

# Triage Urgency and Type of Provider in Emergency Departments: Does Local Physician Supply Matter?

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## BACKGROUND AND SIGNIFICANCE

### What's known:

- In emergency departments (EDs), physician assistants/associates (PAs) and nurse practitioners (NPs) tend to treat lower complexity visits than physicians do

### What this study adds:

- Whether local physician supply influences the triage level (or urgency) of ED patients treated by physicians (versus a physician team: physician-PA or physician-NP)

## DATA SOURCES

- Visit level data: 2014-2019 National Hospital Ambulatory Medical Care Survey (NHAMCS), restricted version with zip code obtained from the Research Data Center, CDC (upon approval)
  - ED providers assessed: ED attending physician, NP, PA
  - Triage/urgency level: 1-5
- Hospital Referral Region (HRR)-level ED physician supply data (deciles): AMA Physician Masterfile
- Zip code to HRR crosswalk
- HRR Population controls: Public Use Microdata Areas (PUMAs)

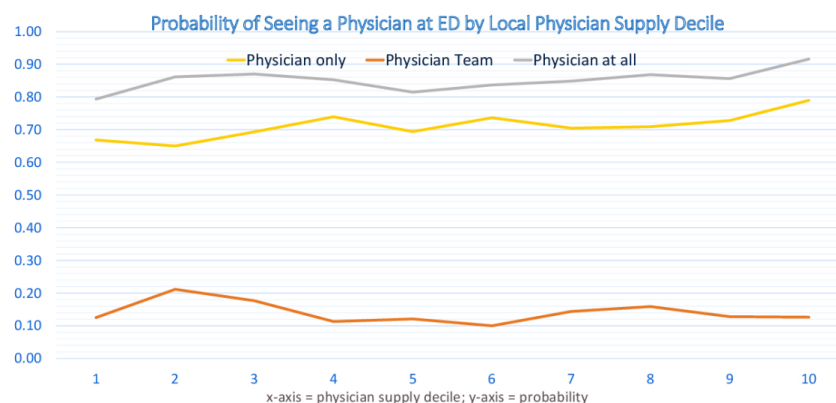
## METHODS

We regressed the likelihood of being seen by a –

- physician only, physician team (physician-PA or physician-NP) or physician at all (including physician only or physician team) on –
- visit urgency or complexity, local ED physician supply, and the interaction between them

### Other control variables:

- Patient's age, age-squared, sex, race and ethnicity, obesity and cancer status
- The episode of the visit (initial or follow-up), whether arrived by ambulance, whether visit related to an injury/trauma, Medicare and Medicaid status, the geographic region of the hospital, and the scope of practice for PA in the state of that year
- Year effect (as a discrete variable)



- As emergency physician supply goes up, the probability of seeing a physician goes up; probability of seeing a physician team is stable.

## RESULTS

### DESCRIPTIVE RESULTS – TRENDS OF SEEING PROVIDERS AT ED, 2014-19

	Physician only	Physician+PA	Physician+NP	PA only	NP only
2014	0.746	0.079	0.028	0.057	0.024
2015	0.729	0.079	0.034	0.050	0.044
2016	0.670	0.095	0.071	0.067	0.041
2017	0.720	0.079	0.051	0.052	0.045
2018	0.690	0.084	0.049	0.080	0.050
2019	0.656	0.093	0.057	0.076	0.060

### ESTIMATES OF THE INFLUENCE OF URGENCY AND LOCAL PHYSICIAN SUPPLY ON ODDS OF BEING SEEN BY PHYSICIAN OR PHYSICIAN-PA/NP TEAM

	Physician only (1)	Physician only_ with interaction (2)	Physician team (3)	Physician team_ with interaction (4)
Emergency medicine physician supply (in deciles)	0.093*** (-18.87)	0.054*** (-3.95)	0.045*** (-7.39)	0.013 (-0.81)
Urgency	0.346*** (-23.01)	0.265*** (-8.45)	0.503*** (-26.55)	0.431*** (-11.23)
Urgency * Physician Supply		0.015** (-3.01)		0.013* (-2.21)

Note: \* p<0.05, \*\*p<0.01, \*\*\*p<0.001

- In HRRs in the highest decile of ED physician supply, 1 increase in urgency level was associated with a 41% increase in the odds of seeing a physician only
- In HRRs in the lowest decile of ED physician supply, 1 increase in urgency level was associated with a 28% increase in odds of seeing a physician only

### ESTIMATES OF INFLUENCE OF PATIENT CHARACTERISTICS ON ODDS OF BEING SEEN BY PHYSICIAN OR PHYSICIAN-PA/NP TEAM

	-0.0174*** (-10.84)	-0.0174*** (-10.82)	-0.0128*** (-5.99)	-0.0128*** (-5.97)
Age				
1. Non-Hispanic White	0 (.)	0 (.)	0 (.)	0 (.)
2. Non-Hispanic Black	-0.148*** (-5.27)	-0.147*** (-5.23)	-0.0813* (-2.23)	-0.0807* (-2.21)
3. Hispanic	-0.0812* (-2.55)	-0.0815* (-2.57)	0.056 (-1.36)	0.0555 (-1.35)
4. Other	0.152* (-2.45)	0.154* (-2.46)	0.185* (-2.17)	0.186* (-2.18)
Obesity	-0.0856 (-1.60)	-0.0849 (-1.58)	-0.0348 (-0.48)	-0.0348 (-0.48)
Cancer	0.0656 (-1.04)	0.065 (-1.03)	0.0846 (-0.93)	0.0838 (-0.92)

### ESTIMATES OF THE INFLUENCE OF VISIT CHARACTERISTICS ON THE ODDS OF BEING SEEN BY A PHYSICIAN OR PHYSICIAN-PA/NP TEAM

	0.322*** (-9.71)	0.323*** (-9.73)	0.487*** (-9.84)	0.489*** (-9.87)
Ambulance arrival				
Pay-Medicare	0.106** (-2.71)	0.107** (-2.72)	0.0352 (-0.64)	0.0354 (-0.65)
Pay-Medicaid	-0.0456 (-1.89)	-0.0463 (-1.92)	-0.163*** (-5.28)	-0.163*** (-5.30)
Injury/trauma visit	-0.129*** (-5.33)	-0.128*** (-5.32)	-0.130*** (-4.18)	-0.130*** (-4.17)
1. Northeast	0 (.)	0 (.)	0 (.)	0 (.)
2. Midwest	0.183*** (-5.36)	0.186*** (-5.44)	-0.250*** (-5.72)	-0.249*** (-5.68)
3. South	0.532*** (-15.01)	0.534*** (-15.05)	0.207*** (-4.54)	0.208*** (-4.56)
4. West	0.420*** (-11.78)	0.417*** (-11.67)	-0.0624 (-1.37)	-0.066 (-1.45)
2014	0 (.)	0 (.)	0 (.)	0 (.)
2015	-0.325*** (-8.19)	-0.329*** (-8.31)	-0.291*** (-5.35)	-0.295*** (-5.42)
2016	-0.748*** (-18.50)	-0.746*** (-18.47)	-0.481*** (-8.59)	-0.479*** (-8.57)
2017	-0.392*** (-9.33)	-0.389*** (-9.29)	-0.273*** (-4.61)	-0.272*** (-4.59)
2018	-0.725*** (-17.50)	-0.725*** (-17.50)	-0.629*** (-11.15)	-0.629*** (-11.16)
2019	-0.973*** (-22.97)	-0.975*** (-23.01)	-0.735*** (-12.96)	-0.737*** (-12.99)
PA Scope of practice	0.139*** (-15.5)	0.139*** (-15.49)	0.115*** (-9.94)	0.115*** (-9.93)

## CONCLUSIONS

- The higher the triage (or urgency) level of a patient presenting to an emergency department (ED), the more likely a physician was to attend or contribute to the patient's care. This likelihood, however, decreased with lower physician supply.

## IMPLICATIONS

- Our results quantified the influence of physician supply on physician care provided in emergency departments.
- Findings suggest that in lower physician supply areas, other providers (e.g., PAs, NPs) see more urgent ED visits than they do in higher physician supply areas.
- Further research on patient outcomes and how physicians and PAs and NPs work together to provide care in lower physician supply areas may assist efforts to determine best approaches to providing high quality care across environments.

## ACKNOWLEDGEMENTS

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