

## Guest Editorial

### Time for a new resistance against antibiotics

Resistance of pathogenic organisms to antimicrobial agents can seem far from a clinician's mind during everyday consultations with patients. A recent systematic review of clinicians' views about antimicrobial resistance reported that they believed that antimicrobial resistance was a serious (but distant) problem that was mainly caused by patients' incomplete adherence to prescriptions or self-medicating and was more important for hospital settings and other countries: that is, it was more important for other people.<sup>1</sup> Few clinicians believed that their own prescribing contributed to resistance.<sup>1</sup> There is now compelling evidence, however, that a single course of antibiotics prescribed by a general practitioner increases the risk of its recipient becoming colonised or infected with resistant bacteria, making it more difficult to treat infections, and resulting in further antibiotic use.<sup>2</sup> We now know that the prescribing decisions of doctors quickly and measurably alter the antibiotic flora of individual patients and of the population.

We are now seeing serious effects of antimicrobial resistance in everyday clinical practice: previously rare infections now occur with increasing frequency, causing harm to patients and to our population. The incidence of dangerous *Escherichia coli* bloodstream infection has nearly doubled in the last decade in Northern Ireland to around thirty cases per week, mirroring the dramatic increase seen in the rest of the UK.<sup>3</sup> About two-thirds of these infections start in the community, most often from a urinary source, and 30-day mortality is 15%.<sup>4</sup> Bacteria that are resistant to carbapenems (broad-spectrum antibiotics of last resort) are no longer strangers to our healthcare settings. When discovered in a clinical or environmental specimen, they prompt a response that consumes staff time and financial resources, disrupting patient care, closing rooms or wards to admissions, increasing the competition for a finite number of isolation rooms, and resulting in other patients being screened for bacteria by rectal swabs to investigate whether they too may have become carriers.<sup>5</sup> Antimicrobial resistance is already causing distress, illness and death for patients, and disruption, increased demands and stress for Health and Social Care staff.

The recent Review on Antimicrobial Resistance led by the economist Jim O'Neill projected vastly increased costs and deaths resulting from antimicrobial resistant organisms over the coming decades.<sup>6</sup> The Review recommended that the amount of 'inappropriate' antimicrobial consumption in humans and animals be greatly reduced and that there should be a particular focus on reducing healthcare-associated Gram-negative bloodstream infections. The UK government responded by setting ambitious targets to reduce 'inappropriate' antibiotic prescribing by 50%, with the aim

of being a world leader in reducing prescribing by 2020 and to reduce healthcare associated Gram-negative bloodstream infections in England by 50% by 2020.<sup>7</sup> The Department of Health (Northern Ireland) has endorsed these aspirations and new collaborative programmes of work are underway to address the factors behind Northern Ireland's antibiotic use (the highest in the UK by a wide margin) and the factors that lead to healthcare-associated infections (HSS(MD) 6/2017). A new work programme to reduce healthcare-associated infections and to improve antimicrobial stewardship in all Health and Social Care settings in Northern Ireland is led by the Public Health Agency-chaired multi-agency, multi-disciplinary Regional Antimicrobial Stewardship and Healthcare-associated Infection Improvement Board.

It is important that the new effort to reduce harm from antibiotic use is not dismissed as a bureaucratic target conceived in an ivory tower, or as a cost-cutting measure: our profession has, in the past, misunderstood the balance of risk associated with antimicrobial use and we must together find a new equilibrium where prescribers and patients understand that prescribing an antibiotic is not necessarily the safer option when faced with diagnostic uncertainty.<sup>2,8</sup> The imperative to reduce antimicrobial prescribing comes at a time when the primary healthcare system has been in the news because of practices closing, a recruitment shortfall, and GP representatives reporting that demand currently exceeds capacity of the primary care system. Creating the circumstances that allow healthcare professionals to safely reduce the amount of antibiotics they prescribe is a complex challenge. It will mean designing a system that reduces the incidence of infections in the community through preventive strategies such as vaccination, hygiene and food safety; increasing the capacity of the public to safely self-care for minor illnesses;<sup>9</sup> aiding prescriber decision-making with point-of-care diagnostic testing, where it is appropriate; allowing clinicians enough time to have caring conversations with patients that don't necessarily end in a prescription for antibiotics; and providing intelligence to professionals about their own antibiotic prescribing and the resistance patterns in organisms from their patients. These changes will take time. Experience elsewhere suggests that expert clinicians may feel that scrutiny of their antibiotic prescribing is intrusive and undermines their professionalism, and we must therefore aim to bring about change in collaboration with clinicians and their representatives.<sup>10</sup> One step in this journey will be the introduction of the Royal College of General Practitioners-endorsed TARGET (Treat Antibiotics Responsibly, Guidance, Education, Tools) toolkit to Northern Ireland.<sup>11</sup> These resources aim to help GPs to safely reduce antibiotic



prescribing and include self-care resources for patients that have been designed using a behavioural science approach. Though a smaller fraction of antibiotics is prescribed in secondary than in primary care, antibiotics of last resort are more frequently used. Patients (and their bacteria) move between these two parts of the complex Health and Social Care system, with decisions in one setting having effects in the other: an open and constructive partnership between all stakeholders will be required to bring about change.

Ten years ago, a major outbreak of *Clostridium difficile* (a disease largely caused by antibiotics) resulted in a significant number of deaths in Northern Ireland.<sup>12</sup> A change in antibiotic prescribing practices was a major factor in ending the outbreak and in the wider decline in incidence of *C. difficile*.<sup>13</sup> We have been here before and succeeded in preventing harm by changing our prescribing behaviour.

This year, World Antibiotic Awareness Week runs from 13-19 November and European Antibiotic Awareness Day is Saturday 18 November. During this week, regional and local events will take place in Northern Ireland to raise public and professional awareness and to allow healthcare teams to share learning about changing prescribing practices. Details of events will be promoted through Health and Social Care organisations and social media. We will need doctors, nurses, pharmacists, allied healthcare, scientific staff and patients to champion the importance of antibiotic stewardship. Contact us by email if you want to get involved.

We have pledged to be Antibiotic Guardians. You can make a pledge too via <http://www.antibioticguardian.com>.

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# ULSTER MEDICAL SOCIETY PROGRAMME 2017-2018

President: **Ms Angela M Carragher MB BCH BAO (NUI) FRCS(Edin) MMed Sci (QUB)**

Theme: **Aim Higher**

## AUTUMN SEMESTER

Date	Meeting	Speaker	Title	Location
Thursday 5 October 2017	Presidential Address Associate Postgraduate Dean	Ms Angela Carragher	Aim Higher	8 pm North Lecture Theatre MBC G07NT
Thursday 19 October 2017	Joint Meeting with NIMDTA & QUB. Research for Trainees - Opportunities, Presentations & Prizes	Prof Phil Kalra Consultant Nephrologist, Chair of NIHR Renal Clinical Trials Network and Renal Association Academic Vice President	"Reverse engineering" a clinical research career in the NHS	9 am – 4 pm Postgraduate Lecture Theatre BCH (Lunch 12 – 2 pm)
Thursday 19 October 2017	Ulster Medical Society	Mrs Margaret Murphy Chairperson World Health Organisation (WHO)	Kevin's Story	8 pm North Lecture Theatre MBC G07NT
Thursday 2 November 2017	Joint Meeting with the Ulster Society for the History of Medicine	Prof John Duffy Professor Emeritus	Some Glimpses of Medieval Greek Medicine	8 pm Postgraduate Lecture Theatre BCH Harvard University
Thursday 23 November 2017	Ulster Medical Society	Mary O'Rourke QC Medical Lawyer	Why do I defend doctors – Tales for a professional life doing so Defending Doctors	8 pm Postgraduate Lecture Theatre BCH
Thursday 7 December 2017	The Robert Campbell Oration	Miss Sonia George Consultant Ophthalmic Surgeon BHSCT	Blind Sight – How children and adults with brain damage really see	8 pm Postgraduate Lecture Theatre BCH





## Research for Trainees Opportunities, Presentations and Prizes

Thursday 19 October 2017

Postgraduate Centre, Belfast City Hospital, Belfast HSC Trust

09.00 – 09.10	Registration	
09.10 - 09.20	Welcome	Professor Pascal McKeown, Head of Medical School, Queen's University Belfast (QUB)
09.20 – 09.35	Why do Research if you want to be a Clinician?	Dr Maurice O'Kane, Director, Northern Ireland Clinical Research Network
09.35 – 09.50	Why do research as a trainee and how it will be part of my career?	Dr Ronan Gray PhD Student (QUB) and Surgical Trainee (NIMDTA)
09.50 – 10.05	Research Opportunities in Medical Education	Dr Jenny Johnston, Academic General Practitioner, Centre for Medical Education, QUB
10.05 – 10.20	How can you combine Research and Clinical Work?	Dr Cecilia O'Kane, Senior Lecturer and Respiratory Physician, Centre for Experimental Medicine, QUB
10.20 – 10.35	Clinical Academic Pathways	Professor Peter Maxwell, Director, Clinical Academic Training Programme (QUB & NIMDTA)
10.35 – 10.50	How to obtain Funding to undertake research	Professor Ian Young, Chief Scientific Advisor DHSSPS, Director HSC Research and Development and Consultant Chemical Pathologist
10.50 – 11.10	Tea/Coffee and Networking	
11.10 – 12.00	Keynote Address: "Reverse engineering" a clinical research career in the NHS	Professor Phil Kalra, Consultant Nephrologist, Chair of NIHR Renal Clinical Trials Network and Renal Association Academic Vice President
12.00 – 14.00	Lunch (Foyer)	DRAFT PROGRAMME FOR 2017
12.00 – 13.00	Meet the Researchers, Find out informally how to get research started and keep going (& Eat Lunch!)  Opportunities to have brief interviews with QUB Research Centre investigators	Centre for Cancer Research & Cell Biology Dr Gerry Hanna Centre for Medical Education Dr Gerry Gormley Centre for Experimental Medicine Professor Jose Bengoechea Centre for Public Health Professor Jayne Woodside
13.00 - 14.00	Poster Judging & Eat Lunch	Case Reports & Case Series Quality Improvement Medical Education Research Clinical Research Basic Science Research Dental Research
14.00 – 14.10	Welcome to Prize Presentations	Miss Angela Carragher President, Ulster Medical Society
14.10 -15.40	Oral Presentations	Chair: Miss Angela Carragher Judges; Dr John Craig; Professor Peter Maxwell; Professor Keith Gardiner
15.40 – 15.50	Award of Poster Presentation Prizes	Dr Michael McBride, Chief Medical Officer
15.50 – 16.00	Award of Oral Presentation Prize	Dr Michael McBride, Chief Medical Officer
16.00 – 16.10	Concluding Remarks	Dr Michael McBride, Chief Medical Officer



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