



Provider Knowledge and Attitudes Towards Antibiotic Prescribing and Antibiotic Stewardship in Outpatient Rural Clinics



Contact: Wesley Kufel
wkufel@binghamton.edu

Wesley D. Kufel, PharmD, BCPS, AAHIVP^{1,2,3*}, Bryan T. Mogle, PharmD, BCPS, AAHIVP², Karen S. Williams, PharmD, BCPS-AQ ID⁴, Keri A. Mastro, PharmD Candidate¹, James Jester, PharmD⁵, John Snyder, PharmD, BCPS⁵, Theresa J. Lubowski, PharmD⁶, KarenBeth H. Bohan, PharmD, BCPS¹

¹Binghamton University School of Pharmacy and Pharmaceutical Sciences, Binghamton, NY, ²SUNY Upstate University Hospital, Syracuse, NY, ³SUNY Upstate Medical University, Syracuse, NY, ⁴The Guthrie Clinic, Sayre, PA, ⁵United Health Services Hospitals, Johnson City, NY, ⁶IPRO, Albany, NY

INTRODUCTION

- At least 30% of antibiotics prescribed in the outpatient setting are unnecessary¹
- Provider familiarity and knowledge of appropriate antibiotic prescribing is essential, yet antibiotic stewardship (AS) education is highly variable based on degree earned, post-graduate training, and practice setting²⁻⁴
- Knowledge gaps in these areas may contribute to inconsistent and overprescribing of antibiotics, particularly in rural areas that may not have accessibility to resources available in urban areas or academic medical centers
- Knowledge and attitudes regarding antibiotic prescribing and AS have been described among inpatient providers and medical students, and pharmacy students, but has yet to be assessed among providers in the outpatient rural setting

OBJECTIVE

- To assess providers' knowledge and attitudes towards antibiotic prescribing and AS in the rural outpatient setting

METHODS

- Study Design:** Cross-sectional, multicenter, electronic survey
- Inclusion Criteria:** Outpatient providers (MD, DO, resident physician, PA, NP) from The Guthrie Clinic and United Health Services (UHS) primary care clinics in rural New York and Pennsylvania
- Exclusion Criteria:** Providers associated with specialty clinics
- Survey Instrument:** 28-item electronic survey via Qualtrics (Qualtrics, Inc, Provo, UT, USA) assessing the following:
 - Provider demographic and clinic visit data, clinical outpatient practice experience, perceptions of antibiotic stewardship and antibiotic resistance, familiarity with common outpatient infectious diseases (ID) management and comfort level with antibiotic prescribing, attitudes towards education regarding antibiotic prescribing and AS
- Statistical Analysis:** Descriptive statistics were performed using Microsoft Excel. Statistical comparisons between groups were performed using a two-tailed Fisher's exact test using SPSS Statistics..
- Ethics:** This study was approved by the Institutional Review Board at Binghamton University, UHS, and Guthrie Health System

REFERENCES AND DISCLOSURES

- The following authors of this presentation have nothing to disclose concerning possible financial or personal relationships with commercial entities that may have a direct or indirect interest in the subject matter of this presentation: Bryan T. Mogle, Karen S. Williams, Keri A. Mastro, James Jester, John Snyder, Theresa J. Lubowski, KarenBeth H. Bohan.
- Wesley D. Kufel has served on the advisory board for Theratechnologies and has received funding from Melinta Therapeutics.

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Figure 1. Flowchart of Study Participants

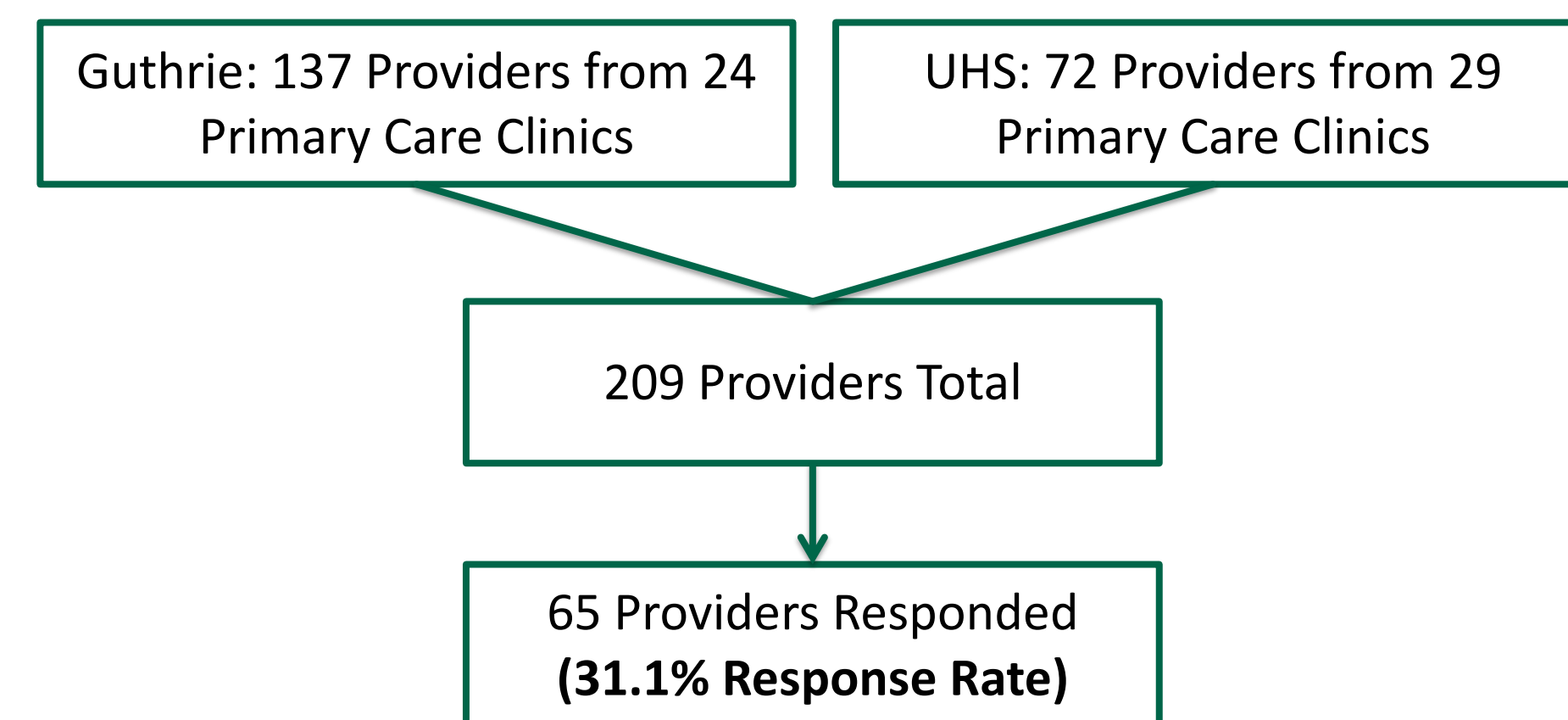


Table 1. Provider Demographics

Provider Type	n (%)
Physician (MD or DO)	28 (43.1)
Resident Physician	18 (27.7)
Advanced Practice Provider (NP or PA)	19 (29.2)
Gender	n (%)
Male	30 (46.2)
Female	35 (53.8)
Time Practicing Since Terminal Training	n (%)
0 to 5 years	36 (55.4)
6 to 10 years	4 (6.2)
11 to 20 years	11 (16.9)
21 to 30 years	8 (12.3)
More than 30 years	6 (9.2)
Time Spent During Sick Visit	n (%)
Less than 10 minutes	8 (12.3)
11 to 20 minutes	43 (66.2)
21 to 30 minutes	13 (20.0)
Greater than 30 minutes	1 (1.5)

RESULTS

Figure 2. Most Significant Barriers to Improving Antibiotic Prescribing

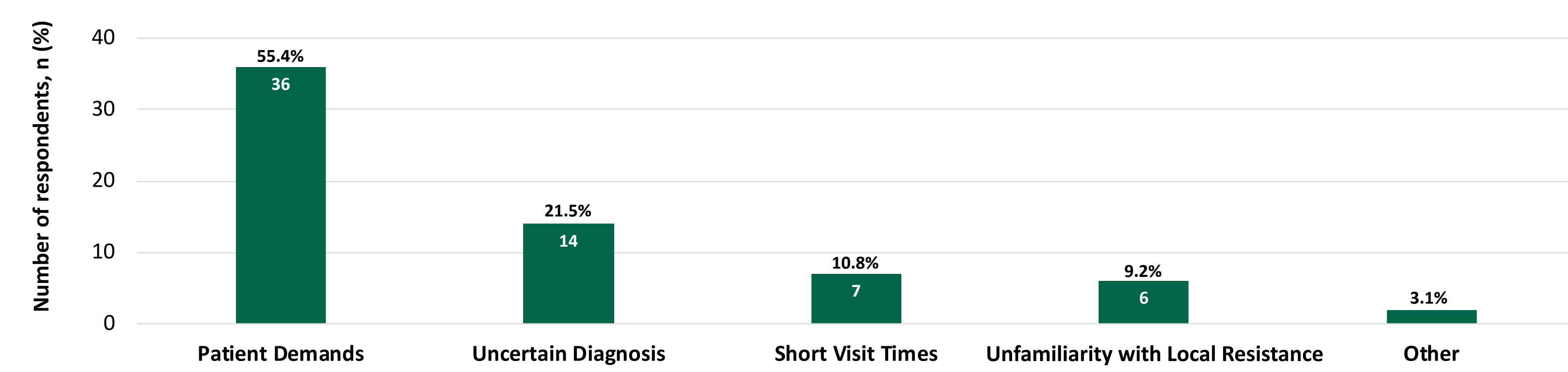


Figure 3. Education Prepared to Practice AS

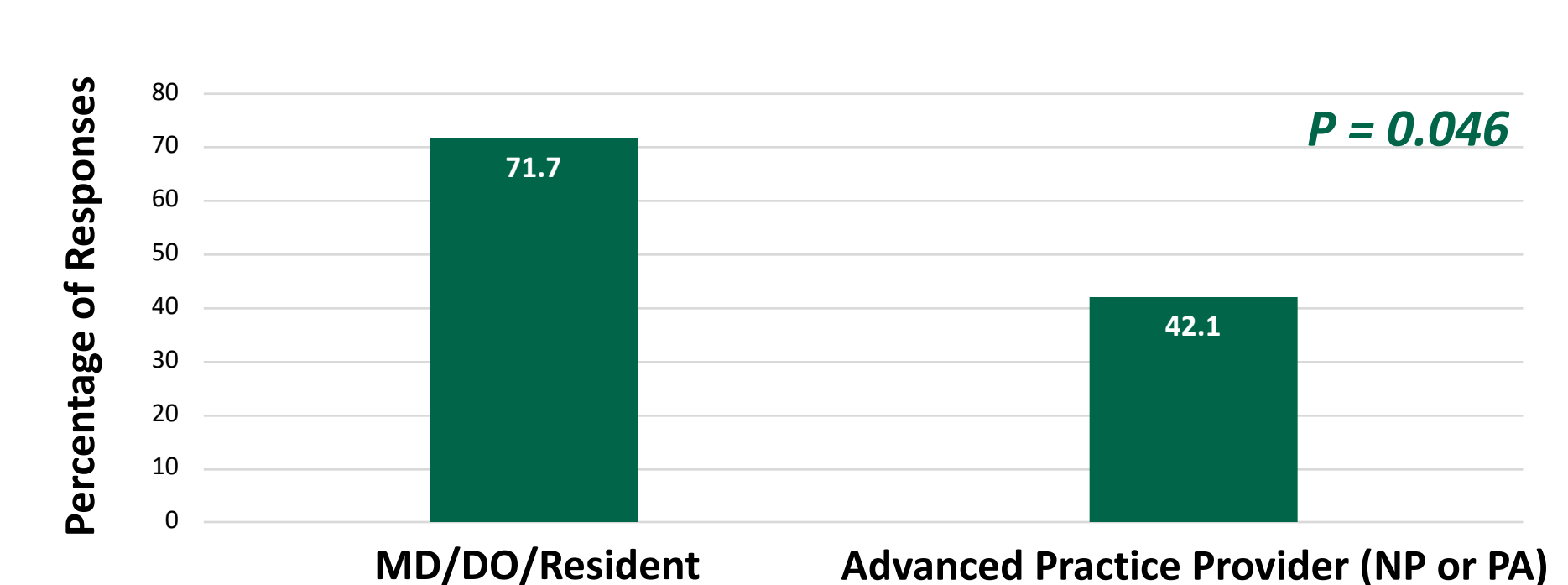


Figure 4. Pressure to Prescribe Antibiotic Based on Visit Time

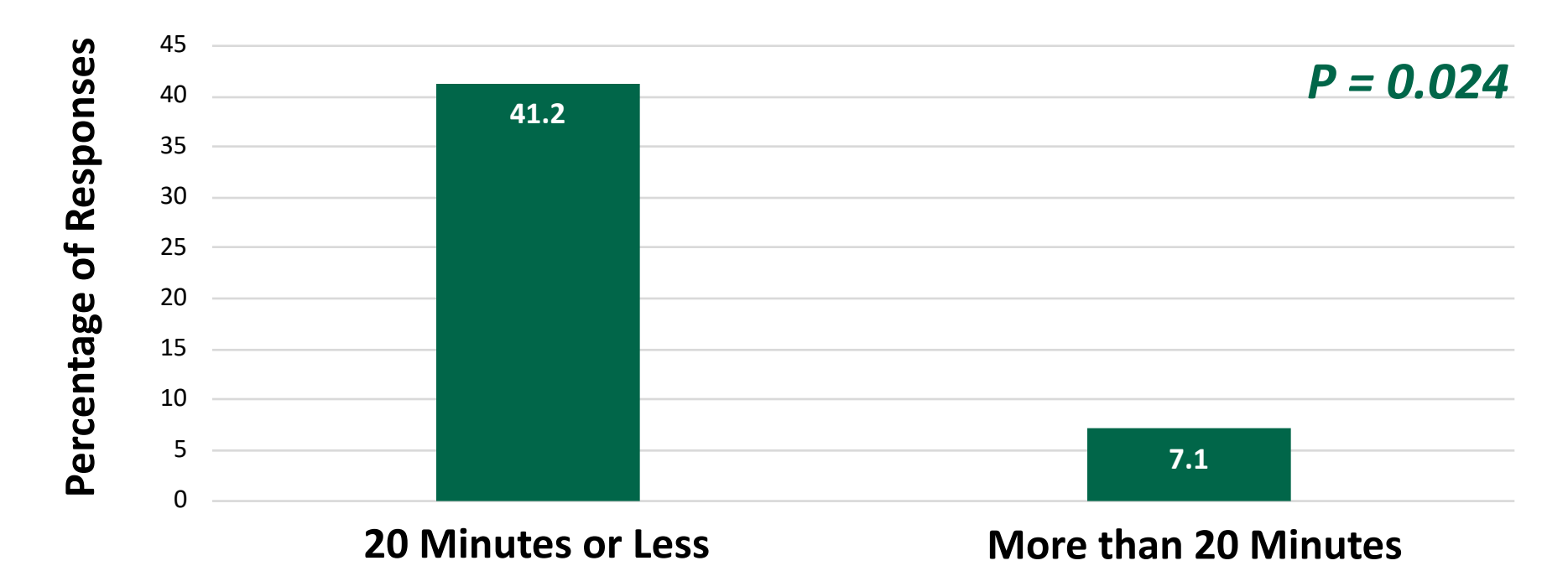


Figure 5. Interest in Receiving More AS Education

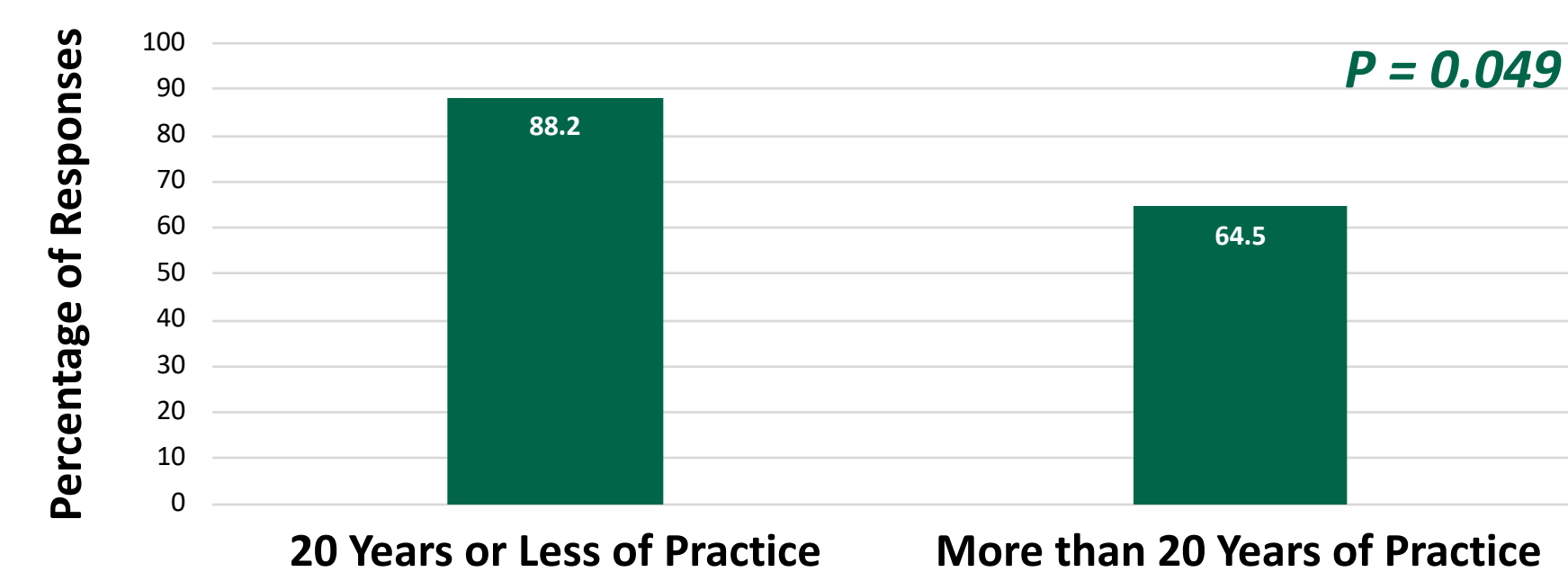


Figure 6. Pressure to Prescribe Antibiotics Based on Patients Per Week

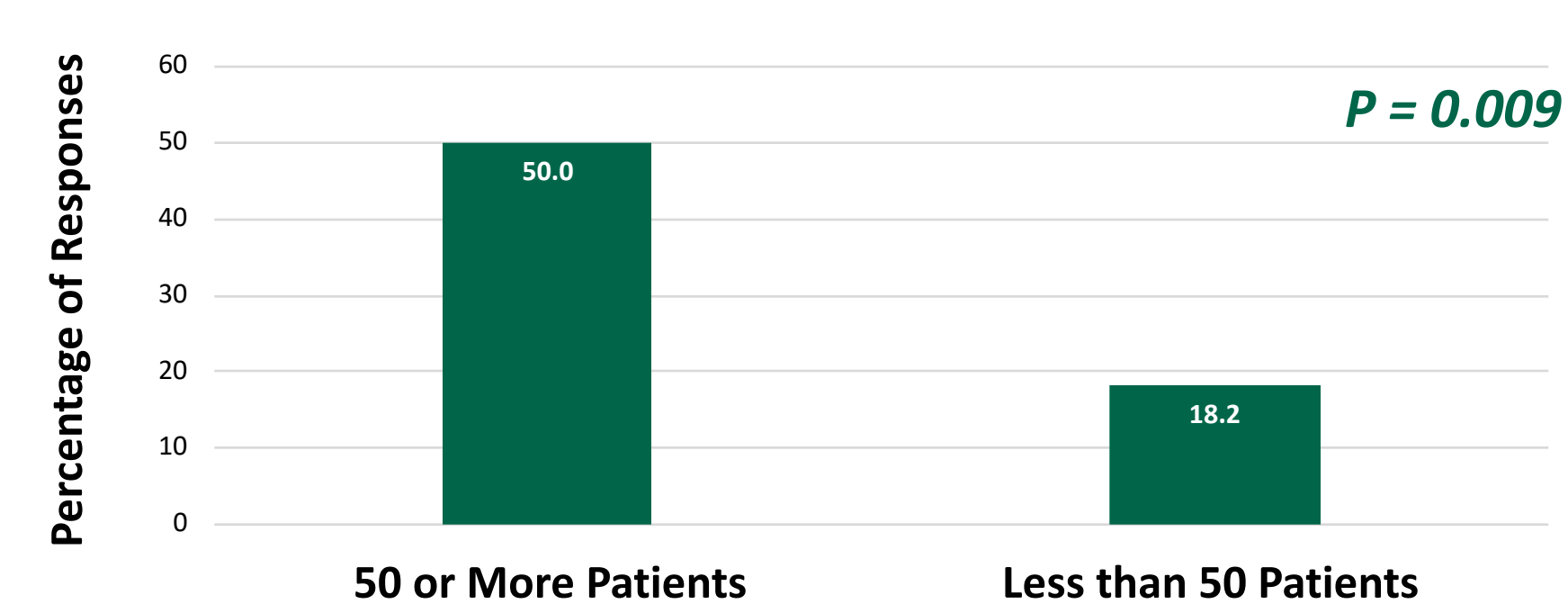


Table 2. Provider Responses (n=65)

Question	Agree	Disagree
Patients who present for a sick visit with URI-related symptoms are more satisfied if they are prescribed an antibiotic	65%	35%
Antibiotics are often prescribed due to patients' demands	85%	15%
Inappropriate use of antibiotics can lead to antibiotic resistance	100%	0%
Pharmacists are a useful resource to assist in the appropriate antibiotic prescribing in the outpatient setting	58%	42%
Nurses are a useful resource to assist in the appropriate prescribing of antibiotics in the outpatient setting	29%	71%
Strong knowledge of AS is important in my medical career	97%	3%
My education/training prepared me to practice AS	63%	37%
I am confident in my ability to know when to start antibiotic therapy	92%	8%
I am confident in my ability to select the most appropriate antibiotic for a specific indication	86%	14%
I am confident in my ability to describe the correct spectrum of activity for different antibiotics	60%	40%
I am confident in my ability to select an appropriate antibiotic for a patient with a penicillin allergy	89%	11%
I am confident in my ability to handle a patient who demands antibiotics when they are not indicated	69%	31%

DISCUSSION

- To our knowledge, this is the first study to investigate knowledge and attitudes regarding antibiotic prescribing and antibiotic stewardship of providers in rural outpatient settings
- More than half of respondents practiced for ≤5 years since terminal training/education
- The most significant barriers to improving antibiotic prescribing were patient demands, uncertain diagnosis of a bacterial infection, and short appointment visit times
- Providers that spent ≤20 minutes per visit were more likely to feel pressured to prescribe antibiotics for upper respiratory tract infections (URIs) to ensure patient satisfaction than those who spent >20 minutes per visit
- Providers who saw >50 patients/week were more likely to feel pressured to prescribe antibiotics for URIs than those who saw ≤50 patients
- 38% of providers never heard the term AS or heard the term but unsure of definition (data not shown)
- Only 42% of providers selected the correct answer that 90-98% of URIs are viral⁵ (data not shown)

- All of the providers agreed that antibiotics are overused and inappropriate antibiotic use can lead to resistance
- More than 75% of providers agreed that they were interested in receiving more education regarding antibiotic stewardship (data not shown)

Study Limitations

- Survey response rate was 31.1%, which may increase the risk for nonresponse bias and may not be generalizable to all providers in rural outpatient settings
- Variability in practice settings, education, and training may have influenced results

Conclusions

- Variability exists among providers' knowledge and attitudes towards antibiotic stewardship and antibiotic prescribing in rural outpatient settings
- Increased educational efforts in rural outpatient settings are warranted