

Washington State Newborn Screening Program

Unsatisfactory Specimens & Demographic Errors Report

Specimens Received January 1, 2015 - December 31, 2015



Unsatisfactory Specimens

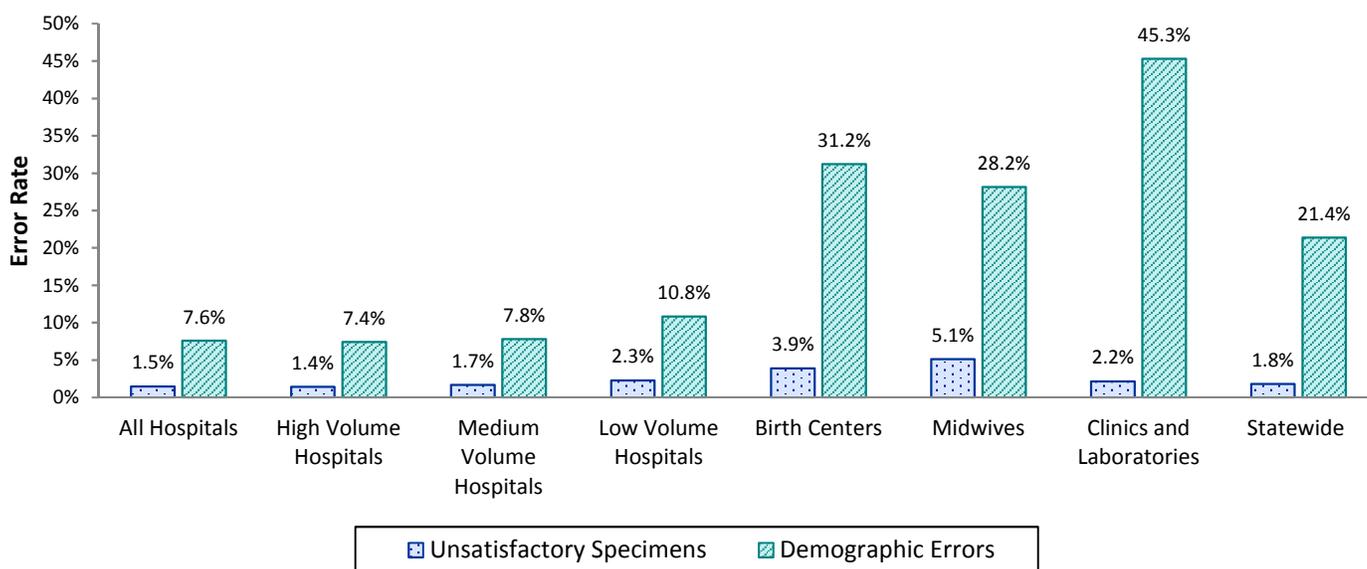
Some specimens are considered unsatisfactory due to the quality of specimen collection or handling. These specimens are tested for extreme values but another specimen must be obtained to complete screening. The need to obtain a repeat specimen could delay diagnosis and treatment of an affected infant.

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 ¹	Total Specimens	Unsatisfactory Specimens ²		Demographic Errors	
		Total	Error Rate	Total ³	Error Rate
All Hospital Specimens	105,409	1,545	1.5%	7,978	7.6%
High Volume Hospitals	89,008	1,249	1.4%	6,591	7.4%
Medium Volume Hospitals	12,913	217	1.7%	1,009	7.8%
Low Volume Hospitals	3,488	79	2.3%	378	10.8%
All Birth Center Specimens	333	13	3.9%	104	31.2%
All Midwife Specimens	5,074	259	5.1%	1,429	28.2%
All Clinic and Laboratory Specimens	59,416	1,279	2.2%	26,914	45.3%
Statewide	170,232	3,096	1.8%	36,425	21.4%

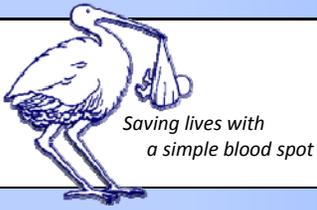
Error Rates by Submitter Group¹



¹ See [Key 2: Hospital Volume](#) for hospital volume category definitions

² See [Key 1: Unsatisfactory Specimen Descriptions](#) for descriptions and causes of unsatisfactory specimens

³ Includes specimen cards with one or more missing or invalid demographic field

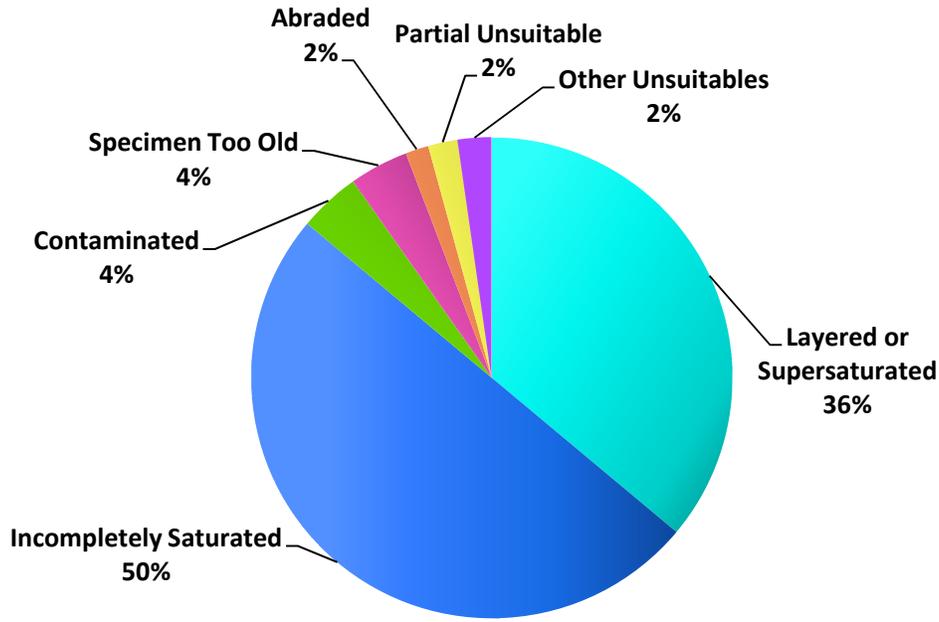


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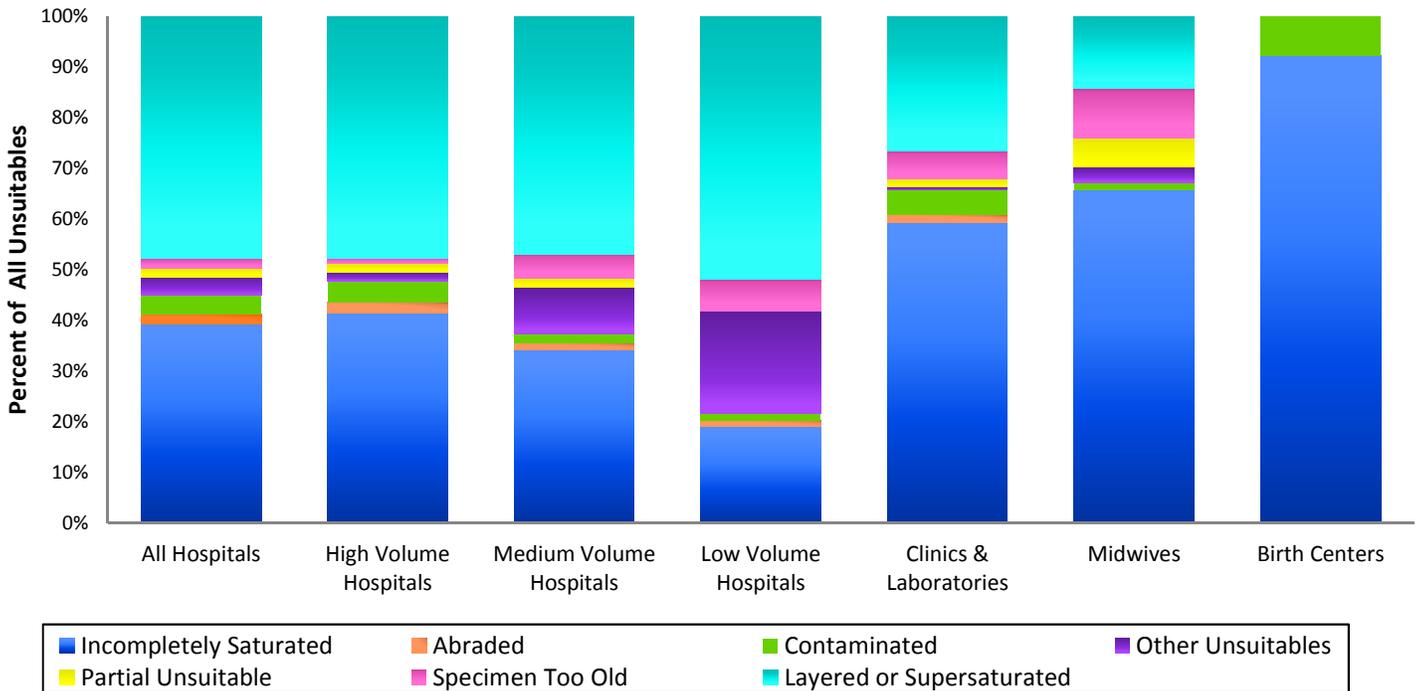
Unsatisfactory Specimens

Received January 1, 2015 - December 31, 2015

Unsatisfactory Specimen Error Types¹
 Statewide: 3,096 specimens were unsatisfactory (1.8% of all specimens)



Unsatisfactory Specimen Error Type by Submitter Group²



¹ See [Key 1: Unsatisfactory Specimen descriptions](#) for descriptions and causes of unsatisfactory specimens

² See [Key 2: Hospital Volume](#) for hospital volume categorizations

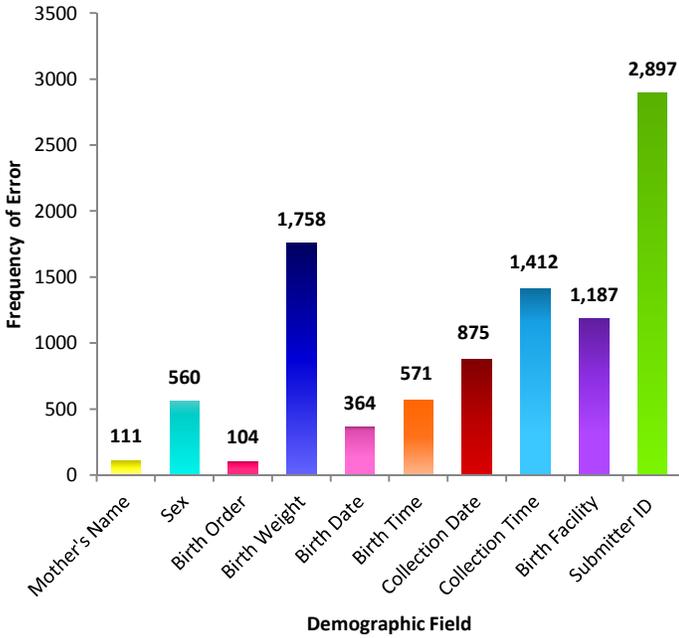


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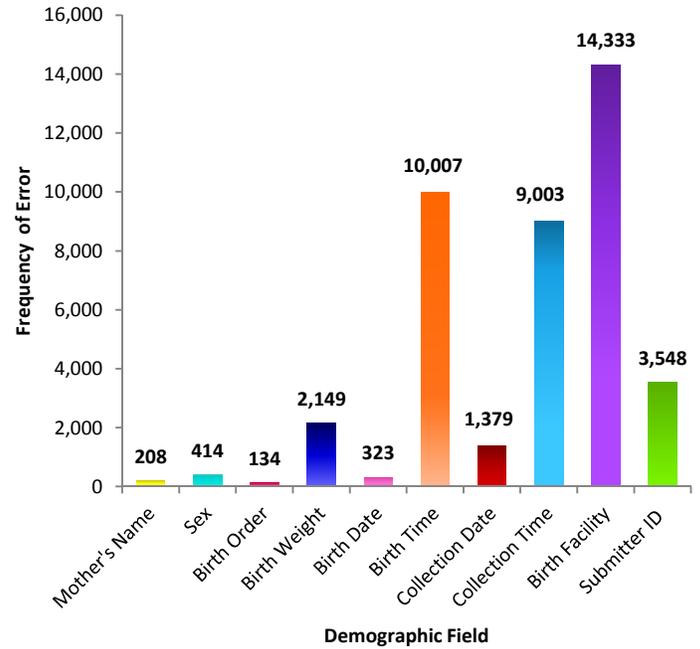
Demographic Errors on Specimen Cards

Received January 1, 2015 - December 31, 2015

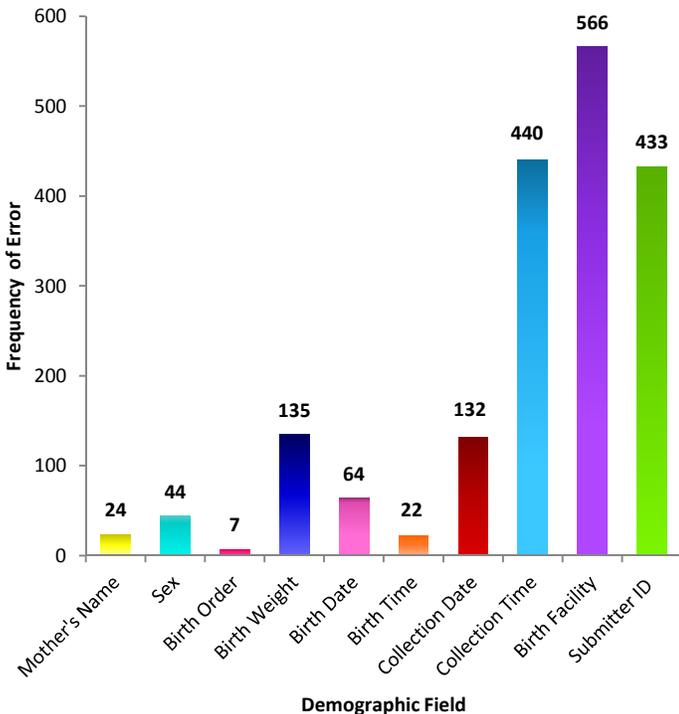
All Hospital Errors



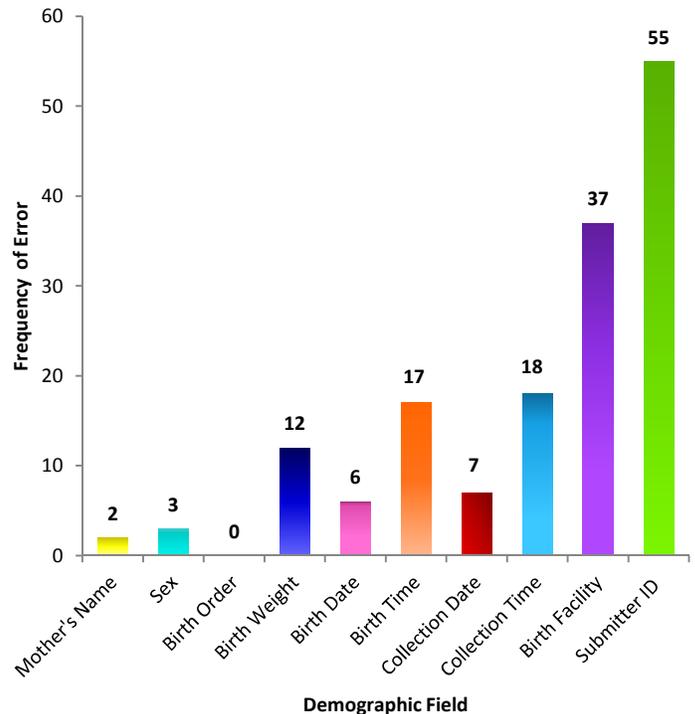
Clinic and Laboratory Errors



Midwife Errors



Birth Center Errors

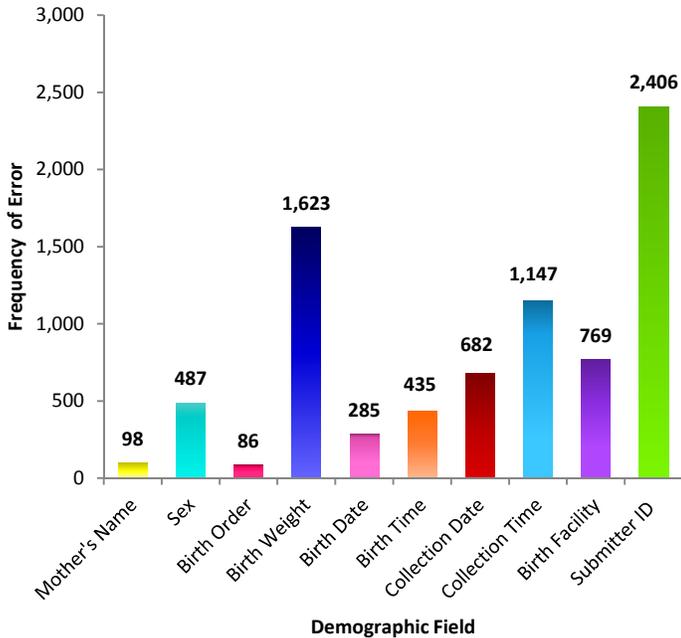


Demographic Errors on Specimen Cards (cont.)

Received January 1, 2015 - December 31, 2015

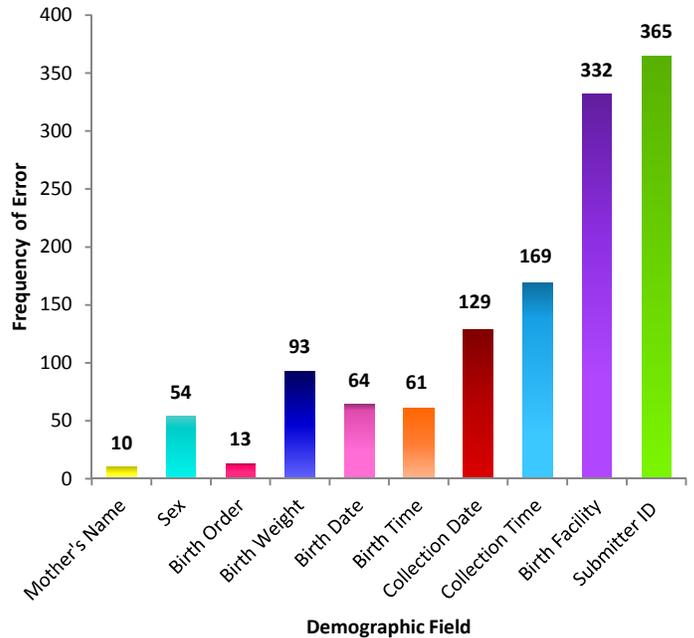
High Volume Hospital Errors

> 3 specimens/day



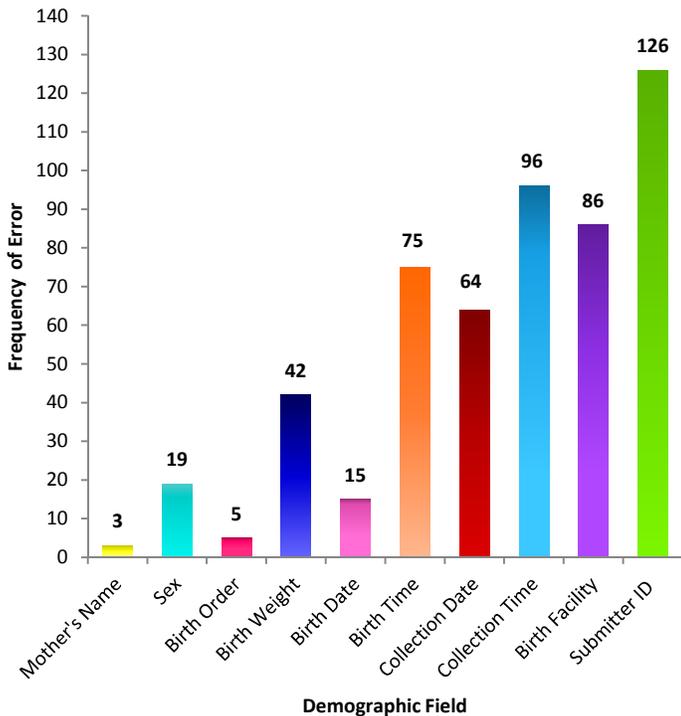
Medium Volume Hospital Errors

1 to 3 specimens/day

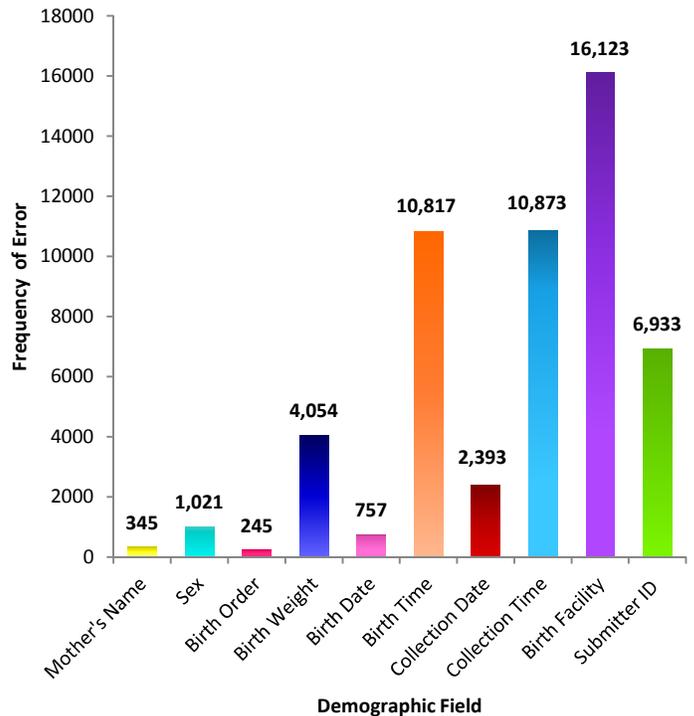


Low Volume Hospital Errors

< 1 specimen/day



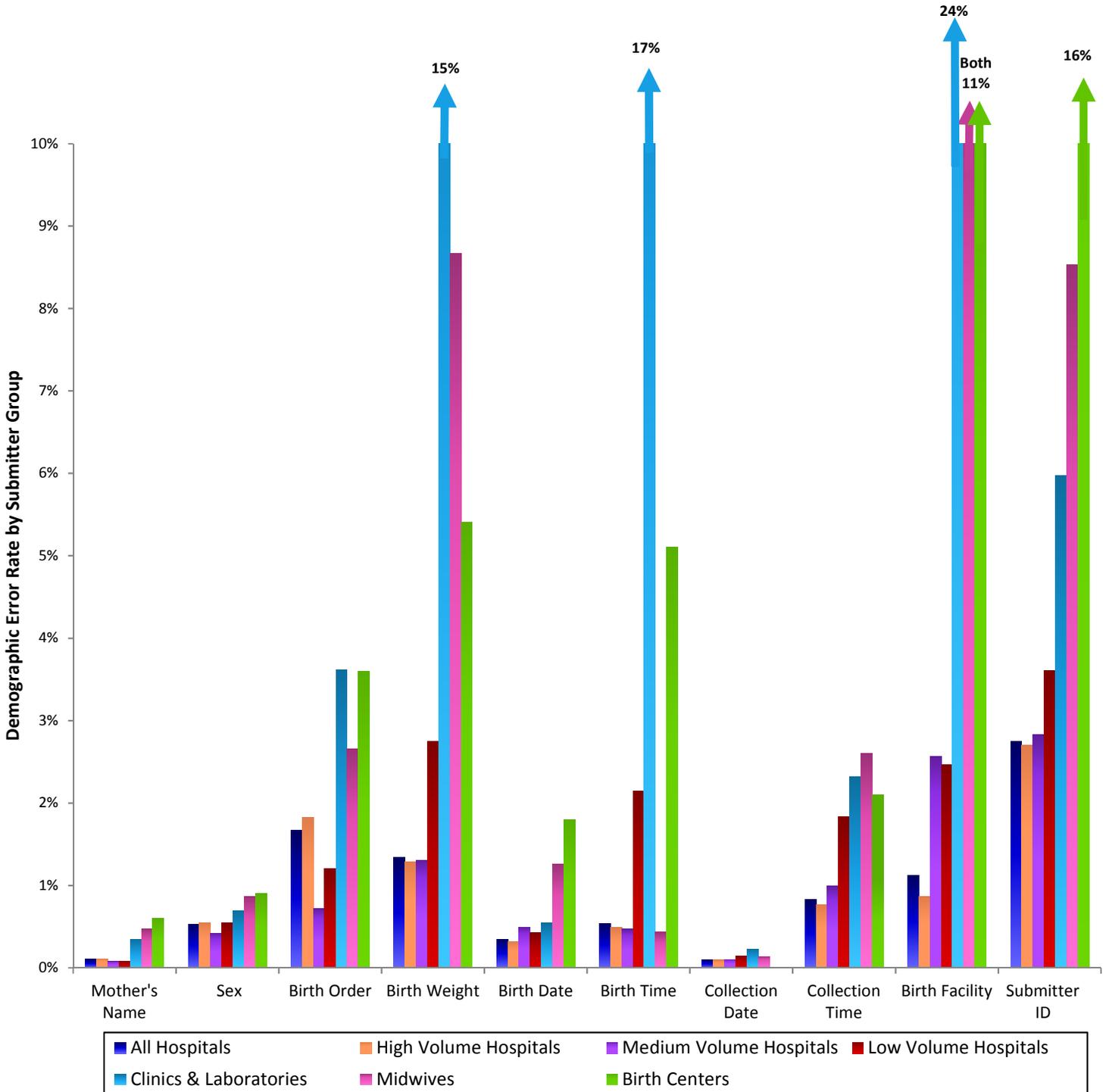
Statewide Errors



Demographic Errors on Specimen Cards (cont.)

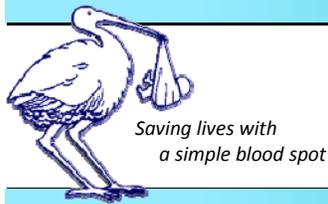
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Demographic Field Error Rates for All Specimens by Submitter Group¹



¹ See [Key 2: Hospital Volume](#) for hospital volume categorizations

For example: 17% of specimens submitted by Clinics & Laboratories have an incorrect or missing time of birth



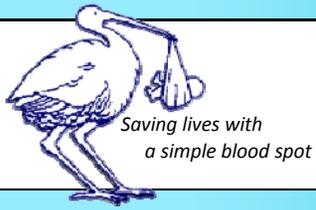
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Key: Unsatisfactory Specimen Descriptions

Received January 1, 2015 - December 31, 2015

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	
Layered or Supersaturated	Blood was layered, clotted or supersaturated. Caused by: <ul style="list-style-type: none"> • Repeated application of blood to the same filter paper circle • Blood applied to both sides of the filter paper • Blood clotting in a capillary tube • Application of too much blood 	
Incompletely Saturated	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"> • Filter paper circles not fully saturated or not completely filled • Application of small blood spots • Blood applied to both sides of the filter paper 	
Contaminated	Blood was diluted, discolored, contaminated or exhibited serum rings. Caused by: <ul style="list-style-type: none"> • Alcohol not completely drying before skin puncture • Puncture site squeezed or 'milked' to expel blood • Improper drying of specimen • Exposure to high temperatures • Filter paper contact with gloved or ungloved hands, or by substances such as alcohol, feeding or antiseptic solutions, hand lotion or powder 	
Specimen Too Old	Specimen was delayed in transit and is too old for testing due to deterioration of the dried blood spots. <ul style="list-style-type: none"> • Specimens received more than 14 days after collection are too old for hemoglobin and galactosemia testing • Specimens received more than 30 days after collection are too old for all tests 	
Abraded	Specimen surface was scratched, dented, or abraded. Caused by: <ul style="list-style-type: none"> • Improper application of blood with capillary tube or other device 	
Partial Unsuitable	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"> • Partial abrasion, contamination, damage, or oversaturation of residual blood • Insufficient quantity of blood 	
Other Unsuitables	Ambiguous Degradation	Hemoglobin screening results indicate degradation or chemical modification of hemoglobins present causing assay interference.
	Damaged Specimen	Specimen was damaged during transport and blood sample may be torn 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.
	No Blood	Specimen card received with no blood on filter paper nor valid refusal signature.



Washington State Newborn Screening Program

Key: Hospital Volume Categorizations

January 1, 2015 - December 31, 2015

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 NBS 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	Auburn	298	Medium	3.3	High
Capital Medical Center	Olympia	172	Medium	1.9	Medium
Cascade Valley Hospital	Arlington	47	Low	0.6	Low
Central Washington Hospital	Wenatchee	362	Medium	4.0	High
Columbia Basin Hospital	Ephrata	-	-	< 0.1	Low
Coulee Medical Center	Grand Coulee	14	Low	0.3	Low
Deaconess Medical Center	Spokane	357	Medium	5.6	High
East Adams Rural Health	Ritzville	< 1	Low	< 0.1	Low
Evergreen Health	Kirkland	1,169	High	13.7	High
Evergreen Health - Monroe	Monroe	-	-	0.1	Low
Ferry County Memorial Hospital	Republic	-	-	< 0.1	Low
Forks Community Hospital	Forks	16	Low	0.3	Low
Good Samaritan Hospital	Puyallup	589	High	6.6	High
Grays Harbor Community Hospital	Aberdeen	129	Medium	1.5	Medium
Group Health Cooperative - Seattle	Seattle	49	Low	0.6	Low
Harborview Medical Center	Seattle	< 1	Low	0.3	Low
Harrison Medical Center	Silverdale	455	Medium	5.2	High
Highline Medical Center	Burien	214	Medium	2.4	Medium
Holy Family Hospital	Spokane	327	Medium	4.6	High
Island Hospital	Anacortes	109	Medium	1.8	Medium
Jefferson Healthcare	Port Townsend	31	Low	0.5	Low
Kadlec Regional Medical Center	Richland	694	High	8.8	High
Kittitas Valley Healthcare	Ellensburg	92	Low	1.1	Medium
Klickitat Valley Hospital	Goldendale	< 1	Low	-	-
Lake Chelan Community Hospital	Chelan	21	Low	0.4	Low
Legacy Salmon Creek Hospital	Vancouver	833	High	9.8	High
Lewis County Hospital	Morton	-	-	< 0.1	Low
Lincoln Hospital	Davenport	-	-	0.1	Low
Lourdes Medical Center	Pasco	< 1	Low	0.1	Low
Madigan Army Medical Center	Joint Base Lewis-McChord	485	Medium	11.2	High
Mary Bridge Children's Hospital	Tacoma	-	-	0.1	Low
Mason General Hospital	Shelton	64	Low	0.7	Low
Mid Valley Hospital	Omak	57	Low	0.6	Low

Hospital	City	Births per qtr	Birth Volume	Specimens per day	Specimen Volume
Mount Carmel Hospital	Colville	59	Low	0.7	Low
Naval Hospital - Bremerton	Bremerton	-	-	< 0.1	Low
Naval Hospital - Oak Harbor	Oak Harbor	-	-	< 0.1	Low
Newport Community Hospital	Newport	19	Low	0.4	Low
North Valley Hospital	Tonasket	27	Low	0.4	Low
Northwest Hospital	Seattle	310	Medium	5.0	High
Olympic Memorial Hospital	Port Angeles	121	Medium	2.7	Medium
Othello Community Hospital	Othello	121	Medium	2.2	Medium
Overlake Hospital Medical Center	Bellevue	990	High	11.4	High
PeaceHealth Southwest Medical Center	Vancouver	532	High	6.5	High
Prosser Memorial Hospital	Prosser	81	Low	1.2	Medium
Providence Centralia Hospital	Centralia	158	Medium	1.7	Medium
Providence Everett Medical Center	Everett	1,160	High	14.4	High
Providence St Peter Hospital	Olympia	562	High	6.3	High
Pullman Regional Hospital	Pullman	114	Medium	1.2	Medium
Sacred Heart Medical Center	Spokane	814	High	13.8	High
Saint Clare Hospital	Tacoma	-	-	< 0.1	Low
Saint Elizabeth Hospital	Enumclaw	80	Low	1.2	Medium
Saint Francis Hospital	Federal Way	323	Medium	5.0	High
Saint John Medical Center	Longview	215	Medium	2.3	Medium
Saint Joseph Hospital - Bellingham	Bellingham	521	High	6.2	High
Saint Joseph Hospital - Chewelah	Chewelah	-	-	< 0.1	Low
Saint Joseph Hospital - Tacoma	Tacoma	1,023	High	16.4	High
Saint Mary Medical Center	Walla Walla	145	Medium	1.6	Medium
Samaritan Hospital	Moses Lake	253	Medium	2.9	Medium
Seattle Children's Hospital	Seattle	-	-	1.6	Medium
Skagit Valley Hospital	Mount Vernon	281	Medium	3.2	High
Summit Pacific Medical Center	Elma	< 1	Low	0.1	Low
Sunnyside Community Hospital	Sunnyside	146	Medium	3.0	Medium
Swedish Medical Center - Ballard	Seattle	304	Medium	3.6	High
Swedish Medical Center - Cherry Hill	Seattle	< 1	Low	< 0.1	Low
Swedish Medical Center - Edmonds	Edmonds	295	Medium	4.8	High
Swedish Medical Center - First Hill	Seattle	1,816	High	22.9	High
Swedish Medical Center - Issaquah	Issaquah	323	Medium	3.7	High
Tacoma General Hospital	Tacoma	767	High	10.7	High
Three Rivers Hospital	Brewster	23	Low	0.4	Low
Toppenish Community Hospital	Toppenish	108	Medium	2.1	Medium
Trios Health Hospital	Kennewick	418	Medium	6.1	High
University of Washington Medical Center	Seattle	479	Medium	6.4	High
Valley Hospital And Medical Center	Spokane	172	Medium	2.9	Medium
Valley Medical Center	Renton	950	High	11.2	High
Virginia Mason Hospital	Seattle	-	-	0.7	Low
Walla Walla General Hospital	Walla Walla	58	Low	0.8	Low
Whidbey General Hospital	Coupeville	48	Low	0.9	Low
Whitman Hospital and Medical Center	Colfax	10	Low	0.3	Low
Willapa Harbor Hospital	South Bend	-	-	< 0.1	Low
Yakima Valley Memorial Hospital	Yakima	675	High	13.7	High