

Online clinical decision support: how it is used at the point-of-care

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INTRODUCTION

The volume of medical literature continues to expand at such a rate that no single doctor or healthcare professional can keep up. At the same time, doctors are increasingly short of time and need answers to important clinical questions quickly. Trying to keep up by acquiring knowledge is no longer possible in the modern era.

Point-of-care clinical decision support tools are one way of helping doctors and other healthcare professionals. These tools allow doctors to find immediate, current and evidence-based answers to important clinical questions. The best tools cover a wide range of diseases and uphold the highest standards in editorial quality and evidence-based methodology. While there have been a number of analyses of how existing tools satisfy these criteria, there have been few studies of *how* point-of-care clinical decision support tools are actually used.¹ Many papers also look at referential sources of information rather than those that are actually used at the point-of-care.^{2,3}

This paper attempts to address these shortcomings in the literature by analysing the usage of a point-of-care decision support tool—BMJ Best Practice. BMJ Best Practice aims to provide fast and easy access to doctors and other healthcare professionals to the latest relevant information when making diagnostic and treatment decisions. It is continually updated with practice-changing new evidence. This means that the editorial team will incorporate new evidence within the resource within 1 month of the evidence being available. It is designed to be used at the point-of-care—with a format and structure that will work on any device—online or off-line.

METHODOLOGY

In October 2016, we looked at the use of BMJ Best Practice over the previous 10 months. We looked at what clinical topics doctors and other healthcare professionals used most frequently. We also looked at what category of topic and what sections of the site received most views.

RESULTS

BMJ Best Practice covers 1000 diseases. To ensure that it covers common and important diseases worldwide, we consulted practising clinicians, clinical editors, contributors, peer reviewers and subscribers. We are still expanding its scope based on feedback from users, experts and customers.

We looked at the most viewed 100 topics in the resource. Forty-three of these most viewed topics covered emergency medicine. Seven of the top 10 topics covered emergency medicine. These included

diabetic ketoacidosis, sepsis in adults, acute pancreatitis, paracetamol overdose, ST-elevation myocardial infarction, acute appendicitis and chest pain (assessment of). There was a clear preponderance of emergency medicine topics in the most accessed content.

Looking at all 1000 topics, the most searched specialties are shown in [box 1](#).

We also looked at what sections of the site received most and fewest views. The sections of the site with the most views and fewest views are shown in [table 1](#).

DISCUSSION

Various themes emerge from these data. First of all, it is clear that many of the most popular topics are on emergency medicine—suggesting that the context of use is the emergency or critical care environment and that the content is being used to inform important and practical decisions in care. This is confirmed by the most searched high-level browse categories: these include emergency and critical care medicine. Second, the sections of the site with the most views suggest a clear pattern of usage. Five of the top 10 most used sections cover diagnosis. These include sections on how to take a history and examination, what tests to order and potential differential diagnoses. These suggest a great deal of uncertainty in the mind of the user when using the tool. The users need support in working up a diagnosis and are even unsure if the disease that they are looking up is the correct diagnosis for their patient or whether another differential diagnosis could be causing the patient's symptoms. The high usage of the step-by-step sections (whether in diagnosis or management) also suggests that users want to be taken by hand through the content in a graduated and logical manner. It suggests that they want to access content in a structure that mirrors the clinical workflow.

Box 1 Most searched specialties

- Allergy and immunology
- Cardiovascular disorders
- Endocrinology and metabolic disorders
- Gastroenterology and hepatology
- Emergency medicine
- Dermatology
- Obstetrics and gynaecology
- Paediatrics and adolescent medicine
- Neurology
- Critical care medicine

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In practice reports

Table 1 Sections of the site with the most and fewest views

Most views	
1.	Highlights (an overview of the topic)
2.	Management: step-by-step (a step-by-step guide on how to manage the condition)
3.	Theory: pathophysiology (a brief summary of the pathophysiology of the condition)
4.	Diagnosis: step-by-step (a step-by-step guide on how to diagnose the condition)
5.	Diagnosis: overview (a brief overview on how to diagnose the condition)
6.	Diagnosis: tests (a summary of the common tests that will help to diagnose or exclude the condition)
7.	Diagnosis: history and examination (an outline of important symptoms and signs to explore)
8.	Management: details (a detailed and comprehensive outline of how to manage the condition)
9.	Diagnosis: differential (the common differential diagnoses of the condition)
10.	Theory: definition (a brief definition of the condition)
Fewest views	
33.	Resources: update history (an outline of how the topic has been updated over the past 2 years)
34.	Resources: online resources (a selection of further resources related to the condition)
35.	Resources: related BMJ content (a selection of further resources from BMJ that are related to the condition)
36.	Resources: contributors (a description of the authors and peer reviewers of the content)
37.	Resources: patient leaflets (information for patients in patient-friendly language)
38.	Management: emerging (new treatments that are starting to emerge but which are not yet mainstream)
39.	Resources: images (clinical, radiological or laboratory images that are related to the condition)
40.	Resources: overview (an overview of resources related to the condition)
41.	Prevention: screening (an outline of any screening tests related to the condition)
42.	Prevention: overview (an overview of primary and secondary prevention strategies)

Third, the sections of the site with the lowest usage suggest that the healthcare professionals using the content are least interested in the type of content that might be labelled ‘further

resources’ or ‘ancillary content’. Their clear value is in the core business of making a correct diagnosis and taking the correct steps in patient management. They are also less interested in the academic content in the emerging management sections—they want to look at the content that is available for patients now. Finally, the prevention sections generate low usage—once again suggesting that users are most interested in answers to their immediate questions that relate to pressing dilemmas in clinical diagnosis and management that they encounter at the point-of-care.

There are limitations to this analysis. Different types of healthcare professionals and organisations use BMJ Best Practice and this analysis looks at their usage as a whole. In the future, we plan to analyse how different types of healthcare professionals of various grades and in primary and secondary care use the tool differently. There is also a degree of speculation as to why the usage of BMJ Best Practice is as described. We feel that we have offered a reasonable analysis in this regard—for example, the diagnostic sections are popular because users need support in making diagnostic decisions at the point-of-care. However, we realise that others might draw different conclusions. It is possible that some of the labels for our content (eg, ‘further resources’) are not sufficiently specific or clear enough to users. Nonetheless, we feel that making the data open and available to allow others to draw alternative conclusions based on the data that we have offered. Finally, this analysis looks at the usage of just one point-of-care clinical decision support tool—healthcare professionals might use other tools differently. We would encourage other providers of clinical decision support tools to share their data in the same way.

Competing interests KW works for BMJ, which produces BMJ Best Practice.

Provenance and peer review Not commissioned; internally peer reviewed.

REFERENCES

- 1 Kwag KH, González-Lorenzo M, Banzi R, *et al*. Providing doctors with high-quality information: an updated evaluation of web-based point-of-care information summaries. *J Med Internet Res* 2016;18:e15.
- 2 Patel R, Green W, Shahzad MW, *et al*. Use of mobile clinical decision support software by junior doctors at a UK teaching hospital: identification and evaluation of barriers to engagement. *JMIR Mhealth Uhealth* 2015;3:e80.
- 3 Pryor M, White D, Potter B, *et al*. Evaluating online diagnostic decision support tools for the clinical setting. *Stud Health Technol Inform* 2012;178:180–5.



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