

Knowledge, Attitude and Behavior Towards Antibiotic Use Among Medical Students and Residents in Tawam Hospital, Al Ain

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Background:

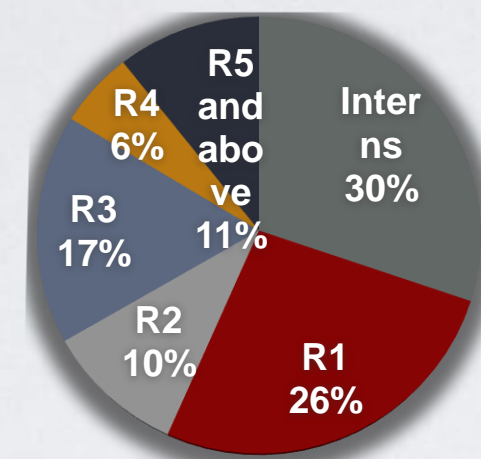
Antimicrobial resistance is a problem of global magnitude and there is agreement that the inappropriate prescription of antibiotics is a major factor in promoting resistance. Therefore, in order to effect change in physician prescription behavior, it is essential to understand what physicians know about antimicrobial agents and resistance in communities in which they practice. In the hospital setting, where residents and medical students are often first line providers, their understanding of the principles of 'judicious use' of antibiotics is particularly relevant.

Tawam Hospital has a well-staffed Infectious Diseases Service overseeing an active Antimicrobial Stewardship Program (ASP), which includes guidelines for commonly encountered infections, as well as a restricted list of antibiotics. We sought to assess the house staff's knowledge, attitude and behavior towards antibiotic use and resistance in general, as well as their familiarity with ASP program at Tawam, in order to effect better policies towards antibiotic use.

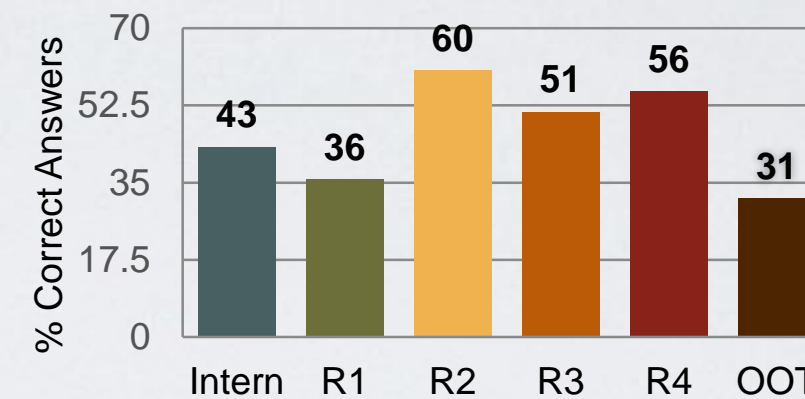
Methods:

A cross sectional, descriptive and analytical survey was carried out at Tawam Hospital from July through September 2014. The study population consisted of 111 physicians and 48 senior clerkship medical students at various levels of training (R1-R4) or out of training (OOT). Participation was voluntary and anonymous. A paper-based questionnaire was the main data collection tool. Participants were encouraged to answer all questions but this was not mandated. The questionnaire had 20 questions. The questions either used 5-point Likert response with options from "strongly agree" to "strongly disagree" or a "yes/no/don't know" format.

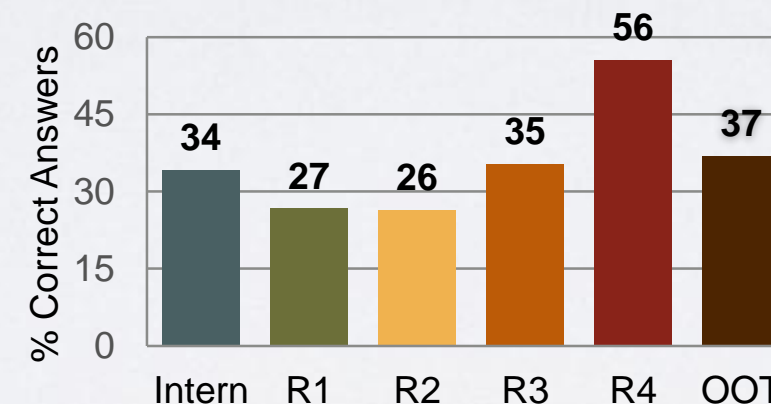
Eight questions were based on knowledge, 8 on perceptions and 4 on behavior. Prescription behavior questions were based on consistency with current hospital practice guidelines. For the purposes of comparison analysis, 'juniors' were defined as respondents with less than one year of PGME, while 'seniors' were defined as R2 and above. Chi-square, ANOVA (Analysis Of Variance) and correlation tests were performed in order to check the statistical significance, association and differences between the variables. A (P) value of less than 0.05 was considered significant.



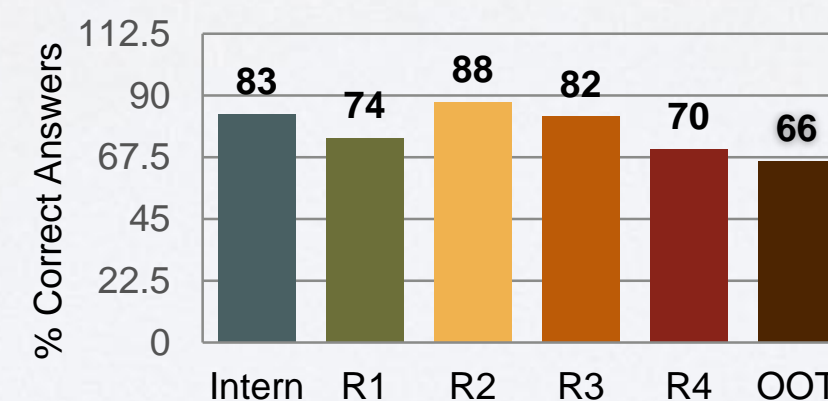
Composite Score On Resistance Knowledge Questions



Composite Score On Prescription Behavior Questions



Composite Favorable Score Towards Stewardship



Results:

1. The response rate was 87%(159/173).

Knowledge

- Majority 97/149 (65%) of respondents were aware that antimicrobial resistance is a major problem in the UAE. There was no statistically significant difference between juniors and seniors in this aspect. However, Only 33% were aware that antimicrobial resistance data was systematically being collected in Abu Dhabi. 72/149 (48.3%) respondents said that they had received information regarding resistance patterns in their hospital/clinic.
- Senior residents (R2,R3,R4) were significantly more aware specific resistance issues (MRSA, ESBL and *S.pneumoniae* to PCN) than junior residents and those out of training (p=0.008).

Attitude and Behavior

- Respondents had a favorable view of antibiotic use at Tawam Hospital. 145/159 respondents said that antibiotics were overused in the UAE; compared to 104/159 in Tawam Hospital (p <0.0001). Also, Respondents were more likely to think that their antimicrobial prescription habits were better than their colleagues (p=0.0168).
- Seniors were significantly more likely to think that patient pressure is a factor in over-prescription of antibiotics (p=0.0455)
- Junior physicians were significantly more likely to think that education on antibiotics not sufficient (p=0.00009)
- The overwhelming majority of respondents were in favor of guideline implementation (93%), though only 49/148 (33%) respondents actually knew about the existence of current hospital antibiotic use guidelines. This lack of awareness of antibiotic guidelines was well reflected in the poor consistency of empiric antibiotic use with current guidelines for group A streptococcal pharyngitis (70/150, 44.03%), acute exacerbation of chronic bronchitis (42/141, 29.79%) and simple cystitis in women (38/148, 25.68%). Despite the guidelines clearly stating β-lactam/β-lactamase inhibitors as alternative drugs for the treatment of upper respiratory tract infection, co-amoxyclov was the most common empiric choice for this indication (49/141, 34.75%).
- Only 54.09% favored antibiotic restriction as a tool of stewardship. However, restriction policies seemed very effective as fluoroquinolones were listed as the preferred choice for treatment of UTI by only 11/148 (7%) of which 9 were by interns who may not be aware of the antibiotic restriction policies.

Conclusions:

- This survey revealed that house staff are aware of the importance of antimicrobial resistance and believe better antimicrobial use will help resolve this problem.
- House staff at our hospital have suboptimal knowledge about antimicrobial therapeutic choices, although this knowledge did appear to increase with training.
- In order to stem the problem of antimicrobial resistance, we need to produce responsible physicians by incorporating education on judicious use of antimicrobials at all levels of training.