

## Mobile apps in clinical practice

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### Abstract

Mobile applications (apps) are widely available, easy to use, and integrated into medical education and evidence-based practice. Organisations and publishers are creating apps that offer access to clinical references and point of care tools. Considering the volume of apps that are available and the increasing discussions around the value of apps in a healthcare setting, we wanted to understand how clinicians make decisions about the apps they use for education and clinical practice.

Austin Health Sciences Library recently undertook a collaborative research project with senior clinicians to investigate the use of apps for clinical reference and at the point of care. We developed and conducted an online survey of clinical staff to discover which apps they are using, and how they determined the reliability, relevance, and appropriateness of these apps for use in their clinical practice. The results of the survey presented a broad spread of apps for consideration and raised questions about the respondents' definitions of an "app". Clinicians consider apps to be a useful tool in clinical practice and medical education. As librarians, we need to encourage our users to critically appraise apps in the same way they would any other source of information.

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### Background

Smartphones, mobile devices, and apps have become integrated into our lives, work, and education. In the clinical environment, the use of mobile devices and apps has led to increased access to clinical evidence to support decision-making at the point of care, improved drug knowledge, and more accurate documentation of patient information (1). It has been estimated that 30-50% of healthcare professionals are using apps in clinical practice (2).

In the past few years, we have experienced increased interest from clinicians who use or want to use apps in their clinical practice. In 2015, the Austin Health Sciences Library created an 'Apps Guide' to promote apps that the Library had purchased or were relevant and freely available. This guide was progressively updated throughout 2015 and 2016 as new apps became available, or as the Library became aware of relevant content.

Given the volume of apps available in the Apple and Google app stores - 197 billion apps are forecasted to be downloaded in 2017 (3) – finding a relevant clinical app is not a task to tackle alone. Only 0.1% of apps available in the app store were considered to be clinically relevant (2), and only a minority of these clinically relevant apps were found to be of direct practical use (4). As librarians, we are not the target audience or users of these clinical apps, nor the right group to make assessments on their relevance to clinical practice.

The Library was approached in mid-2016 by a group of senior clinicians who were interested in developing a “clearing house/repository of mobile applications” with our assistance. We formed a focus group to consider if this resource would be valuable to clinicians at Austin Health and assess how the Library could support and participate in this activity.

## **Methods**

After considerable discussion about how to collect this information from clinicians, we decided to create an online survey to be distributed by email within the organisation. It was our aim to identify which mobile apps are currently being used by Austin Health staff to assist in their delivery of clinical care. We wanted to understand how our clinicians decide which apps to use. The survey also provided us an opportunity to ask our clinicians if they were aware of the current Apps Guide created by the Library and whether they would use an enhanced version of this guide based on the results of the survey.

## **Results**

The range of apps identified in the results of the survey varied in their quality and relevance. This included apps already purchased by the Library, freely available apps showing little apparent clinical relevance, as well as a number of resources that were not apps at all!

The 77 respondents named 91 apps. 33 of these apps were excluded from consideration for inclusion, as nine were not apps (e.g. Google); 10 were not considered clinically relevant; seven were aimed at consumers; six were not described sufficiently to be able to be located in the Apple or Google app store and one was an app that the Library had trialled and not purchased based on clinician feedback. Only 15 apps were mentioned by more than one respondent.

The survey also asked our clinicians to describe what they look for in an app to indicate that it is accurate, reliable and appropriate for use in the delivery of clinical care. Little detail was provided by respondents about specific indicators of quality or reliability. Respondents indicated that they choose apps based on colleagues’ recommendations, evidence-based content, promotion or endorsement by professional bodies, recommendations from journals or the Library, ease of use, and the reputation of the app’s developer. Only one respondent stated that they read third-party reviews of apps. The majority of answers were general statements about an app being “trusted”, “widely used”, or that it “saves me time and effort”.

In addition, 90% of respondents indicated that they would find an expanded Apps Guide useful. Of the 10% who said this would not be helpful, the majority of their comments indicated that they do not or are not allowed to use apps in the workplace (i.e. on the ward). Some respondents from both groups advised that they were not aware of the Library’s Apps Guide before completing the survey.

## **Discussion**

A “clearing house” listing all relevant apps mentioned in the survey results was the vision of some members of the focus group. As champions of evidence-based practice, the Library did not feel comfortable producing or being seen to endorse a list of apps that were not validated in any way, even with a disclaimer advising that the listing does not establish accuracy or validity.

The two most frequently mentioned apps were well established clinical tools that have adapted their content to be accessible using a portable device – UpToDate and iMIMS/MIMS for Android. This content is already included in the Library’s Apps Guide and are resources purchased by the Library (in the case of UpToDate) or available through the Victorian Department of Health’s clinical portal, Clinicians Health

Channel (in the case of MIMS). All but 15 of the apps named in the survey were mentioned by only one respondent, which we did not consider to be significant enough to add to the current Apps Guide. The results of the survey have been published on the Library's website linked to but distinct from the current Apps Guide.

We asked respondents how they determine if an app is reliable, relevant, and appropriate for use. Most respondents indicated that they choose apps based on evidence-based content. However, very few provided detail about how they determined the content of the apps to be based on evidence.

App-based versions of standard clinical tools, such as Snellen charts, were among the apps mentioned in the survey results. Well known online clinical app review publication, iMedicalApps, suggests that while this type of app can be useful, it is unlikely to have been tested for particular phones and should not be used to test specific visual acuity (5). This example represents a relatively low-risk scenario, but illustrates that there is a lack of regulation in the app market. The Therapeutic Goods Administration (TGA) considers most apps to be simply sources of information. As they do not have a role in regulating advice to health professionals or consumers (6), TGA do not consider health apps, clinical or otherwise, to be a current priority.

During our discussions about the project, the Library considered using or adapting the Mobile App Rating Scale (MARS), a tool developed by digital health researchers from the Queensland University of Technology designed to assess the quality of health apps. Though this tool was designed to assess apps aimed at consumers rather than healthcare professionals, it is essentially a checklist of indicators – including engagement, functionality, aesthetics, and quality of information – that are to be rated on a Likert scale (7). While developing a MARS type tool for clinical applications would be an interesting pursuit for Austin Health, it is outside of the scope of this current apps project. There is potential for future research by a clinician or medical student in partnership with the Library to create a rating tool for clinical apps. This is currently being investigated.

## **Conclusion**

The survey results confirmed that the apps purchased by the Library and promoted in the existing Apps Guide aligned with what was being used by clinicians within the organisation. The Library did not believe that including all apps mentioned in the survey would enhance this resource.

We have learned that our clinicians are not exploring the app landscape alone. They are basing their app choices on the experience and recommendations of colleagues, including what is promoted by their library. This experience has cemented the idea that libraries have a significant role to play in the promotion of appropriate tools to be used in clinical decision-making at the point of care. Although there is no standard regulation, we can continue to encourage our clinicians and students to critically appraise apps before they are used, as we would for all evidence that is intended to be used in health education or the delivery of clinical care.

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