**Supplemental File S1.** Detailed information on the enrollment period for each state

Infants who were born before December 2010 were enrolled into the *pre-mandate* cohort. It is unlikely that widespread pulse oximetry screening was performed in the *pre-mandate* cohort because that timeframe is before the recommendation by the Secretary of Health and Human Services (HHS) in 2011. We define babies born after the month pulse oximetry screening became mandated in each state as the *post-mandate* cohort.

The enrollment period length for *pre-* and *post-mandate* cohorts was based on availability of data to the team during this study.

The newest data available were from the year 2014, so babies born between the month pulse oximetry screening became mandated in their state and December 2014 were assigned to the *post-mandate* cohort. The oldest data available was from the year 2008, so only babies born after January 2008 were included in *pre-mandate* cohort. The enrollment period for the *pre-mandate* cohort was determined to match the length of enrollment period for *post-mandate* cohort. For example, in NJ, a mandated pulse oximetry screening policy was implemented on August 31, 2011.1  Therefore, the enrollment period for the *post-mandate* cohort was between January 2012 and December 2014 (36 months). To match the length of the *post-mandate* enrollment period,the period betweenJanuary 2008 and December 2010 (36 months) was selected as the *pre-mandate* cohort in NJ. Due to human subject research protections, exact dates of birth were unavailable to our research team. Therefore, if mandatory screening was not effective on the first day of the month, data for that month were not included in the study. Instead, the next month was used as the start of policy implementation. For example, in NY, a mandated pulse oximetry screening policy became effective on January 27, 2014.2 Therefore, patients admitted in January 2014 were excluded, and those admitted after February 2014 were included in the study, yielding a first quarter in 2014 between February and March. To match the enrollment period, patients admitted in January 2010 were also excluded, yielding a first quarter in 2010 between from February and March.

Detailed information on the enrollment period for each state is shown in Supplemental Table S2.

**REFERENCE**

Supplement 1. The New Jersey Department of Health (NJDOH) tNJC, American Academy of Pediatrics (NJAAP), Rutgers, The State University of New Jersey. Critical Congenital Heart Defects Screening, New Jersey Reference Guide. 2016;2019.

Supplement 2. Test for phenylketonuria and other diseases and conditions, NY Pub Health L § 2500-A (2012).

**Supplemental File S2.** The linear segmented regression models for interrupted time series

The following linear segmented regression models for interrupted time series were used in this study.

*where E(Y)* is expected value of the dependent variables, corresponding to number of patients with*CCHD-negative Echo*, number of transfer of patients with*CCHD-negative Echo,* and number of patients with CCHD diagnoses admitted to hospitals within three days after birth. *time* refers to quarters from an initial point, which is January to March in 2008; *post* is a dichotomous indicator variable for time period, designated as 1 if *post-mandate*, and 0 if *pre-mandate*; and λ are state-specific effects captured by state dummy variables. χ refers state characteristics, which include percentage of birth from Black mothers, percent of plural term birth, and unemployment rate. The long number of quarterly births in a state was included as an offset.

Mean response in *pre-* and *post-mandate* periods are:

*pre-mandate*

*post-mandate*

Therefore, *β3* provides a measure of the difference in trend in E(Y) between *pre-*and *post- mandate.*

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| **Supplemental Table S1.** *International Classification of Diseases, Ninth Revision, Clinical Modification* (ICD-9-CM) code to identify Critical Congenital Heart Disease | |
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| **Critical Congenital Heart Disease** | **ICD-9 Diagnostic Code(s)** |
| Hypoplastic Left Heart Syndrome | 746.7 |
| Pulmonary Atresia | 746.01 |
| Dextro-Transposition of the Great vessels and single ventricle | 745.1 |
| Truncus Arteriosus | 745 |
| Tricuspid Atresia | 746.1 |
| Tetralogy of Fallot | 745.2 |
| Total Anomalous Pulmonary Venous Connection | 747.41 |
| Aortic Stenosis | 746.3 |
| Coarctation of Aorta, including Interrupted Aortic Arch | 747.1, 747.21, |
| Double Outlet Right Ventricle and Single Ventricle | 745.11, 745.3 |

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| --- | --- | --- | --- |
| **Supplemental Table S2**. Enrollment date for each period | | | |
|  | Implementation date for mandatory screening policy | *Pre-mandate* period | *Post-mandate* period |
| NJa | August 31st, 2011 | 2008 QRTg 1-  2010 QRT 4 | 2012 QRT 1 - 2014 QRT 4 |
| MDb | September 1st, 2012 | 2008 QRT 4-  2010 QRT 4 | 2012 QRT 4 - 2014 QRT 4 |
| NYc | January 27th, 2014 | 2010 QRT 1-  2010 QRT 4 | 2014 QRT 1-  2014 QRT 4 |
| (Exclude January from 2010 Q1) | (Exclude January from 2014 Q1) |
| KYd | January 1st, 2014 | 2010 QRT 1-  2010 QRT 4 | 2014 QRT 1-  2014 QRT 4 |
| NCe | July 25th, 2014 | 2010 QRT 3-  2010 QRT 4 | 2014 QRT 3-  2014 QRT 4 |
| (Exclude July from 2010 Q3) | (Exclude July from 2014 Q3) |
| MIf | April 1st, 2014 | 2010 QRT 2--  2010 QRT 4 | 2014 QRT 2--  2014 QRT 4 |
|  |  |  |  |
| a New Jersey implemented the mandatory screening policy on August 31, 2011 | | |  |
| b Maryland implemented the mandatory screening policy on September 1, 2012 | | |  |
| c New York implemented the mandatory screening policy on January 27, 2014. Therefore, the patients who were admitted in January 2014, were excluded from the study, and the first quarter in 2014 consisted from February and March in 2014. To match the enrollment period, the patients who were admitted in January 2010 were also excluded, and the first quarter in 2010 consisted from February and March in 2010. | | | |
| d Kentucky implemented the mandatory screening policy on January 1st, 2014. | | |  |
| e North Carolina implemented the mandatory screening policy on July 25th, 2014. Therefore, the patients who were admitted in July 2014, were excluded from the study, and the third quarter in 2014 consisted from August and September in 2014. To match the enrollment period, the patients who were admitted in July 2010 were also excluded, and the third quarter in 2010 consisted from August and September. | | | |
| f Michigan implemented the mandatory screening policy on April 1st, 2014 | | |  |
| g Quarterly | | |  |

![A close up of a map

Description automatically generated]()

\*: Quarterly hospitalization rate of critical CHD-negative Echo was defined as number of patients who underwent diagnostic echocardiograms one to three days after birth, but were discharged without a critical CHD diagnosis divided by number of live birth in a given quarter.

Change in number of patients with critical CHD-negative Echo in the *pre-mandate* cohort: [1.08 (1.01-1.16) *p* = .02]

Difference in slope between *pre-* and *post-mandate* cohorts: [0.93 (0.84-1.03) *p* = .14]