

Introduction

- Otitis media is one of the most common childhood diseases
- Acute otitis media (AOM) is frequently over diagnosed due to inadequate assessment, including lack of pneumatic otoscopy (PO) use¹
- PO is “a method of examining the middle ear by using an otoscope with an attached rubber bulb to change the pressure in the ear canal to identify movement in the tympanic membrane”²
- The use of PO during examination to make an accurate assessment is a strong recommendation in both the AOM and otitis media with effusion (OME) guidelines^{2,3}
- There is minimal evidence of physicians obtaining the skill of PO and utilizing in practice⁴ and no evidence that Nurse Practitioners (NPs) are utilizing PO in practice

Purpose

- Explore NP use of PO when evaluating and treating pediatric patients
- Identify relationships between: demographic characteristics, educational preparation, certification, practice setting characteristics, familiarity with AOM and OME guidelines, availability of equipment, and training on PO
- Evaluate NPs practice, confidence and barriers to PO use

Methodology

- Deemed Human Subjects Research and approved on 8/22/18 by the University of Iowa IRB-02, #201806079
- 25 question survey; Data obtained 8/22/18-12/31/18
- Inclusion criteria: 1) Certified as a Family Practice or Pediatric NP; 2) Practice in primary care >50% of time; 3) Evaluates and treats patients ages 0-21 years of age for AOM and OME
- NP Organization Participation (Member count)
 - Indiana Chapter of NAPNAP – 161
 - Iowa Nurse Practitioner Society – 642
 - Iowa Association of Nurse Practitioners – 113
 - Massachusetts NAPNAP Chapter – 380
 - Pennsylvania Three Rivers Chapter of NAPNAP – 109

Results

- 57 surveys completed; Response rate: 4.1%
- Demographics
 - Age range 20-60+ years
 - Graduation year 1970-present
 - 32 Midwest, 25 Northeast
 - 44 MSN, 13 DNP and/or Ph.D.
 - 46 PNP, 11 FNP
 - 43 full-time, 13 part-time
 - 18 rural, 23 suburban, 14 urban

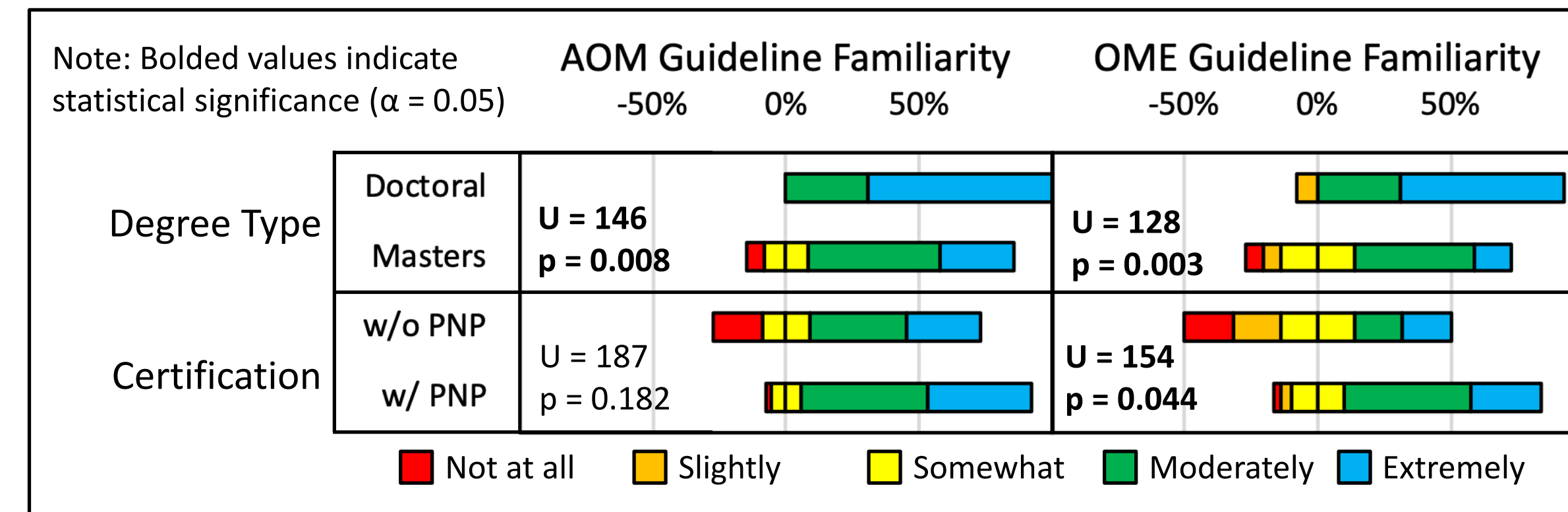
AOM and OME Guidelines

	Number (Percentage) of Responses				
	Not at all familiar	Slightly Familiar	Somewhat Familiar	Moderately Familiar	Extremely Familiar
How familiar are you with the AOM guideline?	3 (5.3%)	0 (0.0%)	7 (12.3%)	26 (45.6%)	21 (36.8%)
How familiar are you with the OME guideline?	3 (5.3%)	4 (7.0%)	12 (21.1%)	24 (42.1%)	14 (24.6%)

- The majority of NPs report familiarity at or above “Moderately Familiar” on AOM and OME guidelines (82.4% and 66.6%, respectively)

Results (cont.)

AOM and OME Guidelines, Degree, and Certification Type



AOM/OME Guidelines related to Degree and Certification

- Those with DNP and/or Ph.D. tend to be more familiar with AOM and OME guidelines than those with MSN-only (AOM p=0.008, OME p=0.003)
- Those with PNP tend to be more familiar with OME guidelines than those without a PNP (p=0.044)

Training in PO

	Number (Percentage) of Responses			
	Formal Education	On the Job Training	Workshop	Did Not Learn
How were you trained in the skill of PO?	21 (36.8%)	19 (33.3%)	1 (1.8%)	16 (28.1%)

- 28.1% (n=16) of respondents reported no training in PO
- Those trained in PO tend to use the skill more frequently (p<0.001), believe it is more efficacious in diagnosis (p=0.01), and report knowledge of OME guideline (p=0.006) more than those not trained in PO

Confidence Level

	Number (Percentage) of Responses					
	Not at all confident	Somewhat unconfident	Neutral	Somewhat Confident	Extremely Confident	Did Not Learn
If you have previously been instructed in PO, what is your confidence level using the skill in practice?	6 (10.7%)	8 (14.3%)	3 (5.4%)	17 (30.4%)	6 (10.7%)	16 (28.6%)

- Those more confident in PO tend to use it more frequently in practice (p=0.003)

Decision-Making and PO

- Those who believe PO is more efficacious in diagnosis of AOM and OME tend to use the the skill more in decision-making (p=0.023 and p=0.003, respectively)

Efficacy of PO

	Number (Percentage) of Responses				
	Not at all Helpful	Somewhat unhelpful	Neutral	Moderately helpful	Extremely helpful
How efficacious do you consider pneumatic otoscopy in diagnosing acute otitis media (AOM)?	3 (5.6%)	6 (11.1%)	21 (38.9%)	18 (33.3%)	6 (11.1%)
How efficacious do you consider pneumatic otoscopy in diagnosing otitis media with effusion (OME)?	3 (5.6%)	2 (3.7%)	23 (42.6%)	20 (37.0%)	6 (11.1%)

- Those that use PO more frequently tend to believe it is efficacious in diagnosing AOM (p=0.058) and OME (p=0.013)
- Those with PNP certification tend to practice PO more frequently than those without PNP certification (p=0.006)

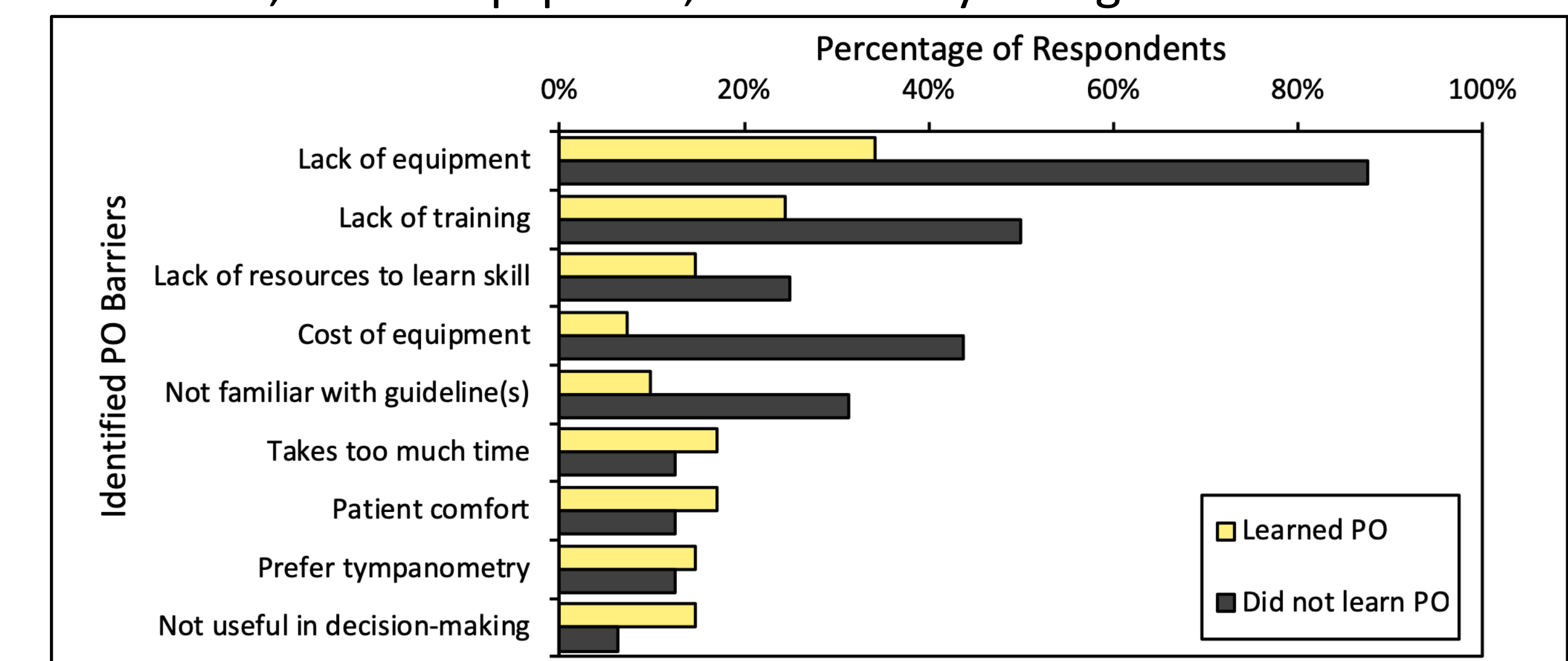
Results (cont.)

NP and Physician PO use

- 71.4% (n=56) of NPs did not utilize PO in the month preceding the survey Compared to a study of family physicians, 84% (n=211) never used PO in the last month.⁴ A chi-squared test of the two proportions indicated that NPs are more likely than family physicians to utilize PO in the last month (p=0.020)

Barriers

- Consistent with physician study⁴, lack of equipment is primary NP barrier
- Top five barriers: Lack of equipment, lack of training, lack of resources to learn skill, cost of equipment, unfamiliarity with guidelines



Barriers to PO Use and Training

- Limitations of study: Small sample size, low response-rate, and lack of geographical information for South and West

Conclusions

- Summary: DNPs and PNPs are more familiar with AOM/OME guidelines compared to MSN-only and FNPs. However, NPs are not being consistently taught PO; 77.2% (n=44) of NPs are willing to learn PO if provided the opportunity. Additionally, NPs more likely to utilize PO in practice than family physicians, but both groups need improvement.
- Recommendations: 1) Increase availability of training on PO, as knowledge of skill has the greatest effect on practice (increased frequency of use, belief of efficacy, confidence, and use in decision-making); 2) Teach AOM/OME guidelines and PO in formal and continuing education programs; 3) Although barriers include equipment cost, lack of knowledge of cost contributes to low usage (insufflation bulb ≈ \$15)

References

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