Importance of Data Disaggregation in VNPC QI Projects

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Virginia Neonatal Perinatal Collaborative

Data Disaggregation is breaking data down into subcategories such as race, insurance, age, etc. Disaggregated data allow for analysis to show differences and similarities between groups and show interactions between groups. For quality improvement (QI) projects at the Virginia Neonatal Perinatal Collaborative (VNPC), disaggregated data are collected and analyzed to best support improvement activities at participating facilities. These disaggregated data create opportunities to use data more effectively to find hidden trends, and confounding factors affecting outcomes.

Background

- Disaggregation highlights differences among demographic, social, environmental, and geographic factors.[7]
  - See VNPC reports examining differences among age, race, insurance, geography, rural/urban, and more.
- Aggregated or whole data can hide trends between groups.[1]
- Different communities and populations have different needs, and data reflecting these differences allows for targeted intervention.[1]
- Data disaggregation is an important step to achieving health equity.

Key Disaggregated Metrics in Virginia Maternal and Infant Health

- Black women are almost twice as likely to have a pregnancy associated-death compared to White women (70.7 vs 36.2 per 100k live births, respectively)[8]
- Stillbirth rates are higher in rural (0.091%) Virginia compared to urban (0.081%) and suburban (0.080%)[6]
- Substance Use Disorder in pregnant Virginians is over 21 times as common in Medicaid deliveries compared to private insurance (15.3 vs 0.7 per 100k deliveries, respectively)[2]
- Women having plural births (twins or more) are over 7 times more at risk to deliver between 22 and 23 weeks of gestation[3]
- White women are 1.5 times more likely to have a mental health diagnosis at the time of delivery compared to Black women (21.5% vs 13.3%, respectively)[4]
- Black infants are more than twice as likely to die than White infants (10.3 and 4.4 deaths per 1,000 live births, respectively)[5]

Correlation vs Causation

While disaggregation uncovers facts or correlation hidden in averaged data, it is still not able to provide the whole truth. The disaggregation of items helps to identify disparities, but it cannot alone establish causal relationships. For example, on the first page it is mentioned that White women are 1.5 times more likely than Black women to have a mental health diagnosis at the time of delivery. It can be tempting to see this disaggregation and think race alone is affecting a mental heath diagnoses but there is usually more to the story. This is only able to show a "correlation" between race and mental health but does not indicate that race is alone driving the differences in mental health diagnoses.

To help understand a causal relationship it is helpful to consider "confounding factors" which are outside factors that may be also affecting the outcome. In the case of mental health diagnoses at delivery, some key confounding variables may be things such as access to care, rurality, economic status, and more. Effective interventions should consider both the differences and similarities between racial groups while also examining other confounding variables to develop a more complete understanding of the factors influencing outcomes.

Steps for Disaggregating Data

1. Describe the Difference

Rates differ between each group.

2. Analyze the Difference

Demographic factors associate with different clinical outcomes.

3. Search for Confounders

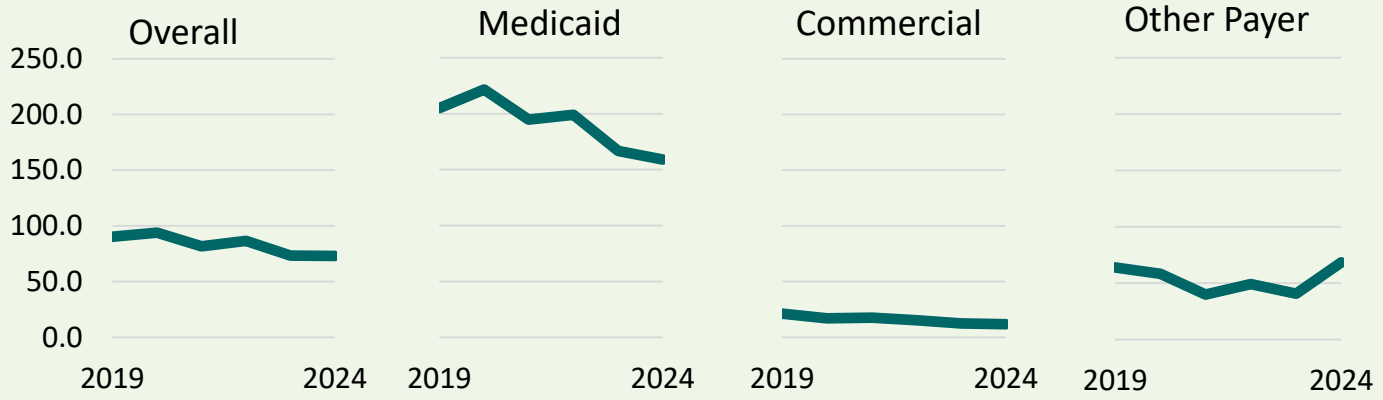
Different risk factors within demographic groups change the relationship.

4. Find Intervention Opportunities

The analysis points to improvement areas for processes and resources.

Substance Use varies greatly across payers in Virginia.[2]

SUD in pregnancy per 100k deliveries, 2019-2024.



The graphs above are showing substance use in pregnancy has great variety across payers in Virginia. This is an example of how disaggregation of data can change the narrative of the analysis. In these graphs, the main information being conveyed is that Medicaid supported deliveries have more diagnosed substance use disorder compared to Commercial/Private or other payer sources. An important caveat is that these graphs cannot characterize the differences, as there can be a multitude of causes for variations in SUD. The disaggregation can only definitively show there are differences that improvement programs will need to consider/investigate. With the analysis from these graphs, an appropriate strategy can be implemented to better understand why pregnant women on Medicaid are more likely to have substance use disorder and provide targeted interventions in all disaggregated populations to reduce the incidence. Targeted interventions are important for success to ensure efficiency of resources and sustained efforts. In this example, facilities will need to better understand the trends in these populations to see what is driving these differences. This disaggregation is a key component for enhanced understanding for successful quality improvement.

Discussion

Data disaggregation is a valuable tool to uncover hidden truths within data and can open the door for more targeted and effective quality improvement activities. It can highlight key differences between groups of different categories such as age, payer, races, and more. Uncovering these trends is an incredibly valuable tool to use for developing effective strategies for quality improvement by allowing for targeted strategies based on the different needs of different populations. Although, its important to understand that other "confounding factors" may also be affecting outcomes, and data disaggregation is not explaining the cause of an outcome but providing evidence of an area for improvement. When used thoughtfully, data disaggregation can be a powerful first step toward meaningful improvements in care and outcomes.

What You/ Your Facility Can Do

For facilities engaged in VNPC QI projects, we continue to encourage you to investigate how your systems can better incorporate data disaggregation techniques. Disaggregating QI data will help with achieving program goals while optimizing systems and ensuring sustained success. For questions/assistance feel free to reach out to the VNPC QI and Data teams.

Some Data Disaggregation Activities to Support Local QI Implementation

- Understand socioeconomic factors of your service population
- Consider how patients are getting to your facility
- Track outcomes across different populations/groups, and consider the potential causes
- Adjust your QI initiatives to accommodate the needs of your population

References

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