



Big Pharma on the Farm: Students Are Exposed to Pharmaceutical Marketing More Often in Rural Clinics

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BACKGROUND AND OBJECTIVES: Pharmaceutical marketing techniques are effective in changing the behavior of health care providers in ways that deviate from evidence-based practices. To mitigate the influence of pharmaceutical marketing on learners, academic medical centers (AMCs) have adopted policies to limit student/industry interaction. Many clinical experiences occur outside of the AMC. The purpose of this study was to compare medical students' exposure to pharmaceutical marketing in off-campus rural and urban underserved clinical sites.

METHODS: The University of Washington School of Medicine Rural and Underserved Opportunities Program (RUOP) places rising second-year medical students in underserved clinical sites in five northwestern states. We surveyed RUOP students to evaluate their exposure to pharmaceutical marketing.

RESULTS: Of 120 students, 86 (72%) completed surveys. Sixty-five (76%) did their RUOP rotation in rural areas. Students in rural locations were more likely to report exposure to pharmaceutical marketing. Distribution of free drug samples was reportedly three times higher in rural than urban sites (54% versus 15%). Doctors meeting with sales representatives were reported as four times higher in rural clinics (40% versus 10%).

CONCLUSIONS: Students at rural sites reported exposure to pharmaceutical marketing more than those in urban settings. Rural medical educators should provide faculty development for community clinicians on the influences of pharmaceutical marketing on learners. Medical schools must review local clinic and institution-wide policies to limit pharmaceutical marketing exposure to learners in the rural learning environment.

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Pharmaceutical marketing is effective in changing the behavior of health care providers in ways that deviate from evidence-based practices.¹⁻⁴ Physicians in training are not immune to such influence.⁵⁻¹¹ There is growing support for stricter regulation of industry interactions with learners through strong conflict of interest (COI) policies.¹²⁻¹⁵ COI policies intend

to alter student and resident views of physician-industry interactions and mitigate unnecessary prescribing of highly marketed pharmaceuticals.^{16,17}

The current learning environment places an emphasis on pre-matriculation shadowing and early clinical rotations. These clinical exposures commonly occur outside of academic medical centers (AMCs).¹⁸

Policies focused on the AMC may not have sufficient reach to address off-campus clinical experiences.

We identified no studies that compared student exposure to pharmaceutical marketing at urban and rural learning sites. Therefore, we surveyed rising second-year medical students after a summer clinical immersion experience to examine the relationship between pharmaceutical marketing exposure and rurality of their clinical experience.

Methods

Setting

The University of Washington School of Medicine (UWSOM) Rural and Underserved Opportunities Program (RUOP) offers rising second-year students an elective 4-week primary care rotation in Washington, Wyoming, Alaska, Montana, or Idaho (WWAMI). Students work with UWSOM volunteer clinical faculty in rural and urban underserved settings. In a typical year about 50% of the class of 240 students participate in RUOP.

Study Design

We surveyed RUOP students to assess exposure to pharmaceutical

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marketing in rural and urban clinical settings. All students who participated in RUOP in 2013 were eligible for the study. Clinical sites were categorized as rural or non-rural based on their zip code and Rural Urban Commuting Area (RUCA) codes.¹⁹ Practice characteristics were obtained from publically available sources. The UWSOM Human Subjects Division approved the study.

Instrument

We developed an anonymous survey based on literature review and investigator experience.^{6,20} The survey consisted of five yes/no questions asking about student observations of and interactions with pharmaceutical marketing at their RUOP site. The surveys were piloted for clarity, ease of use, and user acceptability with five students who completed RUOP the previous summer.

Data Collection and Analysis

Data was collected from May to September 2013. The survey was distributed electronically to students following their RUOP rotation using the secure online service UW Catalyst. Descriptive statistics were computed for practice characteristics and survey responses using IBM SPSS Statistics for Windows, Version 21.0. (IBM Corp, Armonk, NY). *t* tests, chi-square analyses, and Fisher's exact tests examined significant differences (at $P < .05$).

Results

Eighty-six of 120 (72%) RUOP students completed the survey. Sixty-five (76%) respondents did RUOP in rural communities. Twenty-one (24%) students rotated in urban underserved sites. The characteristics of practice sites are shown in Table 1.

Students in rural clinics reported observing doctors interacting with pharmaceutical sales representatives (PSRs) and accepting and distributing sample medications more frequently than urban-based students in all five of the scenarios we presented (Figure 1). The distribution of free drug samples was reported as three times higher (54% versus 15%, $P = .002$) and doctors meeting with PSRs was reported as four times higher in rural than urban sites (40% versus 10%, $P = .01$).

Discussion

This survey of preclinical medical students examined the association between pharmaceutical marketing exposure and rurality of training site. Students who completed RUOP in rural communities were more likely than their urban-based classmates to report exposure to pharmaceutical marketing.

Curricular efforts aimed at increasing the number of rural physicians rely on rural clinical placements.²¹⁻²³ Rural medical educators encourage students to begin their rural experiences as early as

possible in their training, sometimes prior to matriculation.²³ The potential for exposure to pharmaceutical marketing during these early and formative rural training experiences is concerning, as students, especially pre-matriculated students, have not had the professionalism training to critically evaluate the physician-pharmaceutical industry relationship.

It is well documented that medical students are exposed to pharmaceutical marketing during their clinical training.¹⁰ A 2015 national study reports an overall decrease in marketing exposure among third-year students since 2003.²⁴ However, third-year students still encountered pharmaceutical marketers once every 2.4 weeks, and 30% were asked or required by a supervising physician to attend a drug company-sponsored event. Additionally, students were most frequently exposed to pharmaceutical marketing in private practice outpatient settings, but the study did not examine rural versus urban locations.

This study has several strengths. The survey instrument was derived from published studies, and we pilot tested it with previous RUOP students. The overall response rate of 72% lends generalizability to our findings. However, the underrepresentation of urban sites is a weakness, and the small sample size limited the power to detect significant differences. The study was

Table 1: Comparison of Practice Characteristics Between Rural and Urban Sites

| | Urban (n=21) | Rural (n=60) | P Value |
|--|--------------|--------------|---------|
| Health professional shortage area (HPSA) | 16 (76%) | 50 (83%) | .52** |
| Safety net clinic* | 16 (76%) | 34 (57%) | .11*** |
| Academic medical center | 1 (5%) | 0 (0%) | .26** |
| Solo practice | 0 (0%) | 2 (3%) | 1.0** |

Rural sites n=65 (Washington 18, Wyoming 3, Alaska 8, Montana 20, and Idaho 16)

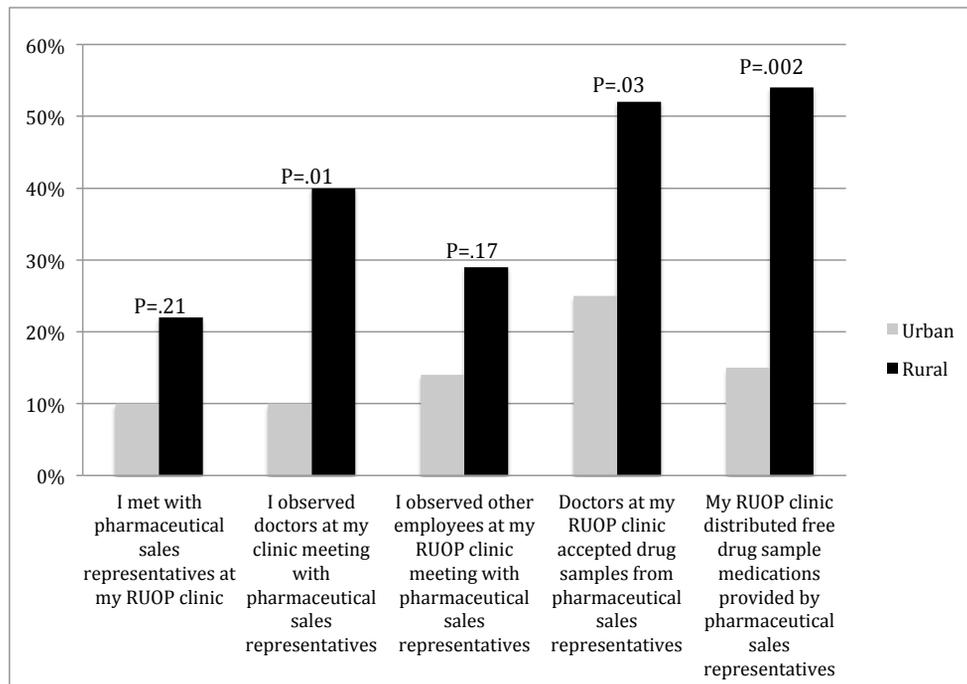
Urban sites n=21 (Washington 14, Wyoming 2, Alaska 2, Montana 0, and Idaho 3)

* Federally qualified health center, rural health clinic, or tribal health clinic

** Fischer's Exact Test

*** Chi square

Figure 1: Comparison of Student Exposure to Pharmaceutical Industry Marketing Between Those at Rural and Urban RUOP Sites



RUOP—Rural and Underserved Opportunities Program

Rural sites n=65 (Washington 18, Wyoming 3, Alaska 8, Montana 20, and Idaho 16)

Urban sites n=21 (Washington 14, Wyoming 2, Alaska 2, Montana 0, and Idaho 3)

performed at a single program at one institution, but the wide variety of clinical sites across five states enhances generalizability to other clinical settings. The study was based on self-reported survey data rather than direct measurement. Finally, recall bias could potentially influence responses.

Conclusions

For more than a half century, the physician-pharmaceutical industry relationship has generated discussion and controversy.²⁵ Despite widespread implementation of COI policies at AMCs, students continue to be exposed to pharmaceutical marketing early in their training. This study confirms that exposure often occurs with students' first clinical experiences and identifies rural clinical sites as a more frequent point of contact.

To meet the health care needs of the country's rural residents, medical schools must produce students who want to practice in remote locations. While the benefits of training students off-campus for rural careers is great, medical educators must consider the ethical and professional implications of these findings. We recommend further research into off-campus learner interaction with pharmaceutical marketing with a focus on rural training sites, faculty development for rural clinical educators that focuses on the influences of pharmaceutical marketing on learners, AMCs collaborate with rural sites to revise COI policies, and that students receive robust training on the role of the pharmaceutical industry in health care as early in training as possible.

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