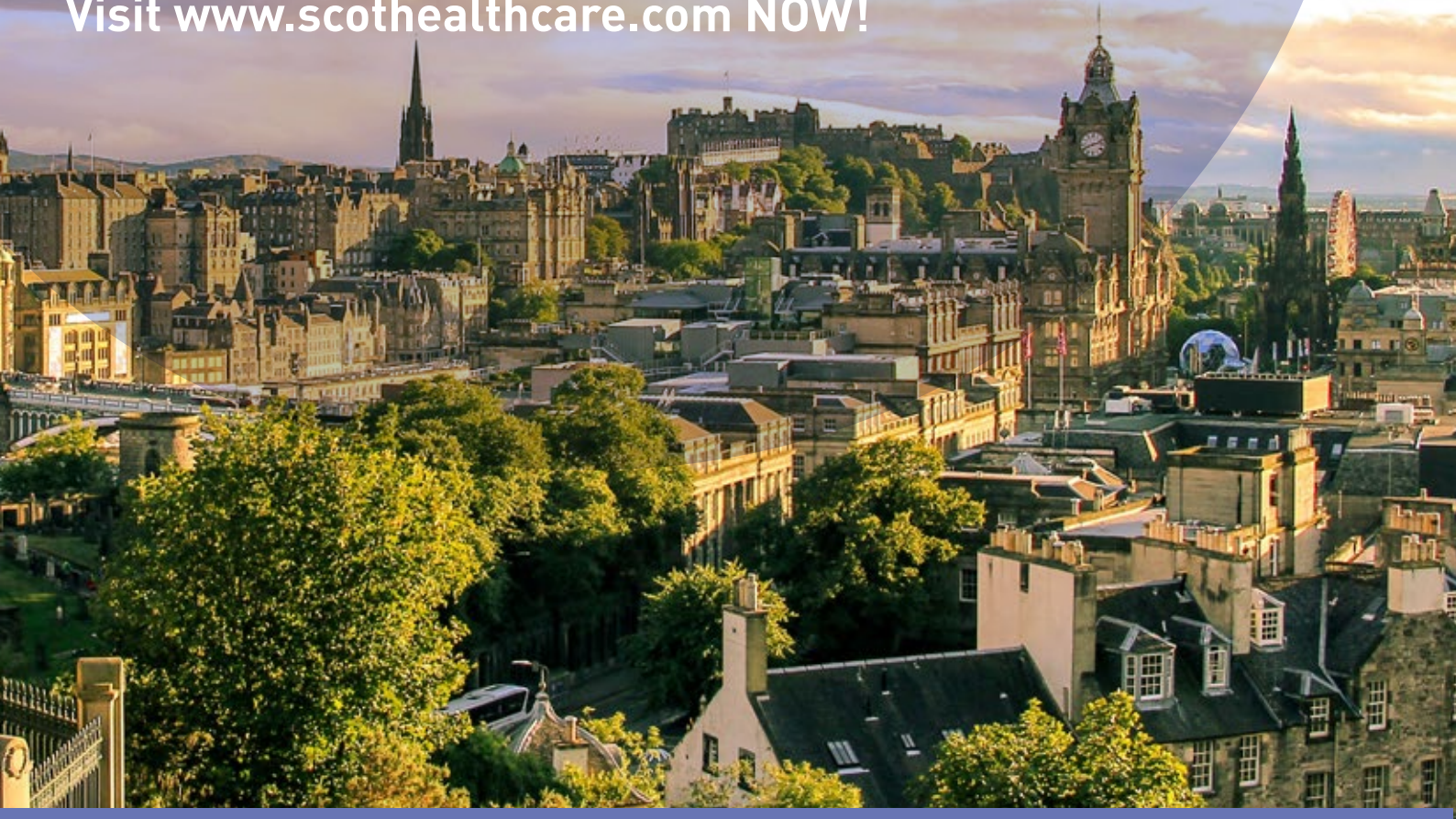

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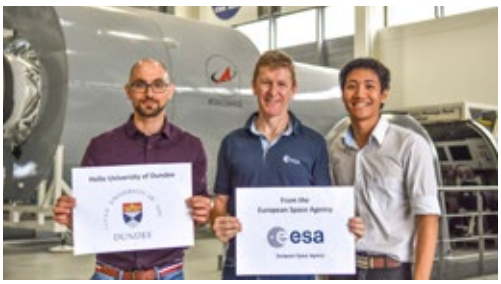
NEWS

WATCH THIS SPACE FOR PROMISING MEDICAL STUDENTS



Amir Fathi and Neil Tan with Tim Peake

Two students from the University of Dundee are now considering careers in space medicine after trying their hand at interstellar internships with the European Space Agency (ESA).

Fully embracing the immersive nature of the experience, fifth year medical students, Amir Fathi and Neil Tan, sampled space food, and helped plan future space exploration projects.

During their eight weeks with the ESA at the European Astronaut Centre in Cologne, Germany, they were also presented with the exciting opportunity to partake in one-on-one meetings with experts such as British astronaut, Tim Peake.

Discussing his highlights, Amir commented, 'Speaking with Tim Peake about his time on the International Space Station was a real privilege and has further inspired me to pursue the field after graduation.

'Generally, final year students spend their electives in fields of medicine that are of interest to them, so I wanted to use my eight weeks to explore aviation and space medicine further.'

Neil added, 'Our time with the ESA has given me a great insight into the world of not just space medicine, but occupational health medicine. We received an incredible insight into what it means to be a flight surgeon – doctors who are exclusively trained to work with astronauts – as well as the pressures they face in space.'

DETECTION OF COELIAC DISEASE IN CHILDREN AT AN ALL-TIME LOW

Although coeliac disease is the most common food-related chronic disease among children in Europe, experts now believe that up to 80 per cent of cases are undiagnosed.

With rising prevalence, undiagnosed coeliac disease results in a large population at risk of developmental issues and long-term associated health complications. Although it's easy to detect and treat, diagnostic delays can often reach eight years.

Drawing on the danger of the statistics, Sarah Sleet, Chair of the Association of European Coeliac Societies (AOECS), explained, 'In children, diagnosing coeliac disease as early as possible is essential for ensuring optimal growth, development, and symptom management. There are many serious health complications if coeliac disease is left undiagnosed, including impaired weight gain, growth problems, delayed puberty, chronic fatigue, and osteoporosis.'

To address this crisis, experts and patient organisations are calling upon healthcare providers and policymakers to facilitate the establishment of national detection programmes for earlier and more frequent identification of coeliac disease in children.

Experts from the European Society for Paediatric Gastroenterology, Hepatology and Nutrition (ESPGHAN), and representatives from the AOECS, have developed a manifesto for change for paediatric coeliac disease, which incorporates the clarification of key symptoms and the identification of those children at a higher risk of developing the disease, in a framework that provides greater opportunity for earlier intervention and treatment.

'The lack of awareness of coeliac disease, in both members of the public and healthcare professionals, means that the diagnosed cases of the disease only represent a small fraction of the total number of people affected,' stated Luisa Mearin of ESPGHAN.

'A significant challenge in recognising coeliac disease is the variation in the presentation and intensity of symptoms. Therefore, as well as encompassing children that present common coeliac disease symptoms, detection programmes must also facilitate effective diagnoses in children with a less severe clinical picture.'

If you have any news stories you'd like to share in future editions, please email sarah.nelson@medcom.uk.com.

DANGERS OF DRIVING WHILE TIRED HIGHLIGHTED AT EDINBURGH CONFERENCE

The Royal College of Physicians of Edinburgh recently hosted a range of experts to discuss respiratory conditions at a major conference in Edinburgh, overviewing exciting new therapeutic options for asthma, personalised medicine, the impact of the environment, and how legislation might improve public health.

According to the guidance to medical professionals, those with respiratory conditions, including asthma and COPD, aren't required to notify the DVLA of their condition unless they suffer from cough syncope, disabling dizziness, fainting, or loss of consciousness.

Education and information is key in ensuring that 'sleepy drivers' are prevented from causing harm to other road users, including cyclists, and pedestrians.

Dr Kirsty Harrison, Senior Medical Advisor for the DVLA, said, 'Far too regularly we see the tragic consequences that sleepiness can have on public road safety. There are relevant laws and guidance in place, as well as the duty of drivers and their medical advisers to manage common dilemmas.

'Education and information on these issues empowers the driver or patient, and is paramount in reducing the risk that the sleepy driver poses to public road safety.'

Also among the group of expert speakers was Dr Iain McLellan, from the University of the West of Scotland, who discussed air pollution and lung health, and whether legislation can make a difference in changing driver behaviour regarding emissions.

He spoke on behalf of the Border and Regions Airway Training Hub, which is a partnership between the Smooth Muscle Research Centre, Ireland, Queen's University in Belfast, and the University of the West of Scotland.

DOLLY SCIENTIST BACKS RESEARCH DRIVE TO TACKLE PARKINSON'S DISEASE

Professor Sir Ian Wilmut – who led the team that created Dolly the sheep – has lent his support to an initiative which is to tackle Parkinson's disease, after being diagnosed with the condition.

The eminent scientist announced his diagnosis ahead of the launch of a major research programme in which experts at the Universities of Edinburgh and Dundee are to join forces in the quest to better understand the disease. Subsequently, they'll set up infrastructure to enable the first trials in Scotland in a generation for therapies that aim to slow down Parkinson's disease progression.

The new Dundee-Edinburgh Parkinson's Research Initiative aims to probe the causes of the condition and translate scientific discoveries into new therapies. The ultimate goal is to discover new approaches to predict and prevent Parkinson's, and to facilitate clinical testing of therapies aimed at slowing or reversing disease advancement.

At present, Scottish patients seeking to take part in clinical trials of treatments that could delay disease progression are required to travel to centres in England or Wales, or even abroad.

Professor Wilmut, who retired from the University of Edinburgh in 2012, but retains an active research interest, explained, 'Initiatives of this kind are very effective, not only because they bring more people together, but because they will include people with different experience and expertise. It was from such a rich seedbed that Dolly developed and we can hope for similar benefits in this project.'

NEW RPS LOCAL CO-ORDINATORS ANNOUNCED

The Royal Pharmaceutical Society (RPS) Scotland has revealed the recent fulfilment of the RPS Local Co-Ordinator posts for Highlands & Islands and Lanarkshire – Calum Murray (Highlands & Islands) and Gillian Anderson (Lanarkshire).

The current RPS Local Co-Ordinators comprise:

- Andrew Carruthers (Glasgow & Clyde)
- Craig Notman (Fife)
- Fiona McElrea (Dumfries & Galloway)
- Giovanna DiTano (Lothian)
- Ian Duncan (Tayside)
- Lesley McArthur (Forth Valley)
- Lola Dabiri (Grampian)
- Lynne Thompson (Ayrshire & Arran)

PANCREATIC CANCER

A REALITY CHECK

Pancreatic cancer survival rates have remained at a standstill for almost 50 years and, unlike other cancers, mortality continues to increase year-on-year. Why is this – and to what extent is society's misrepresentation of the condition hampering progress in its management? SPR's Sarah Nelson takes a look.

The latest figures for pancreatic cancer rates in men and women in the UK show that the number of newly-diagnosed cases each year have increased by 17 per cent since 2010.

We can also see a wide disproportionate increase in incidence across the UK, with 41 per cent increase in incidence in Northern Ireland and a minor decrease in Wales. During the same five-year period, mortality rates for pancreatic cancer increased by 13 per cent, with almost 9,000 people dying from the disease in 2015.

WHY IS THIS?

An ageing and growing population will lead to a rise in cancer cases – however, for most cancer types this will be off-set by decreases in death rates due to improvements in early detection and / or treatment so that the number of anticipated cancer deaths will fall. But this isn't the case for pancreatic cancer.

Age is one of the reasons for the incidence increase in the South West where pancreatic cancer cases increased by 30 per cent in a five-year period, with the highest proportion of people aged 65+ in England.

Further attribution to the growing incidence, and the disproportionate increases across the UK, comes in the form of demographic factors. Areas of high deprivation, for example, tend to have higher incidence. Between the area of the lowest and highest deprivation group in the UK, there's a 22 per cent gap in pancreatic cancer incidence. Deprivation is highest for smoking-related cancers which indicates the high prevalence of smoking among this group.

Eight-out-of-10 people diagnosed with pancreatic cancer will be diagnosed too late for surgery, the only potential for a cure, and sadly most will die within a year.

HOW CAN WE SLOW DOWN THE NUMBER OF PEOPLE DYING FROM THE DISEASE?

Pancreatic Cancer Action's belief is that the key to saving lives is improving early diagnosis.

While no early detection test exists, the charity is focusing on the following:

- Raising public awareness of pancreatic cancer, and its signs and symptoms
- Funding research to move closer to the day where there is an early detection test
- Educating medical professionals to help them spot the signs and symptoms of pancreatic cancer
- Campaigning for change

For more information, visit www.panact.org.

STATISTICS IN THE SPOTLIGHT

- Just five per cent of patients will survive to five years after their diagnosis
- Pancreatic cancer has the worst survival rate of all common 22 cancers
- 26 people are newly-diagnosed each day
- 24 people will die each day
- One person dies every hour from pancreatic cancer
- Pancreatic cancer research receives just three per cent of overall cancer research funding
- For those diagnosed in time for surgery, their chance of survival increases six-fold

BEATING THE MYTHS

What are the major misconceptions shrouding the population's knowledge of pancreatic cancer?

THERE'S ONLY ONE KIND OF PANCREATIC CANCER

Pancreatic cancer occurs when a malignant tumour forms in the pancreas. There are two main types of pancreatic cancer:

EXOCRINE TUMOURS

These make up 90 per cent of all pancreatic cancer cases and come from the cells that line the ducts in the pancreas which carry digestive juices into the intestine.

ENDOCRINE TUMOURS

These make up 10 per cent of pancreatic cancer cases and sometimes make hormones, such as insulin and glucagon, to control blood sugar.

PANCREATIC CANCER ONLY AFFECTS MEN

Pancreatic cancer affects men and women equally. Everybody has a pancreas – with its main functions being to help break down food; and use and store energy from food.

The estimated lifetime risk of contracting pancreatic cancer is relatively low at one-in-73 for men, and one-in-74 for women.

PANCREATIC CANCER IS A SILENT KILLER

This is a common misconception which is fuelled by a lack of awareness of the signs and symptoms of the disease.

There are signs and symptoms of pancreatic cancer, which may seem vague and sometimes cross over with other illnesses. It can be easy to brush off indigestion, mid-back pain and weight loss, but knowing that they are symptoms of pancreatic cancer can save lives.

By increasing awareness of the signs and symptoms of pancreatic cancer, more referrals for scans and potentially life-saving surgery can be issued to patients.

pancreatic cancer action

saving lives through early diagnosis

Awareness is the key to improving SURVIVAL RATES of pancreatic cancer

A new NPA-accredited digital learning module has been specially developed to help you familiarise yourself with the most common symptoms of pancreatic cancer. This will help you to identify when urgent referral to the GP is required, which could potentially save customers' lives.

Pancreatic cancer is the UK's fifth biggest cancer killer. Working in the pharmacy, your role is crucial in spotting potential symptoms of pancreatic cancer to aid early diagnosis, which can significantly improve a patient's chance of surviving the disease.

TO GET STARTED:

Go to **www.panact.org/pharmacy**

to access the FREE module (you will need to register).

NEWS

BOWEL DISEASE STUDY POINTS TO NEW THERAPIES FOR LIFE-LONG CONDITIONS

Treatments for incurable bowel conditions may be a step closer following the discovery of a key molecule associated with disease flare-ups, in which researchers are asserting that the finding helps to explain the underlying cause of disorders such as Crohn's disease and ulcerative colitis. Additionally, the detection could potentially lead to new tests to help doctors monitor patients' condition and thus help them to tailor treatments accordingly.

Scientists at the University of Edinburgh looked for factors that might be associated with disease flare-ups by testing blood samples from almost 100 people with Inflammatory Bowel Disease (IBD).

They discovered tiny fragments of DNA in the patients' blood samples, which were barely present at all in samples from people who didn't have the diseases. These molecules – called mtDNA – are usually found packaged within energy factories found inside all human cells, called mitochondria.

Mitochondria are tiny cellular structures that descended from an ancient type of bacteria. Because of this, they have DNA similar to modern day bacteria, and in healthy people, when mitochondria become damaged, the mtDNA is recycled and disposed of safely by the body. These processes don't work properly in people with IBD, however, which enables mtDNA to leak from the affected gut into the blood stream.

People with the most severe illness had the highest levels of mtDNA in their blood, the study found, suggesting that the molecule could serve as a useful marker to monitor disease progression and help doctors to prescribe appropriate therapies.

INVESTMENT IN DIGITAL TECHNOLOGY TO TRANSFORM ASTHMA OUTCOMES

New funding is being made available for research that could improve the lives of people with asthma.

The Scottish government and Asthma UK are offering an innovation grant of up to £60,000 to explore the use of digital technology to help patients – this could be linked to 'smart inhalers', other devices, or similar.

Delving into what this move could mean for patients, Health Secretary, Shona Robison, said, 'We are committed to providing the best quality care and treatment for people living with asthma in Scotland.

'In partnership with the Asthma UK Centre for Applied Research at the University of Edinburgh we have already invested £300,000 in asthma research, and I'm really pleased to now invite applications for this innovation fund.

'Collaborative working like this is crucial to enhance research, develop treatments, and find new ways to improve the lives of people living with asthma.'

Also weighing in, Dr Erika Kennington, Head of Research at Asthma UK, added, 'We are delighted to partner with the Scottish government's Chief Scientist Office to joint-fund an innovation grant into asthma and new technology. This area of digital health provides an exciting opportunity to improve care for the 5.4 million people with asthma in the UK, helping more people stay well by offering personalised support to manage their condition.'

Applications can be made until 29th June.

CLUB FOOT GENE IDENTIFIED

A gene which could play a role in causing the most severe cases of club foot has been identified by scientists at the University of Aberdeen.

Club foot is a lower leg abnormality, where babies are born with the foot in a twisted position, facing inwards and upwards, rather than flat to the floor. Being quite common, it affects about one baby in every 1,000 born in the UK, and of those 1,000, about half have the condition in both feet.

Although experts regard the condition as a neuro-muscular problem – a result of muscle weakness in the legs during development – it's difficult to pinpoint the causes because there are so many different things that can cause muscle weakness.

But, excitingly, the Aberdeen team believes that they may have identified a gene in a mouse model which is linked to the more serious cases of club foot in humans.

The gene (Limk1) is required for normal nerve growth, and has shown to be part of a pathway of genes, one of which is already known to be linked to club foot in mice.

Professor Martin Collinson, a Geneticist from the University of Aberdeen, and leader of the study, commented, 'This is, hopefully, another piece in the puzzle of what causes club foot in humans. Our hypothesis is that probably for most human club foot patients, it's not just one gene that goes wrong – there are probably predisposed mutations in several genes in these pathways and they add up to eventually cause muscle weakness.

'The next stage is to look at DNA samples taken from human club foot patients and screen them to see if there are mutations in these pathways.'

ALL IN A DAY'S WORK

As Pharmacist Manager at Alness Pharmacy, a member of the Area Pharmaceutical Committee and Contractors Committee, and a Community Pharmacy Practitioner Champion, Calum Murray's daily duties can often resemble more of a balancing act than a to-do list. In this edition, he offers SPR a peek in to a day in his life, and how he successfully masters the art of multi-tasking.

Calum Murray

Today starts like any other, with a 40-minute commute from Inverness to Alness. This morning's journey is as beautiful as ever, with Ben Wyvis erupting from the skyline over the Black Isle, and its snow-covered slopes glowing in the early morning sun.

Upon my arrival to Alness Pharmacy, it's all go. The recent influenza outbreak has massively increased the demand for our vaccination service, and as I have been away for a few days, I come in to several appointments booked for first thing.

Three patients come and go before 9am; all delighted that we still had stock of the vaccine and that it wasn't as painful as they had anticipated.

I then pass the risk assessment forms and private prescriptions to my technician for processing as I nip into the consultation room to prepare for my 10am meeting.

I'm part of a steering group that is aiming to give community pharmacists access to electronic patient records. We meet every few months, but most of the time I have to phone into the meeting as I'm usually the responsible pharmacist for the day, so I feel like a bit of a fly on the wall. The conversation is constructive and my ideas receive positive feedback. I make a solid case for not only allowing pharmacists to access electronic patient records, but for our own Pharmacy Care Record to feed into the electronic record.

Allowing community pharmacists access to patients records would result in us providing a better level of care for our patients. It would also limit the number of needless phone calls to the patient's surgery when we need some information. So here's hoping it comes sooner, rather than later!

After this, I go back to my regular pharmacist duties. There are a number of patients waiting to see me. Our main GP surgery has started signposting patients with minor ailments to their pharmacy for triage. This has hugely increased our footfall and I feel like I am spending more time using the clinical assessment skills I gained during my Independent Prescriber training. This is always welcome because it gives me a short break from prescription checking.

The majority of patients I see can be given self-care advice and treated by myself from the pharmacy. They enjoy being able to see a healthcare professional without waiting for an appointment. I think that signposting is becoming more and more common across Scotland as pressure on GPs increases and pharmacists are increasingly seen as a vital part of the primary care team.

As the lunchtime lull approaches, I get a chance to sit down and look at the agendas and papers for the upcoming Area Pharmaceutical Committee and Contractors Committee. I am a member of both because I am passionate about improving pharmacy services in the region. I believe that shaping policy is a big part of this.

It's an exciting time for both committees as we start working on the aims of the Achieving Excellence in Pharmaceutical Care document and the new GP contact. The roll-out of the Pharmacy First service, which will allow community pharmacists to assess and treat common infections, such as urinary tract infections and impetigo, is fast approaching, and both committees will give their response to the draft service specification.

In my role as a Community Pharmacy Practitioner Champion I am working on building a local pharmacy forum. I send emails to each pharmacy to update them on the progress of the forum's work, and am aiming to bring together a number of pharmacies to work closer together and standardise service delivery across the region.

Lunch comes and goes, and I'm feeling refreshed for what the afternoon has to throw at me. It kicks off with a couple that are enquiring about the private travel health clinic that we provide. They leave delighted that I'm able to assess their needs, prescribe them antimalarials, and administer their vaccines – all in one appointment.

As much as I enjoy the clinical aspect of community pharmacy, it does not allow me to escape the reality of still having to check prescriptions. I crack on with what my great dispensary team have ready for me until it's time to lock up after another successful day in community pharmacy.

CERVICAL CANCER

THE ROAD TO BEING CERVIX SAVVY

Around 370 Scottish women are diagnosed with cervical cancer every year, and deaths from the disease rose a concerning 31 per cent in 2015. Cervical cancer is a largely preventable disease thanks to the NHS HPV vaccination and cervical screening programmes – yet, worryingly, one-in-four Scottish women don't take up their cervical screening invitation. Claire Cohen, Head of Health Information and Engagement at Jo's Cervical Cancer Trust, delves into how the charity is endeavouring to reverse this, and ultimately forge a future where cervical cancer is a disease of the past.

In Scotland, girls aged 11 to 14 years are offered the HPV vaccination as part of the school's vaccination programme, and uptake is currently at 89 per cent. HPV is the cause of almost all (99.7 per cent) of cervical cancers and the vaccine prevents against 70 per cent of cervical cancers, offering a high level of protection from a young age. Since the introduction of the vaccination in 2008, there has been a 90 per cent reduction in high-risk HPV prevalence among vaccinated women in Scotland which is incredible. Vaccinated women are still invited for cervical screening and it's important that women are aware that the vaccine doesn't provide full protection against the disease.

Women aged 25 to 49 are invited for cervical screening every three years, and every five years from 50 to 64 years. Prior to 2016, women aged 20 to 60 were invited every three years, however Scotland moved in line with the rest of the UK two years ago. A growing concern is the declining uptake of cervical screening across the country as recent statistics show that coverage has fallen across every age group and every health board and is now at a decade low at a 73.4 per cent uptake.

This downward trend urgently needs to be addressed otherwise we are going to see more diagnoses and deaths which could have been prevented.

IDENTIFYING THE BARRIERS TO ATTENDANCE SCREENING

We know that certain groups of women are less likely to attend screening. This includes young women; women from black, Asian and minority ethnic backgrounds; those living in disadvantaged communities; and older women. Screening uptake falls as low as 63.1 per cent among women aged 25 to 29, yet this age group is one of the most at risk from the disease.

Geographically there are also wide-ranging variations; Greater Glasgow & Clyde Health Board has an uptake of 70 per cent, while Shetland Health Board's uptake is at 80 per cent. Barriers to attendance are wide-ranging and complex, with many women facing multiple barriers to attending. These barriers include not understanding what the test is for or not thinking that it's relevant; fear; embarrassment; a previous bad experience; and cultural barriers.

Symptom awareness among women is also low, with four-out-of-five women saying that they would see a doctor for a cold that lasted more than three weeks, compared to only half if they bled outside of a

period, the most common symptom of cervical cancer.

Increasing understanding about cervical cancer and how it can be prevented will save lives and reduce the long-lasting, often devastating, consequences which a diagnosis can bring.

SO, WHAT'S JO'S DOING TO CHANGE THIS?

Jo's Cervical Cancer Trust is the UK's only cervical cancer charity, providing information, support, and campaigning for improved care, as well as prevention. This year the charity is travelling across Scotland over the course of five weeks with its Be Cervix Savvy Roadshow.

Starting on 18th June, the roadshow is funded by a £100,000 grant by the Scottish government as part of its £100 million cancer strategy, looking to address detection, treatment, and survival rates of cancer, and improve prevention.

It follows on from its first ever roadshow in 2017, funded by a grant from the UK Treasury's Tampon Tax, that visited 16 cities across the UK over 16 weeks. The roadshow's trained volunteers had over 9,000 conversations, far exceeding the initial target of 4,000, and distributed over 19,000 information materials to women across the country. Conversations included symptom awareness, whether screening is painful, treatment options for cervical abnormalities, and living with cervical cancer.

This year's Scottish roadshow will be targeting areas where cervical screening uptake is lowest in Scotland, visiting high streets and retail parks in Aberdeen, Dundee, Glasgow, Edinburgh, and sites in Lanarkshire and Fife. The simple aim is to improve the public's knowledge of the disease, and how it can be prevented by providing information and materials for women to take away, and facilitate discussions about what women can do to 'Be Cervix Savvy' and reduce their risk of the disease which currently claims two lives every day in the UK.

The aim for the coming roadshow is to engage with over 6,000 women across Scotland, focusing on those areas and communities where screening uptake is the lowest. The roadshow provides information, offers support, answers questions, and empowers women with the confidence to share the messages with their families, friends, and in their communities.

In addition to the roadshow, funds from the Screening Inequalities Fund is also enabling the charity to target Glasgow. The city is one of the most ethnically diverse parts of Scotland, with 12 per cent of its total population from an ethnic minority background. A higher proportion of these communities live in Glasgow's most deprived neighbourhoods where there are many barriers to participation in screening.

Jo's Cervical Cancer Trust has an outreach service in Glasgow, designed to support the delivery of the Scottish government cancer strategy and to improve screening coverage in Glasgow where uptake is the lowest in Scotland.

The Glasgow Public Health Co-Ordinator focuses on improving screening coverage by raising awareness with those who have the lowest attendance (women 25 to 29, women 50+, women from BAME communities, women from areas of deprivation). The service also offers support to GP practices to improve attendance, including training for practice staff and support with initiatives such as smear amnesty clinics. To reach even further into communities, the service is also recruiting Community Champions – volunteers who are trained to share key health messages and interventions within their communities.

HOW CAN PHARMACISTS LEND THEIR SUPPORT?

Pharmacists are a vital part of the community – being a trusted source of information – so are in a perfect position to pass on health messages and signpost women to where they can get further information and support. This includes the services offered by Jo's Cervical Cancer Trust.

Smoking is a risk factor for developing cervical cancer, so pharmacists are able to direct to smoking cessation services and deliver messages about the role of smoking in cancer development. By being aware of the symptoms of cervical cancer, unusual bleeding, pain after sex, unusual vaginal discharge, or lower back pain, pharmacists can direct women concerned about symptoms to their GP.

Non-clinical staff can act as cancer community champions and play an active role in increasing awareness among the public and staff. Even with limited budgets, pharmacists can lend their support.

Cervical Screening Awareness Week runs from 11th to 18th June, providing an opportunity to raise awareness of cervical cancer and screening through displaying posters, holding information days, and using social media to share key messages.

It's also important that pharmacists and pharmacy teams understand what they themselves need to do to 'Be Cervix Savvy' – why not visit the roadshow to get your questions answered?

Scotland is doing some excellent work when it comes to increasing awareness and attendance of cervical screening. In 2018, Jo's Cervical Cancer Trust awarded Tayside Colposcopy Unit as the winners of the Cervical Screening Award and gave NHS Greater Glasgow & Clyde a Highly Commended for their work. It is only through collaboration that we will see cervical cancer prevented in Scotland.

For more information, or to volunteer on the roadshow, visit www.jostrust.org.uk/roadshow. Additionally, to keep up-to-date with Jo's work, you can sign up to their healthcare professional newsletter.

FEATURE

ALL EARS

Intruding on that leisurely stretch of summer days with cause for distraction and discomfort, ear damage is one of the season's greatest health woes. Tackling scope for harm head-on, SPR has a quick catch-up with ENT Consultant, Mr Christopher Aldren, who specialises in otology.

DO WE SEE THE RISK RATE OF EAR DAMAGE ACCELERATE DURING THE SUMMER MONTHS?

Yes, there's more frequent swimmer's ear (otitis externa) in the summer, but less acute otitis media.

WHAT'S THE MAIN CULPRIT FOR CAUSING HARM?

Water in the ear.

IS THERE ANY ADVICE WHICH PRACTITIONERS CAN ISSUE TO PATIENTS TO HELP PREVENT SWIMMER'S EAR FROM DEVELOPING?

Avoid swimming, keep ears dry, and dewax ears before holidays with swimming or diving. They should consider using swim-ear or similar preparations after swimming if the patient has a tendency to develop otitis externa.

WHEN DOES EAR WAX TRANSITION FROM PROTECTIVE TO PROBLEMATIC?

When the ear canal is blocked.

WHEN IT COMES TO EAR WAX BUILD-UP, HOW COMMON ARE CASES OF SELF-DIAGNOSIS AND SELF-TREATMENT?

Self-treatment is usually of little use, although some self-irrigate with ear syringes off the internet.

HOW DANGEROUS IS THIS?

It's not usually dangerous to self-syringe, but cleaning ears with tooth picks, cotton buds, or knitting needles can occasionally lead to undesirable outcomes, such as perforation of the ear drum or total deafness.

HOW CONCERNED SHOULD WE BE ABOUT PATIENTS' LACK OF ADHERENCE IN THIS AREA?

It's not a major concern as most patients seek treatment.

DO MICRO-SUCTION SERVICES NEED TO HAVE MORE OF A PRESENCE, PARTICULARLY IN GP SURGERIES?

It would be useful if they were performed by a trained practitioner.

HOW PROGRESSIVE HAS TREATMENT FOR EAR INFECTIONS BEEN IN RECENT YEARS?

There have been no major advances.

ADHD: MAKING IT COUNT

It's time to face up to some of the lesser-known facts about ADHD – and employ them as stepping stones for greater action and awareness.

RECENT REVELATIONS

- Younger primary school children are more likely to be diagnosed with ADHD than their older peers within the same school year, new research has shown. The study – led by a Child Psychiatrist at the University of Nottingham, with researchers at the University of Turku in Finland – suggests that adults involved in raising concerns over a child's behaviour may be misattributing signs of relative immaturity as symptoms of the disorder
- A new report published by the Royal College of Paediatrics and Child Health and the British Association for Community Child Health raises concerns over the system failing to cope with growing demand and the unprecedented pressures faced by specialist community children's doctors, who have a wide remit, including diagnosing those with ADHD

NUMBERS TALK

- According to www.aadduk.org, in the UK, surveys of children between the ages of five and 15 years found that 3.62 per cent of boys and 0.85 per cent of girls had ADHD
- Additionally, the website reports that worldwide prevalence for children with ADHD is five per cent
- ADHD is a heritable condition in 70 per cent of cases, says the ADHD Foundation
- According to the organisation, 70 per cent of those diagnosed with ADHD also have at least one comorbidity

DID YOU KNOW?

The stardom spotlight is peppered with recognition of ADHD – thanks to an array of famous faces opening up about their own experience contending with the condition.

Those helping to spark awareness include actor / singer Justin Timberlake; Olympic champion, Michael Phelps; Maroon 5 frontman, Adam Levine; actress, Salma Hayek; and entrepreneur extraordinaire, Sir

SCOTTISH MEDICINES CONSORTIUM

CROSSING THE LINE

Remain in the know with SPR's go-to summary of the latest medicines accepted by the Scottish Medicines Consortium for use by NHS Scotland.

MARCH 2018

MEDICINE	FOR THE TREATMENT OF...
Ribociclib (Kisqali)	Advanced breast cancer in post-menopausal women
Pembrolizumab (Keytruda)	Advanced Hodgkin's lymphoma in patients who have failed to respond to previous treatments

APRIL 2018

MEDICINE	FOR THE TREATMENT OF...
Teduglutide (Revestive)	Paediatric on-set short bowel syndrome in children aged one to 17 years
Sofosbuvir-velpatasvir-voxilaprevir (Vosevi)	Hepatitis C in adults who have failed to respond to previous treatment with targeted anti-viral therapy, and adults with hepatitis C genotype 3 who have not been treated with targeted anti-viral therapy and are suitable for an eight-week course of treatment
Sofosbuvir-velpatasvir (Epclusa)	Hepatitis C in patients with genotype 1 or 4 infection
Sarilumab (Kevzara)	Rheumatoid arthritis
Dimethyl fumarate (Skilarence)	Plaque psoriasis

MAY 2018

MEDICINE	FOR THE TREATMENT OF...
Nusinersen (Spinraza)	Infantile on-set 5q spinal muscular atrophy (type 1 SMA)
Avelumab (Bavencio)	Merkel cell carcinoma, an aggressive, rare form of skin cancer
Regorafenib (Stivarga)	Advanced liver cancer in patients who have already undergone previous treatment
Selexipag (Uptravi)	Pulmonary arterial hypertension
Brodalumab (Kyntheum)	Severe plaque psoriasis

PARKINSON'S DISEASE

PARKINSON'S: IMPROVING CARE FOR A GROWING CONDITION

According to new research from Parkinson's UK, the number of people with Parkinson's is on the up. The charity estimates that more than 12,000 people in Scotland are currently living with the condition. This year, about 30 people each week will get a new Parkinson's diagnosis in Scotland, and across the UK as a whole the overall number of people with Parkinson's is predicted to rise by nearly a fifth by 2025. As the number of people with Parkinson's grows, so, too, does the need for professionals across a range of specialisms who are fully equipped to provide effective care for this complex health issue. SPR investigates the latest in advice and support for those caring for and treating people with the condition.

Parkinson's is one of the most common neurological conditions in Scotland and is characterised by tremor, slow movement, and stiffness, but also includes non-motor symptoms, such as depression, anxiety, and pain. These symptoms occur when the brain stops producing a chemical called dopamine, which helps control movement, thinking processes, and motivation. As dopamine declines, a person has less and less ability to regulate their movements, body, and emotions.

As a degenerative condition, it continues to worsen over time – and there is no cure or treatment that can stop, slow, or reverse the loss of dopamine-producing brain cells. Also, because Parkinson's is a fluctuating condition, medication, therapy, and care routines must be modified regularly to remain effective.

This presents unique challenges to the full range of healthcare professionals that offer a wide array of practical support throughout the course of a person's Parkinson's journey.

These professionals can include GPs, neurologists, geriatricians, Parkinson's nurse specialists, speech and language therapists, physiotherapists, occupational therapists, pharmacists, psychologists, and care workers.

KNOWLEDGE IS POWER

With the NHS under extreme financial pressure, and the number of people with Parkinson's set to rise, what support is available for this army of professionals to continue to push the boundaries of exceptional care for people living with the condition? Donald Grosset, Clinical Director of the UK Parkinson's Excellence Network, explains.

Donald Grosset

THE UK PARKINSON'S EXCELLENCE NETWORK

In 2015, the UK Parkinson's Excellence Network was launched by leading clinicians, alongside the charity, Parkinson's UK, as the driving force for improving Parkinson's care.

Informed by the views and experiences of people affected by the condition, it aims to achieve consistent high quality services by helping professionals share evidence and create opportunities for collaboration, while also offering training, tools, and professional development to support best practice.

In Scotland, there are now three active regional groups which bring together health and care professionals and people living with Parkinson's in the North, the East and South East, and the West and South West.

That same year, the network set the benchmark for quality Parkinson's care via a UK-wide service audit – the largest ever review of the quality of care provided to people with Parkinson's.

The audit gave a detailed picture of the state of Parkinson's services, reporting on the care provided to 8,846 people living with the condition. It was also the first to include a Patient Reported Experience Measure, giving people with Parkinson's an opportunity to rate the services they receive. 28 Parkinson's services in Scotland took part.

The outcomes of this audit focused the network's activity in tackling key priority areas for improvement, to address the issues that matter to people living with Parkinson's, and make that all-important link between audit and practice. So, what are some of the

key areas highlighted in the network's first ever audit? And how have professionals used this information to make improvements to their Parkinson's care?

ACCESS TO A FULL MULTIDISCIPLINARY TEAM

Traditional management of Parkinson's has focused on addressing the loss of dopamine, with the theory being that by getting more dopamine back in the system, all else will follow.

However, we know that's not enough. People with Parkinson's are typically heavily impacted by a large number of issues. Managing such complexity means that access to the skills and expertise of a range of professionals is needed.

The 2015 UK Parkinson's Audit revealed that only 13 per cent of the services taking part offered a fully integrated service. Only 50 per cent of patients were referred to a physiotherapist within two years of diagnosis, while just 13 per cent of speech and language therapy services offered regular six to 12-month reviews.

These therapists offer vital services for people with Parkinson's – but the results from the audit made it clear that referrals are not happening consistently. By creating a focus group of clinicians working in multidisciplinary teams, the Excellence Network began to collect models of best practice for multidisciplinary teams working from across the UK, including their costings.

One example is a newly-established joint Parkinson's clinic in Aberdeen, run by medicine for older people and neurology specialists with multidisciplinary teams' support, including specialist nurses, physiotherapists, speech and language therapists, and occupational therapists.

To ensure that all professionals working in the field of Parkinson's are well-equipped with the right skills and knowledge to give appropriate care for this complex condition, the network has also collaborated with academics to shape a learning pathway to underpin the professional development of those working in Parkinson's services.

A suite of learning and continuous professional development opportunities has been developed that show exactly what knowledge and skills are required by every professional group in order to provide high quality Parkinson's care. Accessed via the Excellence Network website, resources include three bite-sized online sessions delivered through the Open University, eight further online programmes varying from 10-to-24 hours of study, two face-to-face programmes, and two Train the Trainer programmes, which are available in Scotland and across the UK.

The ultimate purpose of this learning pathway is to bring information into one place, so that people affected by Parkinson's can be confident that their care is provided by well-informed professionals – no matter their field of expertise.

TIMELY PROVISION OF PATIENT INFORMATION

On diagnosis, patients usually want to know what they are facing and, importantly, what they can do to make the most of their lives at each stage of the condition. However, getting this right for each individual is very difficult. There is a plethora of information about Parkinson's, not all of it accurate or evidence-based. It's also extremely tricky to get the correct balance between giving appropriate information at the right time in the right way, and overwhelming.

Within the 2015 audit, 65 per cent of respondents felt that they received enough information on diagnosis, which is good, but not good enough. It's important that information-givers can signpost to relevant sources of information – be they fellow professionals or organisations, like Parkinson's UK. This charity provides accredited, evidence-based information, to people living with the condition at any age and any stage, however 30 per cent of people are not directed to its website or helpline.

To drive improvement in this arena, the Excellence Network established a leadership group to look at ways in which provision and signposting to information and support can be made more systematic.

An early prototype of this work – the First Steps programme – was trialled in Thames Valley for people who are newly diagnosed. The model is based on the residential programme offered by the European Parkinson's Therapy Centre in Italy, which aims to approach the management of the early stages of Parkinson's based on four pillars of medical, physical, lifestyle, and motivational therapy. On receiving excellent feedback, the programme is now due to be rolled out across the UK, and the first course in Scotland will go ahead in NHS Grampian in April. The Excellence Network group in the North of Scotland has also developed an information bundle for use with people who are newly diagnosed.

With services like these, we can give people with Parkinson's vital hope that there are things that can be done, both by services and by their own action, which can improve their quality of life.

ADDRESSING ISSUES WITH INPATIENT MANAGEMENT

Medication plays a vital role in the management of Parkinson's symptoms. It is required by all people with the condition and serves to boost a person's remaining dopamine.

If people with Parkinson's don't get their medication on time, their ability to manage their symptoms may be lost. For example, they may not be able to move, get out of bed, talk clearly, or swallow – increasing their dependency on healthcare professionals. Data from the UK audit confirms findings from one NHS board in Scotland, showing that inpatients with Parkinson's receive their medication on time less than half the time.

The importance of a medication routine is so great for people with the condition that Parkinson's UK runs a campaign called Get it on Time throughout hospitals and care homes to ensure that they can always take their medication at the right time, every time.

The Scottish government is funding a Quality Improvement project in NHS Highland, which aims to identify the most effective interventions to reduce missed and late doses, and NHS Greater Glasgow & Clyde has recently introduced a new dashboard, triggered by a Parkinson's alert on a person's record. This can be accessed by ward staff to access relevant information on inpatient management, and also by the Parkinson's team who can identify when people are admitted and track them during their admission. A similar initiative in Salford Royal Hospital led to a significant decrease in the number of missed dosages in the first 24 hours of a patient's admission, and the number of patients seeing a Parkinson's specialist within the first 24 hours of admission increased from nine per cent to 61 per cent.

While we have made great strides in helping to improve the care and support for people affected by Parkinson's over the last two years, there is much still to be done.

It's essential that all healthcare professionals working with people with Parkinson's help us continue to improve by sharing key knowledge and best practice to offer the best possible services. With results of the 2017 audit on the way, we can expect a host of new areas for improvement that will help us all continue to push the boundaries of excellent Parkinson's support – whether it be improved accuracy of diagnosis, timeliness of support, and delivery of care.

By working together as a cross-discipline group of professionals, we can all help to make further improvements to the care and support for people with the condition across Scotland and the UK.

For more information about the UK Parkinson's Excellence Network, visit www.parkinsons.org.uk/professionals.

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NObreath® #knowyourFeNO 10 YEARS improving asthma management.

Using FeNO measurements to evaluate airway inflammation in asthma represents a significant advance in respiratory medicine[1], but until now it has been an expensive test to deliver in every day practice, making the NObreath® FeNO monitor the essential tool for asthma:

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- ✓ Shows patient compliance to medication
- ✓ Shown to be superior to the majority of conventional tests of lung function[1]
- ✓ Aids in identifying patients who do/do not require on-going treatment[2]
- ✓ Aids in differentiating between allergic (eosinophilic) and non-allergic asthma[3].

"It's a very quick and simple way of measuring airway inflammation. It's very easy for the patient to use and it is very rare that a patient cannot comply with the technique to produce an accurate result."

Lois Penhaligan, Respiratory Physiologist, University Hospital Llandough.

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bedfont est. 1976

FeNO or FeYES?

Measuring the fraction of exhaled nitric oxide (FeNO) in breath condensate is commonplace, and now recommended in guidance on both diagnosing and managing asthma. The majority of testing is currently performed in secondary care, but as employment of it increases and cost decreases, it's expected that primary care use will rise. But what do all the numbers mean and should you take any notice when deciding to change treatment for asthma? Pete Kewin, Consultant Respiratory Physician, Glasgow, breaks it all down – while other key industry experts weigh in with their own perceptions of FeNO testing's footing in the future of clinical care.

Pete Kewin

THE (VERY) BASICS

Virtually all organ systems utilise NO in some way. In the lower airways constitutively low levels of NO can be augmented by inflammatory mediators inducing production in the epithelial cells. Its functional role is not clear, and it may be helpful and / or harmful depending on the concentration and context, but it's thought to be involved in regulating airway smooth muscle tone and eosinophilic inflammation. Corticosteroids abolish this increase in NO production.

HOW IS IT MEASURED?

Levels of NO in the sinuses are constitutively much higher than the lower airways, but it's now well-established that an oral exhalation contains almost exclusively NO from the lower airways.

A variety of devices exist, but are all standardised and work on the principle of generating a steady exhalation for a few seconds to measure the FeNO of a single breath in parts per billion (ppb). A visual and auditory aid, such as keeping a cloud floating between two lines while a tone plays, is usually used, and is usually well-performed by both adults and children.

HOW HIGH IS TOO HIGH?

Elevated FeNO levels are often found in patients with asthma, and are a non-invasive biomarker for the presence of eosinophilic inflammation; one of the hallmarks of several (but not all) types of asthma. They are associated with poorer asthma control and predict a clinical response to corticosteroid therapy. However, it has been difficult to define reference ranges so 'cutoffs' have been used instead. A level of <25ppb is 'normal' and >50ppb 'elevated' (<20ppb and >35ppb in children <12 years old). The 'grey area' between the cutoffs requires careful interpretation in the clinical context. However, atopic patients have naturally high FeNO levels that may not correlate with poor asthma control, and smoking strongly reduces NO levels, so testing in these populations is harder to interpret.

IS FENO USEFUL IN CLINICAL PRACTICE? FeYES!

Clinical assessment in patients with suspected or proven asthma has depended on the presence of symptoms and measures of airflow obstruction (PEFR and sprirometry). It had been hoped that as a non-invasive biomarker for eosinophilic inflammation, FeNO would aid the diagnosis and phenotyping of asthma, and help guide choice of treatment, as well as monitor its effectiveness. Due to the inherent variability between and within individuals, and the prevalence of both atopy and smoking in this population, this has been less successful than initially hoped. Despite this, certain patterns do emerge, as outlined below.

1. FeNO in Diagnosing Asthma

Elevated FeNO in steroid naive symptomatic patients is indicative of eosinophilic airway inflammation, correlates with bronchial hyper-reactivity, and predicts response to corticosteroid therapy. A normal FeNO points towards an alternative type of asthma that is less likely to be corticosteroid responsive, or an

alternative diagnosis. The increased availability of FeNO testing in primary care may make this more accessible earlier in the diagnostic pathway to target patients for 'trials of treatment', but the longer-term cost-effectiveness of this approach has not been determined.

2. FeNO in Monitoring Asthma
A rising FeNO (>20 per cent or 25ppb increase over baseline) is associated with increasing eosinophilic airway inflammation and therefore poorer control of asthma symptoms and increasing risk of exacerbation. Disappointingly, trials using FeNO as an adjunct to clinical assessment have been inconsistent in demonstrating a reduction in corticosteroid use, or the rate of exacerbations, possibly due to heterogeneity of trial design and patient inclusion.

However, two very useful observations can be made from every day clinical practice:
a) In patients with a diagnosis of asthma who are symptomatic but have a FeNO <25ppb, increasing steroid therapy is unlikely to be helpful. An alternative reason for their symptoms should be sought (e.g. COPD in ex-smokers, nasal disease, gastro-oesophageal reflux, dysfunctional breathing)
b) In patients with a diagnosis of asthma who are symptomatic despite high dose inhaled corticosteroid and have a FeNO >50ppb, assessing adherence to treatment is essential. We use an inhaler with an electronic monitor and perform serial FeNO monitoring over a one to two-week period. A drop of FeNO with monitored therapy implies poor adherence to previous treatment

SUMMARY – WHAT DO I REALLY NEED TO REMEMBER?

FeNO is used as a simple, non-invasive biomarker of eosinophilic inflammation. In a patient with suspected or proven asthma, a low FeNO (<25ppb) should discourage steroid use and encourage further assessment, and an elevated FeNO (>50ppb) should prompt an assessment of adherence to treatment prior to escalating treatment.

This may be particularly relevant if considering longer-term oral corticosteroids, or more expensive and complex biologic therapy (e.g. omalizumab or mepolizumab).

WHAT DO OTHERS THINK?

Be it a cornerstone for change, or simply a method plagued by too many limitations, find out what others from across the sector are saying about their own experiences with FeNO testing.

DR ANDY WHITTAMORE, ASTHMA UK'S CLINICAL LEAD AND A PRACTICING GP

'This is useful because people with inflammation caused by allergic asthma produce higher level of NO, so it can help healthcare professionals confirm an asthma diagnosis, and shows whether a patient has allergic or non-allergic asthma.

This in turn may indicate how well a patient will respond to treatment with steroid medication.

'FeNO can be useful in the following scenarios:

- Identifying allergic inflammation in people who are suspected of having asthma
- Ruling out allergic inflammation as a cause for someone who has chest symptoms. Having a normal FeNO in someone with known asthma may suggest that higher doses of inhaled corticosteroids may not be the most appropriate treatment choice if there are persistent symptoms
- Identifying where a patient with known allergic asthma has untreated inflammation, indicating that they either need to be prescribed a higher dose of inhaled corticosteroids, or that they are not taking their medication as prescribed or with good technique
- Identifying where someone with known allergic asthma has well-controlled inflammation, and a reduced dose of inhaled corticosteroid may be considered if the patient has good symptom control for at least three months

'FeNO has its limitations. While it can be a useful tool, not everyone with asthma has a high FeNO, so it is not possible to exclude an asthma diagnosis if the results show a low FeNO. Patients whose asthma is currently well-controlled are more likely to have a low or normal FeNO, and not everyone with asthma has allergic asthma. The test should be used alongside a good patient history, a thorough examination of symptoms, and, where appropriate, additional tests, such as spirometry.'

DR RUPERT JONES, SENIOR CLINICAL RESEARCH FELLOW IN THE UNIVERSITY OF PLYMOUTH FACULTY OF MEDICINE AND DENTISTRY

Dr Rupert Jones

'In my personal experience of the test in secondary care as a GP with special interest, FeNO is excellent to help phenotype the patient and monitor the control of inflammation. High levels are often associated with inadequate inhaled steroid treatment due to too low a dose, poor inhaler technique, or poor compliance. Even if the evidence was clear, and it is not, implementing FeNO as a diagnosis in adults is difficult to implement in primary care.

'The test, simple though it is in theory, requires a device which costs several thousands to buy, and this, coupled with running costs, training costs, and delivery, makes it impractical to use for all adults.

'I do, however, believe that it is absolutely vital in some cases. A main example of this is in specialist clinics, where people may have been referred for further investigation. I think it could also be useful for federated groups of general practices, who could buy the equipment and training and work collectively in a 'hub and spoke' model for those cases where there lies some doubt about whether a patient is asthmatic.

'But when it comes to primary care policy, and with ever-growing pressures on our primary care professionals, I only think it's practical to use in some cases.'

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It helps to identify **ICS-responsive patients**,[2,5] optimize **ICS dosing**,[3,4,6-8] monitor patient **adherence**[9,10] as well as to improve **cost efficiency**.[11-14]

FeNO measurement with NIOX® is reliable, and provides an **accurate result in a single measurement**.[15]

IMPORTANT INFORMATION REGARDING NIOX VERO®

NIOX VERO is a portable system for the non-invasive quantitative simple and safe measurement of Nitric Oxide (NO) in human breath. Nitric Oxide is frequently increased in some inflammatory processes such as asthma and decreases in response to anti-inflammatory treatment. FeNO measurements should be used as part of a regular assessment and monitoring of patients with these conditions. NIOX VERO is suitable for patients age 4 and above. As measurement requires patient cooperation, some children below the age of 7 may require additional coaching and encouragement. NIOX VERO can be operated with 2 different exhalation times, 10 seconds and 6 seconds. The 10 second mode is the preferred mode. For children who are not able to perform the 10 second test, the 6 second is an alternative. The 6 second test should be used in caution with patients over the age of 10. It should not be used in adult patients. Incorrect use of the 6 second exhalation may result in falsely low FeNO values, which can lead to incorrect clinical decisions.

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CIRCASSIA

NHS AT 70

HAPPY 70TH BIRTHDAY, NHS!

As a significant birthday for the NHS swiftly approaches, what does the major milestone mean for not only Scotland as a whole, but those service users closer to home?

LIZ'S STORY

The NHS may be marking its 70th birthday this year, but many other people share this special date too – including Liz Lamb from Barry.

Liz Lamb through the years

Liz was born with Cerebral Palsy, weighing in at a tiny two pounds in weight. She wasn't expected to live and, remarkably, this year Liz is celebrating her 70th birthday.

Liz said, 'The NHS has been my life. When I was born I was only two pounds and I lost lots of weight as a tiny baby. I was in an incubator for three months in St David's Hospital. It wasn't until I was three months old they knew that there was something wrong with me.

'When I was 12 I was the first person in Britain to have my legs straightened in Rhydlafar Hospital; after the operation I spent eight months there. The surgeon straightened my legs which was a success. They had to do one leg at time and I was in plaster for months.

'The doctors and nurses got me up and walking, where they then found out I was knock kneed which meant that they had to operate again. They got me up walking with crutches at the age of 13 until I was about 60. I've always been wheelchair-bound, but the surgery on my legs has helped to get me up on my legs to move around.

'My experience of the NHS has always been wonderful; they have always been absolutely brilliant. I'm extremely thankful to my surgeon, Dillwyn Evans, who did the first operation on my legs, which enabled me to be mobile. I will always feel grateful for that.'

Liz continued, 'The independence I was given, enabling me to get around, meant that I was able to leave home when I was 18 to go to a training centre in London for nine months where I learned to do light engineering.

'I was able to have a job and a career, I went to work in Birmingham for 28 years in a factory called Newton Products working with other disabled people from all over the country.

'I will always be grateful to the NHS for the care they gave me which enabled me to live my life to its fullest.'

TIME TO REMEMBER

In honour of this pinnacle occasion, why not bask in some of the brilliant achievements secured by NHS Scotland since its origin on 5th July 1948?

- In its first year, 15 million prescriptions were dispensed in Scotland – today, the figure is over 103 million, with these now being provided free as a result of landmark reforms under this government
- In 1948 1.2 million people were seen as outpatients – in 2016 / 17, there were around 4.25 million outpatient attendances
- In 1948 NHS Scotland employed 22,062 nurses and midwives – today, this has risen to a new record high of over 59,000
- In 1959 Scotland became a world leader in health education, with the UK's first nursing and midwifery studies unit set up at Edinburgh University – we've recently seen the highest ever number of acceptances to study nursing and midwifery at Scottish universities

Emphasising the poignancy of the anniversary, and how we can use it to propel us forward in years to come, Health Secretary, Shona Robison, said, 'Scotland's NHS has changed significantly in its 70 years, but its best qualities have endured. From the care, compassion, and professionalism of our staff, to remaining a public, universal service based on need – it has been 70 years of striving at all times for the highest possible standards in clinical excellence and patient care.

'The choices, services, and outcomes that NHS Scotland provides today would not have been imaginable in 1948, and it keeps adapting, developing, and changing. The lesson of the years since its creation is that staying still simply isn't an option. Through our approach of investment and reform, we will keep driving forward improvements and innovations.

'Everyone will have their own personal stories of what the NHS has done for them – why we must never take our health service for granted.

'I am delighted to see our NHS reach such a significant anniversary and I hope all of Scotland will join the celebrations this year as we pay tribute to everything it has achieved.'

THE NHS IN SCOTLAND: A TIMELINE OF EVENTS

SPR invites you to take a journey back in time – courtesy of www.ournhsscotland.com – to relive a number of the accomplishments and breakthroughs which help tell the story of how the NHS has evolved in Scotland so far.

1913

Highlands and Islands Medical Service Set up

Forerunner of the UK NHS – a state-funded, centrally-controlled, comprehensive health service.

1936

Cathcart Report Comes out

Report setting out a vision for a new Scottish health service with the general practitioner at its heart.

1939

Emergency Hospital Service Established

New hospitals are constructed to deal with expected civilian air raid casualties and threat of invasion. Scotland makes full use of them in the run-up to the NHS.

1942

Beveridge Report Published

Economist William Beveridge sets out his vision of a post-war Welfare State to banish from Britain the evils of the Five Giants – want, ignorance, squalor, idleness, and disease.

1948

Start of the NHS in Scotland

5th July is the official 'vesting' day of the National Health Service across the UK. In Scotland the service is set up by a separate act passed in 1947.

1952

Prescription Charges Introduced

Introduced January 1952 – one shilling or 5p.

1954

Smoking Kills – Dangers Revealed

Medical Research Council study by Sir Richard Doll and Sir Austin Bradford Hill of UK doctors shows link between smoking and lung cancer.

1958

Ultrasound Established

Glasgow produces the first practical ultrasound scanners which in modern forms continue to save countless lives across the world.

1959

First Nursing Studies Unit is Set up

Scotland proves a world leader in nursing education and research.

1960

UK's First Successful Kidney Transplant

Professor (later Sir) Michael Woodruff's team at Edinburgh Royal Infirmary gives a 49-year-old man a kidney from his twin brother on 30th October.

1963

World's First Chair in General Practice

Established by Edinburgh University with the appointment of Professor Richard Scott.

1972

NHSScotland Act Comes in

First major reorganisation of the NHS in Scotland since 1948 establishes 15 health boards and other bodies for a more efficient and fully integrated service.

1973

Chief Scientist Office Created

New body created within the health department at the Scottish office to harness and support research to improve the Scottish NHS.

1974

Glasgow Coma Scale Developed

Set of measures now used around the world of a patient's level of consciousness to chart progress of recovery.

1975

NHS Family Planning Rolls out

Formal provision of free contraceptive advice and family planning services to all, irrespective of age or marital status.

1980

MRI Service Starts

The world's first clinical service for MRI is launched by Dr Francis Smith at Aberdeen Royal Infirmary.

1982

First Case of AIDS Identified

First case of AIDS identified in Scotland. Infection rates in drug users later found to be among the highest in Europe.

1988

Breast Cancer Screening Introduced

UK programme introduced following report by Sir Patrick Forrest, Professor of Surgery at Edinburgh University.

1989

Keyhole Surgery

First UK use of minimal access surgery to remove a patient's gall bladder is carried out by Sir Alfred Cuschieri at Ninewells Hospital, Dundee.

1989

Internal Market Introduced

The most fundamental change to the National Health Service since its inception brings in the idea of competition and a market for health services.

1992

Private Finance Initiative Introduced

Brings in private firms to build and then maintain non-clinical services in new hospitals.

1993

Community Care and Mental Health Rolled out

Fundamental shift in care with the formal introduction of changes to support people at home rather than institutions.

1997

Designed to Care Published

Scottish White Paper which sets out the new government's stall for phasing out the internal market, and with it, GP fundholding and contracting for services.

1999

Free Personal Care Report Comes out

Royal Commission recommends this for older people, and the Scottish parliament introduces it in 2002.

2000

Adults with Incapacity Act Passed

First major piece of legislation by the new Scottish parliament.

2004

Abolition of NHS Trust

The National Health Service Reform (Scotland) Act abolishes trusts which are absorbed into health boards.

2005

National Service Framework Published

Report which sets out a blueprint for Scotland's health services over the next 20 years.

2006

Smoking Ban Introduced

From 25th March there is no more lighting up of cigarettes in Scotland's bars, clubs, restaurants, and all public-enclosed places.

2008

A Mutual NHS Introduced

New government announces its programme for the future of the NHS based on the principles of mutuality – with patients and the public as partners, rather than recipients of care.

2008

Scotland's Hepatitis C Action Plan

An action plan is launched to improve the prevention, diagnosis, and care of persons with Hepatitis C.

2008

Scottish Patient Safety Programme

Scotland takes its first step to becoming a world-leader in patient safety.

2010

The Healthcare Quality Strategy for NHSScotland

Scotland announces ambitious plan for world-leading safe, effective, and person-centred care.

2012

Detect Cancer Early

The Scottish government's Detect Cancer Early Programme was officially launched in February 2012.

2014

Health and Social Care Integration Takes a Step Forward

The integration of health and social care services across Scotland took a step forward with the new Public Bodies (Joint Working) (Scotland) Act 2014 receiving royal assent on 1st April.

2015

Health and Social Care Partnerships Put Integrated Service Plans in Place

By 1st April 2015, all NHS boards and council partnerships submitted their Integration Schemes to ministers for approval. These schemes outline the plans to bring together the two services.

NHSSCOTLAND NOW

NHSScotland has a long and strong tradition of providing high quality healthcare, meeting many challenges since its creation on 5th July 1948. With a workforce of approximately 160,000 staff working across 14 regional NHS boards, seven special NHS boards, and one public health body, there is not a single person in Scotland today who has not come into contact with NHSScotland.

The information has been obtained – with permission – from www.ournhsscotland.com.

BIOSIMILARS MOMENTUM: THE CRITICAL ROLE OF PHARMACISTS

Biosimilar medicines – equivalent biological products which have no meaningful differences from the original or reference product in terms of quality, safety, or efficacy – have an increasingly important role to play in providing choice for clinicians, and increasing access for patients by driving down cost to the NHS. Warwick Smith, Director General of the British Biosimilars Association, outlines the challenges and opportunities in the UK, and says that pharmacists – hospital and community – will have an important role to play in the future.

Warwick Smith

For a variety of reasons, uptake of biosimilars has increased rapidly in the UK over the past few years. But if these important medicines are to fully deliver their potential on an on-going, sustainable basis then continued education and engagement is critical.

A large reason for the significant progress on biosimilar uptake to date has been the collaboration between NHS England, clinicians, patient groups, industry, and regulators, as well as NICE, among others. This approach has laid the foundations for sharing best practice and experience which will catalyse the potential benefit of future product launches.

With the much-awaited launch of biosimilar Adalimumab set for later this year it will be fascinating to see how lessons and experience of the past will propel uptake of this particular block-buster product.

The NHS will be particularly interested. Simon Stevens, the Chief Executive of NHS England, has talked about realising savings as much as £300 million a year in the near future from increased up-take of biosimilars. However, for this to be achieved, it's important that the momentum already built up is maintained and everyone is aware of the crucial role they can play. This is particularly true for pharmacists who in both primary and secondary care settings are important parts of the pathway.

First prescriptions of and switching to a biosimilar usually happens in a hospital setting. Experience to date has shown that the role of pharmacists in helping manage switches and in supporting patients is critical. However, community pharmacists will also increasingly play a similar role for some repeat prescriptions where hospitals are working hard to avoid patients visiting for administration-only appointments – moving to so-called 'shared care' agreements. As the number and variety of biosimilars rise, they will increasingly involve patients receiving their on-going treatment and repeat prescriptions through their local GP surgery and community pharmacy and this is where education is very important.

Much work has also been done by all stakeholders in developing materials to support the conversation between a patient and their prescriber when initiating a biosimilar medicine. There is also a role for community pharmacy teams to be aware of how biosimilars are prescribed and how switching patients is managed. This may vary slightly between different areas. All biosimilars have a brand name to ensure completeness of pharmacovigilance data collection and to ensure that patients receive the product prescribed.

After switching, for example, from the reference product to a biosimilar, there is a role for pharmacists to reassure patients and carers that the medicine is equivalent to the one that they have been previously receiving.

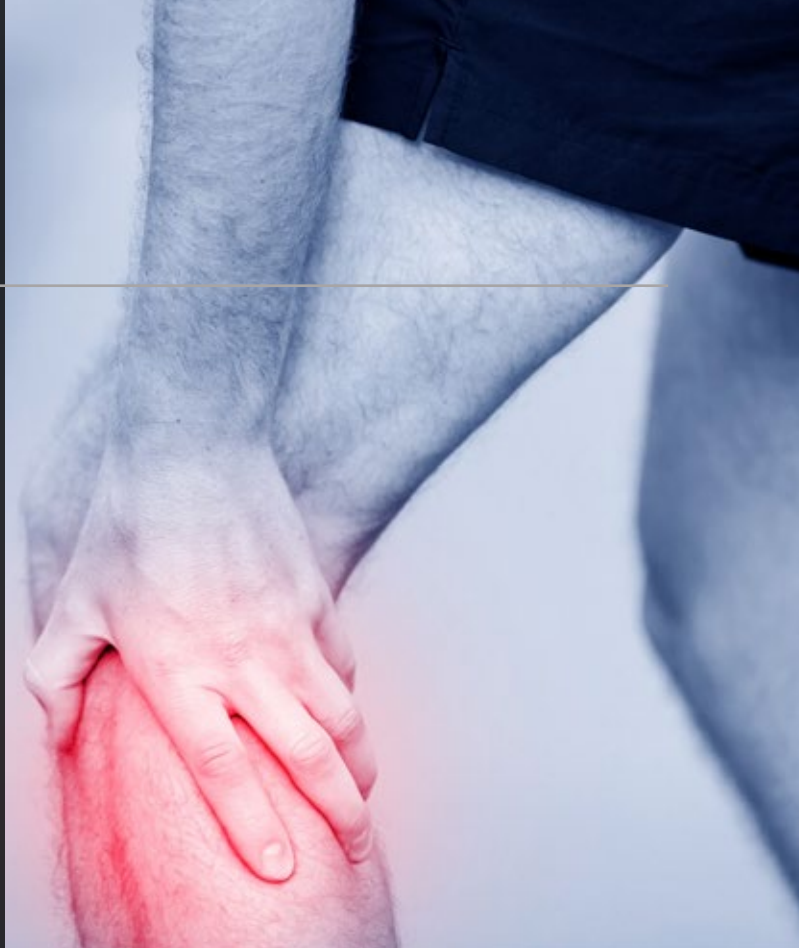
If patients ask why they are being switched to a biosimilar, it should be explained that the money saved by the NHS allows more patients to be treated at a lower cost with medicines approved by the regulator as having no significant clinical differences from the originator product. Emerging NHS data is indicating that 50 per cent more patients can be treated for 50 per cent less cost in some treatment areas. Reports from patient / prescriber conversations in NHS trusts shows that patients understand and support this cost-effective use of limited resources.

Work is underway to update materials such as NHS England's 'What is a Biosimlar?' document two years on from its publication, and it is critical that a range of activity takes place to ensure the message behind the use of these important medicines continues to be shared widely.

Following a slow start compared to other parts of Europe, great progress has now been made in the UK, but there can be no room for complacency in order that biosimilars make the desired impact in the next few years.

ARTHRITIS

DAMAGE CONTROL



Far too often, those tackling unyielding pain are not only disillusioned, but lack the know-how to control their discomfort on a daily basis. Arthritis Care's John McCormick helps SPR investigate the pathway which is encouraging patients to assume a greater sense of responsibility for their own pain management.

John McCormick

Pain is a major element of many long-term conditions, particularly arthritis and musculoskeletal conditions. While most patients rely on a regimen of drug treatments that provide pain relief or inhibit progress of the illness, what they often fail to realise is that their experience of pain is actually part of a vicious cycle.

For example, living with long-term pain can elicit feelings of anxiety, frustration, and anger, which then leads to tense muscles, which naturally adds to the pain as the movement becomes more restricted. Again, patients might have difficulty sleeping or participating in everyday activities that they previously enjoyed, subsequently leaving them feeling frustrated and anxious, leading to a low mood, tiredness, and fatigue.

This ongoing cycle can make the pain feel even worse and in some cases lead to depression.

For patients living with chronic pain, it can often feel like an endless stream of appointments with GPs, specialists, physiotherapy, OT and other health professionals. In reality, a patient living with pain spends, on average, just 12 hours a year with their healthcare professionals, leaving them to manage the other 364.5 days by themselves. To do this well, however, they need to learn the right skills.

This is why referral to self-management or pain management programmes is so important and healthcare professionals should consider them a mainstreamed part of the treatment of long-term conditions.

Given the limited time that healthcare professionals have with their patients, teaching them how to self-manage can help improve patients' health outcomes and improve the efficacy of their treatment plans.

For example, a self-management / pain management shows patients simple techniques to help them deal with everyday problems, such as frustration, fatigue, isolation, and poor sleep. They also discover how to prioritise and plan activities and deal with setbacks. They stress the importance of keeping as active as possible and provide them with tools, such as distraction, better breathing, and relaxation that they can call on when pain is at its worst.

While patients naturally value their healthcare, many are fearful of their diagnosis and worry about the future. Being a supportive healthcare professional who encourages their patient to open up about their concerns is invaluable.

Self-management programmes help patients take a more proactive approach to their condition, as they learn the importance of having a better understanding of their condition and being able to discuss it with their health professional. Patients are often worried about the side-effects of medications or do not take them as prescribed, whether that's through lack of understanding, or not being able to take in all the information they are given. Just taking a moment to check for understanding and carrying out a regular medicines review can make all the difference.

Getting patients to accept their condition is a vital first step towards them being able to take more control of it. For many people, it's how the condition makes them feel and the impact it has on their lives that is the biggest challenge. Research shows that people who participate in a pain management programme experience less pain, depression, fatigue and anxiety than before.

These programmes work because they break the cycle of despair, put the patient more in control of their condition, and help them make the best of their treatment.

HITTING WHERE IT HURTS

Usually diagnosed in young adults whose age falls within their late teens and mid-30s, the advancement of Multiple Sclerosis is variable, taking on different and distressing guises. However, with muscle pain being a chief feature of the chronic disabling condition, Dr Rosie Jones and Tania Burge, of MS Research, investigate its causes and potential approaches to treatment.

Dr Rosie Jones

Once diagnosed with Multiple Sclerosis (MS), people can expect to develop a range of symptoms over time, primarily affecting movement, vision, sensation, and continence. Persistent or extreme fatigue is common, affecting around 90 per cent of all those diagnosed.

The underlying cause of disability in MS is immunologically mediated damage within the central nervous system, causing patchy loss of myelin in nerve pathways within the brain and spinal cord, transection of nerve axons, and ultimately loss of nerve cells. The rate of development of symptoms and the exact symptom profile varies greatly from one person to another – but most frequently includes impaired mobility, fatigue, and visual symptoms.

Most people who have MS can expect their symptoms to worsen over time, especially during the early post-diagnosis years. However, the introduction of many new drugs to modify disease progression during the early relapse / remitting phase of the disease has been helpful in controlling early disease progression. Nevertheless, progression and worsening of symptoms is generally experienced with very variable impact over time.

MAKING A MOVE

The main causes of impaired mobility are the development of muscle weakness and spasticity (muscle stiffness). Muscle weakness can be attributed to nerve damage and the loss of function in motor pathways so that fewer muscle fibres and less muscle power is recruited, making activities such as walking difficult, and often resulting in muscle and neuromuscular fatigue.

Spasticity is a complex symptom involving both neuromuscular and mechanical muscle components. It occurs when the mechanisms that enable and regulate the range of free movement around joints are disrupted. Normally, the firing patterns of motoneurons serving limb flexion and extension are regulated to ensure the full range of reciprocal movement around joints to enable smooth, well-controlled movements. Normal muscle tone therefore requires normal muscle viscoelastic properties and normally functioning excitatory and inhibitory nerve pathways between the brain, spinal cord, and muscles. Nerve damage in motor pathways within the brain and spinal cord result in increased muscled tone. The exact mechanisms involved in neural and muscular contributions to the development of high muscle tone are not fully understood but include loss of inhibitory nerve activity originating in the brain and acting on spinal motoneurons.

Subjectively, patients describe muscle stiffness, shortening, and tightness, often accompanied by unexpected spasms or a rhythmic tremor-like movement (clonus). Muscle pain may occur during the spasms or may be associated with muscle stiffness more generally. In extreme cases prolonged muscle tightening results in contractures and these may become fixed so that range of normal movement is severely impaired. Joints may become fixed in abnormal positions with possible mal-alignment of limb segments often accompanied by pain. In patients with preserved mobility, orthotic solutions may work alongside usual therapeutic strategies to improve function and reduce or avoid pain.

More established contractures may involve a neural element or may be mainly due to altered viscoelastic muscle properties. Treatment in such cases depends on determining whether both mechanisms are involved, or whether only the muscular component is present.

MULTIPLE SCLEROSIS

Tania Burge

Clinically, spastistiy is recognised as resistance to passive movement of a limb and brisk tendon reflexes. Such observations suggest that the development of spasticity involves changes to stretch receptor firing patterns. However, experimental studies indicate a more complex mechanism involving both monosynaptic and polysynaptic mechanisms is indicated. A detailed discussion of the physiological origins of spasticity in humans is outside the current brief, but further experimental studies and better understanding of the processes leading to spasticity may lead to improved medication, or even the avoidance of spasticity in long-term conditions like MS.

TAKING ACTION

Spasticity in MS is usually treated with oral Baclofen or Tizanidine. Both are effective anti-spasticity agents, thought to be active at different sites within the central nervous system. The exact mode of action of Baclofen is not fully understood, but it is generally assumed to counteract the reduction of inhibitory input to spinal motoneurons, resulting in lowering the high muscle tone. Tizanidine is an alpha-2 adrenergic antagonist GABA analog but does not appear to work via GABAergic pathways. It is thought to act centrally to increase presynaptic inhibition to spinal motoneurons. It should be noted that Tizanidine can be given as tablets or capsules of equal effectiveness. However, these two formulations behave very differently in the presence of food. Instructions to patients should include clear guidelines as to whether they should take their medication with, or some time following, food and ensure that repeat prescriptions follow the same directions.

Both agents require patients to gradually escalate their dose to a level that is individually effective. Many people with lower limb weakness use some measure of spasticity to stand and mobilise. Patients are advised to undergo a period of trial and error to find a safe and comfortable dose level. Ideally, where it is possible in an MS team, nurses and physiotherapists should guide patients through this process together to ensure safe mobilisation. Both agents help to reduce spasms although very painful spasms appear to respond better to Tizanidine in some patients. Overall, for Baclofen a dose in the range of five to 10mg three times a day works well for most patients. People on Tizanidine are generally comfortable with doses of between 20 and 28mg taken as three or four doses per day. The time to peak action of Tizanidine is short – one to two hours after taking a dose – so timing of doses should reflect an individual's usual daily activities for maximum impact.

Baclofen can also be administered intrathecally and this is used to help those with very high levels of spasticity that cannot be managed on oral preparations. In such cases it is usual to give a bolus of 50mcg as a screening trial for efficacy before implanting a Baclofen pump and starting the dose adjustment procedure.

GUIDING THE WAY

Generally, an appropriate exercise programme advised by a neuro-physiotherapist with experience in treating MS is the best method for maintaining mobility while on anti-spasticity treatment to maintain safe mobility and help manage spasticity. Regular, appropriate exercise activities may also help to reduce the frequency of painful spasms.

In cases where muscle contractures are established, Botulinum Toxin may be used to reduce joint fixation. However, this is only effective in treating contractures caused by increased tone of neural origin. In very extreme cases where high levels of tone are linked to neural activity selective surgical or chemical rhizotomy of spinal motor pathways may be considered. Where the contractures are due to muscle shortening without a neural component, peripheral surgical procedures, such as selective tenotomy, may be needed. However, such surgical approaches would only be considered in adults with MS when there is little expectation of return of function.

NEW TO THE GAME

An interesting new development that may help people who have spasticity and pain has recently been announced. For many years, patients who use cannabis have anecdotally reported relief from spasticity and 'feeling more comfortable' after cannabis use. Disappointingly, these results were not reproduced in trials of medical cannabis although positive results were reported by some. Trials using a cannabis containing gum have been announced in Holland and it will be interesting to see whether this preparation will have more impact on patient perception of the impact in due course. The gum contains Tetrahydrocannabinol and Cannabidiol thought to be the active ingredients most effective in medical applications of cannabis.

It remains to be seen if this new formulation performs better than other medical cannabis formulations. Phase 1 trials are proposed with the hope that wider phase 2 and 3 trials can be carried out over the next few years.

For more information, visit www.ms-research.org.uk.

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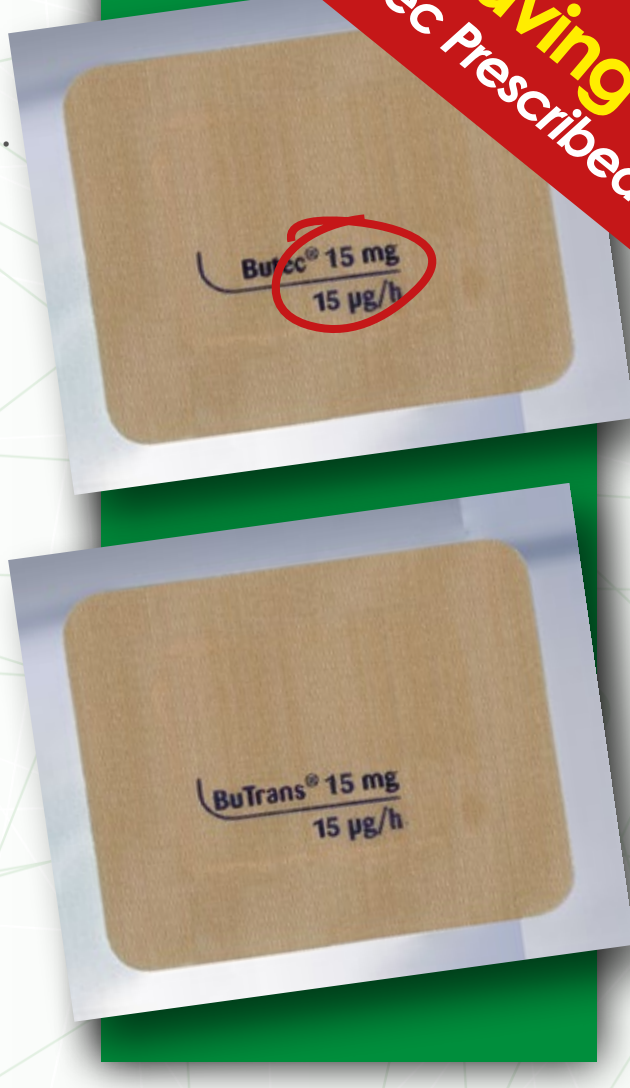

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MYALGIA: A MYSTERY OR JUST A MISERY?

A significant subset of chronic conditions are tethered to the hallmark symptom of muscular pain. Walter Llewellyn McKone, DO, helps SPR further explore the layers behind myalgia, and addresses the problem which relying on an evidenced-based approach to pain treatment may pose.

Walter Llewellyn McKone

Musculoskeletal conditions account for one-in-four of the adult population – 9.6 million – and at least 30 per cent of GP consultations, and 10.8 million days, are lost due to these conditions. (Source: NHS England) As you can imagine, the broad term 'musculoskeletal dysfunction' will always include muscular pain. Such a large percentage of time and money spent on diagnosis, rehabilitation, and treatment makes muscle pain the most costly of conditions.

WHAT'S IN A NAME?

Various terms are used for muscle pain, including: myofascial dysfunction, muscular myalgia, muscle pain syndrome, somatic dysfunction, and fibromyalgia to name a few. Generally, the diagnosis is based upon the case history specific to the patient and is a broad generalisation.

The musculoskeletal system is the main source of neural input and output of the central nervous system. As the largest system of the body, it produces the most waste and uses the most energy more than any other system. With its infinite amount of movement possibilities, it's therefore the most vulnerable of all the body systems. Sometimes termed the soma, the muscle component is in a constant state of tone, moving between various degrees of contraction and relaxation; never resting at a systemic level.

Locally, states of muscle pain broadly include infection, injury, or metabolic disorders. Most diagnoses are based on empirical clinical presentations before any further tests are required. Bacterial infections tend to be diagnosed on anatomic location and causative organism. These may include: abscesses, Staphylococcus aureus myositis, and group A streptococcal necrotising myositis. Fungal myositis is uncommon. Viral myositis tends to be systemic as in influenza.

INSIGHTS INTO INJURY

Muscle pain due to injury may present as a

result of tears, crushing, contractions, or a combination of all three.

Tears are due to a combination of age, overuse, degeneration, and sport. With increasing age, muscle structure will weaken, leaving the patient vulnerable to local pain and discomfort. Overuse in certain occupations will slowly lead to degeneration of muscular tissue, resulting in pain and inflammation. Naturally, this depends on intensity and repetition. Degeneration is a broad clinical finding related to age and overuse. Sports-related muscle pain due to tears is usually the result of excessive loading.

Discolouration or bruising due to bleeding will be a local sign accompanying the symptom of pain.

Crushing injuries tend to be due to direct trauma as in road traffic accidents, violence, and sports. However, as in all crushing injuries to muscle, it's not just muscle that is involved. Deep bleeding may lead to haematoma, a clotting of blood within the muscle. Neural damage will present as anaesthesia, pins, and needles, and even pain and weakness at a distance from the site of trauma. Lymphatic disturbance can result in oedema locally or, again, at a distance.

Contractions are due to maintained increased tone (hypertonia) where vascular supply is compromised. The patient will generally be aware of the symptoms after a period of rest due to poor clearance of metabolites, leading to sustained irritation of muscle tissue. Fasciitis should be included in the contractions as this takes time as a presentation.

Commonly occurring in the hands, legs, and feet, fasciitis is often misdiagnosed as an 'overuse' injury. Contraction of myofascial tissue due to sudden and excessive activity, as in sport, is the most common cause. Typically, palmar and plantar fasciitis are due to alcohol abuse and over-training, respectively. Fascial tissue with muscle presents as a perivascular (fine) inflammation with the skin becoming hidebound, taut, and indurated.

FIBROMYALGIA

In the case of fibromyalgia, the jury is still out. It presents as muscle fatigue and pain systemically in a low grade chronic form.

Typical presentations include: diffuse muscle ache, joint stiffness, sleep disturbance with multiple areas of tension, tenseness, and tenderness. Originally the term fibrositis was coined to represent muscular tender nodules deep in the muscular tissue. The patient tends to present with muscular tension-type headaches, loss of weight due to decreased appetite, and even dehydration. It is also associated with long-term deep anxiety and depression.

METABOLIC DISORDERS

Metabolic disorders or myopathies may be genetic or constitutional, where wasting and weakness locally may be the initial presentation of a future primary systemic presentation. Additionally, these can be endocrine myopathies in cases of Cushing's syndrome and corticosteriods, thyroid disease, alcohol, or drug abuse.

CUSHING'S SYNDROME

Cushing's syndrome or disease is the result of a pituitary adenoma (gland tumour) located in the pituitary gland at the base of the brain. Excessive production of adrenocorticotropic hormone. Symptoms will include muscle weakness, acne, and round face.

THYROID DISEASE

Thyroid disease resulting in multiple myopathies can occur due to an over or under-functioning thyroid gland. There are generally four types: hypothyroidism, too little thyroid hormones; hyperthyroidism, too much thyroid hormones; enlargement of the thyroid gland; and tumours which can be cancerous or benign. All can begin with muscular pains but will be associated with other findings.

ALCOHOL AND DRUGS

Alcohol and drug abuse will be associated with systemic weakness and wasting. With further abuse, myopathy will be associated with muscle pain, necrosis, fatigue, headache, irritability, insomnia, and even a jaundiced look in severe cases.

LET'S TALK ABOUT TREATMENT

With the advent of a more evidence-based approach to treatment protocols, this has brought its own problems. Research has become so evidence-based as to leave a trail of abstract generalities where decisions as to what is 'best' relies purely on the experience of the individual clinical practitioner. General muscle pains, regional and systemic, are subject to a range of interventions, such as general and local steroids, antibiotics, exercise, trigger points, heat and cold, manipulation, and massage, to name but a few. Present clinical practice is always based upon a combination of individual clinical experience and the best evidence which ultimately means that no two patients can be treated in the same way.

About the Author

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SUMMER SPECIAL

SOMETHING IN THE AIR

For a large number of sufferers, summer's swing is blighted by itching eyes, non-stop sneezing, and other unwelcome symptoms. And this year is set to be no different, given that the prevalence of allergic disease is rising, with the UK having one of the highest rates of allergy in the westernised world, and it being estimated that 21 million people in the UK have at least one allergy. (1) In view of this statistic, Allergy UK's Nurse Advisor, Holly Shaw, highlights the important role which pharmacists adopt in guiding and informing patients.

Holly Shaw

For many patients a visit to the community pharmacy during the summer months may be the first point of contact for several reasons, including convenience, accessibility, and availability of expert knowledge without the need to take time off school or work to make an appointment. In a changing healthcare landscape patients are actively seeking knowledge and treatment options that are flexible and that fit in with busy lifestyles.

Pharmacists are well-placed in their roles in community pharmacies to help address the needs of the allergic patient depending on the type of allergic condition they have. This should be done on an individual case-by-case basis, and include:

- Advice on the supply of over-the-counter and prescription-only medication
- Medication Reviews
- Device technique education
- Education on recognising allergic symptoms
- Advice on allergen avoidance or minimisation
- Signposting to another health professional
- Signposting to reputable sources for allergy testing

ALLERGY OVERVIEW

Allergy is an umbrella term for a group of allergic conditions, including:

- Asthma
- Eczema (atopic dermatitis)
- Hay fever (allergic rhinitis)
- Food allergy
- Drug allergy
- Venom allergy

UNDERSTANDING THE IMPACT OF ALLERGIC DISEASE ON YOUR PATIENT

It's common for allergic diseases to co-exist in children. Research has shown that there are close links between food allergy, asthma, hay fever, and eczema. (2) The progression of allergic disease from birth to late childhood has been historically described as the 'allergic march'. This simply means the natural order or sequence in which allergic diseases develop over time. (3)

The first signs of allergic disease seen in infants are usually food allergy and eczema, with asthma and hay fever having a later on-set in older children. Hay fever and atopic eczema are two common forms of allergic disease where patients may choose to visit a pharmacy for advice and treatment options before seeing their GP.

HAY FEVER

Hay fever (allergic rhinitis) is a common allergic condition affecting children and adults. A large proportion of hay fever symptoms will be endured because of grass pollen during the summer months. It's also possible to experience allergic symptoms from tree and weed pollens which pollenate at different times throughout the year.

Community pharmacists are well-placed with their product and medication knowledge to recommend specific treatments for hay fever. Antihistamines are commonly used to treat mild symptoms, such as a runny or congested nose, sneezing, and itchy and / or watery eyes. These should always be non-sedating so they do not impact on the individual's ability to carry out day-to-day activities. Patient education should always be provided for the correct use of nasal sprays and eye drops. Incorrect use can impact on medication efficacy and may result in poor compliance if there is no benefit.

ECZEMA

There is well-documented evidence on the link between early on-set eczema, which develops in the first few months of life, and an increased risk of developing food allergy. (4) Parents may seek the advice from pharmacists who are able to give advice on emollients which are the cornerstone of the daily management of eczema.

Emollients come in a variety of preparations, including lotions, creams, and ointments, and should be matched to the severity of dryness. Pump-style dispensers reduce the likelihood of an infection as pots and tubs of emollients may become contaminated. Using a bath oil or emollient substitute for washing will also help to improve skin dryness. Educating patients about the quantity, frequency and application techniques is important so that eczema can be well-managed using a complete emollient therapy regimen on a day-to-day basis with stepped-up treatment for eczema flares.

Parents may have concerns about using steroids to treat eczema flares and their concerns will need to be addressed. It's key that eczema flares are appropriately treated with a steroid potency matched to the severity and location of the eczema. If eczema appears to be infected (crusting, weeping, infant / child unwell with a high temperature) then signposting to the GP will be necessary for further management, which may include a course of antibiotics.

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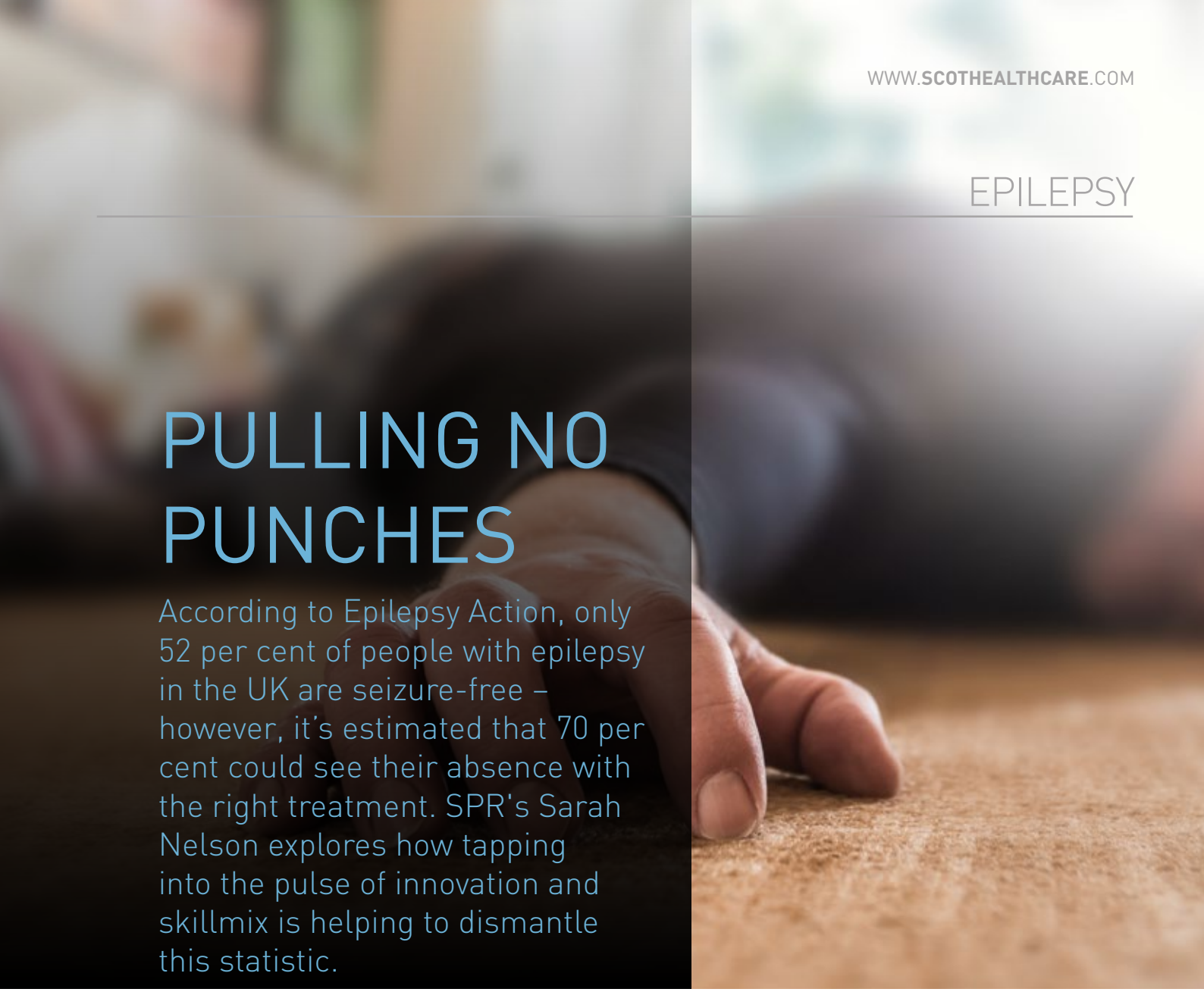

PULLING NO PUNCHES

According to Epilepsy Action, only 52 per cent of people with epilepsy in the UK are seizure-free – however, it's estimated that 70 per cent could see their absence with the right treatment. SPR's Sarah Nelson explores how tapping into the pulse of innovation and skillmix is helping to dismantle this statistic.

Modernity vs tradition: a formidable battle which has eclipsed even that of a boxing brawl between Mayweather and McGregor. Be it the familiarity of a leafed-through paperback pulling punches against the ease of an iPad reading app; or a visit to your friendly travel agent squaring up against the appeal of an online booking platform, the conflict shows no sign of subsiding.

As we know, the health profession is a glaring example of innovation's influence – but how is it helping an arena like epilepsy where treatment has, for so long, been peppered with misdiagnoses and misinformation? Given that it's now the most serious neurological condition in childhood – it affects 112,000 people aged 25 and under in the UK, and on average one child at every primary school and five at every secondary school will have been diagnosed with epilepsy – it may be time to untangle our ties to the old and look towards the new.

A SURGICAL SOLUTION?

The potential of innovation to reshape epilepsy-related service provision has particularly been steered via the arrival of new life-saving surgery options for young people with the condition.

In a study funded by Action Medical Research, new revelations home in on the impact of the combined scans of Electrical Source Imaging (ESI), Electroencephalography (EEG), and functional MRI (fMRI) – ESI/EEG-Fmri.

Dr David Carmichael, Reader in Neuroimaging and Biophysics at UCL Great Ormond Street Institute of Child Health, has been looking into improving imaging techniques which allow doctors to identify brain areas which cause seizures.

He, alongside his team, employed a child-friendly protocol, scanning 53 children without sedation or anaesthetics, measuring EEG and fMRI at the same time.

EPILEPSY

They first created an ESI map using EEG data to pinpoint where the epileptic activity was coming from. They then combined both the EEG with fMRI to create an EEG-fMRI map of the epileptic activity. In doing so, this gave a much more accurate profile of the area causing seizures which potentially will help surgeons to further improve the outcome of epilepsy surgery. The ESI and EEG-fMRI can then be controlled.

Additionally, the area causing seizures was accurately localised by combined ESI/EEG-fMRI (in 92 per cent) and ESI (in 82 per cent), which, it is hoped, will help surgeons and further improve outcome of epilepsy surgery.

Hot on the heels of the results being reaped, Dr Carmichael is looking to the future – suggesting that the NHS, as well as private specialists, should consider this method as part of their long-term investment and care plans for epilepsy surgical candidates.

'Our research is expanding so we could be able to help more young people,' he added.

'However, as the UK's health system continues at looking into cost management, investing in a combined ESI/EEG-fMRI scan could save long-term costs associated with having epilepsy.

'By analysing the results we've seen, the combined ESI/EEG-fMRI scan can offer a chance for children and young people with epilepsy, where standard MRI has failed.'

Weighing up the new findings, Carol Long, CEO of Young Epilepsy, commented, 'This research is hugely significant. More young people could now be considered for surgery; a life-changing opportunity to spend their adulthoods with much reduced, or no seizures.'

COOL STORY

Also charging ahead has been the prospect of change to earlier epilepsy treatment, and in line with this, a new study published in the journal, Epilepsia, and led by Marianne Thoresen, Professor of Neonatal Neuroscience, from the Bristol Medical School: Translational Health Sciences at the University of Bristol, has indicated that cooling babies deprived of oxygen at birth (perinatal asphyxia) can reduce the number of children who develop epilepsy later in childhood.

Known as therapeutic hypothermia, a cooling treatment has been developed and delivered for newborns who suffer a lack of oxygen during birth. And in order to assess its impact, for up to eight years, the researchers followed 165 infants who were born in the South West and who received the therapy.

Explaining the positive ramifications associated with the research, Professor Marianne Thoresen explained, 'Even if we account for a lesser severity of perinatal asphyxia, our research has shown that therapeutic hypothermia reduces the number of children who develop epilepsy later in childhood.

'Cooling treatment also reduces the number and severity of cerebral palsy and increases the number of patients who survive normally.'

A DIFFERENT TAKE

How we approach epilepsy is obviously hugely impacted by the nature of the condition itself – and it's important to bear in mind that research and revelations in this area keep rolling on.

In particular, when it comes to epilepsy's physical changes, they may be more widespread than previously accepted in that – as indicated by research delivered by UCL and the Keck School of Medicine of USC – thickness and volume differences can be identified in the grey matter of several brain regions. The brain abnormalities which the researchers identified were subtle, and have not yet been implicated in any loss of function.

'We found differences in brain matter even in common epilepsies that are often considered to be comparatively benign. While we haven't yet assessed the impact of these differences, our findings suggest there's more to epilepsy than we realise, and now we need to do more research to understand the causes of these differences,' said the study's lead author, Professor Sanjay Sisodiya (UCL Institute of Neurology and Epilepsy Society).

The team found reduced grey matter thickness in parts of the brain's outer layer (cortex) and reduced volume in subcortical brain regions in all epilepsy groups when compared to the control group, while reduced volume and thickness were associated with longer duration of epilepsy.

EPILEPSY IN FOCUS

- Every day 87 people are diagnosed with epilepsy
- One in every four people newly diagnosed with epilepsy is over the age of 65
- There are around 60 different types of seizure and a person may have more than one type. Seizures vary depending on where in the brain they are happening
- For some, seizures are life-threatening: 1,000 people die in the UK every year because of their epilepsy. As many as 400 of these deaths could be prevented. Around half of these 1,000 deaths are from sudden unexpected death in epilepsy (SUDEP), in which someone with epilepsy dies and no obvious cause of death can be found
- Deaths in people with epilepsy have increased by 70 per cent and people with the condition now die on average eight years earlier than the rest of the population, according to new figures from Public Health England (PHE), published in February 2018
- PHE also found that people with epilepsy are three times more likely to die from their condition if they live in a deprived area

Epilepsy facts have been obtained from Epilepsy Action. For more information, visit www.epilepsy.org.uk.

Epistatus® is licensed for use in the treatment of prolonged, acute convulsive seizures in children and adolescents aged 10 to less than 18 years, who have been diagnosed with epilepsy[1]

EPISTATUS®
10mg in 1mL Oromucosal Solution
Midazolam (as maleate)

Epistatus is approved for use by both the Scottish Medicines Consortium (SMC) and the All Wales Medicines Strategy Group (AWMSG)

Epistatus is presented ready-to-use in a novel, pre-filled, single-dose syringe, in a volume of 1mL[1], to provide carers with the confidence that they are administering the correct dose.[2]

Epistatus has been developed specifically for buccal administration and comes in a robust, tamper-resistant pack, which is UV-resistant to maximise shelf life.[1] It is portable and can be carried by patients at all times.[2]

"Prolonged convulsive seizures are a medical emergency and are associated with significant morbidity. Having an additional licensed product for their treatment will be of great benefit to both clinicians and patients."

Professor Rob Powell, Consultant Neurologist - Morriston Hospital, Swansea

Get support for the inclusion of Epistatus on your local formulary for prolonged, acute convulsive epilepsy seizure treatment in children aged 10 to less than 18 years old because Epistatus:

- offers a likely reduction in product wastage for patients with low frequency of seizures relative to use of multipacks in which the full supplied dose may not be required.[3]
- the single-dose pack meets the principles of the Medicines Optimisation and NHS RightCare approach to help reduce wastage.[4,5]
- the single-dose pack is compliant with the Falsified Medicines Directive that will come into force in February 2019.[6]
- the NHS price for a single 10mg in 1mL pre-filled syringe is £45.76.

Community Pharmacists can obtain Epistatus 10mg/1mL pre-filled syringes exclusively via Alliance Healthcare.

Hospitals can order Epistatus 10mg/1mL pre-filled syringes directly from Veriton Pharma Ltd www.veritonpharma.com.

For further information about Epistatus 10mg oromucosal midazolam pre-filled syringe, or to find out more about a budget model to calculate the financial impact of prescribing multipack buccal midazolam versus single-pack Epistatus visit www.epistatus.co.uk.

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EDM/1053/2018
Date of Preparation: May 2018

Epistatus Prescribing Information

EPISTATUS® 10mg oromucosal solution midazolam (as maleate). Please consult Summary of Product Characteristics before prescribing. **Presentation & composition:** oromucosal solution. Each 1mL of solution contains 10mg of midazolam (as maleate). Excipients with a known effect: ethanol 197mg/mL, liquid maltitol 675mg. **Indication:** Treatment of prolonged, acute, convulsive seizures in children and adolescents aged 10 to less than 18 years. Epistatus must only be used by parents / caregivers where the patient has been diagnosed to have epilepsy. **Dosage:** For children and adolescents aged 10 to less than 18 years the standard dose is 10 mg (1.0 mL). Carers should only administer a single dose. If the seizure has not stopped within 10 minutes after administration, emergency medical assistance must be sought. Patients should be kept under supervision by a carer who remains with the patient. A second or repeat dose when seizures re-occur after an initial response should not be given without prior medical advice. **Administration:** For oromucosal use only. Using the pre-filled oral syringe provided, administer, over a period of 2-3 seconds, approximately half of the prescribed dose to each buccal cavity. For detailed instructions please refer to the Summary of Product Characteristics. **Contra-indications:** Hypersensitivity to midazolam, benzodiazepines or to any of the excipients. Myasthenia gravis; severe respiratory insufficiency; sleep apnoea syndrome; severe hepatic impairment. **Warnings & Precautions:** Caution in patients with chronic respiratory insufficiency (may further depress respiration). For oromucosal use only. Take care to avoid the risk of choking. Midazolam should be used with caution in patients with chronic renal failure or impaired hepatic function (may accumulate); or cardiac function (may decrease clearance). Debilitated patients are more prone to the central nervous system (CNS) effects of benzodiazepines and, therefore, lower doses may be required. Midazolam should be avoided in patients with a medical history of alcohol or drug abuse. May cause anterograde amnesia. Contains maltitol and ethanol. **Interactions:** Please consult the Summary of Product Characteristics for full details. Midazolam is metabolized by cytochrome P450 3A4 isozyme (CYP3A4). Inhibitors and inducers of CYP3A4 may increase and decrease the plasma concentration respectively. In the presence of CYP3A4 inhibition the duration of effect of a single dose of oromucosal midazolam may be prolonged; careful clinical monitoring is recommended. Midazolam may interact with other hepatically metabolized medicinal products. Co-administration with other sedative / hypnotic agents and CNS depressants, including alcohol, is likely to result in enhanced sedation and respiratory depression. Additional alcohol intake should be strongly avoided. **Pregnancy and lactation:** Midazolam may be used during pregnancy if clearly necessary. The risk for new-born infants should be considered in the event of administration in the third trimester. Midazolam passes in low quantities into breast milk (0.6%); it may not be necessary to stop breast-feeding following a single dose. **Driving and machines:** midazolam has a major influence on the ability to drive or use machines. The patient should be warned not to drive or use machines until fully recovered. **Side effects:** Respiratory depression occurs at a rate of up to 5% although this is a known complication of convulsive seizures as well as being related to benzodiazepine use. Common: sedation, somnolence, depressed level of consciousness, respiratory depression, nausea & vomiting. Uncommon: pruritus, rash, urticaria. Following injection, additional adverse reactions have very rarely been reported (including respiratory arrest and cardiac arrest); these may be of relevance to oromucosal administration. Consult the Summary of Product Characteristics before prescribing. **Legal classification:** POM **NHS Price:** 10mg in 1mL prefilled syringe - £45.76 **Marketing authorisation number:** PL 16786/0003 **Marketing authorisation holder:** Veriton Pharma Limited, Unit 16, Trade City, Avro Way, Brooklands Business Park,Weybridge, Surrey, KT13 0YF, United Kingdom. **Date of last revision:** October 2017.

Adverse events should be reported. Reporting forms and information can be found at www.mhra.gov.uk/yellowcard. Adverse events should also be reported to Veriton Pharma Limited. Tel +44 (0) 1932 690325

SUMMER SPECIAL

ALL SUMMER LONG

The weight of winter's demand on pharmacy is well-documented – but what about the on-set of summer? Is there any respite? And to what extent must workloads be adapted to meet the public's summer-specific needs? Superintendent Pharmacist for M Farren Ltd, Allana Wilson, gives us the lowdown on how she's affected by the seasonal shift, and the unexpected cases she has encountered.

Ah, summer in the pharmacy – a wonderful time of year. My favourite time of the year to work in community pharmacy.

The patients are all in good moods, as the sun occasionally makes an appearance. It's the time of year when people are getting ready to go on holiday; are here visiting on holiday; or are making appointments at the travel clinic, talking to me about the amazing holiday they have just booked, and wondering why the travel agent didn't let them know that they might need rabies vaccines for them and their three kids. They question why I look panicked that there are five of them and I have a quota limit of three per month available to me.

I think at this time of the year most people seem more relaxed as the sun is out (for its guaranteed quota of five days in Scotland), the schools are out, and the pace of life seems to slow down.

Not in your local community pharmacy, though. The summer brings with it a whole different set of issues. We may not have Dr Owl reminding us to order our medication, but we do have lots of lucky patients who need extra supplies of the medication they get in their compliance aid because they are going away at lunchtime tomorrow for 10 weeks.

Once the schools are off, the fun really begins. We see an increase in the common ailments of the season – the bites and stings, sunburn, tics, cuts and scrapes, and my personal favourite, juvenile spring eruption.

I've worked in pharmacy for longer than I want to admit, and I had never seen this condition until two summers ago. Now I can spot the poor wee boy with the glowing ears as soon as he is dragged through the door by his worried mum.

Being a city-dweller working in a rural pharmacy I also get to see some less common ailments. For example, from the kids and those people who come to Crieff for the outdoor pursuits and beautiful scenery, I get to see the aftermath of neotrombiculaautumnalis attack, commonly known in these parts as berry bug bites. These miniscule bugs wait in the grass and on leaves, ready to pounce on unsuspecting humans (and animals), and cause itchy, red, raised lumps.

My personal favourite consultation was the farmer who wanted me to give him something to treat his Orf. At my blank look he kindly explained that he caught it from his sheep. My blank look stayed, and the patient left, with me still none the wiser.

For anyone interested, it's a red, itchy, painful lesion that over the course of around six weeks will first begin to weep and will then crust over and disappear.

Urgent supply of medications within the pharmacy seems to increase around this type of year – contributed by people here on holiday forgetting to bring their medication, and those who have just decided that Crieff is too lovely and want to stay for longer than they initially intended. Thankfully we have just had a nice, shiny new PMR system installed that stops me from having to write out CPUS forms and makes the whole process much simpler for both the patient and myself.

What doesn't make things simple is the insistence of my team that they too must take holidays, and they must take them during the holiday period. Do they not realise how inconvenient this is? I realise that they work extremely hard and I realise I could not do my job effectively without them, but do they really have to take holidays, during the holidays? If I'm honest it's not really them taking the holidays I mind, it's the sharing of photos of their sunny beach sunsets and cocktails that I have an issue with. Whoever said sharing is caring had clearly never worked in a busy pharmacy!

Everything I have mentioned is what makes pharmacy a great place to work. You never know who will walk through the door, what symptoms you will see, what medication you will have to source, and when your boss will pay an impromptu visit. But you can guarantee that you will have all of those things to deal with the minute your (ex) favourite patient utters the words, 'It's quiet in here today.'

PIONEERING NURSING PARTNERSHIP LAUNCHED

Paul Leishman

In what is seen as a landmark development for the nursing profession, the latest partnership at Dr Whitelaw and Partners within Meadowbank Health Centre in Polmont has been taken up by an advanced nurse practitioner. The appointment of Paul Leishman is believed to be the first of its kind in Forth Valley, and one of only a few in Scotland as a whole.

Paul, who moved to the practice from Kersiebank Medical Practice in Grangemouth, has said that he jumped at the chance to apply for the post when he saw it advertised with a view to a potential partnership.

He explained, 'This was an opportunity I couldn't turn down. The biggest challenge was thinking 'wow, is this for real, a nurse getting involved in ground-floor decision-making?"

Paul has been nursing for almost 30 years, and boasts a diverse career which includes posts at Sauchie and Bonnybridge Hospitals, and A&E at Stirling Royal Infirmary. He also worked latterly for eight years as an advanced nurse practitioner with the Hospital at Night team before moving to Kersiebank Medical Practice in Grangemouth.

'I think a partnership like this gives you a voice,' he added.

Dr Whitelaw's practice, with 11,500 patients, is one of the largest in Forth Valley, and Dr Ronnie Sydney has explained that the partners had discussed the possibility of appointing an advanced nurse practitioner as a partner due to changes in the way GP practices are being run.

FIRST MINISTER MEETS JAMIE OLIVER TO OUTLINE AMBITION TO HALVE CHILD OBESITY RATE

Scotland will aim to halve childhood obesity by 2030, First Minister Nicola Sturgeon has announced, in which the Scottish government will set the target in its Healthy Weight and Diet plan, due to be published this summer.

Currently, 29 per cent of children in Scotland are at risk of being overweight, including 14 per cent who are at risk of being obese. Nine-out-of-10 people believe obesity to be a serious problem in the country, and further support was showcased via responses to a recent public consultation on the diet and healthy weight plan, which demonstrated backing for the government restricting marketing of unhealthy food.

The First Minister announced the commitment while meeting campaigner and chef, Jamie Oliver, to discuss joint action to tackle child obesity and unhealthy eating.

The First Minister said, 'Our guiding ambition is to halve child obesity in Scotland by 2030, and we'll outline in our forthcoming Healthy Weight plan how we will develop the necessary actions to achieve this, and help everybody make healthy choices about food.

'As part of this, we will tackle junk food promotions and the marketing of unhealthy food, such as multi-buys, that encourage overconsumption. To ensure that the steps we take are proportionate and deliver beneficial outcomes, we will consult widely with consumers, suppliers, and retailers following the release of the new plan.'

DEPRESSION: POTENTIAL NEW TRIGGER IDENTIFIED

Nearly 80 genes that could be related to depression have been discovered by scientists, offering a potential insight as to why some people may be at a higher risk of developing the condition.

The repercussions from the study on treatment pathways for mental health could be substantial – and crucial – due to the fact that depression affects one-in-five people in the UK every year, and is the leading cause of disability worldwide.

Throughout the research process, scientists led by the University of Edinburgh analysed data from UK Biobank, scanning the genetic code of 300,000 people to identify areas of DNA that could be linked to depression.

Some of the pinpointed genes are known to be involved in the function of synapses; tiny connectors that allow brain cells to communicate with each other through electrical and chemical signals.

Dr David Howard, Research Fellow at the University of Edinburgh's Centre for Clinical Brain Sciences, and lead author of the study, commented further, 'This study identifies genes that potentially increase our risk of depression, adding to the evidence that it is partly a genetic disorder.

The findings also provide new clues to the causes of depression and we hope it will narrow down the search for therapies that could help people living with the condition.'

PAEDIATRIC NUTRITION: IT'S NOT CHILD'S PLAY

It is well established that breastfeeding is the prime starting point of infant feeding post-birth, being important for both the mother and the infant. In fact, the World Health Organisation recommends that babies are exclusively breastfed until six months of age to achieve optimal growth, development, and health, after which breastfeeding should be complemented with the introduction of solid foods until the age of two. (1) But in circumstances in which breastfeeding isn't feasible, which nutritional, alternative solutions can we present to the mother? And how can we help safeguard both her and her child's health? Martha Hughes, Scientific and Regulatory Executive, British Specialist Nutrition Association, shares her expert insight, focusing on specialist milks for infants.

Martha Hughes

Breastmilk provides the best nutrition and has many positive attributes for infants. If a mother can and chooses to, she should be fully supported by a healthcare professional to breastfeed her infant. However, there are some mothers who can't, or choose not to breastfeed for a variety of reasons. For these parents, provided there are no other health concerns for the infant, a standard infant formula milk may be used, providing the energy and nutrients healthy infants need to grow and develop.

Formula milks have been specifically developed to contain all the ingredients needed to meet an infant's nutritional requirements, although they can't provide all the protective factors found in breastmilk. (2) They are safe, rigorously monitored, and tightly regulated. (3) If a parent / carer decides to use a formula milk, it is important that they have access to support and advice from a healthcare professional, as well as following the manufacturers instructions. Formula milks can be used exclusively for infants, or with a combination of breastmilk, from birth to 6 months of age (infant formula), or as part of a mixed weaning diet for infants aged 6-12 months (follow-on formula).

SPECIALIST INFANT FORMULA MILKS

The importance of breastmilk for infants who are born prematurely, with a medical condition, or who develop a disease, disorder, or medical condition is universally recognised. However, some infants are unable to receive adequate nutrition from breastmilk alone, or a parent / carer may choose to formula feed. The only safe alternative source of nutrition which is suitable and safe for these infants are highly regulated (4) scientifically formulated infant milks, known as specialist infant milks, or infant Foods for Special Medical Purposes (iFSMPs).

It is essential that infants receive optimal nutrition to ensure adequate growth, health and development. (5) An underlying illness or condition can lead to malnutrition, with nutritional deficiencies, stunting and / or wasting presenting. This can be detrimental for an infant and have long-lasting implications for the health of the child. (1)

Specifically formulated and produced for a medical need, iFSMPs are medical products intended for the exclusive or partial feeding of infants and young children.

A diverse range of iFSMPs are available to address a number of conditions which infants can suffer from; it is essential that infants receive the appropriate formula for their individual requirements so that they are able to achieve optimal growth and development.

The conditions for which iFSMPs may be used can vary greatly in terms of their permanence, severity, and impact on day-to-day life. The age at which they should be introduced also varies, with some medical conditions being detected at birth by newborn screening (e.g. phenylketonuria (PKU)), and others having a later on-set or diagnosis, e.g. between six to 12 months, such as cow's milk protein allergy.

CONDITIONS WHERE AN IFSMP MAY BE REQUIRED

COW'S MILK PROTEIN ALLERGY

Cow's milk protein allergy (CMPA) is the most common highly complex food allergy in infants and young children, affecting 1.9 – 4.9 per cent of infants and children worldwide. (6) It is an allergic reaction to one or both of the proteins, casein and whey, found in milk. CMPA can be categorised as immediate (IgE-mediated) or delayed (non IgE-mediated). Symptoms include skin problems, such as eczema and hives, respiratory symptoms, and gastro-intestinal issues. In worst case scenarios, CMPA can lead to admission to A&E and / or paediatric intensive care units due to anaphylaxis and can potentially lead to death. It is important that those affected by CMPA are diagnosed and managed appropriately. For confirmed CMPA in breastfed infants, strict avoidance of cow's milk protein for the mother is currently the safest strategy for management. If this is not possible,

or an infant is formula-fed, a specific iFSMP can be prescribed, such as an extensivly hydrolysed formula (eHF) or an amino-acid based formula (AAF), as stated by NICE and MAP guidelines. (7, 8)

In an eHF, the protein has been hydrolysed into smaller peptides which the immune system does not recognise as cow's milk protein so no reaction occurs. (9) These are tolerated by the majority of infants and children (90 per cent) with CMPA. An AAF, which is made-up of free amino acids, is an alternative for those infants and young children who can't tolerate an eHF, or those with severe symptoms. (10)

LACTOSE INTOLERANCE

Infants with lactose intolerance have an inability to digest the carbohydrate lactose because they lack the enzyme lactase.

Typically, lactose intolerance in infants only lasts from a few days up to a few weeks. The common symptoms of lactose intolerance are gastrointestinal with loose stools, abdominal pain, flatulence, bloating, and discomfort. It's during this time that an iFSMP containing an alternative carbohydrate source to the lactose present in standard formula plays a vital role in managing the condition and ensuring the continued nourishment, development, and health of the child.

Although lactose intolerance can cause similar symptoms, it should not be confused with CMPA. Formulae for lactose intolerance are not suitable for infants with CMPA as they still contain cow's milk protein.

PRE-TERM

Thanks to advances in antenatal care, an increasing number of pre-term babies are surviving. These babies are vulnerable, and specialist paediatric dietitians have a critical role to play in making sure that the diet of these infants is effectively managed. Expressed breastmilk supplemented by a breastmilk fortifier is the preferred method of feeding.

However, mothers of pre-term infants may be under particular stress, which may affect their milk supply. If so, a specialist ready-to-feed pre-term formula may be required (11), which typically contains higher levels of energy, a higher protein:energy ratio and higher levels of key micronutrients, such as iron and vitamin D, when compared with standard formula. These formulae are designed to support the increased metabolic requirements of pre-term infants.

FALTERING GROWTH

Faltering growth is a term used to describe an infant who is not gaining weight or length, as expected, over a period of time. Causes of faltering growth can include: higher nutritional requirements, or an inability to consume enough nutrients to meet requirements, e.g. through muscular disorders or respiratory disease; poor swallowing; vomiting and diarrhoea; or poor absorption of nutrients, such as digestive disorders, including cystic fibrosis and chronic kidney disease.

Faltering growth may be managed with a specialist high energy infant formula, which provides more calories and protein than a standard infant formula, to help achieve catch-up growth.

GASTRO-OESOPHAGEAL REFLUX

Reflux, or gastro-oesophageal reflux, is when the stomach acid moves up into the oesophagus or even into the mouth. It is common for this to happen in infants during or immediately after feeding. However, when the volumes of returned feed are significant and the infant has additional symptoms, such as excessive crying, poor growth, and regular vomiting, then either an anti-reflux formula, which is pre-thickened or thickens in the stomach, or a feed thickener added to standard formula, may be required to manage this condition.

THE ROLE OF THE HEALTHCARE PROFESSIONAL

If an infant shows signs or symptoms which indicate that a specialist product may be required, it is essential that the infant is diagnosed and managed appropriately. Paediatric dietitians have the specialist expertise to collaborate with a GP to diagnose, advise and prescribe the appropriate product for an infant, ensuring that sufficient nutrients are provided to safeguard growth and development.

As infants have relatively high nutritional needs and growth trajectories, their nutritional support should be constantly monitored by a healthcare professional. One size does not fit all; as children grow and develop, their nutritional needs change, therefore they may need different nutritional inputs at different stages. Moreover, some conditions are characterised by periods of relapse and remission, e.g. Crohn's Disease, which makes on-going monitoring even more important.

The value of good paediatric dietetic advice in these situations can't be underestimated.

Not only is a medical condition stressful for the infant, it can be very upsetting for parents or carers. Conditions, such as gastro-oesophageal reflux, lactose intolerance and CMPA, can be significantly distressing and frightening for the parents of infants who suffer from them. (12) Therefore, any concerned parent should be encouraged to see their GP and subsequently referred to a paediatric dietitian to ensure the appropriate formula is recommended when their child is unwell and the condition professionally managed. This eliminates the risk of the parent or guardian receiving inappropriate advice about the dietary management of their child, which could put the health of the infant at risk.

ABOUT THE BRITISH SPECIALIST NUTRITION ASSOCIATION

BSNA is the trade association representing the manufacturers of products designed to meet the particular nutritional needs of individuals; these include specialist products for infants and young children, medical nutrition products, including parenteral nutrition and gluten-free foods on prescription. www.bsna.co.uk @BSNA_UK

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LIFE AFTER TRAUMA: PATIENT EMPOWERMENT

Manifesting in a myriad of ways, trauma is one of the biggest and ever-escalating causes of death and disability in the UK, affecting 48,000 people of all ages each year. But these patients' needs don't come to a halt simply due to hospital discharge – they must embark on a continuous and multi-faceted journey. In line with this, SPR takes a look at how new technology is being developed, which fuses peer connection with medical assistance, in order to aid the recovery of injury survivors.

What constitutes a 'traumatic' or 'major' injury is hugely varied and can be anything from spine and head injuries from falling off a ladder, to crush injuries from being in a road accident, or injuries from a personal assault. Many major injury survivors find themselves having to cope with life-altering conditions, but there's not enough support for these patients when they are discharged from hospital, leaving a vast number of patients with little sense of how to navigate their recovery. Nor is there any peer support available so that patients feel less alone. Some patients describe their discharge from hospital as feeling like 'dropping off a cliff'.

However, efforts to change this are picking up momentum – such as work produced by the Barts Centre for Trauma Sciences (C4TS) at the Blizard Institute, Queen Mary University of London. Launching in August this year, their After Trauma app has the potential to significantly and positively impact the thousands of people each year that experience traumatic injury in the UK.

FROM VISION TO FRUITION

The After Trauma app – funded by healthcare innovation funder, Barts Charity – is the vision of Karen Hoffman, Head of Trauma Rehabilitation Research at C4TS, and Lieutenant Nigel Tai, Consultant Trauma and Vascular Surgeon at the Royal London Hospital. The app is to transform the supportive care that trauma patients have access to and will greatly aid their transition from hospital to home life. It has been co-designed with a focus group of highly motivated and insightful injury survivors, carers, and clinicians, and some of the app's features include a goal setter, recovery tracker, and timeline where users can load up personal notes and images of their recovery.

As is widely accepted – information alone doesn't change behaviour, and so the app will also feature a recovery tracker to enable patients to self-manage their rehabilitation and enable them to connect with peers to support commitment and motivation that ensures maximum user benefit. Crucially, it also includes a chat feature to allow users to connect with and talk to other survivors and carers, as the diverse nature of traumatic injury can make it very challenging for patients to otherwise find each other.

Ella Dove

LIFE AFTER TRAUMATIC INJURY

Ella Dove, an ambassador for the Barts Charity Transform Trauma appeal, tripped and fell while out running in 2016, resulting in an injury which led to her having her leg amputated. She knows first-hand how important it is for trauma survivors to receive guidance and support throughout their rehabilitation and recovery.

She said, 'In my experience, the main problem with trauma recovery is the after-care. You're discharged from hospital, rehab units, physio, etc., and left feeling a bit lost. For me, that was when the real psychological impact hit.

'I think that the app is a vital tool for minimising the above described situation. As well as the practical advice and support, it provides a community. People can find like-minded individuals, which to me has been invaluable – there is nothing like speaking to someone who has been through the same or a similar situation. They understand in a way nobody else (not even the health professionals) can. Similarly, loved ones and carers don't need to feel alone. It's about information, suggestions, and advice, but it's also about togetherness.'

Like Ella, many of the trauma patients that have fed into the app's development marked peer connection and support as one of the key needs for aiding their recovery, something that the After Trauma app will provide a space for.

IMPACT FOR UK TRAUMA TREATMENT

Major trauma centres in the UK receive cases across large catchment areas which often presents challenges for outpatient rehabilitation and review of patient recovery following their discharge from hospital. Trauma patients will often be seen by many healthcare practitioners – from neurosurgeons to orthopaedic surgeons, and many kinds of therapists – making co-ordination of medical care and accompanying notes tricky.

The After Trauma app aims to alleviate the chaos of this by providing patients with one central place, accessible via a mobile platform, that enables patient co-ordination of their personal medical care. It has the functionality to upload videos and images of the recovery and rehabilitation, and vitally, ownership over their medical information and recovery progress. This can then be shared with their healthcare professionals – surgeons, GPs, physiotherapists, etc. – providing better continuity and consistency in after-care, and giving patients a greater sense of control over their rehabilitation process.

Ideally, the After Trauma app will be introduced to patients by trauma clinicians while they're still in hospital, and they'll be encouraged to start using it as soon as possible to aid the transition from hospital to home. A user manual will also be available to support healthcare professionals in showcasing the app's full functionality and potential patient impact.

WHAT'S NEXT FOR TRAUMA – CAN YOU HELP?

The AfterTrauma team is keen to hear from healthcare practitioners across all fields that are interested in contributing to the app and want to learn more about how it can actively support patients. They would also like to hear from individuals that have experienced physical trauma and want to help input towards the next stage of development

For more information, or to contribute, contact the C4TS Communications Officer, Nicole Skelty, by emailing n.skeltys@qmul.ac.uk.

Ella has also noted that, 'GPs could definitely be better taught when it comes to trauma patients – perhaps by shadowing or speaking to trauma consultants, or by going on more courses so that they understand the breadth of trauma and can provide advice and support accordingly. It would have been so reassuring if my GP had called me after my accident and established that line of communication at an earlier stage. Instead, I had to call him, and he knew very little about what I'd been through. Short of writing letters and my prescriptions, he didn't have much involvement at all – it was the prosthetic centre who did everything, including putting counselling support in place for me.

'Improved communication with GPs would be hugely beneficial. That way, trauma patients will feel more like there is a continuous care plan in place and not quite so marooned.'

While the app will be piloted and available for use in August, it will continue to evolve over time with user feedback and input from clinicians. The UK military's model of rehabilitation is one that the After Trauma team aspire to due to it being significantly more developed than that which is currently available to civilians, and some joint work with the military to incorporate elements of this gold standard of care into the next phase of the app's ongoing development would be desirable.

It's hoped that soon, the app may eventually be able to sync with some rehabilitation aids and equipment to increase the quality and amount of patient recovery information that can be collated and shared.

The After Trauma app is due to be piloted in August.

For more information about After Trauma and the app, visit www.aftertrauma.org, and to stay up-to-date with Barts Charity, visit www.bartscharity.org.uk.

NEWS

STATE-OF-THE ART MRI SUITE UNVEILED

Patients across Forth Valley are now being seen within a newly-refurbished MRI suite at Forth Valley Royal Hospital, which contains a new state-of-the-art £1 million specialist scanner, a backlit picture wall, and concealed ambient lighting which changes colours to help patients relax in calmer and less clinical surroundings.

Notably, the picture wall features images of Aberdour beach and lighthouse which were taken by NHS Forth Valley's Head of Medical Physics, Bryan Hynds, who is an award-winning amateur photographer.

Around 160 patients from across Forth Valley require MRI scans every week to take images of all parts of the body, including the brain, spinal cord, heart and blood vessels, and internal organs, such as the liver, womb, prostate gland, and gall bladder.

Every year NHS Forth Valley invests millions of pounds to replace and upgrade a wide range of medical equipment, with the MRI scanners normally having to be replaced every seven-to-10 years.

ACTIONS REVIEWED ON PRICE AND AVAILABILITY OF TOBACCO

NHS Health Scotland and the University of Edinburgh have published two papers examining potential policies to reduce harm from tobacco in Scotland in which they looked at both tobacco pricing, and the availability of tobacco.

The teams have subsequently discovered a number of examples of policies that could reduce smoking rates – including ways to address the particularly high impact of tobacco use on people living in deprived areas. Most of the examples noted derive from international studies and are based on modelling, and so further research should be done to determine whether these approaches could work in Scotland.

Ross Whitehead, Public Health Intelligence Adviser, Evidence for Action Team at NHS Health Scotland, explained, 'Smoking kills around 10,000 people a year in Scotland, and causes most harm to those in our poorest areas where 35 per cent of people smoke, compared to 10 per cent in the least deprived areas. We need to address this health inequality if we are to achieve our smoke-free ambitions.

'Last year experts told us that action on the price and availability of tobacco could affect the change needed. So we've looked at what actions have been taken elsewhere, as a starting point for future research on whether restricting the price or availability of tobacco could be effective at reducing harm from tobacco for people in Scotland.

'We have a reputation in Scotland for taking bold action on the things that harm our health. I hope our reports will inspire more research into our options here, so that we can reduce the harm from tobacco and create a fairer, healthier Scotland.'

STEREOTYPES ABOUT WOMEN'S DRINKING BRANDED UNFAIR AND UNHELPFUL

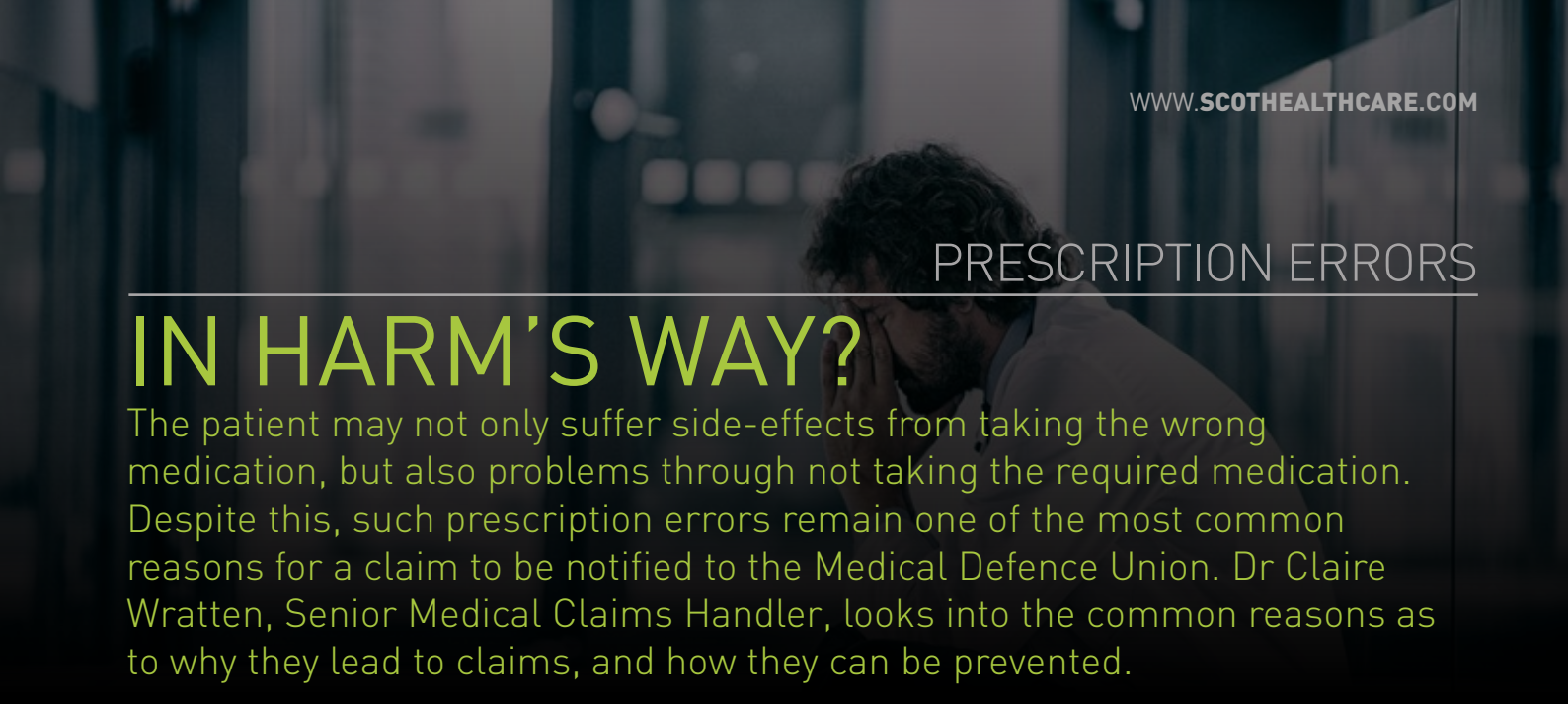
The stigmatisation of women's drinking, and the sexualisation of women in alcohol advertising, has been highlighted at the Scottish parliament by policymakers, academics, researchers, and politicians.

A new report launched by the Scottish Health Action on Alcohol Problems (SHAAP) and the Institute of Alcohol Studies addresses some of the challenges faced by women in relation to alcohol, and is supported by infographics developed by Glasgow Caledonian University, and the University of Stirling.

Key recommendations from 'Women and Alcohol' relate to better collaboration between researchers, practitioners, women's rights groups, and those with lived experience of alcohol harm, as well as restrictions being implemented for all forms of alcohol marketing, including online, which employ sexualised images and messaging relating to women.

Authors of the report, Victoria Troy and Dr Eric Carlin, (both of SHAAP), emphasised the importance of achieving change, saying, 'Although men are about twice as likely as women to die from alcohol-related causes, media discussion often focusses on the perceived problem of women's drinking, with moralistic and stigmatising attitudes featuring strongly in public discussions.

'We've been trying to explore why this happens and to suggest how we can counter cynical marketing by alcohol producers that exploit rather than emancipate women, as well as suggesting how support services can be more women-friendly.'



IN HARM'S WAY?

The patient may not only suffer side-effects from taking the wrong medication, but also problems through not taking the required medication. Despite this, such prescription errors remain one of the most common reasons for a claim to be notified to the Medical Defence Union. Dr Claire Wratten, Senior Medical Claims Handler, looks into the common reasons as to why they lead to claims, and how they can be prevented.

Prescription errors are one of the most common reasons for claims to be notified to the Medical Defence Union (MDU). Although, generally, claims for damages relating to prescription errors are not very high, the error can, nevertheless, cause significant anxiety for both the patient and prescriber. Although in the majority of claims notified to the MDU that relate to prescription errors, there is no ongoing harm to the patient, occasionally, the results can be catastrophic.

In the past, the source of a prescription error may have been the prescriber's handwriting, however, with the advent of electronic prescribing, the error more commonly relates to accidentally clicking on the wrong drug or dose from a drop-down menu. If the patient needs a prescription on repeat, this error can be compounded further, and several prescriptions issued before the error is picked up.

REPORTED CLAIMS

Between 2011 and 2015, there were a total of 217 cases closed in relation to prescription errors. Of these, 137 (63 per cent) were successfully defended, a slightly lower rate than the MDU's usual success rate of almost 75 per cent over the last 10 years, which reflects the fact that prescription errors can be hard to defend in terms of breach of duty. It may, however, be possible to defend a case on the basis that despite a prescription error being made, no harm was caused to the patient.

In cases where damages were paid, they ranged from between £900 to almost £2 million (the latter concerned hypoxic brain injury following cardiac arrest due to excessive morphine), however more than half of claims resulted in damages payments of under £15,000, while only six per cent of payments were over £100,000, the majority of which were due to excessive prescribing of sedating analgesics. While the majority of claims involved GP members of the MDU, five per cent were from members in private practice.

WHICH DRUGS?

Over 50 different drugs or drug types were involved in the claims looked at, and there were also claims relating to devices and methods of drug delivery (for example, eye drops being prescribed rather than ear drops).

The most common cause of drug errors were analgesics, other than non-steroids (mainly opiates), followed by NSAIDs. The other most frequently involved drugs were penicillins, then other antibiotics, followed by anti-epileptics, and then antidepressants.

The most common drug-related errors were:

- Prescribing a drug to a patient with a known allergy (in particular, penicillins)
- Prescribing the wrong drug due to them having similar names (e.g. mefloquine instead of Malarone)
- Prescribing the wrong dose of the drug (for example, a twice-weekly drug being prescribed daily)

Other claims in relation to prescribing errors included failing to consider drug interactions, resulting in side-effects, patients developing addictions to medication, and claims in relation to recognised side-effects of medications.

REDUCING PRESCRIPTION ERRORS

Although the steps that can be taken to try and reduce prescription errors may seem obvious, the number of claims that are notified to the MDU suggests that despite care being taken, checks are not always being made.

To avoid prescription errors, doctors should:

- Check for known drug allergies
- Take care to prescribe the intended drug, correct dose, and correct delivery method, especially when selecting from a drop-down menu
- Warn patients of side-effects, both common and more serious ones
- Re-evaluate the need for a specific drug if a side-effect occurs or if the clinical situation changes (for example, if a patient becomes pregnant and the drug is contraindicated)

CASE STUDY

A patient with hypertension was prescribed NSAIDs for possible gout. This resulted in improvement in his symptoms and the NSAIDs were put on a repeat prescription which continued for four years. During this time he remained on anti-hypertensives and his blood pressure was well-controlled but his renal function wasn't checked.

When the patient's renal function was ultimately checked, his serum creatinine was 147μmol/L. A letter was sent inviting the patient to make an appointment for review, but no appointment was made and repeat prescriptions continued to be issued for both the NSAIDs and the anti-hypertensives.

Two years later, renal function was measured again and the serum creatinine had risen to 180μmol/L and the calculated GFR was 36 ml/min. Renal function was rechecked three months later and was unchanged. The patient remained On NSAIDS and the renal function was not repeated for three years, by which time the patient had a GFR of below 20ml/min. At this point the NSAIDs were stopped and a referral made to the nephrology clinic but unfortunately renal function continue to decline and the patient required renal replacement therapy. A letter of claim was received alleging that there was a failure to monitor rental function despite long-term prescriptions of NSAIDS to a hypertensive patient, and that once renal impairment was demonstrated there was a failure to stop the NSAIDS and a failure to measure renal function regularly. It was alleged that if this occurred, end-stage renal failure would have been avoided.

The MDU instructed independent GP and nephrology experts. The GP expert advised that renal function should have been measured more frequently, and once renal impairment was diagnosed, serious consideration given to stopping the NSAIDs and prescribing alternative analgesics.

The nephrology expert advised that the long-term prescription of NSAIDs made a significant contribution to the claimant's renal impairment and end-stage renal failure. In light of this expert advice, and with the agreement of the GP involved, the claim was therefore settled.

AMD: LOOKING TO THE FUTURE

As a leading cause of vision loss among people aged 50 and older, the impact of Age-Related Macular Degeneration is undoubtedly profound. But are you up-to-date on the mechanisms being tested to contend with this deterioration? Giuliana Silvestri MD FRCP FRCSEd FRCOphth, Consultant Ophthalmic Surgeon at the Belfast Health & Social Care Trust, veers down the new avenues of treatment and explores the progress of their clinical trials.

Giuliana Silvestri

AMD Severity (Classified According to Vision in the Better-Seeing Eye)	Comparable Chronic Conditions	Decrease in QoL
Mild Vision 6/6s-6/12	Moderate angina or symptomatic HIV	17 per cent
Moderate Vision 6/15-6/30	Severe angina or fractured hip	32 per cent
Severe Vision ← or equal 6/60	Kidney dialysis	53 per cent
Very severe Vision ← or equal 6/240	End-stage cancer or catastrophic stroke	60 per cent

Table 1: AMD results in quality of life (QoL) burdens similar to those of other chronic conditions

WHAT IS AGE-RELATED MACULAR DEGENERATION?

Age-Related Macular Degeneration (AMD) is the most common cause of visual impairment in the elderly, accounting for over 50 per cent of visual loss in those aged 75 years and over. The earliest signs of AMD are drusen (yellow spots – waste deposits) under the retina and ageing changes in the retinal pigment epithelium layer. Early AMD is often asymptomatic. In some individuals, these changes progress to late AMD. Late AMD can be either wet (neovascular) or atrophic (geographic atrophy), both of which cause loss of vision.

The main effect of AMD is to reduce the ability of the individual to engage in everyday tasks that require clear central vision. This causes difficulties with both near tasks, such as reading, and seeing faces, and therefore identifying people becomes difficult. (Figure 1)

As the condition progresses, distance vision is also compromised, leading to loss of ability to drive. AMD is associated with increased risk of depression, increased levels of dependency and an overall decrease in the quality of life.

Brown et al reported how the Quality of Life (QoL) burden of AMD at different severities compares with other diseases. (Table 1)

HOW COMMON IS AMD?

Data from 2010 for the UK shows that over 600,000 persons are estimated to have AMD, with over 220,000 suffering sight loss. Reported estimates indicate that around 40,000 new cases of wet AMD are expected per year in the UK. Despite novel anti-VEGF therapies, there are still an estimated 225,000 sight-impaired individuals in UK. This figure includes individuals with geographic atrophy which causes 80 per cent of late stage AMD, anti-VEGF non-responders (25 per cent) and those individuals who lost vision prior to anti-VEGF therapies.

WHAT CAUSES AMD?

Although genetic predisposition is now accepted as being a major player in the pathogenesis of AMD, extrinsic factors and lifestyle are also known to be important in the disease process. Smoking and hypertension increase the risk for progression to late AMD, especially the 'wet' type.

Studies have shown that good diet and vitamin supplementation may help reduce progression of AMD in some individuals. The effect of light on AMD progression remains to be fully evaluated.

A number of genes have been shown to be associated with AMD. The two most important genes are the Complement family of genes which are involved in the immune response and also a gene known as HTRA.

The precise function of HTRA remains unknown. As genetic predisposition is complex, genetic testing, though available, is not recommended routinely.

WHAT ARE THE SYMPTOMS OF AMD?

Individuals with early AMD are often asymptomatic, however, some difficulties may be experienced even in the early stages with small print and in poorer lighting conditions. As the disease progresses, blank areas, i.e. scotoma, may be noted and an affected individual may miss parts of words. Visual acuity will start to decrease gradually and in the 'atrophic' form progress to the severe visual loss may take years. Sudden distortion of vision usually signals the start of 'wet' AMD and must be reported urgently as the new anti-VEGF therapies are very effective in halting the progress of wet macular degeneration, especially if treatment begins early.

The important message for patients is to ensure that individuals know that 'distortion' of vision requires urgent investigation. Despite the improved treatments, many patients are still presenting late to their GPs and optometrists.

Most optometry practices are now equipped with imaging technology and are well placed to make the diagnosis and advise on the need for urgent referral.

WHAT TREATMENTS ARE AVAILABLE FOR THE DIFFERENT TYPES OF AMD?

Recently anti-VEGF therapies have made a significant impact on reduction of visual loss in wet AMD. These therapies, which are delivered by injection into the eye often on a monthly basis, have revolutionised the management of individuals with 'wet' AMD, resulting in many individuals retaining useful levels of vision for many years. However, no treatments exist for the atrophic form of the disease.

Figure 1: Individuals with late AMD experience blank dark areas in the centre of their vision

In addition, a number of patients with 'wet' AMD still lose vision either because of late diagnosis or lack of effect of current treatments.

The only treatment option for individuals who experience moderate-to-severe visual loss is the enhancement of remaining vision with external low vision aids.

ARE THERE ANY NEW TREATMENTS FOR AMD?

Research into new avenues for treatment of both forms of AMD continues at an accelerated rate, with a number of new options being tested in clinical trials.

Areas under research fall into four categories:

- New drug therapies for both wet and dry AMD, which can be delivered in different ways: by injections into the eye, exploration of sustained-release devices which may be longer acting, oral medications and topical therapies or extra-ocular implants
- Transplant of retinal / retinal pigment epithelial cells
- Gene therapies
- Technologies to improve vision, such as digital aids, intraocular magnifying implants and artificial vision through retinal implants and special glasses / lenses

For individuals who have lost vision, low visual aids, such as special spectacles and head-mounted or handheld telescopes, which magnify images onto the retina, remain the main avenues of rehabilitation. Elderly patients vary in their acceptance and ability to manage visual aids as use can be tedious due to a small visual field and tracking can be difficult.

A recent novel concept is the use of implantable intraocular magnifying telescopes. A number of new intraocular technologies have been developed with the aim of improving residual vision in those who are in the advanced stage of the disease.

These technologies aim to improve visual acuity by implanting a magnifying system within the eye either at the time of cataract surgery or at a later stage, thereby improving visual acuity and reducing the requirement for high-powered external low visual aids. The main reason that external devices can be uncomfortable to use is because of the relative movement between the eye (which is constantly moving) and the fixated device. This results in the magnified image going in and out of focus. If successful these intraocular magnifying devices could improve the quality of life and reduce dependency, thereby potentially reducing the costs associated with caring for visually impaired individuals. Recent articles in the press have resulted in significant patient interest in these devices.

A number of intraocular magnifiers are currently available for use. These are as follows:

TRUE INTRA OCULAR TELESCOPES:

1. IMT Centrasight" (IMT) implantable miniature telescope (VisionCare Ophthalmics)
2. OriLens – Mirror telescope – Optolight Vision
3. LMI-3 Anterior chamber LMI – OptoLight Vision

DOUBLE IOL IMPLANTED TELESCOPIC EFFECT:

1. IOL-Vip – Soleco/Lenspecials, Italy
2. IOL AMD & Eye Max – London Eye Hospital

INTRA OCULAR MAGNIFIERS:

1. Scharrioth lens (SML) – Add +10.00

A summary of the characteristic of the devices is shown in Table 2.

The Centrasight device has been tested in clinical trials and produces excellent magnification (x 2.5 - 3). The trade-off is that there is a significant reduction in contrast sensitivity and reduction of the peripheral field in the implanted eye. In addition, the implant is large, requiring a large surgical incision, a lengthy recovery time, and potentially increases risk of damage to the corneal endothelium. That said, the device has been shown in clinical trials to improve vision by two lines in 90 per cent of implanted eyes. Quality of life also improved.

The IOL-VIP (Veni-Vedi) is a 2-lens system that is easier to implant, however concerns exist regarding long-term safety in terms of corneal damage. In addition, as the magnification potential is low (x1.3) the visual outcomes appear to be more modest.

The OriLens (Optolight Vision Technologies) is based on different optical principles than the Centrasight. The OriLens uses reflecting optical principles. By using mirrors in the design, the device can offer the same magnification but is much smaller in size. The principles are similar to those used in the Hubble telescope. Advantages include reduced device thickness: 1.25mm versus 4mm (Centrasight) which allows for a reduction in wound size and shorter recovery time. The device is surgeon-friendly, enabling a short learning curve and due to the small size of the device, there is reduced risk of damage to the eye (corneal endothelium) during surgery. The device is shown in Figure 2b. A further potential advantage is that the OriLens is reported to cause less restriction of the peripheral visual field, Figure 2c. The central image is magnified X 2.5 while the

AMD

peripheral image stays unchanged in size and contrast. This feature is unique to the OriLens Figure 1c. Demonstrates the different magnifications and visual field changes in three devices.

As the OriLens device is new, evidence is limited. The OiLens is currently being assessed in a randomised multicentre clinical trial, which is funded by the NIHR and is open to recruitment at the BHSCT. Centres in England, Scotland and Wales are expected to open soon. The MIRROR Trial (ISRCTN47403123 DOI 10.1186/ISRCTN47403123: How Well Does the Orilens (Hubble-Type) Implant Work in Improving Vision in Age-Related Macular Degeneration?) compares the efficacy and safety of the OriLens with standard of care treatment with conventional low vision aids.

Eligibility criteria for the trial include Stable wet or dry late AMD. Visual acuity of less than 6/38 and better that 6/240 in each eye; bilateral previous cataract surgery; experience with low vision aids, and no history of glaucoma.

For more information on the MIRROR Trial, visit www.nictu.hscni.net. A copy of the patient information leaflet and screening eligibility questionnaire can be downloaded from this site.

REFERENCES

1. Brown GC et al. Trans Am Osphthalmol Soc. 2005;103:173-184

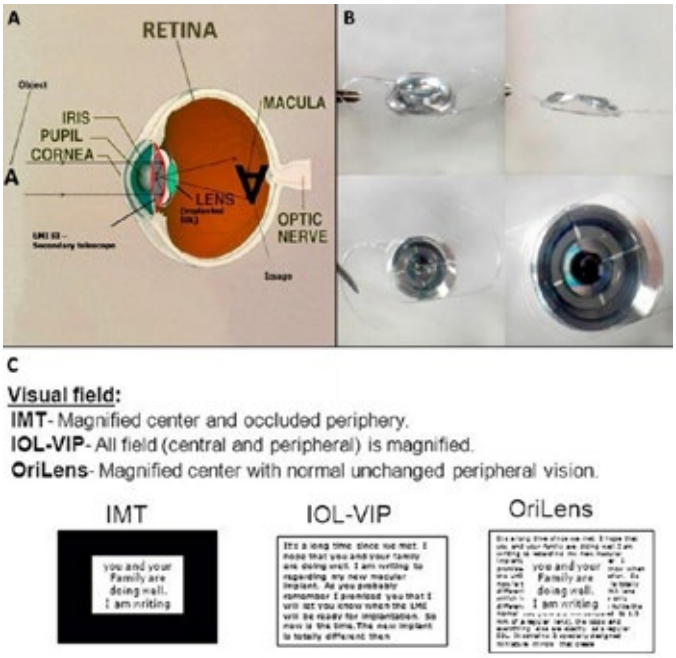


Figure 2: a – Schematic showng the position of the OriLens in the eye and resultant magnification of image
b – OriLens device both in profile and en–face
c – Comparison of magnification and visual field restriction with IMT, IOL-VIP and OriLens. (With permission courtesy of Optolight Technologies)

Table 2: Comparison of features of available intraocular magnifying devices

Device	Magnification	Eye Suitability	Position in the eye	Incision size	Effect on Visual field	Cost Of Device
IMT (Centrasight)	x2.2-2.8	Phakic	In the bag, protrudes into anterior chanmber	12 -13 mm	Magnified centrally.; peripheral field restricted to 20 degrees	$$$ centrally Normal periphery centrally Normal periphery
IOL - VIP	x1.3	Phakic & pseudophakic	2-lens system	5-6mm	Mildly magnified	$$
LMI - Orilens	x2.5	Phakic & pseudophakic	Posterior chamber sulcus fixated	6-7mm	Magnified centrally Normal periphery	$$
iolAMD	x1.3	Phakic & pseudophakic	2-lens system One in the bag and 1 in the sulcus	3mm	Magnified centrally Normal periphery	$$
SML	+10 add (x2)	Phakic & pseudophakic	In the sulcus	2.2mm	Magnified centrally Normal periphery	$

ALCOHOL FOCUS SCOTLAND

REDUCING ALCOHOL AVAILABILITY IN SCOTLAND: A TALL ORDER?

The burden of excessive alcohol abuse in our society is widespread; with lives being cut short, children and families suffering as a result of other people's drinking, and communities contending with alcohol-related crime and violence. It's time to reduce the impact through the implementation of effective alcohol control policies and legislation. Alison Douglas, Chief Executive at Alcohol Focus Scotland, discusses the necessity of governmental intervention and better national direction.

Alison Douglas

We Scots have a tendency to assume that when it comes to our alcohol problem, 'it's aye bin.' But is that true? No. The reality is that there have been significant changes in how much we drink, where we drink, and the impact on our health over the last 30 years. Alcohol is now 60 per cent cheaper than it was in 1980, thanks to competition among supermarkets, who have used alcohol as a means of attracting consumers, pushing prices down and consumption up, and encouraging a shift towards drinking at home.

In this time we've also seen a significant rise in alcohol-related hospital admissions and deaths in Scotland. In the 1980s, there were around 600 alcohol-related deaths per year – by the mid-2000s this had increased to 1,500. Liver disease rates had also increased three-fold in 10 years. Right now, an average of 24 Scots die because of alcohol every single week.

The shocking impact on health is accompanied by other social harms, such as violent crime and marital breakdown.

The total societal cost in 2007 was estimated at £3.6 billion, or £900 for every adult. It was clear that this was no longer a marginal issue, affecting only a small minority of people. One-in-three men were estimated to be drinking over the recommended limits, and one-in-four women. But non-drinkers were also suffering the consequences and footing the bill.

ALCOHOL FOCUS SCOTLAND

Minimum unit pricing was recommended by Alcohol Focus Scotland, and other health professionals, as key to addressing this issue. 11 years, and a laborious five-year legal struggle, later minimum pricing is finally in place in Scotland, and we look forward to seeing the results. In the first year alone minimum price is expected to save 58 lives, reduce hospital admissions by 1,299, and reduce crimes by 3,500, with each following year building on this.

Minimum unit pricing will save the lives of hundreds of Scots, but everyone is agreed that on its own it's not sufficient to solve Scotland's alcohol problem. Now is the time for further action to truly turn the tide of alcohol harm – and tackling the widespread availability of alcohol must be part of the mix. From 2012 to 2016, the total number of alcohol outlets in Scotland increased by 472 to 16,629. There are now 16 times more licences than GP practices.

Recent research from Alcohol Focus Scotland and the Centre for Research on Environment, Society and Health at the Universities of Edinburgh and Glasgow, published in April 2018, looked at the links between the number of places selling alcohol and health and social harms.

The study examined information for 6,976 small neighbourhood areas across the whole of Scotland and found that areas with the most places selling alcohol had significantly higher crime rates – as well as almost double the rates of alcohol-related deaths and hospitalisations – than areas with the least outlets.

From this work we were also able to see the stark differences at a local level between the number of places to buy alcohol in different communities. There were 40 per cent more alcohol outlets in the most deprived neighbourhoods than in the least deprived neighbourhoods; but 90 per cent more off-sales outlets specifically. This is helping to drive and sustain the severe health inequalities we see in Scotland.

It's the first time that the link between crime and the number of alcohol outlets has been looked at in such detail across Scotland, and association was stark with areas with the most alcohol outlets having crime rates more than four times higher compared to areas with the least.

WHAT DOES THIS MEAN FOR SCOTLAND?

The Scottish evidence – in keeping with international evidence – is clear that the easier it is to get hold of alcohol, the more people will drink, and the more harm we will experience.

Although there has been some progress in licensing over the years, availability is moving in the wrong direction, with the number of places licensed to sell alcohol continuing to grow.

Supermarkets are moving to smaller convenience stores where consumers buy little and often. This has implications for the ease of purchase, particularly when products are sold chilled and ready-to-drink, encouraging impulse purchases. Various factors, including price competition with off-sales, have required pubs to adapt. Licensed trade commentators frequently highlight the decline in the pub trade, mainly in rural areas. Those that appear to be faring better tend to be 'dry-led', with a focus on food. Cinemas, petrol stations, and coffee shops are now among the businesses that are licensed. Meanwhile, concerns have been expressed about the potential growth in online sales and the implications of this for licensing.

That's why there's a real need for greater national direction on availability and a clearer expectation of how licensing can, and should, contribute to reducing consumption and harm in Scotland. We would like to see a commitment to tackling availability at the heart of the Scottish government's next steps on alcohol prevention which are due to be published later this year.

BY THE NUMBERS

ALCOHOL-RELATED HOSPITAL STAYS IN SCOTLAND (FROM ALCOHOL-RELATED HOSPITAL STATISTICS SCOTLAND 2016 / 17)

- There were 36,235 alcohol-related hospital stays in 2016 / 17
- 24,060 people in Scotland had at least one admission to hospital with an alcohol-related condition
- 92 per cent of the alcohol-related hospital admissions were to general acute hospitals, and eight per cent to psychiatric hospitals
- 93 per cent of alcohol-related hospital stays resulted from emergency admissions
- 71 per cent of alcohol-related hospital stays were men
- Rates were highest in the 55 to 64-year-old age group for men, and the 45 to 54 age group for women
- Rates were nearly eight times higher for people living in the most deprived areas compared with the least deprived
- NHS Greater Glasgow & Clyde had double the rate of alcohol-related hospital stays compared with NHS Dumfries and Galloway.

ALCOHOL-RELATED GP CONSULTATIONS IN SCOTLAND (FROM SCOTPHO)

- There were an estimated 94,630 alcohol-related primary care consultations by 48,420 patients in 2012 / 13
- Consultation rates were highest for those aged 65 and over

ALCOHOL-RELATED TRAUMA IN SCOTLAND (FROM STAG TRAUMA ANNUAL REPORT 2015)

- Alcohol is associated with 33 per cent of major trauma patients, and 25 per cent of all trauma patients
- Involvement of alcohol is nearly twice as common in male trauma patients

NO EASY FEET

With the temperature set to intensify in the coming months, for many, the allure to step outdoors and replace their trusty TV schedule with a running regime is rife. Although the benefits of doing so are evidently abundant, the health perks can also be underscored by pain and problems with the feet. Matthew Fitzpatrick, Consultant Podiatrist, The College of Podiatry, helps SPR get to the bottom of these challenges, and shares his advice as to how fellow healthcare professionals can keep keen or novice runners, as well as those wanting to just 'keep fit', on the right track.

Matthew Fitzpatrick

Getting fit and healthy is both the New Year resolution and the summer fad that a lot of people will embark on. The post-Christmas excess can be the spur, and the nicer, lighter, and warmer evenings inspire people to go for a little run. This is nothing I would ever discourage – and with obesity and diabetes becoming more prevalent, anything that can contribute to their prevention is something as healthcare professionals that we should promote.

One problem that always comes to the forefront, however, is that eagerness outstrips ability, and patients will find that they are not quite 'ready' for the run, and their feet may not be able to take on the extra work and effort.

In the absence of any specific conditions affecting your patient's feet, the majority can put on their trainers and get out and enjoy the fresh air and endorphin release from a good run. Even in these situations, though, the increased demand placed on their feet means that you need to consider this and discuss how much, and how far, they may be able to run for in the first instance.

Feet are wonderful tools that through the interaction of 26 bones, in each, numerous muscles, tendons, and ligaments translate both the force and weight of each step from the ground through the rest of the body.

Accommodating uneven surfaces, hard or soft surfaces, up gradients, and down hills, requires hundreds of impulses and messages to go to and from them all to make sure that in each step they're not only able to stay upright and stable, but able to progress at a pace along the run.

Knowing your feet and appreciating what effects may be occurring is key – so when asking your patients if there is something not quite right, advising them to take steps (no pun intended) to correct or address things is really helpful.

FIVE TIPS YOU CAN USE WHEN DISCUSSING THIS WITH YOUR PATIENTS SO THAT THEY CAN HAVE FEET FIT-FOR-PURPOSE

1. The last thing any runner wants is for their lace to come undone during the race – so use a square knot for your laces. The result of a loose lace can not only mean potential injury, but it can also disrupt your pace. Research from the University of Berkeley, California, has

SUMMER SPECIAL

the shown that if you use a 'sqaure knot' where the left lace is crossed over the right and the bow crossed the opposite way, right over left, you significantly reduce the risk of the lace coming undone and affecting your run

2. Get the right size for your feet – this may not be the size you think. If you are training for a longer distance then trainers may need to be half a size bigger than your normal shoe size, as your feet tend to swell during long runs. When fitting your trainers – consider doing this in the afternoon too when feet will have naturally swollen a bit.

They won't last forever if you use them regularly. The average trainer / running shoe has approximately 350 to 500 miles of life as over time they become stretched and lose their shock absorbent benefit and should be changed accordingly

3. Consider the importance of good socks – people often focus on the shoe and neglect the type of sock, but ill-fitting socks are one of the main causes of blisters. Although seemingly minor, they can have a massive impact on your performance, as well as being rather painful. A cotton sock, for everyday wear, is sensible due to the breathable nature – they aren't the best material for running as they absorb moisture.

Damp feet can increase the risk of blisters. Using a specific running sock made from a material which will help wick away sweat will help to ensure that the sock fits properly so it doesn't bunch and affect the toes

4. Watch out for athlete's foot and treat it early – athlete's foot is called this for a reason, as it's linked to those who are generally more active. It's a fungal infection which is commonly seen if your feet regularly experience damp, warm conditions – common if you're running! We see it between the toes, but it can appear on any part of the foot. Early signs are persistent flaking and red skin. It may appear either 'wet' or 'dry'; both are forms of athlete's foot. Treatment with over-the-counter remedies may include creams, powders, and sprays. Taking care you choose the right one is important, and commonly a podiatrist will also advise people seek advice from their local pharmacist as a first-line approach

5. Pain is there for a reason – it's not always good to push or run through it! If you experience frequent and ongoing pain in your feet, ankles, and legs when you run – this could be a sign that your footwear isn't right, or you have a musculoskeletal issue in your lower limbs that needs looking at. Don't run through pain as this can cause long-term damage. If in doubt, and to help get you back running sooner, make an appointment to see a podiatrist who can assess, diagnose, and treat the problem

Engaging with those who have simple foot problems is really important when considering the outcomes and time-scales for improvement. Early, appropriate intervention and advice is paramount in both dermatological and mechanical pathologies. Utilising assessment rooms, in the pharmacy setting, and liaising or linking with local NHS and private podiatrists can lead to great benefits for the patient.

Understanding when onward referral is needed, and who and where to send to, will mean that the intervention you are part of is more streamlined and helpful. Working on developing local networks, with the option for shared learning and teaching, has been a beneficial part of some local areas I have worked in as realising the demand on podiatry services is growing and not always available means that we need to ensure that foot health is made more accessible and not exclusive.

The NHS drive to primary care and front-line healthcare settings means that these more simple conditions would be appropriately managed, even if only initially, by colleagues in pharmacies up and down the country. Taking the approach that every contact counts means that the early advice and input can enable, even if not fully realised, the patient achieving a quicker, more positive outcome, and getting them back to what they set out to do; be it run for fun, to get fit, or to achieve the goal of completing a marathon.

Being realistic and knowing your limitations is important, which goes back to what I alluded to earlier, and knowing your feet from the start is helpful. It's not always possible for every person to become the next Linford Christie, but even he started with the smaller runs and developed, trained, and learned what his feet and legs could achieve before pushing himself to Olympic success. This was not without challenge, injury, or problem – but with the right input from a wide spectrum of clinical colleagues he was able to get to his goal.

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GET INVOLVED

Given that it's you who shapes the industry, we want to know your thoughts. Send us your stories, share any feedback about the sector, and comment with your own interpretations and experiences.

Contact Sarah Nelson:
Email: sarah.nelson@medcom.uk.com

PERHAPS IT'S TIME TO TURN TO TAPCLOB

Tapclob, the flexible clobazam liquid AED, can step in to provide additional seizure protection when it's needed most; as an adjunct treatment,[1] as extra cover during cluster seizures,[2] whilst reviewing treatment options[3†] or whilst titrating between first-line AEDs.[3†]

Tapclob (clobazam Martindale Pharma) 5mg/5ml and 10mg/5ml Oral Suspension Prescribing Information. Please refer to the Summary of Product Characteristics (SPC) before prescribing. **Presentation:** An off white viscous suspension with a raspberry odour, containing 5 mg or 10 mg of clobazam per 5 ml of suspension. **Indications:** Clobazam may be used as adjunctive therapy in epilepsy. Clobazam is also indicated in the treatment of anxiety. Please refer to the SPC for further information. **Dosage and administration:** For oral use only: Once titrated to an effective dose of clobazam, patients should remain on their treatment and care should be exercised when changing between different formulations. *Treatment of epilepsy in association with one or more other anticonvulsants:* In epilepsy a starting dose of 20-30 mg/day is recommended, increasing as necessary up to a maximum of 60 mg daily. The patient must be re-assessed after 4 weeks and regularly thereafter to evaluate the need for continued treatment. It is recommended to gradually decrease the dosage. *Elderly:* Doses of 10-20 mg daily. Treatment requires low initial doses and gradual dose increments under careful observation. *Children:* Children require low initial doses with gradual dose increments under careful observation. It is recommended that normally treatment should be started at 5mg daily. A maintenance dose of 0.3 to 1mg/kg body weight daily is usually sufficient. No dosage recommendations can be made in children under 6 years of age. *Treatment of anxiety:* Please refer to the SPC for information on dosage and administration. **Contra-Indications:** Patients with hypersensitivity to benzodiazepines or any of the excipients of clobazam; patients with any history of drug or alcohol dependence, myasthenia gravis, severe respiratory insufficiency, sleep apnoea syndrome, severe hepatic insufficiencies, the first trimester of pregnancy and in breast-feeding women. Clobazam must not be used in children between the ages of 6 months and 3 years, other than in exceptional cases for anticonvulsant treatment where there is a compelling indication. **Warnings and precautions:** Amnesia may occur with benzodiazepines. In case of loss or bereavement psychological adjustment may be inhibited by benzodiazepines. Use with extreme caution in patients with personality disorders, myasthenia gravis, spinal or cerebellar ataxia or sleep apnoea; chronic or acute severe respiratory insufficiency; impaired renal or hepatic function; reduce dose if necessary. Use of benzodiazepines may lead to the development of physical and psychological dependence therefore the duration of treatment should be as short as possible. Patients with rare hereditary problems of fructose intolerance should not take this medicine. Consult SPC for further information. **Interactions:** Clobazam may interact with antipsychotics (neuroleptics), hypnotics, anxiolytics/sedatives, antidepressant agents, narcotic analgesics, anticonvulsant drugs, anaesthetics and sedative antihistamines; lithium; alcohol; carbamazepine, muscle relaxants, analgesics and nitrous oxide. Drugs that inhibit the cytochrome P-450 enzyme (mono-oxygenase) system (eg cimetidine). Phenytoin and valproic acid - dosage of clobazam should be determined by monitoring the EEG and the plasma levels of the other drugs checked. **Fertility, Pregnancy and Lactation:** If prescribed to a woman of childbearing potential, she should be warned to contact her physician regarding discontinuation of the product if she intends to become pregnant or suspects that she is pregnant. If the product is administered during the late phase of pregnancy, or during labour at high doses, effects on the neonate such as hypothermia, hypotonia, moderate respiratory depression and difficulties in drinking "floppy infant syndrome", may occur, they may have developed physical dependence and may be at risk for developing postnatal withdrawal symptoms. Benzodiazepines are found in the breast milk and should not be given to breast feeding mothers. **Effects on ability to drive and use machines:** Sedation, amnesia, impaired concentration and impaired muscular function may adversely affect the ability to drive or to use machines. **Undesirable effects:** Clobazam may cause sedation, leading to fatigue and sleepiness, especially at the beginning of treatment and when higher doses are used. Drowsiness, dizziness or dryness of the mouth, constipation, loss of appetite, nausea, or a fine tremor of the fingers have been reported. These are more likely at the beginning of treatment and often disappear with continued treatment or a reduction in dose. Paradoxical reactions, such as restlessness, irritability, difficulty in sleeping, anxiety, delusion, nightmare, hallucinations or suicidal tendencies may occur, especially in elderly and in children. In this event, treatment with clobazam must be discontinued. Anterograde amnesia may occur, especially at higher dose levels. Amnesia effects may be associated with inappropriate behaviour. Clobazam may cause respiratory depression, especially if administered in high doses. Isolated cases of skin reactions, such as rashes or urticaria, slowing of reaction time, ataxia, confusion and headaches, disorders of articulation, unsteadiness of gait and other motor functions, visual disorders (eg, double vision), weight gain, or loss of libido may occur, particularly with high doses or in long-term treatment. These reactions are reversible. Pre-existing depression may be unmasked during benzodiazepine use. Tolerance and physical and/or psychic dependence may develop, especially during prolonged use. Discontinuation of the therapy may result in withdrawal or rebound phenomena. Abuse of benzodiazepines has been reported. When used as an adjuvant in the treatment of epilepsy, this preparation may in rare cases cause restlessness and muscle weakness. Consult SPC for further information. **Product Licence Number:** PL 00156/0322 (5 mg/5 ml), PL 00156/0323 (10 mg/5 ml). **Product Licence Holder:** Martindale Pharmaceuticals Ltd T/A Martindale Pharma, Bampton Road, Harold Hill, Essex RM3 8UG. **Basic NHS Price:** 150 ml: £90.00, 250 ml: £150.00 (5 mg/5 ml); 150 ml: £95.00, 250 ml: £158.34 (10mg/5ml). **Legal Category:** POM. **Further information:** Martindale Pharma, Bampton Road, Romford, RM3 8UG. Tel: 01277266600. Date of Preparation: October 2015.

Adverse events should be reported. Reporting forms and information can be found at www.mhra.gov.uk/yellowcard. Adverse events should also be reported to Martindale Pharma. Tel: 01277266600. Fax: 01708 382739 e-mail: drugsafety@martindalepharma.co.uk

References: **1.** Tapclob Summary of Product Characteristics (SPC). Tapclob 5 mg/5 mL SPC available at: https://www.medicines.org.uk/emc/medicine/29861. Accessed October 2016. Tapclob 10 mg/5 mL SPC available at: https://www.medicines.org.uk/emc/medicine/27506. Accessed October 2016. **2.** National Institute for Health and Clinical Excellence (NICE). Clinical guideline (CG137). Epilepsies: diagnosis and management. Updated February 2016. Available from: https://www.nice.org.uk/guidance/cg137. Last accessed November 2016. **3.** Data on file. Martindale Pharma.[1]

Date of Preparation: November 2016. CRIT/11/2016/489

† Results from an independent anonymised market research project funded by Martindale Pharma in November 2015. Data available on request.

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