Information Needs Related to Antibiotic Prescribing While Using CPOE

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Abstract

Antimicrobial resistance is an important patient safety issue related to inappropriate antibiotic use. As part of the Infobutton project we examined antibiotic prescribing-related information needs of clinicians while they were using the clinical information system (CIS). During 3 hours of observation, 20 information needs related to antibiotic prescribing were observed, 74% of these needs were met during the observation time. Understanding the information needs of clinicians related to antibiotic prescribing may help identify methods to meet information needs via the Infobutton manager and thereby improve the judicious use of antibiotics.

Background

Antimicrobial resistance is an important patient safety issue related to inappropriate antibiotic use[1]. The Infobutton project is an ongoing project examining the information needs of clinicians while using CPOE.[2] The purpose of this study was to identify antibiotic prescribing-related information needs of clinicians while they were using the clinical information system (CIS).

Methods

We conducted a sub-analysis of Infobutton data originally collected using Morae™ software to record clinicians' interaction with the CIS. The local human subjects committee approved the study. Recorded data were coded using an Information Needs Events (INE) taxonomy[3] with generic questions deriving from and extending Ely's generic physician question types.[4] The INE taxonomy also captures resources used, success, deferral, or failure of meeting information need, and the type of information need observed (subject, domain, institution).

Results

Participants were observed for 2 hours during medical rounds and 1 hour during an ICU patient admission. During this time 65 information needs were identified, 20 (31%) of which were related to antibiotic prescribing. Fourteen events (74%) were successful, 4 events (20%) were deferred, and two events failed (10%). Sources for meeting information needs were other clinicians (61%), the computer system (23%), a paper-based pocket pharmacopoeia (15%) and an infectious diseases specialist (6%). Four generic question types were used. See Table 1 for data and examples.

Conclusion

Clinicians using CPOE systems are managing large amounts of information, have unmet information needs and get much of their information from peers. Methods to meet antibiotic prescribing-related information needs via the Infobutton manager may improve the appropriate use of antibiotics to decrease antimicrobial resistance.

Acknowledgments

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References

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Table 1. Antibiotic Prescribing-related Information Needs, Question Types and Examples

Generic Question[a,b]	MICU (met)	ICU (met)	% Met	Example	Resource Used
What are my patient's data? [b]	7(7)	2(0)	78%	Is she on vancomycin and imipenem?	Computer
What is the drug of choice for condition x?[a]	5(2)	0	40%	Is oral flagyl more effective than IV flagyl when the patient has diarrhea?	Phoned ID consult
What is the dose of drug x?[a]	1(1)	3(2)	75%	Should I give just 1 gram of vanco?	Resident
How should I manage condition x?[a]	2(2)	0	100%	Should the gentamicin level be random?	Computer
Total	15(12)	5(2)	70%		

a. From Ely generic question taxonomy; b. Question to extend Ely taxonomy; ID-Infectious Disease