



Hospitalizations for Newborns with Neonatal Abstinence Syndrome – 2018

This research brief examines newborn birth admissions involving neonatal abstinence syndrome (NAS). NAS is an array of withdrawal symptoms that develops soon after birth in newborns exposed to addictive drugs (e.g., opioids) while in the mother’s womb. The newborns experience these symptoms of withdrawal because they are no longer exposed to the drug for which they have become physically dependent. This report reflects birth admissions occurring in Pennsylvania general acute care hospitals for Pennsylvania residents during federal fiscal year (FFY) 2018: October 1, 2017 to September 30, 2018.

More than 1,800 newborns affected.

1,833

There were **1,833 NAS-related newborn stays** in Pennsylvania in FFY 2018 for a rate of 14.4 per 1,000 newborn stays. The rate of NAS among newborns has remained relatively stable since FFY 2016 when it was 15.2 per 1,000 newborn stays.

55%

While there was evidence of a larger number of newborns (3,354) exposed to addictive drugs before birth, not all of these babies developed NAS. More specifically, in FFY 2018 NAS was diagnosed in **55%** of the newborns exposed to addictive drugs before birth.

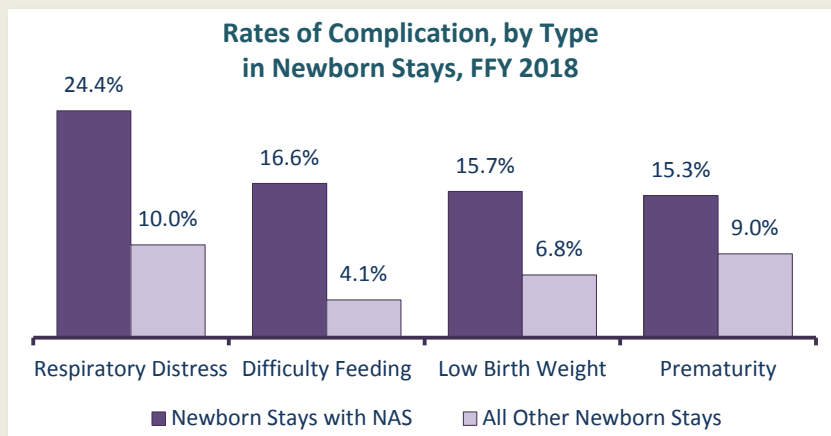
\$15.2 million

NAS-related stays added an estimated **\$15.2 million** in hospital payments in FFY 2018.*

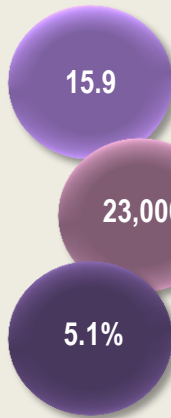
*Based on average payments from federal fiscal year 2017 Medicaid payment data (Oct 2016 to Sep 2017 newborn stays). This estimation assumes the payment difference between Medicaid newborn stays with NAS and all other Medicaid newborn stays is similar across all payer types, including commercial insurers, self-pay, and other.

Newborns with NAS had more complications.

In FFY 2018, complications such as respiratory distress, difficulty feeding, low birth weight, and prematurity were more common among newborns with NAS compared to all other newborns.



Newborns with NAS had longer hospital stays.



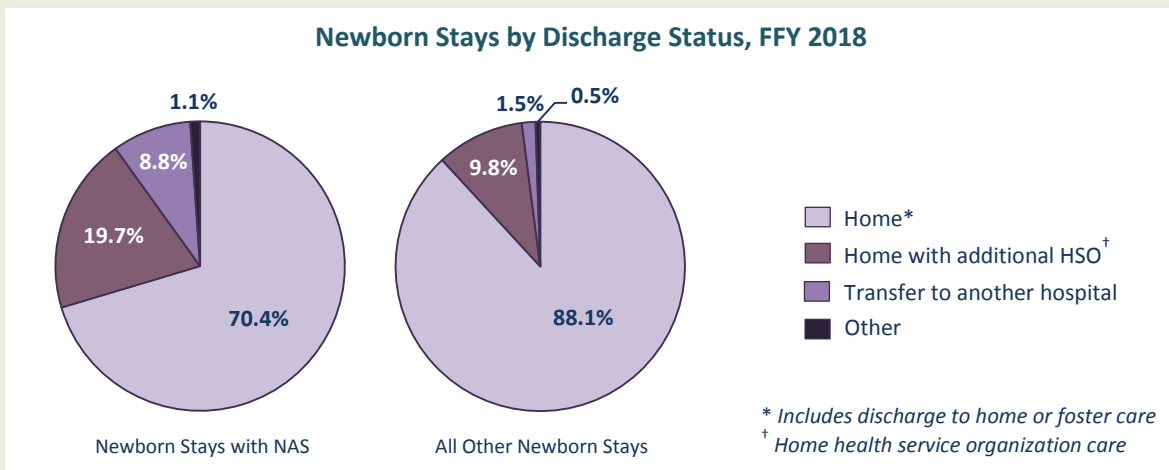
In FFY 2018, the average hospital stay for newborns with NAS was **15.9 days**, or nearly five times the average stay of 3.4 days for all other newborn stays.

Overall, this difference accounted for approximately **23,000 additional days** in the hospital for newborns with NAS.

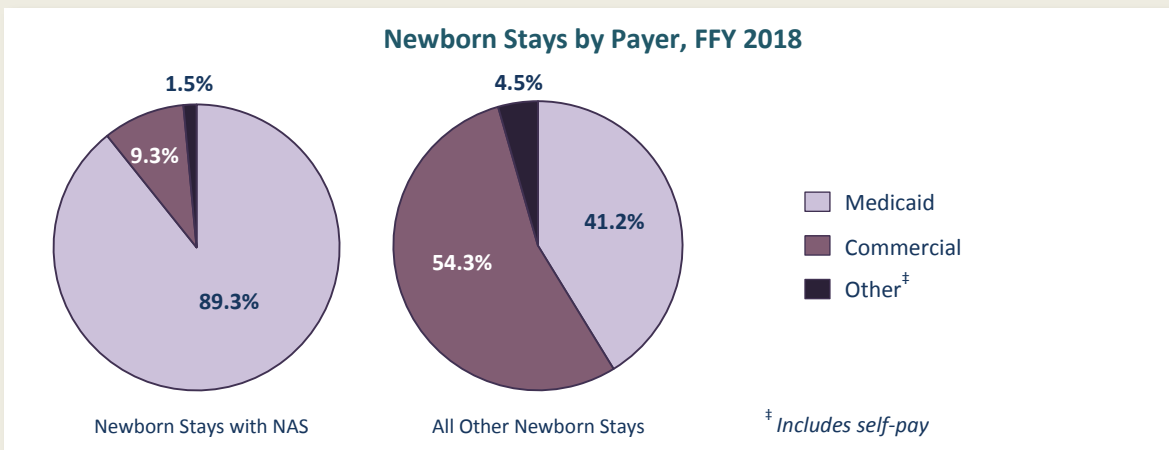
These additional days represented an estimated **5.1%** of the total hospital days for all newborn stays.

Newborns with NAS were:

- Less likely to be discharged home.** In FFY 2018, newborn stays involving NAS were discharged to home **70%** of the time, compared to **88%** of all other newborn stays.



- More likely to have hospital stays paid by Medicaid.** In FFY 2018, Medicaid was the anticipated primary payer in **89%** of NAS-related hospital stays, compared to **41%** of all other newborn stays.

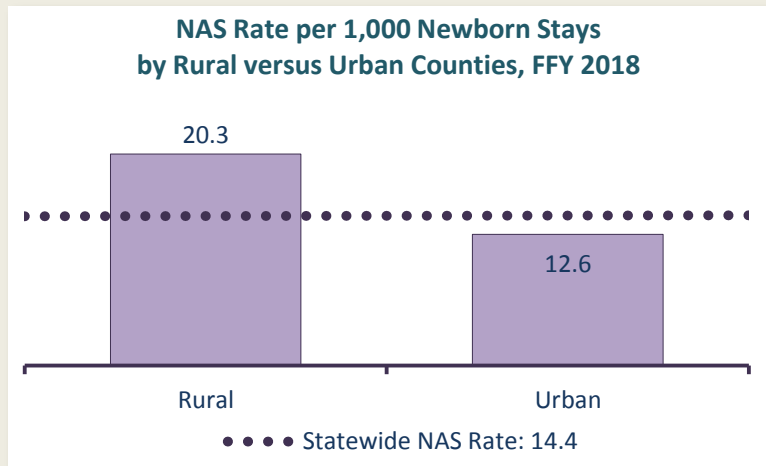


Note: Pie chart percentages may not add exactly to 100% due to rounding.

Demographic Differences – Newborn Stays with NAS

Statewide NAS Rate: 14.4 per 1,000 Newborn Stays in FFY 2018

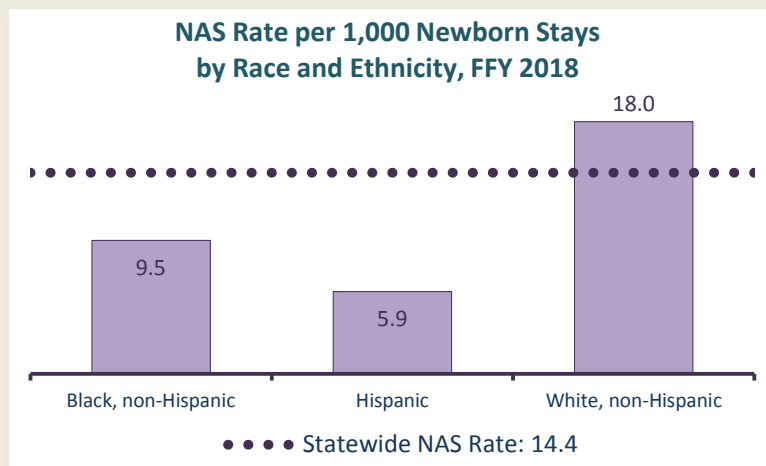
Rural versus urban



NAS rates were highest among residents of rural counties.

*Urban counties include: Allegheny, Beaver, Berks, Bucks, Chester, Cumberland, Dauphin, Delaware, Erie, Lackawanna, Lancaster, Lebanon, Lehigh, Luzerne, Montgomery, Northampton, Philadelphia, Westmoreland, and York. All other Pennsylvania counties are considered rural.
(Source: Center for Rural PA)*

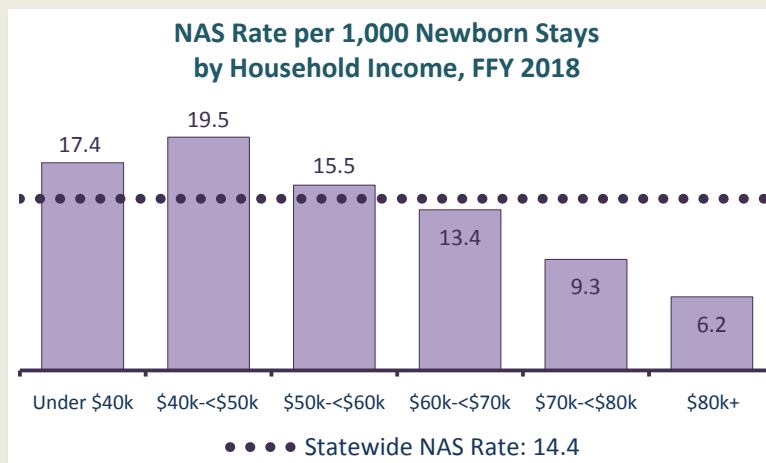
Race and ethnicity



NAS rates were highest among white, non-Hispanic newborns.

Rates were calculated based on the total number of newborn stays (PHC4 hospital admission data).

Household income



NAS rates varied by household income.

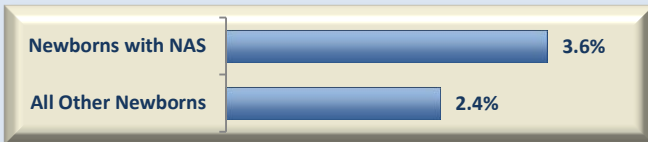
The annual median household incomes were approximated at the community level (patient zip code) using the most recent (2017) estimates provided by the U.S. Census Bureau's American Community Survey.

Newborn Stays paid by Medicaid, FFY 2017* Payments and Readmissions

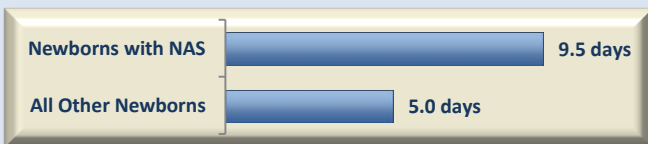
Average Payments for Newborn Stays



Percent Readmitted within 30 Days



Average Length of Stay for Readmissions



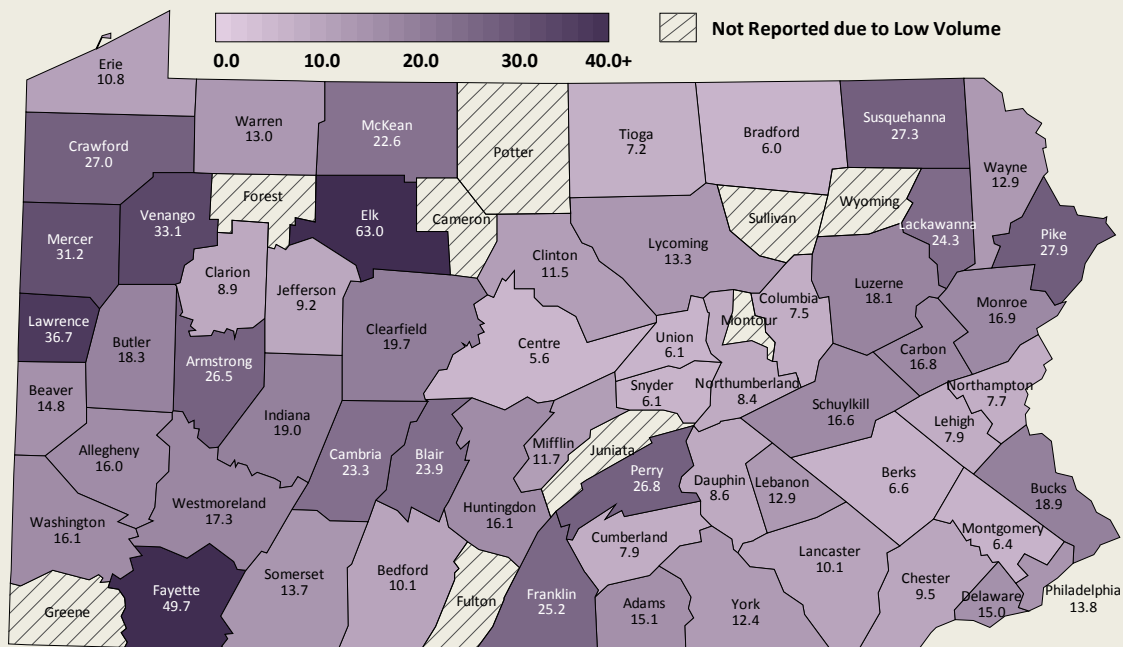
* Based on federal fiscal year 2017 Medicaid payment data (Oct 2016 to Sep 2017 newborn stays).

About PHC4

Created by the PA General Assembly in 1986, the PA Health Care Cost Containment Council (PHC4) is an independent state agency charged with collecting, analyzing and reporting information that can be used to improve the quality and restrain the cost of health care in the state. Today, PHC4 is a recognized national leader in public health care reporting. PHC4 is governed by a 25-member board of directors, representing business, labor, consumers, health care providers, insurers and state government.

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Rate of Neonatal Abstinence Syndrome per 1,000 Newborn Stays by County of Residence, FFY 2018



Statewide NAS Rate: 14.4 per 1,000 newborn stays

Rate of Neonatal Abstinence Syndrome per 1,000 Newborn Stays by County of Residence, FFY 2018

	Number of NAS Stays	Rate per 1,000 Newborn Stays
Statewide	1,833	14.4
Adams	13	15.1
Allegheny	202	16.0
Armstrong	13	26.5
Beaver	23	14.8
Bedford	NR	10.1
Berks	29	6.6
Blair	28	23.9
Bradford	NR	6.0
Bucks	88	18.9
Butler	33	18.3
Cambria	28	23.3
Cameron	NR	NR
Carbon	NR	16.8
Centre	NR	5.6
Chester	45	9.5
Clarion	NR	8.9
Clearfield	13	19.7
Clinton	NR	11.5
Columbia	NR	7.5
Crawford	22	27.0
Cumberland	19	7.9
Dauphin	28	8.6
Delaware	95	15.0
Elk	17	63.0
Erie	30	10.8
Fayette	59	49.7
Forest	NR	NR
Franklin	35	25.2
Fulton	NR	NR
Greene	16	NR
Huntingdon	NR	16.1
Indiana	13	19.0
Jefferson	NR	9.2

	Number of NAS Stays	Rate per 1,000 Newborn Stays
Juniata	NR	NR
Lackawanna	48	24.3
Lancaster	57	10.1
Lawrence	32	36.7
Lebanon	19	12.9
Lehigh	32	7.9
Luzerne	59	18.1
Lycoming	16	13.3
McKean	NR	22.6
Mercer	31	31.2
Mifflin	NR	11.7
Monroe	24	16.9
Montgomery	53	6.4
Montour	NR	NR
Northampton	23	7.7
Northumberland	NR	8.4
Perry	12	26.8
Philadelphia	284	13.8
Pike	NR	27.9
Potter	NR	NR
Schuylkill	21	16.6
Snyder	NR	6.1
Somerset	NR	13.7
Sullivan	NR	NR
Susquehanna	NR	27.3
Tioga	NR	7.2
Union	NR	6.1
Venango	14	33.1
Warren	NR	13.0
Washington	33	16.1
Wayne	NR	12.9
Westmoreland	50	17.3
Wyoming	NR	NR
York	55	12.4

NR: Not reported due to low volume of newborn stays and/or newborns stays with neonatal abstinence syndrome.