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**Daily targeted evidence reports for orthopaedic surgeons - a mixed methods study in India.**

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Research Summary

### Background

Evidence-based medicine (EBM) involves integrating individual clinical expertise with the best external clinical evidence from systematic research, including randomized controlled trials and high quality meta-analyses.<sup>1-3</sup> Patient values and preferences are also incorporated into EBM to promote shared decision-making between patients and clinicians.<sup>2,4</sup> Implementing an evidence-based approach has strong advantages, such as increased cost-effectiveness, by minimizing clinical practices that have limited proven benefit.<sup>5-8</sup>

Although many physicians strongly believe that practising EBM improves patient care, few consistently practice it.<sup>9-11</sup> Regardless of a country's development status, failure to use evidence from research to make informed decisions is evident amongst healthcare providers, managers, and policy-makers, across all disciplines of care.<sup>7, 11-13</sup> The practice of EBM is further constrained in developing countries due to its inherent complexity, misperceptions, absence in medical curricula, rigidity, and limited awareness amongst clinicians.<sup>5</sup> In resource-poor countries, there is limited access to databases/computers/internet, limited literature relevant to local realities, and inadequate library facilities.<sup>8, 9, 14-20</sup> In an effort to improve healthcare quality and physicians' decision-making to promote positive patient outcomes, the use of EBM to inform healthcare practice has emerged as both a national<sup>7</sup> and international priority.<sup>21-24</sup>

### Objectives

South Asian countries, in particular, have demonstrated weak performance in the EBM domain.<sup>5, 25</sup> Given India's large patient load, clinicians have limited time and incentives to stay up-to-date with the latest breakthroughs and innovations; consequently, they may provide poor quality care.<sup>7</sup> Furthermore, weak government regulations for pharmaceutical companies and private practitioners, who provide approximately 80% of care, put practitioners at even greater risk

of prescribing ineffective/harmful medicines to patients.<sup>7</sup>

One major barrier to implementing EBM in orthopaedic surgery specifically is the lack of summarized evidence that is available in a useful and acceptable format.<sup>26</sup> The objectives of this study were to: (1) investigate the accessibility, use, and impact of an online EBM knowledge dissemination portal for orthopaedic surgery in India, (2) explore whether receiving daily targeted evidence summaries results in increased usage of an EBM tool when compared to receiving general weekly reports, and (3) identify and explain the barriers and benefits of a point-of-care EBM resource in the Indian context.

### Methods

Orthopaedic surgeons (n = 44) at a private orthopaedic hospital known as the Sancheti Institute of Orthopaedics and Rehabilitation (SIOR) in Pune, India, were provided free access to OrthoEvidence (OE; [www.myorthovidence.com](http://www.myorthovidence.com)), a for-profit and online EBM knowledge dissemination portal. OE gathers high-impact peer-reviewed journal articles, summarizes them, and then sends out Advanced Clinical Evidence (ACE) reports to subscribers via email.<sup>27</sup>

Participants in this study were pseudo-randomized to an Intervention group receiving daily-targeted ACE reports, or a Control group receiving general weekly ACE reports. This study employed a mixed-methods sequential explanatory design, incorporating two questionnaires, OE usage data, and semi-structured interviews (n = 19), in order to gain insight into the surgeons' usage and perceptions, as well as the impact of OE.

### Results & Discussion

There was no difference between the Intervention and Control groups in terms of "open rates" (the percentage of newsletters that were opened through the participant's email) and "click rates"

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(the percentage of reports that were clicked within the newsletters for each participant). Thus, over a one-month time span, it was found that providing daily-targeted evidence summaries to orthopaedic surgeons did not enable more frequent use of the service compared to providing weekly orthopaedic evidence summaries.

Overall, the surveys found that OE ACE reports were perceived to be comprehensive, practical, useful, and applicable by most surgeons at the SIOR (unpublished data). Moreover, three-quarters of the group agreed that ACE reports had improved their efficiency and ability to keep up with new research. For more than half of the group, their confidence in medical decision-making and their perception of improved patient care also improved as a result of ACE reports. Surgeons were actively engaging with OE by reading and discussing ACE reports, and making more informed patient care decisions as a result.

The semi-structured interviews revealed some barriers to keeping up with evidence, regardless of OE, as well as in consideration of the platform. The problems mentioned in accessing relevant literature were a result of limited internet connection, lack of time to access information, and minimal access to medical journals. Limited incentives to keep up with the literature were indicated to be due to the existing limited decision-making powers for trainees on patient-related care, a solely textbook-based residency curriculum (instead of one that also incorporates findings from peer-reviewed primary and secondary literature), a lack of research methods' knowledge, and limited context-specific research. These findings are in line with studies asking similar questions in developed and developing countries.<sup>7-9, 11, 14, 17, 24, 25, 28-35</sup>

Facilitators to using OE included the instruction and coaching provided by the researcher, as well as the overall convenience of the pre-appraised ACE report summary format, which was easily accessible through a mobile device. Similarly, research has found that the increased convenience of access to reliable and applicable high quality

research makes information-seeking more likely to occur and ultimately be successful.<sup>36</sup>

Many consultants explained that OE would be useful for doctors all over India who lack access to journal articles because receiving ACE reports through OE could help them stay up-to-date. For example, as a result of relevant ACE reports, the trauma team at the SIOR came together more frequently to discuss recent research emerging in their field from other groups. Subsequently, management of clavicle fractures shifted from non-operative treatment to operative treatment. Overall, OE helped the SIOR's surgeons to rethink, reassess, and redefine certain procedures in the trauma department to improve their patient care and clinical decision-making. See Appendix A for a summary of qualitative interview themes.

### Recommendations

The practice of EBM and the use of web-based point-of-care tools in India can be promoted by: (1) improving internet access, and (2) integrating EBM into training programs and surgical culture.

#### *Improving Internet Access*

Many of the barriers in accessing OE and generally keeping up with the literature stemmed from an overall inability to connect to the internet at the SIOR. This means that the use of any online tool will likely be limited as a result of the inability to access the internet within the hospital. If surgeons at the SIOR were having difficulty connecting to online tools, then many healthcare facilities in India with fewer resources will likely have more difficulty and thus, barriers to access. Investments to allow for reliable and fast internet are needed for online EBM tools to be accessed throughout India.

#### *Integration into Residency Curricula and Surgical Culture*

The best way to embed evidence into good clinical practice in India is to change surgical culture in general, for example, by training consultants to serve as appropriate EBM role models for students.<sup>37</sup> It would be beneficial for the SIOR's

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residency curriculum to provide a research methods course at the beginning of their training to familiarize students with EBM concepts. EBM training should be led by senior consultants who can focus on day-to-day case studies as examples.<sup>38, 39</sup> Instilling habits early on through experiential and culturally supported ways of learning can ensure that EBM is practiced successfully by individuals and surgical communities alike.<sup>11, 14, 38, 40-42</sup>

All interviewees agreed that OE should be added to a resident's toolbox as a reliable learning tool. Furthermore, a weekly reading program or journal club can be integrated into residency curricula to promote the practice of EBM.<sup>43</sup> The reading program could include the weekly dissemination of one high-impact article to surgeons, which would be followed by group discussions. Providing an opportunity for residents to lead these meetings can foster greater learning and collaboration.<sup>43</sup>

### **Key Take-Away Message**

While providing the appropriate evidence-based resources through adequate internet access is necessary, a paradigm shift in the overall methods of training future surgeons is crucial, especially with regard to the integration of EBM. Suitable training for senior role models and residents is needed for them to serve as key opinion leaders to ensure the sustainable integration of EBM practices into Indian surgical culture.

### ***Disclosure of Potential Conflict of Interest***

Dr. Mohit Bhandari is the Founder and Editor-in-Chief of OE. He holds shares in the company. Any competing interests were disclosed prior to the start of the project. No financial gain was obtained from this thesis project.

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