Integrating medical librarians into infectious disease rounding teams: Survey results from a pilot implementation study

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Medical librarians participating as infectious disease rounding team members add value by facilitating knowledge acquisition and dissemination and by improving clinical decision making. This pilot study implementing medical librarians on infectious disease rounding teams was a well-received and beneficial intervention to study participants.

Keywords: infectious diseases consultation, clinical library support, decision support, clinical librarianship, clinical rounding support

INTRODUCTION

Studies have highlighted the frequent occurrence of unanswered clinical questions during medical rounds (Ely et al., 1999; Green et al., 2000). Unanswered clinical questions can result in delayed...
or suboptimal patient care, especially in cases involving complex or rare diseases (Del Fiol et al., 2014). Medical librarians can help front-line medical practitioners quickly locate and synthesize evidence-based information, helping to address clinical questions that may otherwise go unanswered (Del Fiol et al., 2014; Marshall, 1992; Yeager & Kelly, 2014). Medical librarians on care teams have been associated with improved patient outcomes, reduced hospitalization duration, and increased satisfaction among healthcare professionals (Marshall et al., 2014; Orchanian-Cheff & Kaasa, 2022; Perrier et al., 2014). The goal of this pilot study was to determine the need, benefits, feasibility, and acceptability of integrating a medical librarian on ID specialty and subspecialty rounding teams for cases where the ID specialty has been deemed a necessary part of the multidisciplinary rounding team.

METHODS

The medical library at Washington University in St. Louis offers medical librarian services, including rounding on clinical teams which provided a unique opportunity to conduct this study (Washington University in St. Louis, 2022).

Study design

This was a quasi-experimental, exploratory pilot implementation study designed and interpreted in accordance with guidance available in the literature (Bowen et al., 2009; Leon et al., 2011; Pearson et al. 2020; Thabane et al., 2010). The evidence-based practice being implemented was primary medical literature reviews by incorporating a medical librarian into ID specialty service rounding teams. The need, benefits, feasibility, and acceptability of incorporating a medical librarian into ID specialty service rounds was assessed with pre- and post-rounding surveys. A librarian rounded with the team and used an iPad and cell phone to locate information and conduct literature searches for the team as questions arose, modeled on previous work by Pappas (2012). When possible, the librarian searched in real time at the point of care. For in-depth questions, the librarian would return to her office to complete same-day literature searches and report back to the team.

Patient consent statement

This study was approved by the Washington University in St. Louis Institutional Review Board with completion of the survey confirming informed consent.

Survey development

Surveys were administered using Qualtrics Software (Qualtrics, Provo, UT). Pre-rounding and post-rounding surveys were developed in accordance with guidance summarized by Ziniel and colleagues (2019). The survey was piloted for language clarity, face validity, and content validity with the study team and experts in ID.
The pre-rounding survey and post-rounding survey each consisted of mostly “yes” or “no” questions and no open-ended questions so the survey could be answered quickly and with minimal participant burden. The pre-rounding survey assessed the need of the intervention and had questions about whether participants required additional information from the literature, whether they or someone else accessed literature to address identified gaps in knowledge, the extent to which those efforts were successful, and whether they had sufficient time and opportunity in their clinical workflow to review such additional information.

The post-rounding survey included questions regarding whether participants were likely to ask the integrated medical librarian for information from the literature (assessing acceptability), whether the librarian provided relevant literature (assessing benefit), the extent to which questions were sufficiently answered (assessing benefit), and whether the integration of a medical librarian on the ID rounding team improved the timely integration of finding medical literature into the participant’s workflow (assessing fit/feasibility). Feasibility was also defined by successful implementation.

**Participant recruitment**

Attending physicians and fellows were included in the study if they were responsible for conducting inpatient clinical service on the weeks the medical librarian was scheduled to join rounds. This pilot spanned October 2019 to March 2020, with the librarian following the same team for one full week at a time. The librarian partnered with a clinical fellow leading a rounding team who was recruited by the primary investigator on a Monday and stay with that team for the week, through Friday. This allowed the librarian to consistently follow the same clinicians and patients, more fully embedding with that team. The pre-rounding surveys were administered in person on an iPad before starting rounds for the day. The librarian administered the post-rounding survey to same team members the same day when rounding ended in person on an iPad or through an emailed link.

**Analysis and Reporting**

The pre- and post-rounding surveys were analyzed with descriptive statistics using SPSS version 27 software (IBM, Armonk, NY). Absolute and relative frequencies were reported for each question. The results were reported with established guidelines in mind (Artino et al. 2018; Pinnock et al., 2017). The manuscript was prepared in accordance with existing guidance on interprofessional team writing (Vogel et al., 2018).

**RESULTS**

A total of 41 pre-rounding surveys and 29 post-rounding surveys were initiated. Of those with at least one question complete, 40 pre-rounding surveys (97.56% response rate) and 28 post-rounding (68.29% response rate), 100% of pre- and post-rounding questions were answered. A
total of 1 pre-rounding and one post-rounding survey were opened with no questions answered on either.

The structure of the rounding teams was highly variable, but always had only one attending, usually one fellow (occasionally two), sometimes one medical resident, and zero to four medical students. The presence of pharmacists was also variable, with an observed maximum of one on each team. In some instances, there was a pharmacy student/resident on the team; and in no instances more than two. The rounding process and duration was highly dependent on the attending physician. Some attendings had sit-down rounds; others rounded outside patient rooms. There were also some hybrids and variations that changed with team structure or clinic schedule.

Almost all preliminary surveys (n=38; 95.0%) indicated faculty and fellows perceived a need for additional or more up-to-date information to answer clinical questions arising during rounds. Respondents stated they accessed the literature after rounding was complete to address any gaps in their knowledge (n=37; 92.5%; Table 1), but indicated they did not have sufficient time to do so (n=22; 45.0%; Table 1).

Table 1: Pre-rounding survey questions and responses

The post-rounding surveys (Table 2) indicated participants felt having a librarian on their medical rounding teams improved their ability to find answers to clinical questions and provided them with more satisfying responses. Participants also deemed the presence of a medical librarian made them more likely to ask for information from the current literature (n=26; 92.9%). All responses indicated the medical librarian followed up to close gaps in knowledge identified during rounding (n=28; 100%). Additionally, participants indicated the addition of a medical librarian facilitated integrating literature searches into the workflow (n=26; 92.9%).

Table 2: Post-rounding survey questions and responses

**DISCUSSION**

The aim of this pilot study was to evaluate the need, feasibility, acceptability, and benefits of incorporating a medical librarian into specialty service ID rounds. Results from the pre- and post-questionnaires indicated the need for and acceptability of the inclusion of a medical librarian on an ID rounding teams at this site. Participants had positive experiences with the addition of medical librarians on the rounding teams and recognized the contributions and value-add of the librarians. The addition of a medical librarian occurred seamlessly, and the medical librarian had the resources, leadership, and infrastructure support required to function effectively, indicating the intervention is feasible. The pre-rounding survey responses indicated participants perceived a need for additional information to answer certain clinical questions arising on rounds but did not always have time in their workflows to search the medical literature (Table 1). Participants indicated
integration of medical librarians on ID rounding teams made them more likely to access the services of medical librarians and that medical librarians successfully provided relevant literature, demonstrating the effectiveness of the intervention.

A couple limitations exist in this study. First, while it was smooth to integrate a librarian into medical rounding and the librarian rounded with the team every day during the intervention period, it was difficult to administer the post-rounding surveys because team members left at different times or did not have time to take a survey. In these cases, a survey link was emailed the same day but were rarely completed. This may speak to a broader need for post-rounding debriefing or huddles. Another limitation is the survey did not assess whether the inclusion of a medical librarian directly improved patient outcomes; it assessed whether knowledge gaps were addressed. Future research should assess the direct impact of integrating medical librarians on patient outcomes.

In-person rounds were suspended because of COVID-19 and various related reprioritizations of both physician and librarian resources and efforts, but this program is planned to be continued given its demonstrated feasibility, acceptability, and benefits.

CONCLUSION

Integrating a medical librarian on ID rounds facilitated locating literature to address clinical questions at the point of care which enhanced continuous learning, physician satisfaction, and clinical decision making. Further research is warranted to better understand the long-term impact of integrating medical librarians with respect to both patient outcomes and healthcare systems, as well as to develop effective strategies for their successful integration into clinical teams.

Notes

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Data availability: Please submit reasonable data requests to the corresponding author.

Conflict of Interest: The authors report no conflicts of interest.

References


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During rounds with the infectious diseases team, do you ever feel that you need more up to date information from the medical literature?

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes n (%)</th>
<th>No n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>During rounds with the infectious diseases team, do you ever feel that you need more up to date information from the medical literature?</td>
<td>38 (95.0)</td>
<td>2 (5.0)</td>
</tr>
</tbody>
</table>

After rounds with the infectious diseases team are over, do you attempt (or have others attempt) to search the medical literature to answer the identified gaps in knowledge?

<table>
<thead>
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<th>Question</th>
<th>Yes n (%)</th>
<th>No n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>After rounds with the infectious diseases team are over, do you attempt (or have others attempt) to search the medical literature to answer the identified gaps in knowledge?</td>
<td>37 (92.5)</td>
<td>3 (7.5)</td>
</tr>
</tbody>
</table>

If you said “yes” to the previous question, how often are your questions sufficiently answered?

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes n (%)</th>
<th>No n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>If you said “yes” to the previous question, how often are your questions sufficiently answered?</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>96-99%</td>
<td>16 (43.2)</td>
<td></td>
</tr>
<tr>
<td>51-75%</td>
<td>15 (40.5)</td>
<td></td>
</tr>
<tr>
<td>26-50%</td>
<td>6 (16.2)</td>
<td></td>
</tr>
</tbody>
</table>

Did your clinical responsibilities/workflow allow time/opportunity to

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes n (%)</th>
<th>No n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did your clinical responsibilities/workflow allow time/opportunity to</td>
<td>22 (55.0)</td>
<td>18 (45.0)</td>
</tr>
</tbody>
</table>


Table 1: Pre-rounding survey questions and responses

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes n (%)</th>
<th>No n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>While having a librarian on rounds with the infectious diseases team, did you feel you were more likely to seek current information from the medical literature?</td>
<td>26 (92.9)</td>
<td>2 (7.1)</td>
</tr>
<tr>
<td>After rounds with the infectious diseases team were over, did the librarian provide medical literature to answer the identified gaps in knowledge?</td>
<td>28 (100)</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>If you said “yes” to the previous question, how often were your questions sufficiently answered by the librarian?</td>
<td>100% 9 (32.1)</td>
<td>11 (39.3)</td>
</tr>
<tr>
<td></td>
<td>76-99% 8 (28.6)</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>51-75% 8 (28.6)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>26-50% 0 (0.0)</td>
<td></td>
</tr>
<tr>
<td>Did the addition of a medical librarian make finding and using literature fit into your clinical responsibilities/workflow?</td>
<td>26 (92.9)</td>
<td>2 (7.1)</td>
</tr>
</tbody>
</table>

Table 2: Post-rounding survey questions and responses

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes n (%)</th>
<th>No n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did the addition of a medical librarian make finding and using literature fit into your clinical responsibilities/workflow?</td>
<td>26 (92.9)</td>
<td>2 (7.1)</td>
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