



# Infographics and Outreach Used to Improve Newborn Screening Timeliness

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# Disclosure

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# Goal of newborn screening is to identify at risk babies before the onset of symptoms to reduce the chance of disability, morbidity and mortality.

- Iowa NBS program must have structures in place to adequately address the time critical conditions on NBS panel.
- Everyone involved in the process (birth facilities, midwives, PCPs and office staff, parents, etc) need to be aware of their roles(s) and how the newborn screening process works in Iowa



# Reality then and now

Babies born with time critical conditions detected by newborn screening can be born on any day of the week in any part of the state.

Do our current structures (receiving samples by mail and testing 6 days a week) allow us to reach our goal?

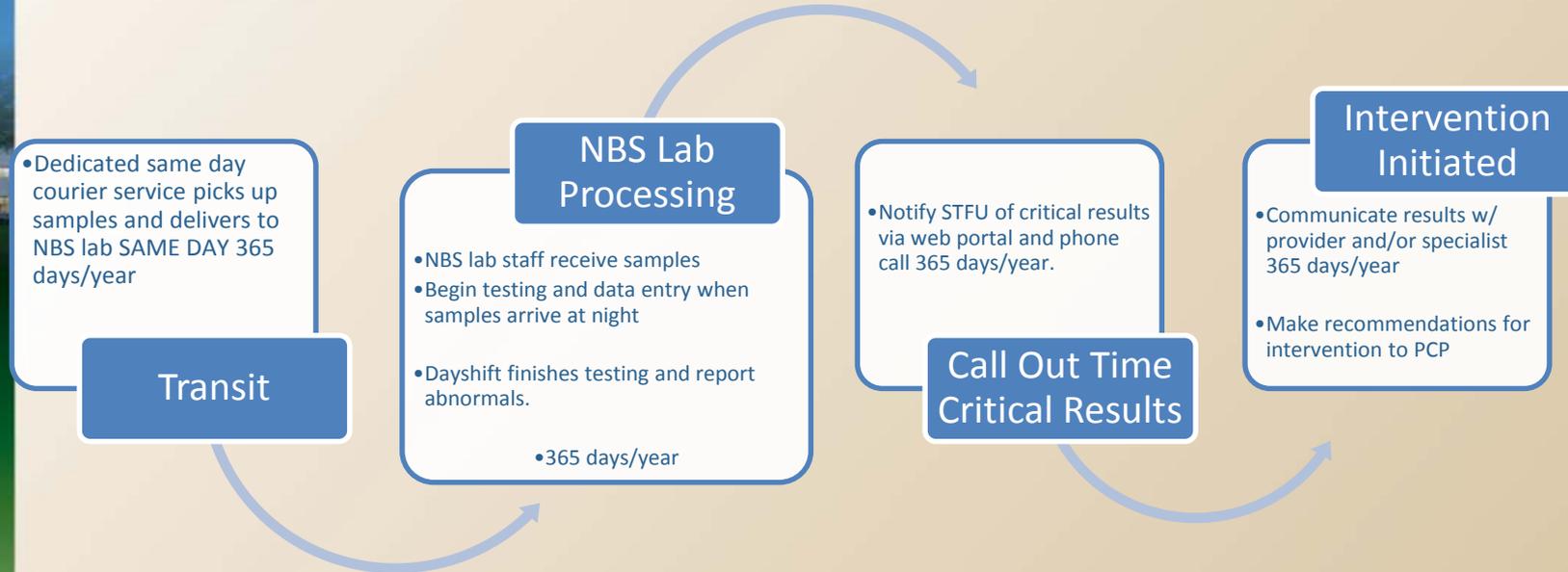


What changes could align our efforts with our goal?





# Iowa NBS program must have structures in place to adequately address the time critical conditions on NBS panel



So that: Every baby has the same opportunity for a healthy life regardless of which day or where they are born in Iowa.



# Challenge

- Making sure everyone in the newborn screening system understands the importance of his/her role.
- Utilize the available infrastructures as effectively as possible to maximize the benefits of “Timeliness” for all newborns in Iowa.



# Then there was ColIN



## Plan of attack

- ✓ Infographic
- ✓ Facility Education
- ✓ Technical assistance

Goal: Receive 95% of initial samples at newborn screening lab within ~~60~~ 65 hours or less from birth.



# Infographic

## Timeliness in Newborn Screening Report

2015-01-01 to 2015-03-31

Count: 919

A project of the Iowa Collaborative Improvement & Innovation Network (CoIIN) to improve timeliness in newborn screening

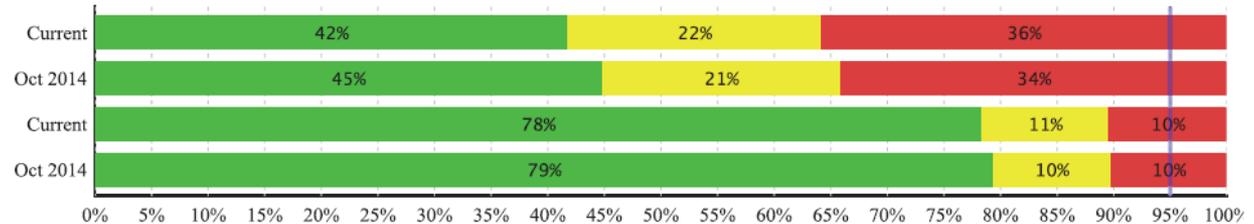
Hospital: HOSPITAL NAME  
 City / ID CITY NAME / ###

**GOAL: By January 2017, 95 percent of specimens will be received by SHL within 65 hours of birth.**

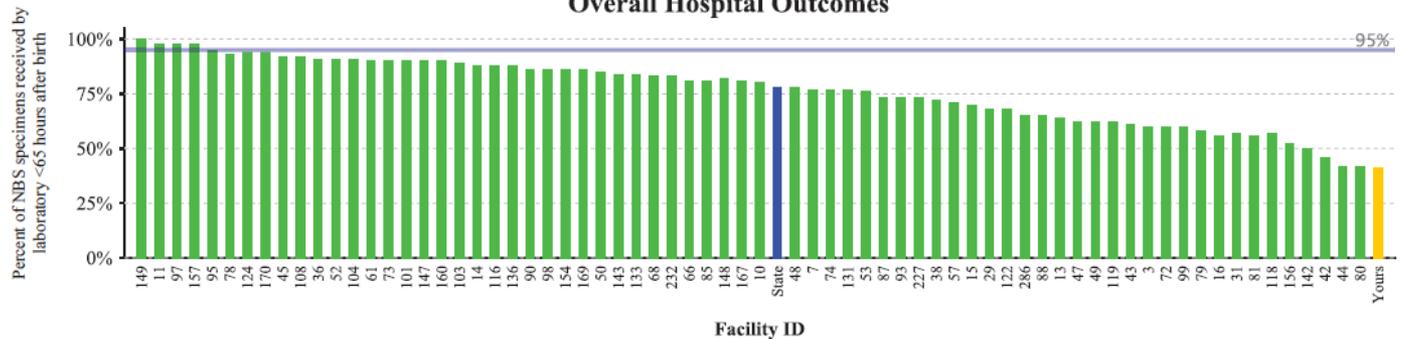
### Time between birth and receipt of specimen by the NBS laboratory

■ <= 65 hrs
 ■ 65.1 to 80 hrs
 ■ >80 hrs

Hospital  
 \_\_\_\_\_  
 State



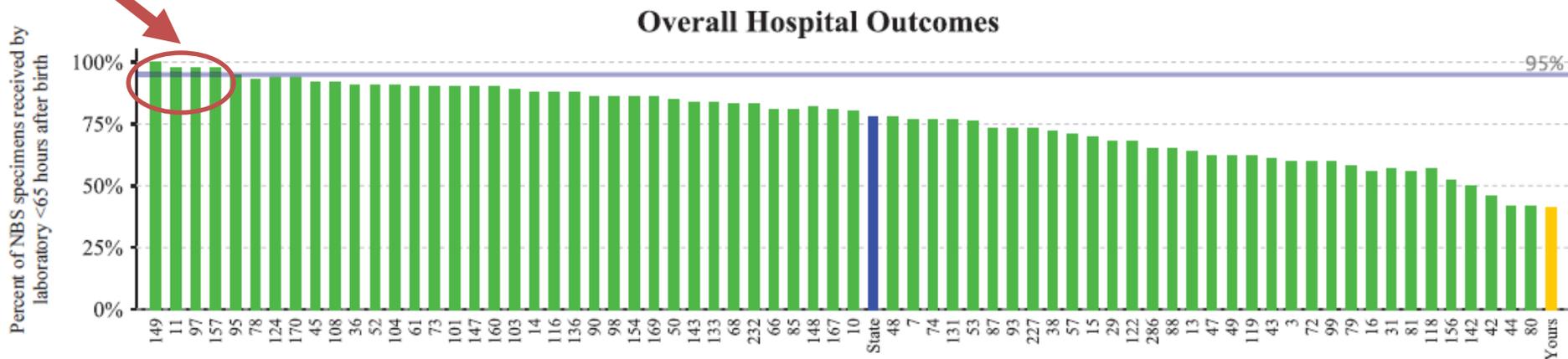
### Overall Hospital Outcomes





# 65 hours or less from birth???

- SMART goal? Are you sure that's an attainable goal?



# 65 hours or less from birth???



- SMART goal?  
Are you sure that's a attainable goal?

Case Study:  
Baby was born about 2.5 hours from newborn screening lab



Day of the week	Date	Time	Event
Thursday	6/11/2015	1653	Baby born
Friday	6/12/2015	1733	NBS collected (24.5hrs after birth)
Saturday	6/13/2015	2200	NBS received at newborn screening lab (54.5 hrs from birth)
Sunday	6/14/2015	0850	Abnormal TMS result communicated to Follow-up (65 hrs from birth)
Tuesday	6/14/2015	0945	PCP contact made with recommendations ( <b>66 hrs from birth</b> ). Baby already symptomatic (low blood sugars-PCP was not sure why yet)
Wednesday	6/17/2015	1040	Confirmation testing came BACK confirming LCHAD (baby is on day 6 of life-not quite 6 whole days old)



# Facility Education

## Webinar to kick off timeliness project statewide

- Goal of newborn screening and WHY timeliness matters
- Overview of Iowa's infrastructure and their role in the process
- Tools and reports available to use to monitor performance

**EVERY. HOUR. COUNTS.**

Statewide Collaborative Initiative to Improve  
Timeliness in Blood Spot Newborn Screening





# Facility Education cont.

- Partnerships



- Visited >20 facilities with representation from different departments (lab, M/B, NICU, etc.) in person or via Zoom.
- Monthly/quarterly emails with CollN infographic and feedback



# Houston, we have a problem!

- “We see we have 20% outside of the goal. Can you tell us what patients fell out?”
- “I have all these hospitals calling requesting courier pick up time changes”



Image from rebloggy.com



# Web portal resources

Nov 01, 2016  
16:10:48

Sample Turnaround Report  
From 2016-07-01 to 2016-09-30

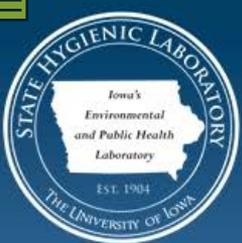
Page 1 of 1  
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Patient Name	Chart Number	Repeat	Birth to Collection	Collection to Receive	Birth to Receive	Receive to Report	Birth to Report		
			35	11	47	37	3 d 12 h		
	12773		40	10	50	30	3 d 9 h		
	14377		24	25	50	61	4 d 16 h		
	14382		24	28	52	61	4 d 18 h		
	12882		33	33	66	60	5 d 7 h		
	13661		35	41	76	33	4 d 14 h		
			24	83	108	33	5 d 21 h		
<b>Total Samples 7</b>			<b>Average Turnaround Time (# of samples for averages)</b>		<b>30(7)</b>	<b>33 (7)</b>	<b>64 (7)</b>	<b>45 (7)</b>	<b>4 d 14 h</b>

*Note: Repeat specimens, specimens with dates missing and specimens collected greater than 5 days after birth are not used for determining averages. Times are in hours except for "Birth to Report" which is in days and hours.*

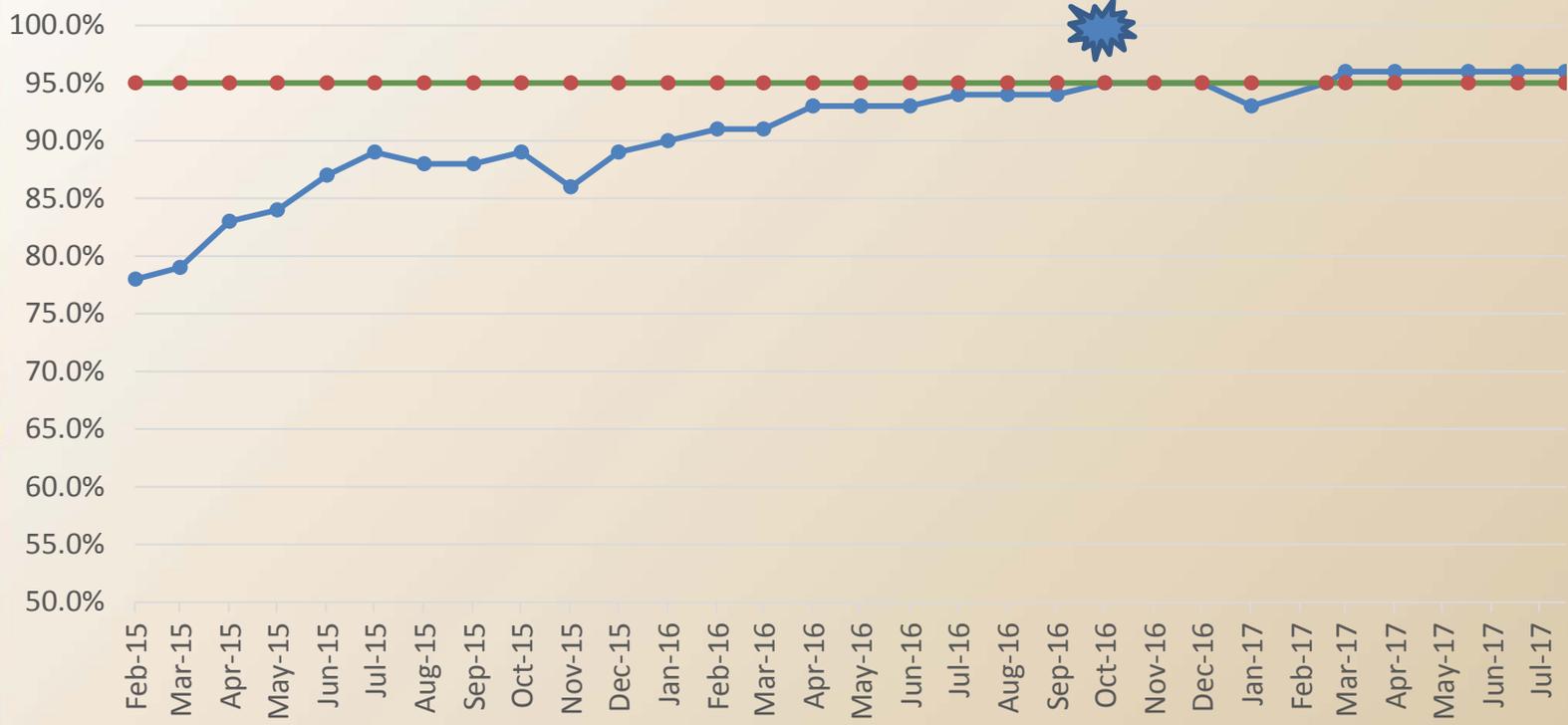
Facilities are able to log into the State Hygienic Web portal and view their turnaround time metrics





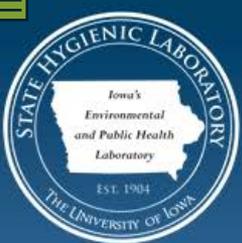
# Show me the data

Percent of samples received by newborn screening lab in 65 hours or less from birth



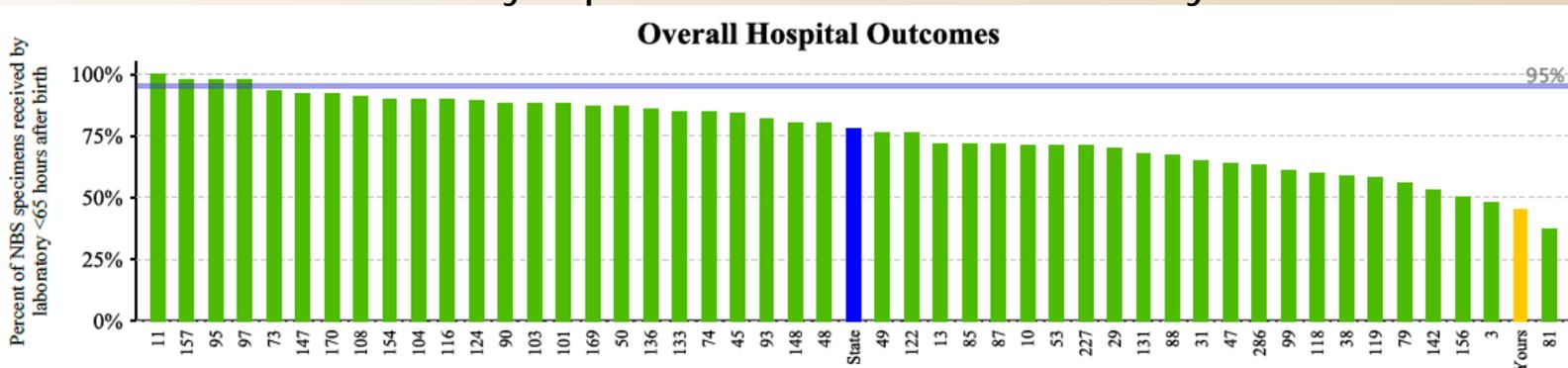
Date	Count	≤65 hours
Oct-Dec 2014	9586	79%
May-Aug 2017	10190	96%



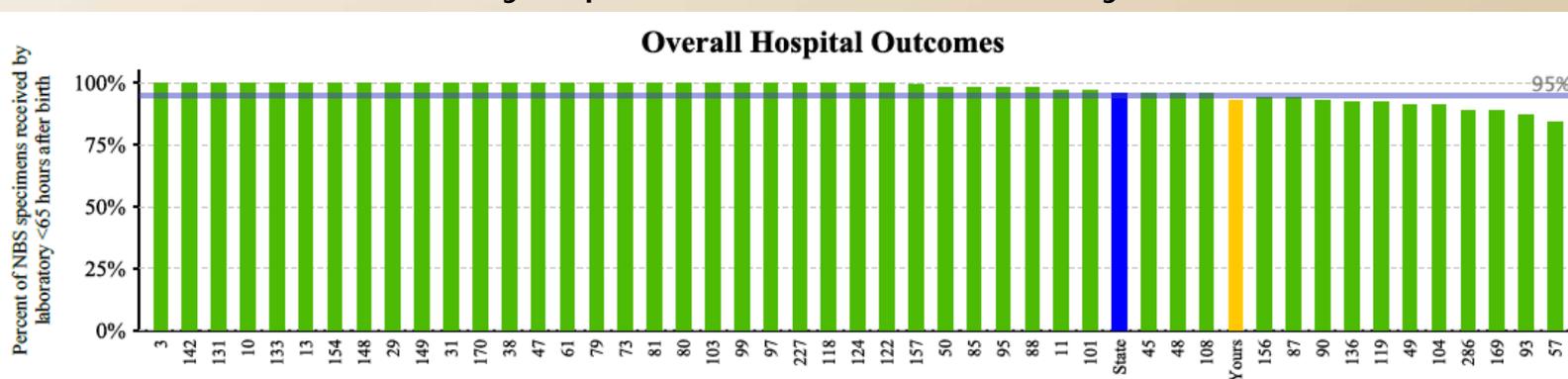


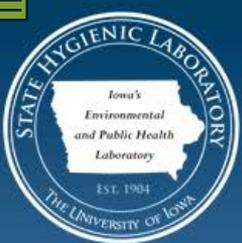
# Then and Now

1<sup>st</sup> monthly report sent to facilities: January 2015



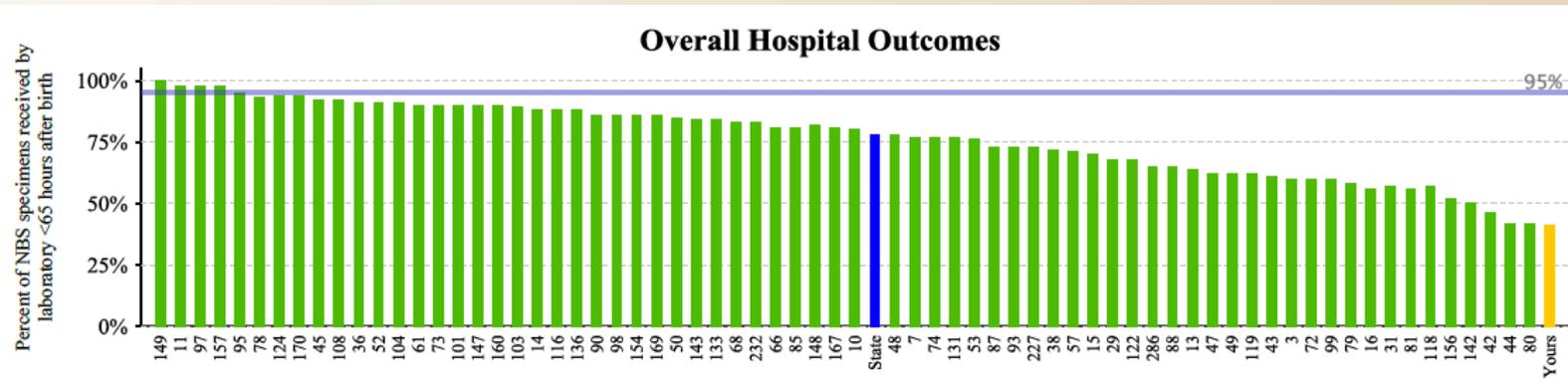
Monthly report sent to facilities: July 2017



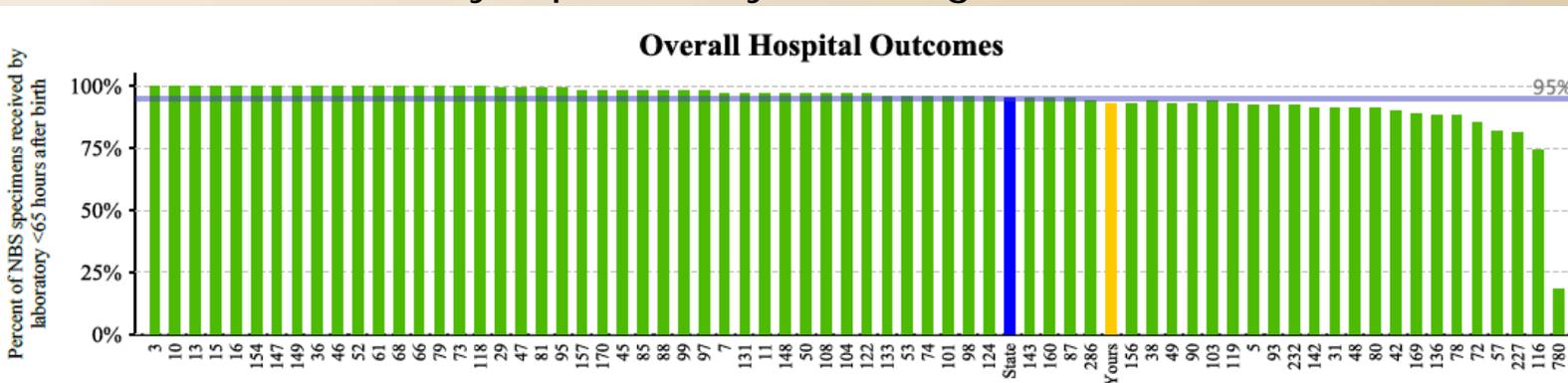


# Then and Now

1<sup>st</sup> Quarterly report sent to facilities: Jan-March 2015



Quarterly report : May 22<sup>nd</sup>-August 22<sup>nd</sup>, 2015

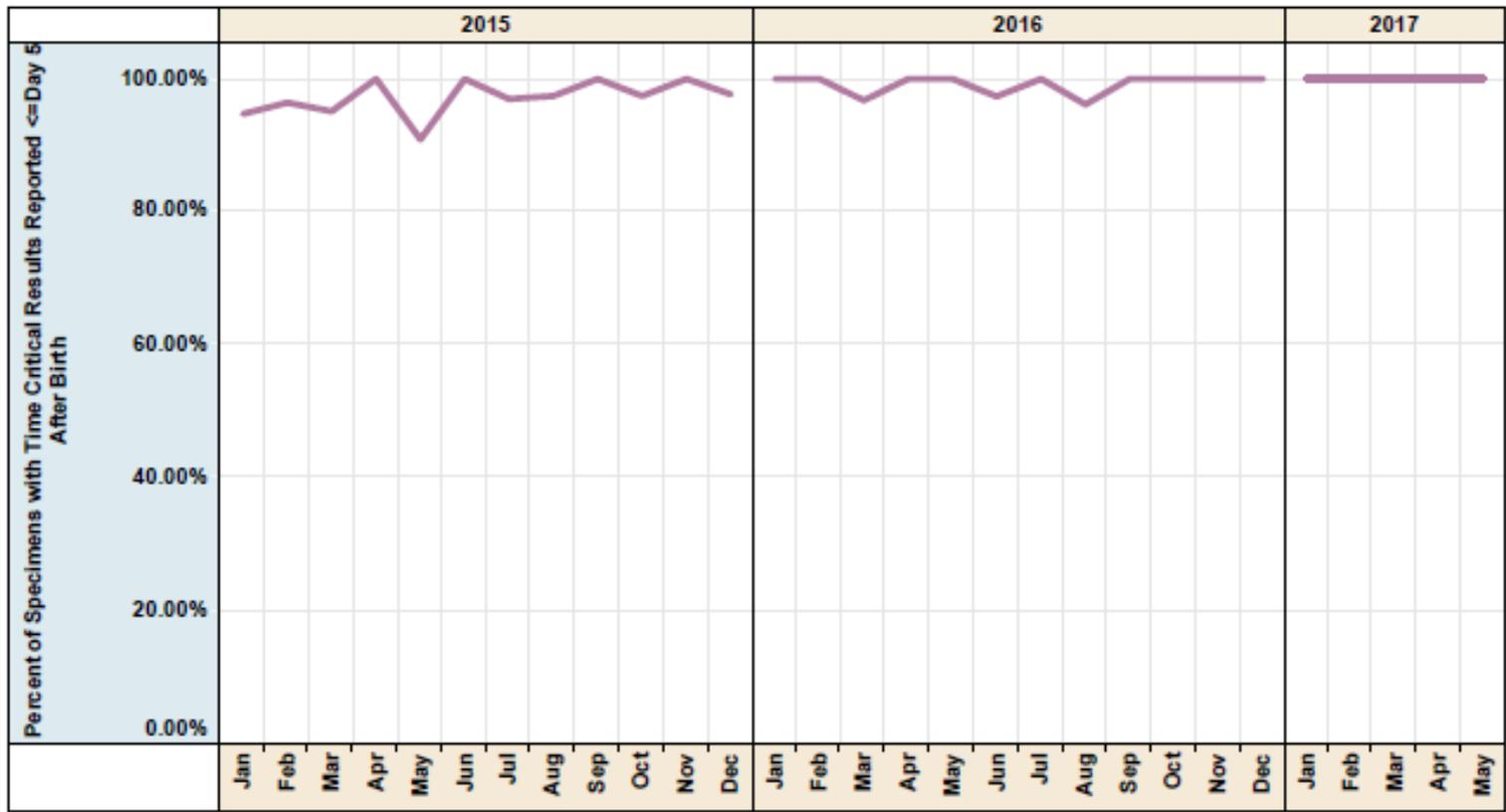




# Eyes on the Prize

Reporting Time Category  
 <=Day 5

Q15d.i: Percent of first dried blood spot specimens with out-of-range results for time critical disorders requiring clinical diagnostic workup by an appropriate medical professional reported out in the specified time categories from birth.



ACHDNC recommendation: newborn screen results for time critical conditions should be available within 5 days of life

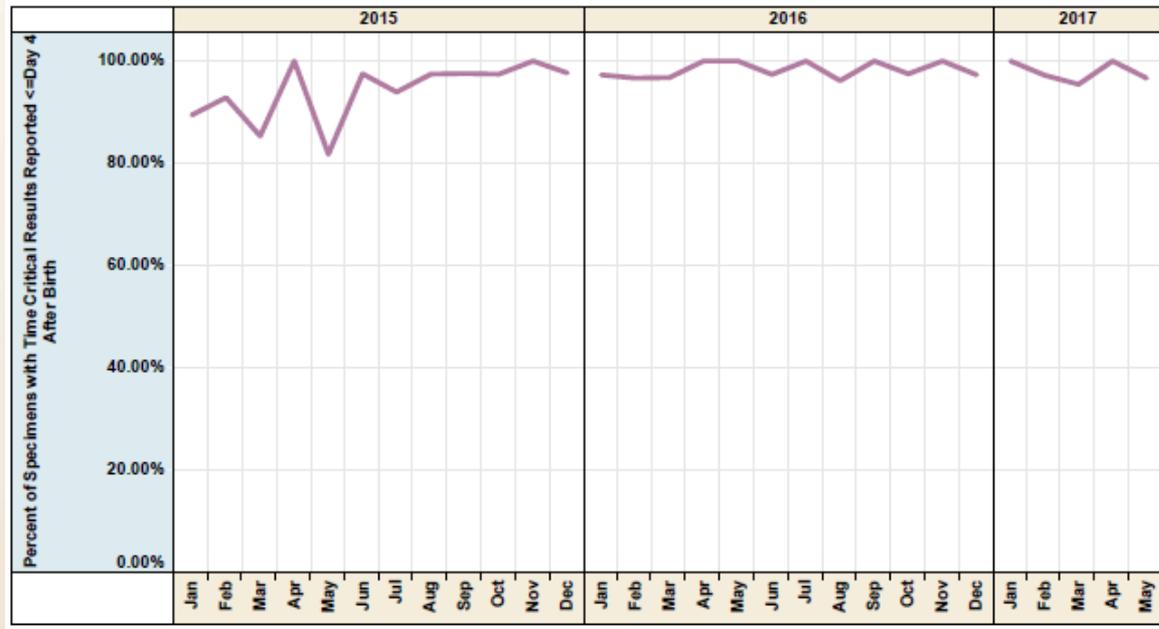




# Eyes on the Prize

QI5d.i: Percent of first dried blood spot specimens with out-of-range results for time critical disorders requiring clinical diagnostic workup by an appropriate medical professional reported out in the specified time categories from birth.

Reporting Time Category  
≤ Day 4



Month	≤ Day 2	Day 3	Day 4	Day 5
1	68.8%	96.9%	100.0%	100.0%
2	47.2%	94.4%	97.2%	100.0%
3	50.0%	86.4%	95.5%	100.0%
4	60.0%	96.7%	100.0%	100.0%
5	50.0%	90.0%	96.7%	100.0%
6	67.9%	92.9%	92.9%	100.0%
7	61.8%	94.1%	100.0%	100.0%
<b>Grand Total</b>	<b>55.3%</b>	<b>93.3%</b>	<b>98.0%</b>	<b>100.0%</b>







# Team Effort

## **NBS CoIIN Team**

### **NBS Program staff**

Kim Piper, RN, BS, CPH, CPHG -Iowa Department of Public Health

Carol Johnson-University of Iowa Stead Family Children's Hospital

Stan Berberich, PhD- State Hygienic Laboratory at the University of Iowa

### **Hospital Partners**

Kristen Ernsperger, MSN-Mercy Medical Center-DSM

Kim Vonahsen, MHA, MLS, SLS-Unity Point Iowa Methodist Medical Center

### **SHL IT**

Matt Bielicke

Dari Shirazi (now with APHL)

### **NewSteps360**

Ruthanne Sheller, MPH-QI Coach



**University of Iowa  
Stead Family  
Children's Hospital**

