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LIFETIME ACHIEVEMENT AWARD

Whose legacy will readers celebrate this year?

Annabel Ferriman introduces this year’s award and **Adrian O’Dowd** reveals the shortlisted candidates

When Belgian senator Marleen Temmerman called on women in Belgium to refuse to have sex with their partners until the country’s politicians ended eight months of wrangling and formed a government, few people in the UK had heard of her. But readers of the *BMJ* were in the know and unsurprised.

For Professor Temmerman, an obstetrician and gynaecologist, had won the BMJ Group’s Lifetime Achievement Award last April. In that case, it was not for suggesting a “crossed leg strike” to end political deadlock (a solution advocated by the women of Greece in Aristophanes’ play *Lysistrata*) but for her services to women’s health in Belgium and Kenya. She was an impressive winner and stunned the audience with her passionate acceptance speech.

Now it is time for readers of the *BMJ* to choose another health champion by voting for one of this year’s shortlist. The award is for someone who, through a working lifetime, has made a unique and substantial contribution to improving healthcare. It is the only award where readers of the journal and members of the public are able to vote.

From a total of 88 entries, the science broadcaster Geoff Watts, and I (AF), as champion of the award, whittled down the nominees to a shortlist of 10, which was presented to the judging panel in early February.

The judging panel consisted of Fiona Godlee, editor in chief of the *BMJ*; Maureen Bisognano, president and chief executive officer of the Institute of Healthcare Improvement, Cambridge, Massachusetts; Iain Chalmers, one of the founders of the Cochrane Collaboration and editor of the James Lind Library; Andy Haines, professor of public health and primary care and former dean of the London School of Hygiene and Tropical Medicine; and Michael Marmot, professor of epidemiology and public health at University College London and president of the BMA.

In choosing their shortlist of three, the judges considered not only the nominees’ academic achievements but also their contribution to the improvement of international health. Voting is open and will close on 9 April. Please go to bmj.com to register your vote. The winner will be announced at the awards dinner in London on 18 May.

The first winner, preceding Professor Temmerman, was Judith Mackay, director of Asian Consultancy on Tobacco Control and senior adviser to the World Lung Foundation, whose life has been spent combating the tobacco industry. We are sure that this year’s winner will be as worthy of the title.

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Sir George Alleyne

A highly respected figure in global health, George Alleyne has played a large part in tackling HIV and non-communicable disease and is an energetic promoter of health equality across the world. Currently the chancellor of the University of the West Indies, Sir George is also the former director of the Pan American Health Organization.

Born in Barbados, he graduated in medicine from the University of the West Indies in 1957 and continued his postgraduate studies in the United Kingdom and the United States. During more than a decade of original research, he produced 144 publications in scientific journals, which qualified him at just 40 years of age to be appointed professor of medicine in 1972 at the University of the West Indies, where he was made chancellor in 2003.

He has played a large role in tackling HIV and non-communicable disease and is an energetic promoter of health equality

Sir George joined the Pan American Health Organization in 1981 as chief of research promotion and coordination and subsequently held several posts before serving as its director from 1995 to 2003—the first Caribbean person to hold this title.

He was appointed by the United Nations Secretary General in 2003 to serve as his special envoy for HIV/AIDS in the Caribbean region, a post he held until last year.

Knowing many of the heads of state in the Caribbean region, he has also encouraged joint working on non-communicable diseases, realising the need for action across governments and not just health departments to achieve effective results.

In 2003, he was appointed by the Caribbean Community Secretariat as the head of a new commission to examine health issues confronting the region, including HIV/AIDS, and their



effect on national economies. Sir George has served on various committees including the scientific and technical advisory committee of the World Health Organization Tropical Research Programme and the Institute of Medicine committee on scientific investigation in developing countries.

Through many speeches, addresses, and presentations, he has helped focus attention on issues such as equity in health, health and development, problems in healthcare in the Caribbean, and international cooperation in health.

Sir George retired in 2003 but remains as chancellor of the University of the West Indies and serves on the Task Force on Health Care in the Caribbean.

His influence is still strong and has helped to persuade the United Nations to hold a high level meeting on non-communicable diseases in September with the aim of mobilising a serious response to the pandemic of these diseases sweeping through the developing world.

He has also received numerous awards, including the Pelican Award from the University of the West Indies, the Centenary Medal in Jamaica, and degrees honoris causa from various universities including the University of the West Indies.

In 1990, Sir George was made Knight Bachelor by the Queen for his services to medicine and in 2001 was awarded the Order of the Caribbean Community.

Professor Sir Richard Peto

Richard Peto, epidemiologist and statistician, has contributed much to the decrease in neoplastic, vascular, and respiratory mortality from smoking, both in the UK and elsewhere.

Currently codirector of the Clinical Trial Service Unit and Epidemiological Studies Unit (CTSU) at the University of Oxford, Professor Peto demonstrated (in collaboration with Richard Doll) the extraordinary extent to which the hazards of persistent cigarette smoking exceed those from the aggregate of all other known causes of cancer.

He also showed that for those who manage to stop smoking before age 30 or 40, the eventual long term benefits of cessation are far greater than had previously been thought and thus has effectively argued the importance of cessation in the UK and many other countries. This has had, and continues to have, a direct influence on public policy and adult mortality in many countries.

After gaining a BA in natural sciences from the University of Cambridge in 1965 and an MSc in statistics from the University of London in 1967, Professor Peto began to work on chronic disease epidemiology with Professor Doll and Charles Fletcher.

In 1976, 1994, and 2004, Professors Doll and Peto published the 20 year, 40 year, and 50 year follow-ups of the study of smoking and death among British doctors, and in 1981 they published their quantitative report, *The Causes of Cancer*, which gained worldwide attention.

The greatest absolute mortality reductions have come, however, from his studies of the avoidable causes of chronic disease, particularly smoking

Also in 1981, Professor Peto's close collaboration with Rory Collins on large scale randomised evidence began, and since 1985 they have codirected CTSU, which conducts large studies of the causes and treatment of disease worldwide.



During the 1980s they introduced large simple trials, meta-analyses of trials, and correction of epidemiological studies for regression dilution bias, which showed that the real importance of blood pressure and blood cholesterol concentrations had been underestimated.

A substantial part of Professor Peto's epidemiological work has been, and still is, in China (where he led a study that interviewed the families of one million people who had died during the 1980s, assessing their smoking habits), India (using similar methods), and Russia (where his large studies with David Zaridze confirming the massive mortality from alcohol have recently helped lead to effective controls).

During the 1970s, Professor Peto introduced the logrank test for analyses of trials and for meta-analyses of trials, particularly those of cancer treatments.

The Early Breast Cancer Trialists' Collaborative Group, which he founded in 1985 and still leads, brings together worldwide randomised evidence and has contributed much to evaluating and consolidating the improvements in treatment that have helped decrease UK breast cancer mortality since the 1980s. This decrease is now steep in many countries but is steepest in the UK.

The greatest absolute mortality reductions have come, however, from his studies of the avoidable causes of chronic disease, particularly smoking.

Professor Peto has won many awards, is one of the world's most widely cited medical researchers, and was knighted in 1999 for services to epidemiology and cancer prevention.

Dr John Wennberg

A true patient champion, John Wennberg is known as the world's leading medical care epidemiologist and has spent decades helping to transform our understanding of what goes on in healthcare systems and the reasons for health inequalities.

Dr Wennberg, the Peggy Y Thomson professor emeritus in the evaluative clinical sciences at Dartmouth Medical School in the US, has spent more than 40 years studying and documenting large variations in healthcare delivery across the US and concluding that the amount of medical care a patient receives is determined by where they live.

A true patient champion, Dr John Wennberg is known as the world's leading medical care epidemiologist

He has been a professor in the department of community and family medicine since 1980 and in the department of medicine since 1989. Dr Wennberg is a graduate of Stanford University and the McGill University Faculty of Medicine. His postgraduate training was in internal medicine and nephrology at Johns Hopkins University, but he became interested in applying epidemiological principles to the healthcare system while pursuing his master's degree in public health at Johns Hopkins.

With colleague Alan Gittelsohn, Dr Wennberg developed a strategy for studying the population based rates of allocation and use of health resources, which found large variations among local and regional healthcare markets, much of which seemed to relate to distribution of supply of resources and differences in local medical opinion.

Since his pioneering work, research in many countries has shown wide variations in rates of clinical activity. This work has been vital because it has informed policy makers about unwarranted



variation in healthcare and how to tackle it.

For individual patients, it showed that in populations in which there were high rates of activity, some people might be receiving treatments that other clinicians and patients would regard as unnecessary and of no additional value, and that patients would not want if they were fully informed about the risks and benefits of the treatment choices.

This led him and Albert Mulley to co-found the Foundation for Informed Medical Decision Making in 1989, a non-profit corporation providing objective scientific information to patients about their treatment choices to promote patient involvement in medical care decisions.

In 1988, he founded the Center for the Evaluative Clinical Services and with his colleagues there, he produced the Dartmouth Atlas of Health Care—a series of reports on how healthcare is used and distributed in the US. He stepped down as director of the centre, now known as the Dartmouth Institute for Health Policy and Clinical Practice, in 2007.

Dr Wennberg is a member of the Institute of Medicine of the National Academy of Science and the Johns Hopkins University Society of Scholars.

He has received numerous awards, including the Institute of Medicine's 2008 Gustav O Lienhard Award, and the Association for Health Services Research's Distinguished Investigator Award.

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A SMARTER WAY TO PRACTISE

The popularity of smartphones now outstrips that of the personal computer, but is their use by doctors a desirable trend? **Tom Nolan** reports

It's hard to get away from smartphones: the latest models are widely discussed on television and in newspapers and are generally on show through the growing number of users.

Now they're also on the wards, being used as pocket textbooks, email clients, and, of course, as mobile phones. But are they improving the standards of care and, if so, should all doctors be using them? Or are they just a useful gadget for those with an inclination towards touch screens?

There is no agreed definition of a smartphone. They can be thought of as a combination of a mobile phone, personal digital assistant (PDA), and mobile computer. Like a computer, they run on an operating system, such as Microsoft's Windows Mobile or Google's Android. Applications such as email clients, web browsers, and downloadable "apps" run on the operating system.

The market for apps, small self contained programmes, is huge. Revenues from apps in the first half of 2010 were estimated at \$2.2bn (£1.4bn; €1.6bn),¹ while in January 2011 Apple announced the ten billionth download from its app store (the honour went to Paper Glider, a game that involves flicking paper aeroplanes across a virtual office).

The market for apps aimed at doctors is also growing rapidly. Apps range from mobile reference tools such as Doctor's Toolbag and the *Oxford Handbook of Clinical Medicine* to the iStethoscope (box).

Smartphone use among doctors

Smartphones are a popular choice of phone among doctors. A survey of 175 UK doctors by d4, a non-profit organisation that aims to increase the use of mobile technology by healthcare pro-

professionals, found that 82% own a smartphone. When asked how they use their phone at work during a typical shift, 88% of respondents said they use them to communicate with other colleagues, 59% said they access information on the internet or intranet, while 30% use work related software apps. Although the findings may not be truly representative of the profession—most respondents were junior doctors within five years of qualification who responded to email requests and online adverts—they indicate just how important smartphones have already become to many doctors' working lives. "I use it for work because of the way it synchronises my calendars, appointments, and rotas," says Paul McGovern, an orthopaedics registrar at Basildon Hospital. "I also use it for looking things up in trauma meetings or on the wards."

Smartphones for all?

Given that some doctors already find that smartphones improve their efficiency and productivity, could hospitals and health services do the same

by supplying medical staff with smartphones for use at work? In many places this is already happening. Physicians at Doylestown Hospital, Pennsylvania, use iPhones to access electronic patient records, medi-

cal reference applications, and email.² In the UK, more than 500 medical students at Leeds University were issued with iPhones last year so that they can access online textbooks. The phones have to be returned when students graduate.

Another initiative, the iDoc project run by the Wales Deanery, has offered smartphones to all foundation year 1 doctors since October 2009. Doctors are given a free smartphone that includes

a package of 17 reference tools including the *British National Formulary*, *Clinical Evidence*, and five Oxford handbooks. This gives users instant access to information without the need for computer access, internet connection, or books.

"If you ask yourself the question, 'What do I need to know in order to do the right thing here?' and look it up, you'll find an appropriate answer," says Mark Stacey, associate dean at the School of Postgraduate Medical and Dental Education at Cardiff University, who has been running the project. "The people who have engaged with the project have loved it, using the device on a daily basis to ensure accurate prescribing and appropriate investigations and treatment."

The findings from this project have not yet been published, but an earlier study by Dr Stacey's group suggests that junior doctors' attitudes to the use of smartphones are variable.³ The researchers gave 219 foundation year 1 and 2 trainees a PDA that included 18 electronic textbooks. Looking at use of the devices over 12 months, they found that users fell into three groups: 40% engaged with the project, finding the device a useful learning tool; 25% were unconvinced of the benefits; and 35% disconnected, preferring to seek advice from colleagues instead.

"Those who didn't engage had a variety of reasons: because they felt they couldn't use it or they preferred to use other devices or other sources," Dr Stacey says. However, he says it is important to challenge perceptions about the usefulness and value of such devices. In his latest study some F2 doctors did not take up the offer to participate initially but were enthusiastic once the device was demonstrated face to face. "We have witnessed a snowball effect where it is recommended to peers," he says.

Top-down initiatives may not be the best way to realise the potential of smartphones within healthcare, according to James Sherwin-Smith, chief executive officer of d4. "Junior doctors are



APPS THAT COULD CHANGE THE WORLD OF MEDICINE

AirStrip OB

This app allows obstetricians to view cardiotocograms when, as the company's website generously puts it, "the demands of their day necessitate their periodic absence." AirStripOB allows the user to view the cardiotocogram in real time or review earlier recordings and gives access to patient data such as age, parity, and recent examinations. Other AirStrip apps include an electrocardiogram viewer and vital signs monitor. www.airstriptechnology.com

Mobile MIM

This radiology image viewing app was first launched for the iPhone in 2008. However, it was removed from Apple's App Store after regulatory problems with the Food and Drug Administration. Over two years later, after tests to ensure that images could be interpreted under various lighting and screen conditions, the app has become the first diagnostic radiology app to be approved by the FDA and is back on the App Store. www.mimsoftware.com/products/iphone

MobiUS

MobiUS aims to turn your smartphone into a portable ultrasound machine. An ultrasound probe attaches to a Windows Mobile smartphone via a USB port allowing the user to perform fetal, cardiac, blood vessel, and other ultrasound imaging. Images can then be sent by email for later review or a second opinion. MobiUS is expected to be available in the US from mid-2011 at an estimated price of \$8000. www.mobisante.com

VitalHub

VitalHub collects patient data from different sources and brings them together in an iPhone app. This gives users secure access to patient records, test results, vital signs, and medical literature. It also gives notifications of abnormal results of laboratory tests. It was developed by Mount Sinai Hospital in Toronto, Canada. www.vitalhub.com

iStethoscope

The iStethoscope claims to turn your iPhone into a stethoscope, allowing you to listen to your heartbeat, see your heart waveform, or listen to other quiet sounds around you. With some colourful and mixed reviews on the iTunes App Store it might not be the finished product, but at 59p it won't break the bank. www.peterjbentley.com/istethoscopepro.html



a very mobile workforce. Trusts often struggle to keep up with paperwork such as promptly issuing a P45 form [at the end of employment] or completing Criminal Record Bureau checks, let alone handing out a mobile phone every six months." However, doctors who wish to take advantage of smartphones in their work can be put off by having to do this at their own expense. d4 aims to build a mobile phone network for health professionals and use the bargaining power of this group to reduce the costs to their members. Another solution may be for schools or employers to subsidise the cost of clinical apps or provide their own.

A smart idea?

Perhaps the biggest concern regarding the use of smartphones in healthcare is that of confidentiality. "People purchasing or handing out smartphone devices need to think very carefully about maintaining the confidentiality of any patient data they store on it," says Paul Jones, chief technology officer at Connecting for Health. "People need to take personal responsibility for what they

are putting on these devices. It is easy to lose a phone, and you should plan for what you are going to do when it is lost. With NHSmail we've got the facility to remove

NHSmail data from a remote device when it is reported lost or stolen. If you have other patient data on the device you need a plan to deal with that."

There are other problems that can easily be overlooked. As useful as they may be for clinical work, the distraction value of smartphones is arguably far greater. With instant access to personal email, social networking sites such as Facebook and Twitter, and addictive games such as Angry Birds and Bejeweled (each has been downloaded over 50 million times), there is a great temptation to use smartphones while at work for non-work related activity. Doctors tapping away on their handheld devices can also create a negative impression on the ward, where teamwork is so essential.

Other barriers must also be overcome, such as poor network coverage within hospitals, and the perception that mobile phones are banned in the workplace. For many years mobile phones were banned from hospitals over concerns that their signals interfered with hospital equipment. In 2009, the Department of Health reviewed incidents involving mobile phone interference on medical devices.⁴ The report advised that patients should be allowed "the widest possible use of mobile phones in hospitals" where that would not pose a threat to safety, privacy, and the opera-

tion of medical devices. Wireless networks are thought to be of low risk and need not be restricted.⁵

Smartphone as a medical device

As smartphones become faster and more flexible, their application within medicine is widening. This has led some people to ask whether smartphones should be classed as a medical device and therefore subject to regulation, for instance by the US Food and Drug Administration.⁶

Their portability means that they can be used almost anywhere. "Smartphones can make diagnostics personal and accessible—making it true point of care," says Sailesh Chutani, chief executive officer of Mobisante, whose smartphone ultrasound device will be launched this year. "This could help migrate healthcare delivery from the more expensive settings such as hospitals and specialised personnel, to less expensive settings such as clinics or small practices managed by mid-level healthcare professionals. Such a migration will increase access while improving outcomes and reducing costs." As such, they may be of particular use in developing countries or rural settings.

Smartphones have already become an everyday part of many doctors' working lives. As technology and apps improve, they look set to offer even greater benefits in terms of access to information and advice at the point of care and may also become commonly used medical devices in their own right. If security, logistical, and cost issues can be overcome smartphones may one day become essential to every doctor's job—and then there really will be no getting away from them.

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THE RISE OF THE SMARTPHONE

Smartphones date back to 1993, when IBM launched the Simon, a touch screen phone with integrated email, fax, calendar, and notepad. Simon was ahead of its time: it wasn't until nearly 10 years later that smartphones began to establish themselves as a mainstream alternative to mobile phones, with brands such as BlackBerry, Palm, and Ericsson releasing popular devices at the beginning of this century. It took the launch of the Apple iPhone in 2007 for the smartphone market to explode, and it is now growing faster than ever. In the final quarter of 2010 over 100 million were sold worldwide, outselling personal computers for the first time.⁷

