

# 2014

Washington State  
Department of Health

Newborn Screening  
Program

April 2015

# Newborn Screening Program Annual Report

*Compliance, Parent Notification, and Quality*



Saving lives with  
a simple blood spot

**PUBLIC HEALTH**  
ALWAYS WORKING FOR A SAFER AND  
**HEALTHIER COMMUNITY**

Washington State Department of  
**Health**  
DOH 951-143 April 2015

# acknowledgments

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# Executive Summary

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Revisions to the newborn screening law RCW 70.83.080 effective June 2014 require the Department of Health to compile an annual report detailing the compliance rate of hospitals in meeting deadlines established under the statute. The report must also include the extent that health care providers are promptly informing parents about screening results that require further diagnostic evaluation. Additionally, the Newborn Screening Program provides performance data regarding specimen quality measures.

This initial report compiles data for the period July 1, 2014 through December 31, 2014. Subsequent reports will report on full calendar year compliance.

**Collection and Transit Times:** Each hospital or health care provider attending a birth outside of a hospital is required to collect and transport specimens to the Newborn Screening Laboratory within specified timeframes. These requirements ensure timely testing and diagnostic treatment for the protection of newborns. During this report period, statewide compliance rates were the following:

**Specimen Collection:** Initial specimens shall be collected no later than 48 hours following birth. For all Washington births, including hospitals, birth centers, and home births, 97.2 percent of initial specimens were collected in compliance with this timeframe.

**Transit Performance:** Initial specimens must be received by the State Laboratory within 72 hours of collection (excluding days that the laboratory is closed – Sundays and Thanksgiving.) For all Washington births, including hospitals, birth centers, and home births, 86 percent of specimen transit times were in compliance with this timeframe.

Statistics for individual hospitals are included in subsequent sections of this report.

**Parent Notification:** When screening results indicate an infant requires further diagnostic testing and evaluation, the Newborn Screening Program contacts the infant's health care provider with disorder-specific recommendations. The provider is then responsible for informing the parents. Health care providers are required to notify the Newborn Screening Program of the date they communicated the need for diagnostic testing to the parent or guardian. For the six month period of this report, 58.7 percent of the required notifications were received by the department. Referrals are classified into two types:

**Standard Referrals:** Due to the potential severity of the condition, clinical evaluation and diagnostic testing should be done immediately. Parents should be notified the same day as the referral. For standard referrals, 76.2 percent of the required notifications were received by the department. Of the reported notifications, 96.9 percent of standard referrals were made the same day as the referral.

**Non-Urgent Referrals:** Diagnostic testing and evaluation should be done as soon as possible. For non-urgent referrals, 53.7 percent of the required notifications were received by the department. Of the reported notifications, 84.8 percent of non-urgent referrals were made within three days of the referral.

Detailed notification statistics are included in subsequent sections of this report.

**Specimen Quality:** Quality measures include information on the number and type of unsatisfactory specimens received and the frequency of incomplete or incorrect demographic information submitted with specimens. Collecting good quality specimens and completely filling out the demographics on the specimen card are critical to the timely identification of babies with newborn screening conditions. These measures assist hospitals in identifying areas for training or improvement.

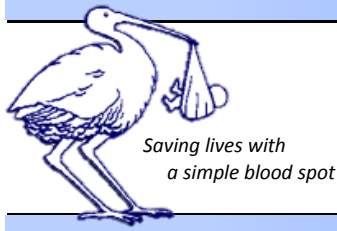
**Unsatisfactory Specimens:** Some specimens are considered unsatisfactory due to the quality of specimen collection or handling. In these cases, another specimen must be obtained to complete screening, which could delay diagnosis and treatment of an affected infant. Overall, 2 percent of specimens submitted were classified as unsatisfactory for the six month period.

**Demographic Errors on Specimens Cards:** Key demographic fields are necessary for interpreting newborn screening results and for identifying the infant. Specimens with invalid or missing demographic information could delay diagnosis and treatment of an affected infant. In the six month period, 13.5 percent of specimen cards submitted had one or more demographic errors.

Detailed specimen quality statistics are included in subsequent sections of this report.

Please note that specimen quality data will be reported by individual hospital beginning in 2015. Midwife, birth center, clinic and laboratory performance data will continue to be reported in aggregate.

**Future Activities:** In addition to general training regarding specimen collection and reporting, the Newborn Screening Program will continue to provide outreach and education to Washington State hospitals and other providers regarding their responsibility for specimen collection, specimen transit, and parent notification. The Newborn Screening Program routinely monitors the performance of hospitals and health care providers in meeting these responsibilities and will work with them to ensure timely testing, specimen submission, and appropriate diagnostic actions in order to protect and improve the health of Washington's youngest citizens.



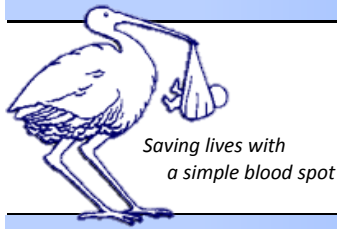
## Washington State Newborn Screening Program Specimen Collection and Transit Performance Report Births July 1, 2014 - December 31, 2014

Each hospital or health care provider attending a birth outside of a hospital is required to collect and transport specimens to the Newborn Screening Laboratory within specified timeframes (70.83.020 RCW). These requirements ensure timely testing and diagnostic treatment for the protection of newborns. The timeframes for specimen collection and transport are:

- 1) Initial specimen collected no later than 48 hours following birth
- 2) Initial specimen received by the State Lab within 72 hours of collection (excluding Sundays and Thanksgiving)

Hospital of Birth	City	Total Infants	1) Collection Compliance	2) Transit Compliance
Auburn Medical Center - Multicare	Auburn	584	98.6%	68.3%
Capital Medical Center	Olympia	348	98.0%	43.4%
Cascade Valley Hospital	Arlington	126	98.4%	72.2%
Central Washington Hospital	Wenatchee	732	99.7%	84.4%
Coulee Medical Center	Grand Coulee	27	88.9%	81.5%
Deaconess Medical Center	Spokane	802	98.8%	98.4%
Evergreen Health	Kirkland	2,377	89.5%	98.5%
Forks Community Hospital	Forks	36	88.9%	75.0%
Good Samaritan Hospital - Multicare	Puyallup	1,203	93.5%	81.7%
Grays Harbor Community Hospital	Aberdeen	276	98.6%	52.5%
Group Health Cooperative - Seattle	Seattle	808	98.4%	97.9%
Harborview Medical Center	Seattle	1	100%	100%
Harrison Medical Center	Bremerton	951	98.4%	94.6%
Highline Medical Center	Burien	466	98.5%	95.5%
Holy Family Hospital	Spokane	609	98.9%	84.1%
Island Hospital	Anacortes	200	95.5%	94.0%
Jefferson Healthcare	Port Townsend	51	100%	27.5%
Kadlec Hospital	Richland	1,430	98.7%	77.2%
Kittitas Valley Healthcare	Ellensburg	176	92.0%	52.3%
Klickitat Valley Hospital	Goldendale	1	100%	100%
Lake Chelan Community Hospital	Chelan	39	94.9%	56.4%
Legacy Salmon Creek Hospital	Vancouver	1,786	99.5%	92.2%
Madigan Army Medical Center	Joint Base Lewis-McChord	1,120	99.7%	86.8%
Mason General Hospital	Shelton	130	99.2%	22.3%
Mid Valley Hospital	Omak	123	95.9%	82.1%
Mount Carmel Hospital	Colville	136	95.6%	91.2%
Newport Community Hospital	Newport	45	100%	77.8%
North Valley Hospital	Tonasket	52	88.5%	82.7%
Northwest Hospital	Seattle	584	97.6%	99.3%
Olympic Memorial Hospital	Port Angeles	241	97.1%	48.5%

Hospital of Birth	City	Total Infants	1) Collection Compliance	2) Transit Compliance
Othello Community Hospital	Othello	243	99.6%	74.1%
Overlake Hospital Medical Center	Bellevue	1,909	99.5%	98.6%
PeaceHealth Southwest Medical Center	Vancouver	1,046	98.3%	92.5%
Prosser Memorial Hospital	Prosser	99	99.0%	44.4%
Providence Centralia Hospital	Centralia	364	97.5%	63.2%
Providence Everett Medical Center	Everett	2,329	98.6%	96.6%
Providence St Peter Hospital	Olympia	1,126	98.4%	91.7%
Pullman Regional Hospital	Pullman	212	98.1%	51.4%
Sacred Heart Medical Center	Spokane	1,585	98.4%	93.4%
Saint Elizabeth Hospital	Enumclaw	164	95.7%	82.9%
Saint Francis Hospital	Federal Way	618	99.4%	85.0%
Saint John Medical Center	Longview	468	98.5%	43.2%
Saint Joseph Hospital - Bellingham	Bellingham	1,019	98.3%	86.7%
Saint Joseph Hospital - Tacoma	Tacoma	2,100	99.5%	95.3%
Saint Mary Medical Center	Walla Walla	302	96.0%	18.9%
Samaritan Hospital	Moses Lake	508	98.0%	69.9%
Skagit Valley Hospital	Mount Vernon	549	96.5%	88.3%
Sunnyside Community Hospital	Sunnyside	375	98.1%	79.7%
Swedish Hospital - Ballard	Seattle	591	98.3%	76.6%
Swedish Hospital - Edmonds	Edmonds	604	98.7%	62.4%
Swedish Hospital - First Hill	Seattle	2,968	99.0%	99.3%
Swedish Hospital - Issaquah	Issaquah	646	99.5%	99.8%
Tacoma General Hospital - Multicare	Tacoma	1,547	98.9%	70.4%
Three Rivers Hospital	Brewster	40	80.0%	47.5%
Toppenish Community Hospital	Toppenish	219	97.3%	86.8%
Trios Health Hospital	Kennewick	834	99.5%	71.2%
University of Washington Medical Center	Seattle	1,071	97.1%	96.6%
Valley Hospital And Medical Center	Spokane	359	98.3%	96.9%
Valley Medical Center	Renton	1,897	97.4%	91.6%
Walla Walla General Hospital	Walla Walla	107	100%	38.3%
Whidbey General Hospital	Coupeville	97	96.9%	83.5%
Whitman Hospital And Medical Center	Colfax	29	79.3%	51.7%
Willapa Harbor Hospital	South Bend	1	100%	0%
Yakima Valley Memorial Hospital	Yakima	1,444	99.8%	73.0%
<b>All Hospital Births</b>	<b>Statewide</b>	<b>42,930</b>	<b>97.9%</b>	<b>86.2%</b>
<b>All Out-of-Hospital Births</b>	<b>Statewide</b>	<b>1,658</b>	<b>79.2%</b>	<b>79.8%</b>
<b>All Washington State Births</b>	<b>Statewide</b>	<b>44,588</b>	<b>97.2%</b>	<b>86.0%</b>



# Washington State Newborn Screening Program

## Specimen Collection and Transit Performance Report

### by Hospital Birth Volume

**Births July 1, 2014 - December 31, 2014**

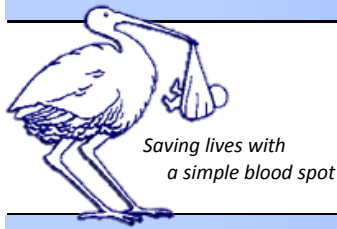
Each hospital is required to collect and transport specimens to the Newborn Screening Laboratory within specified timeframes (70.83.020 RCW). These requirements ensure timely testing and diagnostic treatment for the protection of newborns. The timeframes for specimen collection and transport are:

- 1) Initial specimen collected no later than 48 hours following birth
- 2) Initial specimen received by the State Lab within 72 hours of collection (excluding Sundays and Thanksgiving)

Hospital of Birth	City	Total Infants	1) Collection Compliance	2) Transit Compliance
<b>High Volume Hospitals (&gt; 500 births per quarter)</b>		<b>27,957</b>	<b>97.8%</b>	<b>90.9%</b>
Evergreen Health	Kirkland	2,377	89.5%	98.5%
Good Samaritan Hospital - Multicare	Puyallup	1,203	93.5%	81.7%
Kadlec Hospital	Richland	1,430	98.7%	77.2%
Legacy Salmon Creek Hospital	Vancouver	1,786	99.5%	92.2%
Madigan Army Medical Center	Joint Base Lewis-McChord	1,120	99.7%	86.8%
Overlake Hospital Medical Center	Bellevue	1,909	99.5%	98.6%
PeaceHealth Southwest Medical Center	Vancouver	1,046	98.3%	92.5%
Providence Everett Medical Center	Everett	2,329	98.6%	96.6%
Providence St Peter Hospital	Olympia	1,126	98.4%	91.7%
Sacred Heart Medical Center	Spokane	1,585	98.4%	93.4%
Saint Joseph Hospital - Bellingham	Bellingham	1,019	98.3%	86.7%
Saint Joseph Hospital - Tacoma	Tacoma	2,100	99.5%	95.3%
Swedish Hospital - First Hill	Seattle	2,968	99.0%	99.3%
Tacoma General Hospital - Multicare	Tacoma	1,547	98.9%	70.4%
University of Washington Medical Center	Seattle	1,071	97.1%	96.6%
Valley Medical Center	Renton	1,897	97.4%	91.6%
Yakima Valley Memorial Hospital	Yakima	1,444	99.8%	73.0%
<b>Medium Volume Hospitals (100-500 births per quarter)</b>		<b>13,493</b>	<b>98.4%</b>	<b>79.2%</b>
Auburn Medical Center - Multicare	Auburn	584	98.6%	68.3%
Capital Medical Center	Olympia	348	98.0%	43.4%
Central Washington Hospital	Wenatchee	732	99.7%	84.4%
Deaconess Medical Center	Spokane	802	98.8%	98.4%
Grays Harbor Community Hospital	Aberdeen	276	98.6%	52.5%
Group Health Cooperative - Seattle	Seattle	808	98.4%	97.9%
Harrison Medical Center	Bremerton	951	98.4%	94.6%
Highline Medical Center	Burien	466	98.5%	95.5%
Holy Family Hospital	Spokane	609	98.9%	84.1%
Island Hospital	Anacortes	200	95.5%	94.0%
Northwest Hospital	Seattle	584	97.6%	99.3%



Hospital of Birth	City	Total Infants	1) Collection Compliance	2) Transit Compliance
<b>Medium Volume Hospitals (100-500 births per quarter) cont.</b>		<b>13,493</b>	<b>98.4%</b>	<b>79.2%</b>
Olympic Memorial Hospital	Port Angeles	241	97.1%	48.5%
Othello Community Hospital	Othello	243	99.6%	74.1%
Providence Centralia Hospital	Centralia	364	97.5%	63.2%
Pullman Regional Hospital	Pullman	212	98.1%	51.4%
Saint Francis Hospital	Federal Way	618	99.4%	85.0%
Saint John Medical Center	Longview	468	98.5%	43.2%
Saint Mary Medical Center	Walla Walla	302	96.0%	18.9%
Samaritan Hospital	Moses Lake	508	98.0%	69.9%
Skagit Valley Hospital	Mount Vernon	549	96.5%	88.3%
Sunnyside Community Hospital	Sunnyside	375	98.1%	79.7%
Swedish Hospital - Ballard	Seattle	591	98.3%	76.6%
Swedish Hospital - Edmonds	Edmonds	604	98.7%	62.4%
Swedish Hospital - Issaquah	Issaquah	646	99.5%	99.8%
Toppenish Community Hospital	Toppenish	219	97.3%	86.8%
Trios Health Hospital	Kennewick	834	99.5%	71.2%
Valley Hospital and Medical Center	Spokane	359	98.3%	96.9%
<b>Low Volume Hospitals (&lt; 100 births per quarter)</b>		<b>1,480</b>	<b>95.4%</b>	<b>63.4%</b>
Cascade Valley Hospital	Arlington	126	98.4%	72.2%
Coulee Medical Center	Grand Coulee	27	88.9%	81.5%
Forks Community Hospital	Forks	36	88.9%	75.0%
Harborview Medical Center	Seattle	1	100%	100%
Jefferson Healthcare	Port Townsend	51	100%	27.5%
Kittitas Valley Healthcare	Ellensburg	176	92.0%	52.3%
Klickitat Valley Hospital	Goldendale	1	100%	100%
Lake Chelan Community Hospital	Chelan	39	94.9%	56.4%
Mason General Hospital	Shelton	130	99.2%	22.3%
Mid Valley Hospital	Omak	123	95.9%	82.1%
Mount Carmel Hospital	Colville	136	95.6%	91.2%
Newport Community Hospital	Newport	45	100%	77.8%
North Valley Hospital	Tonasket	52	88.5%	82.7%
Prosser Memorial Hospital	Prosser	99	99.0%	44.4%
Saint Elizabeth Hospital	Enumclaw	164	95.7%	82.9%
Three Rivers Hospital	Brewster	40	80.0%	47.5%
Walla Walla General Hospital	Walla Walla	107	100%	38.3%
Whidbey General Hospital	Coupeville	97	96.9%	83.5%
Whitman Hospital and Medical Center	Colfax	29	79.3%	51.7%
Willapa Harbor Hospital	South Bend	1	100%	0%
<b>All Hospital Births</b>		<b>42,930</b>	<b>97.9%</b>	<b>86.2%</b>



# Washington State Newborn Screening Program

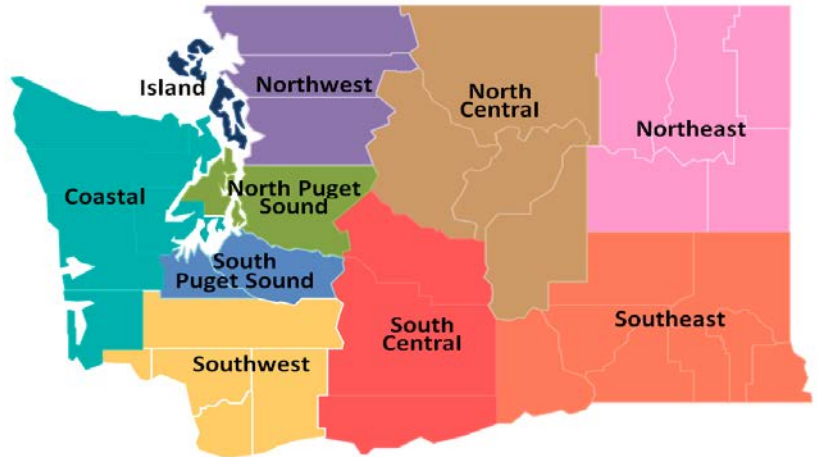
## Specimen Collection and Transit Performance Report

### by Hospital Geographic Location

Births July 1, 2014 - December 31, 2014

Each hospital is required to collect and transport specimens to the Newborn Screening Laboratory within specified timeframes (70.83.020 RCW). These requirements ensure timely testing and diagnostic treatment for the protection of newborns. The timeframes for specimen collection and transport are:

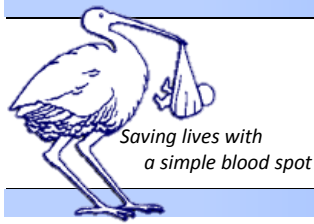
- 1) Initial specimen collected no later than 48 hours following birth
- 2) Initial specimen received by the State Lab within 72 hours of collection (excluding Sundays and Thanksgiving)



Hospital of Birth	City	Total Births	1) Collection Compliance	2) Transit Compliance
<b>North Puget Sound Hospitals</b>		<b>15,635</b>	<b>97.1%</b>	<b>94.8%</b>
Auburn Medical Center - Multicare	Auburn	584	98.6%	68.3%
Evergreen Health	Kirkland	2,377	89.5%	98.5%
Group Health Cooperative - Seattle	Seattle	808	98.4%	97.9%
Harborview Medical Center	Seattle	1	100%	100%
Harrison Medical Center	Bremerton	951	98.4%	94.6%
Highline Medical Center	Burien	466	98.5%	95.5%
Northwest Hospital	Seattle	584	97.6%	99.3%
Overlake Hospital Medical Center	Bellevue	1,909	99.5%	98.6%
Saint Elizabeth Hospital	Enumclaw	164	95.7%	82.9%
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Swedish Hospital - Ballard	Seattle	591	98.3%	76.6%
Swedish Hospital - First Hill	Seattle	2,968	99.0%	99.3%
Swedish Hospital - Issaquah	Issaquah	646	99.5%	99.8%
University of Washington Medical Center	Seattle	1,071	97.1%	96.6%
Valley Medical Center	Renton	1,897	97.4%	91.6%
<b>South Puget Sound Hospitals</b>		<b>7,444</b>	<b>98.2%</b>	<b>83.7%</b>
Capital Medical Center	Olympia	348	98.0%	43.4%
Good Samaritan Hospital - Multicare	Puyallup	1,203	93.5%	81.7%
Madigan Army Medical Center	Joint Base Lewis-McChord	1,120	99.7%	86.8%
Providence St Peter Hospital	Olympia	1,126	98.4%	91.7%
Saint Joseph Hospital - Tacoma	Tacoma	2,100	99.5%	95.3%
Tacoma General Hospital - Multicare	Tacoma	1,547	98.9%	70.4%

Hospital of Birth	City	Total Births	1) Collection Compliance	2) Transit Compliance
<b>Northwest Hospitals</b>		<b>4,627</b>	<b>98.3%</b>	<b>88.3%</b>
Cascade Valley Hospital	Arlington	126	98.4%	72.2%
Providence Everett Medical Center	Everett	2,329	98.6%	96.6%
Saint Joseph Hospital - Bellingham	Bellingham	1,019	98.3%	86.7%
Skagit Valley Hospital	Mount Vernon	549	96.5%	88.3%
Swedish Hospital - Edmonds	Edmonds	604	98.7%	62.4%
<b>Southwest Hospitals</b>		<b>3,664</b>	<b>98.8%</b>	<b>83.1%</b>
Legacy Salmon Creek Hospital	Vancouver	1,786	99.5%	92.2%
PeaceHealth Southwest Medical Center	Vancouver	1,046	98.3%	92.5%
Providence Centralia Hospital	Centralia	364	97.5%	63.2%
Saint John Medical Center	Longview	468	98.5%	43.2%
<b>Southeast Hospitals</b>		<b>3,631</b>	<b>98.5%</b>	<b>67.3%</b>
Kadlec Hospital	Richland	1,430	98.7%	77.2%
Othello Community Hospital	Othello	243	99.6%	74.1%
Prosser Memorial Hospital	Prosser	99	99.0%	44.4%
Pullman Regional Hospital	Pullman	212	98.1%	51.4%
Saint Mary Medical Center	Walla Walla	302	96.0%	18.9%
Sunnyside Community Hospital	Sunnyside	375	98.1%	79.7%
Trios Health Hospital	Kennewick	834	99.5%	71.2%
Walla Walla General Hospital	Walla Walla	107	100%	38.3%
Whitman Hospital and Medical Center	Colfax	29	79.3%	51.7%
<b>Northeast Hospitals</b>		<b>3,536</b>	<b>98.5%</b>	<b>93.0%</b>
Deaconess Medical Center	Spokane	802	98.8%	98.4%
Holy Family Hospital	Spokane	609	98.9%	84.1%
Mount Carmel Hospital	Colville	136	95.6%	91.2%
Newport Community Hospital	Newport	45	100%	77.8%
Sacred Heart Medical Center	Spokane	1,585	98.4%	93.4%
Valley Hospital and Medical Center	Spokane	359	98.3%	96.9%
<b>South Central Hospitals</b>		<b>1,840</b>	<b>98.8%</b>	<b>72.7%</b>
Kittitas Valley Healthcare	Ellensburg	176	92.0%	52.3%
Klickitat Valley Hospital	Goldendale	1	100%	100%
Toppenish Community Hospital	Toppenish	219	97.3%	86.8%
Yakima Valley Memorial Hospital	Yakima	1,444	99.8%	73.0%

Hospital of Birth	City	Total Births	1) Collection Compliance	2) Transit Compliance
<b>North Central Hospitals</b>		<b>1,521</b>	<b>97.6%</b>	<b>77.6%</b>
Central Washington Hospital	Wenatchee	732	99.7%	84.4%
Coulee Medical Center	Grand Coulee	27	88.9%	81.5%
Lake Chelan Community Hospital	Chelan	39	94.9%	56.4%
Mid Valley Hospital	Omak	123	95.9%	82.1%
North Valley Hospital	Tonasket	52	88.5%	82.7%
Samaritan Hospital	Moses Lake	508	98.0%	69.9%
Three Rivers Hospital	Brewster	40	80.0%	47.5%
<b>Coastal Region Hospitals</b>		<b>735</b>	<b>97.8%</b>	<b>45.2%</b>
Forks Community Hospital	Forks	36	88.9%	75.0%
Grays Harbor Community Hospital	Aberdeen	276	98.6%	52.5%
Jefferson Healthcare	Port Townsend	51	100%	27.5%
Mason General Hospital	Shelton	130	99.2%	22.3%
Olympic Memorial Hospital	Port Angeles	241	97.1%	48.5%
Willapa Harbor Hospital	South Bend	1	100%	0%
<b>Island Region Hospitals</b>		<b>297</b>	<b>96.0%</b>	<b>90.6%</b>
Island Hospital	Anacortes	200	95.5%	94.0%
Whidbey General Hospital	Coupeville	97	96.9%	83.5%
<b>All Hospital Births</b>		<b>42,930</b>	<b>97.9%</b>	<b>86.2%</b>



## Washington State Newborn Screening Program

### Timeliness of Parent Notification by Health Care Providers

Births July 1, 2014 - December 31, 2014

When screening results indicate an infant requires diagnostic testing and evaluation, the Newborn Screening Program contacts the infant's health care provider with disorder-specific recommendations. The infant's provider is then responsible for informing the parents. Health care providers are required to notify the Newborn Screening Program of the date they communicated the need for diagnostic testing to the parent or guardian (70.83.070 RCW).

Referrals are classified into two types:

#### Standard Referrals

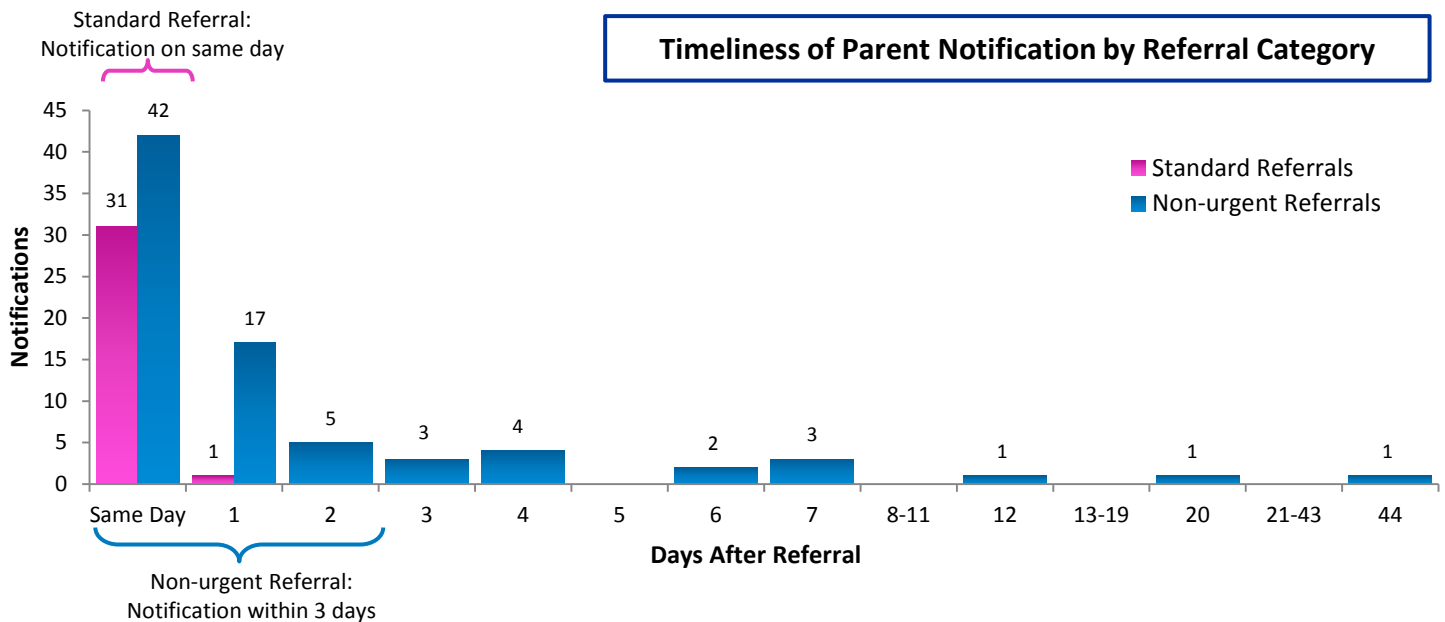
Due to the potential severity of the condition, clinical evaluation and diagnostic testing should be done immediately. Parents should be notified the same day as the referral.

#### Non-urgent Referrals

Diagnostic testing and evaluation should be done as soon as possible. Parents should also be notified as soon as possible, ideally within three days of the referral.

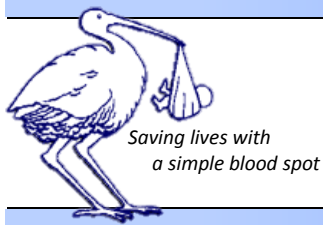
Newborn Screening Referral Category	Infants Referred for Diagnostic Testing		Health Care Provider Reported Date of Parent Notification		On-time Parent Notification	
	Total	Percent	Total	Percent	Total	Percent
Standard Referral	42	22.2%	32	76.2%	31	96.9%
Non-urgent Referral	147	77.8%	79	53.7%	67	84.8%
<b>All Referrals</b>	<b>189*</b>	<b>100%</b>	<b>111</b>	<b>58.7%</b>	<b>98</b>	<b>88.3%</b>

\*Excludes 10 instances where the health care provider began diagnostic testing prior to screening results based on family history, prenatal diagnosis, or clinical symptoms.



**Disorders included in Standard Referrals:** Argininosuccinic acidemia (ASA), Congenital adrenal hyperplasia (CAH), Congenital hypothyroidism (CH), Galactosemia (GALT), Isovaleric acidemia (IVA), Long-chain L-3-hydroxy acyl-CoA dehydrogenase (LCHAD) deficiency, Medium chain acyl-CoA dehydrogenase (MCAD) deficiency, Methylmalonic acidemias (MMA), Very-long chain acyl-CoA dehydrogenase (VLCAD) deficiency

**Disorders included in Non-urgent Referrals:** Cystic fibrosis (CF), Mild congenital hypothyroidism (CH), Carnitine uptake defect (CUD), Partial Galactosemia (GALT), Homocystinuria (HCY), Hemoglobinopathies (HB), 3-hydroxy-3-methylglutaric aciduria (HMG)/ Multiple carboxylase deficiency (MCD), Severe combined immunodeficiency (SCID)



# Washington State Newborn Screening Program

## Unsatisfactory Specimens & Demographic Errors Report

Received July 1, 2014 - December 31, 2014

### Unsatisfactory Specimens

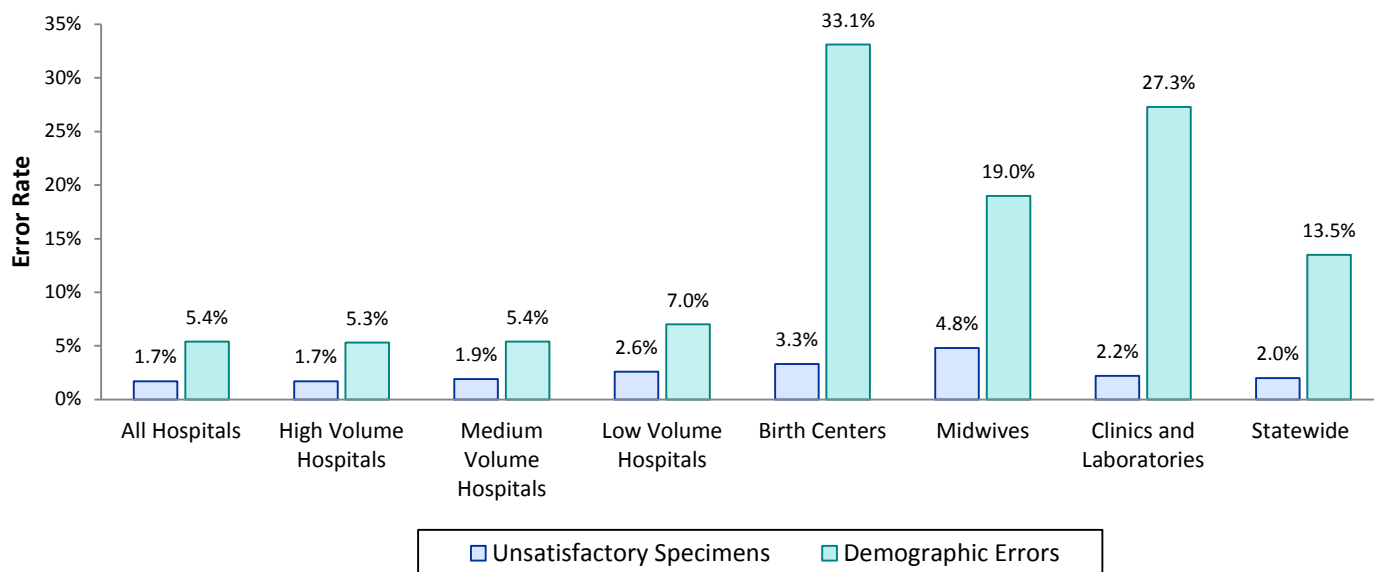
Some specimens are considered unsatisfactory due to the quality of specimen collection or handling. These specimens are tested for extreme values but another specimen must be obtained to complete screening. The need to obtain a repeat specimen could delay diagnosis and treatment of an affected infant.

### Demographic Errors

Some specimens arrive with missing or invalid demographic information. Key demographic fields are necessary for interpreting newborn screening results and for identifying the infant. Missing or invalid information can delay screening results and could delay diagnosis and treatment of an affected infant.

Submitter Group <sup>1</sup>	Total Specimens	Unsatisfactory Specimens <sup>2</sup>		Demographic Errors <sup>3</sup>	
		Total	Error Rate	Total	Error Rate
<b>All Hospital Specimens</b>	<b>54,037</b>	<b>939</b>	<b>1.7%</b>	<b>2,917</b>	<b>5.4%</b>
High Volume Hospitals	46,336	780	1.7%	2,476	5.3%
Medium Volume Hospitals	6,028	115	1.9%	324	5.4%
Low Volume Hospitals	1,673	44	2.6%	117	7.0%
<b>All Birth Center Specimens</b>	<b>275</b>	<b>9</b>	<b>3.3%</b>	<b>91</b>	<b>33.1%</b>
<b>All Midwife Specimens</b>	<b>2,253</b>	<b>108</b>	<b>4.8%</b>	<b>427</b>	<b>19.0%</b>
<b>All Clinic and Laboratory Specimens</b>	<b>30,315</b>	<b>671</b>	<b>2.2%</b>	<b>8,280</b>	<b>27.3%</b>
<b>Statewide</b>	<b>86,880</b>	<b>1,727</b>	<b>2.0%</b>	<b>11,715</b>	<b>13.5%</b>

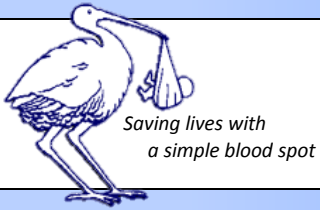
**Error Rates by Submitter Group<sup>1</sup>**



<sup>1</sup> See [Hospital Volume Key](#) for hospital volume categorizations

<sup>2</sup> See [Unsatisfactory Specimen Key](#) for descriptions and causes of unsatisfactory specimens

<sup>3</sup> Includes specimen cards with one or more missing or invalid demographic field

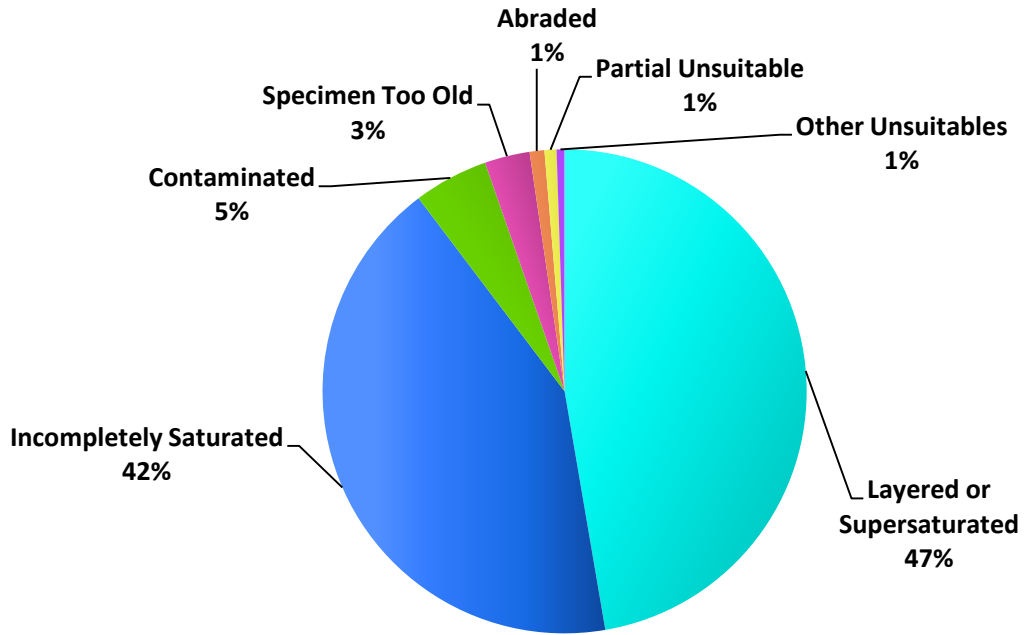


# Washington State Newborn Screening Program

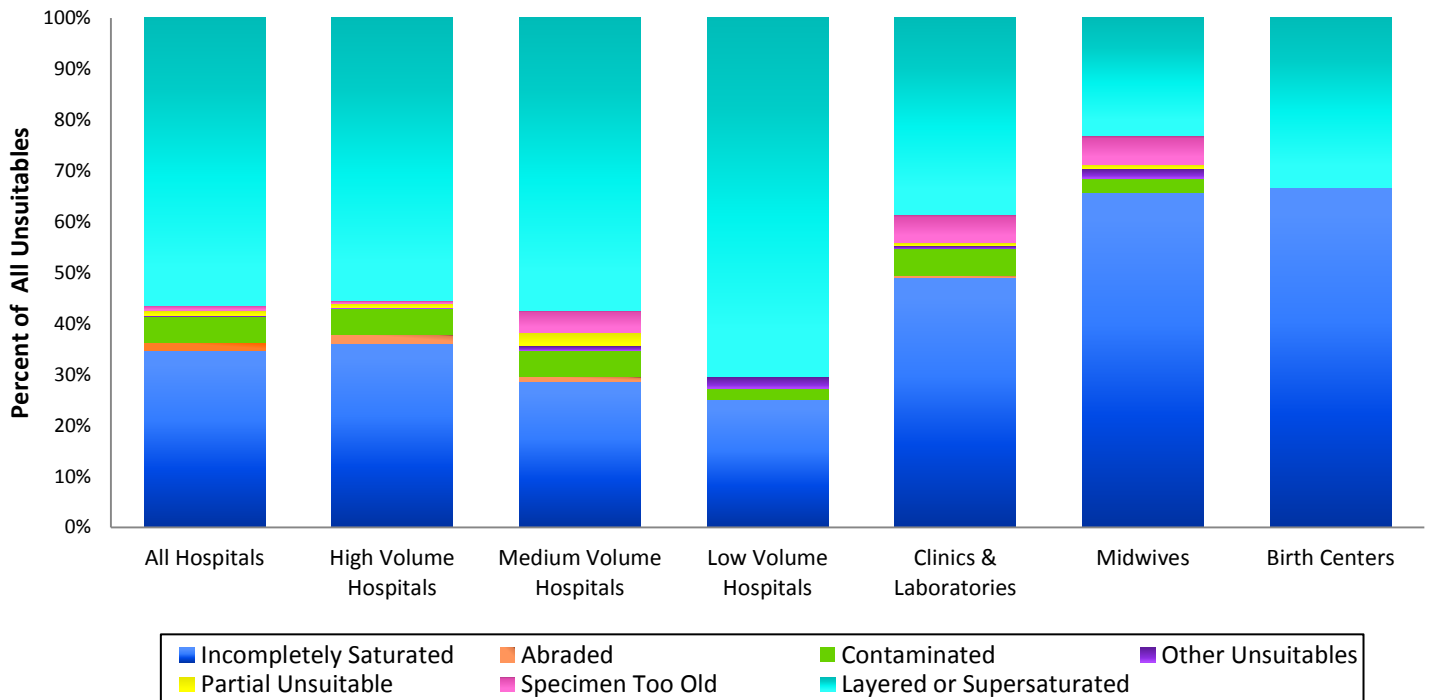
## Unsatisfactory Specimens

Received July 1, 2014 - December 31, 2014

**Unsatisfactory Specimen Error Types<sup>1</sup>**  
 Statewide: 1,727 specimens were unsatisfactory (2.0% of all specimens)



### Unsatisfactory Specimen Error Type by Submitter Group<sup>2</sup>



<sup>1</sup> See [Unsatisfactory Specimen Key](#) for descriptions and causes of unsatisfactory specimens

<sup>2</sup> See [Hospital Volume Key](#) for hospital volume categorizations



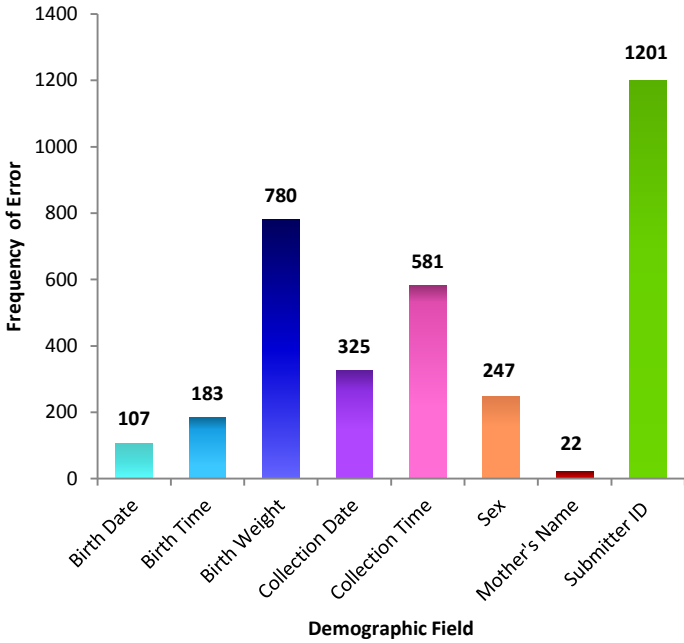
Saving lives with  
a simple blood spot

# Washington State Newborn Screening Program

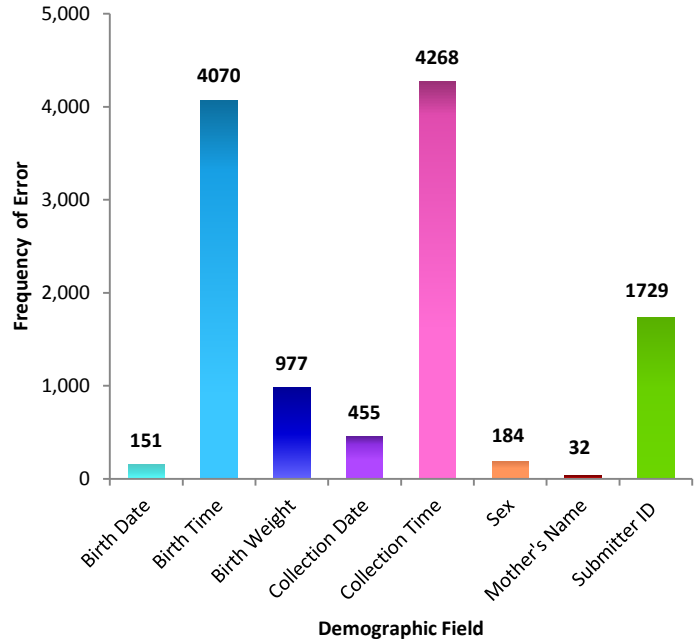
## Demographic Errors on Specimen Cards

Received July 1, 2014 - December 31, 2014

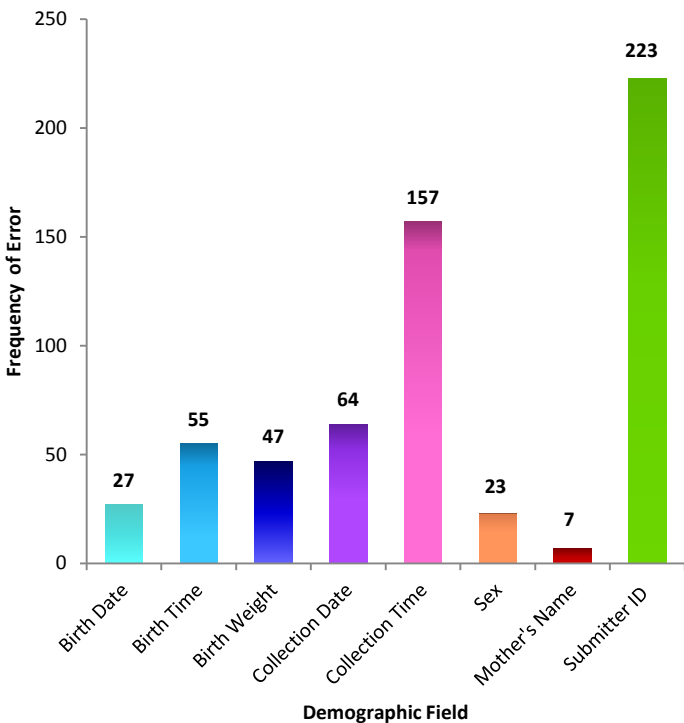
### All Hospital Errors



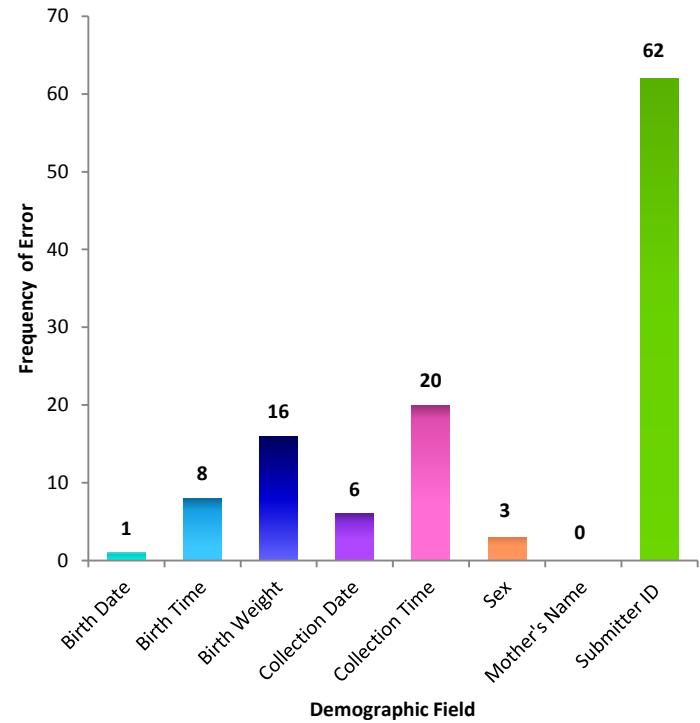
### Clinic and Laboratory Errors



### Midwife Errors



### Birth Center Errors



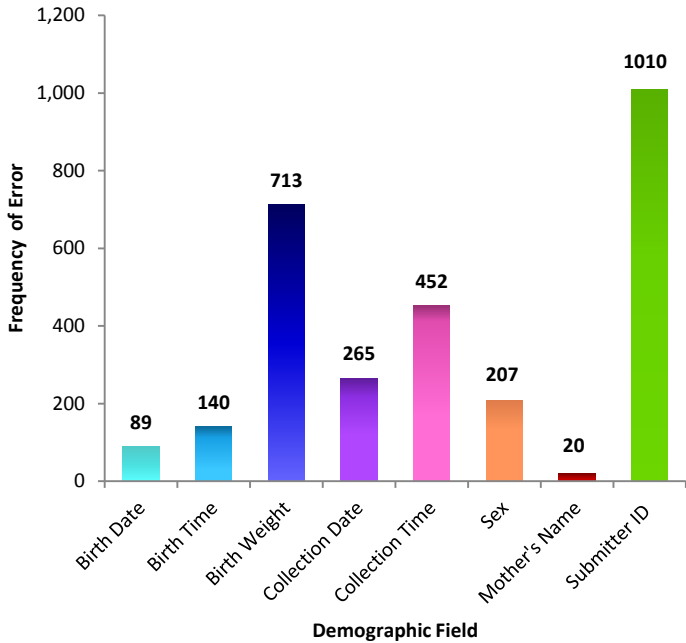


## Demographic Errors on Specimen Cards (cont.)

Received July 1, 2014 - December 31, 2014

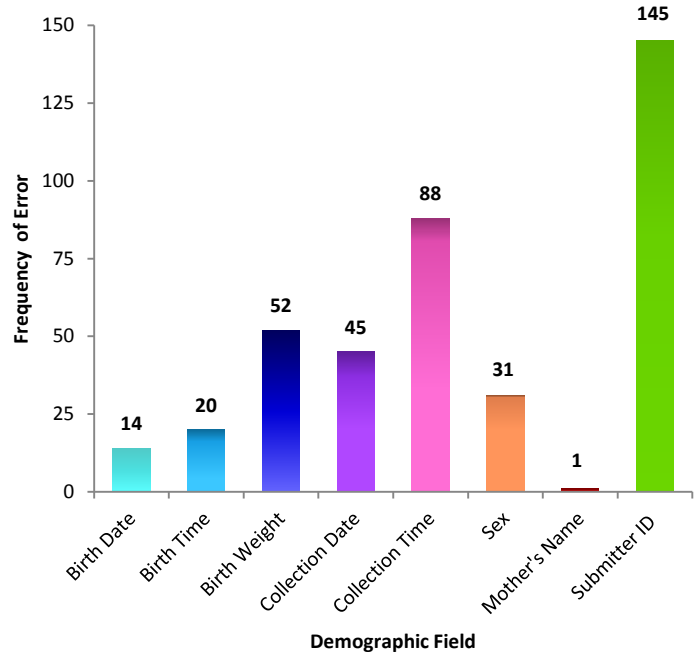
### High Volume Hospital Errors

> 3 specimens/day



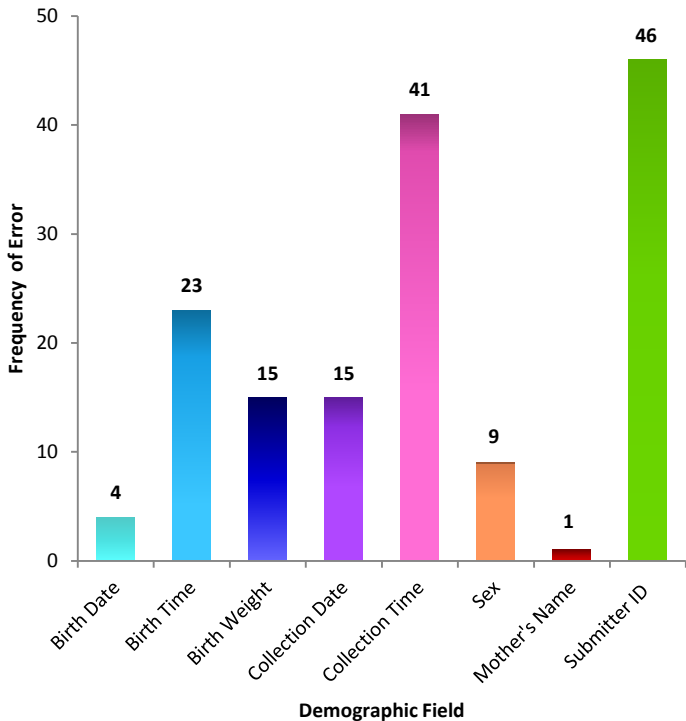
### Medium Volume Hospital Errors

1 to 3 specimens/day

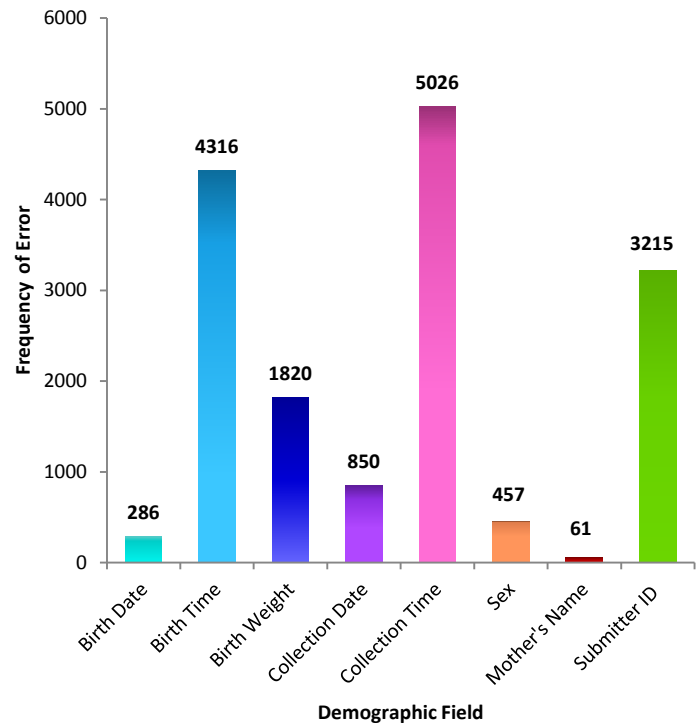


### Low Volume Hospital Errors

< 1 specimen/day



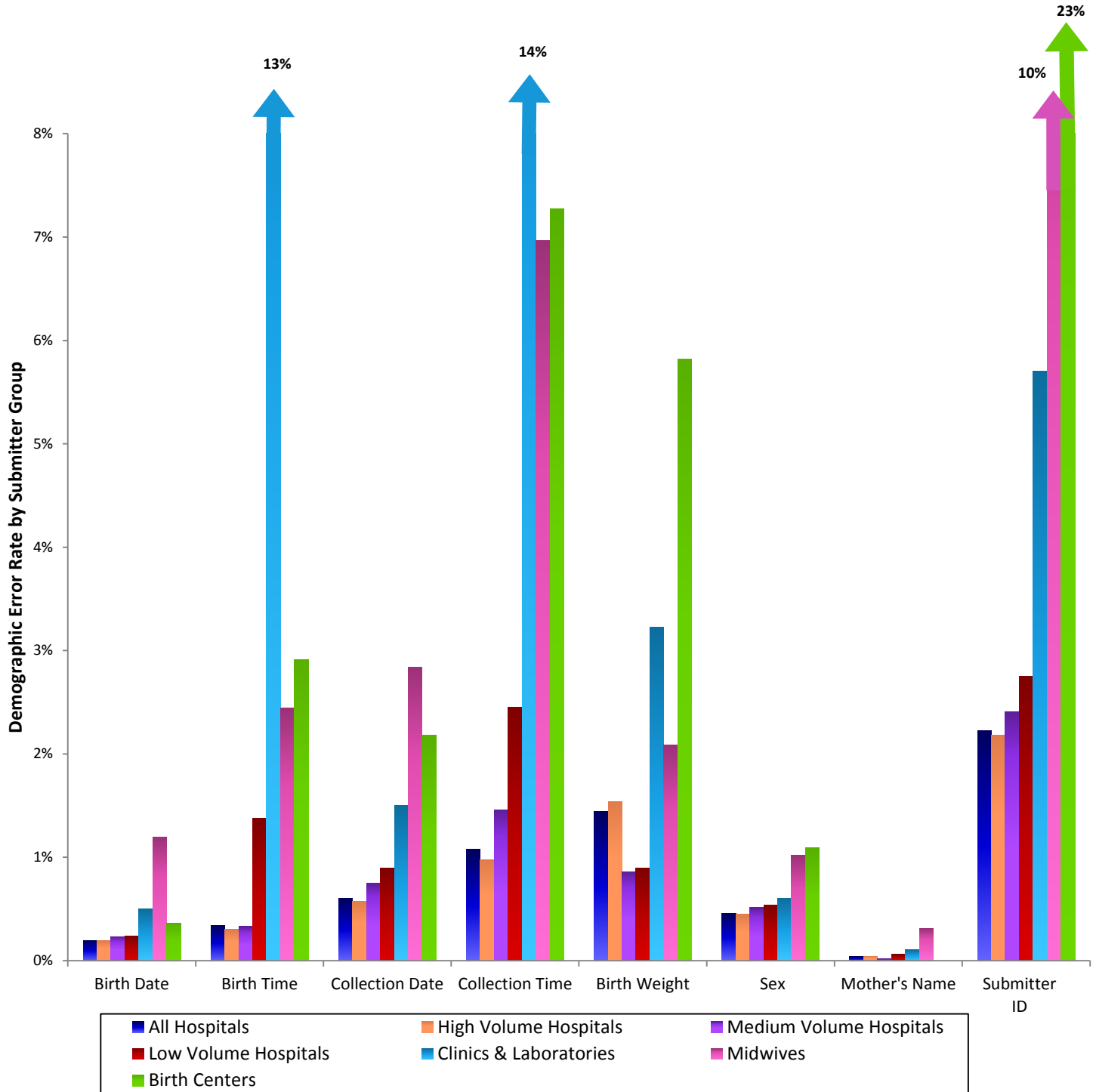
### Statewide Errors



## Demographic Errors on Specimen Cards (cont.)

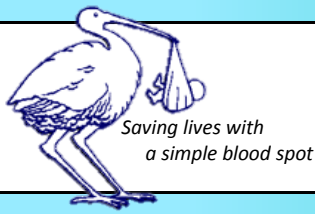
Received July 1, 2014 - December 31, 2014

### Demographic Field Error Rates for All Specimens by Submitter Group<sup>1</sup>



<sup>1</sup> See [Hospital Volume Key](#) for hospital volume categorizations

For example: 13% of specimens submitted by Clinics & Laboratories have an incorrect or missing time of birth



## Washington State Newborn Screening Program

### Key: Hospital Volume Categorizations

July 1, 2014 - December 31, 2014

#### Hospital Birth Volume

Average number of hospital births quarterly

**High Volume:** > 500 births/qtr

**Medium Volume:** 100 to 500 births/qtr

**Low Volume:** < 100 births/qtr

#### Hospital Specimen Volume

Average screening specimens submitted daily

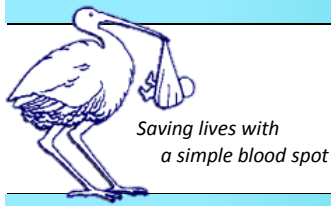
**High Volume:** > 3 specimens/day

**Medium Volume:** 1 to 3 specimens/day

**Low Volume:** < 1 specimen/day

Hospital	City	Births per qtr	Birth Volume	Specimens per day	Specimen Volume
Auburn Medical Center - Multicare	Auburn	292	Medium	3.3	High
Capital Medical Center	Olympia	174	Medium	1.9	Medium
Cascade Valley Hospital	Arlington	63	Low	0.9	Low
Central Washington Hospital	Wenatchee	366	Medium	4.1	High
Columbia Basin Hospital	Ephrata	-	-	0.0	Low
Coulee Medical Center	Grand Coulee	14	Low	0.3	Low
Deaconess Medical Center	Spokane	401	Medium	6.5	High
East Adams Rural Hospital	Ritzville	-	-	0.0	Low
Evergreen Health	Kirkland	1,189	High	13.9	High
Forks Community Hospital	Forks	18	Low	0.4	Low
Good Samaritan Hospital - Multicare	Puyallup	602	High	6.8	High
Grays Harbor Community Hospital	Aberdeen	138	Medium	1.5	Medium
Group Health Cooperative - Seattle	Seattle	404	Medium	4.6	High
Harborview Medical Center	Seattle	1	Low	0.3	Low
Harrison Medical Center	Bremerton	476	Medium	5.4	High
Highline Medical Center	Burien	233	Medium	2.6	Medium
Holy Family Hospital	Spokane	305	Medium	4.3	High
Island Hospital	Anacortes	100	Medium	1.6	Medium
Jefferson Healthcare	Port Townsend	26	Low	0.5	Low
Kadlec Hospital	Richland	715	High	8.9	High
Kittitas Valley Healthcare	Ellensburg	88	Low	1.0	Medium
Klickitat Valley Hospital	Goldendale	1	Low	0.0	Low
Lake Chelan Community Hospital	Chelan	20	Low	0.4	Low
Legacy Salmon Creek Hospital	Vancouver	893	High	10.8	High
Lincoln Hospital	Davenport	-	-	0.0	Low
Madigan Army Medical Center	Joint Base Lewis-McChord	560	High	13.3	High
Mason General Hospital	Shelton	65	Low	0.8	Low
Mid Valley Hospital	Omak	62	Low	0.7	Low
Mount Carmel Hospital	Colville	68	Low	0.8	Low
Multicare Mary Bridge Children's Hospital	Tacoma	-	-	0.0	Low
Newport Community Hospital	Newport	23	Low	0.5	Low
North Valley Hospital	Tonasket	26	Low	0.3	Low
Northwest Hospital	Seattle	292	Medium	4.9	High

Hospital	City	Births per qtr	Birth Volume	Specimens per day	Specimen Volume
Olympic Memorial Hospital	Port Angeles	121	Medium	2.5	Medium
Othello Community Hospital	Othello	122	Medium	2.4	Medium
Our Lady of Lourdes Health Center	Pasco	-	-	0.1	Low
Overlake Hospital Medical Center	Bellevue	955	High	11.3	High
PeaceHealth Southwest Medical Center	Vancouver	523	High	6.7	High
Prosser Memorial Hospital	Prosser	50	Low	0.7	Low
Providence Centralia Hospital	Centralia	182	Medium	2.0	Medium
Providence Everett Medical Center	Everett	1,165	High	14.4	High
Providence Everett Medical Center- Colby	Everett	-	-	0.0	Low
Providence St Peter Hospital	Olympia	563	High	6.5	High
Pullman Regional Hospital	Pullman	106	Medium	1.2	Medium
Sacred Heart Medical Center	Spokane	793	High	13.4	High
Saint Clare Hospital	Tacoma	-	-	0.1	Low
Saint Elizabeth Hospital	Enumclaw	82	Low	1.3	Medium
Saint Francis Hospital	Federal Way	309	Medium	3.8	High
Saint John Medical Center	Longview	234	Medium	2.9	Medium
Saint Joseph Hospital - Bellingham	Bellingham	510	High	6.0	High
Saint Joseph Hospital - Chewelah	Chewelah	-	-	0.1	Low
Saint Joseph Hospital - Tacoma	Tacoma	1,050	High	18.4	High
Saint Mary Medical Center	Walla Walla	151	Medium	1.7	Medium
Samaritan Hospital	Moses Lake	254	Medium	2.9	Medium
Seattle Children's Hospital	Seattle	-	-	1.7	Medium
Skagit Valley Hospital	Mount Vernon	275	Medium	3.2	High
Snoqualmie Valley Hospital	Snoqualmie	-	-	0.0	Low
Summit Pacific Medical Center	Elma	-	-	0.1	Low
Sunnyside Community Hospital	Sunnyside	188	Medium	3.7	High
Swedish Hospital - Ballard	Seattle	296	Medium	3.3	High
Swedish Hospital - Edmonds	Edmonds	302	Medium	5.0	High
Swedish Hospital - First Hill	Seattle	1,484	High	19.3	High
Swedish Hospital - Issaquah	Issaquah	323	Medium	3.7	High
Tacoma General Hospital - Multicare	Tacoma	774	High	10.7	High
Three Rivers Hospital	Brewster	20	Low	0.4	Low
Toppenish Community Hospital	Toppenish	110	Medium	2.1	Medium
Trios Health Hospital	Kennewick	417	Medium	5.5	High
University of Washington Medical Center	Seattle	536	High	7.1	High
Valley General Hospital	Monroe	-	-	0.1	Low
Valley Hospital And Medical Center	Spokane	180	Medium	3.0	Medium
Valley Medical Center	Renton	949	High	11.3	High
Virginia Mason Hospital	Seattle	-	-	0.8	Low
Walla Walla General Hospital	Walla Walla	54	Low	0.6	Low
Whidbey General Hospital	Coupeville	49	Low	1.0	Medium
Whitman Hospital And Medical Center	Colfax	15	Low	0.3	Low
Willapa Harbor Hospital	South Bend	1	Low	0.0	Low
Yakima Valley Memorial Hospital	Yakima	722	High	14.5	High



# Washington State Newborn Screening Program

## Key: Unsatisfactory Specimen Descriptions

July 1, 2014 - December 31, 2014

Some specimens are considered unsatisfactory due to the quality of specimen collection or handling. These specimens are tested for extreme values but another specimen must be obtained to complete screening. The need to obtain a repeat specimen could delay diagnosis and treatment of an affected infant.

Unsatisfactory Specimen Errors		
Error	Description	
<b>Layered or Supersaturated</b>	Blood was layered, clotted or supersaturated. Caused by: <ul style="list-style-type: none"> <li>• Repeated application of blood to the same filter paper circle</li> <li>• Blood applied to both sides of the filter paper</li> <li>• Blood clotting in a capillary tube</li> <li>• Application of too much blood</li> </ul>	
<b>Incompletely Saturated</b>	Blood did not completely soak through the filter paper or not enough blood on the filter paper. Caused by: <ul style="list-style-type: none"> <li>• Filter paper circles not fully saturated or not completely filled</li> <li>• Application of small blood spots</li> <li>• Blood applied to both sides of the filter paper</li> </ul>	
<b>Contaminated</b>	Blood was diluted, discolored, contaminated or exhibited serum rings. Caused by: <ul style="list-style-type: none"> <li>• Alcohol not completely drying before skin puncture</li> <li>• Puncture site squeezed or 'milked' to expel blood</li> <li>• Improper drying of specimen</li> <li>• Exposure to high temperatures</li> <li>• Filter paper contact with gloved or ungloved hands, or by substances such as alcohol, feeding or antiseptic solutions, hand lotion or powder</li> </ul>	
<b>Specimen Too Old</b>	Specimen was delayed in transit and is too old due to deterioration of the dried blood spots. <ul style="list-style-type: none"> <li>• Specimens received more than 14 days after collection are too old for hemoglobin and galactosemia testing</li> <li>• Specimens received more than 30 days after collection are too old for all tests</li> </ul>	
<b>Abraded</b>	Specimen surface was scratched, dented, or abraded. Caused by: <ul style="list-style-type: none"> <li>• Improper application of blood with capillary tube or other device</li> </ul>	
<b>Partial Unsuitable</b>	Validation of the preliminary screening results was not possible due to the unsuitability of the residual blood. Caused by: <ul style="list-style-type: none"> <li>• Partial abrasion, contamination, damage, or oversaturation of residual blood</li> <li>• Insufficient quantity of blood</li> </ul>	
<b>Other Unsuitables</b>	Ambiguous Degradation	Hemoglobin screening results indicate degradation or chemical modification of hemoglobins present causing assay interference.
	Damaged Specimen	Specimen was damaged during transport and may be ripped or contaminated by rain and/or other substances.
	Old Collection Card	Specimen was submitted on a collection card past its expiration date. Cards expire three years after their manufacture date.
	Received in Plastic	Specimen was received in a sealed plastic bag and may be damaged by heat exposure and moisture accumulation.