

Getting up to date is simply essential

During a recent webinar leading experts in clinical decision support systems discussed how access to the best proven evidence can make a big difference

WHAT IS UPTODATE?

UpToDate is an evidence-based clinical decision support system which is authored by clinicians. Research demonstrates that it changes treatment decisions and improves patient outcomes, thus reducing costs and giving a return on investment.

A number of studies have evaluated the issue of unanswered clinical questions and have produced similar results. Approximately two out of three clinical encounters generates a question, which amounts to around 11 clinical questions per day. Yet only 40 per cent of those questions get answered.

Answering all of those clinical questions could change five to eight management decisions each day.

"Questions do get answered and they get answered with imperfect information," says Dr Peter Bonis, UpToDate's chief medical officer.

"People are essentially using information that they have always practised by, or asking colleagues, and that's bound to lead to concerns in the quality and efficiency of patient care."

Changes to the ways in which long-term conditions are viewed and treated are needed if they are to be managed by the NHS in the future. The impact of UpToDate has been evaluated in dozens of survey studies all over the world, with consistent results.

In a UK survey, 91 per cent said it improved the care they provide. Users reported that the system saves them time (91 per cent), keeps them current (94 per cent), has led to changes in diagnostic testing (65 per cent), and is integral to their practice (65 per cent).

But how important are these changes in decisions? Again a number of studies have been conducted throughout the world with similar results. A study at Cook County Hospital in Chicago assessed the critical decisions made by 33 internal medicine attending physicians before and after providing clinical knowledge support (primarily UpToDate). Eighteen per cent of the time physicians changed what they were going to do. For example, in a patient with community-acquired pneumonia the original decision was to give IV antibiotics, usually requiring hospitalisation, and the final decision was to provide oral antibiotics. The new decisions had the potential to shorten length of stay or prevent an adverse event.

Solucient evaluated the impact of UpToDate on hospital lengths of stay, complications and patient safety measures. It was surprised to find that hospitals with access to UpToDate had significantly lower lengths of stay by an average of 0.167 days per discharge. They also had lower complication rates and better safety scores.

UpToDate's chief medical officer Dr Peter Bonis was a little sceptical about the results because the better hospitals may have simply bought UpToDate in the first place. Solucient repeated the analysis, this time looking at how much UpToDate was used. "It found that regardless of hospital size, the more UpToDate was used, the fewer the complications there were." There were similar results for lengths of stay and the other measures that were evaluated.

A researcher at the Harvard School of Public Health asked to repeat the analysis. He believed that a more rigorous analysis of a larger dataset would prove that the findings were due to residual confounding. Using data for three years he examined hospital performance before and after UpToDate was introduced. Use of UpToDate was associated with shorter length of stay. The researcher estimated that UpToDate saved about 372,500 hospital



A member of the trauma team at work at Cook County Hospital. The unit admits 4,500 patients a year

days per year in the US and that, if the remaining hospitals used UpToDate, that could save an additional 523,000 hospital days per year.

He also detected a reduction in mortality, estimating that UpToDate hospitals saved 11,500 lives over a three year period. If all hospitals in the US adopted UpToDate that would have saved an additional 16,650 lives per year.

UpToDate was associated with improved hospital quality, as measured by acute myocardial infarction, congestive heart failure, pneumonia and surgical site infection scores.

Another set of research studies show that UpToDate has an impact on continual learning. It is the only resource proven to impact on hospital and medical education.

UpToDate commissioned Forrester Research to investigate its return on investment. Forrester



consultant Jan ten Sythoff led the project, which was conducted at Salford Royal Foundation Trust. The main cost of the service was the annual subscription to UpToDate, which was just over £24,000 in 2010.

The service's simplicity and ease of use meant that additional costs amounted to a little over £400 a year. The most important was administration and renewal of the contract, which took about 20 hours a year. It took less than an hour to install UpToDate and there were no technical issues.

Because UpToDate is easy to use – essentially users just need to enter a search term to find information – there were no training costs.

Forrester identified four main benefits of UpToDate:

- First, improved quality of care. Mr ten Sythoff says: "It shortens the time to treatment, and results in improvements in other hospital performance metrics such as mortality rates, length of stay, readmission

WEBINAR PARTICIPANTS

- Dr Peter Bonis, chief medical officer, UpToDate
- Jan ten Sythoff, consultant, Forrester Research Inc
- Dr Peter Williams, consultant in acute and emergency medicine, St Helens and Knowsley Teaching Hospitals Trust
- Jane Surtees, clinical librarian, library and knowledge service, Royal Derby Hospital

rates and waiting times."

- Second, UpToDate helped with training and education for junior doctors and nurses, a role that generates 7 per cent of hospital income, and for ongoing training of all medical staff.

- Third, UpToDate produced productivity gains. Heavy users

CASE STUDY: LEEDS TEACHING HOSPITALS TRUST

For Dr Mervyn Davies, consultant hepatologist at Leeds Teaching Hospitals Trust, UpToDate is so useful that he hates going anywhere without it. It means that even though his trust has a subscription, which gives him access at work, he continues to take out a personal subscription. That gives him access at home and from his mobile phone.

"I love it so much that I can't stand being at home and not being able to [access it], so that's why I continue my personal subscription," he says. "It's absolutely brilliant having it at the trust but I like it so much that I can't deal without it really. If I'm at meetings then I use my personal subscription to get internet access to it."

Dr Davies has used UpToDate for about 10 years. When a new treatment comes out he goes to www.uptodate.com which rapidly provides him with the evidence for the treatment, how it's being used and what the alternative treatments are.

He often uses it for teaching. UpToDate contains reviews of topics which are very useful when writing lectures.

Dr Davies specialises in the liver but many patients he sees have other conditions that he is less familiar with. In these cases he goes to UpToDate to find out more. For example, he might see a patient who has had a bleed because of their liver disease. The patient also has atrial fibrillation and is taking

anticoagulants. He needs to review how strong the evidence is in favour of anticoagulating a patient with atrial fibrillation, because there are good reasons not to anticoagulate and good reasons to anticoagulate. That's where UpToDate comes in and provides an overview of the evidence and the data.

UpToDate also has patient information on many topics. If Dr Davies makes a diagnosis he can download patient information and print it out.

Dr Davies says UpToDate is quick, easy to use, written in a balanced way and frequently updated. "In our department we all use it and like it a lot," he says. "I was very keen on the trust getting it because it is such

a valuable resource for rapidly accessing high-quality review data."

UpToDate will answer most general medical questions. There are occasions when he has a highly specialised question and does a literature search on PubMed or orders papers from the British Library. "But that's so much more work," he says. "In the old days that's what you had to do all the time whereas now for 97 per cent of things your question is answered just by going on to UpToDate."

He adds: "The whole time as a doctor you want to be making sure that you're doing what's right for the patient and obviously you don't know everything. It is just a very reassuring source of information."

of UpToDate saved around an hour a week by having quick and easy access to the latest information about conditions, diagnoses, drugs and symptoms. Doctors reported they not only saved time in treating patients but also in training students and junior staff. Forrester found that the average user saved about a day per year. That equates to about 281 days for the hospital as a whole, and an annual productivity gain of about £75,000.

● Finally, UpToDate led to diagnostic test efficiencies. Doctors avoided diagnostic tests by using UpToDate to help them eliminate certain diagnoses. It was also particularly useful for doctors to diagnose diseases outside their area of expertise. Salford Royal spends about £11.2m a year on diagnostic testing. Forrester found that UpToDate enables that to be reduced by 1 per cent, which equates to an annual saving of £112,000.

When Forrester put the figures on productivity gains and diagnostic test efficiencies into its financial model they found “a very compelling return

ABOUT UPTODATE

UpToDate is a knowledge resource that allows clinicians, including doctors, nurses, and allied health professionals, to answer questions at the point of care with actionable evidence-based recommendations. More than 14 million topics are accessed each month.

UpToDate has subscribers in more than 140 countries. About 5,000 authors and editors contribute to UpToDate – including more than 150 authors from the UK – covering 19 specialties. Dr Bonis says: “These are the ones who you would want to see if you have a particular condition.”



on investment”.

UpToDate produced a return on investment of more than 400 per cent and paid for itself in under three months. With total costs of £24,678 and total benefits of £123,958, UpToDate's net present value to the trust was £99,281. Mr ten Sythoff says: “We feel that [UpToDate] fits nicely into the quality, innovation, productivity and prevention agenda.”

Before introducing UpToDate at St Helens and Knowsley Teaching Hospitals Trust, acute and emergency medicine consultant Dr Peter Williams ran a three month trial. UpToDate was well used in the trial. There was excellent feedback, both to Dr Williams and to an online questionnaire supplied by UpToDate. One concern from pharmacy was about an American bias on drug doses and indications that were recommended. Dr Williams secured funding for a subscription through the trust's IT and library services in

exchange for piloting a new IT system on the acute medical unit.

UpToDate has been up and running at the trust for five months. “It is very popular especially with the doctors in training,” says Dr Williams. “If they've got clinical questions they can use it to answer them. It's an excellent resource which is well used and well trusted.”

Clinicians from Royal Derby Hospital had been requesting UpToDate and in 2011 Jane Surtees, clinical librarian at the hospital's library and knowledge service, ran a three month trial. A survey during the trial generated 117 responses, primarily from consultants. Responses also came from pharmacists, nurses, midwives and allied health professionals.

“The conclusion from the trial was that there was still a very high demand for the resource,” says Ms Surtees. “It was held in very high clinical esteem and there appeared to be a strong potential to aid in

driving down error rates and potentially reducing the average length of inpatient stay – which also endorsed our trust's corporate objective of ‘right first time’.”

Ms Surtees secured charitable funding for a two year subscription, but it was dependent on showing measurable outcomes and sustainability. She is conducting an evaluation survey, which has attracted 86 responses after about one year. Users are asked to focus on a single query they put into UpToDate for an answer.

Nearly 44 per cent agreed that UpToDate provided information that enabled their patient to have fewer investigations or tests. Around 30 per cent said UpToDate enabled their patient to leave hospital sooner. An overwhelming 92 per cent said UpToDate saved them time. And 43 per cent agreed that UpToDate prevented a referral to another department.



From left, clockwise: St James's University Hospital, part of the Leeds trust; Fairfield General, part of the Pennine trust; and Royal Derby Hospital

Three quarters of respondents said UpToDate reduced errors or risk in their practice, and 97 per cent agreed it had helped them to give the best care. UpToDate influenced decisions primarily on patient treatment (37 per cent) followed by diagnosis (30 per cent). Respondents said they used UpToDate because of the ease of use and quality of information.

"There's a strong message being sent by users [that UpToDate] is having a real impact in terms of potential litigation avoidance, strong cost saving by avoidance of unnecessary tests and referrals, and it's saving a massive amount of time," says Ms Surtees. "If there's just one litigation avoided then it's more than paid for itself."

COMMENT: DENISE BASOW

There is a lot of data to demonstrate that physicians are frequently challenged by clinical questions while they are seeing patients, and that many of those questions go unanswered. The data also shows that if you provide the appropriate evidence and knowledge to answer all of the questions it often changes the decisions that physicians would otherwise make.

In this day and age, with so much literature being published, physicians cannot keep up with all the information and do not have time to consult the journals every time they see a patient. They need help to practise evidence-based medicine.

Every health system in the world, and the NHS is no exception, is trying to improve the quality of care while reducing costs. There are many factors that go into the cost of healthcare, but the area where physicians really have an impact is in the types of decisions they make every day, whether that is the tests they order or the drugs they prescribe. That is where clinical decision support can really have an impact.

Practising evidence-based medicine does not always lead to cheaper care because sometimes it says you need to order a test or prescribe a more expensive drug because it is more effective. But I think most of us feel that if we're improving the quality of care then that will lead to improvements in the areas that really drive up costs – preventing hospital admissions, shortening lengths of stay, eliminating referrals and reducing readmissions – and



ultimately reduce the costs of care. There is a growing body of research and studies to suggest that that is the case.

UpToDate is a clinical knowledge resource that allows physicians to make evidence-based decisions at the point of care. It's very quick and easy to use. It's really critical that we provide physicians a way to get the information they need at the point of care while they are seeing a patient. It does not do a lot of good to get this information hours after the patient has left the office.

We have been providing UpToDate in the UK for many, many years and have built relationships at a number of trusts. One of the most interesting relationships has been with the Pennine Acute Hospitals Trust. We've done some studies across the north of England to look at the impact of UpToDate on changing the decisions that physicians make and how much they use it compared with other resources. The studies show physicians are using it a lot and they are changing many of the important decisions they would otherwise have made because they are able to look up the evidence at the point of care.

The next logical step will be to see what effect that

is having on outcomes. Outcomes studies require large numbers of patients and we're keen to partner with additional trusts in the UK to conduct these studies.

We have lots of data in the US with our university partners demonstrating that UpToDate improves education at university hospitals. We hope to do similar sorts of studies with universities in the UK.

Any one study by itself does not tell the whole story. But if you look at all of the data in aggregate, it shows that physicians have questions, that resources like UpToDate can answer those questions and that it changes the decisions physicians make for the better. Data from the US suggests that changing these decisions does lead to reduced lengths of stay in hospital, reduced adverse events, and even reduced mortality, and we are starting to see that the same is true here in the UK.

We cannot prove that the relationships are causal at this point but the data as a whole tells a compelling story. This is a comparatively inexpensive way to potentially improve the quality of care and reduce costs.

Dr Denise Basow is president of UpToDate
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