



cCMV Surveillance in Minnesota

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cCMV surveillance in Minnesota



Case ascertainment

- Universal screening – majority of cases
- Reportable condition
 - Health care providers, labs, etc required to report ([electronic reporting form and ELR](#))

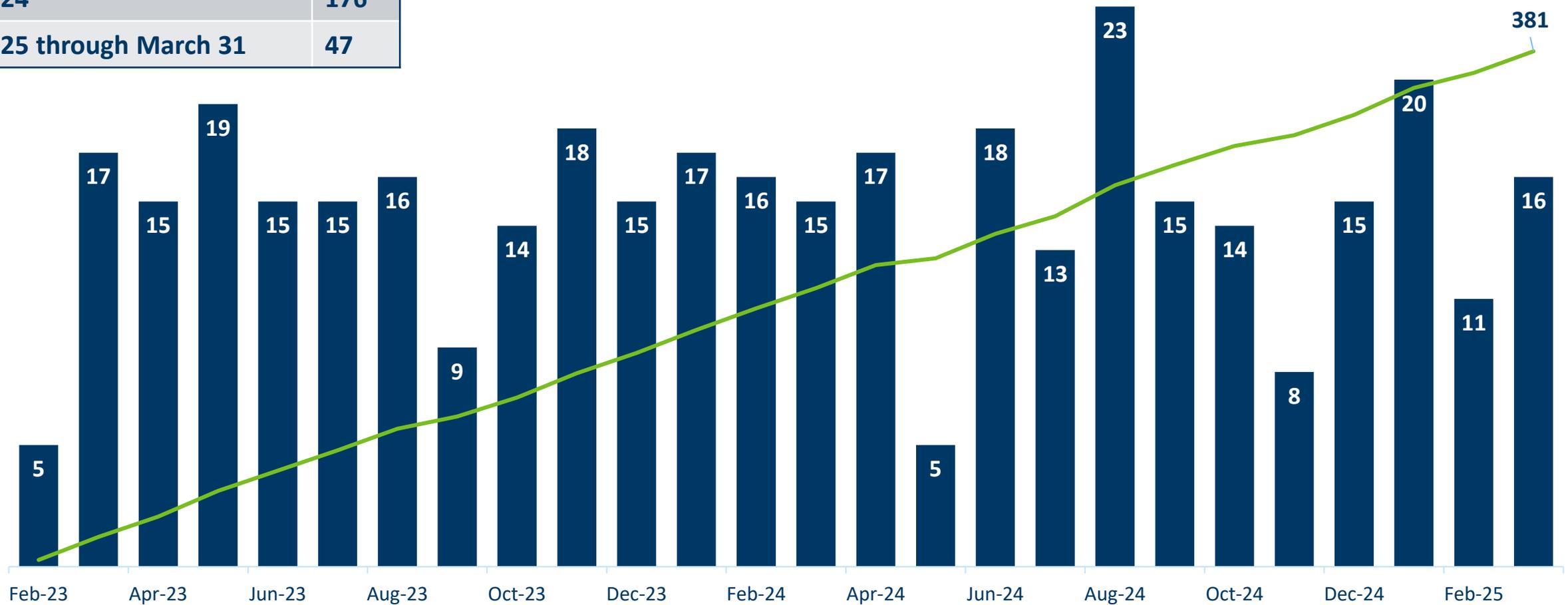
Data sources

- Newborn Screening (NBS)
- MDH EHDI
- MDH Birth Defects
- Vital records data - birth and death records
- Chart abstractions

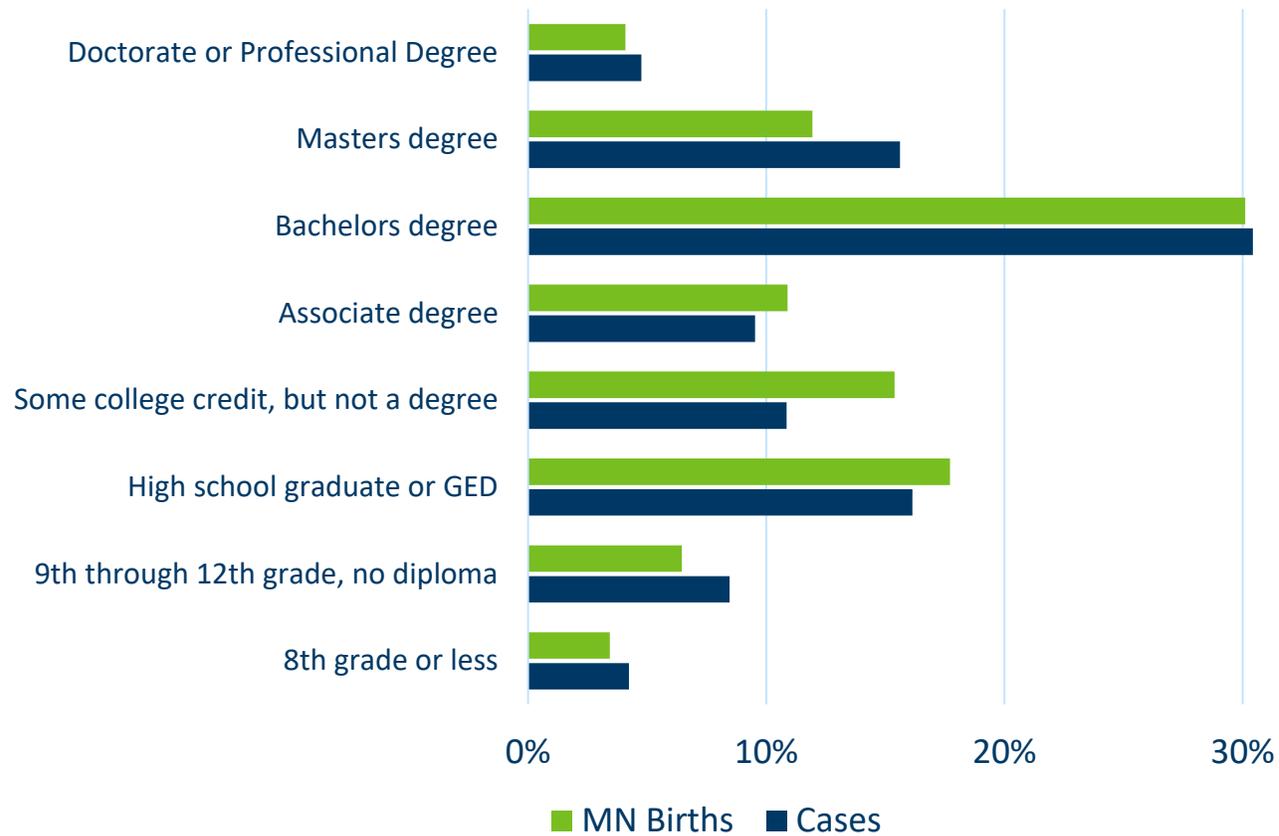


cCMV cases in MN residents Feb 2023-March 2025

2023 starting February 6	158
2024	176
2025 through March 31	47

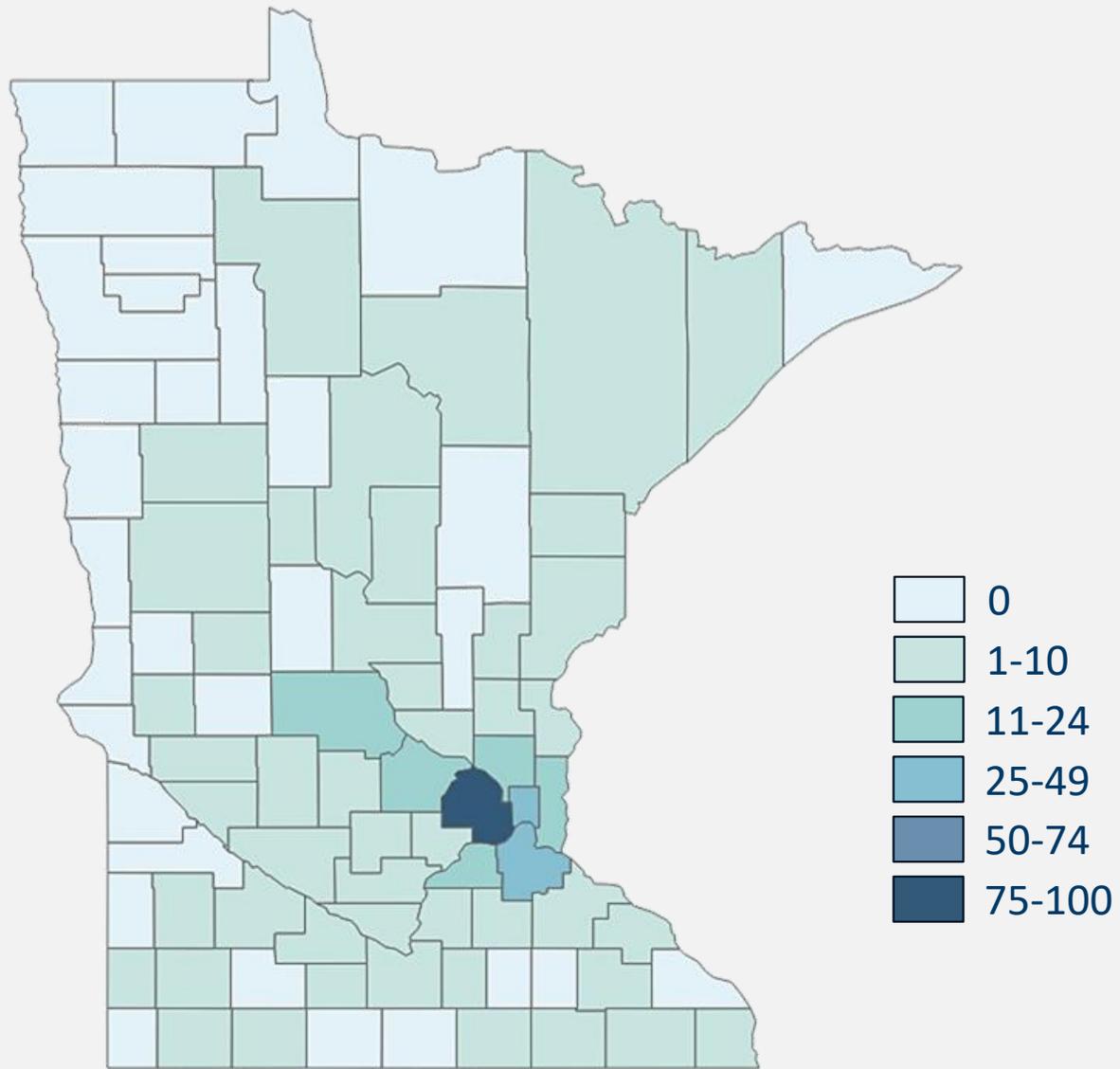


Mother's education at time of birth



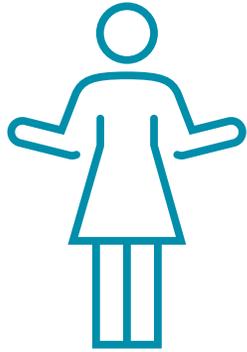
Metro vs Non Metro cCMV cases





cCMV in Minnesota

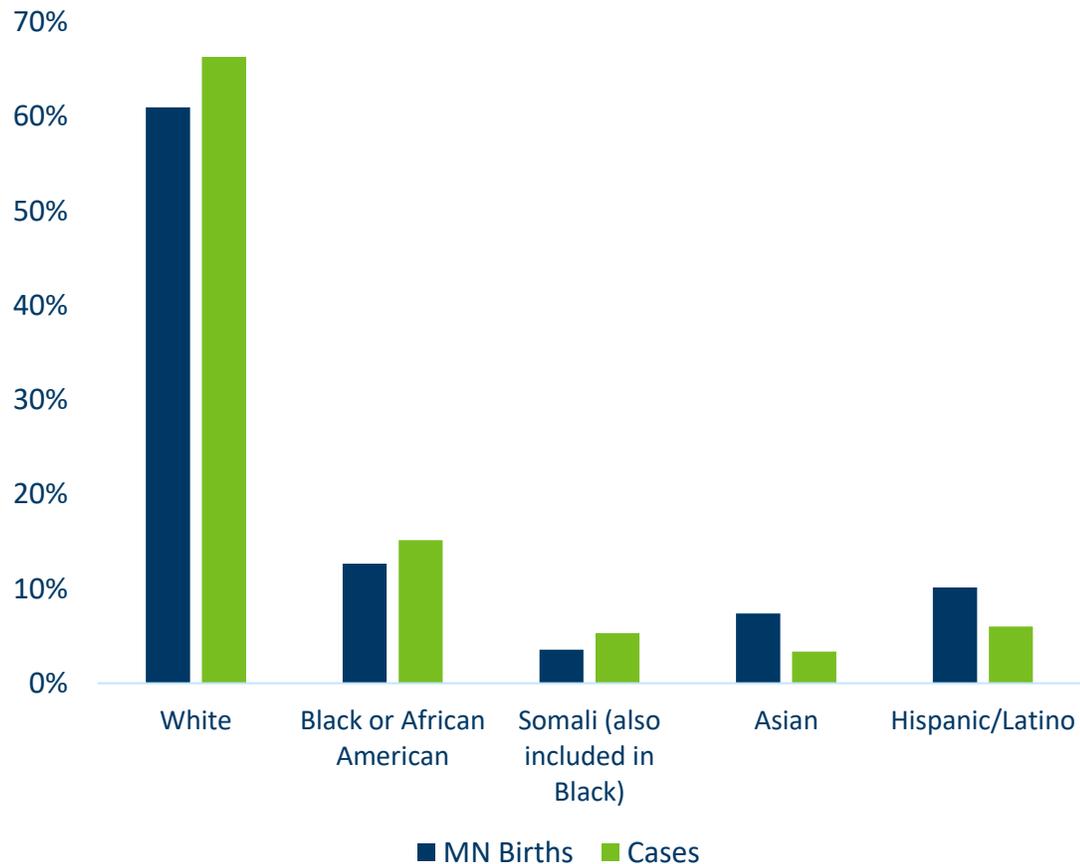
cCMV cases vs MN births



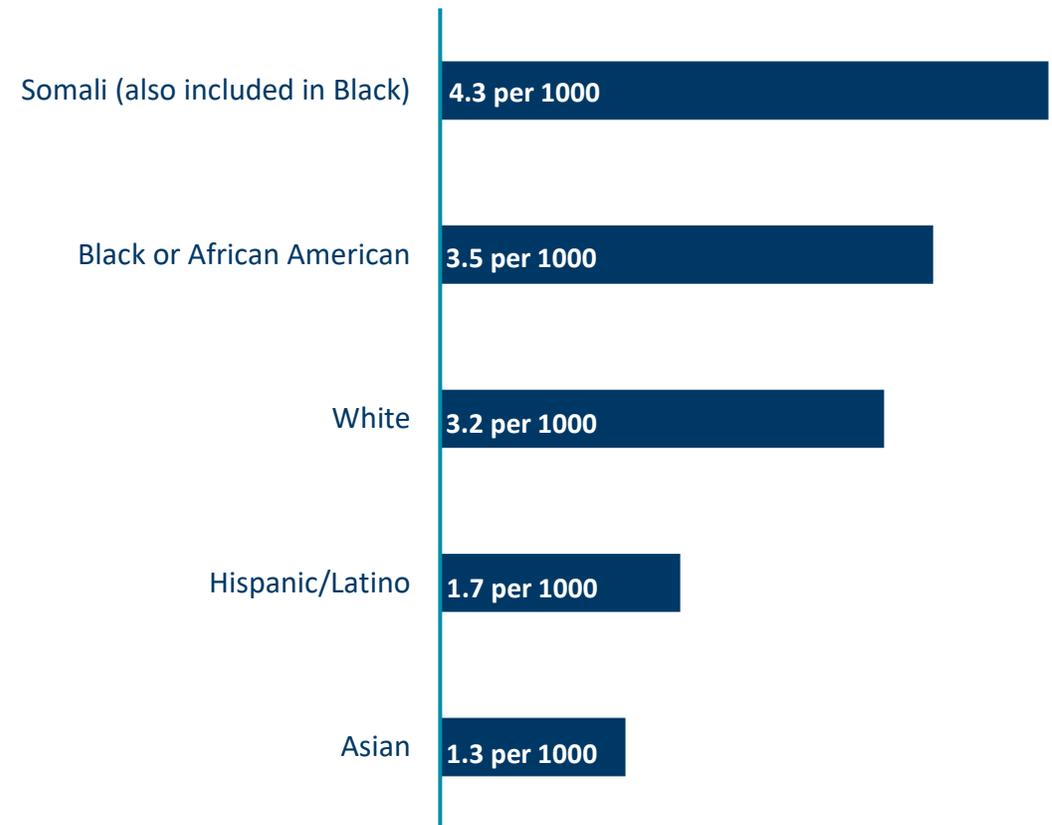
	Mother's Age at delivery	Estimated gestational age	Baby birthweight	1 or more previous living children
cCMV Cases	29.9	38.2	3212	78%
MN Births	30.4	38.4	3310	63%

Race (alone and in combination) and ethnicity

cCMV Cases and MN births by birth mother's race and ethnicity



Cases per 1000 by birth mother's race and ethnicity



cCMV infection vs. disease

Clinical criteria at birth

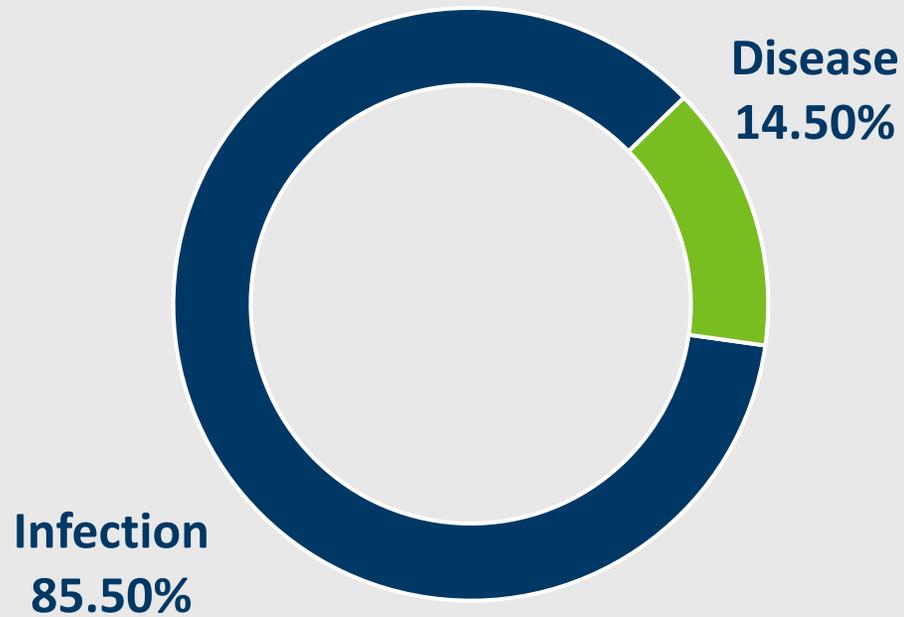
- Hepatomegaly
- Splenomegaly
- Petechial rash

Clinical criteria through age 6

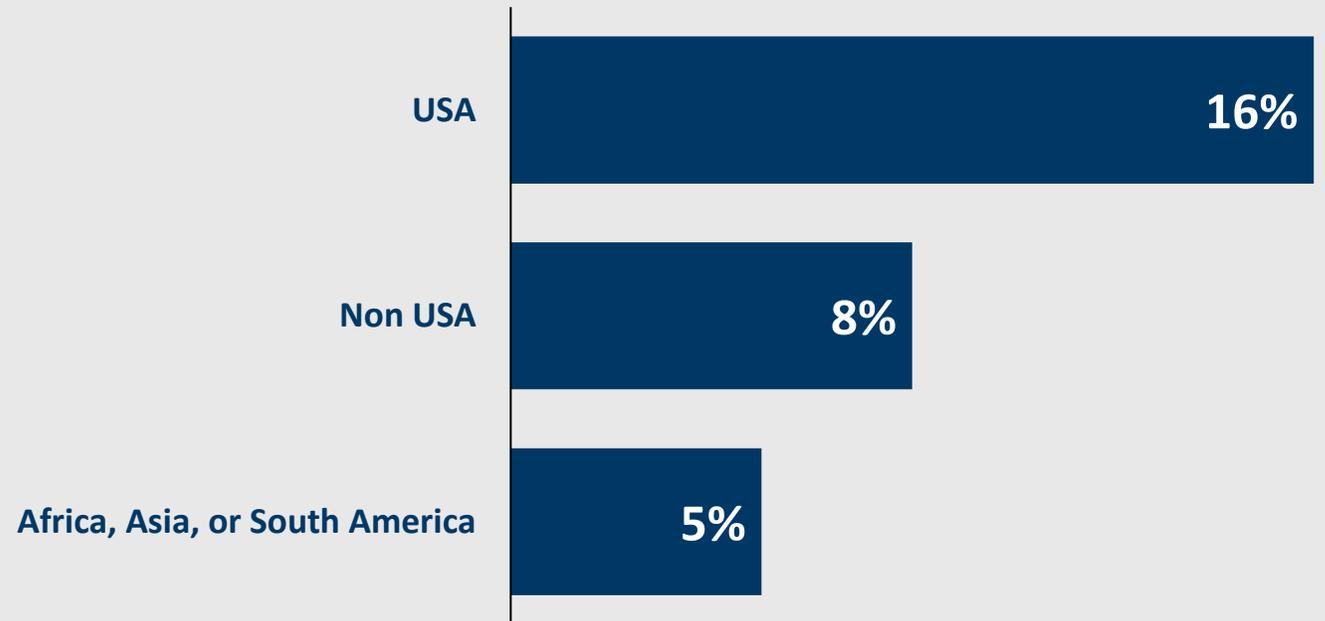
- Microcephaly
- Brain imaging abnormalities consistent with cCMV
- Sensorineural hearing loss
- Cerebral Palsy
- Seizures
- Chorioretinitis
- Vision impairment resulting from condition consistent with cCMV

cCMV infection vs. disease (cont.)

Infection vs Disease overall



Percent of cases classified as having disease by mother's birth country



Symptoms and brain abnormalities identified

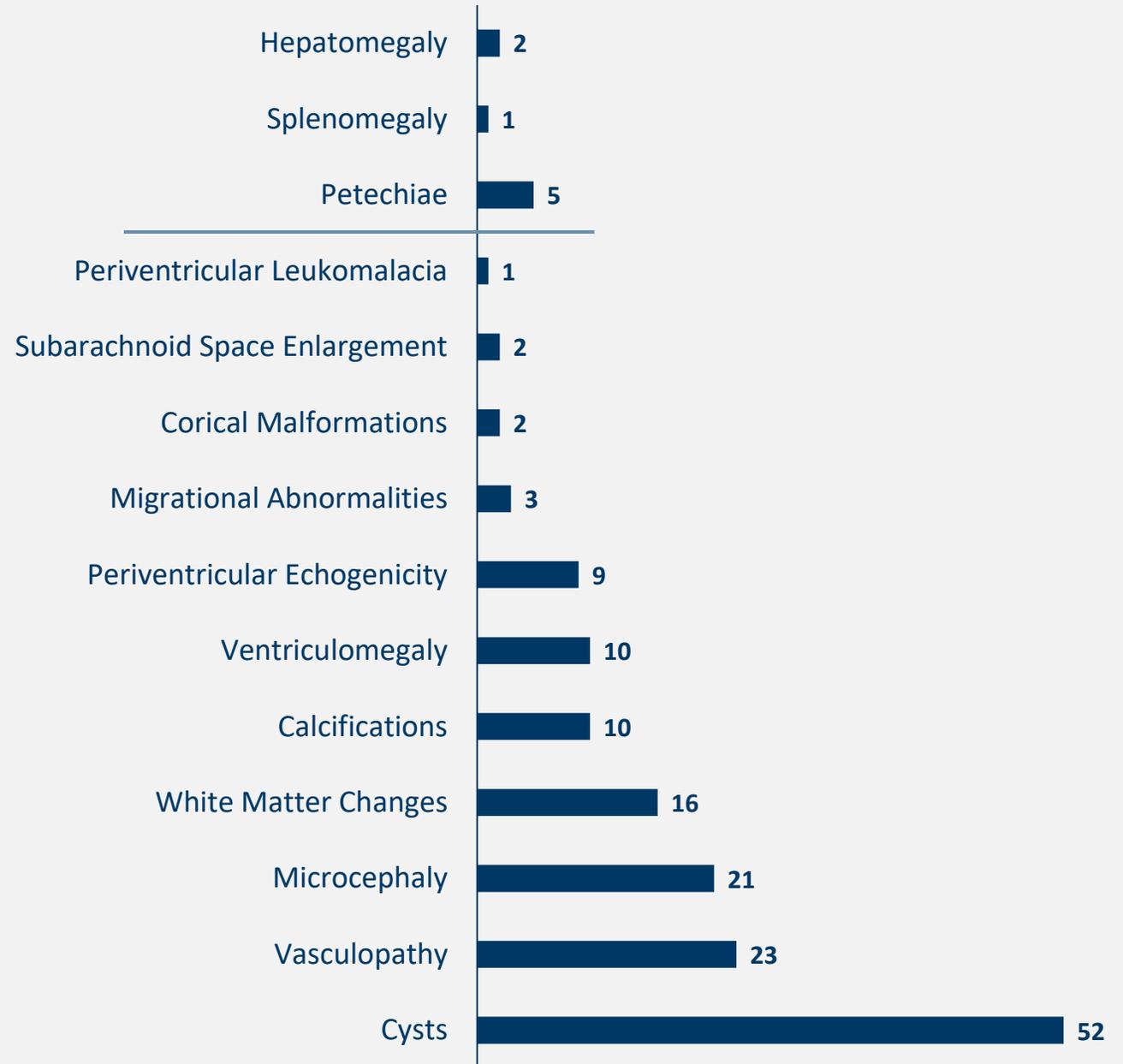
60.6% - Asymptomatic (231/381)

No brain abnormalities, no symptoms, no concerns on any evaluations

12% - brain abnormalities (47/381)

Excluding cysts

13% cases received antivirals



Longitudinal follow-up: 1 year

200 cases born Feb '23 – Mar '24

- 6 were excluded: 4 moved out of state, 2 deaths

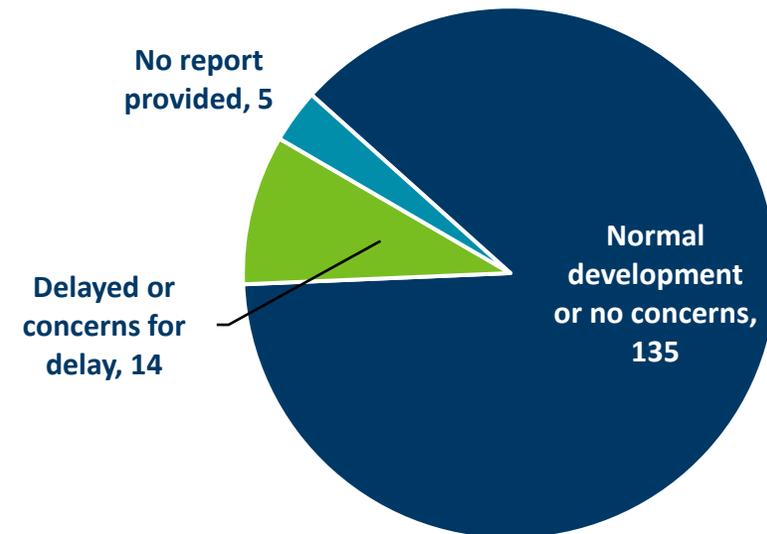
89% (177) documentation of attending a 12m well child visit

6% (12) did not attend 12m well child visit

6% (11) pending

87% (154) of children seen at 12m had documentation of developmental screen at visits

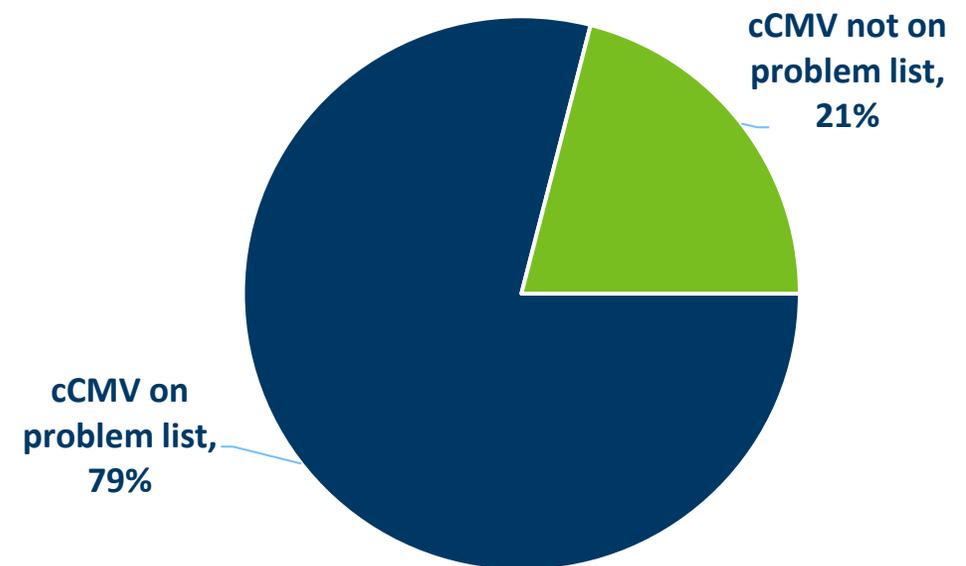
87% of children with documentation of screen no developmental concerns



Longitudinal follow-up: 1 year (cont.)

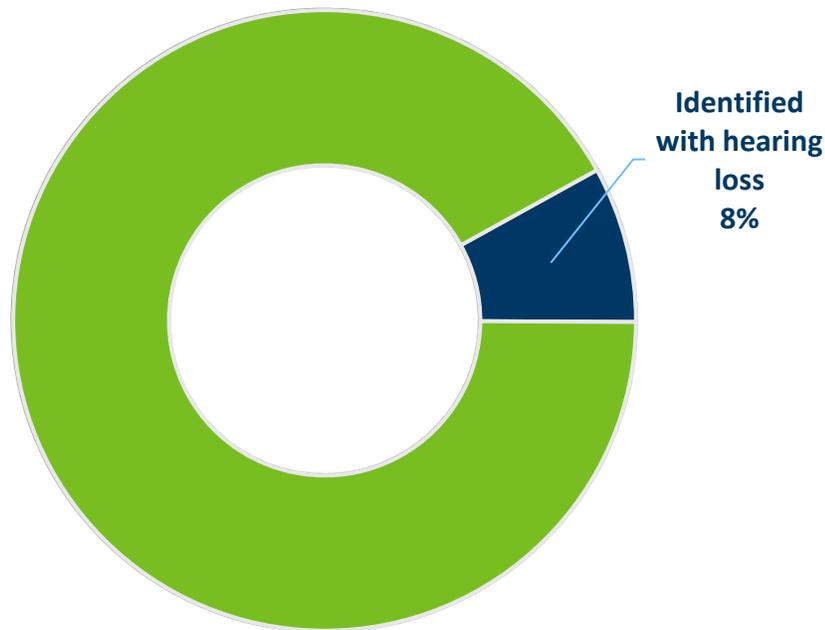
- **4/5** children with microcephaly at birth no longer microcephalic at 1 year
- 1 infant diagnosed with seizures
- 1 infant diagnosed with cerebral palsy

21% of children no longer had cCMV on their problem list at 12 month visit



Sensorineural hearing loss (Feb 2023 – March 2025)

8% of Children identified with cCMV in Minnesota since cCMV surveillance began have been identified with sensorineural hearing loss

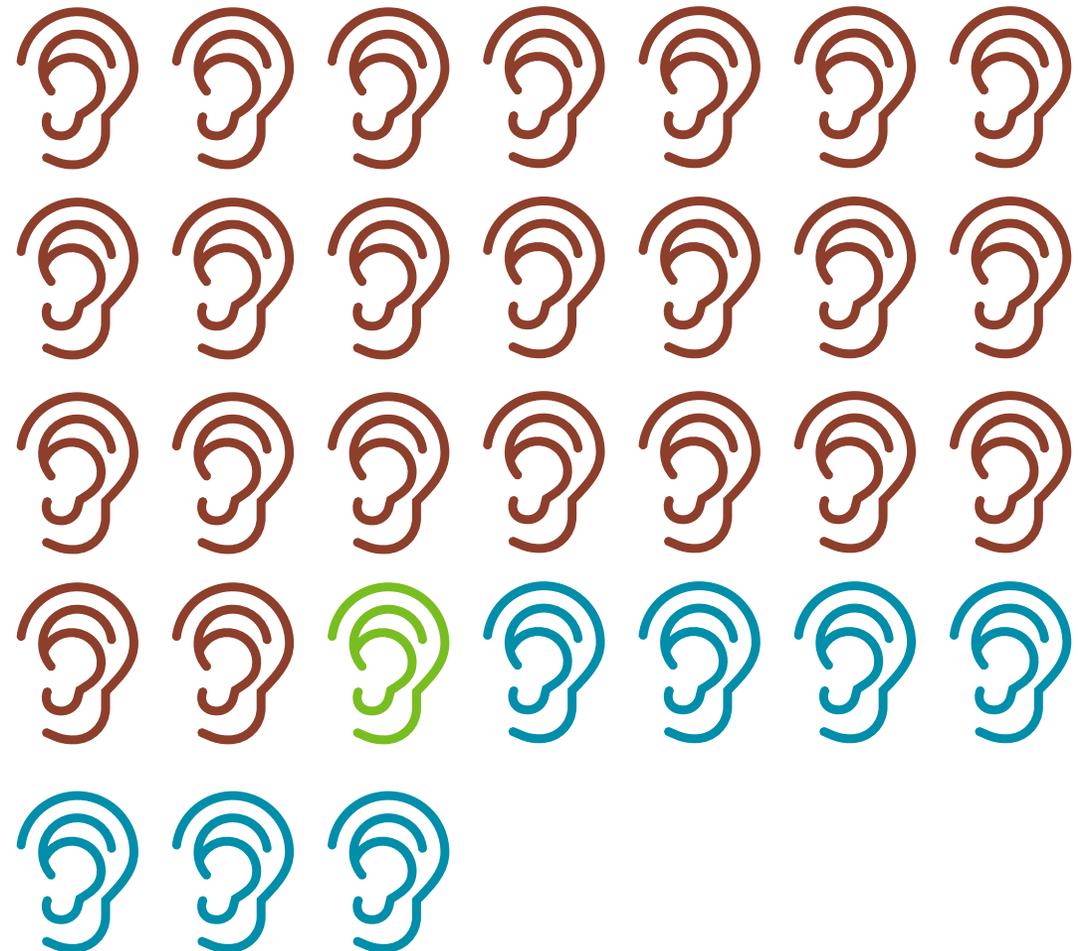


- 31 children identified with sensorineural hearing loss
- 3 of 31 had no hearing loss at initial audiology evaluation

31 children identified with sensorineural hearing loss

Initial Hearing Screen

- Referred – 23
- Not tested – 1
- Passed – 7



Sensorineural hearing loss

7 children with hearing loss passed initial hearing screen

- 4 had no signs or symptoms at birth



Symptoms in cases with hearing loss

- 32% (10) of children identified with hearing loss had symptoms at time of birth
- 57% had abnormalities seen on initial brain imaging
 - 40% when cysts were excluded

- Symptoms at birth included:
 - IUGR (4)
 - Microcephaly(3)
 - Neutropenia(2)
 - Petechia(2)
 - Thrombocytopenia(2)
 - Elevated liver enzymes(1)
 - Hepatomegaly(1)
 - Jaundice(1)
 - Splenomegaly(1)

Ophthalmology findings

- 6 children diagnosed with cCMV had some kind of eye abnormality found on ophthalmology exam
 - Macular scars
 - Cortical blindness
 - Unspecified retinal disorder
 - Retinal hemorrhages
 - Optic nerve hypoplasia



Challenges and limitations

- NBS vs Surveillance work
- Symptomatic vs asymptomatic
- Chart abstractions are time consuming
- Microcephaly and brain imaging
- Developmental status
- Difference between not attending visits and not finding charts
- Differences in chart access



- Finding cases
 - Getting kids in for hearing evaluations where cCMV would not have been suspected
 - Passed initial hearing screen, no obvious symptoms
 - Treatment for children with brain findings we wouldn't have otherwise seen
 - Out of state cases through ELR
- Decrease in time to diagnosis
- cCMV Consortium



Next Steps

Funded for another year of SETNET

Chart abstractions for 2-year-olds

Continue monitoring and learning

Thank You!

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