

Outcomes: CF Newborn Screening Symposium, June 25, 2007

Newborn screening for cystic fibrosis in Ontario is slated to begin by January 1st, 2008. Representatives from the majority of the cystic fibrosis clinics around the province, as well as representatives from diagnostic chemistry labs and genetics clinics met in Ottawa on June 25th, 2007 to discuss the implementation and downstream impacts of the new screen. Dr. Gary Hoffman, leader of the NIH-sponsored Wisconsin CF screening trial, and Dr. Mark Montgomery, leader of the Calgary Newborn CF Screen Study Group, presented their data and experience in this area. The following is a summary of the issues raised in discussion, the outcomes and follow-up plan.

Proposed screen

IRT measurement in all newborns. Those babies with a very high IRT (the failsafe cutoff top 0.1%) will be reported as screen positive. Sweat chloride test to follow.

Babies with an IRT in the top 2% will have DNA analysis from the same blood dot card. Babies with two mutations will be considered screen positive. Based on clinical judgment, sweat testing may be deferred. Babies with one mutation will be considered screen positive and require follow-up including sweat chloride tests. Babies with an IRT in the top 2% but no mutations identified will be reported as screen negative.

Propose beginning with a 2% IRT cut-off, to be moved to 4% in future. Annually, the anticipated effect of using a 2% cut-off is 317 initial positives, with 38 affected (28 DNA +/-), 144 carriers and 3 false negatives.

Follow-up Issues

a. Sweat chloride testing for screen positive infants. Points raised:

- Recognition that volume is the issue for sweat tests on neonates less than 4 weeks old. Education and training for providers will be required, perhaps by a “sweat test expert.”
- Standardization of the diagnostic sweat test. This may need to take place in parallel with screening (as opposed to fully ready before roll-out).
- Waiting time for the test varies considerably with the region
- Should the tradition of sweat tests on deltaF508 homozygotes be upheld?
- Scheduling of sweat tests-to batch or not
- Is there a role for functional diagnoses in CF patients other than sweat testing e.g rectal biopsy?
- Is there a minimum of sweat tests per year or patients required to make up a CF treatment clinic?
- Initially there will be an increased volume of sweat chlorides tests but long term there should be a decline in sweat chloride tests because of a decline in the number of babies investigated later in life for CF.

ACTION: Mindy Solomon and Khosrow Adeli of Sickkids will lead a subcommittee on sweat chloride testing for screen positive infants.

Downstream impacts and plans for preparation

Babies who screen positive for CF need to be retrieved, sweat chloride tests arranged, referrals made and receive counselling as appropriate. This may be undertaken by the newborn screening centre, CF clinic, Genetics clinic, or some combination thereof. Regional practice and referral patterns may vary.

- There are currently outstanding customs issues re approval of IRT machines.

ACTION: NBS Program to determine suggested guidelines and communicate to submitters and CF community. Dr. Felix Ratjen is the CF physician consultant.

Screening program issues

a. Reporting carrier status. This will be the responsibility of the treatment centres. The NBS Program is only reporting screen positive/screen negative. Some of the screen positive babies may end up being carriers, but this will be a determination made by the treatment centre through their clinical assessment, not by the NBS Program.

ACTION: NBS program genetic counsellors, Sari Zelenietz and Shelley Kennedy, to lead sub-committee on handling carriers identified as a result of a positive screen.

b. Process for feedback and results reporting to NBS program

Importance of channeling information back to the program; a single point of contact has been established in some of the centres.