Background

Overuse of antibiotics is linked to resistance. Many physicians believe that antibiotics are overused in their own institutions and have cited the need for more education on local guidelines to assist in antibiotic selection. Making that information available to students at both the point of learning and care has been a challenge. Apps are frequently used among providers and may be a useful stewardship tool in educating medical students.

Methods

As part of the second year microbiology course, a team of infectious diseases physicians and pharmacists with stewardship expertise gave a mandatory two-hour interactive session involving the basic principles of antimicrobial stewardship. In the first year of the session, a paper antibiogram was provided along with instruction. The format of the session was a lecture with interactive response questions that were collected in aggregate in real time. In the second year, the session was repeated with an App distributed the week prior with the antibiogram and clinical practice guidelines. The same interactive response questions were again used. Content experts were available to instruct use of the tool in both session. Questions were asked in 3 main categories: (1) general antibiotic use, (2) principles of microbiology and testing, and (3) prescribing based on local antibiogram susceptibilities. Some questions were adapted from a published medical survey (Abbo et al.*)

Results

✓ The App was downloaded by 60% of student prior to the session and over 98% of students by the end of the session.
✓ An average of 79 students participated in the interactive response questions each year. Of those, 69% responded that they would prefer to get their information from an App rather than expert advice or reference materials. Opinions on antibiotic overuse did not differ between the first and second group.

![Figure 1: Where would you prefer to get current information on antibiotics and prescribing?](image)

Conclusions

An antibiogram and clinical practice guideline App based education session with instruction on use increased the mean percentage correct of questions involving local antibiogram susceptibilities. As Apps are increasingly being incorporated into medical care, this may present a unique avenue for education and stewardship.

Survey Results

✓ Students were asked to apply the app on content based questions in 3 categories: (1) general questions on antibiotic overuse (“ABX Use”), (2) questions on principles of microbiology and testing (“Testing”), and (3) questions on prescribing based on local susceptibilities (“Antibiogram”)
✓ There was no difference in the mean percent of questions correct in the general antibiotic use or principles of microbiology and testing categories, but there was a mean increase from 38 to 76% correct (p=0.02) in questions involving local antibiogram susceptibilities in the App group.
✓ There was a statistically significant increase in the percentage of students who expressed some comfort in antibiotic prescribing after the app session.

![Figure 3: Percent Correct by Question Type](image)

![Figure 4: Percent who expressed comfort in prescribing antibiotics for a patient with a known syndrome](image)

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