

Washington State Newborn Screening Program Unsatisfactory Specimens & Demographic Errors Report

Received January 1, 2017 - December 31, 2017

Unsatisfactory Specimens

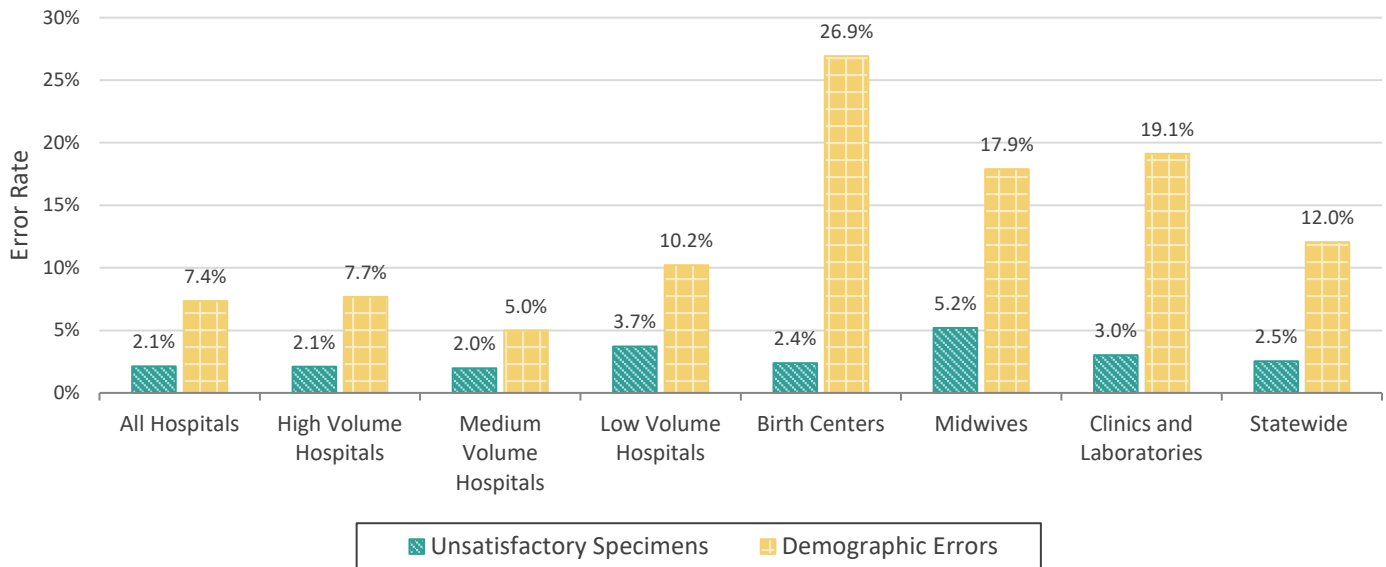
Some specimens are considered unsatisfactory due to the quality of specimen collection or handling. These specimens are tested for extreme values but another specimen must be obtained to complete screening. The need to obtain a repeat specimen could delay diagnosis and treatment of an affected infant.

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	102,286	2,176	2.1%	7,520	7.4%
High Volume Hospitals	85,112	1,789	2.1%	6,524	7.7%
Medium Volume Hospitals	14,483	287	2.0%	721	5.0%
Low Volume Hospitals	2,691	100	3.7%	275	10.2%
All Birth Center Specimens	754	18	2.4%	203	26.9%
All Midwife Specimens	4,719	245	5.2%	844	17.9%
All Clinic and Laboratory Specimens	62,407	1,885	3.0%	11,924	19.1%
Statewide	170,166	4,324	2.5%	20,491	12.0%

Error Rates by Submitter Group¹



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

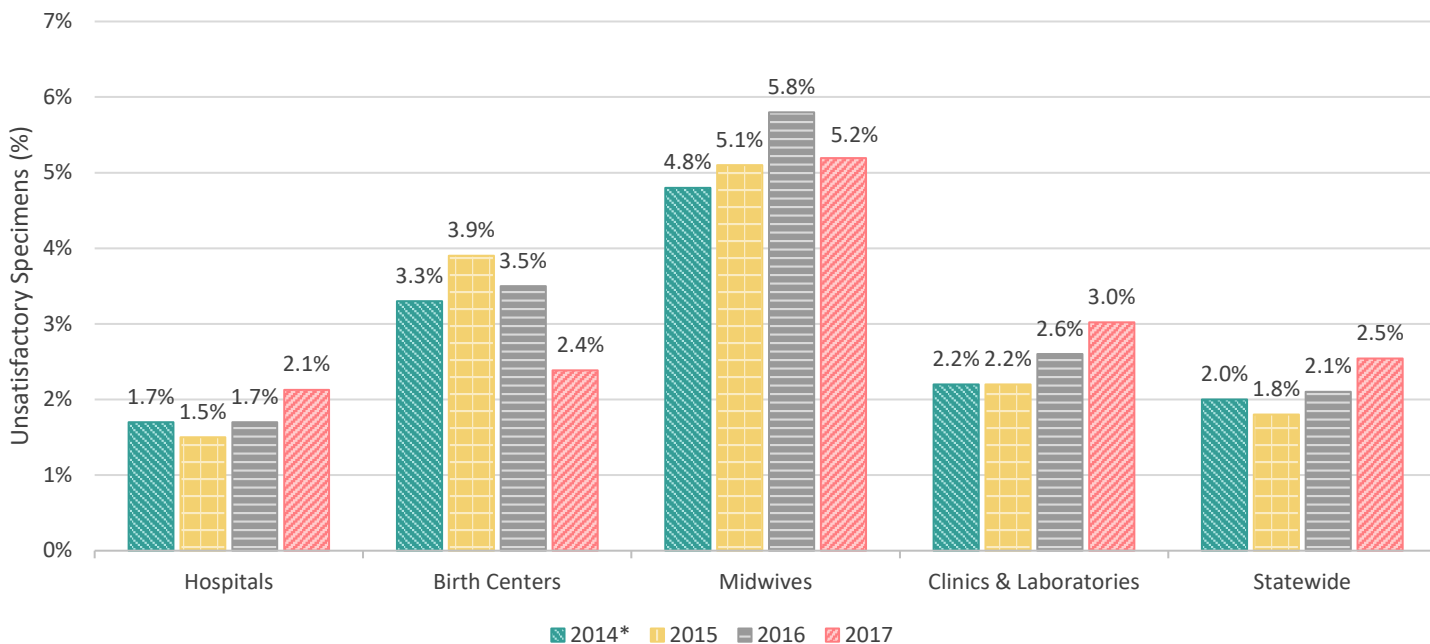
² See [Key 1: Unsatisfactory Specimen Descriptions](#) for descriptions and causes of unsatisfactory specimens.

³ Includes specimen cards with one or more missing or invalid demographic fields.

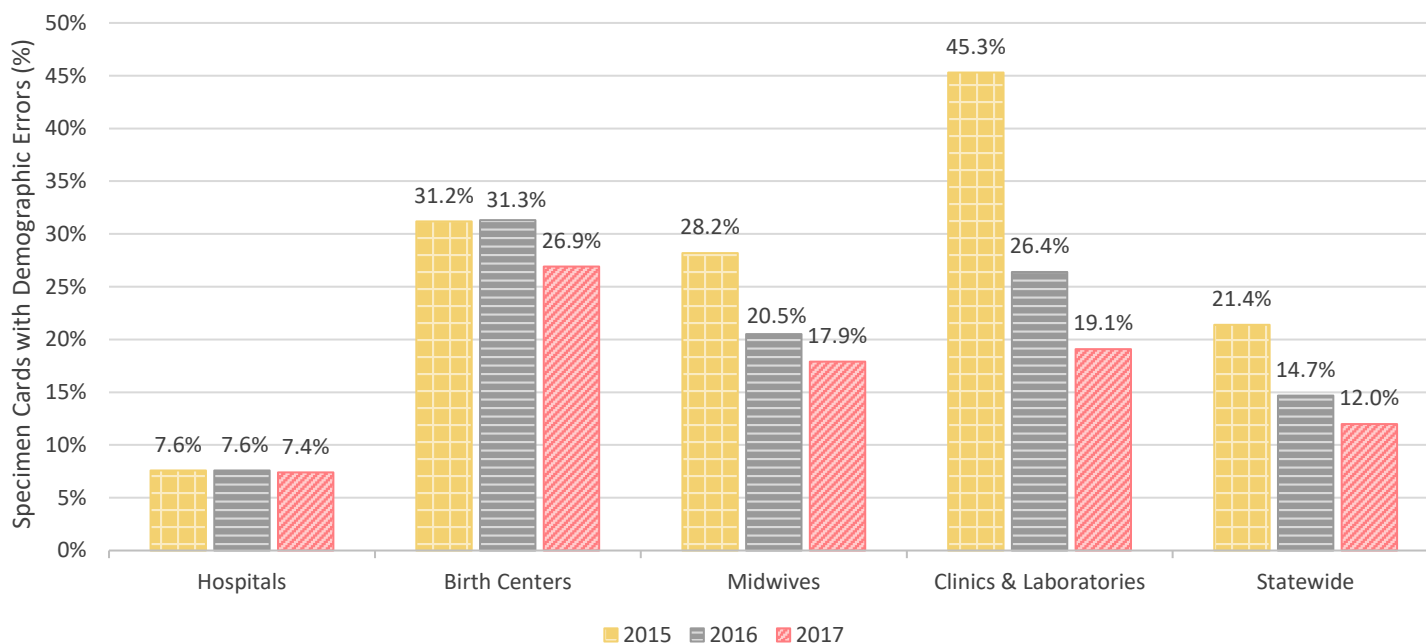
Washington State Newborn Screening Program Annual Quality Measures

Received July 1, 2014 - December 31, 2017

Annual Unsatisfactory Specimen¹ Rate - Submitting Facility Type



Annual Demographic Error Rate² - Submitting Facility Type



*Includes data from July 1, 2014- December 31, 2014. Demographic error rates were calculated differently in 2014 and are not included.

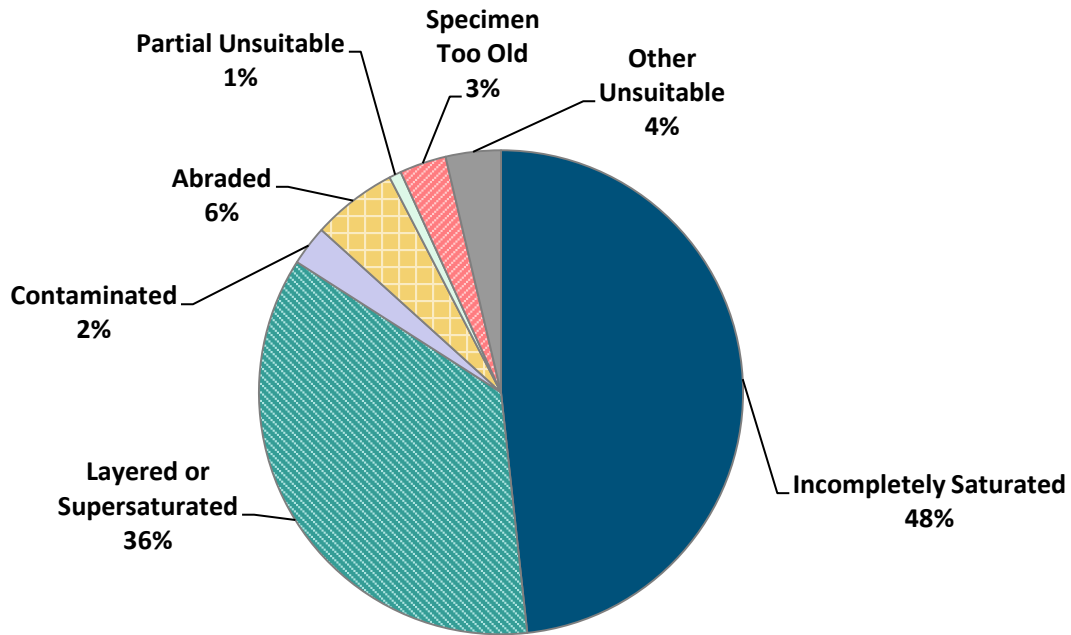
¹ See [Key 1: Unsatisfactory Specimen Descriptions](#) for descriptions and causes of unsatisfactory specimens.

² Includes specimen cards with one or more missing or invalid demographic fields.

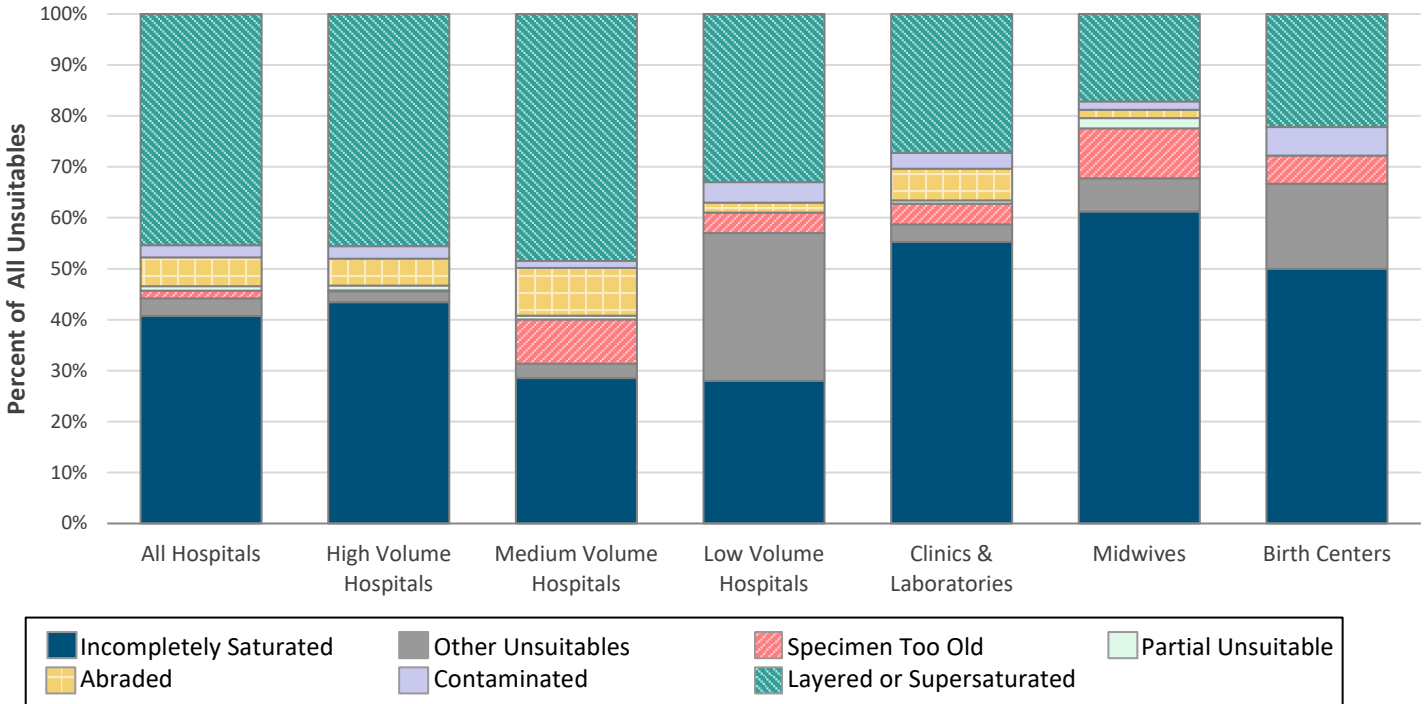
Washington State Newborn Screening Program Unsatisfactory Specimens

Received January 1, 2017 - December 31, 2017

Unsatisfactory Specimen Error Types¹
Statewide: 4,324 specimens were unsatisfactory (2.5% of all specimens)



Unsatisfactory Specimen Error Type by Submitter Group²



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

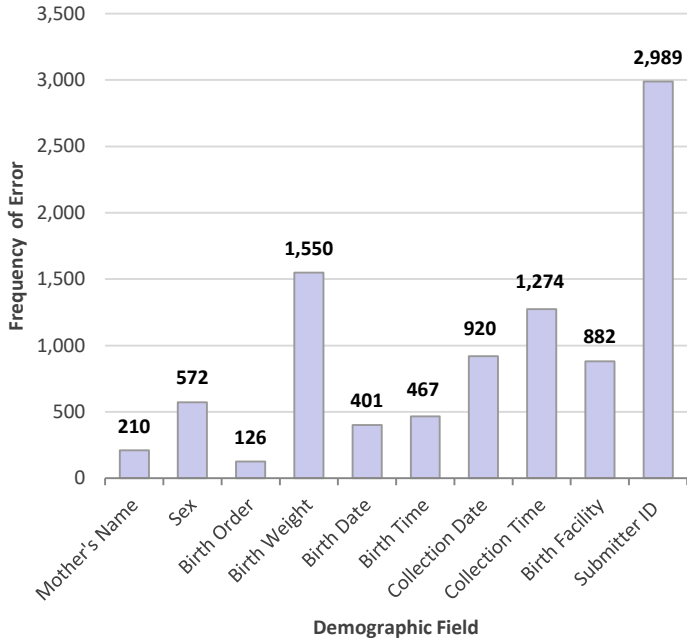
²See [Key 2: Hospital Volume](#) for hospital volume categorizations.

Washington State Newborn Screening Program

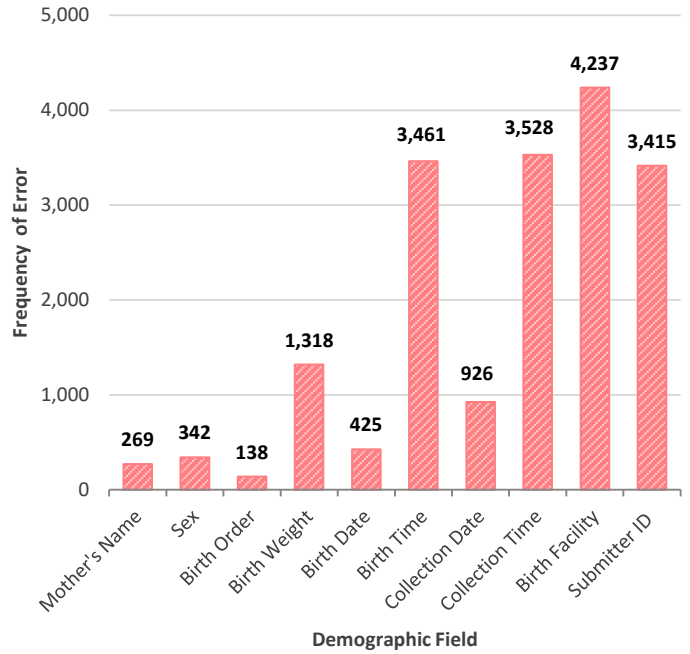
Demographic Errors on Specimen Cards

Received January 1, 2017 - December 31, 2017

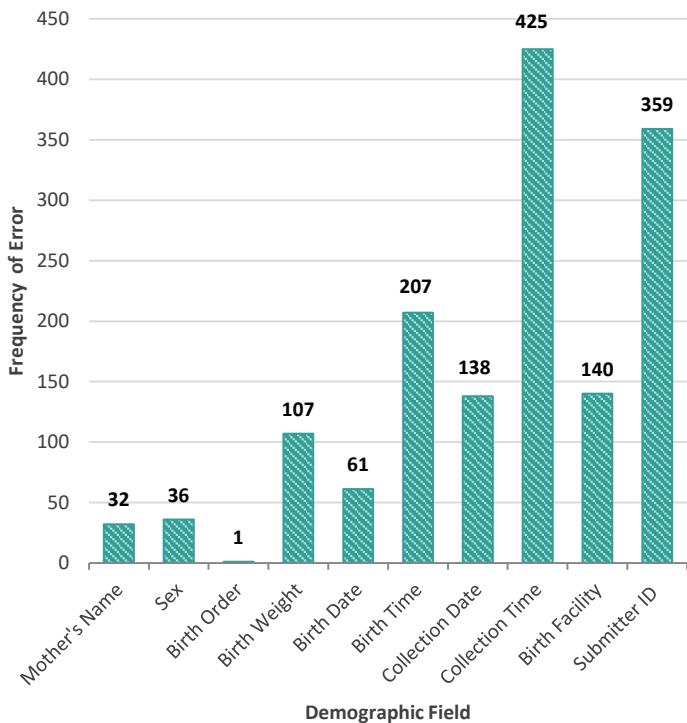
Hospital Errors



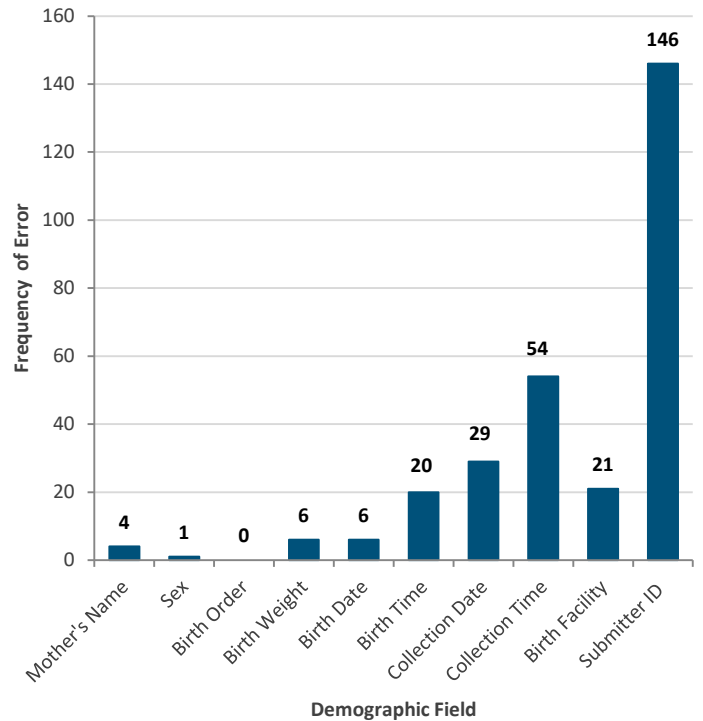
Clinic and Laboratory Errors



Midwife Errors



Birth Center Errors

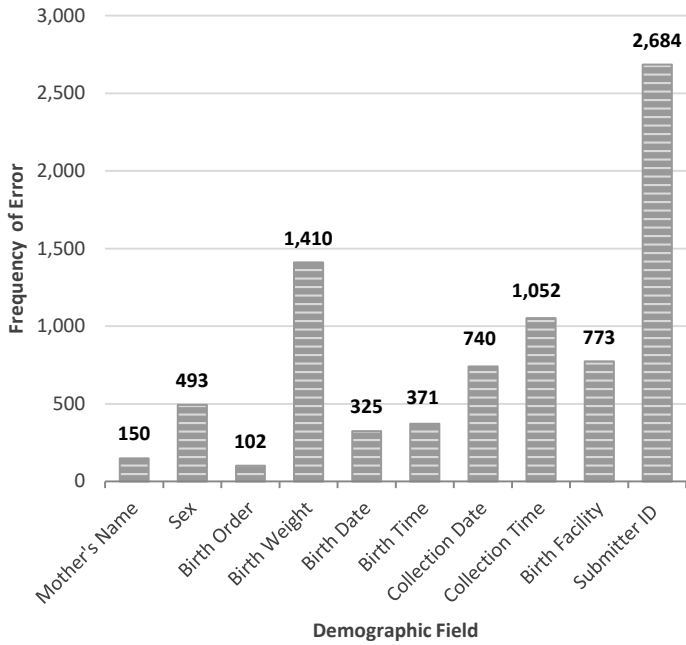


Demographic Errors on Specimen Cards (cont.)

Received January 1, 2017 - December 31, 2017

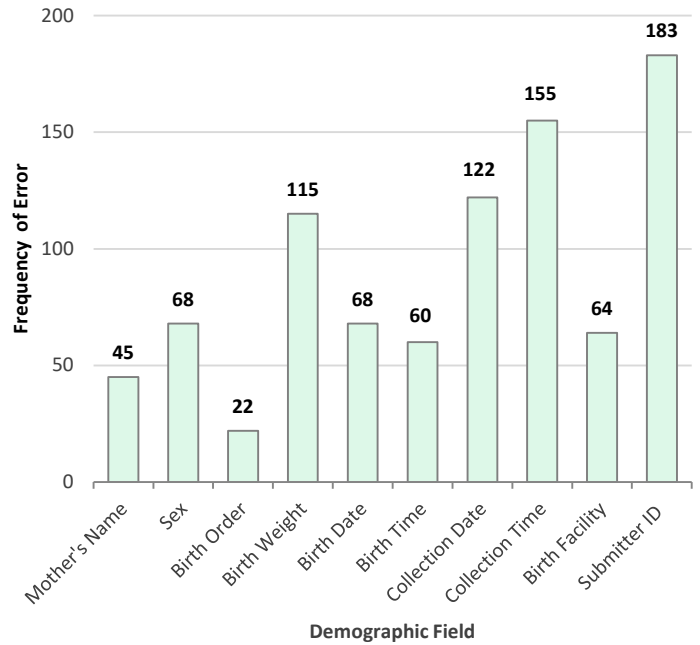
High Volume Hospital Errors¹

> 3 specimens/day



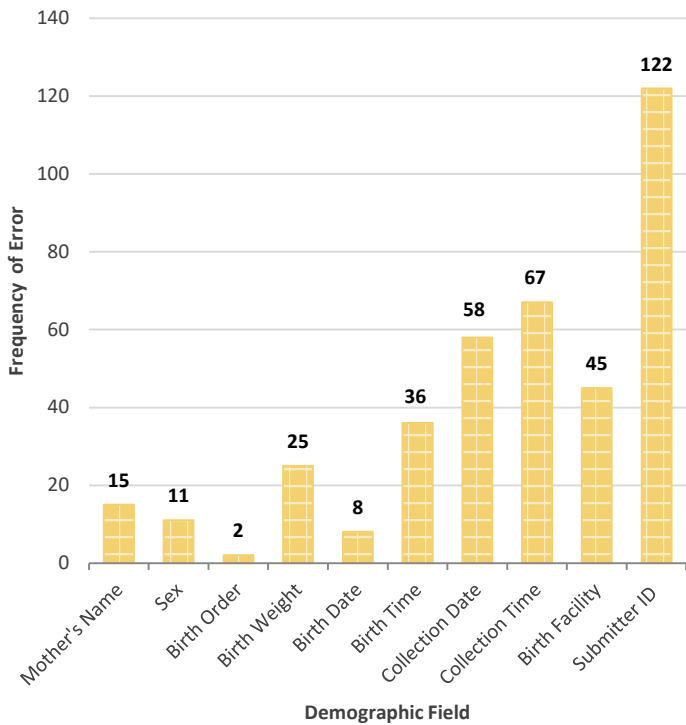
Medium Volume Hospital Errors¹

1 to 3 specimens/day

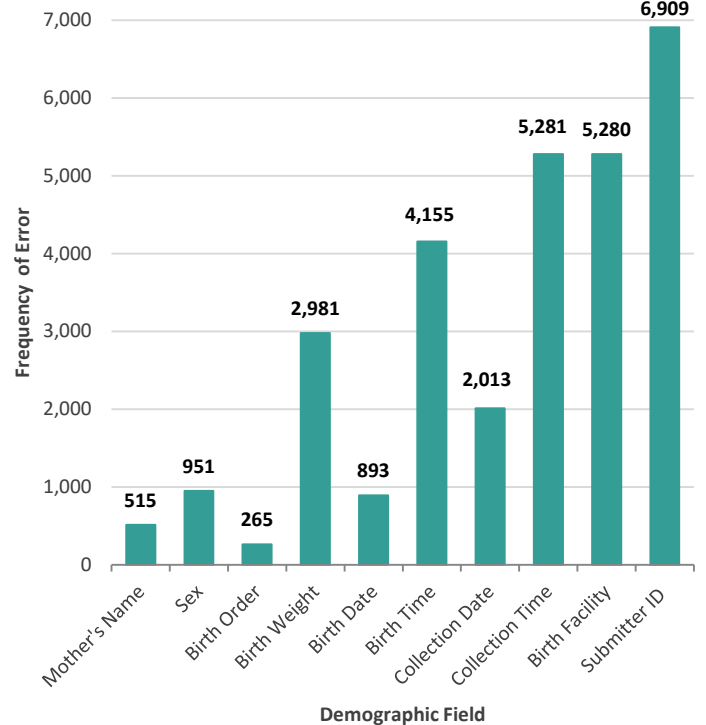


Low Volume Hospital Errors¹

< 1 specimen/day



Statewide Errors

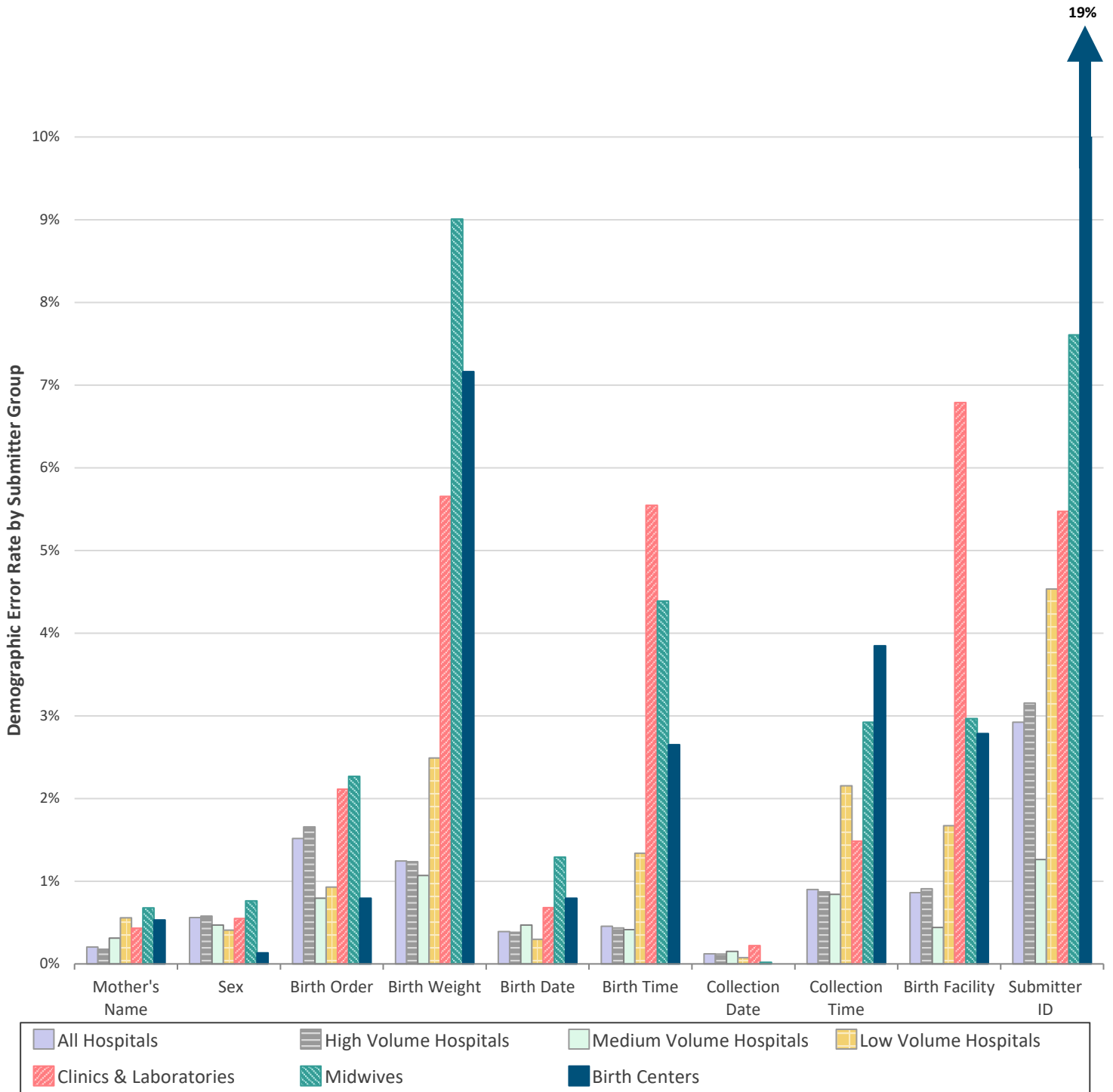


¹ See [Key 2: Hospital Volume](#) for hospital volume categorizations

Demographic Errors on Specimen Cards (cont.)

Received January 1, 2017 - December 31, 2017

Demographic Field Error Rates for All Specimens by Submitter Group²



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

For example: 6% of specimens submitted by Clinics & Laboratories have an incorrect or missing time of birth

Washington State Newborn Screening Program

Key: Unsatisfactory Specimen Descriptions

January 1, 2017 - December 31, 2017

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, 2017 - December 31, 2017

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 - MultiCare	Auburn	304	Medium	3.4	High
Capital Medical Center	Olympia	166	Medium	1.8	Medium
Cascade Valley Hospital	Arlington	39	Low	0.6	Low
Central Washington Hospital/Confluence Hea	Wenatchee	335	Medium	3.7	High
Columbia Basin Hospital	Ephrata	-	-	< 0.1	Low
Coulee Medical Center	Grand Coulee	17	Low	0.4	Low
Deaconess Hospital - MultiCare	Spokane	357	Medium	5.1	High
East Adams Rural Hospital	Ritzville	-	-	< 0.1	Low
EvergreenHealth - Monroe	Monroe	< 1	Low	0.1	Low
EvergreenHealth Kirkland	Kirkland	1,149	High	13.6	High
Fairchild Air Force Base	Fairchild AFB	-	-	< 0.1	Low
Ferry County Memorial Hospital	Republic	-	-	< 0.1	Low
Forks Community Hospital	Forks	12	Low	0.3	Low
Good Samaritan Hospital - MultiCare	Puyallup	570	High	6.5	High
Grays Harbor Community Hospital	Aberdeen	111	Medium	1.2	Medium
Harborview Medical Center - UW Medicine	Seattle	-	-	0.3	Low
Harrison Medical Center	Bremerton	488	Medium	5.8	High
Highline Medical Center	Burien	246	Medium	2.8	Medium
Holy Family Hospital - Providence	Spokane	306	Medium	3.9	High
Island Hospital	Anacortes	120	Medium	1.9	Medium
Jefferson Healthcare	Port Townsend	28	Low	0.5	Low
Kadlec Regional Medical Center	Richland	700	High	9.0	High
Kaiser Permanente WA - Capitol Hill	Seattle	-	-	< 0.1	Low
Kittitas Valley Healthcare	Ellensburg	81	Low	0.9	Low
Klickitat Valley Hospital	Goldendale	< 1	Low	-	-
Lake Chelan Community Hospital	Chelan	24	Low	0.4	Low
Legacy Salmon Creek Medical Center	Vancouver	856	High	10.0	High
Lewis County Hospital	Morton	-	-	< 0.1	Low
Lincoln Hospital	Davenport	< 1	Low	0.1	Low
Lourdes Medical Center	Pasco	-	-	< 0.1	Low
Madigan Army Medical Center	Joint Base Lewis-McChord	485	Medium	10.9	High
Mary Bridge Children's Hospital - MultiCare	Tacoma	-	-	0.1	Low
Mason General Hospital	Shelton	64	Low	0.7	Low
Mid-Valley Hospital	Omak	57	Low	0.6	Low
Mount Carmel Hospital - Providence	Colville	54	Low	0.7	Low
Naval Hospital - Bremerton	Bremerton	132	Medium	3.1	High

Hospital	City	Births per qtr	Birth Volume	Specimens per day	Specimen Volume
Naval Hospital - Oak Harbor	Oak Harbor	46	Low	1.2	Medium
Newport Hospital	Newport	23	Low	0.4	Low
North Valley Hospital	Tonasket	21	Low	0.3	Low
Northwest Hospital - UW Medicine	Seattle	270	Medium	4.3	High
Olympic Medical Center	Port Angeles	125	Medium	2.6	Medium
Othello Community Hospital	Othello	120	Medium	2.2	Medium
Overlake Medical Center	Bellevue	922	High	10.6	High
PeaceHealth Southwest Medical Center	Vancouver	516	High	6.3	High
Prosser Memorial Hospital	Prosser	95	Low	1.4	Medium
Providence Centralia Hospital	Centralia	171	Medium	1.9	Medium
Providence Everett Regional Medical Center	Everett	1,177	High	14.2	High
Providence St Peter Hospital	Olympia	523	High	6.4	High
Pullman Regional Hospital	Pullman	106	Medium	1.2	Medium
Sacred Heart Medical Center - Providence	Spokane	776	High	12.7	High
Samaritan Healthcare	Moses Lake	257	Medium	2.9	Medium
Seattle Children's Hospital	Seattle	-	-	2.2	Medium
Skagit Valley Hospital	Mount Vernon	247	Medium	2.8	Medium
St Clare Hospital	Lakewood	1	Low	-	-
St Elizabeth Hospital	Enumclaw	84	Low	1.2	Medium
St Francis Hospital	Federal Way	319	Medium	4.1	High
St John Medical Center - PeaceHealth	Longview	203	Medium	2.4	Medium
St Joseph Hospital PeaceHealth - Bellingham	Bellingham	501	High	5.7	High
St Joseph Hospital Providence - Chewelah	Chewelah	-	-	< 0.1	Low
St Joseph Medical Center - Tacoma	Tacoma	1,059	High	13.7	High
St Mary Medical Center - Providence	Walla Walla	172	Medium	1.9	Medium
Summit Pacific Medical Center	Elma	1	Low	0.1	Low
Sunnyside Community Hospital	Sunnyside	131	Medium	2.4	Medium
Swedish - Ballard	Seattle	281	Medium	3.4	High
Swedish - Cherry Hill	Seattle	-	-	< 0.1	Low
Swedish - Edmonds	Edmonds	343	Medium	5.4	High
Swedish - First Hill	Seattle	1,883	High	23.4	High
Swedish - Issaquah	Issaquah	406	Medium	4.6	High
Tacoma General Hospital - MultiCare	Tacoma	729	High	10.2	High
Three Rivers Hospital	Brewster	23	Low	0.4	Low
Toppenish Community Hospital	Toppenish	101	Medium	1.9	Medium
Trios Health Hospital	Kennewick	360	Medium	4.1	High
University of Washington Medical Center	Seattle	482	Medium	6.2	High
Valley Hospital	Spokane	177	Medium	2.7	Medium
Valley Medical Center - UW Medicine	Renton	934	High	11.0	High
Virginia Mason Hospital	Seattle	-	-	0.1	Low
Virginia Mason Memorial	Yakima	641	High	11.8	High
Walla Walla General Hospital	Walla Walla	-	-	< 0.1	Low
WhidbeyHealth Medical Center	Coupeville	54	Low	1.1	Medium
Whitman Hospital and Medical Center	Colfax	8	Low	0.2	Low
Willapa Harbor Hospital	South Bend	< 1	Low	< 0.1	Low
Yakima Regional Medical Center	Yakima	< 1	Low	< 0.1	Low