

Universal Newborn Eye Screening for Congenital Abnormalities

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We wish to thank the **Save Sight Society** (New Zealand) for so generously supporting and funding the study: 'Universal Newborn Eye Screening for congenital abnormalities' (UNES). This SSS grant has been absolutely essential to the success of this research project. The UNES research also comprises a significant component of Samantha Simkin's PhD (expected submission June 2016) and therefore has substantially supported the career development of a young Kiwi clinical researcher.

Study aims:

UNES aims to detect congenital eye abnormalities and retinal haemorrhages at an early stage to enable timely management and treatment. Vision is obviously important for normal social, educational and psychological development and many paediatric eye diseases have better outcomes with early treatment. The UNES protocol is derived from the current retinopathy of prematurity (ROP) telemedicine screening system that has been in place in the Auckland region since 2006.

Methodology:

UNES involves coordinated ophthalmic photographic screening of newborns by a nurse specialist and medical photographer. Anterior and posterior images of the dilated eye are captured with the RetCam wide-field digital camera. The nurse specialist and medical photographer are very experienced in the screening process due to long-standing involvement in the ROP screening team. These images are subsequently remotely assessed by an experienced paediatric ophthalmologist.

In the UNES study any infant over 31 weeks gestational age and with a birth weight greater than 1250 grams is eligible to participate. For statistical reliability the calculated cohort size was 367 new-borns. Recruitment was achieved through brochures placed in the 28-week ante-natal packs and in the well child book given to parents at the delivery suite. Posters were also placed throughout the maternity wards at Auckland City Hospital and Birthcare. On scheduled screening days a team member (normally Simkin), would individually approach families to discuss the study with them.

Data analysis and outcomes:

Formal data analysis of outcomes has not been completed as this will occur once all data is collected. However, of the 305 new-borns (83% of projected 367) assessed at the time of writing, approximately 8% were found to have birth-related retinal haemorrhages, of which all but one cleared by the six week follow up appointment.

Outcomes identified by UNES fall into two main categories, congenital abnormalities and retinal haemorrhages.

Firstly the frequency of congenital abnormalities in a New Zealand population of new-borns will be calculated, this will give an indication as to whether current screening practices, such as the red reflex check are sufficient for timely detection of congenital eye conditions.

Secondly, the prevalence of birth-related retinal haemorrhages, and their correlation to infant size, maternal size, ethnicity and mode of delivery will be correlated.

UNES will allow us an in depth look at the eye screening systems in place and the eye health of infants in New Zealand, particularly Auckland. We are looking forward to sharing our results when the project is completed later this year.

Research dissemination:

A major presentation on our preliminary UNES results has been accepted as one of the six “best presentations” for the 48th annual Royal Australia New Zealand College of Ophthalmology (RANZCO) Annual Conference in Melbourne (2016).

Plans are in place (once data collection is completed) for further conference and local presentations and we anticipate two, or, more, peer-reviewed publications related to our study.

Fund utilisation:

The generous contribution of the Save Sight Society has been used to cover the majority of the salary costs of the nurse specialist and medical photographer essential to the completion of the eye screening process component of UNES.

Samantha Simkin and the UNES research team would like to personally thank the Save Sight Society for their support to enable 305 new-borns to be screened to date. We are continuing the screening to achieve the desired number of 367 participants. Currently we expect a completion date of November 14th 2016.

We look forward to sharing the final results UNES with the Save Sight Society and presenting these data at a SSS conference in the future.

Ms Samantha K Simkin BOptom(Hons) PhD Candidate

(On behalf of the UNES investigators)

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