



How has the Covid-19 Pandemic Affected the Timeliness of Hearing Screening Follow-up in Louisiana?

Tri Tran, MD, MPH ¹; Danielle Mercer, AuD ¹; Dawne McCabe, BS ¹; Terri Ibieta, M. Ed ¹

(1) Louisiana Office of Public Health, Early Hearing Detection and Intervention Program

BACKGROUND

Delayed follow-up visits after initial hearing screenings may affect timeliness of complete diagnosis of hearing loss, which is recommended by three months of age (Joint Committee on Infant Hearing). The Covid-19 pandemic has existed since March 2020 in the United States. The pandemic adversely impacted many health care services due to closure of health care facilities, limitation of time and number of available appointments because of staffing shortages, or patients cancelling appointments to reduce exposure risks. In Louisiana, newborn hearing screening may have been impacted as well.

Objectives of study: The study aimed to assess how timeliness of hearing screening follow-up visits were impacted during the pandemic in Louisiana. Trends of (1) time between inpatient newborn hearing screening and first follow-up visit, and (2) time between first and second follow-up visits were analyzed from January 2019 to September 2021.

Results of the study may help LA EHD I develop appropriate strategies to improve timeliness of hearing screening follow-up to ensure timely complete diagnosis of hearing loss during the pandemic.

METHODS

Data sources: The study used LA EHD I Surveillance data including 4,651 children who were born between Jan 2019 and Sept 2021 in Louisiana birthing hospitals, failed inpatient newborn hearing screening, and were born to Louisiana mothers.

Study outcomes: Length of (1) time between inpatient newborn hearing screening (NHS) and first follow-up visit, and (2) time between first and second follow-up visits.

Time of evaluation: Date of birth from January 2019 to September 2021 was classified into four periods:

- Period one: Jan - Dec 2019
- Period two: Jan - Mar 2020 when the pandemic started
- Period three: April - Dec 2020
- Period four: Jan - Sept 2021

Analysis method: Linear regression was used to evaluate time trends of study outcomes.

Length of time greater than 100 days was considered as an outlier and excluded from analysis. This excluded 5% of data from the analysis for time between inpatient NHS and first follow-up visit, and 15% for time between first and second visits.

Alpha value was set at .05 for statistical significance.

RESULTS

Figure 1: Mean of length of time between inpatient NHS and first follow-up visit from Jan 2019 to Sept 2021

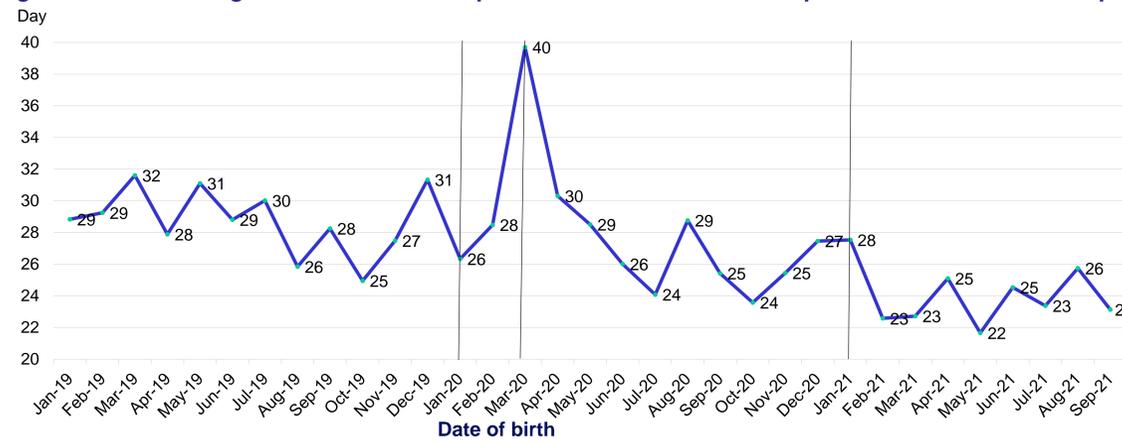


Figure 2: Mean of length of time between first and second hearing screening follow-up visits from Jan 2019 to Sept 2021

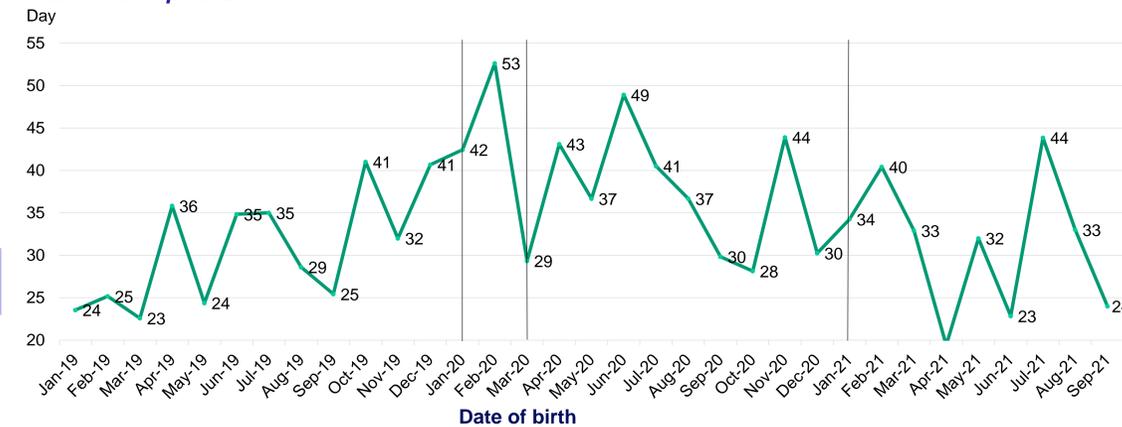


Table 1: Mean difference of length of time between inpatient NHS and first follow-up visit

Date of birth	Unadjusted			Adjusted*		
	Mean difference	95% CI	P value	Mean difference	95% CI	P value
Jan -Dec 19	Reference	-	-	Reference	-	-
Jan -Mar 20	2.5	0.4, 4.6	0.0198	3.9	1.8, 5.9	0.0002
Apr -Dec 20	-2.1	-3.4, -0.8	0.0016	-1.3	-2.6, -0.1	0.0494
Jan -Sept 21	-4.7	-6.1, -3.4	<.0001	-3.7	-5.0, -2.3	<.0001

*Adjusted for follow-up visit scheduled before hospital discharge, birth weight, geographic area of residence, and birth plurality

Table 2: Mean difference of length of time between first and second follow-up visits

Date of birth	Unadjusted			Adjusted*		
	Mean difference	95% CI	P value	Mean difference	95% CI	P value
Jan -Dec 19	Reference	-	-	Reference	-	-
Jan -Mar 20	13.7	3.9, 23.5	0.0061	13.9	4.3, 23.4	0.0046
Apr -Dec 20	7.9	1.9, 13.8	0.0101	8.1	2.2, 13.9	0.0070
Jan -Sept 21	1.7	-4.8, 8.2	0.6121	1.8	-4.6, 8.2	0.5841

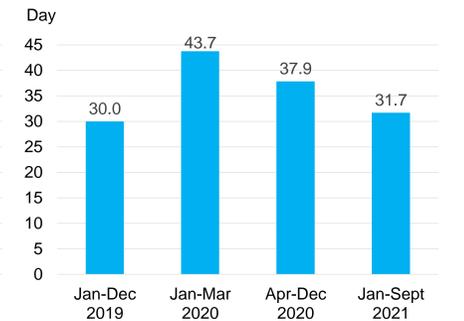
*Adjusted for birth weight and geographic area of residence

RESULTS

Figure 3: Mean of length of time between inpatient NHS and first follow-up visit by time period



Figure 4: Mean of length of time between first and second follow-up visit by time period



- The length of time between inpatient NHS and first follow-up visit was fairly stable between Jan and Dec 2019 with mean of 28.8 days. It increased between Jan and Mar 2020 when the Covid-19 pandemic started with mean increasing up to 31.3 days. However, the length of time decreased after Mar 2020 with mean of 26.7 days between Apr and Dec 2020, and then stabilized with mean of 24.1 days between Jan and Sept 2021. In adjusted regression model, compared to a time period from Jan to Dec 2019, mean of the length of time was 3.9 days higher between Jan and Mar 2020, 1.3 days lower between April and Dec 2020, and 3.7 days lower between Jan and Sept 2021. (Table 1)

- Of 4,651 children who failed inpatient NHS and received a first follow-up visit, 384 of those who failed rescreening or needed further testing received the second follow-up visit. The length of time between first and second visit started to increase in the last quarter of 2019 and increased at a higher rate in the first quarter of 2020 with mean of 43.7 days vs. 30 days between Jan and Dec 2019. Similar to the time between inpatient NHS and first follow-up visit, the length of time between first and second follow-up visit began to decrease after Mar 2020 with mean of 37.9 days between Apr and Dec 2020, and 31.7 days between Jan and Sept 2021. In adjusted regression model, compared to a time period from Jan to Dec 2019, mean of the length of time was 13.9 days higher between Jan and Mar 2020, 8.1 days higher between April and Dec 2020, and there was no difference between Jan and Sept 2021. (Table 2)

CONCLUSIONS

- Timeliness between inpatient NHS and first follow-up visit and between first and second follow-up visits were both adversely impacted when the pandemic began in the first quarter of 2020, but improved after that. They continuously decreased after Mar 2020 through Sept 2021, and length of time between inpatient NHS and first follow-up visit became shorter than before the pandemic started, while the length of time between first and second follow-up visit remained the same as before the pandemic started.

- Hospitals and outpatient clinics took actions that likely mitigated the effects of clinic closures due to the Covid-19 pandemic. Many facilities reported making repeated contacts to families to update them on clinic protocols and reschedule, as needed. In addition, accommodations were sometimes made to maximize the number of infants with complete follow-up testing, such as the provider meeting the family at their car to test the baby, minimizing the family's exposure risks.

More information request via: Tri Tran, tri.tran@la.gov