Utilization of Mobile Computing Devices by Clinical Pharmacists

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Background

- Mobile computing devices (MCDs) and mobile application use has become prevalent with increasing use being seen in surveys of medical residents and physicians.
- Hospital-based clinical pharmacists are expected to provide drug therapy recommendations and drug information at the point of care.
- Little study of pharmacists' integration of smartphones into their clinical practice has occurred.
- It is important to understand the extent to which these tools are accepted by pharmacists and their use of them to identify areas of untapped potential and barriers to their use.

Objectives

- To characterize the use of smartphones by clinical pharmacists who provide direct patient care in an institutional setting.

Methods

- Design: Cross-sectional survey and focus group-based study.
- Population: Clinical pharmacists practicing in a large, multi-site Canadian health authority.
- Clinical pharmacists were defined as pharmacists with formal hospital-based training (e.g. through a residency program or PharmD program) and currently practicing in a hospital with ≥33% of their time spent performing direct patient care at the bedside.
- Online survey was sent to 574 pharmacists between November 2013 and January 2014.
- Four focus groups were conducted and recorded at four different institutional sites. Groups were comprised of a convenience sample of survey participants.
- Statistical Analysis: Simple descriptive statistics for the survey responses were employed. Chi-squared and Pearson's R inferential statistics were computed as appropriate. Focus group transcripts were analyzed to identify themes and to interpret the survey findings. Mixed-methods approach was used for quantitative and qualitative data collected.

Acknowledgements

Characteristic	Survey Responders (N=109)	Cohort (N = 89)
Female	82 (75%)	65 (73%)
Age (yr)		
18-24	3 (3%)	2 (2%)
25-34	47 (43%)	42 (47%)
35-44	24 (22%)	19 (21%)
45-54	22 (20%)	17 (19%)
>55	8 (7%)	7 (8%)
Prefer not to Answer	3 (3%)	2 (2%)
Current Position		
Pharmacy Resident	3 (3%)	3 (3%)
Clinical Pharmacist	63 (58%)	51 (57%)
Clinical Pharmacy Specialist	38 (35%)	31 (35%)
Other	5 (5%)	4 (4%)

Table 1: Baseline Characteristics

Activity	Frequency (%)
Phoning	42 (47%)
Texting	63 (71%)
Online Searches (ex: Google, Wikipedia)	80 (90%)
Calendar	53 (60%)
To Do List	26 (29%)
Accessing drug information databases (ex: CPS)	69 (72%)
Accessing point of care references (ex: UpToDate, Medscape, Lexicomp)	86 (97%)
Accessing medical guidelines	61 (69%)
Accessing calculators for medical formulas, converting units, adjusting doses	75 (84%)
Accessing risk calculators	46 (52%)
Accessing diagnostic information	38 (43%)
Accessing imaging references	4 (5%)

Table 2: Work-related Utilization of Mobile-based and Website-based Applications (N = 89)

Results

- Most common characteristics of an application that respondents looked for when choosing a clinical tool:
  - User friendly (94%)
  - Reviews from other users or colleagues (76%)
  - Ability to access without Internet connection (offline) (61%)
  - Support webpage for questions/FAQ or technical support (18%)
- Background information that users considered before using an application:
  - Evidence-based data (97%)
  - Frequency of updates (73%)
  - References cited (63%)
  - Involvement of medical professionals or medical organizations (61%)
  - Access to clinical images (8%)
- The most respondents had paid for an app was less than a dollar (27%)
- Common themes from the focus groups revolved around increased efficiency by using apps to make quick decisions on rounds or to access drug information
- Issues identified as barriers to use were personal costs and failure of employers to provide devices
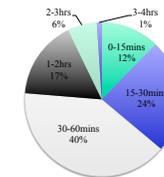

Figure 1: Time spent per day accessing applications.

Website Based Applications	BC Cancer Agency Guidelines
	King Guide to Parenteral Admixtures
	LexiComp
	RxFiles
	UpToDate
Point of Care Mobile Based Applications	Bugs and Drugs
	Canadian Pharmacist's Letter
	LexiComp
	Medscape
	Sanford Guide
	Up to Date
Guideline Mobile Based Applications	CCS Antiplatelet Guidelines
	CCS Atrial Fibrillation Guidelines
	CCS Heart Failure Guidelines
	CCS Lipid Guidelines
	CHEP Canadian Hypertension Recommendations

Table 2: Most Frequently Used Applications.

Conclusions

- Pharmacists use their MCDs on a daily basis but for a limited range of functions.
- Higher level capabilities that integrate patient-specific information to assist providers in making health care decisions could furthur enhance the care that they are able to provide.

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