

Augustine (Auggie) Chung

M.P.H. Candidate, Health Policy Track

augustine.y.chung@Vanderbilt.Edu

Practicum Site: Tennessee Department of Health

Practicum Site Supervisor: Carolina Clark, M.D., M.P.H.

Comparison of Neonatal Abstinence Syndrome (NAS) Databases

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Introduction: The incidence of Neonatal Abstinence Syndrome (NAS) affects nearly seven newborns per 1000 newborn hospitalizations. In Tennessee, cases of NAS are reported through REDCap. The East Tennessee Health Information Network (eTHIN) consists of primarily 23 counties and has recently developed its own database of NAS case reports. This practicum initially compared REDCap and eTHIN NAS databases to determine discrepancies in submission information as well as discover strengths and weaknesses within each source. Additionally, recent decreases in NAS submissions in Tennessee prompted inquiry by TDH of their underlying reasons.

Methods: The comparison of NAS cases in REDCap and eTHIN was completed via Microsoft Excel. Daily submissions were compiled into 2 datasets then compared over the first 11 months of 2021. Analysis was constrained by matching cases from overlapping counties and hospitals present in both REDCap and eTHIN. Present and absent cases within each database was collected for analysis. For the investigation into decreased NAS submissions, a REDCap survey was created for hospitals to complete. Two interviews were also conducted.

Results: About 69% of eTHINs data was present in the REDCap data and about 39% vice-versa. REDCap reported a greater number of NAS cases from each hospital, due likely in-part to time between admission/discharge and reporting. In comparison, eTHIN often included NAS cases that occurred months prior. eTHIN received case submissions from a greater number of hospitals (when comparing East Tennessee counties only).

Conclusions: The REDCap NAS data included more case submissions than eTHIN. Hospitals showed inconsistency with their submission of NAS cases. While submissions were regular, they did not often include new cases, rather, large numbers of duplicates. Considerable additional data cleaning was required to conduct analysis based on these repeated submissions as well as small discrepancies in name, hospital, etc. More investigation is necessary to understand the underlying reason behind these differences.