

Obstetric Care for Philadelphia and Non-Philadelphia Residents: A Comparative Analysis of Risk Factors, Birth Outcomes, and Impact on Obstetric Capacity, 2003-2007

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Background

In less than ten years, ten delivery hospitals closed in Philadelphia. Prior research on Philadelphia resident births found the obstetrical system is at or near capacity. Additional research demonstrated that the closures had an unequal impact on those units remaining open. Questions remain for Philadelphia residents, obstetrical providers, and advocacy groups as to accessibility and service capacity.



Closures did not occur equally across the city. Smaller hospitals were located outside of the Center City area.

Closures have resulted in a few hospitals clustered relatively close together.

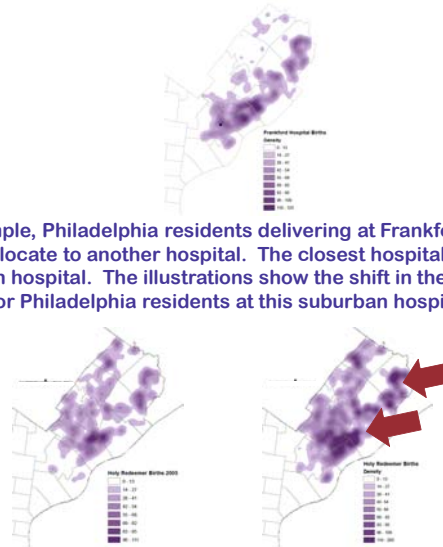
During this time period, births to Philadelphia residents increased.

Year	# of Labor & Delivery Hospitals	# of Resident Births
1997	18	22,038
2007	8	23,476
2008* *	7	23,481
2009**	6	23,000

* 2008 data are preliminary.
** 2009 data to date are preliminary. Estimated year end total is based on data through August and the addition of a monthly average based on January-August data.

As closures appeared to disproportionately affect certain areas of the city, it was also believed that closures disproportionately shifted the delivery burden to other hospitals based on geographic proximity.

For example, Philadelphia residents delivering at Frankford Hospital had to relocate to another hospital. The closest hospital is a suburban hospital. The illustrations show the shift in the delivery burden for Philadelphia residents at this suburban hospital.



Purpose

This study examines the differences between Philadelphia residents and non-residents delivering in city hospitals, including factors affecting obstetrical system capacity. In order to assist with wider obstetrical planning, a primary goal of this research is to identify key differences in populations that could impact obstetrical capacity.

Methods

Data from more than 100,000 birth records for resident and non-resident births from 2003 through 2007 were analyzed for location of delivery (city or suburban). Data are received from the PA Dept of Health. Data reflect births in Philadelphia hospitals. Data were geocoded to indicate whether births were to Philadelphia residents or to non-residents. Data for all years were combined to minimize extreme sample size differences. Births to non-residents average 3,000-4,000/year while births to residents average 22,000-23,000/year. Chi-Square analysis was completed to study differences in both risk factors and poor birth outcomes.

Results

	Philadelphia Residents	Non-Philadelphia Residents	Pearson Chi Square	p
Age of Mother				
≤ 14	0.40%	0.00%		
15-17	6.10%	1.20%		
18-19	9.60%	2.40%		
20-24	27.60%	9.80%	7319.00	0.000
25-29	26.70%	21.80%		
30-34	19.00%	35.30%		
35-39	9.50%	23.50%		
≥ 40	2.30%	6.10%		
Gestational Diabetes	3.00%	3.30%	4.148	0.022
Previous Pre-term birth	2.80%	2.50%	3.621	0.030
Infertility Treatment	0.60%	5.60%	2342	0.000
Previous C-section	9.10%	12.40%	153.4	0.000
Vaginal Bleeding	1.20%	1.80%	27.678	0.000
Premature Rupture of Membranes	4.40%	5.80%	55.646	0.000
Precipitous Labor	3.10%	2.00%	61.262	0.000
Perineal Laceration	0.90%	1.10%	10.794	0.001
Route of Delivery				
Vaginal/Spontaneous	66.40%	58.20%		
Vaginal/Forceps	1.50%	1.50%	4324.00	0.000
Vaginal/Vacuum	4.80%	4.70%		
Cesarean	27.30%	35.60%		
Preterm Delivery				
< 32 weeks	2.70%	3.80%		
32-36 weeks	9.70%	11.00%	85.029	0.000
≥ 37 weeks	87.60%	85.20%		
Birthweight				
Very Low	2.80%	3.60%		
Low	9.00%	9.40%	35.739	0.000
Normal	88.20%	87.00%		
NICU Admission	8.30%	12.70%	298	0.000

Non-residents were more likely to:

- Be older (≥ 35 years of age)
- Have gestational diabetes
- Have had fertility treatments
- Have had a previous c-section
- Have vaginal bleeding and/or perineal lacerations
- Have premature rupture of membranes
- Have a pre-term and/or low birthweight baby (particularly very low birthweight)
- Have a NICU admission

Philadelphia residents were more likely to:

- Have had a previous pre-term birth
- Experience precipitous labor
- Be teens (<20 years of age)

Conclusion

Analysis indicates differing patient needs and issues for resident and non-resident women. Differing needs and complications have the potential to impact capacity of OB units differently. For example, if non-residents have more births requiring c-sections and NICU admissions, the level of care and length of stay is much greater, taxing delivery capacity.

Recommendations

Obstetrical planning in Philadelphia should include planning for different populations with different needs as opposed to planning based only on data for resident births and direct geographic accessibility.