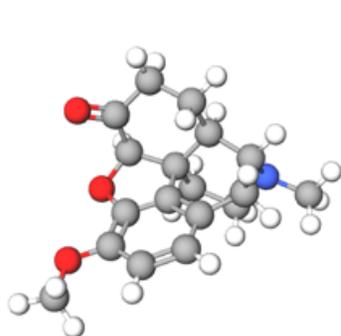
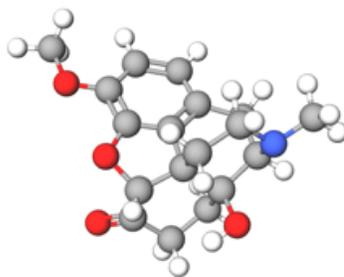


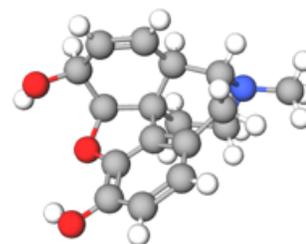
Indiana State Department of Toxicology



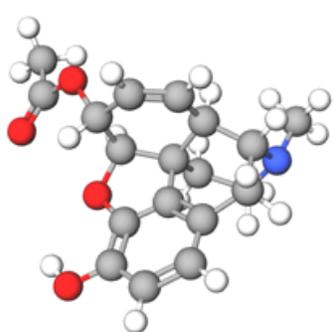
Hydrocodone



Oxycodone



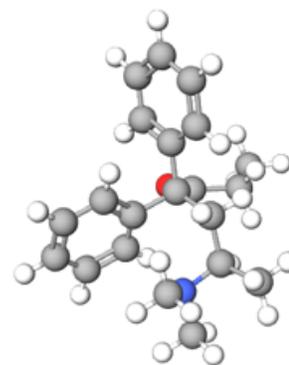
Morphine



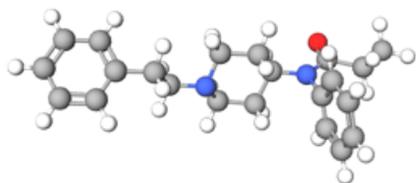
6-monoacetyl morphine



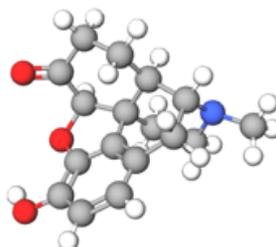
Buprenorphine



Methadone



Fentanyl



Hydromorphone



Tramadol

2017 Annual Report

Overview

The Indiana State Department of Toxicology (ISDT) provides science-based support to the state criminal justice system, including impaired and dangerous driving enforcement programs. ISDT conducts analyses for alcohol and drugs in blood samples submitted by law enforcement agencies and coroners; trains and certifies breath test operators; inspects, maintains, and certifies breath testing instruments; and certifies ignition interlock device models. Additionally, the Department furnishes expert testimony regarding both the laboratory and the breath test program.

ISDT's objectives are to provide accurate and timely toxicology services in an ethical and forensically sound manner and an accurate and reliable breath test program for the State of Indiana. We hold that quality results come through professional, ethical, and unbiased analyses of all evidentiary samples entrusted to ISDT for testing.

The Department's strategy is to establish a professional work environment that encourages excellence; hire highly-qualified staff; provide appropriate resources to enable employees to accomplish ISDT's goals and objectives; develop a training program that ensures each employee is always learning; clearly communicate expectations, goals, and objectives to each employee; and provide the necessary technical and administrative leadership.

Budget

ISDT's budget is comprised of general fund appropriations, limited Breath Test Program fees, and, when awarded, federal grants. In 2017 the Indiana Criminal Justice Institute (ICJI) awarded the Department of Toxicology \$200,000 from National Highway Traffic Safety Administration funds for reduction of its analytical case backlog. These funds are being used to decrease turnaround times for traffic-related drug analysis request cases. ICJI also awarded the Department \$344,473 to purchase a Liquid Chromatograph Mass Spectrometer (LC/MS/MS). The intent is to use this instrument for confirmation of blood samples that have screened positive for the presence of opioids, and as a backup to the current LC/MS/MS, which is used for confirmation testing of samples that have screened positive for benzodiazepines and/or stimulants.

Staffing

ISDT ended the year with 20 of its 24 positions filled, as detailed in Table 1. The Department contracts with the Indiana Office of Technology, the State Budget Agency, and the State Personnel Department for computer support, accounting services, and human resource matters, respectively. The organization chart and contact information for ISDT are provided in the last two pages of this report.

Table 1: Department of Toxicology Staffing as of 12/31/17

Position	Staff	Position	Staff
Director	1	Analytical Lab Supervisor	1
Assistant Director	1 (1 vacant)	Forensic Scientist	10 (1 vacant)
Toxicologist/QC Coordinator	1	Evidence Control Specialist	2 (1 vacant)
General Counsel	1	Breath Test Program Supervisor	1
Program Coordinator	1	Breath Test Instrument Inspector	4 (1 vacant)
Administrative Assistant	1		

Training

The field of forensics, including toxicology, is constantly evolving and ever-changing. In order for its employees to remain current on developments in the toxicology field, ISDT must be committed to career-long learning for its employees.

In 2017 Department staff members attended the Borkenstein Course on Alcohol & Highway Safety, the Borkenstein Course on the Effects of Drugs on Human Performance and Behavior, Intox EC/IR II Maintenance School, and Legal and Ethics training, as well as three conferences: International Association for Chemical Testing, American Academy of Forensic Sciences, and Midwest Crime Directors Meeting. Employees who attended training or conferences, upon their return, shared the knowledge gained with other ISDT staff.

Customers

In 2017 ISDT analyzed blood samples submitted by 393 agencies, including coroners, town marshals, municipal and county departments, and state law enforcement agencies. This compares to submissions by 376 agencies in 2016. Approximately 5% of the agencies submitting evidence in 2017 were using the Department's laboratory services for the first time. Most agencies submit samples for analysis in evidence collection kits provided by the Department. ISDT encourages agencies to return expired ISDT-furnished evidence collection kits for refurbishment and redistribution, which results in cost savings to the Department of approximately \$3.00 per kit. Because ISDT analyzes only blood samples, it no longer supplies urine containers in its collection kits, which has reduced the initial cost of the kits from previous years.

The breath test program includes 5,056 trained and certified breath test operators who work for 403 different law enforcement agencies. In 2017 ISDT implemented a new online process that allows anyone to obtain free, certified copies of breath test instrument certifications and breath test operator certifications at any time. This process replaced the previous system, which required monthly mailings containing copies of instrument certifications and lists of certified and recertified operators to the ninety-two clerks of the circuit courts.

ISDT's web site (www.IN.gov/isdt) includes information on ordering evidence collection kits, sample submission protocols, testing parameters, available training, fees related to the breath test program, directions for use of the online breath test officer recertification program, and a link to the database that provides free, certified copies of breath test instrument and operator certifications, as well as a list of certified ignition interlock device models and provider contact information.

Testimony

The Department received approximately 1,000 subpoenas in 2017. This included subpoenas involving laboratory testing, breath tests, and interpretation of laboratory and breath test results. Testimony was provided by Department staff members 104 times: 64 times by forensic scientists, 4 times by breath test instrument inspectors, and 36 times by the toxicologist.

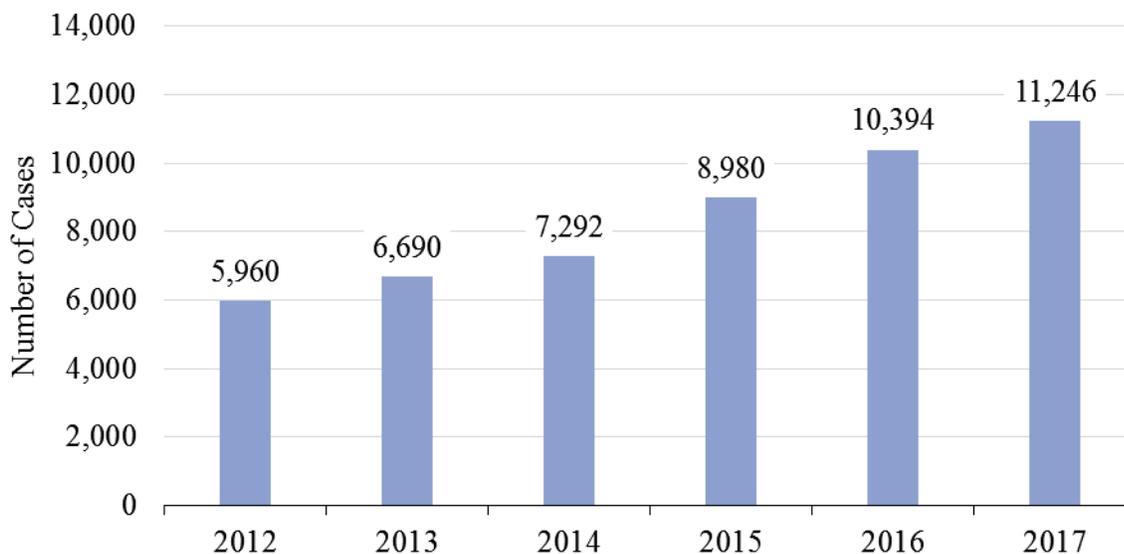
Blood Analysis

ISDT has continued to see a steady increase in case submissions for alcohol and drug analyses, as shown in Chart 1. The Department received 11,246 submissions in 2017 for which reports were generated, compared to 10,394 submissions in 2016. This represents an increase of 8%. Submissions have climbed steadily since the Department's first year as a state agency in 2012, when the Department received 5,960 cases for analysis. The number of 2017 submissions compared to 2012 submissions amounts to an increase of 89% in six years.

Cases may be submitted to ISDT for alcohol analysis, drug analysis, or both. Cases submitted in 2017 included 8,428 requests for alcohol analysis (a 6.5% increase from the 7,911 alcohol analysis requests submitted in 2016, and a 19.4% increase from the 7,058 alcohol analysis requests submitted in 2015) and 8,406 requests for drug analysis (a 5.6% increase over drug analysis requests in 2016, and a 23% increase from the 6,849 drug analysis requests submitted in 2015). In total, the Department received 16,834 requests for analysis in 2017.

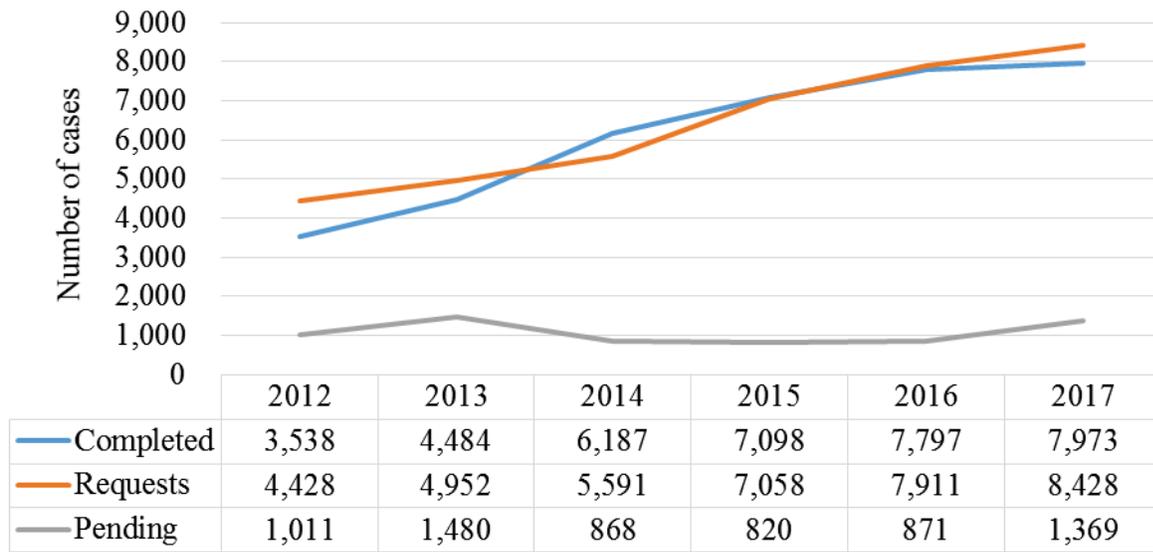
Offense information included with analysis requests indicates that 62.6% of the cases completed by ISDT involved operating a vehicle while intoxicated; 15.8% involved personal injury crashes including serious bodily injury; 15.8% involved property damage crashes, and 0.7% involved fatal crashes, with other types of submissions accounting for the remaining 5.1%. Of the 11,246 cases analyzed, 95% of the cases were traffic-related. There was a 1.3% reduction in traffic-related cases from 2016, which may be the result of officers reporting incomplete information on their Toxicology Analysis Request forms or an increase in cases submitted by the Marion County Coroner's office.

Chart 1: Department of Toxicology Submissions



ISDT completed 7,973 requests for alcohol analysis in 2017, compared to 7,797 requests in 2016, as shown in Chart 2. The number of alcohol requests pending at the end of 2017 was 1,369. This was significantly higher than the 871 cases pending at the end of 2016. Department scientists were developing new analytical methods as well as training new scientists in 2017, which reduced the time available for alcohol analysis.

Chart 2: Alcohol Analyses Completed, Requests, and Pending



ISDT completed 9,473 requests for drug analysis in 2017, as shown in Chart 3, which was a 53% increase compared to 2016. Outsourcing of cases for drug analysis and increased in-house capabilities contributed to this increased productivity. The number of drug analysis requests pending at the end of 2017 was 3,408, or approximately one-fourth fewer cases pending than at the end of 2016. The average turnaround time, 152 days, for a drug analysis request in 2017 remained consistent compared to 2016, even though drug analysis requests increased by approximately 6%.

Chart 3: Drug Analyses Completed, Requests, and Pending

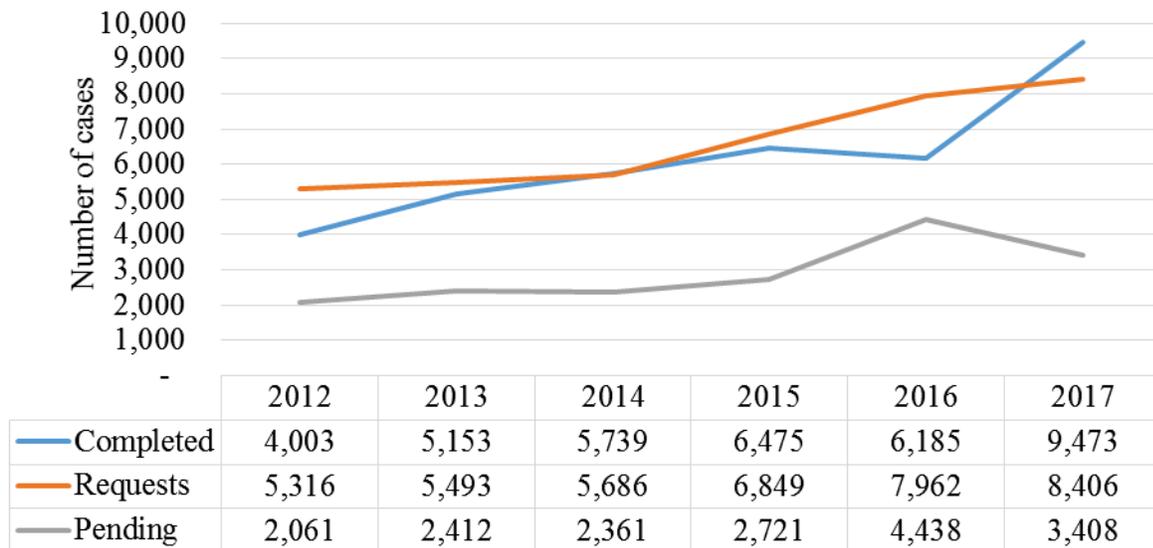
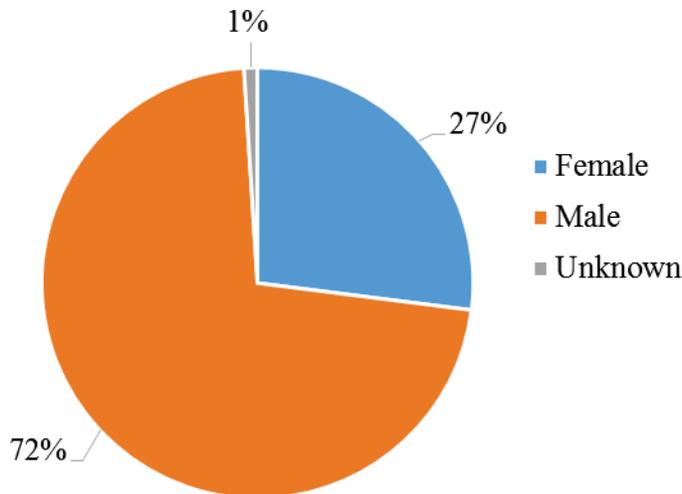


Table 2: Pending Analysis Summary

	2012	2013	2014	2015	2016	2017
Alcohol Analysis	1011	1480	868	820	871	1369
Drug Analysis	2061	2412	2361	2721	4438	3408
Total	3072	3892	3229	3541	5309	4777
Over 15 Days						
	2012	2013	2014	2015	2016	2017
Alcohol Analysis	856	1390	680	555	681	1062
Drug Analysis	1895	2318	2165	2477	4252	3095
Total	2751	3708	2845	3032	4933	4157
Over 30 Days						
	2012	2013	2014	2015	2016	2017
Alcohol Analysis	691	1063	461	261	396	762
Drug Analysis	1688	1989	1956	2181	3944	2752
Total	2379	3052	2417	2442	4340	3514

As shown in Table 2, there were 4,777 pending alcohol and drug requests at the close of 2017. The majority of the requests were for drug analysis. The number of pending alcohol analysis requests increased significantly in 2017 when compared to 2016, but the average turnaround time for completion of alcohol analysis request (37 days in 2017) decreased by 17 days from the 54-day turnaround time in 2016. The number of alcohol analysis requests pending longer than 30 days increased at the end of 2017, which indicates that the turnaround time for an alcohol analysis request increased as the 2017 year progressed. This is confirmed by an average turnaround time of 50 days for alcohol analysis requests during the 4th quarter of 2017.

Chart 4: Blood Alcohol Analysis by Gender



As indicated by submitting agencies on Toxicology Analysis Request forms, the majority (72%) of samples submitted for alcohol analysis were from male subjects, with samples from female subjects comprising 27%. The percentage of female subjects increased by 2% compared to 2016. The male-to-female ratio for blood alcohol analysis is consistent with the ratio of male-to-female breath test subjects: 76% to 24%.

Chart 5: Blood Alcohol Case Distribution by Results

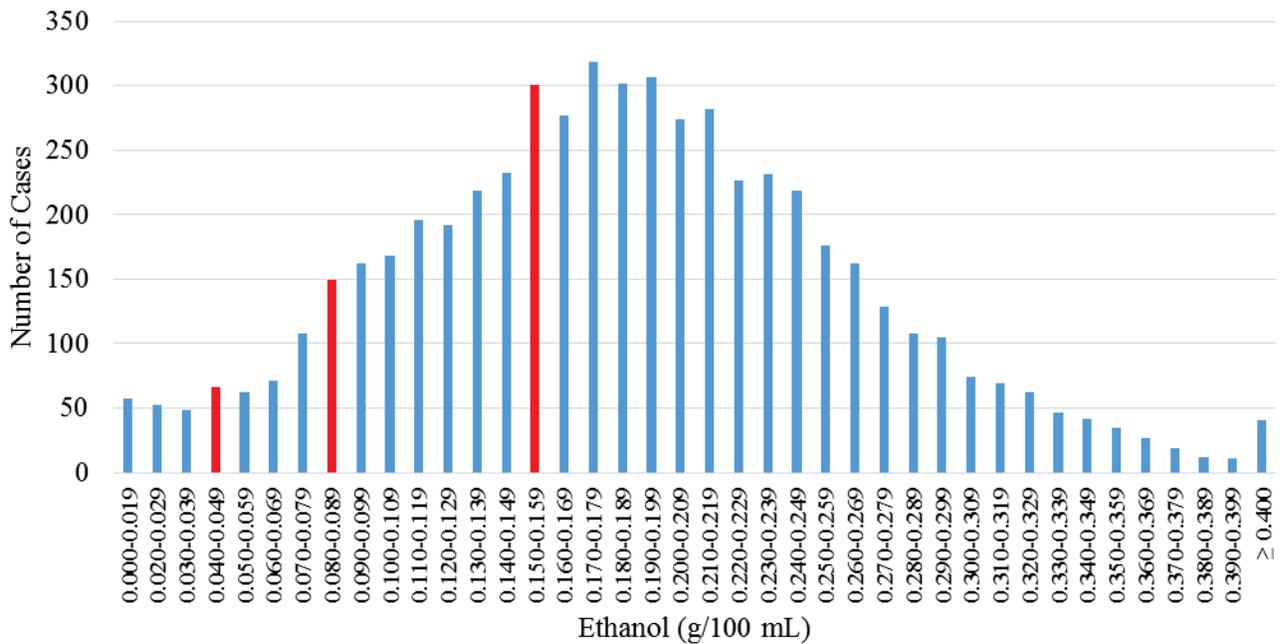


Chart 5 shows the distribution of blood alcohol analysis results by blood alcohol concentration. The red bars indicate the legal limits for commercial driver license holders (0.040 g/100 mL of blood), and operating a vehicle while intoxicated (0.080 and 0.150 g/100 mL of blood).

Of the total number of blood alcohol results reported, 91.8% of the alcohol concentrations were 0.080 g/100 mL of blood or higher, which is slightly more than the 88.8% of breath test subjects with alcohol concentrations of 0.080 g/210 L of breath or higher. The percentage of blood test subjects with alcohol concentrations of 0.150 g/100 mL of blood or higher was 68.5% (Chart 6), which is significantly more than the 42.8% of breath test subjects with alcohol concentrations of 0.150 g/210 L of breath or higher.

Chart 6: Blood Alcohol Subject Test Results by Selected Ranges

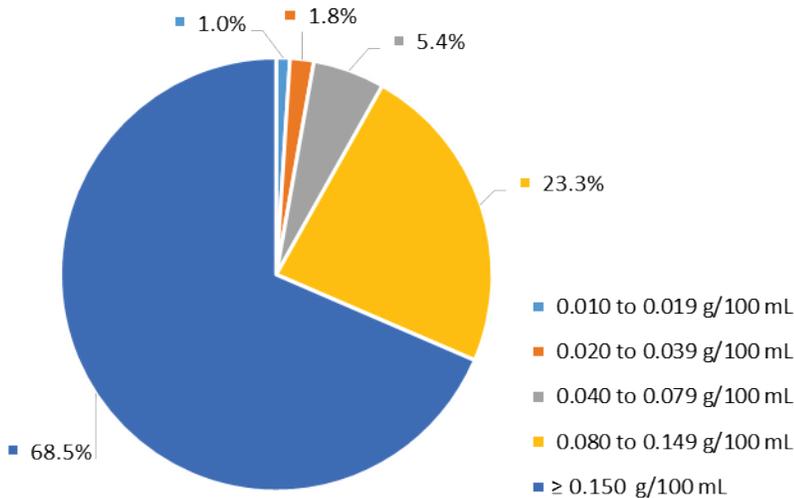
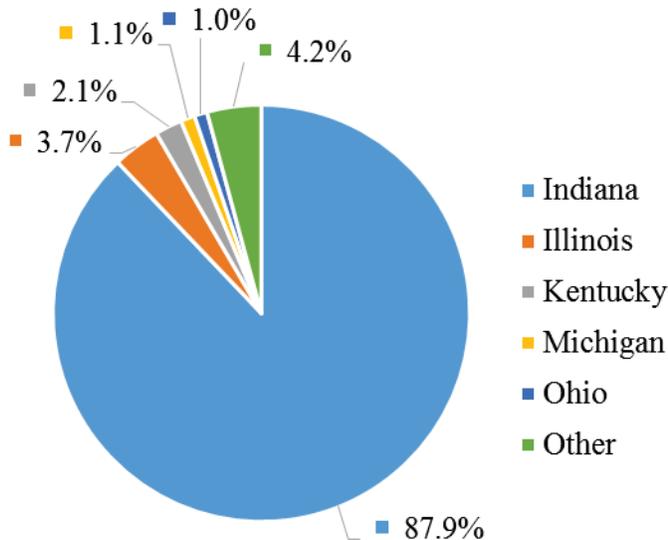


Table 3: County and Number of Subject Tests Conducted

Lake	2,069	Howard	212	Noble	114	Parke	62
Allen	1,261	Grant	206	Knox	112	Scott	62
Marion	1,229	Bartholomew	193	Montgomery	109	Washington	58
Elkhart	983	Decatur	176	Fountain	105	Pike	48
Hamilton	888	Dearborn	172	White	103	Benton	47
Porter	722	Adams	163	Tipton	95	Crawford	46
Clark	655	Warrick	159	Wabash	95	Jefferson	46
St. Joseph	547	Whitley	158	Putnam	94	Pulaski	44
Johnson	483	Miami	156	Orange	89	Carroll	42
Vanderburgh	450	Morgan	152	Wells	89	Franklin	42
Tippecanoe	444	Jasper	140	Dubois	87	Ripley	39
Floyd	438	Clinton	138	Posey	87	Martin	36
Hendricks	405	Jackson	133	Randolph	82	Starke	36
Madison	358	LaGrange	130	Vermillion	75	Warren	35
Monroe	335	Owen	128	Spencer	73	Switzerland	34
DeKalb	302	Huntington	125	Jay	71	Gibson	29
LaPorte	289	Harrison	124	Newton	67	Blackford	28
Hancock	278	Shelby	123	Fayette	66	Ohio	25
Henry	268	Cass	120	Greene	66	Wayne	25
Delaware	259	Steuben	120	Perry	66	Marshall	24
Vigo	254	Lawrence	119	Brown	65	Union	22
Kosciusko	224	Daviess	118	Sullivan	64	Fulton	16
Boone	217	Jennings	115	Clay	62	Rush	14

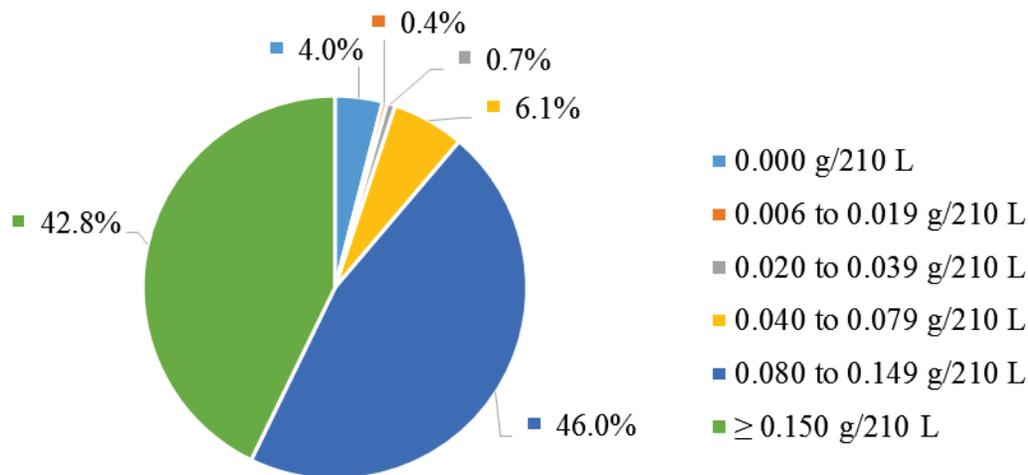
Chart 7: State of Issued Driver License



Certified breath test operators administered 13,727 completed subject breath tests in 2017, which is 721 fewer than in 2016. The five counties with the greatest number of subject tests administered were the same in 2017 as reported in 2016, and they accounted for approximately one-third of all the breath tests administered in 2017. Of the subjects tested in 2017, 87.9% had licenses from Indiana, 3.7% from Illinois, 2.1% from Kentucky, 1.1% from Michigan, 1% from Ohio, and the remaining 4.2% were from other states and countries. This breakdown by states is consistent with what was reported in 2016.

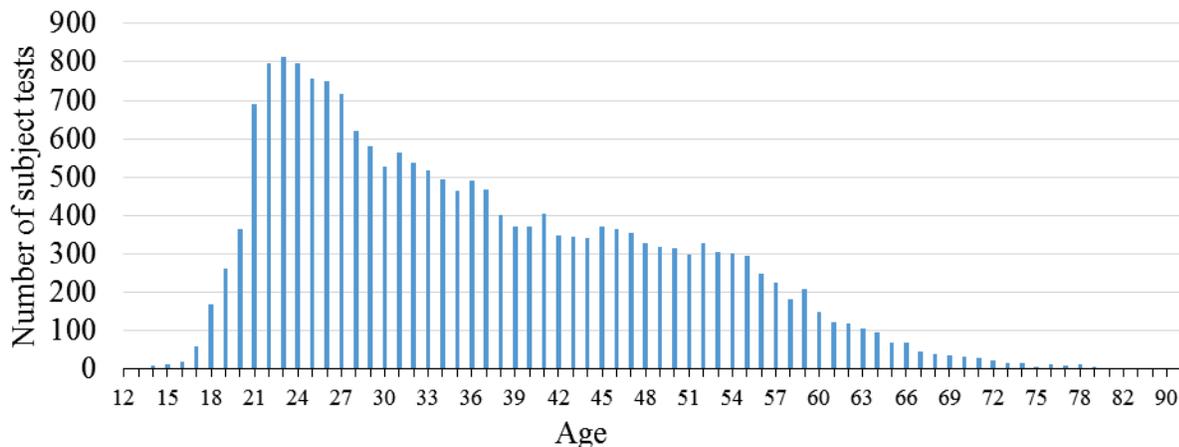
Of the subjects whose test contained at least two reported alcohol concentrations, 11.2% had results between 0.000 and 0.079 g/210 L of breath; 46% had breath alcohol concentrations between 0.080 and 0.149 g/210 L of breath; and 42.8 % had results of 0.150 g/210 L of breath or higher, as indicated in Chart 8. Subjects with breath alcohol concentrations over the 0.040 g/210 L of breath legal limit for holders of commercial driver licenses, but under the 0.080 g/210 L of breath OVWI legal limit, constituted 6.1% of the test subjects. The 2017 distribution of subject breath alcohol concentration levels is consistent with 2015 and 2016.

Chart 8: Breath Alcohol Subject Test Results by Selected Ranges

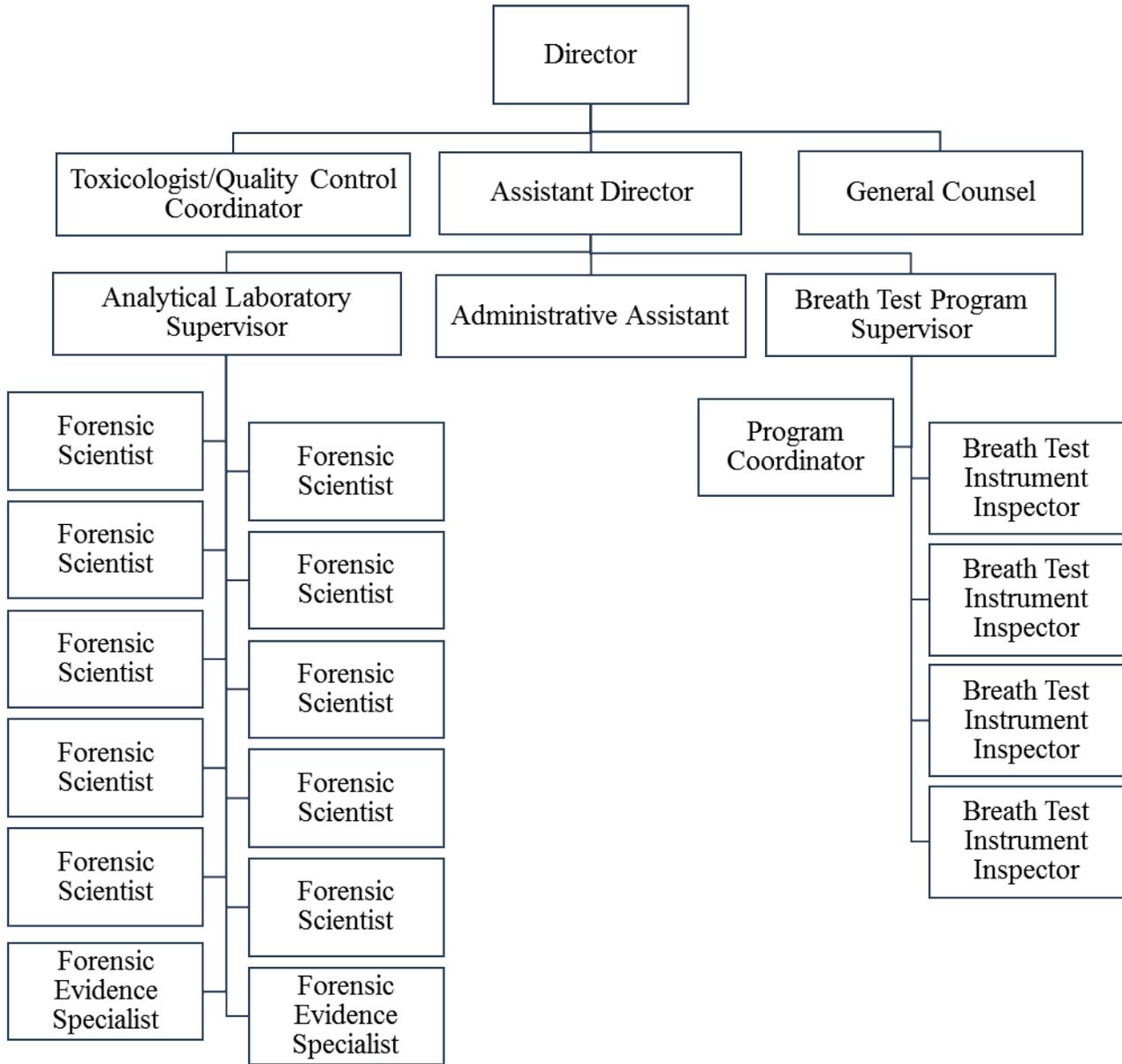


As shown in Chart 9, approximately 58% of all breath test subjects were between the ages of 21 and 39, with 90% being between the ages of 21 and 59. Subjects under age 21 constituted 4.6% of all subjects tested in 2017 distribution.

Chart 9: Number of Breath Alcohol Subjects Tested by Age



Organizational Chart

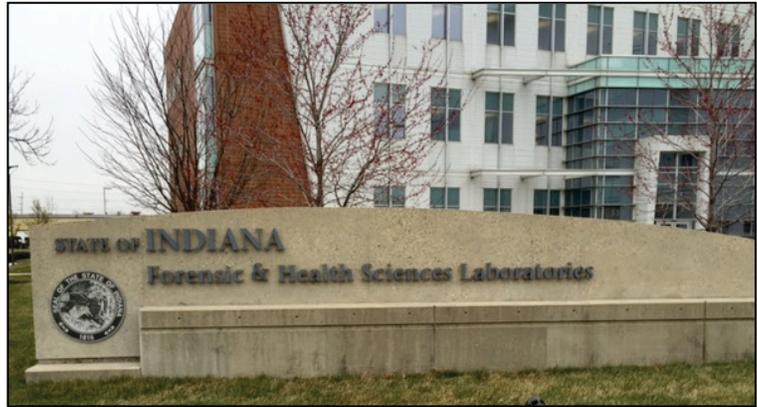


Indiana State Department of Toxicology

Contact Information:

Indiana State Department of Toxicology
550 W. 16th Street, Suite A
Indianapolis, IN 46202-2203

Web: www.IN.gov/isdt



General agency number	(317) 921-5000
Fax	(317) 925-9430
Director	Ed Littlejohn (317) 921-5006 elittlejohn@isdt.IN.gov
Assistant Director	Vacant
Toxicologist/Quality Control Coordinator	Sheila A. Arnold, Ph.D. (317) 921-5003 sarnold1@isdt.IN.gov
Analytical Lab Supervisor	Christina Beymer, Ph.D. (317) 921-5005 cbeymer@isdt.IN.gov
Breath Test Program Supervisor	Dana Bors, Ph.D. (317) 921-5008 dbors@isdt.in.gov
General Counsel	Teri Kendrick (317) 921-5002 tkendrick@isdt.IN.gov
Program Coordinator Breath Test/iResults	Haley Keen (317) 921-5007 halkeen@isdt.IN.gov