

Feasibility of CMV Newborn Screening

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General Criteria for NBS

Criteria	Congenital CMV?
1. Sufficient magnitude health problem	Yes
2. Availability of effective therapy	Early Intervention: requires high quality follow-up
3. Clear benefit from early detection	Yes
4. Accurate and low cost screen test	No: several in development

From: Dollard, Schleiss and Grosse. Public health and laboratory considerations regarding newborn screening for congenital CMV. 2010. JIMD

Development of an accurate and low cost screen test – saliva versus urine as reference specimen

- Saliva easier to collect and process than urine

CDC CMV home shedding study: Collected urine (filter paper diaper inserts) and saliva swab 840 visits. Urine presented many more logistical challenges

From: Comparisons of CMV shedding among seropositive children. Stowell, Mask, Amin, Clark, Levis, Hendley, Lanzieri, Dollard, Cannon. Submitted.

Evaluation of DBS: DNA Extraction Method is Critical

Study	de Vries et al. 2009. JCV (Leiden University Netherlands)	Koontz et al., 2014 submitted (Poster here)
No. Methods Compared	8	6
Top 2 methods for DNA yield	1. Thermal Shock 2. Qiagen Investigator	1. Qiagen Investigator 2. Thermal shock

Retrospective testing of newborn DBS in symptomatic children to confirm diagnosis of congenital CMV infection

(Demmler-Harrison et al. POSTER HERE)

	cCMV + Urine culture	cCMV- Urine culture
DBS+	17	0
DBS -	1	3

Preliminary Results:

1. DBS testing agreed with “gold standard” CMV urine culture
2. DBS samples appear useful for diagnosis of cCMV.

Conclusions

Saliva has many advantages over urine for CMV testing of newborns

The clinical sensitivity of DBS testing remains unknown. No study to date has used a high yield DNA extraction method for DBS and performed follow-up of infected children.

Such a study is currently under consideration at the CDC

At a minimum, DBS appear useful for confirmation testing of newborns suspected of having congenital CMV infection