STATE OF IOWA DEPARTMENT OF
Health AND Human
SERVICES

Status Report to the General Assembly

Adding Conditions to the Iowa Newborn Screening Panel

Center for Congenital and Inherited Disorders, Division of Public Health

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LR23-46

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Citation for Required Status Report

The 89th General Assembly of the State of Iowa enacted Chapter 1023 Congenital and Inherited Disorders —Screening of Newborns S.F. 2345 – An Act Relating to the Newborn Screening. Chapter 1023 of Iowa Acts is linked here.

New Section 136A.3A Subsection 5 states:

> 5. The department shall submit a status report to the general assembly, annually, by December 31, regarding all of the following:
>
> *a.* The current conditions included in the newborn screening.
>
> *b.* Any new conditions currently under consideration or recommended by the advisory committee for inclusion in the newborn screening.
>
> *c.* Any new conditions considered but not recommended by the advisory committee in the prior twelve-month period and the reason for not recommending any such conditions.
>
> *d.* Any departmental request for additional program capacity or resources necessitated by the inclusion of a recommended new condition in the newborn screening.
>
> *e.* Any delay and the reason for the delay by the advisory committee in complying with the specified twelve-month time frame in considering or recommending the inclusion of a new condition in the newborn screening to the department.
>
> *f.* Any delay and the reason for the delay by the department in complying with the specified eighteen-month time frame in including a new condition in the newborn screening following receipt of a recommendation from the advisory committee recommending the inclusion of such condition.

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Status Report of Adding Conditions to the Iowa Newborn Screening Panel

The State of Iowa Department of Health and Human Services is pleased to provide this status report on adding conditions to the Iowa newborn screening panel to the General Assembly of the State of Iowa.

CURRENT CONDITIONS ON THE IOWA NEWBORN SCREENING PANEL

The Iowa Newborn Screening Program currently screens Iowa newborns for the following conditions:

AMINO ACIDEMIAS AND UREA CYCLE DISORDERS

- (ASA) Argininosuccinic aciduria*
- (CIT) Citrullinemia, type I or ASA Synthetase Deficiency*
- (HCY) Homocystinuria (cystathionine beta synthetase)*
- (MSUD) Maple Syrup Urine Disease*
- (PKU) Classic Phenylketonuria*
- (TYR-1) Tyrosinemia, type I*
- (ARG) Argininemia**
- (BIOPT-BS) Defects of biopterin cofactor biosynthesis**
- (CIT-II) Citrullinemia, type II**
- (BIOPT-REG) Defects of biopterin cofactor regeneration**
- (H-PHE) Benign hyperphenylalaninemia**
- (MET) Hypermethioninemia**
- (TYR II) Tyrosinemia, type II**
- (TYR III) Tyrosinemia, type III**

ORGANIC ACIDEMIAS

- (GA-1) Glutaric acidemia type I*
- (HMG) 3-Hydroxy 3-methylglutaric aciduria *
- (IVA) Isovaleric acidemia*
- (3-MCC) 3-Methylcrotonyl-CoA carboxylase*
- (Cbl-A,B) Methylmalonic acidemia (cobalamin disorders, vitamin B12 disorders)*
- (βKT) βeta-Ketothiolase*
- (MUT) Methylmalonic Acidemia (methylmalonyl-CoA mutase)*
- (PROP) Propionic acidemia*
- (MCD) Holocarboxylase synthase*
- (2M3HBA) 2-Methyl-3-hydroxybutyric aciduria**
- (2MBG) 2-Methylbutyrylglycinuria**
- (3MGA) 3-Methylglutaconic aciduria**
- (Cbl-C, D) Methylmalonic acidemia with homocystinuria**
- (MAL) Malonic acidemia**

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FATTY ACID OXIDATION DISORDERS

- (CUD) Carnitine uptake defect (Carnitine transport defect)*
- (LCHAD) Long-chain L-3 hydroxyacyl-CoA dehydrogenase*
- (MCAD) Medium chain acyl-CoA dehydrogenase*
- (TFP) Trifunctional protein deficiency*
- (VLCAD) Very long-chain acyl-CoA dehydrogenase*
- (CACT) Carnitine acylcarnitine translocase**
- (CPT-Ia) Carnitine palmitoyltransferase type I**
- (CPT-II) Carnitine palmitoyltransferase type II**
- (GA2) Glutaric acidemia type II**
- (MCAT) Medium-chain ketoacyl-CoA thiolase**
- (M/SCHAD) Medium/Short chain L-3-hydroxyacyl-CoA dehydrogenase**

ENDOCRINE

- (CAH) Congenital adrenal hyperplasia *
- (CH) Primary Congenital hypothyroidism *

HEMOGLOBINOPATHIES

- (Hb SS) S,S Disease (Sickle Cell Anemia)*
- (Hb S/C) S,C Disease*
- (HB S/βTh) S, βeta-thalassemia*
- (Var Hb) Variant hemoglobinopathies **

OTHER

- (BIOT) Biotinidase deficiency*
- (CF) Cystic Fibrosis*
- (GALT) Classic Galactosemia*
- (SCID) Severe Combined Immunodeficiency*
- (HEAR) Hearing loss*
- (CCHD) Critical Congenital Heart Disease*
- (Spinal Muscular Atrophy (SMA)*

* Advisory Committee on Heritable Disorders in Newborns and Children (ACHDNC) Recommended Uniform Screening Panel (RUSP) - Core Panel. The ACHDNC is an advisory board of pediatricians, geneticists, and medical experts charted by the U.S. Department of Health and Human Services to report regularly on newborn and childhood screening practices, recommend improvements in the national newborn and childhood screening programs, and complete other legislatively authorized activities to improve health outcomes for babies.

** ACHDNC Recommended Uniform Screening Panel (RUSP) - Secondary Targets. Conditions on the secondary target list are not directly targeted by screening but are routinely identified through screening for disorders on the Core Panel (by-products of screening for the core conditions).

NEW CONDITIONS CURRENTLY UNDER CONSIDERATION OR RECOMMENDED BY THE CONGENITAL AND INHERITED DISORDERS ADVISORY COMMITTEE FOR INCLUSION IN THE NEWBORN SCREENING PANEL

In accordance with 136A.3A subsection 4.a., the Iowa Newborn Screening Program (INSP) is currently building the capacity to screen all Iowa newborns for the following conditions that were on the federal recommended uniform screening panel (RUSP) as of January 1, 2022.

Pompe disease –

The State Hygienic Laboratory (SHL) has nearly completed test development for Pompe testing. All necessary instrumentation, reagents, and methods are in place and database changes have been made to accommodate the new testing method. A pilot period for Pompe testing will begin January 3, 2023 to ensure that the new test is performing as designed. The pilot is expected to conclude May 1, 2023, at which time full screening for Pompe in Iowa will begin.

The newborn screening Short-term Follow-up (STFU) staff have been working with the medical consultants to develop protocols for any presumptive positive cases. These protocols also include recommendations for confirmatory testing as well as educational materials for both the newborn's primary care provider as well as the parents. At the time of this report, these protocols are completed and awaiting final approval by the newborn screening program medical director.

Mucopolysaccharidosis Type I (MPS I) –

SHL - The State Hygienic Laboratory has nearly completed test development for MPS1 testing. All necessary instrumentation, reagents, and methods are in place and database changes have been made to accommodate the new testing method. A pilot period for MPS1 testing will begin January 3, 2023 to ensure that the new test is performing as designed. The pilot is expected to conclude May 1, 2023, at which time full screening for MPS1 in Iowa will begin.

STFU – Follow-up staff have been working with the medical consultant to develop protocols for any presumptive positive cases. These protocols also include recommendations for confirmatory testing as well as educational materials for both the primary care provider as well as the parents. At the time of this report, these protocols are completed and awaiting final approval by the newborn screening medical director.

X-Linked Adrenoleukodystrophy (XALD) –

SHL – Test development is underway for X-ALD. The lab has testing equipment in place and reagents have been purchased. The test method is currently under development and collection of validation data will begin in January. Test development is anticipated to be complete by March 1, 2023.

STFU –Follow-up staff have begun working with the medical consultant on development of the protocol for X-ALD. This process is in the early stages of development since the timeline for adding X-ALD is not as soon as the other new disorders.

The Congenital and Inherited Disorders Advisory Committee (CIDAC) has established a standing subcommittee for the management of the Iowa newborn screening panel. This subcommittee is charged with management of the newborn screening panel by: ensuring all conditions included in the RUSP as of January 1, 2022 are included in the panel; reviewing and making recommendations to the Department about new conditions for inclusion in the panel; and regularly evaluating the effectiveness and appropriateness of the panel.

The subcommittee has developed a review framework for the consideration of new conditions for addition to the Iowa newborn screening panel, and has built a decision matrix to qualify the review in order to make a recommendation to the Department regarding the addition of the condition to the panel.

The subcommittee will expand during the review of a condition to include ad hoc members with experience and expertise in the condition under review.

In July 2022, the Secretary of the US Department of Health and Human Services added Mucopolysaccharidosis Type II (MPS II) to the RUSP. The CIDAC subcommittee is using the review framework as it considers MPS II for addition to Iowa's panel, and has added a parent of a child with MPS II and a medical geneticist experienced in the treatment and management of children with MPS II as ad hoc members. CIDAC is expected to make a recommendation to the Department about adding MPS II to the newborn screening panel in April 2023.

NEW CONDITIONS CONSIDERED BUT NOT RECOMMENDED BY THE ADVISORY COMMITTEE IN THE PRIOR TWELVE-MONTH PERIOD AND THE REASON FOR NOT RECOMMENDING ANY SUCH CONDITIONS.

There are no conditions that have been considered but not recommended by CIDAC for inclusion in the newborn screening panel at this time.

DEPARTMENTAL REQUEST FOR ADDITIONAL PROGRAM CAPACITY OR RESOURCES NECESSITATED BY THE INCLUSION OF A RECOMMENDED NEW CONDITION IN THE NEWBORN SCREENING

IHHS – The Executive Officer of the Center for Congenital and Inherited Disorders has assumed the additional administrative work of CIDAC and the Subcommittee regarding the activities required in the relevant sections of S.F. 2345. This includes collaborating with the CIDAC chair and vice chair to recruit Subcommittee and ad hoc members; conduct research; draft documents; provide supporting resources such as references to applicable laws and federal recommendations and evidence-based information about new conditions; set agendas and take meeting notes; convene the meetings; and communicate all activities to CIDAC chairs, Subcommittee members, and other stakeholders. This administrative work will need to be sustained as new conditions are added to the RUSP and to support continued review of Iowa's newborn screening panel.

It should be noted that CIDAC members and Subcommittee members serve on a volunteer basis and receive no compensation for their commitment.

SHL – No new instruments or staff will be required to complete testing for Pompe, MPS1, and X-ALD. There will be an increase in costs for calibration and maintenance of the instruments utilized for testing of the new conditions. However, the new conditions require the regular purchase of expensive new reagents and testing kits as well. An adjustment to the newborn screening fee will be required to account for the increased costs.

STFU – Physician experts for Pompe, MPS I and X-ALD serve as the medical consultants for these additional disorders. There is also a need to educate newborn screening stakeholders about these new disorders. This requires developing educational resources (brochure inserts, notices to birthing facilities, newsletter articles, press releases, etc.) as well as additional staff time to carry out these tasks. While no additional Follow-Up or genetic counselors are needed to sufficiently staff the caseload work of adding these new disorders, staff workload will need to be reallocated to complete the necessary educational/informational tasks.

DELAY AND THE REASON FOR THE DELAY BY THE ADVISORY COMMITTEE IN COMPLYING WITH THE SPECIFIED TWELVE-MONTH TIMEFRAME IN CONSIDERING OR RECOMMENDING THE INCLUSION OF A NEW CONDITION IN THE NEWBORN SCREENING TO THE DEPARTMENT

There has been no delay by CIDAC in complying with the twelve-month timeframe in considering or recommending the inclusion of a new condition in the newborn screening panel to the Department.

ANY DELAY AND THE REASON FOR THE DELAY BY THE DEPARTMENT IN COMPLYING WITH THE SPECIFIED EIGHTEEN-MONTH TIME FRAME ININCLUDING A NEW CONDITION IN THE NEWBORN SCREENING FOLLOWING RECEIPT OF A RECOMMENDATION FROM THE ADVISORY COMMITTEE RECOMMENDING THE INCLUSION OF SUCH CONDITION.

There has been no delay by the Department in complying with the specified eighteen-month timeframe in including a new condition in the newborn screening panel following a recommendation from CIDAC to include the condition on the panel.