

Appendix 2: Screening for retinopathy of prematurity using telemedicine and digital imaging: the Ontario Telemedicine for Retinopathy of Prematurity (ONTROP) Network

A novel pilot program for remote screening for retinopathy of prematurity using a live two-way audio-video connection with digital fundus imaging was set up in Ontario in 2009. A secure Internet-based connection was used: the Ontario Telemedicine Network. The Hospital for Sick Children was selected as the central reading site. Health Sciences North in Sudbury was identified as the neonatal unit with the greatest need for a viable alternative to examination by an ophthalmologist. An imaging teaching program was devised to educate nurses without prior expertise in ophthalmic imaging. RetCam was the digital fundus camera used. Follow-up imaging and referral indications were arranged according to current clinical guidelines.^{1,2} During a two-year period, no cases of treatment-warranted³ retinopathy of prematurity were missed and no infant required transfer to The Hospital for Sick Children for eye examination by an ophthalmologist. In this cohort, technical difficulties were rare. Critical complications necessitating additional cardio-respiratory support or cessation of imaging were never encountered. As well, this project has resulted in significant cost savings. The success of the pilot program based at Sudbury and The Hospital for Sick Children has resulted in implementation of this system for routine screening for retinopathy of prematurity in Sudbury. Furthermore, an additional remote neonatal unit at the Royal Victoria Hospital in Barrie has been added to the ONTROP Network and is now fully operational. This model has also been used to successfully implement a similar program based between the Hamilton Health Sciences Centre and the Grand River Hospital – Kitchener-Waterloo Site neonatal unit in Kitchener, Ontario.

References

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3. Fijalkowski N, Zheng LL, Henderson MT, et al. Stanford University Network for Diagnosis of Retinopathy of Prematurity (SUNDROP): four years of screening with telemedicine. *Curr Eye Res* 2013;38:283-91.