The Students for Antimicrobial Stewardship Society (SASS): A Novel, Grassroots Educational Approach to Growing a Culture of Antimicrobial Stewardship

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The Students for Antimicrobial Stewardship Society (SASS) is a multidisciplinary student-led, national organization dedicated to raising awareness of AS and resistance across Canada. Founded by medical students at the University of Toronto (UofT), we aim to empower new generations of healthcare providers to administer the right treatment to the right patients at the right time, and to be judicious when prescribing across all medical specialties.

We are assessing the current state of AS training:
- Our narrative review demonstrated few evidence-based interventions for antimicrobial stewardship teachings at the undergraduate medical education level, and of those few were evaluated at a high level (changing behaviours)
- Our survey of preclerkship medical students at UofT found that 78% agreed that they wanted to learn more about AS. 60% felt they had an understanding of antimicrobial resistance, and only 23% felt they were comfortable with their knowledge of AS and judicious prescribing. 93% of the surveyed students agreed it would be best learned at the clerkship level. Therefore, further study of AS training in clerkship is warranted.

Here, we describe a point-prevalence study with the goal to assess the training, interest, prescribing practices, and perceived importance of AS among clerkship medical students at UofT, as well as some of our broader educational tools.

### Methods

#### Curricular Development
- Campaign week launched at 8 medical schools
- Inter-professional education programming developed
- Position papers passed by the Canadian Federation of Medical Students

#### Point Prevalence Study
A two-day, online point-prevalence survey was distributed to 259 third-year medical students across 6 core clerkship specialties. Twenty-one questions were chosen and developed by SASS and trialed and validated with a small subset of students. Questions were based on student demographics, perception of antimicrobial use, stewardship resources, and general knowledge. The students were reached via email through the Registrar.

### All About SASS

- **Student-led national organization currently with chapters at 8 medical schools**
- **Rises awareness of AS and resistance across Canada**
- **Multidisciplinary approach & collaboration with students from other health professional programs, including pharmacy and dentistry**
- **Represents students at the national and international level, interfacing with industry, medical organizations, educational institutions, and governments**
- **Selected as 1 of 15 globally leading initiatives by the International Federation of Medical Students Associations**

### Vision, Mission, and Goal

**Vision:**
- The mission of SASS is to foster a culture of antimicrobial stewardship among students.
- The long-term goal is to support students in inspiring others to be antimicrobial stewards!

**Mission:**
- Create an educational platform for appropriate antibiotic use.
- Develop tools to raise awareness of antimicrobial stewardship.
- Foster interdisciplinary teams for patient care.
- Educate the public about the importance of antimicrobial stewardship.

**Goal:**
- To be a leading voice for antimicrobial stewardship in Canada.

### Results

#### Demographics
Of the 259 possible respondents contacted, a total of 50 (19.3%) clerkship medical students based at 21 different sites responded the survey.

#### Perceptions of Stewardship
Based on clerkship experiences, clerks believe that physicians are misuse due to emotional prescribing (81%), pressure from patients (77%), physicians lacking knowledge of current prescribing guidelines and practices (51%), and less so due to financial incentives (2%).

When asked to rank factors leading to antimicrobial resistance from most to least contributory, students ranked: 1) frequent use of broad-spectrum antibiotics, 2) unnecessarily long durations of antimicrobial therapy, 3) poor source control, 4) patients stopping treatment too early, and 5) poor hand hygiene.

### Antimicrobial Usage During Clerkship
Students saw an equal use of both oral and intravenous antibiotics used (58.8%), while only 8% were topical. When an antibiotic allergy was noted, only 22% of respondents said this was verified by history or other testing. Furthermore, of those that saw antimicrobials prescribed, only 23% discussed the potential harms with patients.

#### Antimicrobial Stewardship Education
- **Only 24% (12 respondents) noted they had received a scheduled, structured teaching regarding appropriate antimicrobial use during their current rotation.**
- Informal discussions were had with staff physicians (32%), residents (14%), other medical students (6%), pharmacists (2%), and infectious diseases/antimicrobial stewardship services (2%); yet 54% of students did not have any informal teachings or discussions.

### Conclusion
We have developed an innovative peer-to-peer approach of raising awareness amongst medical students on AS. Our studies provide justification for the needed change in the prescribing culture among medical students; future national studies assessing prescribing patterns and perceived importance of AS among medical students, especially during clerkship, and residency are needed.

### Future Directions
- **Work with administration to include more quality AS content into each rotation**
- **Administer the survey at other medical schools to promote awareness and improvements to their curricula**
- **Introduce new programming such as Do Bug Need Drugs across the country**
- **Antimicrobial resistance is a problem physicians can both potentiate and ameliorate. Our ultimate goal is to support students in inspiring students to be antimicrobial stewards!**