An introduction to evidence-based patient information

This quick guide is intended to introduce you to the concept of evidence-based medicine, and look at how you can use it to produce accurate, reliable and trustworthy information.

Information that isn’t evidence-based relies on other sources:
- Opinion (‘the doctor said it, so it must be true’)
- Experience (‘it worked for me’)

The history of medicine is full of examples of things doctors thought were true, before they were scientifically tested and shown to be wrong. And while experience is powerful, it can be misleading. If I get better from a cold five days after drinking herbal tea, does it mean the tea cured me? No, because I would have got better anyway. It’s a co-incidence.

Information based on evidence relies on the results of tests, done as fairly as possible to give a reliable answer. Fair tests can be repeated, to check that the results weren’t just down to chance.

Fair tests

The best fair test for most treatments is the randomised controlled trial. In a randomised controlled trial, people are allocated different treatments randomly (to avoid doctors choosing patients they think will do well on certain treatments) and the treatment group results are compared. If only one treatment is being tested, it’ll be compared to a dummy (placebo) treatment. This is the control group.

Trials are often ‘blinded’, which means the patient doesn’t know which treatment they’re getting, or ‘double blinded’ which means neither the patient nor doctor knows until the end of the trial. This helps reduce bias from people expecting a certain treatment to work well.

But other studies, such as observational trials, are important too, especially in areas where it’s difficult to carry out a randomised controlled trial. Observational studies record what people are doing (for example taking medicines, eating a particular diet) and look to see what happens to them.

Keeping up with the evidence

There’s a vast amount of evidence published every day, in medical journals, at conferences, or press released by companies and universities. No-one can be expected to keep up with all of it. Around 20 years ago, doctors began to look at how to identify the useful, important information from the misleading, trivial or unreliable stuff.

These are the key points:
- You need to be clear about the question you want to answer, before you start looking for the evidence. The type of evidence you need will depend on the question you ask (see types of evidence table, below).
- When searching for evidence, you need to set rules beforehand on where you’ll look and what type of studies you’ll include, to guard against ‘cherry-picking’ the information. This is called having a search strategy. The best way to look for evidence is to carry out a systematic review.
- You need rules about which studies are good enough to include in your review, or you end up with a summary of lots of unreliable studies. The process of checking studies against these inclusion/exclusion criteria, and of assessing the quality of the evidence, is called critical appraisal.

By Anna Sayburn

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### Types of evidence

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<thead>
<tr>
<th>Type of evidence</th>
<th>Advantages</th>
<th>Disadvantages</th>
<th>Useful for ...</th>
<th>Not useful for ...</th>
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<tr>
<td>Systematic review</td>
<td>Gathers all the evidence from studies that might answer the question. Combining several studies should make the results more reliable.</td>
<td>Only as good as the studies that have been done so far. Combining many small, poor quality studies can give misleading results.</td>
<td>Comparing treatments in a field where there has been a lot of research already. Drawing conclusions from studies with conflicting results.</td>
<td>Looking at areas where there has been little or no previous research.</td>
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<td>Randomised controlled trial (RCT)</td>
<td>Reduces the chance of biased or unfair results.</td>
<td>Not always practical or ethical; can be expensive to carry out.</td>
<td>Finding out which treatment works best for a particular condition.</td>
<td>Finding rare or long-term side effects, which won’t show up in studies unless there are many thousands of participants and the study lasts many years.</td>
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<tr>
<td>Observational study</td>
<td>May be more practical than RCT. Good way to see the effect of background factors (like weight, diet).</td>
<td>Results may be biased because of confounding factors (for example, people who eat healthily may also exercise more).</td>
<td>Identifying trends that might be important.</td>
<td>Proving whether one treatment works better than another.</td>
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<tr>
<td>Expert opinion / consensus</td>
<td>Collects experience and best practice of doctors in the field.</td>
<td>May be wrong or misleading.</td>
<td>A starting point, where there is no evidence, to decide which treatments to investigate.</td>
<td>Deciding what works.</td>
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<tr>
<td>Anecdote</td>
<td>Can be very persuasive. People like stories!</td>
<td>May be wrong or misleading.</td>
<td>Explaining about treatments.</td>
<td>Deciding what works.</td>
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FAQs about evidence-based patient information

Q1: Does this mean I have to do a systematic review before I can write a patient leaflet?
A1: Fortunately not. There are lots of groups carrying out systematic reviews, and lots of groups using them to set guidelines. See below for a list of reliable sources of systematic review evidence.

Q2: Do I have to include references and footnotes in all my patient information?
A2: No. But it’s good practice to tell people what sources you used to prepare the information, and be prepared to share this if asked. You might have a link on your leaflet to further sources of information on your website, for example.

Q3: A doctor wrote the leaflet, so it’s bound to be evidence-based, right?
Q3: Wrong. How does the doctor know his information is up-to-date? It’s important to ask doctors to give sources for their information, too.

Q4: Does this mean the leaflet will need to change over time, if more studies come out?
A4: Yes, probably. Leaflets should be dated and regularly reviewed. At review, you should check that the information in the leaflet hasn’t changed, by looking at a reliable source of evidence.

Q5: Won’t all this make it too difficult for patients to understand?
A5: No! You don’t have to use complicated language to explain about studies. The important thing is that the information you provide is based on good quality sources of evidence.

Good sources of evidence

Cochrane Collaboration: http://www3.interscience.wiley.com/cgi-bin/mrwhome/106568753/HOME does systematic reviews of specific therapies.

Clinical Evidence: http://clinicalalevidence.bmj.com/ceweb/index.jsp does systematic reviews of all treatments for a specific condition, & ranks them as beneficial, likely to be beneficial, unknown effect, etc. Clinical Evidence is part of the BMJ Evidence Centre http://group.bmj.com/products/evidence-centre which also has the Best Health evidence-based patient information service http://besthealth.bmj.com/btuk/home.jsp. Best Health translates Clinical Evidence systematic reviews into patient-friendly topics that also give background about the conditions.

National Institute for Health and Clinical Excellence (NICE): clinical guidelines and technology appraisal guidance includes good reviews of the evidence about treatments. It also includes cost-effectiveness information. http://www.nice.org.uk/

NHS Evidence is a portal for many different information sources, which have been assessed as reliable and evidence-based. https://www.evidence.nhs.uk/

To learn more about evidence-based medicine


Ben Goldacre’s Bad Science column, published in The Guardian and on his website here: http://www.badscience.net/ is great at explaining why we need evidence and giving examples of when we get it wrong. His book, also called Bad Science, is good too. http://www.amazon.co.uk/Bad-Science-Ben-Goldacre/dp/0007240198

Centre for Evidence-Based Medicine, Oxford University (courses and resources): http://www.cebm.net/index.aspx?o=1001

Centre for Clinical Effectiveness, Australia: http://www.southernhealth.org.au/page/Health_Professionals/CCE/ Clinical Evidence also includes educational information about evidence-based medicine http://clinicalalevidence.bmj.com/x/set/static/ebm/learn/665073.html