

## **GENETICS AND NEWBORN SCREENING ADVISORY COUNCIL MEETING**

The Genetics and Newborn Screening Advisory Council meeting was held on Friday, July 12th, 2013 at the Florida Department of Health Bureau of Laboratories, 1217 Pearl St., Jacksonville, FL.

### **Call to Order:**

The meeting was called to order at 10:04 a.m. by Paul Pitel, MD, Chairman of the Council. Roll was taken and introductions were made.

### **Members Present:**

Paul Pitel, MD, Chairman, Jacksonville  
Mary Beth Vickers, RN, MSN, Tallahassee (CMS)  
John Waidner, MD, Jacksonville  
Robert Fifer, PhD, Miami (UM)  
David Auerbach, MD, Orlando  
Dorothy Shulman, MD, St. Petersburg (USF)  
Oneka Marriott, MD, representing Cyril Blavo, DO, Fort Lauderdale (NSU)  
Keith Nash, Orlando, March of Dimes  
Olaf Bodamer, MD, PhD, FACMG, FAAP, Miami (UM)  
Bonnie Hudak, MD, Jacksonville  
Heather Smith, Lakeland  
Jojo Dy, MD, representing Susanne Crowe, MHA  
Roberto Zori, MD, University of Florida

### **Guests:**

Linda Carter, PerkinElmer, Inc.  
Gul Dadlani, MD, All Children's Hospital  
Mark Hudak, MD, University of Florida  
Britt Johnson, University of Miami  
Gerold L. Schiebler, MD, CMS Statewide Consultant  
George Fox, Gainesville  
Bianca Gomez, Audiology Extern, University of Miami  
Cory McNabb, Audiology Extern, University of Miami  
Sarah Guillemette, Audiology Extern, University of Miami  
Helen McLune, University of Florida  
Larry Vroegiadeuey, Perkin Elmer, Inc.

### **DOH Personnel Present:**

Lois Taylor, RN, CMS, Tallahassee  
Whitney G. Jones, CMS, Tallahassee  
Elaine Grace, RN, CMS, Tallahassee  
Linda Deterding, RN, CMS, Tallahassee

Donna Barber, RN, CMS, Tallahassee  
Drew Richardson, CMS, Tallahassee  
Pam Tempson, MS, CMS, Tallahassee  
Jasmin Torres, Bureau of Laboratories, Jacksonville  
Ming Chan, PhD, Bureau of Laboratories, Jacksonville

**Conference call:**

Rachel Eastman, CMS, Tallahassee  
Marna Zok, RN, CMS Tallahassee

**Housekeeping/Reminders**

Dr. Pitel reminded the council members to turn in their lunch money, that speaker cards are available for public comments at the end of the meeting, to review the minutes from the previous advisory council meeting, to turn off all cell phones and beepers, and to read and be aware of the rules regarding council members under the Florida Sunshine Law. Dr. Pitel announced that he would be leaving the meeting at 10:30 to attend a memorial and that Dr. Auerbach will be elected as Chairman Pro-Tem until his return.

**Introduction:**

Dr. Pitel welcomed Keith Nash to the council as the March of Dimes representative.

**2013 Legislative Update**

Legislative

Ms. Vickers provided an update on the recent legislative activities in regards to the Department of Health and Children's Medical Services. The two pieces of legislation that were presented, SB124 and HB81, relating to adding Critical Congenital Heart Disease (CCHD) to Florida's Newborn Screening panel that did not pass. CMS did, however, receive an appropriation in the amount of \$205,000 to implement screening for CCHD. Of that appropriation \$50,000 is non-recurring and will be used to update the Newborn Screening data system and the remainder will be used for follow-up staff to track the CCHD babies. The council discussed the role of the hospitals in implementing CCHD.

Leadership

Dr. John Armstrong was reappointed and will continue to serve as the State Surgeon General. Dr. Dennis Cookro served as the Interim Deputy Secretary of Health and Deputy State Health Officer for CMS but retired at the end of June 2013. Dr. Celeste Phillip has been appointed as of May 31, 2013 as Interim Deputy Secretary of Health and Deputy State Health Officer for CMS.

## **Cystic Fibrosis Update**

Dr. Hudak provided an update of Dr. Phil Ferrell's review of Florida's Cystic Fibrosis program. Dr. Ferrell visited all the CF centers in the state of Florida over a two year period. 99.6% of newborns from the inception of newborn screening to 2012 in Florida completed a screening. Overall the CF panel that Florida is utilizing is adequate. Florida could have conceivably only have missed 4 diagnosis in 5 years based on our CF mutation panel. Newborns were being diagnosed within three weeks. Dr. Ferrell also surveyed the genetic counseling provided and felt that it was adequate. The report submitted was satisfactory. There are semi-annual conference calls with the CF centers for ongoing review. Another review of the mutation panel will be done next year by Dr. Hudak. Dr. Ferrell would like for us to write up and publish our data as a model to other states. Dr. Pitel asked how often the state should conduct a review. Dr. Hudak responded that a review should be done every 5 years.

Dr. Pitel turned over the chairman duties to Dr. Auerbach as Chairman Pro-Tem at 10:30am.

Mary Beth Vickers made a motion to approve the January 25, 2013 Genetics and Newborn Screening Advisory Council minutes. Dr. Bodmder seconded the motion and the minutes were approved unanimously.

## **Newborn Screening Laboratory Update**

Jojo Dy provided a presentation for the laboratory update. A trial run to eliminate Saturday testing was conducted for 10 weeks starting on May 4, 2013. Changes in the laboratory workload due to eliminating Saturday testing have resulted in laboratory staff arriving early to work on Mondays. Saturday specimens are then tested early on Monday and reported the same day. Friday specimens test results are also reported on the same day. For Memorial Day weekend, a three day weekend, the staff agreed to work on Saturday to manage the workload respectively. If there is a three day holiday weekend then laboratory staff will work the Saturday of that weekend. Also, for the Thanksgiving weekend the staff has agreed to work the Saturday after Thanksgiving. The results from this 10 week trial are two (2) partial GALT that are still pending for confirmatory testing and 11 presumptive positives, 6 confirmed and 5 pending.

Since adding SCID to the testing panel 156,327 newborns have been screened. There have been 16 cases of presumptive SCID, one case was confirmed, one is deceased, and one has Chylothorax effect. Of these newborns 27 were early (<37 weeks), 196 were inconclusive, and 20 were borderline.

Dr. Bodamer requested that a comparison be made with Florida's performance metrics with other states. California was the only state to respond to the request. In that comparison the overall comparison shows that the prevalence is very similar, but the positive predictive value (PPV) for Florida is 56% versus California's at 25% showing that Florida's PPV is better.

The council discussed comparing the data year by year instead of all 6 years combined to see if there was any marked improvement or if any areas could use improvement. CAH PPV was low for both states and discussion was made on how to improve the PPV for CAH.

The participant detection rate for MSMS in Florida is more than 50% of the participants. The target value is at least 1 in 3017 for MSMS. The PPV for MS is at about 75% for Florida with about 82 participants worldwide. Florida is doing well with their false positive rates.

Future projects for the lab include adding total galactose and Biotinidase assay kits for GSP Analyzers, a second methodology for hemoglobinopathy screening, and exploring a second-tier test for CAH. The second methodology will provide a better differentiation between trait and thalassemia, better separation of Hb E from A2, and be a more accurate detection of Hb Bart's and Hb A. The lab is hoping for the instrument validation before the end of 2013. The Biotinidase Kit on GSP will transfer from a manual method to an automated analyzer, reduce the number of plates processed, and have a faster analysis time. This kit is waiting for FDA clearance. The total galactose will have increased accuracy for classical galactosemia and the proposed new algorithm will reduce the referral of false positive results. This is also waiting for FDA clearance. The council had conversation regarding the suggested algorithm for GALT.

### **Newborn Screening Follow-Up Program Update**

Lois Taylor provided an update of the Newborn Screening Follow-Up Program. Three reports were provided in the advisory council packets related to the pilot to eliminate Saturday screenings. This was a request made by the genetic centers to stop making calls regarding screening results on Saturdays and the Follow-Up program completed the pilot of this request. Saturday specimens are tested early on Monday and reported the same day. The issues encountered in this pilot were the specimens received on Friday that might have been called out on Saturday. A list has been compiled of the specimens collected in this two month pilot period which lists 13 referrals, 7 confirmed positives, and 6 that are still pending. Dr. Dorothy Shulman posed a question asking if a baby was showing elevated levels then would that baby have to wait for a phone call. Ms. Taylor asked the council if there were certain conditions that should be rated as critical and requiring follow-up as soon as possible. Dr. Olaf Bodmer agreed to compile a list of critical conditions to the Follow-Up Program for their use. Ms. Taylor indicated that before the Saturday pilot project that nurses did not follow-up on any Cystic Fibrosis or Sickle Cell cases, the nurses only followed up on the Endocrine, genetic, or SCID cases.

For the MSMS detailed list the program identified 40 MSMS cases in 2012. The 2013 MSMS cases are only the ones that the program has received case reports on in the first 6 months of 2013. The program has also started tracking data as maternal conditions are found, but that is for information only and the Follow-Up Program does not follow up with these patients.

NewSTEPs, a grant funded organization from HRSA, has a grant to provide technical assistance to newborn screening programs. Florida will be the third program reviewed after New Jersey and Arizona. They are expected to do their review either late fall of 2013 or early spring of 2014.

Statistics show that the unsatisfactory specimen rate has jumped up to 2.25% statewide; the hospital unsatisfactory rate is at 2.01%. Hospitals submit 96% of all specimens in the state of Florida which indicates that other submitters contribute .25% to the unsatisfactory specimen rate. This jump in unsatisfactory rates is a direct correlation between the NBS Follow-Up nurses providing training to the hospitals. The Follow-up program tracks hospital performance and this information is listed on the NBS website. The Follow-Up program is now fully staffed and the hope is that the nurses will be able to return to providing training to the hospitals that need it.

Florida is the fourth largest birthing state and the Newborn Screening Program has a wealth of data and the Program would like to obtain a statistician to help compile the data and possibly publish. Ms. Taylor asked for approval and feedback on the idea to hire a statistician for this work. The data the Program has obtained cannot be shared with outside sources so a DOH employee will have to be hired to work on this data. The statistician will be hired primarily for quality assurance, but in the future pursue publish health oriented research. Dr. Auerbach made a motion to support Ms. Taylor's request to hire a statistician. Dr. Shulman supported the motion which was seconded by Dr. Zori and Dr. Waidner. All councilmembers were in favor of this motion.

Ms. Taylor discussed the Newborn Screening Follow-Up Program's staffing issues. Over the last couple of years the NBS Follow-up Program has experienced staffing shortages. Only one nurse of the staff has been with the program over a year. Three new nurses were hired within the last 4 months. A new nurse will be hired within the next month with another nurse being hired in a few months. Whitney Jones is the new contact for all Advisory Council needs as well as the contract manager for the NBS Follow-Up Program. The program is hoping to maintain stability after these hires.

The Follow-Up Program has been conversing with the lab regarding SCID updates. Two babies have been diagnosed with SCID. NBS is sure that the baby who was born without a thymus and passed away did have SCID and that is counted in the statistics. Heather Smith gave an update on the other baby who was diagnosed with SCID. The patient had a stem cell transplant two weeks ago and is having to go through chemo therapy, but is doing great. There are currently 17 identified mutations for SCID. This SCID mutation has not been seen before and research is being done. Also, The NBS program encountered an unusual case recently. It was determined that one of the babies, who was later found to be normal, had a condition called chylothorax that caused the false positive result. The thoracic duct was manipulated during cardiac surgery which caused an obstruction to the thoracic duct, preventing lymph from draining normally into the venous system thus causing a zero TRECs screening result. The chylothorax would not have been found without the newborn screening report. The

child is currently being managed medically but may have to have another surgery to correct the obstruction. Twelve out of the seventeen SCID referrals Florida had have all been referred to the University of Florida. Of the other referrals, four were to the University of South Florida and one was to the University of Miami. This is not a result that was expected based on results from California's experience, although no positive cases of SCID have been found in north Florida. The NBS Program expected to identify 2-4 cases per year. Currently 9 month into implementing SCID the program has identified two cases so the program is on target.

### **Hearing Screening Update - Pam Tempson**

Pam Tempson provided an update of the Newborn Hearing Screening Follow-up Program. Of the 213,403 babies born in Florida in 2012, 96.5% received a hearing screen and 3.5% were not screened or the data was not reported. This data is about average with other states. The options that all under "not screened" are information not reported, parent refusal, baby in the NICU, unknown, baby was missed, baby was transferred, baby is deceased, or other. For nearly two years the NBS Follow-Up Program has been awarding hospitals that have been submitting good data. These awards include certificates, visits from the hospital hearing educator, Laura Olsen, and \$900 - \$1,000 of free hearing screening supplies. Some hospitals however are still struggling to submit their data in a timely manner or at all. Ms. Tempson requested suggestions from the advisory council on how to motivate hospitals who continue to not do well. Suggestions from the council were to involve the hospital medical directors in increasing reporting, to educate the hospitals of the importance of reporting and the consequences of not reporting, and educating prospective parents of the importance of getting the hearing screening so parents are aware of the screening before the baby is born.

Pam updated the advisory council on the 2012 pass versus not pass data. Of the 205,929 babies that were screened, 199,168 passed the screening initially and 6,761 did not pass initially. Of the 6,761 that did not pass, 5,301 passed a subsequent screening or evaluation, 1,215 cases are still pending, 189 were diagnosed with a permanent hearing loss, 7 were lost to follow-up, 30 declined follow-up testing, 10 moved out of the country or state, and 6 were deceased. In addition to the 1,215 cases from 2012 that are being followed up on the hearing follow-up program is also working on over 1000 cases from 2013.

Every year about 250 - 300 babies are diagnosed with a hearing loss. Most of these babies did not pass their hearing screening at birth but some passed the hearing screening or no screening data was reported and were later diagnosed with a hearing loss. The newborn screening program requests audiologists to submit hearing loss diagnosis for babies up to the age of three, so the numbers for diagnosed hearing loss babies will continue to rise because of this. Overall, the prevalence rate for Florida fluctuates between 1.1% to 1.4% of the population which is within the national range. All of these babies diagnosed with a hearing loss are eligible for early intervention

services through Early Steps. Unfortunately, about 20% of those eligible end up either declining services, moving out of state, passing away, etc.

The goals for the hearing program are to screen babies by one month of age, diagnosis by 3 months of age, and start intervention services by 6 months of age. There has been a decrease in cases that are closed as lost to follow up. Grant funding was obtained from the CDC and HRSA to continue with the hearing portion of newborn screening. Almost all of the efforts for hearing screening is funded through these two federal grants. There was a budget cut in one grant and an expected cut for the other grant in September due to the sequestration, however they were not significant and the program was able to modify the budget to accommodate for these cuts. The hearing program continues to provide technical assistance to the hospitals through the hospital hearing educator, Laura Olsen, who has made over 120 visits and 400 phone calls in the last fiscal year. Data is tracked in subsequent months after she has made a visit to see if there is improvement. The hearing guidelines are currently being revised with the help of Dr. Fifer and the EDHI Champion, Dr. Williams. The guidelines were written in 1992 and have had only minor revisions since that time.

Dr. Zori requested that the hearing program put together a list of issues with the hearing program so that the council can help look at ways to make improvements in the future.

### **eReports, DSM, ELO/ELR Update—Drew Richardson**

Drew Richardson gave a Newborn Screening Technology update to the council. The Florida Newborn Screening Results (FNSR) website has been live since January 2009. This system primary use is to provide newborn screening results to pediatricians. The first year this system processed about 20,000 requests. As the years progress the average has been going up and is now up to over 100,000 requests per year. In 2009 the Newborn Screening program manually processed over 40,000 requests, but since the introduction of FNSR that number has gone down to 5,000-6,000 manual requests a year.

EReports is a system that allows people to submit hearing screening information. The specimen card is the primary place that hearing screening information is obtained, but approximately 30,000 to 35,000 hearing screens a year that do not make it on the specimen card. The method prior to eReports was to have the information faxed to the Newborn Screening Follow-Up Program and this method is still used heavily. eReports has been in production since June 3, 2013 and ten (10) people have been trained to use it. In the month of June 4% of the hearing data was submitted through eReports. As of right now this is a beta testing and there has been positive feedback so far. The benefit of eReports is that it eliminates an extra step of data entry since the information is being entered in through eReports and does not need to be faxed to Newborn Screening then entered by the staff.

There is a new Florida Department of Health logo and along with that logo the Departments website is being completely revamped. This new website is going live

August 1, 2013. The content of the Newborn Screening website will not change, only the aesthetics. The address for the revamped website will be [www.floridanewbornscreening.com](http://www.floridanewbornscreening.com).

CCHD Implementation is coming and there are a few different ways we can implement it into our technology systems. The first way is to use eReports and have the information reported directly to us. Adding a CCHD section to the specimen card may be somewhat difficult due to limited space. Since the hearing portion and CCHD does not necessarily need to go through the lab this might afford some flexibility in where and how data is obtained. More feedback is needed in which options would be best to move forward with. Another option is to get a spot on the Electronic Birth Record which involves cooperation with Vital Statistics which we have not approached yet. This will also give a more accurate match in babies verses the system that is specimen based.

Dr. Pitel proposed the idea of linking Newborn Screening with Florida SHOTS which allows for all childhood information to be in one central location. Mary Beth agreed to look into this suggestion to see what can be done.

Dr. Auerbach returned the chairman duties to Dr. Pitel at 12:24pm.

### **CCHD Implementation—David Auerbach, MD**

Dr. Auerbach gave a CCHD Implementation presentation to the council. It is the council's recommendation that CCHD screening be added to the Newborn Screening panel. CCHD bills have been introduced to the legislature for this past year but did not pass. The council now has an opportunity to implement it with funding for tracking data. CCHD is different from the other disorders that are screened for which raises some issues. The council was provided with a draft CCHD letter with an algorithm of CCHD screening. The algorithm varies from center to center regarding screening on upper and lower extremity or just lower extremity. There are many aspects that data can be gathered from. When CCHD screening was introduced it was a well-baby nursery screening and the NICU population is not being addressed. Another issue to address is what happens when a baby refers? Is a referral made within the institution or an external referral and what does this mean logistically? There is a great willingness on the part of cardiologists and CMS cardiologists to be a resource to implement the CCHD screening.

Dr. Pitel suggested that there are three parts to the CCHD Screening implementation process that need to be addressed. What does the initial screen look like, are there flaws or portions of the algorithm that need to be clarified or altered, and what happens to the baby who fails the screen so that the next tier of evaluation occurs appropriately in manner and in timeliness? Dr. Zori added that it needs to be determined who does the confirmatory testing and how much repeat screening should be done before moving on to confirmatory testing.

Dr. Mark Hudak suggested that doing two simultaneous tests on the lower and upper extremities is very complex. Dr. Hudak stated that there are other standards that suggest that there is better sensitivity in testing just the lower extremity versus using both upper and lower extremities. Bill Walsh who is part of the AAE Task Force has implemented a study through the Tennessee Department of Health where they only screen one foot and declare the screen passed if it is 97% or better. A second extremity is tested if the screen comes back less than 97%.

Dr. Pitel was concerned with any suggestion of deviating from national standards. The council does not deviate from any national standards on any other screening. The study in Tennessee is only a study and has not been implemented and that is not something that Florida wants to base its standards on. Dr. Jacobs commented that making decisions on the implantation of CCHD screening should be a joint effort of a committee of the Neonatal group and the CMS Cardiac Advisory Committee. Dr. Blanchard remarked that there is no reason that Florida cannot adopt other methods if it is appropriate, but it is something that needs to be discussed among neonatology and the cardiac group. Dr. Blanchard also suggested putting together a manuscript and publishing a paper in a journal so that other states and countries can learn from Florida's process.

Dr. Pitel made a motion to create a CCHD Workgroup to discuss the items brought forward. Dr. Auerbach seconded the motion. Dr. Pitel suggested that Dr. Auerbach, Dr. Pitel, Dr. Shulman, and Dr. Mark Hudak be on this workgroup.

### **Pompe Disease – Olaf Bodmer, MD, PhD, FACMG, FAAP and Britt Johnson**

Britt Johnson, from the University of Miami, gave the council a presentation on Pompe Disease. The prevalence of Pompe Disease is 1 in 40,000. Typically someone with Pompe disease will die within the first five months of life. A study was conducted in Taiwan with 360,000 babies screened over a period of 7 years. A total of 26 patients were identified to have Pompe disease. The study has suggested that there is an improvement of muscles in those patients who received enzyme replacement therapy versus those who did not. The cost for therapy is \$100,000 per year. Pompe disease has been added to the recommended panel for newborn screening and is awaiting final sign-off. Britt Johnson stated that HRSA has recommended Pompe disease to be added to the Newborn Screening panel and Missouri has already added it to theirs. 2-3 FTE's will be required to add this screening and equipment will also be required.

Dr. Pitel expressed concern regarding screening for a disease when there is no treatment and no mechanism for payment for treatment. Dr. Shulman expressed the same concern. George Fox of Gainesville added that there are certainly ways to find funding. Once the child has lost movement then it is hard to recover from this disease. Dr. Auerbach expressed concern over screening and diagnosing for Pompe disease since the hospitals will take a hit because the care of this disease is not reimbursable. George Fox stated that the earlier the diagnosis the lower the cost is for managing the disease.

Dr. Fifer made a motion to start laying the ground work for adding Pompe Disease. Dr. Waidner seconded the motion. All were in favor of the motion.

### **New Discussion Items**

Dr. Pitel made a presentation on Sickle Cell Trait (SCT) policy and Athletics. The NCAA is recommending that member institutions test student-athletes to confirm Sickle Cell Trait status if that information is not already known. This stems from the resolution of a lawsuit the NCAA has reach with the family of Dale Lloyd II. NCAA mandated SCT testing in the fall of 2010. Military research suggests that issues arising from exercise-related death risk in SCT is limited to those who are severely overexerted contrary to sensible training guidelines. ASH and the Sickle Cell Disease Association object to mandatory screening suggesting that intervention saves lives, not screening tests. Concerns about mandatory testing are possible discrimination, misleading information from Sickledex, false security, and all states require newborn screens so the policy so not useful. The ASH recommends that the screening should be voluntary and must include counseling.

Lois Taylor of the Newborn Screening Program mentioned that the Program frequently gets calls from parents requesting their child's screening results for their children to play sports. The Newborn Screening Program does not have results from 18 or 19 years ago. It is advised that the child get another screening. The lab's policy is to keep data for 6 years. Dr. Waidner suggested making a statement that supports the position that results are not kept over six years and any child who needs their sickle cell results for playing sports should get another screen.

Dr. Pitel also presented the Florida Genetics Proposal. The proposal is to go to the legislature to get higher funding for the genetics centers, possibly one or two more centers, and a structure that provides a telemedicine program. Dr. Fifer made a motion for support of the proposal, Dr. Zori seconded the motion. The motion was passed unanimously.

### **Public Comments/closing/summary**

Dr. Schiebler, on behalf of the Florida Chapter of Pediatrics, made a public comment to the Council regarding the implementation of CCHD. The view of Florida Pediatrics is that there is a lack of coordination in getting CCHD passed in the legislature in 2012. Dr. Schiebler recommended that Dr. Pitel send a letter to the State Surgeon General regarding this issue.

Dr. Pitel made a motion to have a NICU letter sent to State Surgeon General Dr. John Armstrong. Dr. Waidner seconded the motion. The motion was passed unanimously.

### **Adjournment**

The meeting adjourned at 3:08pm EST.