1. Introduction

Infectious diseases are a significant cause of morbidity and mortality worldwide. It is essential that healthcare professionals are able to correctly diagnose and report patients with serious infectious diseases without delay. This is so that, if required, patients will receive immediate treatment, referral, and isolation.

To improve the capacity of healthcare professionals in the diagnosis of infectious diseases, BMJ has implemented the BMJ Clinical Decision Support (CDS) Training Initiative in Azerbaijan, Georgia, and Ukraine. The Initiative equips doctors with BMJ’s evidence-based resources, BMJ Best Practice (clinical decision support tool) and BMJ Learning (e-learning resource), to improve their ability to effectively detect, diagnose and manage infectious diseases, toxins and biotoxins.

2. Methods

We conducted a quantitative and qualitative analysis of clinicians’ engagement with BMJ Best Practice and BMJ Learning. Over a period of one year to assess the impact of BMJ resources in education and clinical practice. We evaluated the number of clinicians who engaged with the resources, their performance on knowledge assessments embedded in the resources, and the sections of the resources that were most used. We also evaluated feedback on the resources to look for qualitative evidence of impact on clinical practice.

3. Results

Quantitative Analysis

Since launching in June 2016, the CDS Training Initiative has trained more than 3800 infectious diseases specialists and primary care doctors across 407 institutions in the three countries. On BMJ Learning, physicians complete a knowledge test at the start and the end of the learning modules. Physicians improved their performance on knowledge assessments in infectious diseases on average from 51% in the pre-test to 83% in the post-test. This is a 32% improvement in their medical knowledge and problem-solving skills. Examples of topics where physicians have improved their knowledge is shown in Figure 1:

![Figure 1: Improvements in knowledge of infectious diseases](image1)

On BMJ Best Practice, more than one-third of views focus on the Diagnosis and Treatment sections (See Figure 2). This confirms that healthcare professionals are using the resources as a means of improving practical aspects of their care in the diagnosis, differential diagnosis and treatment of patients with infectious diseases.

![Figure 2: Number of section views on BMJ Best Practice](image2)

*Please note “Highlights” is the landing or summary page.

Qualitative Analysis

Qualitative analysis of feedback suggests that users find the content helpful and useful the content to improve their clinical care in infectious diseases.

Examples of feedback from qualitative case studies

- Using BMJ Best Practice and BMJ Learning for better diagnostic and management in Azerbaijan
  - Dr Ruhima Mammadova, Bagu Clinic Medical Center
  - “Over the last two months, we have had an increasing number of patients with meningitis. I went through BMJ Learning and BMJ Best Practice, and collected updated information which enabled us to form a precise diagnosis and apply new treatment methods. I have acquired knowledge on infections which do not occur in our country e.g. BTV virus fever, melioidosis and South America hemorrhagic fever. However I see patients who have returned home and who are unwell. This content becomes very helpful in differential diagnosis.”

- Using BMJ Learning to support medical education in Georgia
  - Dr Nino Khvadze, Aversi Clinic Diagnostic Centre
  - “BMJ Learning has helped me to develop my material for teaching at Titli State Medical University, i mainly access modules about respiratory medicine and modules on clinical skills. One of the most helpful features of BMJ Learning are the assessments provided with each learning module. These are informative and allow me to see both the correct and incorrect answers with explanations of what is right and what is wrong and why. It has been an important component of my teaching to go through the answers and explanations with my students.”

- Using BMJ Best Practice to communicate evidence-based information to patients in Ukraine
  - Dr Leshkov Svyatoslav
  - “Not too long ago we had a real big problem with Measles in Ukraine because many people held strong misconceptions about vaccinations and were reluctant to get them. As a result, we used research from BMJ resources to show the general public that vaccination is not the problem, and that there was much evidence to show that, BMJ has helped us to teach and educate the public on such medical matters.There is currently a big anti-vaccination lobby in Ukraine, so we really needed resources like BMJ Best Practice to help overcome this.”

Examples of feedback on BMJ Learning modules

- Botulism “Informative and useful, especially regarding infant botulism and warfare botulism.”
- Rickettsial diseases “The module is more informational and basic to use for us because we can find new treatment tools and methods about dangerous new diseases.”
- Infection control - "Including basic personal protective equipment very informative module! Everything is wonderfully narrated and shown in detail.”
- Tularaemia “Very useful module, although tularaemia is a rare disease in my country it is very important not to miss it and to know how to treat it.”
- Sepsis “I like this module because of the detailed and practical approach to diagnosis of sepsis.”

4. Conclusion

- Online learning and clinical decision support resources can help healthcare professionals improve the diagnosis and treatment of infectious diseases.
- Clinicians use BMJ Best Practice and BMJ Learning to support their diagnostic decision-making, provide evidence-based information to their patients, and modify treatment plans.
- BMJ Best Practice and BMJ Learning resources are used to support the education of medical students.

Further reading