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Congenital cytomegalovirus: the most common non-genetic cause of sensorineural hearing loss in newborns

Presenter: Emma Waight

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- I would like to acknowledge the Ngunnawal and Ngambri people, who are the traditional custodians of the land on which I am presenting on today.
- I pay my respects to the Elders past, present and emerging.
- For they hold the memories, the traditions and the culture of the Aboriginal and Torres Strait Islander people across the nation.

Artwork by Leah Cummins, a proud Mayi woman from North-Western Queensland

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Cytomegalovirus

Common herpesvirus

Endemic – largely asymptomatic

**At risk groups: people who are pregnant /
immunosuppressed**

Common in young children

**Transmitted through person to person contact
with infected secretions**

**Can be shed in urine and saliva up to 2 years after
infection**

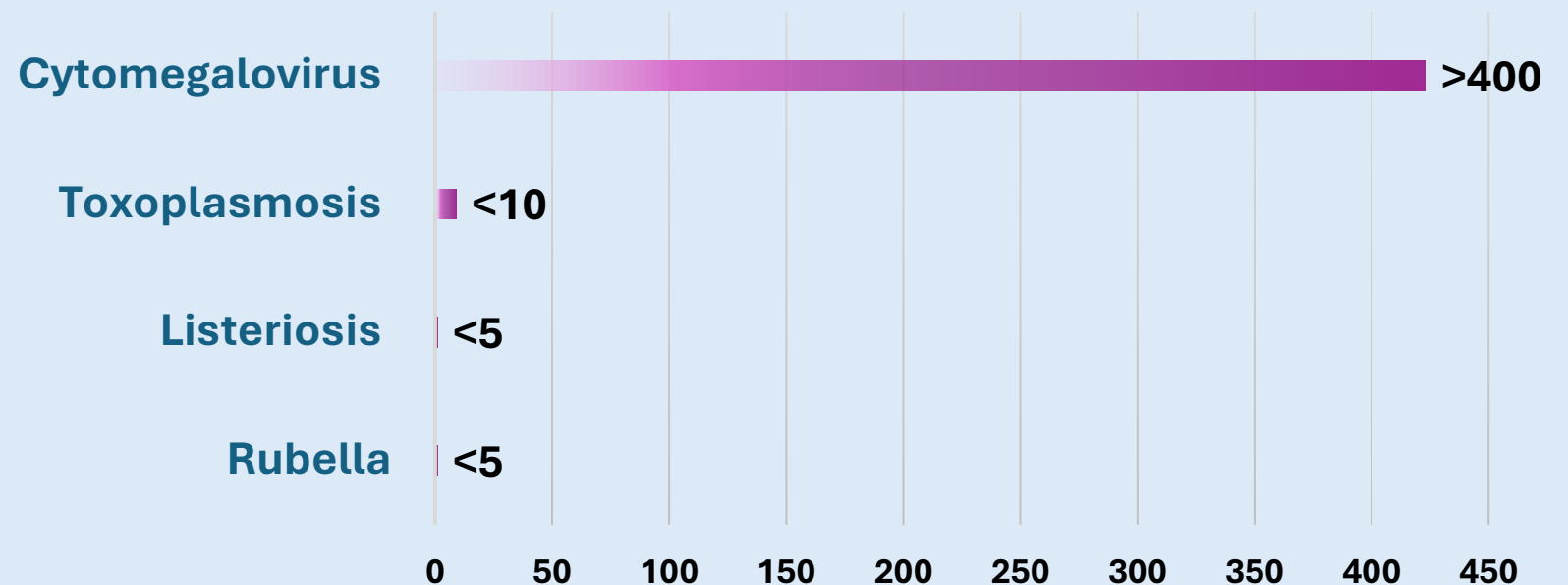
**People caring for young children are at increased
risk**

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Congenital cytomegalovirus:

- Can be transferred from mother to baby during pregnancy
- Is the most common non-genetic cause of sensorineural hearing loss
- It can cause other neurodevelopmental disorders such as cerebral palsy
- More common than other well-known infections of pregnancy

Estimated number of babies born with long term disability per year in Australia



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The cCMV Register is a database of clinical information about children with confirmed cCMV born or living across Australia and New Zealand



Collaboration



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Aims of the cCMV Register



Better understand the impact of cCMV over time



Understand the use and outcomes of antiviral therapies given up to 1 year of age



Investigate risk factors and potential avenues for prevention



Contribute to and/or link with other datasets

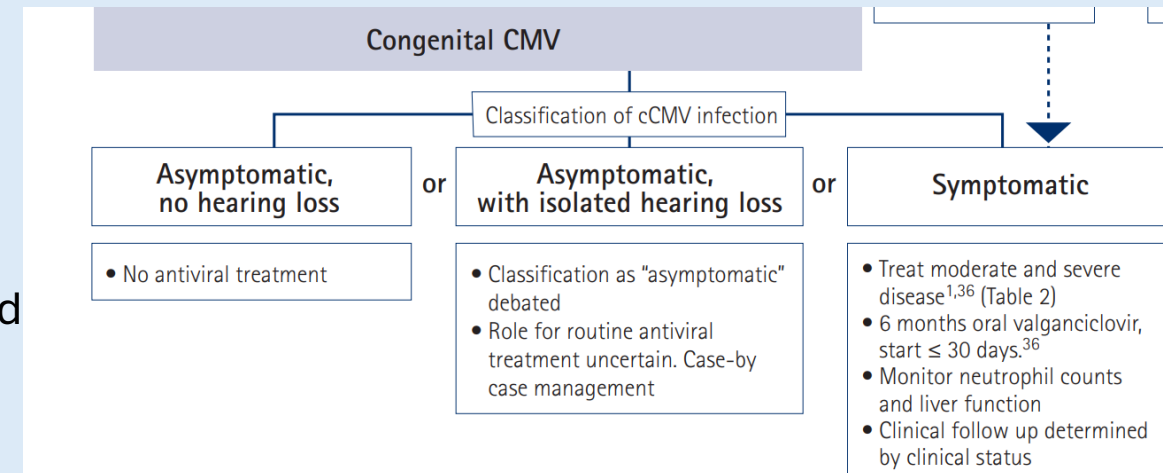


Provide a sampling frame for future research

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Paediatric antiviral therapies

- Evidence of reduced hearing loss (at 24 months) and some evidence for improved neurodevelopmental outcomes
- However, long term outcomes and impact of antiviral treatment with ganciclovir/valganciclovir remains unknown
- Data on the efficacy of these agents for infants with cCMV and isolated SNHL alone is limited
- In Australia antiviral therapy can be prescribed for some children born with symptomatic cCMV disease
- Prescribing practices and access of antiviral therapies is not known, not uniform and likely not equitable



ASID Management of Perinatal Infections

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Objectives

To describe the neonatal characteristics, newborn hearing screening outcomes, later hearing outcomes and use of antiviral therapies for children recruited to the Australasian congenital CMV register.



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Methods

- cCMV Register recruitment processes vary across each state
 - Reporting data collected between 2020 and 2024
 - Data was retrieved from the cCMV Register REDCap database
 - Descriptive statistics were used to report clinical outcomes
-
- Included: Children <18 years of age with confirmed or probable congenital CMV

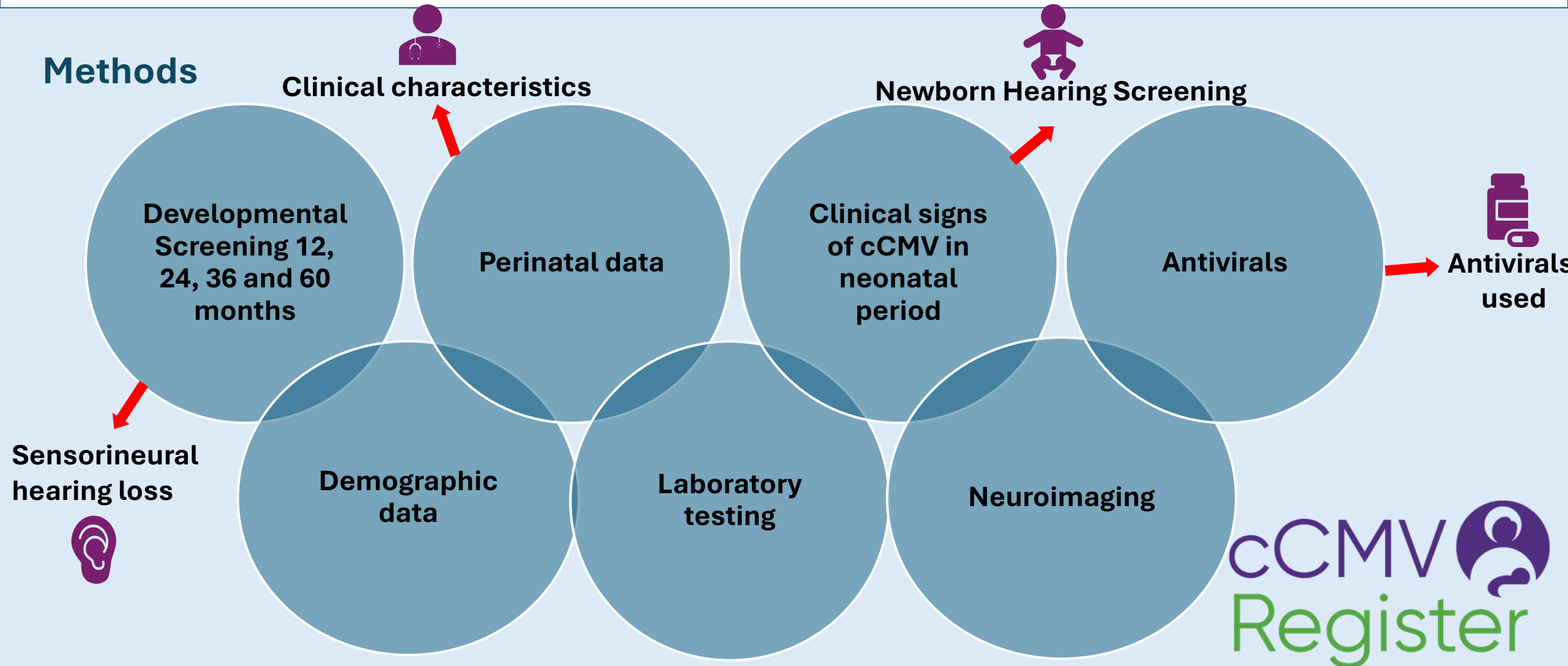
A 'confirmed' case of cCMV is defined as laboratory confirmation of CMV infection in the first 21 days of life. 'Probable' cCMV is defined as laboratory confirmation of CMV infection on samples obtained after the first 21 days of life and reported clinical features and/or neuroimaging suggestive of cCMV infection

- Excluded: Children with postnatally acquired CMV infection

Sydney
Children's
Hospital Human
Research Ethics
Committee
2020/ETH00090

cCMV 
Register

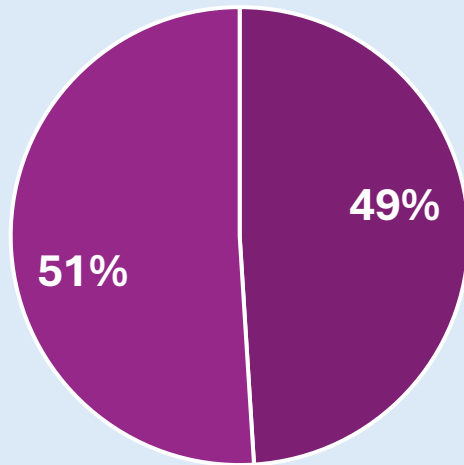
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Results n = 236

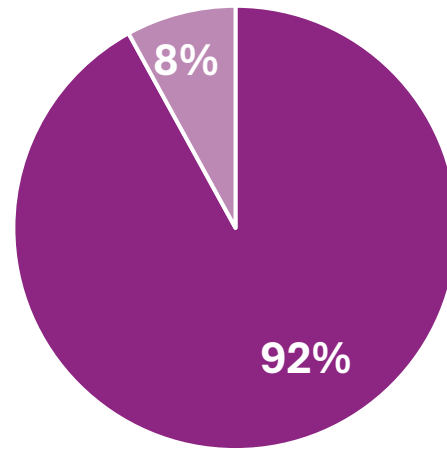
Sex



■ Male ■ Female

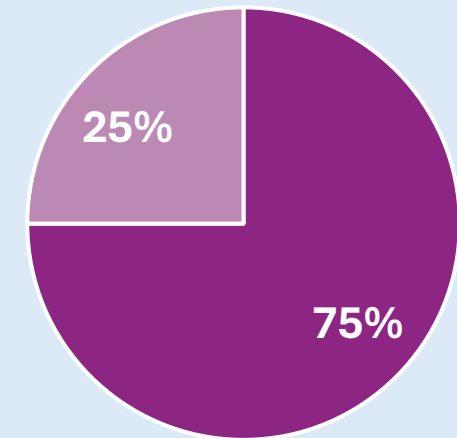
Clinical characteristics of
Children Recruited to
ACMVR

Plurality



■ Singleton ■ Multiple birth

Gestational age

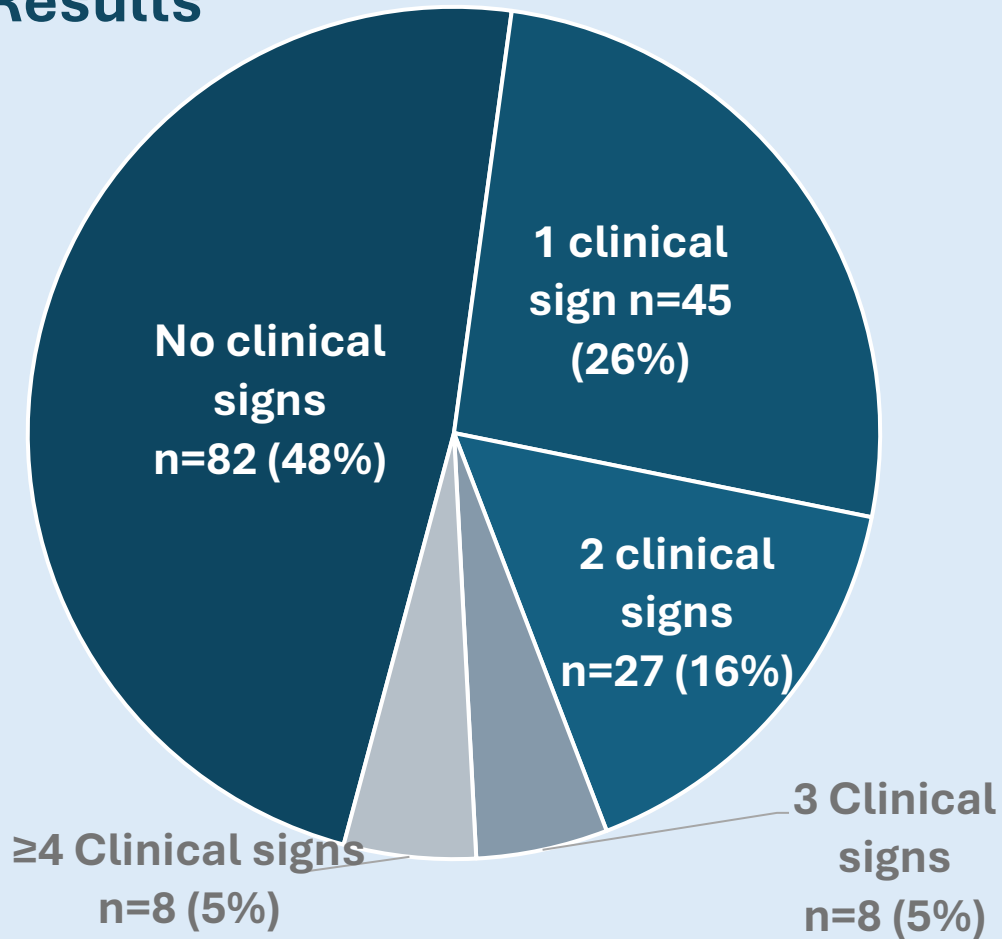


■ 37+ weeks gestation ■ <37 weeks gestation

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Results

Clinical signs of CMV in the neonatal period (excluding NBHS outcomes)



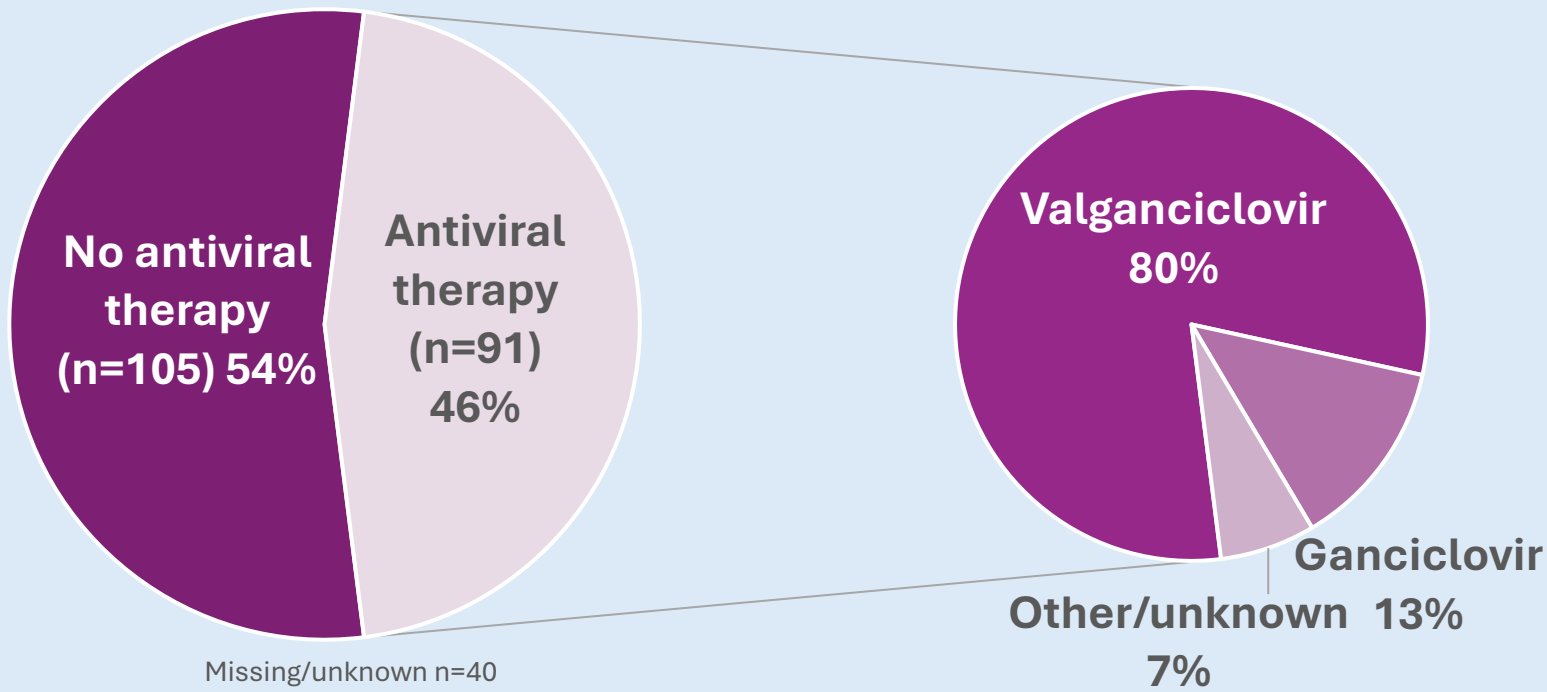
Most common clinical signs

- Jaundice
- Intrauterine growth restriction
- Microcephaly
- Petechial rash

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Results

Antiviral therapy

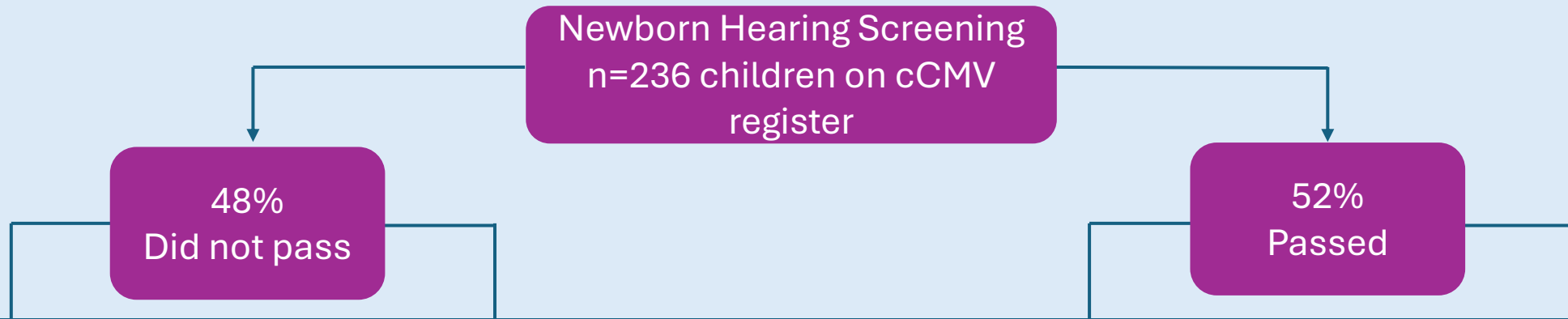


Antiviral therapy duration	n (%)
≤ 3 months	22 (30%)
>3 months ≤ 6 months	28 (38%)
> 6 months	23 (32%)

Missing/unknown n=18

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Results



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Limitations

- This is a new register which is still in the early stages of recruitment
- Considerable missing data
- This is not universal screening – children are recruited from paediatric infectious disease departments – selection bias
- *In the absence of universal screening this provides us with some information about children with CMV in Australia*



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Summary

The cCMV Register is an important tool which will improve our understanding of cCMV

Hearing loss is common amongst babies born with cCMV

Newborn Hearing Screening is vital for identifying children with cCMV but cannot capture all children with cCMV due to the progressive nature of SNHL involved

Less than 50% of children on the register received antiviral therapy

Of those who did receive antiviral therapy, valganciclovir was the most common antiviral

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Next steps



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Acknowledgements

I would like to thank all of the individuals with cCMV and their families for being involved and supporting the cCMV Register.

Thank you!!!

Cerebral Palsy Alliance, The University of Sydney

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- A/Prof Valerie Sung
- Alanna Gillespie
- Preethi Chandrasekar

Western Australia

- Prof Asha Bowen
- Jane McNally
- Caitlin Symons

cCMV 
Register