

## Abstract

### Purpose and Background:

The aim of this study was to display the association between patient navigator program staffing and loss to follow up in newborns that did not pass newborn hearing screening in selected health districts in Georgia. Since 2009, each of the 18 Georgia health districts has had a navigator. By helping guide families through the maze of follow-up after not passing screening, we expect that loss to follow-up patterns mimic that of navigator staffing: higher loss to follow-up during staff vacancy, and vice versa.

### Methods:

By Freedom of Information request, newborn hearing screening and diagnostic loss to follow-up data from 2009-2015 were acquired for three public health districts in Georgia: Athens, Augusta, and Cobb-Douglas. These districts were chosen because they had varying amounts of time of unfilled staff positions for Coordinator of Early Hearing Detection and Intervention.

### Results:

For the three selected health districts in Georgia, lapses in staffing of the district patient navigator position correlated temporally with increased failures of follow-up after not passing newborn hearing screening. Aggregate three-district data show that follow up-rates in quarters with a full-time navigator are higher when compared to quarters without a full time navigator, a statistically significant difference ( $P < .05$ ).

### Conclusion:

Lapses in staffing of district public health patient navigator positions correlate with increased loss to follow up following failed newborn hearing screening.

## Introduction

Bush et al. (2017) report a randomized prospective controlled clinical trial in Kentucky: "Patient navigation decreases nonadherence rates following abnormal infant hearing screening,"  $P = .005$ . We sought, retrospectively, with de-identified publically available data, to determine if the Georgia data show a correlation of better follow-up rates with stable staffing of patient navigator positions.

Georgia has 18 EHDI patient navigators, one for each public health district. Navigators are charged with aiding families through the diagnosis and intervention process following failed newborn hearing screening. The goal of implementing navigators is to increase the percentage of patients who undergo complete audiological diagnostic testing and enroll in early intervention following failed newborn hearing screening and to decrease patient loss to follow-up.

### Our objectives are:

- 1) To assess the association between patient navigator programs and newborn hearing screening loss to follow-up
- 2) To encourage EHDI programs to support continued staffing of patient navigators
- 3) To support implementing a patient navigator in states/counties not currently utilizing a navigator

## Materials & Methods

By Freedom of Information request, newborn hearing screening and diagnostic loss to follow-up data from 2009-2015 were collected from three public health districts in Georgia: Athens, Augusta, and Cobb/Douglas via a formal data request to the Georgia Department of Public Health. Data from each year were broken into four quarters. For each quarter, the number of children who did not pass initial and follow-up newborn hearing screening was evaluated. Subsequently, the number of children who were lost to follow-up for diagnostic testing was assessed. Loss to follow up was defined per the CDC definition: patients who could not be contacted, could not be located, are unresponsive, or unknown. The percent loss to follow up was then correlated with vacancies in the EHDI navigator position. Statistical significance was assessed via a non-parametric Mann-Whitney U test for unpaired data samples.

Notably, our analysis excluded newborns who missed initial screening, who did not receive a follow up screen (not considered a loss to follow up for diagnosis), or whose parents refused initial screening.

## Results

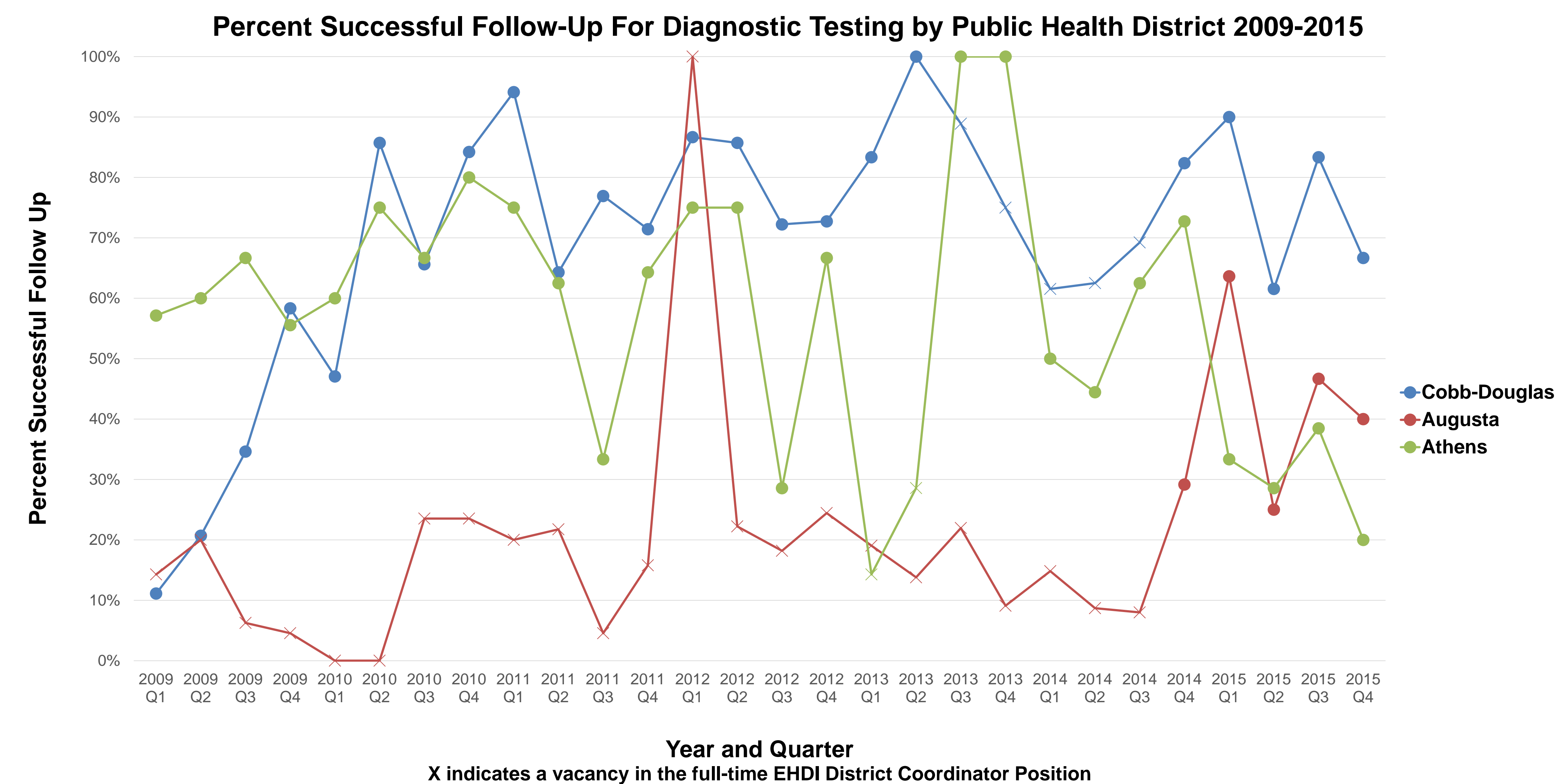
District	Measure	2009				2010				2011				2012				2013				2014				2015			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
3-1 (Cobb-Douglas)	Did Not Pass Initial and Follow-up Screening	27	29	26	24	17	35	32	38	17	14	26	14	15	14	18	22	24	16	18	28	13	16	13	17	10	13	18	12
	Lost to Follow-up for Diagnosis	24	23	17	10	9	5	11	6	1	5	6	4	2	2	5	6	4	0	2	7	5	6	4	3	1	5	3	4
	% Lost to Follow-up for Diagnosis§	88.9%	79.3%	65.4%	41.7%	52.9%	14.3%	34.4%	15.8%	5.9%	35.7%	23.1%	28.6%	13.3%	14.3%	27.8%	27.3%	16.7%	0.0%	11.1%	25.0%	38.5%	37.5%	30.8%	17.6%	10.0%	38.5%	16.7%	33.3%
6 (Augusta)	Did Not Pass Initial and Follow-up Screening	14	15	16	22	7	0	17	17	10	23	22	19	3	18	22	45	21	29	41	33	27	23	25	24	11	12	15	10
	Lost to Follow-up for Diagnosis	12	12	15	21	7	0	13	13	8	18	21	16	0	14	18	34	17	25	32	30	23	21	23	17	4	9	8	6
	% Lost to Follow-up for Diagnosis§	85.7%	80.0%	93.8%	95.5%	100.0%	#DIV/0!	76.5%	76.5%	80.0%	78.3%	95.5%	84.2%	0.0%	77.8%	81.8%	75.6%	81.0%	86.2%	78.0%	90.9%	85.2%	91.3%	92.0%	70.8%	36.4%	75.0%	53.3%	60.0%
10 (Athens)	Did Not Pass Initial and Follow-up Screening	7	5	3	9	5	4	3	15	12	16	6	14	12	4	7	6	7	7	3	3	6	9	8	11	12	7	13	10
	Lost to Follow-up for Diagnosis	3	2	1	4	2	1	1	3	3	6	4	5	3	1	5	2	6	5	0	0	3	5	3	3	3	8	5	8
	% Lost to Follow-up for Diagnosis§	42.9%	40.0%	33.3%	44.4%	40.0%	25.0%	33.3%	20.0%	25.0%	37.5%	66.7%	35.7%	25.0%	25.0%	71.4%	33.3%	85.7%	71.4%	0.0%	0.0%	50.0%	55.6%	37.5%	27.3%	66.7%	71.4%	61.5%	80.0%

Highlighted quarters are those in which a full time EHDI patient navigator was not present in the district

Data Source: Timeliness Report, State Electronic Notifiable Disease Surveillance System, Georgia Department of Public Health

Date of Report: 2/7/2018

§Calculated as (Lost to Follow-up for Diagnosis / Did Not Pass Initial and Follow-up Screening) x 100



### Overall Follow-up Averages

Average loss to follow up with full time navigator	38%	Average successful follow up with full time navigator	62%
Average loss to follow up with part time navigator	72%	Average successful follow up with part time navigator	28%
Cobb-Douglas loss to follow up with full time navigator	30%	Cobb-Douglas successful follow up with full time navigator	70%
Cobb-Douglas loss to follow up with part time navigator	29%	Cobb-Douglas successful follow up with part time navigator	71%
Augusta loss to follow up with full time navigator	59%	Augusta successful follow up with full time navigator	41%
Augusta loss to follow up with part time navigator	81%	Augusta successful follow up with part time navigator	19%
Athens loss to follow up with full time navigator	40%	Athens successful follow up with full time navigator	60%
Athens loss to follow up with part time navigator	79%	Athens successful follow up with part time navigator	21%

**Statistical analysis between follow up rates in quarters with a full-time navigator and quarters without a full time navigator shows a statistically significant increase in follow-up rates during quarters with a full-time navigator ( $P < .05$ ).**

## Discussion

Our data demonstrate a statistically significant correlation between functioning patient navigator programs and newborn hearing screening loss to follow up. Augusta is the district that persisted the longest without a patient navigator and its successful follow up rates were lower than districts with more stable patient navigator staffing, such as Cobb-Douglas and Athens. When the patient navigator position was filled in Augusta in 2014 Q4, follow up rates increased from 8% to 29% that quarter. Moreover, when a vacancy occurred in a district, such as in Cobb-Douglas between 2013 Q3 and 2014 Q3 and Athens between 2013 Q1 and 2013 Q2, drop-offs in follow up rates were immediately seen.

We hope that administrative purse holders will utilize these data to support staffing of their patient navigator programs. Furthermore, we hope that states and districts not currently utilizing navigators will consider implementing them.

Limitations of this study include: the small number of analyzed districts, and that those districts were chosen somewhat subjectively; the small number of patients in each 3-month datum entry for each health district; that staffing was considered "all or none" for each quarter (but in fact "none" is really  $< 50\%$  of the time, and staffed means  $\geq 50\%$ ) and, that unconsidered were carry-on effects of having and not-having a coordinator.

## Conclusion

The reviewed public health districts lacking a full-time patient navigator show a statistically significant lower follow up rate with patients. Moreover, districts that lose their full-time navigator position have a drop in follow up, while districts that fill the positions see an increase in follow up.

## Acknowledgements

We would like to thank the Georgia Department of Public Health for their contributions.

## References

Bush, Matthew L, et al. "Promotion of Early Pediatric Hearing Detection Through Patient Navigation: A Randomized Controlled Clinical Trial." *The Laryngoscope*, 127:S1-S13, 2017.