

Figure 1: Conceptual framework of the therapeutic reasoning underlying antimicrobial choice.

Table 2: Therapeutic (antimicrobial) script content

Adverse Effects
Cost & Pharmacy Considerations
Dosing
Duration of Therapy
Drug-Drug Interactions
Evidence of Efficacy/Guideline Support
Monitoring for Adverse Effects
Pharmacodynamics
Pharmacokinetics
-Bioavailability
-Drug Distribution
-Clearance/Metabolism
Route of Delivery
Safety in Pregnancy
Spectrum

Disclosures. All Authors: No reported Disclosures.

1947. Educational Impact of a Hybrid Infectious Diseases Rotation for Internal Medicine Residents

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Session: 226. Advances/in/ID/Med/Ed
Saturday, October 5, 2019: 10:45 AM

Background. Traditional infectious diseases (ID) rotations for internal medicine (IM) residents focus on inpatient consultation, potentially skewing trainees' perspectives on ID. We report our experience with a hybrid inpatient-outpatient ID rotation which provides broader ID clinical exposure and an effective venue for educational innovation.

Methods. We included all IM residents completing an assigned ID rotation in the UT Southwestern IM residency since July 2013. From July 2013 to June 2017, a 4-week ambulatory ID (Amb ID) rotation, consisting of general and subspecialty ID clinics and weekly teaching sessions focused on ID board review, was offered in parallel to traditional inpatient ID consult rotations. From July 2017 to present, all assigned residents complete up to a 4-week ID hybrid rotation, consisting of 2 weeks of ambulatory

ID and 2 weeks of inpatient ID consults, with all residents receiving weekly teaching sessions; in some cases, the 4 weeks were not completed sequentially. Data were collected on resident numbers and training level, quantitative and qualitative course evaluations, and program in-training examination scores in ID content areas.

Results. From July 2013 to June 2019, IM residents completed a total of 626 ID rotations, an average of 104 per year (Table 1). A sample ID hybrid schedule is shown in Table 2. Overall resident satisfaction with the ID hybrid rotation was 4.7 (std. dev. 0.7) on a 5-point Likert scale. This rotation has consistently been among the highest rated rotations by residents. In-training examination ID scores increased significantly with creation of the Amb ID rotation in 2013 and further increased since 2017 with creation of the ID hybrid, in which both inpatient and ambulatory residents receive the weekly teaching sessions (Figure 1). Pilot educational innovations through this rotation include an online web-based antibiotic stewardship curriculum (2014-2015) and a mobile app-based ID board review platform utilizing spaced interval learning (2018-2019).

Conclusion. A hybrid inpatient-outpatient ID rotation for IM residents has proven to be a highly effective platform for ID education and curriculum innovation at our institution. This concept could be exported to other institutions and increase IM resident interest and breadth of clinical exposure in ID.

Table 1. Infectious Diseases Rotations Completed By Resident Level, 2013-2019

Academic Year	PGY-1 Residents	PGY-2 Residents	PGY-3 Residents	Total Residents
2013-2014				
ID Inpatient Consults	5	17	27	49
Ambulatory ID	1	22	17	40
2014-2015				
ID Inpatient Consults	0	12	21	33
Ambulatory ID	0	18	25	43
2015-2016				
ID Inpatient Consults	28	25	35	88
Ambulatory ID	0	18	17	35
2016-2017				
ID Inpatient Consults	25	28	37	90
Ambulatory ID	0	12	34	46
2017-2018				
ID Hybrid Rotation	4	44	53	101
2018-2019				
ID Hybrid Rotation	1	36	64	101

Table 2. Sample ID Hybrid Rotation Schedule

Rotation Week	Monday		Tuesday		Wednesday		Thursday		Friday	
	AM	PM	AM*	PM	AM	PM	AM	PM	AM	PM
Week 1	Inpatient ID		Inpatient ID		Inpatient ID		Inpatient ID		Inpatient ID	
Week 2	Inpatient ID		Inpatient ID		Inpatient ID		Inpatient ID		Inpatient ID	
Week 3	ID OPAT clinic	Wound care rounds	ASP/micro lab didactics	HIV clinic	University ID Clinic	Cystic Fibrosis ID clinic	Heart/Lung Tx ID clinic	ID OPAT clinic	IPC Walk rounds	VA ID/HIV clinic
Week 4	ID OPAT clinic	Derm walk rounds	ASP/micro lab didactics	Wound care rounds	University ID Clinic	VA ID/HIV clinic	ID OPAT clinic	ID OPAT clinic	IPC Walk rounds	Liver/Kidney Tx ID clinic

ASP: Antimicrobial stewardship program; IPC: infection prevention and control; OPAT: outpatient parenteral antimicrobial therapy; Tx ID: transplant ID; VA: Veterans Affairs

* All residents participate in didactic ID board review teaching session weekly on Tuesday AM (1 hour).

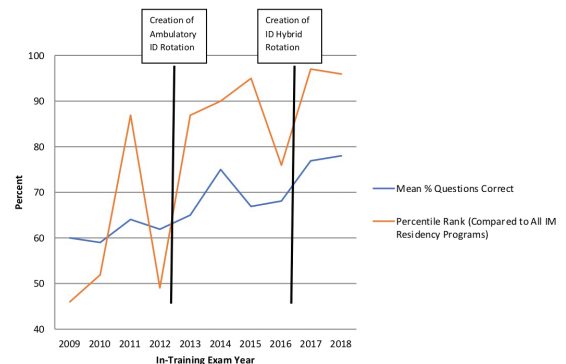


Figure 1. IM Residency In-Training Exam Scores in ID Content Area, 2009-2018

Disclosures. Ank E. Nijhawan, MD, MPH, Gilead Sciences, Inc.: Research Grant.

1948. Impact of @WuidQ, a Free Open-access Medical Education Twitter Resource, on Infectious Disease Learning and Teaching

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Session: 226. Advances/in/ID/Med/Ed
Saturday, October 5, 2019: 11:00 AM

Background. Free open-access medical education (FOAMed) is increasingly used as a web-based platform for learning/teaching, with Twitter emerging as a leading medium. However, FOAMed resources in infectious disease (ID) are limited. @WuidQ is the first FOAMed Twitter resource to provide review of ID through board-style, multiple-choice questions (MCQs). We describe its creation and impact to date.

Methods. Two ID faculties created MCQs, vetting them based on accuracy and clarity. MCQs were posted a few times weekly using Twitter's poll function, with answers tweeted as "threads" linked to the MCQ (Figure 1). We reviewed followers' profiles to determine their demographics. We also used Twitter metrics to assess participation, including the average number of poll voters, impression (number of tweet views), engagement (number of retweets, clicks), and engagement rate (engagement divided by impression). In order to gauge follower satisfaction, we posted an anonymous online survey that included both close-ended questions utilizing Likert scale and open-ended questions.

Results. Over its first 9 months, @WuidQ reached 1,339 followers (56% based in the United States, 47% healthcare professionals, 13% students/trainees) (Table 1). During this time, it earned 582,400 impressions and had a 3.1% mean engagement rate. We posted 103 MCQs, with a mean of 143 (range 70–316) poll voters per MCQ. Forty-five followers completed the survey; of whom, 49% were ID doctors, 22% were ID fellows, and 11% were medical residents. The vast majority of respondents were between 25 and 44 years of age. Almost all agreed that @WuidQ is engaging and accessible (Figure 2). The majority of respondents who were taking exams agreed that @WuidQ helped them with test preparation. Of those who indicated teaching was a relevant practice, 80% said it helped them teach ID. Lack of time to read and learners' short attention span were the most common learning barriers addressed by @WuidQ (Figure 4).

Conclusion. @WuidQ is an effective Twitter resource for ID education, filling a gap in FOAMed resources for ID. It has a global reach and caters to learners/teachers across a spectrum of training levels. Given its success, more work is warranted to understand practices for engaging learners and teachers in FOAMed for ID.

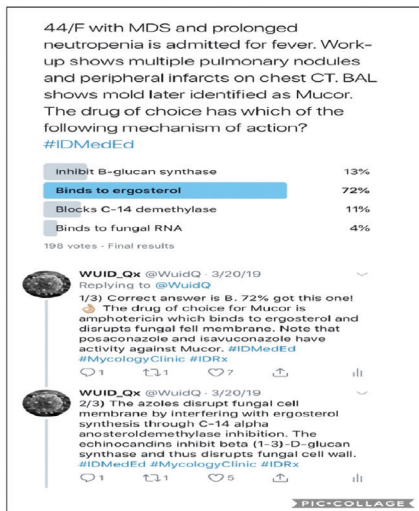


Figure 1. Example of a multiple-choice question and answer thread posted on @WuidQ using Twitter's poll function.

Table 1. @WuidQ followers as of 20 April 2019 based on review of Twitter profiles and data obtained from built-in Twitter metrics.

Followers	N = 1339
Geographic location:	
United States	750 (56%)
United Kingdom	80 (6%)
Saudi Arabia	54 (4%)
Canada	52 (4%)
Spain	50 (4%)
Mexico	40 (3%)
Philippines	39 (3%)
Other*	274 (20%)
Profession:	
Healthcare professionals	633 (47%)
Infectious disease doctor	230
Microbiologist	39
Pharmacist	165
Medical doctor from other disciplines	114
Other†	85
Students or trainees	174 (13%)
Medical student	23
Medical resident	42
Pharmacy resident	13
Infectious disease fellow	71
Other‡	25
Undisclosed	532 (40%)

* Includes countries with <2% representation (India, Australia, and Malaysia), and undisclosed.

† Includes nurses, advanced healthcare practitioners, various organizations, and other professions (e.g. writers, advocates, etc)

‡ Includes Microbiology and Pharmacy students, students from other disciplines. Microbiology residents, residents from other disciplines, Pharmacy fellows, and fellows from other disciplines

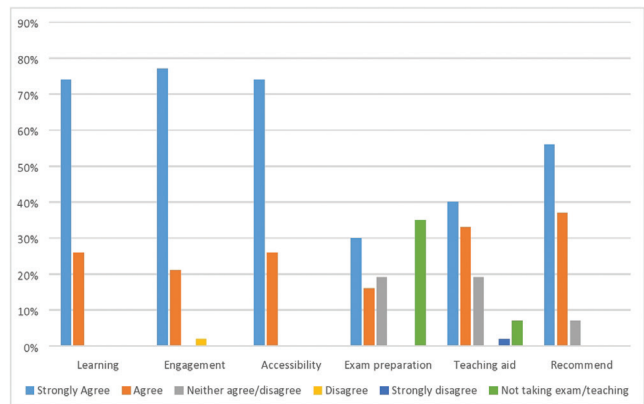


Figure 2. Anonymous survey to assess satisfaction of @WuidQ followers.

Learning: "I learn from answering the board-style questions on @WuidQ."

Engagement: "@WuidQ is an engaging resource for learning about infectious disease."

Accessibility: "@WuidQ is an easily accessible resource for learning about infectious diseases."

Exam preparation: @WuidQ helps me prepare for exams (e.g. board/licensing exam, in-training exam, shelf exam).

Teaching aid: "WuidQ helps me teach infectious disease topics to others (e.g. colleagues, students, trainees)."

Recommend: "I would recommend @WuidQ to others (e.g. Twitter followers, colleagues, trainees, students)."

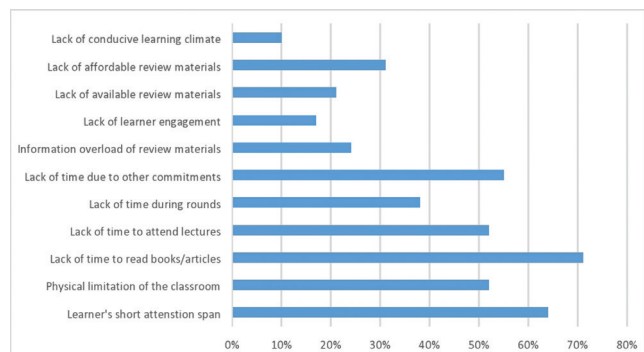


Figure 3. Survey data on the perceived barriers to learning infectious disease that @WuidQ addresses. The percentages refer to the proportion of respondents.

Disclosures. All Authors: No reported Disclosures.

1949. Putting Out Fires: Assessing Burnout within an Infectious Diseases Fellowship at an Academic Medical Center

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Session: 226. Advances/in/ID/Med/Ed

Saturday, October 5, 2019: 11:15 AM

Background. Burnout, "a psychological syndrome of emotional exhaustion (EE), depersonalization (DP), and reduced personal accomplishment (PA)," is a well-described problem in the medical community. National surveys report 45% of practicing physicians and 60% of residents and fellows are burnt out. A longitudinal study of medical students and residents reported 45% burnout, as well as career choice regret in 14% of trainees. There are little data about burnout in Infectious Diseases (ID) physicians, including fellows. We sought to measure burnout prevalence in an academic ID Division, identify factors that modified the risk of burnout, and assess knowledge and attitudes about fellow and faculty burnout in the division.

Methods. The study population included 33 ID physicians (10 fellows, 23 faculties). Level of burnout was assessed via the Maslach Burnout Inventory (MBI), a validated 22-item tool. An additional survey was distributed as a needs assessment to determine participant understanding of "burnout" and "wellness," ability to recognize burnout in colleagues, attitudes about the scope of the problem, and specific programmatic and personal factors felt to contribute to burnout.

Results. The MBI was completed by 10 fellows and 16 faculties (76%). A high score in ≥ 1 domain of burnout was reported in 50% of respondents, and 19% received a high score in both EE and DP. Fellows had moderate to high levels of EE (90%) and DP (70%), though all fellows reported at least a moderate sense of PA.

The survey needs assessment was completed by 9 fellows and 17 faculties (79%). In a hypothetical case, 100% and 58% of participants correctly identified elements of DP and EE, respectively. Respondents identified several factors contributing to burnout risk, most commonly being lack of schedule autonomy (100%), increasing patient load