Newborn Screening for Adrenoleukodystrophy in New York: Expect the Unexpected

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February 29, 2016

NEW YORK STATE | Department of Health | Wadsworth Center

The Unexpected

1. Joe Orsini got travel approval at 10:47am Friday

2. He will be presenting on Pompe Disease!!

ALD Screening in NYS

- Aidan Seeger, a 7 year old from Brooklyn passes 4/29/2012
- Mrs. Seeger called in May 2012 to discuss screening
- Family garnered support: NY politicians; website; billboards
- Bill submitted August 2012
- Approved by Health Finance Committee 02/28/2013
- Became law 03/31/2013; start 01/01/2014 (actual 12/30/13)


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Current New York State Assay

(Modified Krabbe and ALD)

Punch 3-mm specimen, add 200 µL methanol with d4-C26:0 LPC

↓ 1 hour extraction

Remove 50 µL of extract and combine with LSD extract

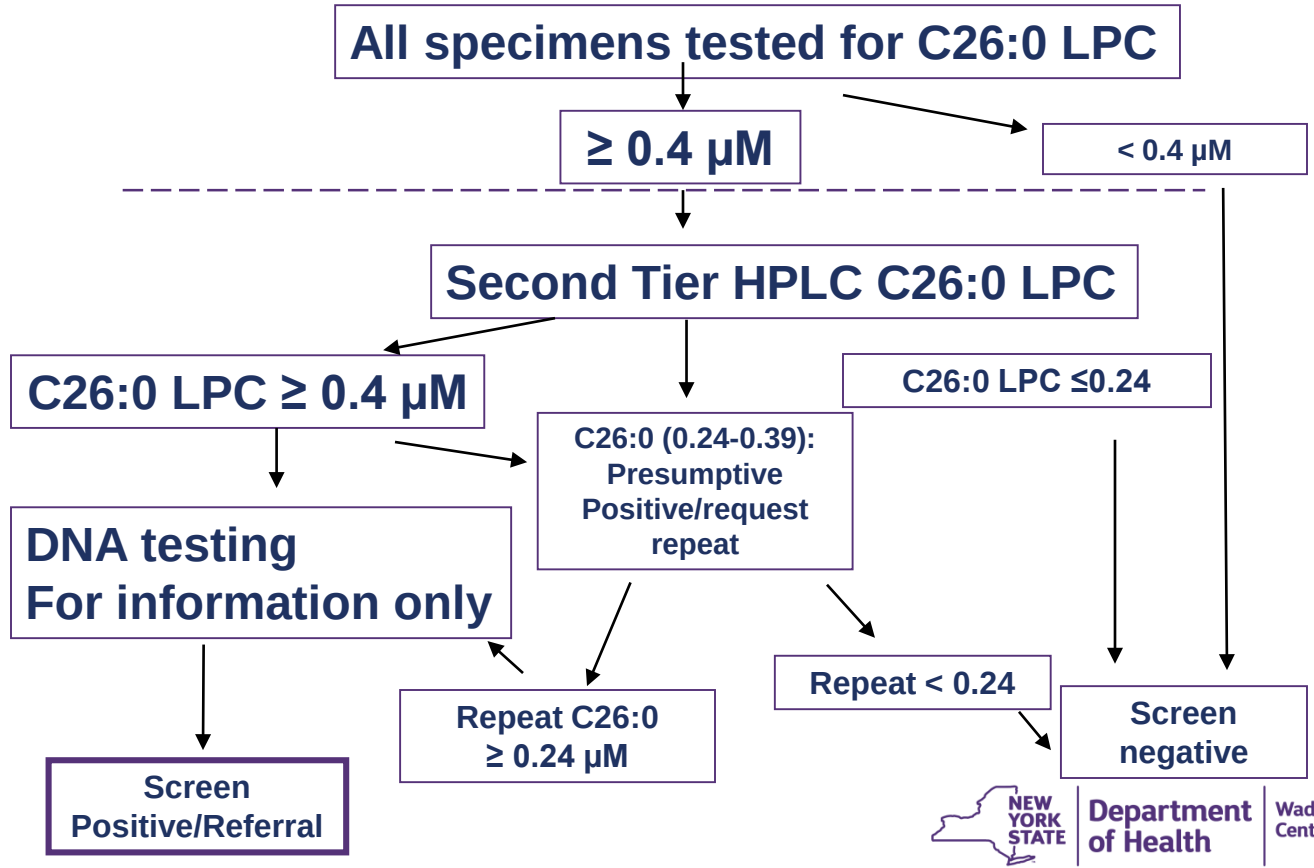
↓

Analyze samples, 1.5 minutes per sample/Marker is C26:LPC

↓

Follow screening algorithm

ALD Screening Algorithm



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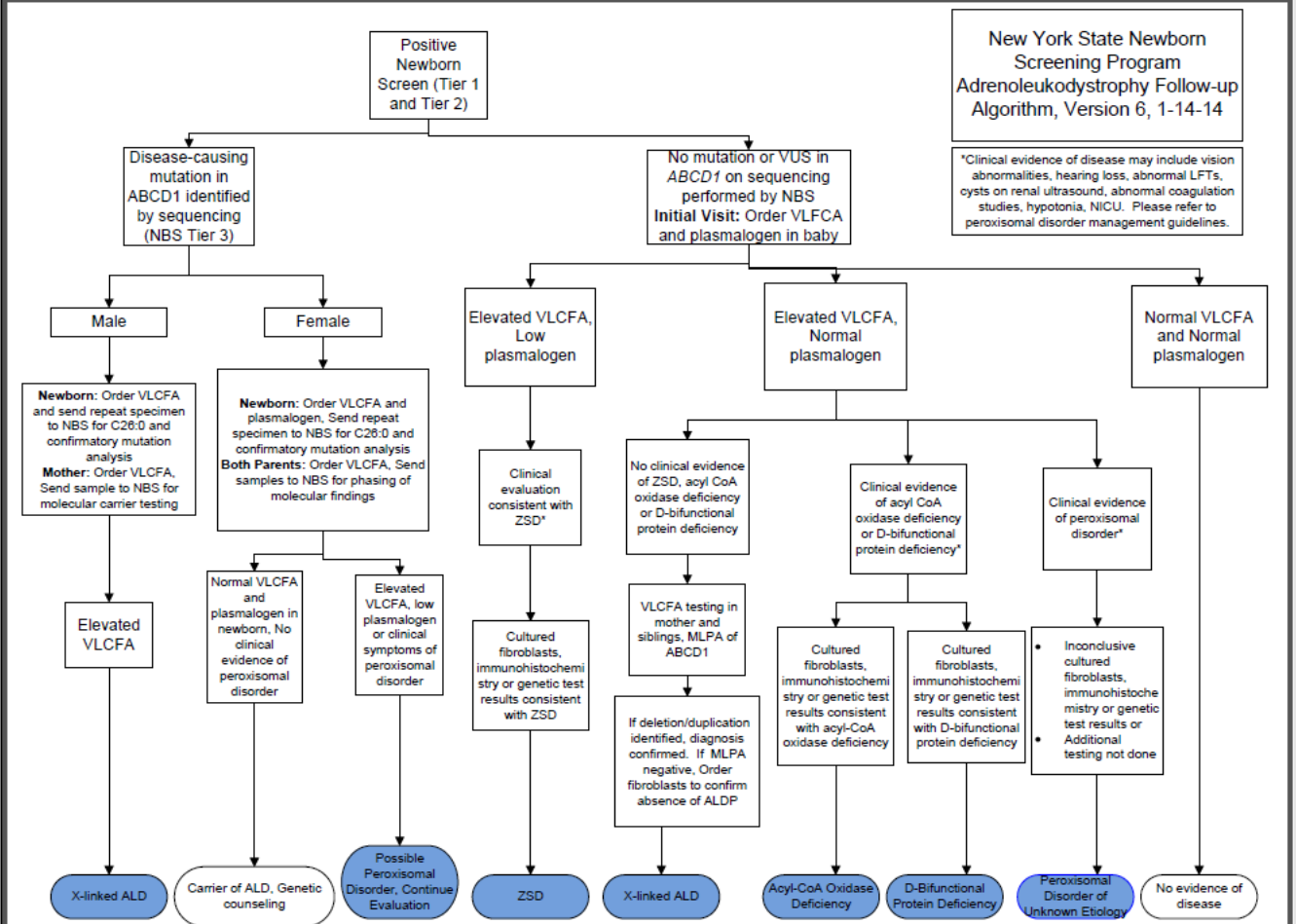
New York State Newborn Screening Program Adrenoleukodystrophy Follow-up Algorithm, Version 6, 1-14-14



Three Families Affected in Very Different Ways

Adrenoleukodystrophy Data

December 30, 2013 – February 22, 2016

- 512, 865 babies screened

- 262, 499 males
- 250, 366 females

Adrenoleukodystrophy Data

- 45 total referrals since 12/30/2013
- 22 girls and 23 boys

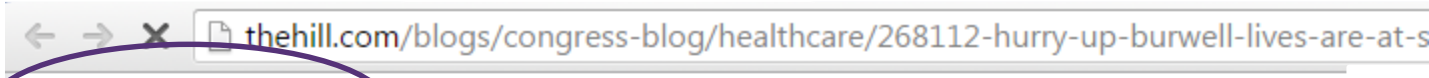
- 17 boys with ALD
- 19 carrier girls
- 1 carrier boy
- 5 Zellweger syndrome
- 1 Aicardi Goutieres syndrome
- 1 expired, likely PBD 1.79, 1.69
- 1 c.*8G>C only so far -- pending

Adrenoleukodystrophy Data

19 Mutations Known to Cause ALD

- p.Arg518Gln (carrier) – 2
- p.Arg591Gln (carrier) – 3
- p.Arg554His (ALD and carriers) – 2
- p.P623fs* – 2
- p.Q472Rfs*83 – 2

- 2 Polymorphisms -- *8G>C – very common
- 13 Novel (2 in one boy)



February 04, 2016, 02:00 pm

Hurry up, Burwell, lives are at stake

By Elisa Seeger

COMMENTS 0

Sylvia Burwell, what are you waiting for?

Every 36 hours a baby in the U.S. is born with **ALD** or adrenoleukodystrophy, a treatable genetic disease that's unnecessarily debilitating or fatal. It strikes one in 17,000 people, most severely boys and men, including my son Aidan.

He passed away on April 29, 2012 – just 11 months after being diagnosed too late. He was 7.

This mysterious and incurable brain disorder destroys myelin, the protective sheath surrounding the brain's neurons, nerve cells that literally control our thinking and movement.

Initial symptoms are as common as withdrawal, vision and hearing problems, difficulty concentrating. Eventually, onset ALD results in blindness, deafness, seizures, progressive dementia, and eventually permanent paralysis or death.

The reason ALD's ravages are so severe is because it's usually not diagnosed in time, if at all.

file:///C:/Users/Michele/Downloads/20160216Burwell_XALD%20response%20letter.pdf

THE SECRETARY OF HEALTH AND HUMAN SERVICES
WASHINGTON, D.C. 20201

FEB 16 2016

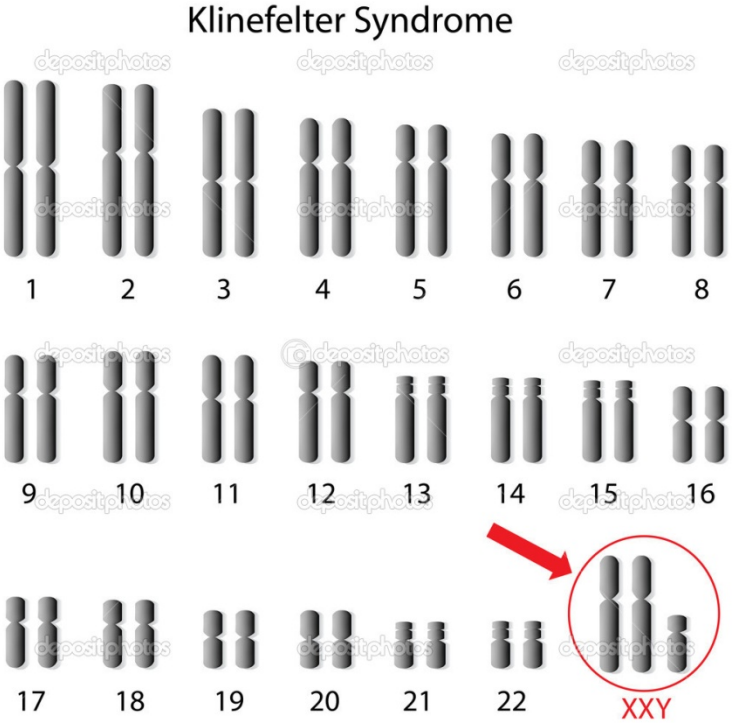
Joseph A. Bocchini, Jr., M.D.
Committee Chairperson
Advisory Committee on Heritable
Disorders in Newborns and Children
5600 Fishers Lane
Room 18W68
Rockville, MD 20857

Coincidence??

Dear Dr. Bocchini:

Thank you for your letter on behalf of the Advisory Committee on Heritable Disorders in Newborns and Children (ACHDNC) regarding the ACHDNC's recommendations to add X-linked Adrenoleukodystrophy (X-ALD) to the Recommended Uniform Screening Panel (RUSP)

Expected, But……
The Marty Luczak Story



The Unexpected

- Baby boy
- Long Island
- C26:0 – 0.38, 0.27
- DNA completed

c.-733G>C_c.-4_5delinsCCCCGGCCCT / *8G>C / Y

The Expected

- Boy undergoing surgery was spared adrenal crisis because providers knew he had ALD by screening
- Brothers were basis to identify other family members
- Sisters were basis to identify other family members
- We called referral for one family and they already had a strong family history
- Incidence is ~1/15,000 males; ~1/30,000 overall

Acknowledgements

- Monica Martin , Chad Biski, Ryan Wilson
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- Gerald Raymond, M.D.
- Ann Moser
- Inherited Metabolic Disease Specialty Care Center Directors
- Elisa Seeger

Thank You !!