



# Prevalence of Risk Factors Present at Birth Among Infants and Young Children Identified with a Late Onset Hearing Loss in Rhode Island, 2016-2020

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## Background

- Since the implementation of universal newborn hearing screening in Rhode Island, great strides have been made in early diagnosis and implementation of services for infants identified with permanent hearing loss.
- Current research indicates that nationally by the time children are school age the prevalence of permanent hearing loss doubles from 3 per 1000 to 6 per 1000. Identifying children with hearing loss occurring after the newborn period remains challenging.
- In Rhode Island 64,375 newborns were screened for hearing loss from 2016-2020. Of those 2.2% passed the newborn hearing screen and had risk factors for late onset hearing loss, 0.07% of those screened were diagnosed with late onset hearing loss as of Dec 2022.

## Purpose

- The purpose of the study was to evaluate the rates of hearing loss risk factors among children identified with late onset hearing loss.

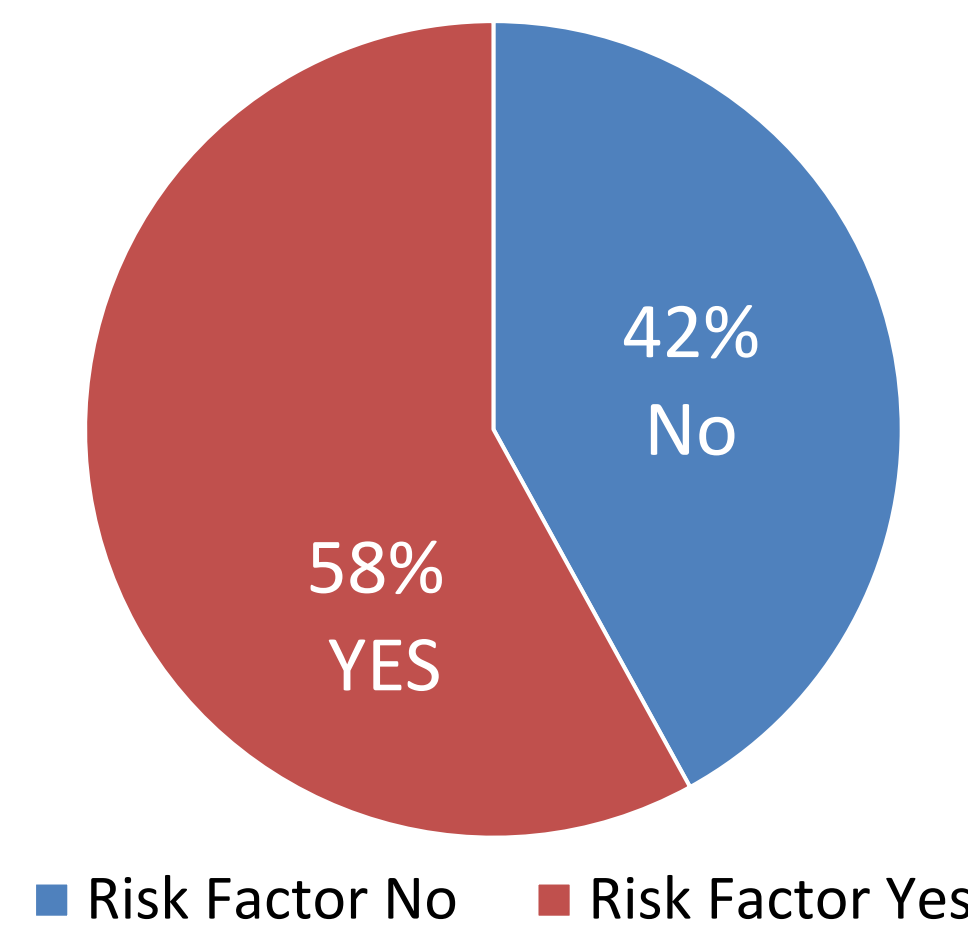
## Methodology

- The Rhode Island Department of Health EHDl Program reviewed data of 43 children born 2016 through 2020 who passed the newborn hearing screening but were later diagnosed with permanent hearing loss.
- Criteria for late onset were children born in Rhode Island, passed their newborn hearing screen and had confirmed permanent hearing loss
- The 43 records were stratified by risk factors reported on their newborn hearing screen and compared with those that did not have any risk factor reported on their newborn hearing screen. The average age of diagnosis was calculated for each child and averaged for each risk factor.

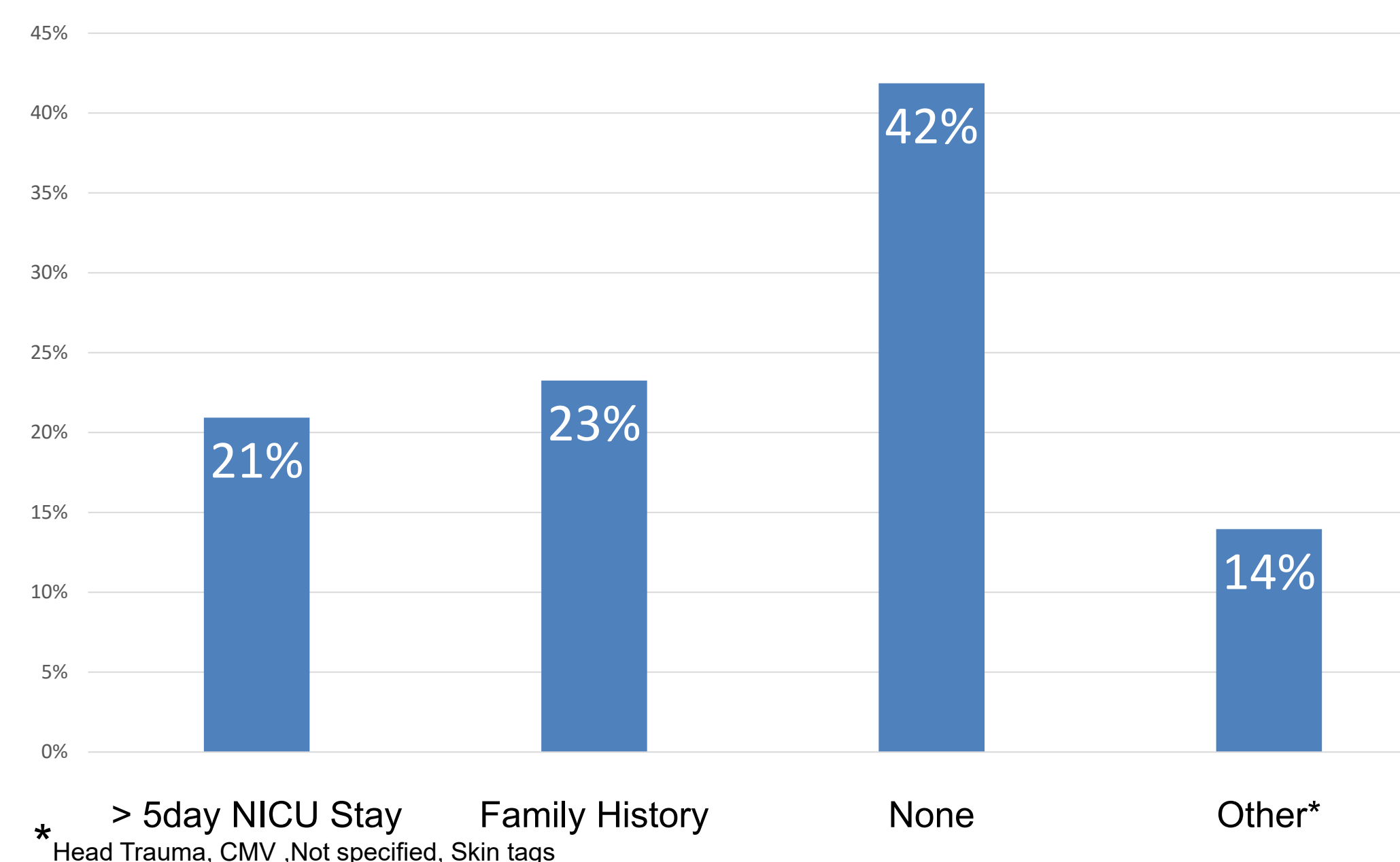
Among Infants Screened 2016-2020	Rate per 1000 Screened
Permanent hearing loss diagnosed during the newborn period (N=169)	2.62
Late onset hearing loss reported as of December 2022 (N=43)	0.67
Total newborn plus late onset hearing loss	3.3

## Results

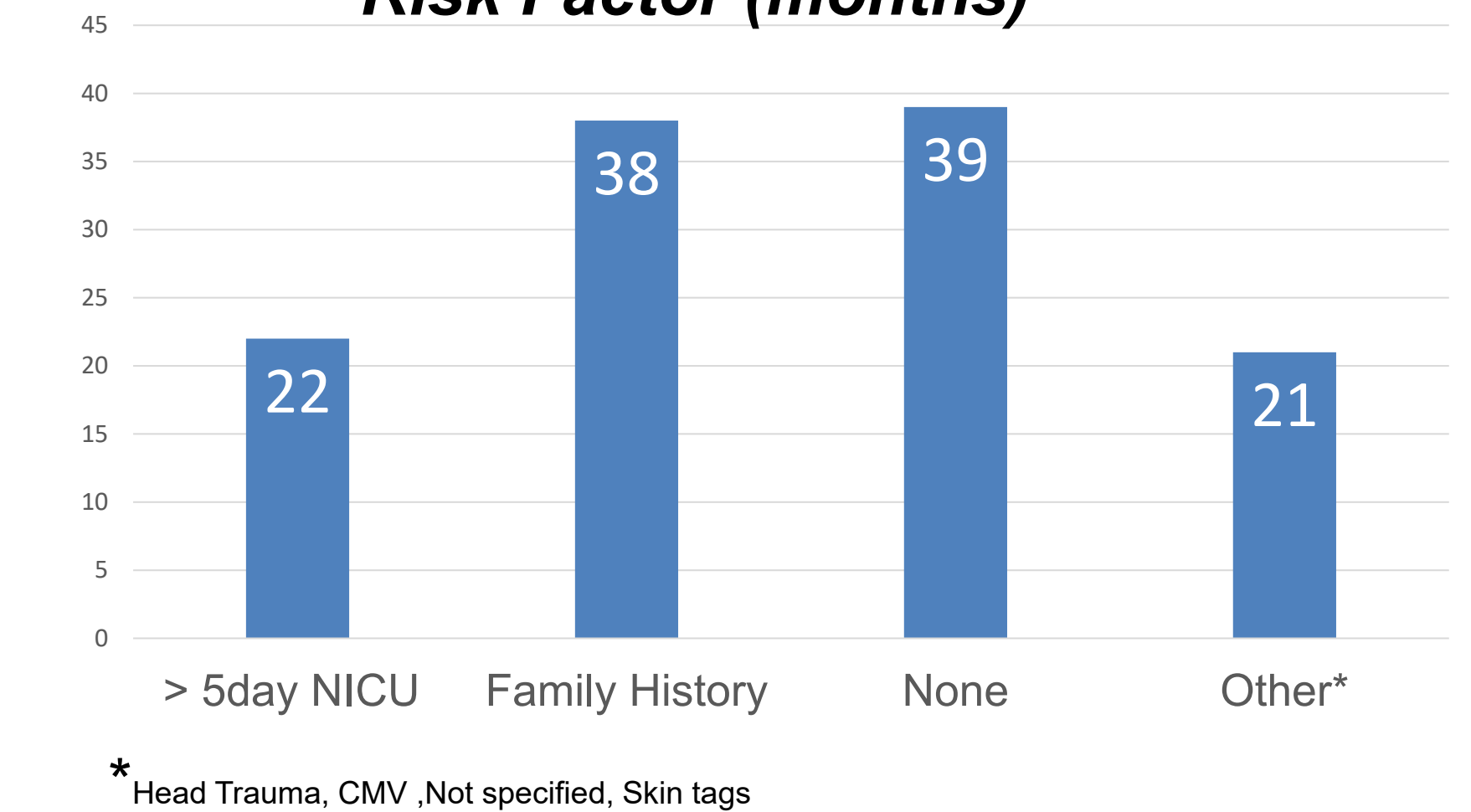
**Figure 1: Percentage of Children with Late Onset Hearing Loss Risk Factor at Birth.**



**Figure 2: Risk Factors Reported at Birth by Type**



**Figure 3: Average Age at Diagnosis by Risk Factor (months)**



## Discussion

- Over half of the children diagnosed with late onset hearing loss had passed their newborn hearing screening and had a risk factor reported at birth.
- The average age of diagnosis was 21-39 months. Additional children with late onset hearing loss may be identified as these original cohorts age, which could shift the cohort and average age of onset.

## Conclusions

- Following the Joint Committee on Infant Hearing recommendations of monitoring hearing for those with risk factors is supported by the range of age at diagnosis was 0 months to 72 months.
- Monitoring all children regardless of risk status is also supported based on nearly half of those identified had no reported risk factors and that the rate per 1000 of children with hearing loss increased over time from 2.26 to 3.3 per 1000.
- As EHDl develops a plan for screening beyond the newborn period there is a need to incorporate more robust risk factor education and monitoring to identify hearing loss earlier in children with reported risk factors.