Health Research

Who researches the research?

Jill Nesbitt

Despite the length of time it takes for evidence-based research to be carried out, not all evidence is equal

We assume that the medicine we receive is evidence based and up to date, but in fact it can take an average of 17 years for evidence to filter down to practice and, in some cases, up to 50 years.

For example, even though Dr Spock first suggested in 1956 that babies be placed on their tummies to sleep, it took until the early 2000s for the evidence to show conclusively that putting them face up was safer. By then a thorough analysis of a number of studies formed into a "forest review" all pointed to the one conclusion.

Between 2002 and 2011, €27 million was spent on prescriptions for glucosamine in this country.

Despite the fact that the National Institute for Health and Care Excellence (NICE) in the UK recommended in 2008 that it should not be prescribed for osteoarthritis, prescriptions continued to be issued for a few more years, indicating a "lag between evidence availability and uptake by clinicians", according to a research article published late last year by the Health Research Board's Centre for Primary Care Research at the Royal College of Surgeons in Ireland. It has now been removed from prescription in both Britain and Ireland.

Eoin O'Brien, professor of molecular pharmacology at UCD, writes in these pages about the additional problem of procedures being offered to patients in the absence of adequate evidence.

"We should always try to base recommendations for treatment and management on firm evidence, and the best evidence comes from controlled trials. Once we have that evidence, we need to find better ways of communicating it to GPs and to the public."

Systematic review

Not all evidence is equal: a pronouncement by one medical expert has been described as the "least valid form of evidence", while a systematic review is considered the best.

Being a review of all the available evidence (sometimes the negative is suppressed), a systematic review is more likely to be valid and credible. For example, Dr Andrew Wakefield's notorious and disproven linking of the MMR vaccine to autism was actually based on a very small study. Wakefield has been removed from the medical register of the British General Medical Council.

Since May 2011, there is a legal duty for all doctors registered in Ireland to show that they are maintaining their professional competence and this is overseen by the Medical Council. Doctors need to complete 50 hours of professional development activity a year, in addition to one clinical audit which focuses on practice improvement. Several postgraduate medical training bodies operate professional competence schemes.

■ **Medical students are now being taught how to search and critically appraise the best 'evidence-based medicine'.** PHOTOGRAPH: THINKSTOCK

Medical students are now being taught how to search and critically appraise the best "evidence-based medicine" (EBM), a term coined in the 1990s, even during consultations with patients.

But, of course, evidence can't be applied without factoring in a patient's particular history, the doctor's expertise and the patient's own wishes.

Secondary evidence

There are now a variety of "secondary evidence" sources that make it easier for doctors and their patients to see what the evidence is showing, with studies being assessed and weighted by certain criteria.

For example, doctors can use a well-laid-out site such as thennt.com to demonstrate to their patients why a prescription for antibiotics isn't necessarily going to help acute bronchitis in adults, as shown in iti.ms/1i4wvn9.

"The core value of the NNT is its straightforward communication of the science that can help us understand the likelihood that a patient will be helped, harmed, or unaffected by a treatment."

However, with the increasing demands and heavy workloads experienced by many doctors, it is not surprising that a Dutch study published last year on barriers to the use of EBM found that GP trainees complained they just didn't have the time: "When busy, searching for evidence is not a priority to me;" "The time I have per patient is insufficient to also search for answers to my questions;" and "During consultations, I have insufficient time to work according to EBM," they said.

"It's very dependent on the individual GP, to be honest," says Dr Cliona Lewis, a GP and part-time clinical lecturer in general practice at RCSI. "Our days are extraordinarily busy just trying to manage the ordinary day-to-day issues that arise during patient consultations."

Major investment

A recent major investment is the Dublin Centre for Clinical Research (DCCR), which was made possible through the Wellcome Trust and the HRB.

The aim of the DCCR is to provide the physical space, facilities and trained staff needed to support collaborative clinical research studies across Dublin involving the TCD, UCD and RCSI medical schools and their associated teaching hospitals.

Educational programmes associated with the DCCR and its work will ensure that evidence critical to improving clinical practice standards can be disseminated widely to hospital colleagues and community practitioners, says Dr Martina Hennessy, director of undergraduate teaching and learning at the TCD school of medicine.

Using search engines wisely

Searching for information on the internet has been likened to drinking from a fire hydrant. Doctors advise against using search engines such as Google because of the lack of filtering and assessment of what is put there.

Pre-appraised summaries of the best evidence have made the task of searching much easier now through resources such as the Cochrane Collaboration, BMJ Clinical Evidence, Sense About Science and Evidence Updates.

In addition, sites worth visiting are patient.co.uk and nice.org.uk as well as some sites dedicated to particular conditions such as the Irish Cancer Society at cancer.ie. Dr Anthony Cummins gave a very useful talk on EBM recently in the RCSI mini-med series at iti.ms/1i4tTG3.

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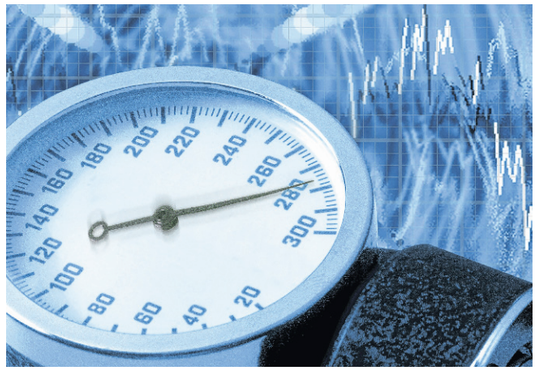
Getting the measure of high blood pressure

Prof Eoin O'Brien

Scientists have been working on ways to improve the management and diagnosis of hypertension



■ **High blood pressure should never be diagnosed on the basis of blood pressure measurements in a doctor's surgery or hospital clinic.**

There have been many developments in the management and research of high blood pressure, or hypertension, which is now the world's leading cause of death and disability (ahead of cancer, Aids and malnutrition). It affects more than a million people in Ireland, the majority of them over 60.

It is the major cause of the 10,000 strokes that occur annually in Ireland. If blood pressure was restored to normal, at least half of these strokes would be prevented, and there would be a significant reduction in cognitive impairment, dementia and heart attack.

To halt the increasing devastation being caused by hypertension, medical scientists have been working on ways to improve the diagnosis and management of the condition; some of the important ones are summarised here.

Drug treatment

Almost everyone with high blood pressure requires drug treatment in addition to lifestyle modification such as stopping smoking, reducing their salt and cholesterol intake, moderating alcohol consumption, weight reduction and taking regular exercise.

Most people with high blood pressure will require more than one drug. It is possible to use lower doses of combined drugs, thus avoiding unwanted effects, than using a full dose of one drug.

However, understandably, people with high blood pressure don't like taking a number of tablets and the pharmaceutical companies have made combination preparations containing the most effective classes of blood-pressure-lowering drugs in differing doses in one tablet.

These "single pill combinations" have been a major advance in allowing doctors to prescribe differing doses of two or three dugs without having to give the patient more than one tablet.

This development has removed one of the main barriers to achieving blood pressure control, namely poor adherence to treatment by patients who resent the need to take multiple drugs.

Ambulatory blood pressure measurement (ABPM)

The only way to find out if blood pressure is raised, and to judge the effect of treatment, is by measuring blood pressure.

Recently I led a group of 34 international experts from the European Society of Hypertension in drawing up guidelines for the best way to measure blood pressure.

The group concluded firstly that high blood pressure should never be diagnosed on the basis of blood pressure measurements in a doctor's surgery or hospital clinic. This can cause momentary elevation of blood pressure in as many as 20 per cent of people, known as white-coat hypertension, and can miss elevation of blood pressure in many more, known as masked hypertension.

The group recommended that people who have ever been told that they had a high blood pressure measurement should have ambulatory blood pressure measurement (ABPM) to confirm or dismiss the diagnosis, and that patients on blood-pressure-lowering drugs should have their treatment managed by ABPM. However, ABPM is not available for many people with high blood pressure.

Accessibility of ABPM in Irish pharmacies

Ireland leads the world in being the first country to provide ABPM in pharmacies, in addition to GP surgeries, and hospital and private clinics.

1 in 4

The estimated number of adults who have hypertension, which equates to about 1 billion individuals around the world

In a recent Irish study using specialised software that allowed central collection, analysis and comparison of ABPM data from thousands of patients attending their GPs and local pharmacies, it was shown that the information from pharmacy-recorded ABPM was as good as that from general practice. This means that the availability of ABPM in pharmacies permits many patients with hypertension to avail of the technique. It is anticipated that this will greatly improve the management of hypertension.

Disappointing result for kidney technique to 'cure' hypertension

Few topics have generated as much interest as the technique of renal denervation, which consisted of passing a small tube into the arteries supplying the kidneys and then burning the nerve supply to the kidneys.

Enormous sums of money were invested in the procedure, with thousands of publications in medical literature. The lay press hailed the technique as the greatest medical innovation to have happened in recent times, and one that would not only cure hypertension but would improve heart failure, diabetes mellitus, sleep apnoea and irregularities of the heart.

It was anticipated that patients might be permanently cured of hypertension without the need for drugs. But there were warnings from cautious experts, who questioned the impetus for a treatment that was based on economic, rather than scientific, considerations.

They warned that the procedure, although apparently safe in the short term, might cause long-term damage to the kidneys. Nonetheless, the technique was approved in several European countries. It was not approved in the US.

Then, in January 2014, a press release from Medtronic, the major investor in the procedure, declared that a study it had sponsored had shown the technique to be ineffective.

It is estimated that 5,000-10,000 patients around the world, some of them in Ireland, underwent this procedure and they might justifiably ask whether they might not have been spared an ineffective and expensive procedure that may not be without long-term risk.

The message for patients with high blood pressure is clear. No one should undergo this procedure until more information becomes available from carefully conducted scientific studies, which will take some years to complete.

Awareness about high blood pressure

It is estimated that about one in four adults have hypertension, which equates to about 1 billion individuals around the world, and this number is expected to grow to 1.5 billion (30 per cent of the global adult population) by 2025. Many of these people do not understand the importance of high blood pressure as a major cause of stroke and heart attack, or that it can be easily managed and that the catastrophic consequences can be prevented.

In an effort to provide information I wrote an app, BP Expert, and this has been downloaded by more than 10,000 people who are now more aware about high blood pressure and its consequences.

This app has been revised and will be made freely available so that Ireland can lead globally in the drive to achieve better control of hypertension with a reduction in stroke and the other cardiovascular consequences of the condition.

Eoin O'Brien is professor of molecular pharmacology at the Conway Institute, UCD