Nevada Forensic Toxicology Needs Assessment Report

Purpose: The purpose of the forensic toxicology needs assessment was to help CDC and OD2A-funded jurisdictions understand forensic toxicology testing protocols and identify strengths and gaps in testing procedures. The feedback will help inform CDC funding efforts to support comprehensive forensic toxicology testing of suspected drug overdose deaths. We received a survey response from one coroner office in your jurisdiction, and this report is a summary of the findings from that response.

This report is specific to your jurisdiction with averages from all survey responses being shown where applicable for comparisons. There are five tables included with the following categories of information: office information, laboratory information, toxicology testing information, timeliness and cost of overdose death investigations, and other information.

If you have questions about this report or the survey in general, please contact Jessica Bitting at jbitting@cdc.gov.

Office Information		
Survey question #		
3	**Death investigation office type:**	Coroner
3b	**Office run by:**	Coroner – non-physician/non-sheriff
5	**Office accreditation:**	NAME, IACME
	Planning to seek accreditation:	N/A
	Barriers to seeking accreditation:	N/A
6	**Professional guidelines used by office:**	NAME, IACME
	Entity operating death investigation system	County
7	**Drug overdose burden – number of drug overdose deaths, Jan-June 2020**	300

Laboratory Information (Survey question #9)				
Laboratory name:	NMS Labs			
Laboratory type:	Referral			
Percent of samples sent to lab:	76-100%			
How results received from lab:	Per-case electronic			
Reasons for using lab:	Cost, Testing scope, Awarded bid			

Toxicology Testing Information		
Survey question #		
10	**Testing approach**	Conduct a standard set of screening and confirmatory analyses offered by the laboratory. Additional tests are run rarely.
11	**Frequency of ordering targeted analyses outside of standard testing panels**	Rarely (1-33% of deaths)

12	**Drug/drug class testing**	
	Almost always tested (91-100%)	6-AM, Amphetamine, Barbiturates, Benzodiazepines, Bupropion, Cannabinoids, Cocaine, Common opioid medications, Fentanyl, MDMA, Methamphetamine, Piperazines
	Often tested (68-90%)	Antidepressants, Antipsychotics, Anti-seizure drugs, Gabapentin, Ketamine, LSD, Mitragynine, Muscle relaxants, Naloxone, OTC medications, Phencyclidine/PCP, Phenethylamines, Sedative hypnotics, Xylazine
	Sometimes tested (34-67%)	Fentanyl analogs, Synthetic cannabinoids
	Rarely tested (1-33%)	Cathinones, GHB, Other NPS, Other synthetic opioids, Tryptamines, Volatiles
	Never tested (0%)	None

13	**Specimen sources for testing**	
	Routinely-obtained sources	Blood-antemortem, Blood-central, Blood-peripheral, Tissue, Urine, Vitreous fluid
	Preferred sources that are not routinely obtained	None

Timeliness/cost of drug overdose death investigation				
Survey question #		**NV Survey**	**OD2A Survey-All**	**OD2A Survey-Coroner**
15	**Tox testing cost per OD death[a]**	$200		
	Average, range		$364, $11-$5,000	$359, $50-$3,500
	Median, interquartile range		$250, $195-$350	$280, $200-$350
16	**Frequency of autopsy being performed for OD deaths[b]**	Almost always (91-100%)		
	Almost Always (91-100%)		119 (52.9%)	67 (46.9%)
	Often (68-90%)		33 (14.7%)	19 (13.3%)
	Sometimes (34-67%)		35 (15.6%)	22 (15.4%)
	Rarely (1-33%)		37 (16.4%)	34 (23.8%)
	Never (0%)		1 (0.4%)	1 (0.7%)
17	**Barriers to conducting timely autopsies**	N/A		
18	**Tox testing turnaround time[c]**	30 days or less		
	30 days or less		123 (52.8%)	73 (49.3%)
	31 to 60 days		63 (27.0%)	41 (27.7%)
	61 to 90 days		32 (13.7%)	24 (16.2%)
	More than 90 days		15 (6.4%)	10 (6.8%)
19	**Death certification turnaround time[d]**	61 to 90 days		
	30 days or less		75 (27.1%)	61 (31.8%)
	31 to 60 days		93 (33.6%)	62 (32.3%)
	61 to 90 days		68 (24.6%)	39 (20.3%)
	91 days to 120 days		20 (7.2%)	13 (6.8%)
	More than 120 days		21 (7.6%)	17 (8.9%)

[a] 115 missing or $0 values in OD2A Survey-All; 98 missing or $0 values in OD2A Survey-ME. Values of $0 excluded from calculations of estimates, as they likely indicate in-house testing.
[b] 60 missing values in OD2A Survey-All; 56 missing values in OD2A Survey-Coroner
[c] 52 missing values in OD2A Survey-All; 51 missing values in OD2A Survey-Coroner
[d] 8 missing values in OD2A Survey-All; 7 missing values in OD2A Survey-Coroner

Other Information		
Survey question #		
20	**Use of OD2A funds**	Yes; funding supports data collection for overdoses and covers expanded toxicology testing fees to help identify fentanyl analogs; old cases were reviewed to look for additional substances not previously detected
21	**Preference for receiving biannual epidemiologic reports on drugs involved in overdose deaths**	Yes; local, regional, state, and national-level
14; 22	**Gaps/challenges identified in collecting toxicologic information on suspected drug overdose deaths**	Lack of sample availability/quantity (e.g., due to body degradation)

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This report is specific to your jurisdiction with averages from all survey responses being shown where applicable for comparisons. There are five tables included with the following categories of information: office information, laboratory information, toxicology testing information, timeliness and cost of overdose death investigations, and other information.

If you have questions about this report or the survey in general, please contact Jessica Bitting at jbitting@cdc.gov.

Office Information		
Survey question #		
3	**Death investigation office type:**	Medical Examiner
3a	**Office run by:**	Medical Examiner/Forensic Pathologist
5	**Office accreditation:**	None
	Planning to seek accreditation:	NAME
	Barriers to seeking accreditation:	N/A
6	**Professional guidelines used by office:**	NAME
4	**Entity operating death investigation system**	County
7	**Drug overdose burden – number of drug overdose deaths, Jan-June 2020**	160

Laboratory Information (Survey question #9)				
Laboratory name:	NMS Labs			
Laboratory type:	Referral			
Percent of samples sent to lab:	76-100%			
How results received from lab:	Per-case electronic			
Reasons for using lab:	Accreditation, Cost, Convenience, Trust, Testing scope			

Toxicology Testing Information		
Survey question #		
10	**Testing approach**	Conduct a standard set of screening and confirmatory tests offered by the laboratory with additional analyses often done after receiving initial results (e.g. targeted testing for fentanyl analogs).
11	**Frequency of ordering targeted analyses outside of standard testing panels**	Sometimes (34-67% of deaths)
12	**Drug/drug class testing**	
	Almost always tested (91-100%)	6-AM, Amphetamine, Antidepressants, Antipsychotics, Anti-seizure drugs, Barbiturates, Benzodiazepines, Bupropion, Cannabinoids, Cocaine, Common opioid medications, Fentanyl, Fentanyl analogs, Gabapentin, Ketamine, LSD, MDMA, Methamphetamine, Mitragynine, Muscle relaxants, Naloxone, OTC medications, Other synthetic opioids, Phencyclidine/PCP, Piperazines, Sedative hypnotics, Tryptamines, Volatiles, Xylazine
	Often tested (68-90%)	None
	Sometimes tested (34-67%)	Other NPS, Phenethylamines, Synthetic cannabinoids
	Rarely tested (1-33%)	Cathinones, GHB
	Never tested (0%)	None
13	**Specimen sources for testing**	
	Routinely-obtained sources	Blood-antemortem, Blood-central, Blood-other postmortem, Blood-peripheral, Stomach contents, Tissue, Urine, Vitreous fluid
	Preferred sources that are not routinely obtained	None

Timeliness/cost of drug overdose death investigation				
Survey question #		**NV Survey**	**OD2A Survey-All**	**OD2A Survey-ME**
15	**Tox testing cost per OD death[a]**	$200		
	Average, range		$364, $11-$5,000	$372, $11-$5,000
	Median, interquartile range		$250, $195-$350	$230, $188-$350
16	**Frequency of autopsy being performed for OD deaths[b]**	Almost always (91-100%)		
	Almost Always (91-100%)		119 (52.9%)	52 (63.4%)
	Often (68-90%)		33 (14.7%)	14 (17.1%)
	Sometimes (34-67%)		35 (15.6%)	13 (15.9%)
	Rarely (1-33%)		37 (16.4%)	3 (3.7%)
	Never (0%)		1 (0.4%)	0
17	**Barriers to conducting timely autopsies**	N/A		
18	**Tox testing turnaround time[c]**	30 days or less		
	30 days or less		123 (52.8%)	50 (58.8%)
	31 to 60 days		63 (27.0%)	22 (25.9%)
	61 to 90 days		32 (13.7%)	8 (9.4%)
	More than 90 days		15 (6.4%)	5 (5.9%)
19	**Death certification turnaround time[d]**	31 to 60 days		
	30 days or less		75 (27.1%)	14 (16.5%)
	31 to 60 days		93 (33.6%)	31 (36.5%)
	61 to 90 days		68 (24.6%)	29 (34.1%)
	91 days to 120 days		20 (7.2%)	7 (8.2%)
	More than 120 days		21 (7.6%)	4 (4.7%)

[a] 115 missing or $0 values in OD2A Survey-All; 17 missing or $0 values in OD2A Survey-ME. Values of $0 excluded from calculations of estimates, as they likely indicate in-house testing.
[b] 60 missing values in OD2A Survey-All; 4 missing values in OD2A Survey-ME
[c] 52 missing values in OD2A Survey-All; 1 missing value in OD2A Survey-ME
[d] 8 missing values in OD2A Survey-All; 1 missing value in OD2A Survey-ME

Other Information		
Survey question #		
20	**Use of OD2A funds**	Yes; funding is used to support personnel for data abstraction and pay for additional/more expansive toxicology testing
21	**Preference for receiving biannual epidemiologic reports on drugs involved in overdose deaths**	Yes; local, regional, and state-level
14; 22	**Gaps/challenges identified in collecting toxicologic information on suspected drug overdose deaths**	Funding constraints prevent testing more suspected overdose deaths and expanded testing for more substances; insufficient specimen quantity/volume for testing

Public Safety Survey

Target Population for Survey: EMS, Police, Fire, Sheriffs, Coroners- Statewide.

This skip logic survey will give the OD2A Program a better understanding of which Public Safety agencies in Nevada are collecting data, what they are collecting, and if they are sharing any data. This survey will be offered through Survey Monkey.

Based on our research, and understanding of risk factors, OD2A staff have determined the following indicators should be collected by a community for situational awareness for overdose spike risk.

Question ***survey response instructions***

Public Safety Skip Logic Survey, Questions

1. **Agency Name:** ***blank text field***
2. **Agency Point of Contact:** ***blank text field***
3. **Do you participate in ODMAPS?** ***Multiple choice, select one***
    - Yes
    - No

    3.a If yes, how frequently do you update the system after responding to an overdose? ***Multiple choice- select one***
        - Immediately, on scene
        - Within 24 hours
        - Within 48 hours
        - Within 72 hours
        - Within 5-7 days
        - We don't update the system with any frequency
4. **Do you collect data on Naloxone administrations?** ***Multiple choice, select one***
    - Yes
    - No

    4.a If yes, do you collect the following, ***multiple choice, select multiple***

        - Number of Officers supplied with naloxone
        - Number of reversals by officers
        - Number of doses administered
        - Zip Code of Administration
        - Transport to hospital/ER yes/no?
5. **Do you collect and compile 911 Calls related to drug overdose?** ***Multiple choice, select one***
    - Yes
    - No

6. **Do you have any existing Data Sharing Agreements or MOUs for data sharing, with any public health entities, or nonprofit prevention or harm reduction entities?** ***Multiple choice, select one***
    - Yes
    - No

7. **Does your agency convene Public* Substance Abuse Stakeholder Meetings that allows outside attendees? (*Complies with State Open Meeting Law)** ***Multiple choice, select one***
    - Yes
    - No
8. **Does your agency convene regular closed Substance Abuse Stakeholders meetings (not open to the public)?** ***Multiple choice, select one***
    - **Yes**
    - **No**
9. **Are you a Law Enforcement Entity?** ***Multiple choice, select one***
    - **Yes**
    - **No**

9a. <u>If yes, do you collect data on drug seizures in your jurisdiction?</u> ***Multiple choice, select one***

- Yes
- No

9a1. <u>If yes, do you collect any of the following</u>, ***multiple choice, select as many that apply***

- Type of Substance Seized
- Amount of substance seized
- Location of seizure
- Highway/ Free Way/ Street Seizure
- Neighborhood Seizure

9b. <u>Do you administer field testing for fentanyl?</u> ***Multiple choice, select one***

- Yes
- No

9b1. <u>If yes, do you collect and compile those field test findings anywhere outside of case notes</u>? *Multiple choice, select one*

- Yes
- No

9c. <u>Do you collect any of the following data on substance-use related arrests</u>? *Multiple choice, select as many that apply*

- Number of offenses
- Number of arrests
- Demographics of offenders
- Demographics of arrestees
- Substance and amount
- Other data: *free text field*

9d. <u>Does your Agency do any Social media scraping/ Surveillance of any kind</u>? ***Multiple choice, select one***

- **Yes**
- **No**

9e. Are you a parole and probation agency? ***Multiple choice, select one***

- **Yes**
- **No**

9e1 **If yes, do you keep data related to drug testing for adults and youth?** ***Multiple choice, select one***

- **Yes**
- **No**

Total Number of Agencies Responding to the Survey:

- **15 Agencies**
  - Sparks Police Department
  - Las Vegas Metro Police Department x2
  - Washoe County Sheriff
  - Humboldt County Sheriff
  - Elko County Sheriff
  - SNHD Terrorism Center
  - Washoe County Medical Examiner's Office
  - Carson City Fire Department
  - East Fork Fire District
  - Churchill County Sheriff
  - Douglas County Sheriff
  - Carson City Sheriff
  - DEA
  - Nevada HIDTA
  - Eureka County EMS

Agencies Collecting Naloxone Administration Data:

- **5 Agencies**
  - Washoe County Sheriff
  - SNHD Terrorism Center
  - Carson City Fire Department
  - East Fork Fire District
  - Eureka County EMS
- **1 Skipped this Question**
  - Churchill County Sheriff

Agencies Identifying as a Law Enforcement Entity:

- **10 Agencies**
    - Sparks Police Department
    - Las Vegas Metro Police Department
    - Humboldt County Sheriff
    - Elko County Sheriff
    - SNHD Terrorism Center
    - Churchill County Sheriff
    - Douglas County Sheriff
    - Carson City Sheriff
    - DEA
    - Nevada HIDTA

Agencies Sharing Data with Non-Public Safety Partners:

- **3 Agencies**
    - Nevada HIDTA
    - East Fork Fire District
    - SNHD Terrorism Center

- **2 Skipped this Question**
    - Churchill County Sheriff
    - Elko County Sheriff

Survey Monkey Summary:

- Send to 15 rural coroners. Of the 15, only 11 responded.

https://www.surveymonkey.com/results/SM-9PVW8RTGV/

1. Do you have an internal protocol for reporting/documenting suspected overdose death scenes?
   - 1 answered "no"
   - 1 answered "just getting started with OD mapping, but no specific protocol in place"
   - 9 answered "yes"
   - *Most respondents have a internal protocol.*
2. How do you submit data for death certificates to the Office of Vital Records?
   - 3 answered "yes"
   - 4 answered "Online or electronically" – did not specify which system
   - 3 answered "EDRS or electronic death registry"
   - 1 answered "through NETSMART VRS (Internet) Nevada Department of Vital Records"
3. Who conducts death scene investigations? What is their title?
   - A variety of answers as follows:
     - For the most part, the patrol deputies have been trained as deputy coroners. They are two separate roles (coroner/patrol) but sometimes it blends more than I like.
     - Deputy Coroners under Sherriff's authority
     - All sworn employees within the Sheriff's office. Generic title of Deputy Sheriff/Deputy Coroner.
     - Deputy Coroners, Chief Coroner, Sheriff
     - Deputies and Detectives
     - Whomever the Deputy is on duty. All of my Category I certified Sworn personnel are also Deputy Coroners, as I am the Ex-Officio Coroner for Pershing County.
     - Coroner and detectives
     - Deputy and coroner
     - Deputy sheriff/deputy coroner and at times a detective
     - Deputies and deputy coroners
     - Captain and detectives
4. What is the chain of command for getting information to the State? In other words, how does information gathered from death scene investigations get reported to the State?
   - Only through the death certificate.
   - From the patrol deputy to the chief deputy coroner (me) and I forward the information.
   - Investigating Deputy or their respective supervisor - Through NETSMART VRS at the time of signing the death certificate.
   - Deputy Coroner, Chief Coroner, Sheriff
   - By detectives
   - The chain of command would be for the investigating Deputy to finalize their internal report and submit to the Sgt. or Under Sheriff for approval and the investigating Deputy would then populate the EDRS with the cause and manner of death. This population would be within the first 4 days unless an autopsy is performed and then we have to wait until the report from the WCME's Office is delivered to us. Other than through the EDRS, we do not report any other death information to the State.

- Senior Deputy Coroner reports to Sheriff, and death information is reported directly to the state.
- Directly from deputy/coroner handling the case through the state portal.
- Death Investigation Report submitted to the Clark County Coroner's Office with the body and a copy submitted to the Nye County Deputy Coroner completing the Vital Records information. A copy of the results from both are submitted to the Nye County Sheriff/Coroner.
- Primary Deputy Coroner that relays info to the state.
- Coroner reports and death certificates.

5. How and when would you collect data/specimen for toxicology screening?
   - We collect toxicology (blood, urine, vitreous) from each coroner case if possible (not a decomp) as soon as they are received.
   - During physical exam or autopsy.
   - All suspected overdose decedents are scheduled for an autopsy. Data/Specimen's will be collected during this autopsy.
   - As soon as the body gets to the morgue.
   - Overdose case, suspected substances or unknown death
   - If we suspect an overdose, we either request through the WCME for a blood draw to be performed and tested. If there is no suspicion as to cause of death beside an overdose, we would request the funeral home or other phlebotomist to draw blood and we would send to a vendor to have an analysis performed, as the WCCL will no longer perform this function.
   - Not performed locally, All toc and specimen screening is performed by the Washoe County Medical Examiner.
   - When there is a substance believed to be involved in the death or if the cause of death is not apparent we would have the medical examiners office collect a specimen and test through their standard processes during the post-mordem exam.
   - Clark County Medical Examiner performs the collections/specimen.
   - DUI, suspected overdose and undetermined cause of death.
   - Major crimes.
6. How do you make the determination of when a suspected overdose case gets sent to the contracting coroner's office?
   - We are the coroner's office.
   - If we are unable to determine the actual cause of death. If the death appears to be an obvious drug overdose then we only conduct a physical exam and obtain samples for toxicology
   - All suspected overdose decedents are scheduled for an autopsy.
   - Suspected OD's go for autopsy every time.
   - if suspicious or not known to abuse.
   - As we are the Coroner's Office for Pershing County, we would only send someone to the WCME's Office if there is something suspicious/unexplainable or if the death was unattended, pursuant to NRS.
   - Based on an investigation of the death scene; i.e., medications, and paraphernalia on scene.
   - The Sheriff's Office is also the coroner so all cases go through us regardless.

- The Deputy Sheriff/Deputy Coroner and a Detective provide input to the Detective Lieutenant and he makes the decision from their report or on scene. When he is uncomfortable making a decision the final determination is made by the Sheriff/Coroner
- We have very few so most likely all would be sent
- All suspected cases go.

7. Is there a guideline or definition that determines suspected drug used?
   - 4 answered “No”
   - 2 answered “yes”
   - Investigative guidelines
   - It is based on knowledge of the decedent ad their lifestyle, evidence found at the scene and usage of training and experience.
   - Drugs are determined by using Washoe County Medical Examiner's Office and Washoe County Crime Lab
   - Deputies/coroners base their findings on evidence at the scene or as implied above, absent any apparant cause of death, we would check all possibilities through the post-mordem exam.
   - All undetermined deaths go.
8. What are the barriers to sending all suspected overdose cases for an autopsy or toxicology report?
   - 4 answered that financial or expense issues were a barrier.
   - 3 answered “none”
   - Toxicology is always done, autopsy for suspicious or not known user, possible dr. malpractice for prescribed medications.
   - Barriers are mainly cost and lack of personnel to perform an autopsy on all overdose decedents. There is not a need to send ALL overdose cases to the WCME due to known factors and investigative techniques. If we, as Coroners, can absolutely determine the cause and manner of death without an autopsy, it would be too time consuming to send every suspected overdose to the WCME. It would also not be fiscally responsible to perform further testing on a known outcome.
   - Have not incurred any barriers. Though budgeting may be assumed, this circumstance has not been a local challenge.
   - Only identifying information or evidence which would support an overdose conclusion.
9. What else do you think we need to include in the guidelines? Is there anything we missed?
   - There needs to be a way for rural Coroner's to have input and better usage of the EDRS or whatever system may be coming. The current system is know to the State to be very user unfriendly as well as having numerous technical failures. Even though they are aware, at a recent meeting, the State advised it would take two years to get a new system. This time frame should not be this extended with such an important task as documenting cause and manner of death. Their also needs to be live or some type of web training provided, other than just a help menu on the program for the usage of such a system. We are not doctors and therefore do not use the same terminology. There are several causes of death which are not recognized by the system and get kicked back. However some of those kickbacks never get to the Coroner assigned and go months without any interaction with the EDRS. Rural Coroners need more involvement with these systems from the ground up. For this,

definitions of the causes of death would assist as well, instead of just a list of potential words which could be used to fill in the blanks. The guidelines also need to have more flexibility. There is no way to have every death fit neatly into a predefined check box. Every death is different and every death has the potential to not be described as the options available. When these things happen, as they do, as the providers of the information we must choose which box to check or what phrase/word best fits, and thereby potentially provide false information on an important legal document.

- This department has strong relationships with Medical Examiners and Health authorities.
- Provide written overdose guidelines.

10. Includes contact information and who completed.

TRAFFIC INJURY RESEARCH FOUNDATION

NEVADA FORENSIC TOXICOLOGY LABORATORY: GAP ANALYSIS

TIRF

The knowledge source for safe driving

THE TRAFFIC INJURY RESEARCH FOUNDATION

The mission of the Traffic Injury Research Foundation (TIRF) is to reduce traffic-related deaths and injuries. TIRF is a national, independent, charitable road safety research institute. Since its inception in 1964, TIRF has become internationally recognized for its accomplishments in a wide range of subject areas related to identifying the causes of road crashes and developing programs and policies to address them effectively.

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NEVADA FORENSIC TOXICOLOGY LABORATORY:

GAP ANALYSIS

By Ward G.M. Vanlaar, Robyn D. Robertson, Hannah Barrett, Barry K. Logan, Amy K. Miles, Laura Bailey, & Brandon Villanti

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INTRODUCTION

Nevada is one of two U.S. jurisdictions without a state forensic toxicology laboratory (the other state is Hawaii). Instead, three public forensic toxicology laboratories provide services across the state (City of Henderson, Las Vegas and Washoe County), leaving some counties underserved, although the magnitude of this issue is unknown.

The absence of a state laboratory is an impediment to understanding the magnitude of the impaired driving problem in Nevada. Similarly, the lack of standardized testing and data collection is a barrier to decision-making in terms of policy development and resource allocation. This problem has become more pronounced as a result of cannabis legalization. Moreover, without a state lab to conduct independent testing, it is challenging to enforce regulatory requirements related to cannabis production and sale.

This new legal context and its resulting real-world implications have profound consequences for public safety. There is an urgent need for more testing, and more consistent testing and analysis of blood samples collected during Driving Under the Influence of Drugs (DUID) investigations. Standardized and high-quality data are the cornerstone of effective policies and programs to reduce road deaths and injuries resulting from alcohol- and drug-impaired driving.

Against this backdrop, the Traffic Injury Research Foundation (TIRF; www.tirf.ca), an independent road safety research institute, was invited to conduct a gap analysis to inform the implementation of a state forensic toxicology laboratory in Nevada (henceforth referred to as a "state lab"). This involved assessing existing lab services against best practices and undertaking a gap analysis to inform the development of an implementation plan. This work was conducted in consultation with forensic experts from several jurisdictions and representatives of state agencies in Nevada.

TIRF has a cooperative agreement with the National Highway Traffic Safety Administration (NHTSA) to provide technical assistance to requesting states in order to enhance the implementation and delivery of impaired driving countermeasures. From 2009 to 2017, TIRF delivered technical assistance and training for alcohol ignition interlock programs in more than 30 states. In 2017, the cooperative agreement was expanded to encompass technical assistance related to a continuum of impaired driving countermeasures. Notably, TIRF assists jurisdictions by developing tailored solutions for more complex challenges in consultation with leading experts. The objective is to help states implement evidence-based solutions and achieve major improvements in countermeasures to accelerate reductions in deaths and injuries. To date, TIRF has provided such assistance to more than 40 U.S. jurisdictions.

This report describes the gap analysis conducted by TIRF, including the methods applied to achieve the objectives, the results, and conclusions. The implementation plan is described in a separate report.

METHODS

The gap analysis was conducted using three primary methods:

- Critically review and analyze guiding documents associated with business and operational plans as well as documents related to current lab operations in Nevada and best practices for toxicology labs.
- Develop a data collection instrument to structure discussion with state agencies in Nevada and leading toxicology experts in the U.S.; and,
- Synthesize the data from these sources to inform a gap analysis.

Document review

In preparation of data collection, a series of documents were critically reviewed to enable TIRF researchers to familiarize themselves with current practices and context in Nevada as well as best practices for toxicology labs. These documents included summaries of previous discussions in Nevada regarding the need for a state lab as well as current agreements with existing public labs and relevant operational information. Best practices for state toxicology labs and a variety of business plans templates were considered, including "Designing a Successful Business Plan. Positioning the Lab for Success" by Haddon Carryer from the Mayo Clinic. Additional materials emerging during the data collection phase were also reviewed. These documents served to further augment and expand the knowledge base of TIRF team members and were used in an iterative fashion throughout the gap analysis exercise. These documents included:

- Detailed documents from the public labs (e.g., organizational charts, accreditations);
- 2016 Toxicology Laboratory Survey. Updates for Recommendations for Drug Testing in DUID & Traffic Fatality Investigations. By: Amanda L. D'Orazio, BS, Karen S. Scott, PhD, Amanda L.A. Mohr, MS and Barry K. Logan, PhD, F-ABFT. ©Copyright 2016, Center for Forensic Science Research and Education;
- Recommendations for Toxicological Investigation of Drug-Impaired Driving and Motor Vehicle Fatalities – 2017 Update. By: Barry K. Logan, Amanda L. D'Orazio, Amanda L.A. Mohr, Jennifer F. Limoges, Amy K. Miles, Colleen E. Scarneo, Sarah Kerrigan, Laura J. Liddicoat, Karen S. Scott, and Marilyn A. Huestis published in the Journal of Analytical Toxicology.
- Legislation from other jurisdictions creating and granting authority to state labs.

Data collection instrument development

A bank of draft questions was created in the form of a discussion guide once the document review was completed. Questions were initially structured according to the four perspectives of the Balanced Score Card methodology: human resources, business processes, customers/clients, and finance. An additional section on legal framework was subsequently added. The purpose of the

discussion guide was to structure conversations with state agencies and experts and capture relevant information to identify gaps and inform the implementation plan.

This bank of draft questions was then shared with four Subject Matter Experts (SMEs; refer to the Appendix for their names, titles and affiliations) who formulated feedback to further refine the discussion guide. The final version served as the master discussion guide during data collection and a copy is included in the Appendix of this report.

Data collection

Using the GoToMeeting software, a series of virtual meetings was conducted involving representatives from relevant state agencies (law enforcement, prosecutors, toxicologists, highway safety office, and cannabis compliance agency) on May 1, 4, 5, 6 and 7, 2020. Each meeting was approximately 90 minutes. The number of participants in each call varied between three and eight; one discussion was held separately with one key individual who was unable to participate at scheduled times.

Different blocks of questions from the master discussion guide were selected based on the expertise and topics relevant to each group of participants. Questions were designed to elicit knowledge and experience pertaining to strengths, operational issues, gaps and needs using a semi-structured discussion format. As such, no two meetings were alike, but each meeting provided complementary information from the perspective of different stakeholders. Follow-up questions identified during each call were formulated and shared with designated individuals to either clarify information or obtain additional information. Input gathered during each call was synthesized and answers to follow up questions were integrated. Draft versions were further reviewed by experts for completeness and technical accuracy and their feedback was incorporated. A synopsis of each meeting is available in the Appendix and these final notes contain the "raw data" from which the gaps and needs were identified.

RESULTS

The main results of the gap analysis are described in this section. Important contextual information relating to key demographic characteristics of Nevada as well as metrics related to the magnitude of the DUI/DUID problem are presented first. This is followed by an overview of existing lab practices. Collectively, this information aids with the interpretation of results. The main results focus on identified gaps in conjunction with needs as expressed by stakeholder groups contributing to the data collection phase of this work.

State demographics

The estimated population of Nevada was 3,080,156 in July 2019 which represents a 14% increase since 2010 according to the U.S. Census Bureau statistics (https://www.census.gov/quickfacts/NV). Nevada is estimated to be 109,781.18 square miles with a population of 28.1 people per square mile in 2019 (compared to 24.6 in 2010). Slightly less than half of the population (49.9%) was female. Persons aged 5 years or younger represented 6.1% of the population, persons under 18 years were 22.7%, and persons 65 years and older was 15.7%.

The majority of inhabitants identify as White (48.7%), followed by Hispanic (i.e., referring to native speakers of Spanish, or have Spanish-speaking ancestry) or Latino (i.e., referring to geographical Latin American origin or ancestry) (29.0%). The representation of other ethnic groups is much smaller: Black or African American (10.1%), Asian (8.7%), American Indian and Alaskan Native (1.7%), and Native Hawaiian and other Pacific Islanders (0.8%).

Between 2014 and 2018, approximately 30% of people aged five years and older spoke a language other than English at home. Almost one-fifth (19.4%) of the population was estimated to be foreign born (i.e., did not have U.S. citizenship at birth).

A total of 208,731 (6.8%) were veterans (i.e., men and women who had served but were not currently serving on active duty in the U.S. Army, Navy, Air Force, Marine Corps, or the Coast Guard, or who served in the U.S. Merchant Marine during World War II).

There were approximately 1,075,930 households (between 2014 and 2018) in the state with an average of 2.68 people per household. A large majority lived in the same household for more than one year (81.6%). During this same timeframe, a large majority of households had a computer (91.2%) and a broadband Internet subscription (81.3%). More than half of all housing units (1,285,684) were owner-occupied (55.8%) with a median value per housing unit of $242,400. The median household income in 2018 dollars was $57,598. Just under 13% (12.9%) of Nevada residents were living in poverty, 13.0% under the age of 65 did not have health insurance, and 8.9% under the age of 65 had a health disability.

Between 2014 and 2018, among all persons aged 25 or older, 86.3% had graduated at least from high school while 24.2% had a Bachelors degree or higher. In addition, 63.4% of persons aged 16 or older were in the civilian labor force. Among females only of the same age, the percent was 58.7%. The mean travel time from home to work was 24.3 minutes.

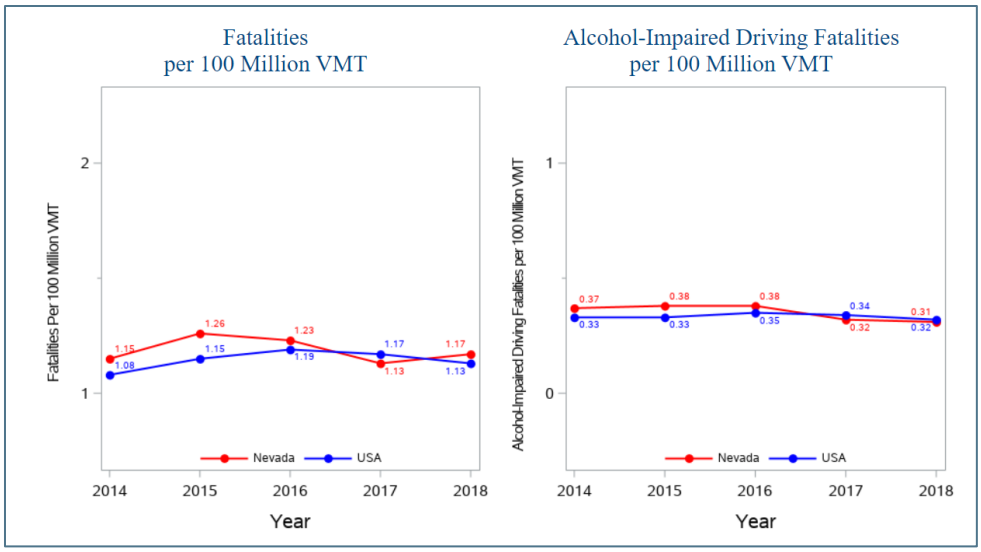
Impaired driving in Nevada

The total number of all road fatalities in Nevada in 2018 was 330 according to the NHTSA as compared to 291 in 2014.[1] The Office of Traffic Safety in Nevada reported the five-year average number of fatalities was 316 during this timeframe.[2]

The 2018 fatality rate in Nevada was 10.88 fatalities per 100,000 population which is slightly lower than the U.S. rate of 11.17. However, compared to 2014, the rate in Nevada increased from 10.31. Using miles driven as the denominator to calculate the rate, in 2014 there were 1.15 fatalities per 100 million Vehicle Miles Traveled (VMT) and this increased slightly to 1.17 in 2018. The U.S. rates were 1.08 and 1.13, respectively.[3]

Although the overall road safety performance in Nevada has declined somewhat in the past five years, the data indicate progress reducing alcohol-impaired driving. As shown in Figure 1, the rate of alcohol-impaired driving fatalities per 100 million VMT decreased from 0.37 in 2014 to 0.31 in 2018, while it only decreased from 0.33 to 0.31 in the U.S.

Figure 1: Fatalities and alcohol-impaired driving fatalities per 100 million Vehicle Miles Traveled (VMT) in NV and the U.S.



Source: Traffic Safety Facts Nevada 2014-2018 retrieved from *https://cdan.nhtsa.gov/SASStoredProcess/guest*)

Similarly, in 2018, the percent of alcohol-impaired driving fatalities (BAC= .08+) was 26% (87 of 330) which was lower than 2014 when 32% of all fatalities (93 of 291) were alcohol-impaired. In comparison, across the U.S. declines were much smaller from 30% in 2014 to 29% in 2018. Of concern, 17% of alcohol-impaired driving fatalities in 2018 involved a BAC=.15 or higher. A

[1] Source: 2018 FARS data as mentioned in NHTSA's December 2019 Traffic Safety Facts resource
[2] Source: 2019 Nevada Office of Traffic Safety Annual Report,
[3] Source: Nevada traffic safety facts as reported on https://cdan.nhtsa.gov/SASStoredProcess/guest

detailed breakdown of fatalities (all fatalities) for the top 10 counties from 2014 to 2018 is provided in Figure 2.

Figure 2: Five-year trend of fatalities for the top 10 counties of 2018

Nevada Counties by 2018 Ranking		Fatalities					Percent of Total				
		2014	2015	2016	2017	2018	2014	2015	2016	2017	2018
1	Clark County	174	210	217	208	220	60	64	66	67	67
2	Washoe County	38	37	50	40	44	13	11	15	13	13
3	Nye County	12	11	6	9	14	4	3	2	3	4
4	Lyon County	12	7	1	10	12	4	2	0	3	4
5	Elko County	13	12	8	9	10	4	4	2	3	3
6	Lincoln County	3	4	1	0	5	1	1	0	0	2
7	Churchill County	4	5	8	6	4	1	2	2	2	1
8	Esmeralda County	3	5	3	4	4	1	2	1	1	1
9	Humboldt County	10	8	5	3	4	3	2	2	1	1
10	Pershing County	4	1	1	2	3	1	0	0	1	1
*Sub Total 1.**	*Top Ten Counties*	277	307	317	303	320	95	94	96	97	97
*Sub Total 2.***	*All Other Counties*	14	19	12	8	10	5	6	4	3	3
Total	*All Counties*	291	326	329	311	330	100	100	100	100	100

Source: Traffic Safety Facts Nevada 2014-2018 retrieved from *https://cdan.nhtsa.gov/SASStoredProcess/guest*)

In 2019, the Nevada Department of Public Safety (DPS), Committee on Testing for Intoxication reported there were 12,860 arrests and 3,457 completed court cases for impaired driving. Among completed court cases, 213 cases were dismissed and four were deemed not guilty.

Data regarding drug-impaired driving arrests, convictions or crashes are limited. Nevertheless, substance involved fatal traffic crashes continue to represent a large percentage of overall statistics in Nevada with more than 50% of fatal crashes involving an impairing substance or combination of substances (polysubstance). In the period from 2016 – 2018 polysubstance involved fatal crashes increased by nine percent. Data also revealed that marijuana was by far the most common substance present when polysubstance use was observed. To illustrate, in 71 out 95 cases, or 75%, of polysubstance use, marijuana was detected (source: Office of Traffic Safety, State Fatal Data).

Overview of existing laboratory services

Currently, lab testing services are provided by three public labs in Nevada. A brief description of the services and capacity provided by each lab each is below.

Henderson lab

- Accredited by the American National Standards Institute (ANSI) National Accreditation Board (ANAB).
- Service area covers 600,000 people including North Las Vegas, Mesquite and Lake Mead.

- Annual number of impaired driving cases ranges from 700-800 and the lab considers their caseload to be manageable, however, they estimate they are currently at maximum capacity.
- All samples are tested for drugs regardless of BAC result.
- The lab is capable of screening for approximately 100 drugs and does confirmatory testing for approximately 60 drugs. Drug panels are regularly reviewed to ensure alignment with current drug trends in the state.
- Approximately 25% of tested samples in 2018 were positive for drugs only and 24% were positive for alcohol only. Slightly less than half of all samples (47%) were positive for alcohol (BAC >.08) and drugs.
- Test protocols are standardized. Two toxicologists process all DUI samples, including accessioning (i.e., the process of recording a new sample), and both toxicologists do the same work to create efficiencies (i.e., both test for alcohol and drugs instead of one or the other only). Blood samples are first analyzed for alcohol and then tested for drugs. A single report describing both the alcohol and drug results is produced. No presumptive results are reported. Blood samples are returned to the police evidence vault when testing is finished. Alcohol analysis is completed in approximately two weeks and drugs take three to six weeks for drugs (depending on how many drugs tested).
- The lab has one working LC/MS/MS which should be replaced in the next six to nine months. All post-mortem cases are outsourced to the county coroner's office. A small number of samples require testing for Novel Psychoactive Substances (NPSs) and these are outsourced (due to different test protocols) as is testing for synthetic drugs and urine analysis.

Las Vegas Metro lab

- Accredited by ANSI National Accreditation Board (ANAB).
- Approximately 80% of samples received are from the Las Vegas Metropolitan Police Department while 20% are submitted by outside agencies.
- The annual impaired driving caseload (based on recent yearly averages) was 6,484 test requests: 3,822 for blood alcohol and 2,662 for drugs. The total DUI/DUID caseload equates to 30% of the total lab workload.
- Ten scientists conduct breath alcohol, blood alcohol, drug screens, and drug confirmations.
- The Lab is equipped with two LC/MS/MS and it is anticipated another LC/MS/MS will be needed in six to nine months to accommodate anticipated growth in caseload.
- 60% of DUI cases screened positive for marijuana in 2018.
- Alcohol results take about one week to process and the report is produced. If drug testing is also requested the toxicology analysis is done and a separate report is produced. No presumptive results are reported.
- As of May 2020, there was a two-month backlog for alcohol testing and a five-month backlog for drugs.

- Cases requiring special confirmatory testing are outsourced and have a turnaround time of 10 months. Post-mortem cases are outsourced as are some felony cases that require specialized testing.
- There is a separate budget for overtime to manage the handling of rush cases and rush cases are not uncommon.

Washoe County lab

- Accredited by ANSI National Accreditation Board (ANAB).
- The lab provides services to thirteen mostly rural counties. These counties have a limited property tax base, and consequently constrained funding for testing. Approximately 16% of cases are for Washoe County Sheriff's Office while the rest are for outside police departments.
- Annual caseload of 3,700 DUI/DUID cases, which includes 1,200 breath test and 2,500 drug tests.
- The lab is staffed with four toxicologists and one accessioner for toxicology, plus breath alcohol calibration staff which includes one full time breath analyst, and two part-time breath analysts. It is estimated quadruple staff and additional instruments would be needed to test all samples for drugs.
- Due to resource limitations, samples in misdemeanor cases are only tested for drugs if the alcohol test shows a BAC below the per se limit, or unless specifically requested by the prosecuting attorney. Samples are routinely tested for drugs in felony cases irrespective of BAC. Testing ceases once a per se violation of drug is detected unless further testing is requested by prosecuting attorney.
- A 2008 policy regarding turnaround times for completion of lab testing specifies ten working days for alcohol and four to six weeks for drugs.
  - Post-mortem cases are outsourced, as are some cases that require specialized testing.

Identified gaps

- **Not all blood samples are tested for drugs.** Polysubstance use is quite common among impaired drivers. A small study by the Henderson lab revealed more than 60% of all impaired driving samples were positive for one or more drugs. The lab subsequently opted to conduct drug testing as a standard protocol. Recent arrest data and fatal crash data from Washington and California demonstrates the prevalence of polysubstance use among impaired drivers. Cannabis (THC) is the drug most commonly detected in addition to alcohol, followed by cocaine. Anecdotal evidence from police officers in Nevada further suggests a growing problem with polysubstance use among impaired drivers.

  At present, one of the three labs currently providing toxicology analysis in Nevada lacks the instruments and staff to conduct adequate levels of drug testing as a result of resource limitations. This is an important issue because it masks the prevalence of the drug problem from a policy and resource allocation perspective. Moreover, while suspects in this service area

may not exceed a per se threshold for a specific drug, the combination of drugs in their system may be significantly impairing.

The importance of routine testing of all samples for drugs is further necessitated by an inadequate number of Drug Recognition Experts (DREs) officers in the state. DREs are trained to identify drug impairment among impaired drivers and can determine drug categories. As such, consistent toxicological testing for drugs is essential to adequately enforce drug-impaired driving laws. The absence of toxicological results and DRE testimony are major impediments to the prosecution of drug-impaired drivers.

- **Testing panels and cutoff thresholds are not uniform across labs.** The three labs utilize different testing panels and test for a different number of drugs. The number of drugs tested for ranges from 30 to more than 60 drugs. There are also differences in the cutoff values used to distinguish between positive and negative results, including for common drugs such as THC and Oxycodone. In other words, labs only detect the drugs they test for and different panels means some drugs detected in one jurisdiction may be undetected in another. Labs also use different cut-off values which lead to different interpretations of results, ultimately producing inconsistency between jurisdictions. Lower cut off values may result in drivers testing positive in one area of the state whereas the same driver may test negative in another jurisdiction. Of concern, cut-off values that are too high can result in impaired drivers avoiding detection. More generally, these variations across laboratory protocols make it difficult to draw conclusions regarding the number of drivers under the influence of drugs and whether in fact they are impaired. Benefits associated with applying standard cut-off concentrations in casework include:
  - Fair treatment of all drivers.
  - Ability to compare data across geographical areas and jurisdictions,
  - Ensure drugs which are known to cause impairment are included; and,
  - Public confidence in the results obtained by the laboratory.

  The use of different cutoff values across the three labs makes it impossible to compile uniform and comparable statistics on DUID in the state which is essential to measure the prevalence of impaired driving. Equally concerning, it creates inequality in justice where a suspect may be found guilty for DUID in one county using a lower cutoff value whereas another suspect who consumed the same amount of the same drug may receive no penalty in another county where the lab uses a higher cutoff value. There is a recognized need for consistency with respect to drug testing by using the same testing panels and using the same cutoff thresholds across the state, in line with national standards (an important initiative across the country has focused on standardizing thresholds nationally). The presence of a state lab would set standards for test protocols and cut-off values and facilitate the uniform collection of data across the state.
- **Inadequate capacity for testing is a source of delays and slow turnaround times for analysis.** All three labs reported being at maximum capacity in terms of the number of

samples that can be analyzed each year. With the current caseload, at best it takes on average it takes four weeks to produce alcohol test results and approximately two months to produce drug test results. For many cases these times may be longer. These turnaround times result in long delays for cases to proceed to court, and felony suspects, must be released from custody prior to charging when results are not available in a timely fashion to charge and hold them. While some labs may be able to rush cases, this results in higher operating costs due to overtime, and additional capacity is needed to clear backlogs and increase processing capacity and speed. In sum, there is a strong need for increased testing capacity so high-risk drivers are not released prior to charging, so criminal cases are processed in a timely manner, and to ensure underserved areas of the state are able to submit samples for analysis.

- **Post-mortem samples for fatally injured road users are either not tested for drugs or testing is outsourced which has resource implications.** Inadequate testing of drivers killed in road crashes serves to mask the prevalence of the drug-impaired driving problem. These data are the most robust indicator of impaired driving. The lack of testing is an impediment to prioritizing the development of effective road safety policies and countermeasures and resource allocations.
- **Demands for court testimony from toxicologists is substantial.** Toxicologists receive requests to testify to results of toxicological analysis in 40% to 80% of impaired driving cases. This detracts from the time available to efficiently analyze test samples, contributing to backlogs and delays. In some jurisdictions, toxicologists are requested to testify in the majority of cases, whereas in other jurisdictions requests are limited. Moreover, although toxicologists may be called to testify often, the proportion of cases in which they actually testify is much smaller (perhaps 2%). However, the preparation required to testify in each case is significant, as is the travel time when testimony must be delivered in person as opposed to electronic means. Often, they are not uninformed they are not needed until after the work preparing and traveling has been performed. There are substantial cost-implications associated with the current approach. Of course, travel is limited in more urban areas where the courthouse is in close proximity, but in rural areas travel may exceed four hours in one direction.

  Video testimony has been relied upon more often during the COVID-19 pandemic although it is still used in a limited fashion. The expectation or demands from the defense bar for in-person testimony may return to the same level as before pandemic-related restrictions came into place. Furthermore, while video testimony may help to reduce travel times, it is unlikely wait times would be entirely reduced, and certainly prep time would remain unaffected.

  Further compounding this issue is the low number of DREs in Nevada, and as of yet the Nevada Supreme Court has not ruled on the qualification of DREs as experts, which means courts are less likely to rely exclusively on their testimony. This makes testimony from toxicologists essential to provide impaired driving cases. The presence of a state lab would ensure toxicologists are able to provide timely results and timely testimony as needed.
- **Some rural areas may be underserviced due to long travel times and inadequate budgets.** Stakeholders reported they believed certain areas in the state were underserved,

mostly as a result of the lack of financial resources to cover costs associated with blood analysis as well as transporting samples. As a result, drug-impaired drivers may go undetected and pose a serious risk on the road. Based on the available evidence, it appears demand for drug testing would very likely increase if a state lab was available to service all police agencies in Nevada.

- **Cannabis compliance testing is a critical need and strong oversight of labs is needed.** With the legalization of recreational cannabis in 2017, state agencies are tasked with setting requirements for production, testing and sale of cannabis products and ensuring compliance with health and product regulations. At present, an independent lab is not available to test and retest cannabis products. A wide variety of private labs are used for this purpose with little oversight, and labs asked to retest products tested by other labs have a clear conflict of interest. Currently, there are approximately ten labs performing cannabis product testing. The transparency of quality assurance protocols is limited, and state agencies find it difficult to reliably and consistent enforce state regulations in this regard. The presence of a state lab which conduct independent and consistent compliance testing of cannabis growing facilities and products, or at least to provide strong oversight of labs who do such testing, would fill this gap.
- **Toxicologists lack capacity to consistently educate key stakeholders.** Police agencies and prosecutors rely on toxicologists to educate their staff about important aspects of drug-impaired driving including protocols for collecting and handing samples as well as recent patterns and trends in drug-impaired driving and drug prevalence. Staff turnover is quite common across police agencies and prosecutor offices. Misunderstandings and errors by stakeholders add to the workload of toxicologists. There is inconsistent knowledge among stakeholders regarding the types of testimony toxicologists can provide (i.e., the results of a toxicological analysis) and not (i.e., actual impairment during the time of arrest), as well as the different steps involved and the time required to complete the analysis. As such, there is a need for education among different stakeholders about the role of toxicologists, notably to manage expectations when providing testimony and to better understand the testing workflows as well; describing the life of a DUID sample would be useful to help manage expectations. The presence of a state lab would increase the capacity of toxicologists to fill this gap.

Priority needs

At the end of each meeting, participants were invited to identify priority needs and considerations with respect to the implementation of a state toxicology lab. The following is a summary of those needs.

- **Augment the services provided by existing lab as opposed to replacing them.** The implementation of a state lab should be designed to strengthen and build capacity for toxicological analyses and work cooperatively with existing labs to alleviate backlog as well as coordinate test protocols. A state lab should also fill important gaps such as the testing of post-mortem samples and cannabis compliance testing.

- **Two locations.** The state lab should have two locations, one in Las Vegas, and one in another city such as Reno or Carson City. This would ensure the entire state has access to the state lab, which could also provide service in underserviced areas as well as reduce turnaround times.
- **Optimize processing and turnaround times.** A state lab should increase the capacity for toxicological analysis and reduce processing and turnaround times and reduce backlogs. While expectations varied widely generally speaking (from 48 hours to 30 days), certainly for felony cases and cases with serious injuries/fatalities there was agreement such cases should be rushed with results available within 48 to 72 hours to avoid having to release dangerous drivers onto the road simply because toxicological results are unavailable in a timely fashion.
- **Toxicologist designated as contact person.** Assigning a toxicologist as the dedicated contact person within the lab, especially for larger police agencies, would help streamline the processing and reporting of toxicology analysis.
- **Training.** Having a designated training person at the laboratory would be a major benefit to law enforcement. Currently there are law enforcement officers trained to train other law enforcement officers but given the frequent turnover and lateral transfers across agencies, this is not an effective training method. Having a designated training person at the laboratory would ensure consistency with training across all agencies and officers.

CONCLUSION

An analysis was conducted to identify gaps in preparation of an implementation plan for a state forensic toxicology lab in Nevada. Based on this analysis priorities were formulated to inform the implementation. These priorities are:

- The state lab should augment the services provided by existing labs as opposed to replacing them.
- The state lab should have two locations, one in Las Vegas, and one in another city such as Reno or Carson City.
- A state lab should increase the capacity for toxicological analysis and reduce processing and turnaround times and reduce backlogs.
- A toxicologist should be assigned as the dedicated contact person within the lab, especially for larger police agencies.
- Having a designated training person at the laboratory would be a major benefit to law enforcement.

The implementation plan provides a detailed strategy to implement the state lab with these priorities in mind.

APPENDIX A: SUBJECT MATTER EXPERTS

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APPENDIX B: DISCUSSION GUIDE

Nevada Impaired Driving Toxicology Lab Implementation

Introduction

The Traffic Injury Research Foundation (TIRF) is providing technical assistance to the State of Nevada through its cooperative agreement with the National Highway Traffic Safety Administration (NHTSA). In this jurisdiction, the objective of the assistance is to develop an implementation plan for a state toxicology lab. This work involves an analysis of contract services currently provided through three existing labs, a gap analysis based on best practices and safety standards, as well as optimal processing capacity and turnaround times for the state. It also explores potential revenue streams and funding models, and legal authorities required to make the lab financially viable. Information collected during the technical assistance with this discussion guide is being synthesized to inform the development of the implementation plan for the state agencies to consider.

Existing services provided by contracted labs

Currently, the analysis of impaired driver toxicological samples are contracted services performed by three laboratories located in Washoe country, Las Vegas, and Henderson. Services are provided by a total of seventeen employees, including technicians, analysists, and scientists across the three labs. Each lab currently has one LC/MS/MS. Some communities within the state are under-serviced, but the exact numbers are difficult to quantify. Possession and consumption of marijuana became legal on January 1, 2017 and prompted this initiative since increased drug testing is likely required. Lower turnaround times for the analysis of samples is an important priority to keep pace with demand.

A state toxicology lab should be designed to provide the following services:

- conduct toxicological testing of samples from impaired drivers for alcohol and other drugs;
- provide training to all law enforcement personnel seeking to become certified breath test instructors, and regular updates to drug recognition experts (DREs);
- provide repair and maintenance services for breath testing devices;
- maintain ongoing records of individual breath testing devices (i.e., accuracy, reliability, repair, calibration);
- provide expert testimony; and,
- provide scientific evaluation regarding the accuracy and reliability of breath testing devices.

This discussion guide is organized into five discussion topics:

- Business structure
  - Operational business structure
  - Environmental business structure

- Human resources
- Customer and client requirements
- Business model and financial structure
- Legal framework

Questions in each topic area are preceded by a brief description of services currently provided by contracted labs.

Discussion Topics

Business structure

Operational business structure

The average caseload for existing labs ranges from 700 to 6,480 impaired driver samples depending on the areas serviced. Processing times for blood alcohol tests range from four days to four months, and the processing time for drug tests are at least four weeks and may take up to seven months. Some cases are outsourced and had a turnaround time of ten months. One of the three labs only tests for drugs if the alcohol test shows a BAC below the per se limit unless specifically asked by the prosecuting attorney. Another of the three labs tests all alcohol samples for drugs, regardless of the BAC and can screen samples for approximately 100 drugs.

1. What is the process for determining best practices?
2. Will the lab be accredited?
3. What is the average number of impaired driver toxicological samples analyzed each year?
    a. Alcohol-impaired driving only
    b. Drug-impaired driving only
    c. Alcohol and drug-impaired driving
4. What is the workflow for the testing?
5. How long does an analysis of a single sample take from start to finish (in days)?
    a. What is the analysis process for each alcohol sample case from submission to reporting of results?
    b. What is the analysis process for each drug sample case from submission to reporting of results?
    c. What is deemed an acceptable processing time by the state?
        - How often are samples are accessioned? Does the turnaround time mean a number of days from time of receipt by the lab or from the time is was relinquished to the lab?
    d. Are results peer reviewed? If so, how long does the peer review process take?

   e. What are the expectation of stakeholders for turnaround time and scope?

6. What is the threshold to conduct drug-testing of a sample? (i.e., only if drugs suspected by officer vs. all samples?)
   a. What is the overall scope of drug testing? What are the cut off levels?
7. How many cases are outsourced to other labs annually?
   a. What is the estimated number of outsourced alcohol samples?
   b. What is the estimated number of outsourced drug samples?
   c. How long does it take in days for an external lab to return a result for alcohol samples?
   d. How long does it take in days for an external lab to return a result for drug samples?
   e. Which external labs receive outsourced samples for analysis? What criteria exist for the selection of an external lab?
   f. What is the deciding factor to outsource the testing?
8. How are sample analysis results reported? What information is included in each report?
   a. How are data about results collected and stored?
   b. Who are data results shared with?
   c. How are data results shared?
   d. How are requests for records handled?
9. What quality assurance practices are in place for the management of samples and reporting of results?
   a. How many Proficiency Tests does the lab participate in and which ones?
10. Are there any measures related to timely, accurate analysis of samples and reporting of results?

Environmental business structure

Each lab currently has at least one working LC/MS/MS. All labs have expressed the need to replace the LC/MS/MS within the next eight to eighteen months. The labs reported receiving advanced notice of upcoming high-visibility enforcement (HVE) initiatives would be helpful in managing workload in addition to the advanced ordering of additional supplies required.

When determining the location of the lab, experts recommend looking at what jurisdictions submit the majority of samples for analysis. This jurisdiction may serve as a good home base and satellite offices could be added as needed.

It is recommended by experts that specific instruments should not be written into law as it is too restricting. Having the flexibility to add or remove instruments and products is important to ensure the program keeps pace with technological advancements.

1. Assuming none of the analysis work is subcontracted to another lab, what are the standard equipment requirements for a working toxicology lab analyzing samples from impaired drivers?

What kinds of equipment and how many units of each may be needed based on existing volume?

2. What is the ideal space requirement (i.e., square footage) for labs conducting impaired driving and other alcohol-related testing? Is there an appropriate or optimal ratio of staff/equipment/space?
3. What are the standard hours of operation for staff (per week) to optimize efficiency and manage workload? How long are shifts and how many shifts?
    a. What hours is the lab open and accessible to clients?
    b. What hours are staff processing samples?
    c. Are scheduled appointments required to bring in samples?
4. What types of security are required for the lab building?
    a. What level, if any, of background checks for different staff categories?
    b. What types of premise entry requirements (key fobs, personal passcode, security screening) for staff versus visitors (limited entry upon ID first)?
    c. How are samples and associated paperwork be secured?
    d. Are there any types of limitations or eligibility requirements for visitors?
    e. Camera surveillance? Security personnel? Alarm system?
    f. If security guards, how many (at one time)?
    g. Is their presence required 24/7?
5. How much notice does a lab require to prepare to process impaired driver samples following an HVE initiative?
6. What counties are under-served by existing laboratories due to caseloads and location? Is it feasible/preferable to maintain one location for the lab, or to use satellite locations across the state? What process is used for rural areas to submit samples to labs for analysis?
7. How are samples transferred into, and out of, the lab?
    a. From police services?
    b. From a delivery service?
    c. How is the sample movement tracked within the lab? Taking the sample from storage for testing, then replacing?
8. What safety measures should be in place for staff (including training) for the day-to-day handling of biological materials?
9. What is the biomedical waste disposal protocol?

Human resources

Among the existing labs, services are provided by a total of seventeen employees, including technicians, analysists, and scientists. Staff participate in "lunch-and-learn" sessions with city attorneys to receive new and relevant information. One lab sends all the employed technicians to annual training, but not all labs can afford to provide consistent continuing education opportunities.

Experts suggest dedicating staff to alcohol and drug testing while others are dedicated to the other types of testing coming into the lab. Cross-training lab employees is beneficial, and having staff dedicated to a type of testing can increase the consistency and efficiency of the testing.

1. What is the optimal mix of staff to run an efficient lab for a set caseload?
    a. What profiles are needed (toxicologists, lab technicians, administrative personnel, etc.)
    b. How many managers vs. line staff?
    c. What is the reporting process according to an organizational chart? Who has what authority and who has the authority for final sign off on results?
    d. What qualifications (i.e., education and training) are required for each job description?
    e. How many staff in each position are needed for the anticipated caseload in NV?
2. What orientation is required for new staff? How long does a probationary period last?
    a. How long is the orientation process?
3. How frequently should staff receive training and/or continuing education? Are there accreditation renewals or certification periods?
    a. How often are staff's analytical proficiencies checked?
4. How do lab staff stay abreast of trends in drug use to ensure up-to-date analysis protocols across the state?
5. How much time is spent by staff testifying in court (per month)?
    a. Is testimony segregated between alcohol and alcohol/drug cases? Do more than one analyst appear on any given case due to lack of expertise?
    b. Do prosecutors expect scientists to testify just to the analytical findings or do they expect interpretive testimony about the effects of the drugs and the significance of per se concentrations?
6. How many law enforcement officers currently receive training from labs (annually)?
    a. What is the estimated number of law enforcement officers who require training?
    b. What topics are officers eligible to testify to in court? Are they certified as experts and can they testify to all, some or none of the issues related to toxicology? Limits on police testimony will have implications for the amount of testimony required from lab staff.

7. Will lab staff be responsible for training law enforcement officers?
    a. What will be the scope of the training?
    b. Will a train-the-trainer approach be adopted or will all officers be trained by the lab staff?
    c. Will the training qualify officers to testify in court?
    d. Will re-training be required? If yes, how often (i.e., annually, biannually, etc.)?
    e. Will officers be able to testify only on behalf of the agency certifying them or will the certification still apply if they move agencies?
8. How involved are law enforcement with the labs currently?
    a. Do DREs and/or breath test instructors have special access to personnel/files in their area of expertise?
9. What processes are needed to establish a clear chain of custody and to protect the integrity of samples?
10. What is the process for internal communication with regard to sample analysis?
11. What processes are needed to ensure transparent and efficient external communication (i.e., with law enforcement)?

Customers and client requirements

All three labs reported a positive working relationship with law enforcement. All labs were responsive to requests for training and open to providing training for officers and providing feedback related to targeted enforcement. This included the Attorney General's office, the district attorney's office, police academy, detective school, and law enforcement agencies.

1. Who does the toxicology lab serve?
2. What are standard client service requirements?
3. What are the relationships with other labs in the state?
4. How are working relationships with the following practitioners structured?
    a. Police agencies
    b. DREs
    c. Prosecutors
    d. Courts
    e. Probation
    f. TSRP
5. How are services delivered in rural areas or how can they be delivered efficiently?

Business model and financial structure

For one lab, the Sheriff's Office controls the fee structure the lab uses to charge outside jurisdictions for tests. Some labs do charge for providing testimony, while others do not as it is included within the testing fee in the service contract.

It is important the financial structure is implemented upfront. Experts have expressed the difficulty of implementing costs for training, testing, and instrument inspections once the initial law granting authority to the lab has been passed.

1. What business models are available to structure state labs? What revenue streams exist? What proportion is state-funded?
    a. Is it possible to secure a portion of fees from driver's license reinstatement or other existing fees?
2. What funding model may be most suitable for Nevada?
3. What are monthly cash flow projections for a lab comparable to meet needs in Nevada?
4. What fees are charged to clients for different types of services (e.g., analysis, training, testimony, certification of equipment, repairing equipment, maintenance of equipment)?
5. Who is responsible for repairs to analysis devices/units/equipment? Are devices shipped to manufacturers or do technicians service them in the lab?
    a. Are service contracts in place for the instruments? If so, what is the cost annually and what does that cover?
6. What are the annual estimated cost projections for the for the following line items?
    a. Salaries, benefits, and training
    b. Equipment and supplies (i.e., analysis equipment, lab supplies including gloves, vials, tubes, pipettes, etc.). Over what period are assets like equipment amortized and do any equipment purchases come with service agreements? Annual certification of pipettes, thermometers, and glassware used will be governed by the accrediting body.
    c. Quality assurance
    d. Rent
    e. Utilities
    f. Insurance
    g. Repairs
    h. Other? Cf. Annual accreditation mentioned in 37 (b).

Legal framework

1. What statutes typically grant authority for labs? What level of authority do labs need or have (i.e., level of independence vs oversight from state agency)? Are agencies able to collect fees typically?
2. What state agencies may be responsible for the management and operations of the lab?
3. Are lab employees generally unionized within the State?
4. What licenses or permits are required to run the lab and do they require renewal? What is the cost?
    a. Are the analysts each permitted or required to hold a certification?
5. What types of insurance do labs require?
6. Does the lab have any bonding requirements for employees?

APPENDIX C: CONFERENCE CALL SYNOPSES

Laboratories: May 1st, 10:30am-12:00pm (PST)

In attendance: : Kerri Heward (Director of the WCSO-FSD) Karyl Brown (Supervisor WCSO FSD), Rick, Tim (only for second half), Kim, Perry, Chuck, Amy Davey, Amy Miles (Director of the Forensic Toxicology Program at the Wisconsin State Laboratory of Hygiene), Barry Logan (Senior Vice President, Forensic Science Initiatives, Chief Scientist, NMS Labs), Sergeant Brandon Villanti (Washington State Patrol Impaired Driving Section), Laura Bailey (Director, Office of Alcohol Testing, Arkansas), Robyn Robertson (President & CEO, TIRF), Ward Vanlaar (COO, TIRF) and Hannah Barrett (Research Associate, TIRF).

Operational business structure

The average caseload for existing labs ranges from 700 to 6,480 impaired driver samples depending on the areas serviced. Processing times for blood alcohol tests range from four days to four months, and the processing time for drug tests are at least four weeks and may take up to seven months. Some cases are outsourced and had a turnaround time of ten months. One of the three labs only tests for drugs if the alcohol test shows a BAC below the per se limit unless specifically asked by the prosecuting attorney. Another of the three labs tests all alcohol samples for drugs, regardless of the BAC and can screen samples for approximately 100 drugs.

1. What is the average number of impaired driver toxicological samples analyzed each year?
    a. Alcohol-impaired driving only
        - **Henderson:** 60/month. There is no threshold where they do not test for drugs. Did a pilot test (3yrs ago), took 120 samples with BAC more than .084 to see if there were drugs and % of the time there was drugs. 2/3s of samples had drugs in the blood, which is why all samples are tested for drugs and alcohol.
        - **Washoe:** 2,500
        - **Las Vegas:** 2,894 (breath)
    b. Drug-impaired driving only
        - **Henderson:** 25% of cases. Ethanol only: 28% of cases.
        - **Washoe:** 1,110
    c. Alcohol and drug-impaired driving combined
        - **Henderson:** 47% of total case work
        - **Washoe:** Unknown.

d. Confirmatory testing

- » **Henderson:** 100% of cases are confirmed
- » **Washoe:** Blood: 1,700 and urine: 450

Las Vegas: In 2019, LVMPD received 4,750 requests for alcohol testing and 3,560 requests for drug testing. It cannot be determined how many of those cases were alcohol or drug only cases, or how many required confirmatory testing.

2. What is the workflow for the testing?

Henderson: In Henderson the protocol for testing samples is always the same. There are two toxicologists who are responsible for the entire process, including accessioning. The same toxicologists do the same work to create efficiencies. First, the blood sample is analyzed for alcohol, then it moves across the hall for a full tox analysis. Only one final report is created describing both the alcohol and drug results. No presumptive reports are created (with the exception of a few instances where diverting from the typical workflow was justified). Once testing is done, the blood sample is returned to the police evidence vault.

Washoe: Processes are similar to Henderson.

Las Vegas: Processes are similar to Henderson.

3. How long does an analysis of a single sample take from start to finish (in days)?

Henderson:

- > Alcohol: 2 weeks
- > Drugs: 3-6 weeks (depending on the number of drugs involved in the case)
- > Standard combinations: Since marijuana legalization, there has been a drop in some drugs in favor of marijuana. Polysubstance is pretty common – there is a lot of meth use and is commonly used with marijuana.
- > Analysts are trained in alcohol, drugs, and drug confirmation. Each sample is tested from start to finish by one analyst. This include written reports and any required testimony.

Washoe:

- > Alcohol: 7-10 business days
- > Drugs: 6-8 weeks
- > All analyses are assigned to analysts in batches. In instances where multiple analysts have performed work on a case, the analyst who performed the testing with the greatest relevance will take responsibility for the case.

Las Vegas:

- > Alcohol: 4 weeks
- > Drugs: 20 weeks

a. What is the analysis process for each alcohol sample case from submission to reporting of results?

b. What is the analysis process for each drug sample case from submission to reporting of results?

c. What is deemed an acceptable processing time by the state?

d. How often are samples are accessioned? Does the turnaround time mean a number of days from time of receipt by the lab or from the time is was relinquished to the lab?

e. Are results peer reviewed? If so, how long does the peer review process take?

» Technical and administrative reviews are done by another person.

» In all three labs there are different layers of review including an analysis review, technical review and administrative review. These levels of review are required as part of the accreditation. Different reviews are not necessarily done by different people. For example, in Las Vegas the tech reviewer is also the admin reviewer.

Washoe: There is an analyst review and a technical and admin review; the latter two are usually done by the same person.

Las Vegas: The technical and admin reviews are done by a separate person 100% of the time.

f. What are the expectations of stakeholders for turnaround time and scope?

4. What is the threshold to conduct drug-testing of a sample? (i.e., only if drugs suspected by officer vs. all samples?)

Washoe: Toxicology Testing Protocols - The following protocols are used to determine what testing will be performed:

1. When an alcohol result of 0.090 g/100mL or higher is detected in non-felony cases, no additional testing for drugs will be performed unless specifically requested by the prosecuting attorney.
2. When drug testing results in a per se violation no additional testing for non-per se drugs will be performed unless specifically requested by the prosecuting attorney.
3. If both blood and urine samples are submitted and blood testing results in a per se violation or detection of a drug level that would affect driving, the urine sample will not be tested. No further testing will be performed unless requested by the prosecuting attorney.

Las Vegas: Drug testing is performed on every sample. Drug testing would only not be conducted if it was requested to not be done.

a. What is the overall scope of drug testing? What are the cut off levels?

b. All laboratories have provided this information and will be in the accompanying documents.

5. How many cases are outsourced to other labs annually?

   Henderson: All post-mortem cases are outsourced to the county coroner's office. Urine testing is sent to Quest PD. Most urine samples are post-conviction services. The majority of NPS are outsourced. Some can be done in the lab, screening is conducted and once it is confirmed it is sent to a third party lab who provides a quantitative value. Testing for synthetic drugs is outsourced, as they do not have the expertise for. Results are typically received within a week. They also do not do any urine analysis.

   Washoe: All post-mortem cases are outsourced, as are DFSA and outside scope of testing. Urine testing is done in house. Few samples are outsourced; usually about 35 sexual assault cases. They do accept urine. Turnaround times for outsourced cases is 1-3 weeks

   Las Vegas: Drug confirmation is outsourced as are NPS. Misdemeanor cases are not outsourced; only felony cases if they do not have the technology to do the analysis. They can screen urine analysis but not do the confirmatory analysis, so this is also being outsourced. Results are typically received within two to three weeks.

   a. What is the estimated number of outsourced alcohol samples?
   b. What is the estimated number of outsourced drug samples?
   c. How long does it take in days for an external lab to return a result for alcohol samples?
   d. How long does it take in days for an external lab to return a result for drug samples?
   e. Which external labs receive outsourced samples for analysis? What criteria exist for the selection of an external lab?
   f. What is the deciding factor to outsource the testing?

6. How are sample analysis results reported? What information is included in each report?

   Henderson: A copy of the report goes to the records bureau, investigator, DA or municipal court.

   Washoe: The report goes to the requesting agency and the DA.

   Las Vegas: Same as in Washoe.

   a. How are data about results collected and stored?
   b. Who are data results shared with?
   c. How are data results shared?
   d. How are requests for records handled?

7. What quality assurance practices are in place for the management of samples and reporting of results?

   a. How many Proficiency Tests does the lab participate in and which ones?

8. Are there any measures related to timely, accurate analysis of samples and reporting of results?

9. What is the process for determining best practices?

   Henderson: Completed an in-depth study of their processes and delivered two presentations about it. Two changes have been made to their protocol since implementation of it based on in-depth study.

10. Will the lab be accredited?

    Henderson: ANSI National Accreditation Board (ANAB)

    Washoe: ANSI National Accreditation Board (ANAB)

    Las Vegas: ANSI National Accreditation Board (ANAB)

Environmental business structure

Each lab currently has at least one working LC/MS/MS. All labs have expressed the need to replace the LC/MS/MS within the next eight to eighteen months. The labs reported receiving advanced notice of upcoming high-visibility enforcement (HVE) initiatives would be helpful in managing workload in addition to the advanced ordering of additional supplies required.

When determining the location of the lab, experts recommend looking at what jurisdictions submit the majority of samples for analysis. This jurisdiction may serve as a good home base and satellite offices could be added as needed.

It is recommended by experts that specific instruments should not be written into law as it is too restricting. Having the flexibility to add or remove instruments and products is important to ensure the program keeps pace with technological advancements.

1. Assuming none of the analysis work is subcontracted to another lab, what are the standard equipment requirements for a working toxicology lab analyzing samples from impaired drivers? What kinds of equipment and how many units of each may be needed based on existing volume?

   Henderson: 2 GCMS (ethanol), moving to a 1 LCMS (drugs), 2 GCFIDs (methonal). Helium shortage worldwide is impacting the machines. Moving them over to the LCMS. Wants 2 LCMS for the lab.

   Washoe: 1 Headspace GC/FID (blood and urine for volatiles), 2 GC/MS (blood and urine for drug confirmations), 2 LC/MS/MS (blood and urine for drug confirmations), 1 Hamilton Starlet (blood and urine for ELISA drug screening)

   Las Vegas: 3 GC headspace for alcohol (blood and urine), Dynex DSX (ELISA) for screen (blood), 2 LCMSMS for drug confirmations (blood), 2 GCMS for drug confirmations (blood), and a Siemens Viva-E (EMIT) for screen (urine).

2. What is the ideal space requirement (i.e., square footage) for labs conducting impaired driving and other alcohol-related testing? Is there an appropriate or optimal ratio of staff/equipment/space?

3. What are the standard hours of operation for staff (per week) to optimize efficiency and manage workload? How long are shifts and how many shifts?

   Henderson: They have a 40-hour week, with 10 hours shifts from Monday to Thursday. If there are rush cases, they are prioritized within the queue. Paying overtime has not been necessary in a long time. There is one lab technician who also works as the accessioned and who picks up samples and after accessioning, turns them over to the toxicologist.

   Washoe: Staff work 8 or 9-hour shifts and every other Friday off. Samples can be mailed in through regular mail or FedEx, they can be hand-delivered, and they have a drop box at the jail; the evidence section will bring in samples retrieved from the drop box to the lab once a day.

   Las Vegas: Staff work 8 or 9-hour shifts, Toxicologists all 9-hour shifts. Monday to Friday and have one day off every other week. They also have an overtime budget for rush cases; this happens quite often. There is a dedicated person who picks up samples from PDs and bring them to the lab from Monday to Friday between 7 am and 5 pm.

   In all three labs it is not allowed for safety reasons to have just one person in the lab. One person may be doing administrative work alone, but it is not allowed to have one person work alone in the lab.

   a. What hours is the lab open and accessible to clients?
   b. What hours are staff processing samples?
   c. Are scheduled appointments required to bring in samples?

4. What types of security are required for the lab building?

   All three labs have access control, swipe cards and pin numbers. All external visitors are signed in and escorted. Interior locked doors with swipe card and pin. Access is monitored by computer (e.g., to log the use of doors: who opens them at what times). Alarmed whenever not open. Washoe also uses video cameras around building as they are housed in police agency.

   a. What level, if any, of background checks for different staff categories?
   b. What types of premise entry requirements (key fobs, personal passcode, security screening) for staff versus visitors (limited entry upon ID first)?
   c. How are samples and associated paperwork be secured?
   d. Are there any types of limitations or eligibility requirements for visitors?
   e. Camera surveillance? Security personnel? Alarm system?
   f. If security guards, how many (at one time)?
   g. Is their presence required 24/7?

5. How much notice does a lab require to prepare to process impaired driver samples following an HVE initiative?

   Henderson: Provides agencies with blood collection kits and they are centralized in close proximity to other agencies. They are always prepped as part of workflow and don't need much notice.

   Washoe and Las Vegas: Need 30 to 60 days notice to prepare as the provide test kits to provide to police.

   All three labs purchase the kits and provide these test kits themselves (it is easier to manage so they have this as a line-item in their budget).

6. What counties are under-served by existing laboratories due to caseloads and location? Is it feasible/preferable to maintain one location for the lab, or to use satellite locations across the state? What process is used for rural areas to submit samples to labs for analysis?

   Henderson: Has lowered costs. The only fee they increased at $100/hour is for testifying (including the prep time and travel time).

   Washoe: Has a separate budget for some agencies and other agencies without a service agreement may be invoiced in a per test basis.

   Las Vegas: Has a schedule of service fees and contract with state

   None of the call participants believed any of the counties are underserved. They respond to all requests from their agencies. They acknowledged that those agencies may have budgetary constraints though and may not be able to test as much or as frequently as needed.

7. How are samples transferred into, and out of, the lab?
   a. From police services?
   b. From a delivery service?
   c. How is the sample movement tracked within the lab? Taking the sample from storage for testing, then replacing?

8. What safety measures should be in place for staff (including training) for the day-to-day handling of biological materials?

9. What is the biomedical waste disposal protocol?

Human resources

Among the existing labs, services are provided by a total of seventeen employees, including technicians, analysists, and scientists. Staff participate in "lunch-and-learn" sessions with city attorneys to receive new and relevant information. One lab sends all the employed technicians to annual training, but not all labs can afford to provide consistent continuing education opportunities.

Experts suggest dedicating staff to alcohol and drug testing while others are dedicated to the other types of testing coming into the lab. Cross-training lab employees is beneficial, and having staff dedicated to a type of testing can increase the consistency and efficiency of the testing.

1. What is the optimal mix of staff to run an efficient lab for a set caseload?

   Henderson: 1 supervisor, 2 toxicologists, 1 part-time accessioner. Optimally would have 2-3 more scientists and 2-3 more instruments (LC). Henderson does not charge their parent agency and prep time is costly but they only testify in 1-2% of cases. Henderson noted NC has a good system for prosecutors to notify toxicologists if they are not needed.

   Washoe: One-full time accessioner plus 4 toxicology staff, 1 supervisor and 1 director. Does not charge for testimony and goes all over northern NV. Prep and travel time are much more costly. Video testimony can be used in misdemeanor cases. Will likely be used more in NV due to COVID-19.

   Las Vegas: 13 toxicologists for breath and drugs which appears adequate for the 10,456 breath, drug and confirmatory tests. Had 4,871 subpoenas just for breath in 2019 and 8.700 subpoenas for forensic lab; 83% were for toxicology and breath. 80% of testimony is for parent agency (LVPD) so they are not charged and travel time not an issue. For external agencies they are reimbursed for time and gas.

   Labs generally agree they have adequate staffing, the point out that preparing for testimony, and travel to courts, is a huge drain on their resources, even if, ultimately, they only testify in approximately 1 to 2 percent of cases.

   Planning for this must not be based on the actual number of cases in which they do provide testimony but rather on the prep time and travel time for all the cases where they may have to provide testimony (it is not possible to know in advance if a plea agreement will reached or if they will actually be called by a judge; regardless, they still have to prepare and be there – sometimes they have to drive up to four hours one way to the courthouse).

   a. What profiles are needed (toxicologists, lab technicians, administrative personnel, etc.)
   b. How many managers vs. line staff?
   c. What is the reporting process according to an organizational chart? Who has what authority and who has the authority for final sign off on results?
   d. What qualifications (i.e., education and training) are required for each job description?
   e. How many staff in each position are needed for the anticipated caseload in NV?

2. What orientation is required for new staff? How long does a probationary period last?

   a. How long is the orientation process?

3. How frequently should staff receive training and/or continuing education? Are there accreditation renewals or certification periods?

Henderson: All analysts are board certified by the American Board of Forensic Toxicology. Each employee usually goes to one professional conference annually. These conferences are usually a week-long. Analysts are required by the Board to have 8 hours of education credits each year, and every 5 years they require 50 hours.

Washoe: Regulations require Forensic Analysists of Alcohol (FAAs) to have two continuing education activities during each 2-year renewal period. The goal is for all toxicology staff to obtain some level of education on an annual basis. This is accomplished through conferences and webinars.

Las Vegas: Analysts receive continuing education via conferences, webinars, in-house classes and literature.

a. How often are staff's analytical proficiencies checked?

4. How do lab staff stay abreast of trends in drug use to ensure up-to-date analysis protocols across the state?

Washoe: WCSO FSD retains membership/access to relevant forensic journals (Journal of Analytical Toxicology, etc.)

5. How much time is spent by staff testifying in court (per month)?

Henderson: Of the requested cases, probably 2% result in actual testimony. On average, each subpoena takes 1-2 hours in preparation.

Washoe: Varies by jurisdiction. Washoe County = approx. 2%. Other counties, approximately 10%. Non-Washoe county, mostly video testimony (Misdemeanors only, Felonies require in-person).

FAA testimony is usually fairly standard requiring minimum prep (15 minutes). Toxicology: approximately 1 hour to prepare, additional time if pre-trial conferences are scheduled by DA's office.

Breath Alcohol: Unknown. Some agencies subpoena for 100% of breath-testing cases. Other agencies only subpoena when necessary. Of approximately Northern Nevada 1200 breath cases WCSO received 755 subpoenas (63%). Toxicology: 4,100 cases, 1770 subpoenas (43%)

Las Vegas: Unknown. Toxicologists are called by the court as a trial is beginning, with no time to prepare other than the time it takes to review the case file.

a. Is testimony segregated between alcohol and alcohol/drug cases? Do more than one analyst appear on any given case due to lack of expertise?

Henderson: There is no separation between alcohol/drug and alcohol cases as all samples are tested for both alcohol and drugs. Also, one analyst is assigned to each case, meaning there is no need for more than one analyst appearing on a given case.

Washoe: FAAs only testify in breath-alcohol cases. Toxicology: Analyst who performs testing testifies on the case. Testing is only assigned to analysts who have been deemed competent to perform testing based on training modules, i.e. volatiles and drug testing.

Las Vegas: All analysts testify.

b. Do prosecutors expect scientists to testify just to the analytical findings or do they expect interpretive testimony about the effects of the drugs and the significance of per se concentrations?

Henderson: Toxicologists testify on impairment, the effects of alcohol and drugs on a person, and polysubstance.

Washoe: Calibration of devices as required by statute, verification of alcohol standards as required by statute, training of officers as operators and effects of deviation from SOP, confounding breath-testing factors, and general effects of alcohol, etc.

6. How many law enforcement officers currently receive training from labs (annually)?

Henderson: The police departments are relatively strict about the inhouse training received and they usually only ask for training officers on filling out the lab requests, data on blood alcohol kits, and storing information.

Washoe: Currently, only in-person training for LEOs (pilot online under development). Re-certification covers laws & regulations/requirements for testing as well as operation of the device. Operators are required to demonstrate competence in testing. Initial certification also includes behavior and effects of alcohol in the body.

Full certification taught in LEO academies and to LEOs whose certification has expired more than 6 months. Re-certification taught to all LEOs who seek it.

Las Vegas: Officers are trained as evidential breath testing (EBT) device operators in a classroom setting. All recruits are trained as EBT device operators. Officers can receive training by request to be preliminary breath testing (PBT) device instructors.

a. What is the estimated number of law enforcement officers who require training?

b. What topics are officers eligible to testify to in court? Are they certified as experts and can they testify to all, some or none of the issues related to toxicology? Limits on police testimony will have implications for the amount of testimony required from lab staff.

c. **Henderson:** The SFST. DREs can testify about more, but there are not many DREs. Toxicologists do most of the testing.

d. **Washoe:** Law enforcement are operator certified only.

7. Will lab staff be responsible for training law enforcement officers?

a. What will be the scope of the training?

Washoe: Currently, only in-person training for LEOs (pilot online under development). Re-certification covers laws & regulations/requirements for testing as well as operation of the device. Operators are required to demonstrate competence in testing. Initial certification also includes behavior and effects of alcohol in the body.

Las Vegas: The EBT class includes a lecture portion which consists of a discussion of alcohols in general, possible interferents, process by which ethanol is absorbed, distributed and eliminated, the theory of breath testing, relevant Nevada Revised Statutes and Nevada Administrative Codes, and the operation of the breath instrument. There is also a written exam and practical portion. The practical portion of the class is devoted to the students demonstrating proficiency in the operation of the breath instrument.

b. Will a train-the-trainer approach be adopted, or will all officers be trained by the lab staff?

Washoe: Only certified Forensic Analysts of Alcohol are permitted to train Evidential Breath Test operators. Only Washoe County and Las Vegas Metro crime labs currently have FAAs.

Las Vegas: Officers must be trained by a Forensic Analyst of Alcohol (FAA), which is a State of Nevada certification, on EBT devices.

c. Will the training qualify officers to testify in court?

d. Will re-training be required? If yes, how often (i.e., annually, biannually, etc.)?

Washoe: Recertification required every three years. Shorter re-certification course permitted if renewed while current or expired less than six months. Otherwise, full course required.

Las Vegas: An operator must be recertified once every three years.

e. Will officers be able to testify only on behalf of the agency certifying them or will the certification still apply if they move agencies?

Washoe: Certified across the state on the device on which they are certified.

Las Vegas: Certified across the state on the device on which they are certified.

8. How involved are law enforcement with the labs currently?
   a. Do DREs and/or breath test instructors have special access to personnel/files in their area of expertise?
9. What processes are needed to establish a clear chain of custody and to protect the integrity of samples?
10. What is the process for internal communication with regard to sample analysis?
11. What processes are needed to ensure transparent and efficient external communication (i.e., with law enforcement)?

Customers and client requirements

All three labs reported a positive working relationship with law enforcement. All labs were responsive to requests for training and open to providing training for officers and providing feedback related to targeted enforcement. This included the Attorney General's office, the district attorney's office, police academy, detective school, and law enforcement agencies.

1. Who does the toxicology lab serve?
2. What are standard client service requirements?
3. What are the relationships with other labs in the state?
4. How are working relationships with the following practitioners structured?
    a. Police agencies
    b. DREs
    c. Prosecutors
    d. Courts
    e. Probation
    f. TSRP
5. How are services delivered in rural areas or how can they be delivered efficiently?

Business model and financial structure

For one lab, the Sheriff's Office controls the fee structure the lab uses to charge outside jurisdictions for tests. Some labs do charge for providing testimony, while others do not as it is included within the testing fee in the service contract.

It is important the financial structure is implemented upfront. Experts have expressed the difficulty of implementing costs for training, testing, and instrument inspections once the initial law granting authority to the lab has been passed.

1. What business models are available to structure state labs? What revenue streams exist? What proportion is state-funded?
    a. Is it possible to secure a portion of fees from driver's license reinstatement or other existing fees?
2. What funding model may be most suitable for Nevada?
3. What are monthly cash flow projections for a lab comparable to meet needs in Nevada?
4. What fees are charged to clients for different types of services (e.g., analysis, training, testimony, certification of equipment, repairing equipment, maintenance of equipment)?
5. Who is responsible for repairs to analysis devices/units/equipment? Are devices shipped to manufacturers or do technicians service them in the lab?

    Las Vegas: Fixes PBTs themselves but also send them to manufacturers as needed.

    a. Are service contracts in place for the instruments? If so, what is the cost annually and what does that cover?
6. What are the annual estimated cost projections for the for the following line items?
    a. Salaries, benefits, and training

b. Equipment and supplies (i.e., analysis equipment, lab supplies including gloves, vials, tubes, pipettes, etc.). Over what period are assets like equipment amortized and do any equipment purchases come with service agreements? Annual certification of pipettes, thermometers, and glassware used will be governed by the accrediting body.

c. Quality assurance

d. Rent

e. Utilities

f. Insurance

g. Repairs

h. Other? Cf. Annual accreditation mentioned in 37 (b).

Wish list to increase efficiencies:

Careful consideration should be given to the choice of location for the state lab because providing testimony is a huge burden in a big state like NV where experts spend a lot of time driving around to courts.

Henderson: Two to three satellite labs with identical procedures would be ideal. Choosing just one location is not realistic.

Washoe: Where the lab would go? Who it would be staffed by? Where the funding would come from? And whether post-mortem testing and the breath alcohol program will be included?

Las Vegas: Post-mortem samples should be tested in-house.

Traffic Resource Safety Prosecutor (TRSP): May 5th, 10:30am-12:00pm (PST)

In attendance: Shannon Wittenberger, Daniela Botal, Khristie Cury, DeNeese Parker, Michael Close, Shannon Briant, Brenda Hahn, Victoria Hauan, Amy Davey, Amy Miles (Director of the Forensic Toxicology Program at the Wisconsin State Laboratory of Hygiene), Barry Logan (Senior Vice President, Forensic Science Initiatives, Chief Scientist, NMS Labs), Sergeant Brandon Villanti (Washington State Patrol Impaired Driving Section), Laura Bailey (Director, Office of Alcohol Testing, Arkansas), Robyn Robertson (President & CEO, TIRF), Ward Vanlaar (COO, TIRF) and Hannah Barrett (Research Associate, TIRF).

Turnaround time

> Generally speaking, DA's are satisfied with turn-around times for testing, which is approximately three to four weeks for alcohol testing and an additional three to four weeks for drug testing.

> 3-4 weeks for alcohol

> 6-8 weeks for cannabis

> Some blood results take 4-6 months

- » This is problematic in that the license cannot be taken from drivers until the results come back, meaning these drivers are still on the road.
- » Most of the backlog occurs in Clark County (due to overloading of labs)

Testimony

- > The biggest issue is availability of experts to provide testimony at trial, notably phlebotomists. Due to an increase in litigation (especially more motions), testimony in person for toxicologists is increasingly becoming a problem. This is especially true in Washoe County. While the current pandemic has led to an increase in the use of telephone and video conference testimony, the expectation is that once the pandemic is over, perhaps this will revert back to in-person testimony.

Caseload

- > 75% of the DUI caseload is misdemeanors

Court relationship

- > There are not enough phlebotomists to satisfy trial needs
- > Two courts rely on video/telephone testimony, they are in Washoe county. Video/telephone testimony is vastly underused across the state.
- > Toxicologists will testify on the combined effects of drugs
- > There are no issues regarding the qualifications of the toxicologists, they are given more credence over DREs.
- > Trials are rescheduled due to the lack of availability of toxicologists.
- > Urine samples are not used in court. Urine samples are primarily used post-conviction
- > Need for education among judges regarding the impairing effects of drugs, including cannabis, as well as the scientific evidence regarding DREs. Due to a lack of information on DREs, judges are less receptive to their testimony. This places an additional burden on toxicologists to provide testimony on the nexus between test results and officer's observations. Often trials have to be rescheduled because of a lack of toxicologists to provide testimony.

Law enforcement

- > There are not enough DREs
- > Not many field tests occur for DREs
- > Many judges do not believe that cannabis impairs driving and they do not allow (or want) DRE testimony
- > There are major qualification issues in court regarding DREs, notably the lack of case law deeming them experts to testify.
- > There is no existing case law regarding DREs as experts

Drug cases

- A challenge is the increased occurrence of poly drug cases. Such cases may not be over the BAC limit and not necessarily over a drug threshold either, yet due to the combined usage, subjects still presented as impaired. In this scenario, a toxicologist has to provide testimony on the additive effects when using more than one drug and how this corresponds to what the officer observed at the scene. This is a complicated task which requires more time for the expert to prepare to provide testimony.
- The protocol regarding drug testing today is that drug testing is only done if the prosecutor explicitly requests it; in case of a positive BAC, drug testing may not be requested. There is, however, a need for drug testing by default as well as for obtaining post-conviction information so they have a more complete picture of what type of offender they are dealing with.
- Drug impaired driving cases are typically polysubstance use, but polysubstance testing is not done often enough
- Re-screening will be requested in felony cases
- Drug testing is not automatically done, the law enforcement officer indicates what they think the impairing element is, and then testing is done.
- If the BAC is over.08%, drugs will not be tested for because the BAC per se limit was reached
- If BAC is less than .08%, drugs will be tested because while they may not meet the per se limit on alcohol alone, they likely will be found impaired when combined with drugs
- Drug screen requests are made by prosecutor
- Henderson lab generates drug tests faster because they have a lighter load
- Issues with herbal drugs – where there is impairment, but no drugs are detected. This happens once or twice a month. NMS lab can check for herbal drugs but the three labs in NV do not have this capacity
- Roadside oral testing
  - Drager 5000
  - Was of better use when marijuana was prohibited
  - Does not provide the actual impairment level, but the quantitative number is needed for court proceedings.
  - There is no existing case law regarding oral fluid testing

Underserviced areas

- Rural areas are underserviced
- Esmerelda and White Pines are underfunded. This means they will not ask for retests, multiple screens, or send to NMS for herbal testing (if needed)

Approved devices

- Intoxalyzer 8000
  - Will be replaced in 2-5 years
  - Is used state-wide
  - State pays for the calibration and training required
  - There are 80-100 across the state
  - Training is done by Las Vegas and Washoe labs
  - Used for evidentiary purposes
  - Calibrated every 90 days

Cannabis Compliance: May 5th, 12:00-1:30pm (PST)

In attendance: Kim Wayman, Mike Miles, Karalin Cronkhite, Victoria Hauan, Amy Davey, Amy Miles (Director of the Forensic Toxicology Program at the Wisconsin State Laboratory of Hygiene), Barry Logan (Senior Vice President, Forensic Science Initiatives, Chief Scientist, NMS Labs), Sergeant Brandon Villanti (Washington State Patrol Impaired Driving Section), Laura Bailey (Director, Office of Alcohol Testing, Arkansas), Robyn Robertson (President & CEO, TIRF) and Hannah Barrett (Research Associate, TIRF).

Cannabis Compliance

- Fee based
  - Labs pay for their license and the renewal of that license to Cannabis Compliance
  - Cultivator pays for retesting
  - Labs are billed $111/hour for inspectors
  - Penalties for infractions are fee-based
- Cannabis Compliance has worked with the Dept. of Agriculture for testing, but they are limited in the help they can offer (i.e., can only test for yeast/mold).
- Has a good working relationship with the cannabis industry (i.e., will self-report some violations)
- Cultivators are more interested in growing more cannabis as opposed to growing higher-quality or better cannabis.
- Some of the producers are increasing capacity to grow more rather than grow better product, especially now that they are moving into oil products.

Labs

- There are 10 licensed labs in the state, there is currently no intention to license more.
- The cultivator pays the private lab for the cost of compliance testing.
- The labs are privately owned and operated, which means there is competition between the labs.
- The default is to inspect all labs twice a year. Private labs for compliance testing are licensed for a fee and there is also a fee for inspections. In addition, more compliance tests are done based on analysis results.
- There is a process for decertifying growing facilities in case of violations. First there would be a warning, then suspension, then decertification.
  - Two Category-1 violations or three Category-2 violations result in decertification. Category 5 violations result in warnings.

Testing

- The cannabis labs conduct retesting on products when those products fail in other labs
- The selected lab for retesting is chosen randomly to prevent bias
- Potency testing, delta 9 THC, 20 pesticides, microbial testing (yeast/mold), analysis for arsenic, full metals (lead, mercury)
- Instruments: HPLC (potency), GSMC (pesticides), LC/MS/MS, Headspace (solvents), IS (heavy metals), ICR (salmonella)
- Each lab tests anywhere from 5-500 products
- Flower, trim, oil, and edibles are all tested. All are tested at least three times.

Inspections

- Ideally, inspections would be conducted twice a year, but due to workload they are struggling to inspect each lab once a year.
- Inspections can be prompted by a complaint
- It is rare to have no violations during an inspection
- Violations may still be frequently occurring due to the young age of the program.
- Violations also occur because of the competition between labs. Some labs will cut corners to turn over product faster.
- Common violations: poor oversight, controls failing, repeating tests until they pass, THC inflation, being overly friendly with the client and putting that relationship before the safety of the consumer.
- The most egregious violation is capitalizing on chance by repeating a test that failed until it does not fail; hence certain tests for compliance are repeated numerous times, which is a

serious diversion from testing protocols. Also, there is a lack of oversight in growing facilities. And the lack of standard methods for compliance testing makes the oversight by the state more challenging.

- Regarding consequences in case of violations, the officers for the cannabis compliance agency merely write a report with their findings and civil penalties can be imposed such as a fine.
- Labs will often fix the problem and revert back to the problematic behavior.
- More compliance testing is necessary, but each time testing is done, so many issues are found that it is hard with current capacity to even do testing just once a year.
- There is a good relationship between the state and the industry. Industry self-reports a lot and contacts the state to ask about problems. Nevertheless, there are still a lot of violations – mostly because it is a competitive industry, perhaps also because it is young.

Support for state lab

- A state lab could conduct the retesting which could help eliminate competition and guarantee impartiality.
- A state lab cannot replace the existing 10 labs but could assist with the retesting process.
- For their purpose, no satellite labs for the state lab are necessary, just one location would be fine.

Law Enforcement: May 6th, 1:00-2:30pm (PST)

In attendance: Eric Spratley, Erica Souza, Chris Canon, Susan Hohn, Amy Davey, Amy Miles (Director of the Forensic Toxicology Program at the Wisconsin State Laboratory of Hygiene), Barry Logan (Senior Vice President, Forensic Science Initiatives, Chief Scientist, NMS Labs), Sergeant Brandon Villanti (Washington State Patrol Impaired Driving Section), Laura Bailey (Director, Office of Alcohol Testing, Arkansas), Robyn Robertson (President & CEO, TIRF), Ward Vanlaar (COO, TIRF) and Hannah Barrett (Research Associate, TIRF).

Frequency of DUI

- North Las Vegas estimates 600-800 DUIs/year
- There are 40-60 regular DUIs/month
- There have been fatal DUI/serious injury DUI in 2020 to date

Turnaround times

- For fatal DUIs and DUI resulting in bodily injury, the lab can expedite the results
- 2-3 months for blood alcohol results (non-fatal DUIs)
- Las Vegas lab can provide results for fatal DUI/serious injury DUI within 48 hours
- Henderson lab can provide results for fatal DUI/serious injury DUI within three days

- Law enforcement indicate they have used the expedited services 1-3 times/month.
- Clark County says there are no issues with "speedy trials" (i.e., delayed due to sample results)
- There are some issues with felony cases, but they will get extensions for blood results. This is only an issue when the person is in custody, they are being held while waiting for the results on their blood sample.
- Washoe lab has limited capacity. The capacity issue is more pronounced due to increasing demands. Therefore, they are in favor of a state lab and believe it is long overdue. There is also concern of overloading existing labs in Henderson and Las Vegas so they would be in favor of a state lab as well, especially for those less problematic misdemeanor DUIs that they are currently sending to the private lab.
- Despite the capacity issue, law enforcement will nevertheless continue to collect information for both alcohol and drugs and submit everything.
- Main concern is with the more severe DUIs because it involves people in jail and if you do not get the results back fast, you have to release them. These are the people that you do not want on the road. Therefore, ideally results should be obtained within 24 hours for alcohol, maximum 72 hours, and perhaps a few extra days for drugs at best. For the lesser misdemeanor DUIs, anything less than three months would be great

Interactions with labs

- None with Henderson or Las Vegas
- There is no follow-up or re-testing of samples based on error (i.e., if an error is noticed in results from Henderson lab, Las Vegas lab will not re-test the sample)

Training

- Las Vegas lab provides intoxalyzer training and calibrates the devices
  - The devices are kept at the jails, technicians will come there to calibrate and update the log. This occurs every 3-4 months.
- Breathalyzer training
  - 4-hour initial course, 2-hour re-certification course
  - Trained officers are issued a card that is good for 3 years (with a 6 month grace period to re-certify). Card has to be swiped when using the breathalyzer device.
  - Only state-certified Forensic Analysts of Alcohol (FAAs) are allowed to train in evidentiary breath testing. Currently, all FAAs are employed by either LVMPD or WCSO and train all LEOs in the state. Certification cards are issued by FAAs on behalf of the Director of the Department of Public Safety. Note that the card stays valid for three years, regardless of the officer's position or tasks within that time period.
  - Training is state issued and is good regardless of the jurisdiction an officer resides/works in

- » Officers who are certified can testify to the results and the toxicologist/analysist from the lab can testify to the calibration of device.
- » The forensic analysist checks devices and their calibration on a less-than-90 day cycle to ensure compliance with State regulations requiring devices be calibrated by an FAA (and only an FAA) no more than 90 days prior to any evidential test. There is a log for each device and a checklist for officers to complete/follow when using device.

Lab Express

- > Used for minor/no injury/misdemeanor DUIs
  - » They do this to combat a workload issue; so which lab they choose depends on circumstances of the case to better manage workload (misdemeanors to Lab Express; serious DUIs to Henderson or Las Vegas). On average they have about 40 to 60 lesser DUIs per month and one to three more serious DUIs per month.
- > Law enforcement agency has a private contract with this lab
- > Takes 2-3 months for blood alcohol results
- > Will not test for drugs unless the BAC is under the per se limit
- > There have been some administrative challenges, for example billing for tests completed has at times been so late (more than 12 months) to the point where the city refuses to pay. It is surmised that these issues are a result of changing management (company has been bought) and while things have been getting better, there are still issues.
- > Does alcohol/drug testing only
- > Charges $300 for samples (Henderson charges $60)
  - > Henderson and Las Vegas labs are used for serious injury DUIs through interagency agreements. Results for rush cases can be back within two to three days from Henderson and in 48 hours from Las Vegas for alcohol while drugs take a bit more time

Relationship with courts

- > Great relationship in Clark County. Prosecutors will keep law enforcement up to speed
- > Some issues with district attorneys, largely due to the volume of cases, updates are less frequent.

Refusal rates

- > Clark County: 1 in 20 refuse, but once they know that a refusal results in a lost license they will submit.
- > Warrant can be issued to obtain blood sample

- New issue being raised in court if the driver can consent to a blood draw, given that they are intoxicated

Underserviced areas

- Any underserviced areas are the result of budget issues, there is just no capacity to afford additional testing
- Forensic issues with drugs, DNA

Wishlist

- The existing labs have to be kept whole when establishing the state lab; this is an important caveat that his constituents have expressed concern about.
- A faster turnaround time for non-fatal DUIs
- Two labs, one in Clark County, the other in Carson city
- Assign one analyst to the larger agencies. This would be one designated contact person who would loop them in with prosecutors. This would help streamline the process.
- Ideal turnaround times on alcohol would be 30 days
- Ideal turnaround times on fatal/serious injury DUI would be 24-72 hours.

Nevada Highway Patrol: May 7th, 10:30am-12:00pm (PST)

In attendance: Colonel Dan Solow, Pat Conway with DPS Chief of Investigative Division, DPS Director George Togliatti, Robyn Robertson (President & CEO, TIRF) and Hannah Barrett (Research Associate, TIRF).

Experiences with labs

- Colonel Solow's unit primarily works with Las Vegas and Washoe
- Highway patrol primarily has breath and blood samples for both alcohol and drugs
- The turnaround time for drugs averages at 6 months. This can result in court cases being continued because results are not ready in time. This is primarily due to the workload; the labs are given more samples than they are capable of working with in a timely manner. Notably the courts need the results quickly and within a week in instances where defendants are held in custody.
- There are standard substances that are screened for but will also test for drugs if officers specify.
- For drugs to be tested, highway patrol will specifically indicate which drugs they want tested on the sample.
- Highway patrol does not feel as though there are currently any underserviced jurisdictions within the state for laboratory access. All samples within highway patrol are transferred across the state by Sergeants.

- Samples are typically transported to the laboratory within 48 hours of taking the sample. Once the sample is taken, it remains with the trooper until it is booked into the evidence vault. It is then transported by a Sergeant or evidence custodian to the laboratory.

Communication with labs

- Communication with the Washoe lab is good. The primary issues with the lab regard the queue, which is a result of the overload of work the lab receives. There is not enough manpower to run all the samples.

Caseload of highway patrol

- All troopers are ARIDE trained.
- Highway patrol does approximately 40-50% of DUI cases across the state
- Officers testify about the following: probable cause, administration of test(s), and the receipt of results.
- There are 30 DREs within the state. All 30 have Basic DRE training and 8 have Instructor DRE training as well.
  - Reno: 6
  - Las Vegas Metro: 6
  - Washoe County: 5
  - Lyon: 2
  - DPS North: 1
  - WC Department Alt. Sen.: 1
  - White Pine: 1
  - Clark County: 1
  - NYE County: 1
  - Lincoln County: 1
  - DPS: 1
  - Elko: 1
- Roadside oral fluid testing has not started at this time, but there will be a future pilot project that is similar to the one in Michigan.

Wishlist for a state laboratory

- **Training**. Having a designated training person at the laboratory would be a major benefit to law enforcement. Currently there are law enforcement officers trained to train other law enforcement officers but given the transient nature of law enforcement this is not an effective

training method. Having a designated training person at the laboratory would ensure consistency with training.

- **Forensic analysis.** Having trained specialists for vehicle crashes would be a major benefit for law enforcement. The scientific credibility held by these specialists would help not only in court testimony, but also when attempting to pass new legislation.
- **Two locations.** Ideally, the state laboratory would have a location in Las Vegas, with a second location elsewhere (i.e., Reno). This would ensure the entire state has access to the state laboratory, which could also help with turnaround times.

Defense Attorneys: May 12th, 1:00-2:30pm (PST)

In attendance: Michael McDonald, Jeremy Cooley, Michael Giles, Eric Bauman, Amy Davey, Amy Miles (Director of the Forensic Toxicology Program at the Wisconsin State Laboratory of Hygiene), Sergeant Brandon Villanti (Washington State Patrol Impaired Driving Section), Laura Bailey (Director, Office of Alcohol Testing, Arkansas), Robyn Robertson (President & CEO, TIRF) and Hannah Barrett (Research Associate, TIRF).

Experience with labs

- **Washoe**
  - 1 month wait for blood results (average), but recently has been more like 2 months
  - No charges are made until the results are received
  - "it is what it is" attitude, it has been this way for so long, unsure of what an "ideal" time would be
- **Las Vegas**
  4. 1-3 months for alcohol
  5. 3-6 months for drugs
  6. Rush results are available for fatal DUIs at the prosecutor's request
- **Henderson**
  - 2-3 month turnaround
  - The turnaround time does not seem to affect cases

DUIs

- DUIs are the most common misdemeanor cases, along with domestic violence
- Quantitative results up front are necessary, a presumptive screen is not enough.
- Controlled substances are a major issue

- Since legalization of marijuana in past few years, Washoe does an initial screen and if they find alcohol they will not test for drugs unless law enforcement or prosecutors request it; this is to conserve time and energy.
- Clark county sees approximately 7,500-10,000 DUIs/year
- Henderson county sees approximately 700-800 DUIs/year. This is around 20% of their caseload
- Washoe will not test for drugs if alcohol is above .08% unless specifically asked by the prosecutor.
- In Clark county, 3-5% of DUI cases go to trial (vs. pled guilty). Drug cases are always pursued
- In Henderson, less than 10% of DUI cases go to trial. Drug cases always require testimony
- In Humbolt county, 10% of DUI cases go to trial. Drug cases are always pursued
- 5-10% of DUI cases are repeat offenders
- Impairment without lab results is very difficult to prove. In a large percentage of DUI cases there is no driving evidence, for example of weaving. Perhaps they were pulled over for broken taillight, so often there is no information about driving. Also, there are a lot of lay judges in rural NV. Even though a lot of them have a background in law enforcement, they have "a strong commitment toward the defendant", so impairment is a difficult sell without toxicology results. Without blood results or Intoxalyzer results, it would be rare to move forward with the charge
- The burden of proof is the same for misdemeanors and felonies (beyond a reasonable doubt). First two misdemeanors in 7 years and the 3rd offense is charged as a felony. Once a felon the lookback period is forever for any subsequent charges. Any DUI with bodily harm is a felony.

Underserviced areas

- **Washoe:** Underservicing not perceived as an issue, due to complacency ("it is what it is"). Scheduling testimony can be difficult because people in Reno are driving 3-4 hours to rural areas to provide testimony.

Testimony

- More than half of the cases require testimony
- In Clark county, most misdemeanor cases will have an affidavit, opposed to testifying
- In Henderson, there are affidavits around 30% of the time
- Testimony is always required in district court
- In Humbolt, video conferencing is crucial. Ten counties are served, and some are 3-4 hours apart. If not for video testimony some people would drive a full day just to testify. The counties do have to compete for video conference testimony time. About 13 courts are competing for scheduling toxicologist from Washoe lab.

- There have been no issues or challenges with toxicologists as experts
- Clark and Henderson do not support video testimony (i.e., technical limitations).
  - The Henderson lab is directly across the street from the court so the need for video testimony is lower. However, even when travel is not a challenge, it is still a time-consuming task due to the need for preparation as well as the waiting to be called by the court to appear.
- Law enforcement testify re: signs/symptoms of impairment
- Determining the impairment without lab testimony is difficult. There often isn't any evidence like "they were weaving so I pulled them over" many drivers are pulled over because they had a light out or their registration was expired.
- One DRE in Clark county has been accepted as an expert by one judge. But there are not enough DREs in the state for this to be common practice.
- A couple of attorneys, notably out of Reno, object against the use of declarations so testimony is often required; in about half of the cases testimony is requested. Even in misdemeanors they need a toxicologist to testify. About 10% of cases go to trial. If evidence about drugs is available, they will pursue it.

Wishlist

- Humbolt:
  - Turnaround time. The current times cause issues in that a person may have 2-3 cases against them before they can be charged because no charges are laid until results are recevied
  - Help with DNA testing would be ideal. It's currently outsourced and takes a long time
- Ideal turnaround – 48-72 hours.
- No cases are dismissed because results take too long because no charges are laid until results are back. In Clark county dismissing cases was a problem 2-3 years ago, but that it no longer an issue.

Expert input:

Amy Miles mentions that in WI they used to have an issue when more than one toxicologist works on a case. For example, 7 toxicologists, one doing alcohol, the other drugs, etc., then sometimes they ended up having to send all 7 for testimony. To combat this, they now assign one toxicologist to a case. They can still do batch work (with one person in charge of alcohol, another in charge of drugs, etc.) but use the work-around of assigning one person per case for testimony. Batch work means one specialist does all the alcohol testing and creates a batch of samples that can then go to another specialist who does all the drug testing, etc. This way, the work can be done efficiently, and then, by assigning one officer to a particular case, the testimony challenge can be avoided. This designated lab representative assigned to a case can provide all the testimony and paperwork for the lab. Amy shared case law from Wisconsin and several other states rely on this.

Forensic Pathology Workforce/ Pipeline
School of Community Health Scienced Intern Research for
the Overdose Data to Action Program
Chad Alligar March,16, 2021

Training programs and licensure (how many years of residency, fellowship activities, how long training is and availability of residency/training programs).

Forensic pathology requires 13 years of training. “The entire period of education and training for a Forensic Pathologist following high school is currently a minimum of 13 years (4-year college degree, 4-year medical school degree, 4-year residency, 1-year fellowship).” (What Is A). Then potential new recruits must pass an exam before they begin work (Forensic Pathologist). Currently there are 36 pathology training programs throughout the United States (Initial Draft). Availability of these training programs is very limited and this question is answered more thoroughly later on.

Are there training programs at the national level (identify programs, number they accept, where they are located)

As of now there are no national level training programs for forensic pathology. Forensic pathology is a small field and is not a program that is being pushed. Not every state offers forensic pathology which is likely why forensic pathology is not offered as a program nationally.

Are there training programs here in Nevada? (same as above, but more specific. Can look to see if any pipeline programs are set-up to feed forensic pathologists from nearby states to practice and work here in Nevada)

As of right now there are no forensic pathology programs that exist in Nevada. “The truth is there is little available in terms of strict forensic science training in the state, so students will need to pursue criminal justice or science based degrees and supplement with available courses in forensic science.” (Nevada CSI).

What issues with workforce are we having at the national and local/Nevada level (no training programs, additional years of residency, etc.)

Many issues surround forensic pathology. “Most medical schools have little or no exposure to forensic pathology in the medical school curriculum. Forty-three states have accredited training programs in anatomical pathology, which is a prerequisite for forensic pathology training. However, many of these programs do not offer forensic pathology fellowships, and the exposure to forensic pathology in the basic anatomical pathology training programs may be minimal.” Exposure to forensic pathology is crucial at this stage because not many people consider this to be a possible career choice. “Another problem is the small number and incomplete funding of ACGME approved forensic pathology fellowship positions. A recent survey showed that among the 37 training programs in the United States, there were a total of 78 approved positions, but only 53 were funded and 42 were filled” (Increasing the Supply). From this source we know that not enough training programs exist in the United States. In addition to that fellowships are not being offered in a substantial amount. Only about 30 to 40 pathologists are trained per year which is an astonishingly low number.

What is being done to address any workforce issues

Medical school needs to bring more awareness to the field. ACGME requires anatomic pathology programs to provide exposure to forensic pathology (Increasing the Supply). This exposure allows the field to receive at least some recognition as a career choice in the medical practice. Some classes in college courses are centered around forensic pathology but this is not common to all colleges. However this is only a small step forward and more recognition for forensic pathology as a potential career choice is needed.

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ACGME Program Requirements for Graduate Medical Education in Forensic Pathology

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ACGME Program Requirements for Graduate Medical Education in Forensic Pathology

Common Program Requirements (Fellowship) are in BOLD

Where applicable, text in italics describes the underlying philosophy of the requirements in that section. These philosophic statements are not program requirements and are therefore not citable.

Background and Intent: These fellowship requirements reflect the fact that these learners have already completed the first phase of graduate medical education. Thus, the Common Program Requirements (Fellowship) are intended to explain the differences.

Introduction

Int.A. ***Fellowship is advanced graduate medical education beyond a core residency program for physicians who desire to enter more specialized practice. Fellowship-trained physicians serve the public by providing subspecialty care, which may also include core medical care, acting as a community resource for expertise in their field, creating and integrating new knowledge into practice, and educating future generations of physicians. Graduate medical education values the strength that a diverse group of physicians brings to medical care.***

Fellows who have completed residency are able to practice independently in their core specialty. The prior medical experience and expertise of fellows distinguish them from physicians entering into residency training. The fellow's care of patients within the subspecialty is undertaken with appropriate faculty supervision and conditional independence. Faculty members serve as role models of excellence, compassion, professionalism, and scholarship. The fellow develops deep medical knowledge, patient care skills, and expertise applicable to their focused area of practice. Fellowship is an intensive program of subspecialty clinical and didactic education that focuses on the multidisciplinary care of patients. Fellowship education is often physically, emotionally, and intellectually demanding, and occurs in a variety of clinical learning environments committed to graduate medical education and the well-being of patients, residents, fellows, faculty members, students, and all members of the health care team.

In addition to clinical education, many fellowship programs advance fellows' skills as physician-scientists. While the ability to create new knowledge within medicine is not exclusive to fellowship-educated physicians, the fellowship experience expands a physician's abilities to pursue hypothesis-driven scientific inquiry that results in contributions to the medical literature and patient care. Beyond the clinical subspecialty expertise achieved, fellows develop mentored relationships built on an infrastructure that promotes collaborative research.

Int.B. **Definition of Subspecialty**

Forensic pathology is the application of the principles of medicine and pathology to the study of sudden, unexpected, suspicious, and violent death to determine the mechanisms, cause, and manner of death.

Int.C. Length of Educational Program

The educational program in forensic pathology must be 12 months in length. (Core)*

I. Oversight

I.A. Sponsoring Institution

The Sponsoring Institution is the organization or entity that assumes the ultimate financial and academic responsibility for a program of graduate medical education consistent with the ACGME Institutional Requirements.

When the Sponsoring Institution is not a rotation site for the program, the most commonly utilized site of clinical activity for the program is the primary clinical site.

Background and Intent: Participating sites will reflect the health care needs of the community and the educational needs of the fellows. A wide variety of organizations may provide a robust educational experience and, thus, Sponsoring Institutions and participating sites may encompass inpatient and outpatient settings including, but not limited to a university, a medical school, a teaching hospital, a nursing home, a school of public health, a health department, a public health agency, an organized health care delivery system, a medical examiner's office, an educational consortium, a teaching health center, a physician group practice, federally qualified health center, or an educational foundation.

I.A.1. The program must be sponsored by one ACGME-accredited Sponsoring Institution. (Core)*

I.B. Participating Sites

A participating site is an organization providing educational experiences or educational assignments/rotations for fellows.

I.B.1. The program, with approval of its Sponsoring Institution, must designate a primary clinical site. (Core)

I.B.2. There must be a program letter of agreement (PLA) between the program and each participating site that governs the relationship between the program and the participating site providing a required assignment. (Core)

I.B.2.a) The PLA must:

I.B.2.a).(1) be renewed at least every 10 years; and, (Core)

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I.B.2.a).(2) be approved by the designated institutional official (DIO). (Core)

I.B.3. The program must monitor the clinical learning and working environment at all participating sites. (Core)

I.B.3.a) At each participating site there must be one faculty member, designated by the program director, who is accountable for fellow education for that site, in collaboration with the program director. (Core)

Background and Intent: While all fellowship programs must be sponsored by a single ACGME-accredited Sponsoring Institution, many programs will utilize other clinical settings to provide required or elective training experiences. At times it is appropriate to utilize community sites that are not owned by or affiliated with the Sponsoring Institution. Some of these sites may be remote for geographic, transportation, or communication issues. When utilizing such sites, the program must designate a faculty member responsible for ensuring the quality of the educational experience. In some circumstances, the person charged with this responsibility may not be physically present at the site, but remains responsible for fellow education occurring at the site. The requirements under I.B.3. are intended to ensure that this will be the case.

Suggested elements to be considered in PLAs will be found in the ACGME Program Director's Guide to the Common Program Requirements. These include:

- **Identifying the faculty members who will assume educational and supervisory responsibility for fellows**
- **Specifying the responsibilities for teaching, supervision, and formal evaluation of fellows**
- **Specifying the duration and content of the educational experience**
- **Stating the policies and procedures that will govern fellow education during the assignment**

I.B.4. The program director must submit any additions or deletions of participating sites routinely providing an educational experience, required for all fellows, of one month full time equivalent (FTE) or more through the ACGME's Accreditation Data System (ADS). (Core)

I.C. The program, in partnership with its Sponsoring Institution, must engage in practices that focus on mission-driven, ongoing, systematic recruitment and retention of a diverse and inclusive workforce of residents (if present), fellows, faculty members, senior administrative staff members, and other relevant members of its academic community. (Core)

Background and Intent: It is expected that the Sponsoring Institution has, and programs implement, policies and procedures related to recruitment and retention of minorities underrepresented in medicine and medical leadership in accordance with the Sponsoring Institution's mission and aims. The program's annual evaluation must include an assessment of the program's efforts to recruit and retain a diverse workforce, as noted in V.C.1.c).(5).(c).

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I.D. Resources

I.D.1. The program, in partnership with its Sponsoring Institution, must ensure the availability of adequate resources for fellow education. (Core)

I.D.1.a) At the primary clinical site, the program must provide each fellow with:

I.D.1.a).(1) a designated work area; (Core)

I.D.1.a).(2) an individual computer with access to relevant electronic records and the Internet; (Core)

I.D.1.a).(3) an individual light microscope and access to a multi-headed light microscope for rotations on which microscopic evaluations account for a major portion of the clinical experience; (Core)

I.D.1.a).(4) photomicroscopy and gross imaging technology; (Core)

I.D.1.a).(5) radiographic imaging technology, when applicable to specimen type; and, (Core)

I.D.1.a).(6) access to updated teaching materials, such as interesting case files and archived conference materials, or study sets, such as glass slides and virtual study sets, encompassing the core curriculum areas of anatomic and/or clinical pathology, as matches the program's specialty concentration. (Core)

I.D.1.b) There must be office space, meeting rooms, and laboratory space to support patient care-related teaching, educational, and research activities, and clinical service work. (Core)

I.D.1.c) The program must conduct at least 500 medicolegal autopsies annually. (Core)

I.D.1.c).(1) The institution or office must conduct at least 300 additional autopsies for each additional fellowship position requested. (Core)

I.D.1.c).(2) Postmortem records must be indexed to permit retrieval of archived records by cause and manner of death. (Core)

I.D.1.c).(3) Autopsies for examination by fellows must be derived from a wide and comprehensive variety of case types for examination by the fellow. (Core)

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I.D.1.d) A laboratory consultant should be available at the primary site for the following services: microbiology, clinical chemistry, serology, subspecialty pathologists, radiology, forensic toxicology, physical anthropology, odontology, firearms examination, DNA matching, and other scientific studies needed to complete a death investigation. (Detail)†

I.D.1.d).(1) When such facilities and personnel are not available at the primary site, they should be available and accessible to fellows at accredited laboratories or institutions. (Detail)

I.D.2. The program, in partnership with its Sponsoring Institution, must ensure healthy and safe learning and working environments that promote fellow well-being and provide for: (Core)

I.D.2.a) access to food while on duty; (Core)

I.D.2.b) safe, quiet, clean, and private sleep/rest facilities available and accessible for fellows with proximity appropriate for safe patient care; (Core)

Background and Intent: Care of patients within a hospital or health system occurs continually through the day and night. Such care requires that fellows function at their peak abilities, which requires the work environment to provide them with the ability to meet their basic needs within proximity of their clinical responsibilities. Access to food and rest are examples of these basic needs, which must be met while fellows are working. Fellows should have access to refrigeration where food may be stored. Food should be available when fellows are required to be in the hospital overnight. Rest facilities are necessary, even when overnight call is not required, to accommodate the fatigued fellow.

I.D.2.c) clean and private facilities for lactation that have refrigeration capabilities, with proximity appropriate for safe patient care; (Core)

Background and Intent: Sites must provide private and clean locations where fellows may lactate and store the milk within a refrigerator. These locations should be in close proximity to clinical responsibilities. It would be helpful to have additional support within these locations that may assist the fellow with the continued care of patients, such as a computer and a phone. While space is important, the time required for lactation is also critical for the well-being of the fellow and the fellow's family, as outlined in VI.C.1.d).(1).

I.D.2.d) security and safety measures appropriate to the participating site; and, (Core)

I.D.2.e) accommodations for fellows with disabilities consistent with the Sponsoring Institution's policy. (Core)

I.D.3. Fellows must have ready access to subspecialty-specific and other appropriate reference material in print or electronic format. This

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must include access to electronic medical literature databases with full text capabilities. (Core)

I.D.4. **The program's educational and clinical resources must be adequate to support the number of fellows appointed to the program.** (Core)

I.E. ***A fellowship program usually occurs in the context of many learners and other care providers and limited clinical resources. It should be structured to optimize education for all learners present.***

I.E.1. **Fellows should contribute to the education of residents in core programs, if present.** (Core)

I.E.2. The education of other learners must not dilute the educational experience of the program's fellows. (Core)

Background and Intent: The clinical learning environment has become increasingly complex and often includes care providers, students, and post-graduate residents and fellows from multiple disciplines. The presence of these practitioners and their learners enriches the learning environment. Programs have a responsibility to monitor the learning environment to ensure that fellows' education is not compromised by the presence of other providers and learners, and that fellows' education does not compromise core residents' education.

II. Personnel

II.A. Program Director

II.A.1. **There must be one faculty member appointed as program director with authority and accountability for the overall program, including compliance with all applicable program requirements.** (Core)

II.A.1.a) **The Sponsoring Institution's Graduate Medical Education Committee (GMEC) must approve a change in program director.** (Core)

II.A.1.b) **Final approval of the program director resides with the Review Committee.** (Core)

Background and Intent: While the ACGME recognizes the value of input from numerous individuals in the management of a fellowship, a single individual must be designated as program director and made responsible for the program. This individual will have dedicated time for the leadership of the fellowship, and it is this individual's responsibility to communicate with the fellows, faculty members, DIO, GMEC, and the ACGME. The program director's nomination is reviewed and approved by the GMEC. Final approval of program directors resides with the Review Committee.

II.A.2. **The program director must be provided with support adequate for administration of the program based upon its size and configuration.** (Core)

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II.A.2.a) At a minimum, the program director must be provided with the salary support to devote 10 percent FTE of non-clinical time to the administration of the program. Additional support for the program director and the associate program director(s) must be provided based on program size as follows: (Core)

Number of Approved Fellow Positions	Minimum FTE
1-3	0.1
4-6	0.2
≥7	0.3

II.A.2.b) For programs that do not function as a dependent subspecialty of an ACGME-accredited pathology residency program, the program director must be given at least 0.20 FTE of additional protected time beyond the scale noted in II.A.2.a) for administration of the program in absence of a core pathology program. (Core)

Background and Intent: Ten percent FTE is defined as one half day per week.

"Administrative time" is defined as non-clinical time spent meeting the responsibilities of the program director as detailed in requirements II.A.4.-II.A.4.a).(16).

The requirement does not address the source of funding required to provide the specified salary support.

II.A.3. Qualifications of the program director:

II.A.3.a) must include subspecialty expertise and qualifications acceptable to the Review Committee; (Core)

II.A.3.b) must include current certification in the subspecialty for which they are the program director by the American Board of Pathology (ABPath) **or by the American Osteopathic Board of** Pathology (AOBPath)**, or subspecialty qualifications that are acceptable to the Review Committee; and, (Core)**

II.A.3.c) must include at least three years of active participation as a specialist in forensic pathology following completion of all graduate medical education. (Detail)

II.A.4. Program Director Responsibilities

The program director must have responsibility, authority, and accountability for: administration and operations; teaching and scholarly activity; fellow recruitment and selection, evaluation, and promotion of fellows, and disciplinary action; supervision of fellows; and fellow education in the context of patient care. (Core)

II.A.4.a) The program director must:

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II.A.4.a).(1) **be a role model of professionalism; (Core)**

Background and Intent: The program director, as the leader of the program, must serve as a role model to fellows in addition to fulfilling the technical aspects of the role. As fellows are expected to demonstrate compassion, integrity, and respect for others, they must be able to look to the program director as an exemplar. It is of utmost importance, therefore, that the program director model outstanding professionalism, high quality patient care, educational excellence, and a scholarly approach to work. The program director creates an environment where respectful discussion is welcome, with the goal of continued improvement of the educational experience.

II.A.4.a).(2) **design and conduct the program in a fashion consistent with the needs of the community, the mission(s) of the Sponsoring Institution, and the mission(s) of the program; (Core)**

Background and Intent: The mission of institutions participating in graduate medical education is to improve the health of the public. Each community has health needs that vary based upon location and demographics. Programs must understand the social determinants of health of the populations they serve and incorporate them in the design and implementation of the program curriculum, with the ultimate goal of addressing these needs and health disparities.

II.A.4.a).(3) **administer and maintain a learning environment conducive to educating the fellows in each of the ACGME Competency domains; (Core)**

Background and Intent: The program director may establish a leadership team to assist in the accomplishment of program goals. Fellowship programs can be highly complex. In a complex organization the leader typically has the ability to delegate authority to others, yet remains accountable. The leadership team may include physician and non-physician personnel with varying levels of education, training, and experience.

II.A.4.a).(4) **develop and oversee a process to evaluate candidates prior to approval as program faculty members for participation in the fellowship program education and at least annually thereafter, as outlined in V.B.; (Core)**

II.A.4.a).(5) **have the authority to approve program faculty members for participation in the fellowship program education at all sites; (Core)**

II.A.4.a).(6) **have the authority to remove program faculty members from participation in the fellowship program education at all sites; (Core)**

II.A.4.a).(7) **have the authority to remove fellows from supervising interactions and/or learning environments that do not meet the standards of the program; (Core)**

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Background and Intent: The program director has the responsibility to ensure that all who educate fellows effectively role model the Core Competencies. Working with a fellow is a privilege that is earned through effective teaching and professional role modeling. This privilege may be removed by the program director when the standards of the clinical learning environment are not met.

There may be faculty in a department who are not part of the educational program, and the program director controls who is teaching the residents.

II.A.4.a).(8) **submit accurate and complete information required and requested by the DIO, GMEC, and ACGME; (Core)**

II.A.4.a).(9) **provide applicants who are offered an interview with information related to the applicant's eligibility for the relevant subspecialty board examination(s); (Core)**

II.A.4.a).(10) **provide a learning and working environment in which fellows have the opportunity to raise concerns and provide feedback in a confidential manner as appropriate, without fear of intimidation or retaliation; (Core)**

II.A.4.a).(11) **ensure the program's compliance with the Sponsoring Institution's policies and procedures related to grievances and due process; (Core)**

II.A.4.a).(12) **ensure the program's compliance with the Sponsoring Institution's policies and procedures for due process when action is taken to suspend or dismiss, not to promote, or not to renew the appointment of a fellow; (Core)**

Background and Intent: A program does not operate independently of its Sponsoring Institution. It is expected that the program director will be aware of the Sponsoring Institution's policies and procedures, and will ensure they are followed by the program's leadership, faculty members, support personnel, and fellows.

II.A.4.a).(13) **ensure the program's compliance with the Sponsoring Institution's policies and procedures on employment and non-discrimination; (Core)**

II.A.4.a).(13).(a) **Fellows must not be required to sign a non-competition guarantee or restrictive covenant. (Core)**

II.A.4.a).(14) **document verification of program completion for all graduating fellows within 30 days; (Core)**

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II.A.4.a).(15) **provide verification of an individual fellow's completion upon the fellow's request, within 30 days; and,** (Core)

Background and Intent: Primary verification of graduate medical education is important to credentialing of physicians for further training and practice. Such verification must be accurate and timely. Sponsoring Institution and program policies for record retention are important to facilitate timely documentation of fellows who have previously completed the program. Fellows who leave the program prior to completion also require timely documentation of their summative evaluation.

II.A.4.a).(16) **obtain review and approval of the Sponsoring Institution's DIO before submitting information or requests to the ACGME, as required in the Institutional Requirements and outlined in the ACGME Program Director's Guide to the Common Program Requirements.** (Core)

II.B. Faculty

Faculty members are a foundational element of graduate medical education – faculty members teach fellows how to care for patients. Faculty members provide an important bridge allowing fellows to grow and become practice ready, ensuring that patients receive the highest quality of care. They are role models for future generations of physicians by demonstrating compassion, commitment to excellence in teaching and patient care, professionalism, and a dedication to lifelong learning. Faculty members experience the pride and joy of fostering the growth and development of future colleagues. The care they provide is enhanced by the opportunity to teach. By employing a scholarly approach to patient care, faculty members, through the graduate medical education system, improve the health of the individual and the population.

Faculty members ensure that patients receive the level of care expected from a specialist in the field. They recognize and respond to the needs of the patients, fellows, community, and institution. Faculty members provide appropriate levels of supervision to promote patient safety. Faculty members create an effective learning environment by acting in a professional manner and attending to the well-being of the fellows and themselves.

Background and Intent: "Faculty" refers to the entire teaching force responsible for educating fellows. The term "faculty," including "core faculty," does not imply or require an academic appointment or salary support.

II.B.1. **For each participating site, there must be a sufficient number of faculty members with competence to instruct and supervise all fellows at that location.** (Core)

II.B.1.a) In addition to the program director, the faculty must include at least one core faculty member with demonstrated expertise in

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forensic pathology with either forensic pathology certification by the ABPath or AOBPath, or ~~possess~~ qualifications judged acceptable to the Review Committee. (Core)

~~II.B.1.a).(1)~~ ~~The program director or at least one core faculty member must be certified in forensic pathology by the ABPath or AOBPath.~~ (Core)

II.B.1.b) Including the program director, the physician faculty must include at least two full-time forensic pathologists who are certified by the ABPath or AOBPath. (Core)

II.B.1.c) Programs with two or more fellows must have at least one more faculty member than the number of approved fellowship positions. (Core)

II.B.2. Faculty members must:

II.B.2.a) be role models of professionalism; (Core)

II.B.2.b) demonstrate commitment to the delivery of safe, quality, cost-effective, patient-centered care; (Core)

Background and Intent: Patients have the right to expect quality, cost-effective care with patient safety at its core. The foundation for meeting this expectation is formed during residency and fellowship. Faculty members model these goals and continually strive for improvement in care and cost, embracing a commitment to the patient and the community they serve.

II.B.2.c) demonstrate a strong interest in the education of fellows; (Core)

II.B.2.d) devote sufficient time to the educational program to fulfill their supervisory and teaching responsibilities; (Core)

II.B.2.e) administer and maintain an educational environment conducive to educating fellows; (Core)

II.B.2.f) regularly participate in organized clinical discussions, rounds, journal clubs, and conferences; (Core)

II.B.2.g) pursue faculty development designed to enhance their skills at least annually; and, (Core)

Background and Intent: Faculty development is intended to describe structured programming developed for the purpose of enhancing transference of knowledge, skill, and behavior from the educator to the learner. Faculty development may occur in a variety of configurations (lecture, workshop, etc.) using internal and/or external resources. Programming is typically needs-based (individual or group) and may be specific to the institution or the program. Faculty development programming is to be reported for the fellowship program faculty in the aggregate.

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II.B.2.h) ~~The faculty, including the program director, must, in aggregate,~~ devote at least 20 hours per week in aggregate to fellowship-related clinical work and teaching. (Core)

II.B.3. Faculty Qualifications

II.B.3.a) Faculty members must have appropriate qualifications in their field and hold appropriate institutional appointments. (Core)

II.B.3.b) Subspecialty physician faculty members must:

II.B.3.b).(1) have current certification in the subspecialty by the American Board of Pathology **or the American Osteopathic Board of** Pathology**, or possess qualifications judged acceptable to the Review Committee; and, (Core)**

II.B.3.b).(2) Core physician faculty members who are not currently ABPath- or AOBPath-certified forensic pathologists must have either completed a forensic pathology fellowship or have three years of practice experience in the subspecialty. (Core)

II.B.3.c) Any non-physician faculty members who participate in fellowship program education must be approved by the program director. (Core)

Background and Intent: The provision of optimal and safe patient care requires a team approach. The education of fellows by non-physician educators enables the fellows to better manage patient care and provides valuable advancement of the fellows' knowledge. Furthermore, other individuals contribute to the education of the fellow in the basic science of the subspecialty or in research methodology. If the program director determines that the contribution of a non-physician individual is significant to the education of the fellow, the program director may designate the individual as a program faculty member or a program core faculty member.

II.B.3.d) Any other specialty physician faculty members must have current certification in their specialty by the appropriate American Board of Medical Specialties (ABMS) member board or American Osteopathic Association (AOA) certifying board, or possess qualifications judged acceptable to the Review Committee. (Core)

II.B.4. Core Faculty

Core faculty members must have a significant role in the education and supervision of fellows and must devote a significant portion of their entire effort to fellow education and/or administration, and must, as a component of their activities, teach, evaluate, and provide formative feedback to fellows. (Core)

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Background and Intent: Core faculty members are critical to the success of fellow education. They support the program leadership in developing, implementing, and assessing curriculum and in assessing fellows' progress toward achievement of competence in the subspecialty. Core faculty members should be selected for their broad knowledge of and involvement in the program, permitting them to effectively evaluate the program, including completion of the annual ACGME Faculty Survey.

II.B.4.a) **Core faculty members must be designated by the program director.** (Core)

II.B.4.b) **Core faculty members must complete the annual ACGME Faculty Survey.** (Core)

II.B.4.c) There must be at least two core faculty members certified in forensic pathology by the ABPath or AOBPath, one of whom must be the program director. (Core)

II.C. Program Coordinator

II.C.1. **There must be a program coordinator.** (Core)

II.C.2. **The program coordinator must be provided with support adequate for administration of the program based upon its size and configuration.** (Core)

II.C.2.a) At a minimum, the program coordinator must be supported at 20 percent FTE for administration of the program. Additional support must be provided based on program size as follows: (Core)

Number of Approved Fellow Positions	Minimum FTE Coordinator(s) Required
1-3	0.2
4-9	0.3
10 or more	0.4

Background and Intent: Twenty percent FTE is defined as one day per week.

The requirement does not address the source of funding required to provide the specified salary support.

Each program requires a lead administrative person, frequently referred to as a program coordinator, administrator, or as titled by the institution. This person will frequently manage the day-to-day operations of the program and serve as an important liaison with learners, faculty and other staff members, and the ACGME. Individuals serving in this role are recognized as program coordinators by the ACGME.

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The program coordinator is a member of the leadership team and is critical to the success of the program. As such, the program coordinator must possess skills in leadership and personnel management. Program coordinators are expected to develop unique knowledge of the ACGME and Program Requirements, policies, and procedures. Program coordinators assist the program director in accreditation efforts, educational programming, and support of fellows.

Programs, in partnership with their Sponsoring Institutions, should encourage the professional development of their program coordinators and avail them of opportunities for both professional and personal growth. Programs with fewer fellows may not require a full-time coordinator; one coordinator may support more than one program.

II.D. Other Program Personnel

The program, in partnership with its Sponsoring Institution, must jointly ensure the availability of necessary personnel for the effective administration of the program. (Core)

II.D.1. There must be qualified laboratory technical personnel to support the clinical, teaching, educational, and research activities of the fellowship. (Core)

Background and Intent: Multiple personnel may be required to effectively administer a program. These may include staff members with clerical skills, project managers, education experts, and staff members to maintain electronic communication for the program. These personnel may support more than one program in more than one discipline.

III. Fellow Appointments

III.A. Eligibility Criteria

III.A.1. Eligibility Requirements – Fellowship Programs

All required clinical education for entry into ACGME-accredited fellowship programs must be completed in an ACGME-accredited residency program, an AOA-approved residency program, a program with ACGME International (ACGME-I) Advanced Specialty Accreditation, or a Royal College of Physicians and Surgeons of Canada (RCPSC)-accredited or College of Family Physicians of Canada (CFPC)-accredited residency program located in Canada. (Core)

Background and Intent: Eligibility for ABMS or AOA Board certification may not be satisfied by fellowship training. Applicants must be notified of this at the time of application, as required in II.A.4.a).(9).

III.A.1.a) Fellowship programs must receive verification of each entering fellow's level of competence in the required field,

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upon matriculation, using ACGME, ACGME-I, or CanMEDS Milestones evaluations from the core residency program. (Core)

III.A.1.b) Prior to appointment in the program, fellows must have one of the following:

III.A.1.b).(1) successful completion of at least two years of anatomic pathology education in a pathology residency ~~in anatomic and clinical pathology or a residency in anatomic pathology~~ that satisfies the requirements in III.A.1.; or, (Core)

III.A.1.b).(2) certification or eligibility for certification by the ABPath or AOBPath in anatomic pathology and clinical pathology or in anatomic pathology. (Core)

III.A.1.c) Fellow Eligibility Exception

The Review Committee for Pathology **will allow the following exception to the fellowship eligibility requirements:**

III.A.1.c).(1) An ACGME-accredited fellowship program may accept an exceptionally qualified international graduate applicant who does not satisfy the eligibility requirements listed in III.A.1., but who does meet all of the following additional qualifications and conditions: (Core)

III.A.1.c).(1).(a) evaluation by the program director and fellowship selection committee of the applicant's suitability to enter the program, based on prior training and review of the summative evaluations of training in the core specialty; and, (Core)

III.A.1.c).(1).(b) review and approval of the applicant's exceptional qualifications by the GMEC; and, (Core)

III.A.1.c).(1).(c) verification of Educational Commission for Foreign Medical Graduates (ECFMG) certification. (Core)

III.A.1.c).(2) Applicants accepted through this exception must have an evaluation of their performance by the Clinical Competency Committee within 12 weeks of matriculation. (Core)

Background and Intent: An exceptionally qualified international graduate applicant has (1) completed a residency program in the core specialty outside the continental United States that was not accredited by the ACGME, AOA, ACGME-I, RCPSC or CFPC, and (2) demonstrated clinical excellence, in comparison to peers, throughout training.

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Additional evidence of exceptional qualifications is required, which may include one of the following: (a) participation in additional clinical or research training in the specialty or subspecialty; (b) demonstrated scholarship in the specialty or subspecialty; and/or (c) demonstrated leadership during or after residency. Applicants being considered for these positions must be informed of the fact that their training may not lead to certification by ABMS member boards or AOA certifying boards.

In recognition of the diversity of medical education and training around the world, this early evaluation of clinical competence required for these applicants ensures they can provide quality and safe patient care. Any gaps in competence should be addressed as per policies for fellows already established by the program in partnership with the Sponsoring Institution.

III.B. **The program director must not appoint more fellows than approved by the Review Committee.** (Core)

III.B.1. **All complement increases must be approved by the Review Committee.** (Core)

III.C. **Fellow Transfers**

The program must obtain verification of previous educational experiences and a summative competency-based performance evaluation prior to acceptance of a transferring fellow, and Milestones evaluations upon matriculation. (Core)

IV. Educational Program

The ACGME accreditation system is designed to encourage excellence and innovation in graduate medical education regardless of the organizational affiliation, size, or location of the program.

The educational program must support the development of knowledgeable, skillful physicians who provide compassionate care.

In addition, the program is expected to define its specific program aims consistent with the overall mission of its Sponsoring Institution, the needs of the community it serves and that its graduates will serve, and the distinctive capabilities of physicians it intends to graduate. While programs must demonstrate substantial compliance with the Common and subspecialty-specific Program Requirements, it is recognized that within this framework, programs may place different emphasis on research, leadership, public health, etc. It is expected that the program aims will reflect the nuanced program-specific goals for it and its graduates; for example, it is expected that a program aiming to prepare physician-scientists will have a different curriculum from one focusing on community health.

IV.A. **The curriculum must contain the following educational components:** (Core)

IV.A.1. **a set of program aims consistent with the Sponsoring Institution's mission, the needs of the community it serves, and the desired distinctive capabilities of its graduates;** (Core)

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IV.A.1.a) The program's aims must be made available to program applicants, fellows, and faculty members. (Core)

IV.A.2. competency-based goals and objectives for each educational experience designed to promote progress on a trajectory to autonomous practice in their subspecialty. These must be distributed, reviewed, and available to fellows and faculty members; (Core)

IV.A.3. delineation of fellow responsibilities for patient care, progressive responsibility for patient management, and graded supervision in their subspecialty; (Core)

Background and Intent: These responsibilities may generally be described by PGY level and specifically by Milestones progress as determined by the Clinical Competency Committee. This approach encourages the transition to competency-based education. An advanced learner may be granted more responsibility independent of PGY level and a learner needing more time to accomplish a certain task may do so in a focused rather than global manner.

IV.A.4. structured educational activities beyond direct patient care; and, (Core)

Background and Intent: Patient care-related educational activities, such as morbidity and mortality conferences, tumor boards, surgical planning conferences, case discussions, etc., allow fellows to gain medical knowledge directly applicable to the patients they serve. Programs should define those educational activities in which fellows are expected to participate and for which time is protected. Further specification can be found in IV.C.

IV.A.5. advancement of fellows' knowledge of ethical principles foundational to medical professionalism. (Core)

IV.B. ACGME Competencies

Background and Intent: The Competencies provide a conceptual framework describing the required domains for a trusted physician to enter autonomous practice. These Competencies are core to the practice of all physicians, although the specifics are further defined by each subspecialty. The developmental trajectories in each of the Competencies are articulated through the Milestones for each subspecialty. The focus in fellowship is on subspecialty-specific patient care and medical knowledge, as well as refining the other competencies acquired in residency.

IV.B.1. The program must integrate the following ACGME Competencies into the curriculum: (Core)

IV.B.1.a) Professionalism

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Fellows must demonstrate a commitment to professionalism and an adherence to ethical principles. (Core)

IV.B.1.b) Patient Care and Procedural Skills

Background and Intent: Quality patient care is safe, effective, timely, efficient, patient-centered, equitable, and designed to improve population health, while reducing per capita costs. (See the Institute of Medicine [IOM]'s *Crossing the Quality Chasm: A New Health System for the 21st Century*, 2001 and Berwick D, Nolan T, Whittington J. *The Triple Aim: care, cost, and quality. Health Affairs.* 2008; 27(3):759-769.). In addition, there should be a focus on improving the clinician's well-being as a means to improve patient care and reduce burnout among residents, fellows, and practicing physicians.

These organizing principles inform the Common Program Requirements across all Competency domains. Specific content is determined by the Review Committees with input from the appropriate professional societies, certifying boards, and the community.

IV.B.1.b).(1) **Fellows must be able to provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health.** (Core)

IV.B.1.b).(1).(a) Fellows must demonstrate competence in:

IV.B.1.b).(1).(a).(i) death certification; (Core)

IV.B.1.b).(1).(a).(ii) determining when an external examination or autopsy should be performed; and, (Core)

IV.B.1.b).(1).(a).(iii) determining whether a death investigation is required under applicable statutes and in coordinating death investigations and examinations with postmortem organ and tissue donations conducted by organ procurement organizations. (Core) [Moved from IV.B.1.b).(2).(c)]

IV.B.1.b).(2) **Fellows must be able to perform all medical, diagnostic, and surgical procedures considered essential for the area of practice.** (Core)

IV.B.1.b).(2).(a) Fellows must demonstrate competence in performing autopsies. (Core)

IV.B.1.b).(2).(a).(i) Each fellow must perform at least 200 and not more than 250 autopsies. (Core)

IV.B.1.b).(2).(a).(ii) Competence must include:

IV.B.1.b).(2).(a).(ii).(a) review of the available medical history and circumstances of death;

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(Core)

IV.B.1.b).(2).(a).(ii).(b) external examination of the body; (Core)

IV.B.1.b).(2).(a).(ii).(c) photographic documentation of injuries and disease processes; (Core)

IV.B.1.b).(2).(a).(ii).(d) gross dissection; (Core)

IV.B.1.b).(2).(a).(ii).(e) review of microscopic and laboratory findings; (Core)

IV.B.1.b).(2).(a).(ii).(f) preparation of written descriptions of the gross and microscopic findings; (Core)

IV.B.1.b).(2).(a).(ii).(g) development of an opinion regarding the immediate, intermediate, and underlying (proximate) cause(s) of death; and, (Core)

IV.B.1.b).(2).(a).(ii).(h) review of the autopsy report with a member of the faculty. (Core)

IV.B.1.b).(2).(b) Fellows must demonstrate competence in performing external examinations on cases that do not require an autopsy, including documenting pertinent findings and collecting appropriate biological samples. (Core)

IV.B.1.c) Medical Knowledge

Fellows must demonstrate knowledge of established and evolving biomedical, clinical, epidemiological and social-behavioral sciences, as well as the application of this knowledge to patient care. (Core)

IV.B.1.c).(1) Fellows must demonstrate competence in their knowledge of:

IV.B.1.c).(1).(a) common injury patterns seen in blunt trauma, sharp injury, firearms injury, transportation-related fatalities, asphyxial injuries, temperature and electrical injuries, and suspected child and elder abuse; (Core)

IV.B.1.c).(1).(b) the basic disciplines of forensic science and their relevance to death investigation systems; (Core)

IV.B.1.c).(1).(c) the causes and autopsy findings in cases of

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	sudden, unexpected natural deaths; (Core)
IV.B.1.c).(1).(d)	common postmortem changes, including decomposition patterns; (Core)
IV.B.1.c).(1).(e)	court standards on the admissibility of forensic techniques and expert testimony; (Core)
IV.B.1.c).(1).(f)	general principles of a medicolegal autopsy and biosafety; (Core)
IV.B.1.c).(1).(g)	proper documentation in medicolegal autopsies, including evidence recognition, collection, preservation, transport, storage, analysis, and chain-of-custody; and, (Core)
IV.B.1.c).(1).(h)	the statutory basis for medicolegal death investigation systems and requirements to serve as medical examiner, coroner, or forensic pathologist. (Core)

IV.B.1.d) Practice-based Learning and Improvement

Fellows must demonstrate the ability to investigate and evaluate their care of patients, to appraise and assimilate scientific evidence, and to continuously improve patient care based on constant self-evaluation and lifelong learning. (Core)

Background and Intent: Practice-based learning and improvement is one of the defining characteristics of being a physician. It is the ability to investigate and evaluate the care of patients, to appraise and assimilate scientific evidence, and to continuously improve patient care based on constant self-evaluation and lifelong learning.

The intention of this Competency is to help a fellow refine the habits of mind required to continuously pursue quality improvement, well past the completion of fellowship.

IV.B.1.e) Interpersonal and Communication Skills

Fellows must demonstrate interpersonal and communication skills that result in the effective exchange of information and collaboration with patients, their families, and health professionals. (Core)

IV.B.1.f) Systems-based Practice

Fellows must demonstrate an awareness of and responsiveness to the larger context and system of health care, including the social determinants of health, as well as the ability to call effectively on other resources to provide optimal health care. (Core)

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IV.C. Curriculum Organization and Fellow Experiences

IV.C.1. The curriculum must be structured to optimize fellow educational experiences, the length of these experiences, and supervisory continuity. (Core)

IV.C.1.a) There should be one faculty member who is responsible for the educational experience on each rotation to ensure supervisory continuity. (Core)

IV.C.2. The program must provide instruction and experience in pain management if applicable for the subspecialty, including recognition of the signs of addiction. (Core)

IV.C.3. Fellow experiences must be designed to allow appropriate faculty member supervision such that fellows progress to the performance of assigned clinical responsibilities under oversight in order to demonstrate their ability to enter the autonomous practice of forensic pathology prior to completion of the program. (Core)

IV.C.4. Fellows must devote at least four weeks to gain experience in the following:

IV.C.4.a) toxicology; (Core)

IV.C.4.b) physical anthropology; and, (Core)

IV.C.4.c) components of the crime laboratory, including firearms, serology, and trace evidence. (Core)

IV.C.5. Fellow experiences must include:

IV.C.5.a) supervision of trainees and/or laboratory personnel, and ~~graded~~ with graduated responsibility, including independent diagnoses and decision-making; (Core)

IV.C.5.b) scene investigations, including examination of a body before it has been disturbed; (Core)

IV.C.5.c) autopsies for cases that are likely to result in criminal prosecution or civil litigation; and, (Core)

IV.C.5.c).(1) Fellows must have opportunities to participate in the legal follow-up of cases occurring during the course of the fellowship. (Core)

IV.C.5.d) accompanying staff pathologists when they testify in court and give depositions. (Core)

IV.C.6. Fellows' clinical experience must be augmented through didactic

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sessions, review of the medical literature in the subspecialty area, and use of study sets of unusual cases. (Core)

IV.C.7. Fellows must keep a log of their experiences, to include autopsies, external examinations, crime scene visits, and opportunities to observe or provide court testimony. (Core)

IV.C.8. Fellows should participate in laboratory quality assurance activities and inspections. (Detail)

IV.D. Scholarship

Medicine is both an art and a science. The physician is a humanistic scientist who cares for patients. This requires the ability to think critically, evaluate the literature, appropriately assimilate new knowledge, and practice lifelong learning. The program and faculty must create an environment that fosters the acquisition of such skills through fellow participation in scholarly activities as defined in the subspecialty-specific Program Requirements. Scholarly activities may include discovery, integration, application, and teaching.

The ACGME recognizes the diversity of fellowships and anticipates that programs prepare physicians for a variety of roles, including clinicians, scientists, and educators. It is expected that the program's scholarship will reflect its mission(s) and aims, and the needs of the community it serves. For example, some programs may concentrate their scholarly activity on quality improvement, population health, and/or teaching, while other programs might choose to utilize more classic forms of biomedical research as the focus for scholarship.

IV.D.1. Program Responsibilities

IV.D.1.a) The program must demonstrate evidence of scholarly activities, consistent with its mission(s) and aims. (Core)

IV.D.1.b) The program in partnership with its Sponsoring Institution, must allocate adequate resources to facilitate fellow and faculty involvement in scholarly activities. (Core)

IV.D.2. Faculty Scholarly Activity

IV.D.2.a) Among their scholarly activity, programs must demonstrate accomplishments in at least three of the following domains: (Core)

- **Research in basic science, education, translational science, patient care, or population health**
- **Peer-reviewed grants**
- **Quality improvement and/or patient safety initiatives**

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- **Systematic reviews, meta-analyses, review articles, chapters in medical textbooks, or case reports**
- **Creation of curricula, evaluation tools, didactic educational activities, or electronic educational materials**
- **Contribution to professional committees, educational organizations, or editorial boards**
- **Innovations in education**

IV.D.2.b) **The program must demonstrate dissemination of scholarly activity within and external to the program by the following methods:**

Background and Intent: For the purposes of education, metrics of scholarly activity represent one of the surrogates for the program's effectiveness in the creation of an environment of inquiry that advances the fellows' scholarly approach to patient care. The Review Committee will evaluate the dissemination of scholarship for the program as a whole, not for individual faculty members, for a five-year interval, for both core and non-core faculty members, with the goal of assessing the effectiveness of the creation of such an environment. The ACGME recognizes that there may be differences in scholarship requirements between different specialties and between residencies and fellowships in the same specialty.

IV.D.2.b).(1) **faculty participation in grand rounds, posters, workshops, quality improvement presentations, podium presentations, grant leadership, non-peer-reviewed print/electronic resources, articles or publications, book chapters, textbooks, webinars, service on professional committees, or serving as a journal reviewer, journal editorial board member, or editor; (Outcome)‡**

IV.D.2.b).(2) **peer-reviewed publication. (Outcome)**

IV.D.3. **Fellow Scholarly Activity**

IV.D.3.a) Each fellow must participate in scholarly activity, including at least one of the following: (Core)

IV.D.3.a).(1) evidence-based presentations at journal clubs or meetings (local, regional, or national); (Core)

IV.D.3.a).(2) preparation and submission of articles for peer-reviewed publications; or, (Core)

IV.D.3.a).(3) research. (Core)

V. Evaluation

V.A. Fellow Evaluation

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V.A.1. Feedback and Evaluation

Background and Intent: Feedback is ongoing information provided regarding aspects of one's performance, knowledge, or understanding. The faculty empower fellows to provide much of that feedback themselves in a spirit of continuous learning and self-reflection. Feedback from faculty members in the context of routine clinical care should be frequent, and need not always be formally documented.

Formative and summative evaluation have distinct definitions. Formative evaluation is *monitoring fellow learning* and providing ongoing feedback that can be used by fellows to improve their learning in the context of provision of patient care or other educational opportunities. More specifically, formative evaluations help:

- **fellows identify their strengths and weaknesses and target areas that need work**
- **program directors and faculty members recognize where fellows are struggling and address problems immediately**

Summative evaluation is *evaluating a fellow's learning* by comparing the fellows against the goals and objectives of the rotation and program, respectively. Summative evaluation is utilized to make decisions about promotion to the next level of training, or program completion.

End-of-rotation and end-of-year evaluations have both summative and formative components. Information from a summative evaluation can be used formatively when fellows or faculty members use it to guide their efforts and activities in subsequent rotations and to successfully complete the fellowship program.

Feedback, formative evaluation, and summative evaluation compare intentions with accomplishments, enabling the transformation of a new specialist to one with growing subspecialty expertise.

V.A.1.a) **Faculty members must directly observe, evaluate, and frequently provide feedback on fellow performance during each rotation or similar educational assignment.** (Core)

~~V.A.1.a).(1)~~ ~~Faculty members must evaluate fellow performance at least semi-annually.~~ (Core)

V.A.1.a).(2) Assessment should include the quarterly review of the log of fellow experience in autopsies, external examinations, crime scene visits, and the observation and/or provision of court testimony. (Detail)

Background and Intent: Faculty members should provide feedback frequently throughout the course of each rotation. Fellows require feedback from faculty members to reinforce well-performed duties and tasks, as well as to correct deficiencies. This feedback will allow for the development of the learner as they strive to achieve the Milestones. More frequent feedback is strongly encouraged for fellows who have deficiencies that may result in a poor final rotation evaluation.

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V.A.1.b) Evaluation must be documented at the completion of the assignment. (Core)

V.A.1.b).(1) For block rotations of greater than three months in duration, evaluation must be documented at least every three months. (Core)

V.A.1.b).(2) Longitudinal experiences such as continuity clinic in the context of other clinical responsibilities must be evaluated at least every three months and at completion. (Core)

V.A.1.c) The program must provide an objective performance evaluation based on the Competencies and the subspecialty-specific Milestones, and must: (Core)

V.A.1.c).(1) use multiple evaluators (e.g., faculty members, peers, patients, self, and other professional staff members); and, (Core)

V.A.1.c).(2) provide that information to the Clinical Competency Committee for its synthesis of progressive fellow performance and improvement toward unsupervised practice. (Core)

Background and Intent: The trajectory to autonomous practice in a subspecialty is documented by the subspecialty-specific Milestones evaluation during fellowship. These Milestones detail the progress of a fellow in attaining skill in each competency domain. It is expected that the most growth in fellowship education occurs in patient care and medical knowledge, while the other four domains of competency must be ensured in the context of the subspecialty. They are developed by a subspecialty group and allow evaluation based on observable behaviors. The Milestones are considered formative and should be used to identify learning needs. This may lead to focused or general curricular revision in any given program or to individualized learning plans for any specific fellow.

V.A.1.d) The program director or their designee, with input from the Clinical Competency Committee, must:

V.A.1.d).(1) meet with and review with each fellow their documented semi-annual evaluation of performance, including progress along the subspecialty-specific Milestones. (Core)

V.A.1.d).(2) assist fellows in developing individualized learning plans to capitalize on their strengths and identify areas for growth; and, (Core)

V.A.1.d).(3) develop plans for fellows failing to progress, following institutional policies and procedures. (Core)

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Background and Intent: Learning is an active process that requires effort from the teacher and the learner. Faculty members evaluate a fellow's performance at least at the end of each rotation. The program director or their designee will review those evaluations, including their progress on the Milestones, at a minimum of every six months. Fellows should be encouraged to reflect upon the evaluation, using the information to reinforce well-performed tasks or knowledge or to modify deficiencies in knowledge or practice. Working together with the faculty members, fellows should develop an individualized learning plan.

Fellows who are experiencing difficulties with achieving progress along the Milestones may require intervention to address specific deficiencies. Such intervention, documented in an individual remediation plan developed by the program director or a faculty mentor and the fellow, will take a variety of forms based on the specific learning needs of the fellow. However, the ACGME recognizes that there are situations which require more significant intervention that may alter the time course of fellow progression. To ensure due process, it is essential that the program director follow institutional policies and procedures.

V.A.1.e) At least annually, there must be a summative evaluation of each fellow that includes their readiness to progress to the next year of the program, if applicable. (Core)

V.A.1.f) The evaluations of a fellow's performance must be accessible for review by the fellow. (Core)

V.A.2. Final Evaluation

V.A.2.a) The program director must provide a final evaluation for each fellow upon completion of the program. (Core)

V.A.2.a).(1) The subspecialty-specific Milestones, and when applicable the subspecialty-specific Case Logs, must be used as tools to ensure fellows are able to engage in autonomous practice upon completion of the program. (Core)

V.A.2.a).(2) The final evaluation must:

V.A.2.a).(2).(a) become part of the fellow's permanent record maintained by the institution, and must be accessible for review by the fellow in accordance with institutional policy; (Core)

V.A.2.a).(2).(b) verify that the fellow has demonstrated the knowledge, skills, and behaviors necessary to enter autonomous practice; (Core)

V.A.2.a).(2).(c) consider recommendations from the Clinical Competency Committee; and, (Core)

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V.A.2.a).(2).(d) be shared with the fellow upon completion of the program. (Core)

V.A.3. A Clinical Competency Committee must be appointed by the program director. (Core)

V.A.3.a) At a minimum the Clinical Competency Committee must include three members, at least one of whom is a core faculty member. Members must be faculty members from the same program or other programs, or other health professionals who have extensive contact and experience with the program's fellows. (Core)

V.A.3.b) The Clinical Competency Committee must:

V.A.3.b).(1) review all fellow evaluations at least semi-annually; (Core)

V.A.3.b).(2) determine each fellow's progress on achievement of the subspecialty-specific Milestones; and, (Core)

V.A.3.b).(3) meet prior to the fellows' semi-annual evaluations and advise the program director regarding each fellow's progress. (Core)

V.B. Faculty Evaluation

V.B.1. The program must have a process to evaluate each faculty member's performance as it relates to the educational program at least annually. (Core)

Background and Intent: The program director is responsible for the education program and for whom delivers it. While the term faculty may be applied to physicians within a given institution for other reasons, it is applied to fellowship program faculty members only through approval by a program director. The development of the faculty improves the education, clinical, and research aspects of a program. Faculty members have a strong commitment to the fellow and desire to provide optimal education and work opportunities. Faculty members must be provided feedback on their contribution to the mission of the program. All faculty members who interact with fellows desire feedback on their education, clinical care, and research. If a faculty member does not interact with fellows, feedback is not required. With regard to the diverse operating environments and configurations, the fellowship program director may need to work with others to determine the effectiveness of the program's faculty performance with regard to their role in the educational program. All teaching faculty members should have their educational efforts evaluated by the fellows in a confidential and anonymous manner. Other aspects for the feedback may include research or clinical productivity, review of patient outcomes, or peer review of scholarly activity. The process should reflect the local environment and identify the necessary information. The feedback from the various sources should be summarized and provided to the faculty on an annual basis by a member of the leadership team of the program.

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V.B.1.a) This evaluation must include a review of the faculty member's clinical teaching abilities, engagement with the educational program, participation in faculty development related to their skills as an educator, clinical performance, professionalism, and scholarly activities. (Core)

V.B.1.b) This evaluation must include written, confidential evaluations by the fellows. (Core)

V.B.2. Faculty members must receive feedback on their evaluations at least annually. (Core)

V.B.3. Results of the faculty educational evaluations should be incorporated into program-wide faculty development plans. (Core)

Background and Intent: The quality of the faculty's teaching and clinical care is a determinant of the quality of the program and the quality of the fellows' future clinical care. Therefore, the program has the responsibility to evaluate and improve the program faculty members' teaching, scholarship, professionalism, and quality care. This section mandates annual review of the program's faculty members for this purpose, and can be used as input into the Annual Program Evaluation.

V.C. Program Evaluation and Improvement

V.C.1. The program director must appoint the Program Evaluation Committee to conduct and document the Annual Program Evaluation as part of the program's continuous improvement process. (Core)

V.C.1.a) The Program Evaluation Committee must be composed of at least two program faculty members, at least one of whom is a core faculty member, and at least one fellow. (Core)

V.C.1.b) Program Evaluation Committee responsibilities must include:

V.C.1.b).(1) acting as an advisor to the program director, through program oversight; (Core)

V.C.1.b).(2) review of the program's self-determined goals and progress toward meeting them; (Core)

V.C.1.b).(3) guiding ongoing program improvement, including development of new goals, based upon outcomes; and, (Core)

V.C.1.b).(4) review of the current operating environment to identify strengths, challenges, opportunities, and threats as related to the program's mission and aims. (Core)

Background and Intent: In order to achieve its mission and train quality physicians, a program must evaluate its performance and plan for improvement in the Annual

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Program Evaluation. Performance of fellows and faculty members is a reflection of program quality, and can use metrics that reflect the goals that a program has set for itself. The Program Evaluation Committee utilizes outcome parameters and other data to assess the program's progress toward achievement of its goals and aims.

V.C.1.c) **The Program Evaluation Committee should consider the following elements in its assessment of the program:**

V.C.1.c).(1) **curriculum;** (Core)

V.C.1.c).(2) **outcomes from prior Annual Program Evaluation(s);** (Core)

V.C.1.c).(3) **ACGME letters of notification, including citations, Areas for Improvement, and comments;** (Core)

V.C.1.c).(4) **quality and safety of patient care;** (Core)

V.C.1.c).(5) **aggregate fellow and faculty:**

V.C.1.c).(5).(a) **well-being;** (Core)

V.C.1.c).(5).(b) **recruitment and retention;** (Core)

V.C.1.c).(5).(c) **workforce diversity;** (Core)

V.C.1.c).(5).(d) **engagement in quality improvement and patient safety;** (Core)

V.C.1.c).(5).(e) **scholarly activity;** (Core)

V.C.1.c).(5).(f) **ACGME Resident/Fellow and Faculty Surveys (where applicable); and,** (Core)

V.C.1.c).(5).(g) **written evaluations of the program.** (Core)

V.C.1.c).(6) **aggregate fellow:**

V.C.1.c).(6).(a) **achievement of the Milestones;** (Core)

V.C.1.c).(6).(b) **in-training examinations (where applicable);** (Core)

V.C.1.c).(6).(c) **board pass and certification rates; and,** (Core)

V.C.1.c).(6).(d) **graduate performance.** (Core)

V.C.1.c).(7) **aggregate faculty:**

V.C.1.c).(7).(a) **evaluation; and,** (Core)

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V.C.1.c).(7).(b) professional development (Core)

V.C.1.d) The Program Evaluation Committee must evaluate the program's mission and aims, strengths, areas for improvement, and threats. (Core)

V.C.1.e) The annual review, including the action plan, must:

V.C.1.e).(1) be distributed to and discussed with the members of the teaching faculty and the fellows; and, (Core)

V.C.1.e).(2) be submitted to the DIO. (Core)

V.C.2. The program must participate in a Self-Study prior to its 10-Year Accreditation Site Visit. (Core)

V.C.2.a) A summary of the Self-Study must be submitted to the DIO. (Core)

Background and Intent: Outcomes of the documented Annual Program Evaluation can be integrated into the 10-year Self-Study process. The Self-Study is an objective, comprehensive evaluation of the fellowship program, with the aim of improving it. Underlying the Self-Study is this longitudinal evaluation of the program and its learning environment, facilitated through sequential Annual Program Evaluations that focus on the required components, with an emphasis on program strengths and self-identified areas for improvement. Details regarding the timing and expectations for the Self-Study and the 10-Year Accreditation Site Visit are provided in the *ACGME Manual of Policies and Procedures*. Additionally, a description of the Self-Study process, as well as information on how to prepare for the 10-Year Accreditation Site Visit, is available on the ACGME website.

V.C.3. ***One goal of ACGME-accredited education is to educate physicians who seek and achieve board certification. One measure of the effectiveness of the educational program is the ultimate pass rate.***

The program director should encourage all eligible program graduates to take the certifying examination offered by the applicable American Board of Medical Specialties (ABMS) member board or American Osteopathic Association (AOA) certifying board.

V.C.3.a) For subspecialties in which the ABMS member board and/or AOA certifying board offer(s) an annual written exam, in the preceding three years, the program's aggregate pass rate of those taking the examination for the first time must be higher than the bottom fifth percentile of programs in that subspecialty. (Outcome)

V.C.3.b) For subspecialties in which the ABMS member board and/or AOA certifying board offer(s) a biennial written exam, in the preceding six years, the program's aggregate pass rate of those taking the examination for the first time must be higher

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than the bottom fifth percentile of programs in that subspecialty. (Outcome)

V.C.3.c) **For subspecialties in which the ABMS member board and/or AOA certifying board offer(s) an annual oral exam, in the preceding three years, the program's aggregate pass rate of those taking the examination for the first time must be higher than the bottom fifth percentile of programs in that subspecialty.** (Outcome)

V.C.3.d) **For subspecialties in which the ABMS member board and/or AOA certifying board offer(s) a biennial oral exam, in the preceding six years, the program's aggregate pass rate of those taking the examination for the first time must be higher than the bottom fifth percentile of programs in that subspecialty.** (Outcome)

V.C.3.e) **For each of the exams referenced in V.C.3.a)-d), any program whose graduates over the time period specified in the requirement have achieved an 80 percent pass rate will have met this requirement, no matter the percentile rank of the program for pass rate in that subspecialty.** (Outcome)

Background and Intent: Setting a single standard for pass rate that works across subspecialties is not supportable based on the heterogeneity of the psychometrics of different examinations. By using a percentile rank, the performance of the lower five percent (fifth percentile) of programs can be identified and set on a path to curricular and test preparation reform.

There are subspecialties where there is a very high board pass rate that could leave successful programs in the bottom five percent (fifth percentile) despite admirable performance. These high-performing programs should not be cited, and V.C.3.e) is designed to address this.

V.C.3.f) **Programs must report, in ADS, board certification status annually for the cohort of board-eligible fellows that graduated seven years earlier.** (Core)

Background and Intent: It is essential that fellowship programs demonstrate knowledge and skill transfer to their fellows. One measure of that is the qualifying or initial certification exam pass rate. Another important parameter of the success of the program is the ultimate board certification rate of its graduates. Graduates are eligible for up to seven years from fellowship graduation for initial certification. The ACGME will calculate a rolling three-year average of the ultimate board certification rate at seven years post-graduation, and the Review Committees will monitor it.

The Review Committees will track the rolling seven-year certification rate as an indicator of program quality. Programs are encouraged to monitor their graduates' performance on board certification examinations.

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In the future, the ACGME may establish parameters related to ultimate board certification rates.

VI. The Learning and Working Environment

Fellowship education must occur in the context of a learning and working environment that emphasizes the following principles:

- ***Excellence in the safety and quality of care rendered to patients by fellows today***
- ***Excellence in the safety and quality of care rendered to patients by today's fellows in their future practice***
- ***Excellence in professionalism through faculty modeling of:***
  - ***the effacement of self-interest in a humanistic environment that supports the professional development of physicians***
  - ***the joy of curiosity, problem-solving, intellectual rigor, and discovery***
- ***Commitment to the well-being of the students, residents, fellows, faculty members, and all members of the health care team***

Background and Intent: The revised requirements are intended to provide greater flexibility within an established framework, allowing programs and fellows more discretion to structure clinical education in a way that best supports the above principles of professional development. With this increased flexibility comes the responsibility for programs and fellows to adhere to the 80-hour maximum weekly limit (unless a rotation-specific exception is granted by a Review Committee), and to utilize flexibility in a manner that optimizes patient safety, fellow education, and fellow well-being. The requirements are intended to support the development of a sense of professionalism by encouraging fellows to make decisions based on patient needs and their own well-being, without fear of jeopardizing their program's accreditation status. In addition, the proposed requirements eliminate the burdensome documentation requirement for fellows to justify clinical and educational work hour variations.

Clinical and educational work hours represent only one part of the larger issue of conditions of the learning and working environment, and Section VI has now been expanded to include greater attention to patient safety and fellow and faculty member well-being. The requirements are intended to support programs and fellows as they strive for excellence, while also ensuring ethical, humanistic training. Ensuring that flexibility is used in an appropriate manner is a shared responsibility of the program and fellows. With this flexibility comes a responsibility for fellows and faculty members to recognize the need to hand off care of a patient to another provider when a fellow is too fatigued to provide safe, high quality care and for programs to ensure that fellows remain within the 80-hour maximum weekly limit.

VI.A. Patient Safety, Quality Improvement, Supervision, and Accountability

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VI.A.1. **Patient Safety and Quality Improvement**

All physicians share responsibility for promoting patient safety and enhancing quality of patient care. Graduate medical education must prepare fellows to provide the highest level of clinical care with continuous focus on the safety, individual needs, and humanity of their patients. It is the right of each patient to be cared for by fellows who are appropriately supervised; possess the requisite knowledge, skills, and abilities; understand the limits of their knowledge and experience; and seek assistance as required to provide optimal patient care.

Fellows must demonstrate the ability to analyze the care they provide, understand their roles within health care teams, and play an active role in system improvement processes. Graduating fellows will apply these skills to critique their future unsupervised practice and effect quality improvement measures.

It is necessary for fellows and faculty members to consistently work in a well-coordinated manner with other health care professionals to achieve organizational patient safety goals.

VI.A.1.a) **Patient Safety**

VI.A.1.a).(1) **Culture of Safety**

A culture of safety requires continuous identification of vulnerabilities and a willingness to transparently deal with them. An effective organization has formal mechanisms to assess the knowledge, skills, and attitudes of its personnel toward safety in order to identify areas for improvement.

VI.A.1.a).(1).(a) **The program, its faculty, residents, and fellows must actively participate in patient safety systems and contribute to a culture of safety.** (Core)

VI.A.1.a).(1).(b) **The program must have a structure that promotes safe, interprofessional, team-based care.** (Core)

VI.A.1.a).(2) **Education on Patient Safety**

Programs must provide formal educational activities that promote patient safety-related goals, tools, and techniques. (Core)

Background and Intent: Optimal patient safety occurs in the setting of a coordinated interprofessional learning and working environment.

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VI.A.1.a).(3) **Patient Safety Events**

Reporting, investigation, and follow-up of adverse events, near misses, and unsafe conditions are pivotal mechanisms for improving patient safety, and are essential for the success of any patient safety program. Feedback and experiential learning are essential to developing true competence in the ability to identify causes and institute sustainable systems-based changes to ameliorate patient safety vulnerabilities.

VI.A.1.a).(3).(a) **Residents, fellows, faculty members, and other clinical staff members must:**

VI.A.1.a).(3).(a).(i) **know their responsibilities in reporting patient safety events at the clinical site; (Core)**

VI.A.1.a).(3).(a).(ii) **know how to report patient safety events, including near misses, at the clinical site; and, (Core)**

VI.A.1.a).(3).(a).(iii) **be provided with summary information of their institution's patient safety reports. (Core)**

VI.A.1.a).(3).(b) **Fellows must participate as team members in real and/or simulated interprofessional clinical patient safety activities, such as root cause analyses or other activities that include analysis, as well as formulation and implementation of actions. (Core)**

VI.A.1.a).(4) **Fellow Education and Experience in Disclosure of Adverse Events**

Patient-centered care requires patients, and when appropriate families, to be apprised of clinical situations that affect them, including adverse events. This is an important skill for faculty physicians to model, and for fellows to develop and apply.

VI.A.1.a).(4).(a) **All fellows must receive training in how to disclose adverse events to patients and families. (Core)**

VI.A.1.a).(4).(b) **Fellows should have the opportunity to participate in the disclosure of patient safety events, real or simulated. (Detail)**

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VI.A.1.b) **Quality Improvement**

VI.A.1.b).(1) **Education in Quality Improvement**

A cohesive model of health care includes quality-related goals, tools, and techniques that are necessary in order for health care professionals to achieve quality improvement goals.

VI.A.1.b).(1).(a) **Fellows must receive training and experience in quality improvement processes, including an understanding of health care disparities.** (Core)

VI.A.1.b).(2) **Quality Metrics**

Access to data is essential to prioritizing activities for care improvement and evaluating success of improvement efforts.

VI.A.1.b).(2).(a) **Fellows and faculty members must receive data on quality metrics and benchmarks related to their patient populations.** (Core)

VI.A.1.b).(3) **Engagement in Quality Improvement Activities**

Experiential learning is essential to developing the ability to identify and institute sustainable systems-based changes to improve patient care.

VI.A.1.b).(3).(a) **Fellows must have the opportunity to participate in interprofessional quality improvement activities.** (Core)

VI.A.1.b).(3).(a).(i) **This should include activities aimed at reducing health care disparities.** (Detail)

VI.A.2. **Supervision and Accountability**

VI.A.2.a) ***Although the attending physician is ultimately responsible for the care of the patient, every physician shares in the responsibility and accountability for their efforts in the provision of care. Effective programs, in partnership with their Sponsoring Institutions, define, widely communicate, and monitor a structured chain of responsibility and accountability as it relates to the supervision of all patient care.***

Supervision in the setting of graduate medical education provides safe and effective care to patients; ensures each fellow's development of the skills, knowledge, and attitudes

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required to enter the unsupervised practice of medicine; and establishes a foundation for continued professional growth.

VI.A.2.a).(1) **Each patient must have an identifiable and appropriately-credentialed and privileged attending physician (or licensed independent practitioner as specified by the applicable Review Committee) who is responsible and accountable for the patient's care.** (Core)

VI.A.2.a).(1).(a) **This information must be available to fellows, faculty members, other members of the health care team, and patients.** (Core)

VI.A.2.a).(1).(b) **Fellows and faculty members must inform each patient of their respective roles in that patient's care when providing direct patient care.** (Core)

VI.A.2.b) *Supervision may be exercised through a variety of methods. For many aspects of patient care, the supervising physician may be a more advanced fellow. Other portions of care provided by the fellow can be adequately supervised by the appropriate availability of the supervising faculty member or fellow, either on site or by means of telecommunication technology. Some activities require the physical presence of the supervising faculty member. In some circumstances, supervision may include post-hoc review of fellow-delivered care with feedback.*

Background and Intent: There are circumstances where direct supervision without physical presence does not fulfill the requirements of the specific Review Committee. Review Committees will further specify what is meant by direct supervision without physical presence in specialties where allowed. "Physically present" is defined as follows: The teaching physician is located in the same room (or partitioned or curtained area, if the room is subdivided to accommodate multiple patients) as the patient and/or performs a face-to-face service.

VI.A.2.b).(1) **The program must demonstrate that the appropriate level of supervision in place for all fellows is based on each fellow's level of training and ability, as well as patient complexity and acuity. Supervision may be exercised through a variety of methods, as appropriate to the situation.** (Core)

VI.A.2.b).(2) **The program must define when physical presence of a supervising physician is required.** (Core)

VI.A.2.c) **Levels of Supervision**

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To promote appropriate fellow supervision while providing for graded authority and responsibility, the program must use the following classification of supervision: (Core)

VI.A.2.c).(1) **Direct Supervision:**

VI.A.2.c).(1).(a) **the supervising physician is physically present with the fellow during the key portions of the patient interaction.** (Core)

VI.A.2.c).(2) **Indirect Supervision: the supervising physician is not providing physical or concurrent visual or audio supervision but is immediately available to the fellow for guidance and is available to provide appropriate direct supervision.** (Core)

VI.A.2.c).(3) **Oversight – the supervising physician is available to provide review of procedures/encounters with feedback provided after care is delivered.** (Core)

VI.A.2.d) **The privilege of progressive authority and responsibility, conditional independence, and a supervisory role in patient care delegated to each fellow must be assigned by the program director and faculty members.** (Core)

VI.A.2.d).(1) **The program director must evaluate each fellow's abilities based on specific criteria, guided by the Milestones.** (Core)

VI.A.2.d).(2) **Faculty members functioning as supervising physicians must delegate portions of care to fellows based on the needs of the patient and the skills of each fellow.** (Core)

VI.A.2.d).(3) **Fellows should serve in a supervisory role to junior fellows and residents in recognition of their progress toward independence, based on the needs of each patient and the skills of the individual resident or fellow.** (Detail)

VI.A.2.e) **Programs must set guidelines for circumstances and events in which fellows must communicate with the supervising faculty member(s).** (Core)

VI.A.2.e).(1) **Each fellow must know the limits of their scope of authority, and the circumstances under which the fellow is permitted to act with conditional independence.** (Outcome)

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Background and Intent: The ACGME Glossary of Terms defines conditional independence as: Graded, progressive responsibility for patient care with defined oversight.

VI.A.2.f) Faculty supervision assignments must be of sufficient duration to assess the knowledge and skills of each fellow and to delegate to the fellow the appropriate level of patient care authority and responsibility. (Core)

VI.B. Professionalism

VI.B.1. Programs, in partnership with their Sponsoring Institutions, must educate fellows and faculty members concerning the professional responsibilities of physicians, including their obligation to be appropriately rested and fit to provide the care required by their patients. (Core)

VI.B.2. The learning objectives of the program must:

VI.B.2.a) be accomplished through an appropriate blend of supervised patient care responsibilities, clinical teaching, and didactic educational events; (Core)

VI.B.2.b) be accomplished without excessive reliance on fellows to fulfill non-physician obligations; and, (Core)

Background and Intent: Routine reliance on fellows to fulfill non-physician obligations increases work compression for fellows and does not provide an optimal educational experience. Non-physician obligations are those duties which in most institutions are performed by nursing and allied health professionals, transport services, or clerical staff. Examples of such obligations include transport of patients from the wards or units for procedures elsewhere in the hospital; routine blood drawing for laboratory tests; routine monitoring of patients when off the ward; and clerical duties, such as scheduling. While it is understood that fellows may be expected to do any of these things on occasion when the need arises, these activities should not be performed by fellows routinely and must be kept to a minimum to optimize fellow education.

VI.B.2.c) ensure manageable patient care responsibilities. (Core)

Background and Intent: The Common Program Requirements do not define "manageable patient care responsibilities" as this is variable by specialty and PGY level. Review Committees will provide further detail regarding patient care responsibilities in the applicable specialty-specific Program Requirements and accompanying FAQs. However, all programs, regardless of specialty, should carefully assess how the assignment of patient care responsibilities can affect work compression.

VI.B.3. The program director, in partnership with the Sponsoring Institution, must provide a culture of professionalism that supports patient safety and personal responsibility. (Core)

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VI.B.4. **Fellows and faculty members must demonstrate an understanding of their personal role in the:**

VI.B.4.a) **provision of patient- and family-centered care; (Outcome)**

VI.B.4.b) **safety and welfare of patients entrusted to their care, including the ability to report unsafe conditions and adverse events; (Outcome)**

Background and Intent: This requirement emphasizes that responsibility for reporting unsafe conditions and adverse events is shared by all members of the team and is not solely the responsibility of the fellow.

VI.B.4.c) **assurance of their fitness for work, including: (Outcome)**

Background and Intent: This requirement emphasizes the professional responsibility of faculty members and fellows to arrive for work adequately rested and ready to care for patients. It is also the responsibility of faculty members, fellows, and other members of the care team to be observant, to intervene, and/or to escalate their concern about fellow and faculty member fitness for work, depending on the situation, and in accordance with institutional policies.

VI.B.4.c).(1) **management of their time before, during, and after clinical assignments; and, (Outcome)**

VI.B.4.c).(2) **recognition of impairment, including from illness, fatigue, and substance use, in themselves, their peers, and other members of the health care team. (Outcome)**

VI.B.4.d) **commitment to lifelong learning; (Outcome)**

VI.B.4.e) **monitoring of their patient care performance improvement indicators; and, (Outcome)**

VI.B.4.f) **accurate reporting of clinical and educational work hours, patient outcomes, and clinical experience data. (Outcome)**

VI.B.5. **All fellows and faculty members must demonstrate responsiveness to patient needs that supersedes self-interest. This includes the recognition that under certain circumstances, the best interests of the patient may be served by transitioning that patient's care to another qualified and rested provider. (Outcome)**

VI.B.6. **Programs, in partnership with their Sponsoring Institutions, must provide a professional, equitable, respectful, and civil environment that is free from discrimination, sexual and other forms of harassment, mistreatment, abuse, or coercion of students, fellows, faculty, and staff. (Core)**

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VI.B.7. **Programs, in partnership with their Sponsoring Institutions, should have a process for education of fellows and faculty regarding unprofessional behavior and a confidential process for reporting, investigating, and addressing such concerns.** (Core)

VI.C. Well-Being

Psychological, emotional, and physical well-being are critical in the development of the competent, caring, and resilient physician and require proactive attention to life inside and outside of medicine. Well-being requires that physicians retain the joy in medicine while managing their own real life stresses. Self-care and responsibility to support other members of the health care team are important components of professionalism; they are also skills that must be modeled, learned, and nurtured in the context of other aspects of fellowship training.

Fellows and faculty members are at risk for burnout and depression. Programs, in partnership with their Sponsoring Institutions, have the same responsibility to address well-being as other aspects of resident competence. Physicians and all members of the health care team share responsibility for the well-being of each other. For example, a culture which encourages covering for colleagues after an illness without the expectation of reciprocity reflects the ideal of professionalism. A positive culture in a clinical learning environment models constructive behaviors, and prepares fellows with the skills and attitudes needed to thrive throughout their careers.

Background and Intent: The ACGME is committed to addressing physician well-being for individuals and as it relates to the learning and working environment. The creation of a learning and working environment with a culture of respect and accountability for physician well-being is crucial to physicians' ability to deliver the safest, best possible care to patients. The ACGME is leveraging its resources in four key areas to support the ongoing focus on physician well-being: education, influence, research, and collaboration. Information regarding the ACGME's ongoing efforts in this area is available on the ACGME website.

As these efforts evolve, information will be shared with programs seeking to develop and/or strengthen their own well-being initiatives. In addition, there are many activities that programs can utilize now to assess and support physician well-being. These include culture of safety surveys, ensuring the availability of counseling services, and attention to the safety of the entire health care team.

VI.C.1. **The responsibility of the program, in partnership with the Sponsoring Institution, to address well-being must include:**

VI.C.1.a) **efforts to enhance the meaning that each fellow finds in the experience of being a physician, including protecting time with patients, minimizing non-physician obligations, providing administrative support, promoting progressive autonomy and flexibility, and enhancing professional relationships;** (Core)

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VI.C.1.b) attention to scheduling, work intensity, and work compression that impacts fellow well-being; (Core)

VI.C.1.c) evaluating workplace safety data and addressing the safety of fellows and faculty members; (Core)

Background and Intent: This requirement emphasizes the responsibility shared by the Sponsoring Institution and its programs to gather information and utilize systems that monitor and enhance fellow and faculty member safety, including physical safety. Issues to be addressed include, but are not limited to, monitoring of workplace injuries, physical or emotional violence, vehicle collisions, and emotional well-being after adverse events.

VI.C.1.d) policies and programs that encourage optimal fellow and faculty member well-being; and, (Core)

Background and Intent: Well-being includes having time away from work to engage with family and friends, as well as to attend to personal needs and to one's own health, including adequate rest, healthy diet, and regular exercise.

VI.C.1.d).(1) Fellows must be given the opportunity to attend medical, mental health, and dental care appointments, including those scheduled during their working hours. (Core)

Background and Intent: The intent of this requirement is to ensure that fellows have the opportunity to access medical and dental care, including mental health care, at times that are appropriate to their individual circumstances. Fellows must be provided with time away from the program as needed to access care, including appointments scheduled during their working hours.

VI.C.1.e) attention to fellow and faculty member burnout, depression, and substance abuse. The program, in partnership with its Sponsoring Institution, must educate faculty members and fellows in identification of the symptoms of burnout, depression, and substance abuse, including means to assist those who experience these conditions. Fellows and faculty members must also be educated to recognize those symptoms in themselves and how to seek appropriate care. The program, in partnership with its Sponsoring Institution, must: (Core)

Background and Intent: Programs and Sponsoring Institutions are encouraged to review materials in order to create systems for identification of burnout, depression, and substance abuse. Materials and more information are available on the Physician Well-being section of the ACGME website (http://www.acgme.org/What-We-Do/Initiatives/Physician-Well-Being).

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VI.C.1.e).(1) encourage fellows and faculty members to alert the program director or other designated personnel or programs when they are concerned that another fellow, resident, or faculty member may be displaying signs of burnout, depression, substance abuse, suicidal ideation, or potential for violence; (Core)

Background and Intent: Individuals experiencing burnout, depression, substance abuse, and/or suicidal ideation are often reluctant to reach out for help due to the stigma associated with these conditions, and are concerned that seeking help may have a negative impact on their career. Recognizing that physicians are at increased risk in these areas, it is essential that fellows and faculty members are able to report their concerns when another fellow or faculty member displays signs of any of these conditions, so that the program director or other designated personnel, such as the department chair, may assess the situation and intervene as necessary to facilitate access to appropriate care. Fellows and faculty members must know which personnel, in addition to the program director, have been designated with this responsibility; those personnel and the program director should be familiar with the institution's impaired physician policy and any employee health, employee assistance, and/or wellness programs within the institution. In cases of physician impairment, the program director or designated personnel should follow the policies of their institution for reporting.

VI.C.1.e).(2) provide access to appropriate tools for self-screening; and, (Core)

VI.C.1.e).(3) provide access to confidential, affordable mental health assessment, counseling, and treatment, including access to urgent and emergent care 24 hours a day, seven days a week. (Core)

Background and Intent: The intent of this requirement is to ensure that fellows have immediate access at all times to a mental health professional (psychiatrist, psychologist, Licensed Clinical Social Worker, Primary Mental Health Nurse Practitioner, or Licensed Professional Counselor) for urgent or emergent mental health issues. In-person, telemedicine, or telephonic means may be utilized to satisfy this requirement. Care in the Emergency Department may be necessary in some cases, but not as the primary or sole means to meet the requirement.

The reference to affordable counseling is intended to require that financial cost not be a barrier to obtaining care.

VI.C.2. There are circumstances in which fellows may be unable to attend work, including but not limited to fatigue, illness, family emergencies, and parental leave. Each program must allow an appropriate length of absence for fellows unable to perform their patient care responsibilities. (Core)

VI.C.2.a) The program must have policies and procedures in place to ensure coverage of patient care. (Core)

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VI.C.2.b) These policies must be implemented without fear of negative consequences for the fellow who is or was unable to provide the clinical work. (Core)

Background and Intent: Fellows may need to extend their length of training depending on length of absence and specialty board eligibility requirements. Teammates should assist colleagues in need and equitably reintegrate them upon return.

VI.D. Fatigue Mitigation

VI.D.1. Programs must:

VI.D.1.a) educate all faculty members and fellows to recognize the signs of fatigue and sleep deprivation; (Core)

VI.D.1.b) educate all faculty members and fellows in alertness management and fatigue mitigation processes; and, (Core)

VI.D.1.c) encourage fellows to use fatigue mitigation processes to manage the potential negative effects of fatigue on patient care and learning. (Detail)

Background and Intent: Providing medical care to patients is physically and mentally demanding. Night shifts, even for those who have had enough rest, cause fatigue. Experiencing fatigue in a supervised environment during training prepares fellows for managing fatigue in practice. It is expected that programs adopt fatigue mitigation processes and ensure that there are no negative consequences and/or stigma for using fatigue mitigation strategies.

This requirement emphasizes the importance of adequate rest before and after clinical responsibilities. Strategies that may be used include, but are not limited to, strategic napping; the judicious use of caffeine; availability of other caregivers; time management to maximize sleep off-duty; learning to recognize the signs of fatigue, and self-monitoring performance and/or asking others to monitor performance; remaining active to promote alertness; maintaining a healthy diet; using relaxation techniques to fall asleep; maintaining a consistent sleep routine; exercising regularly; increasing sleep time before and after call; and ensuring sufficient sleep recovery periods.

VI.D.2. Each program must ensure continuity of patient care, consistent with the program's policies and procedures referenced in VI.C.2–VI.C.2.b), in the event that a fellow may be unable to perform their patient care responsibilities due to excessive fatigue. (Core)

VI.D.3. The program, in partnership with its Sponsoring Institution, must ensure adequate sleep facilities and safe transportation options for fellows who may be too fatigued to safely return home. (Core)

VI.E. Clinical Responsibilities, Teamwork, and Transitions of Care

VI.E.1. Clinical Responsibilities

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The clinical responsibilities for each fellow must be based on PGY level, patient safety, fellow ability, severity and complexity of patient illness/condition, and available support services. (Core)

Background and Intent: The changing clinical care environment of medicine has meant that work compression due to high complexity has increased stress on fellows. Faculty members and program directors need to make sure fellows function in an environment that has safe patient care and a sense of fellow well-being. Some Review Committees have addressed this by setting limits on patient admissions, and it is an essential responsibility of the program director to monitor fellow workload. Workload should be distributed among the fellow team and interdisciplinary teams to minimize work compression.

VI.E.2. Teamwork

Fellows must care for patients in an environment that maximizes communication. This must include the opportunity to work as a member of effective interprofessional teams that are appropriate to the delivery of care in the subspecialty and larger health system. (Core)

VI.E.2.a) Medical laboratory professionals, members of clinical service teams, and other medical and legal professionals ~~may~~ should be included as part of an interprofessional team. (Detail)

VI.E.2.b) Fellows must demonstrate the ability to work and communicate with health care professionals to provide effective, patient-focused care. (Outcome)

VI.E.3. Transitions of Care

VI.E.3.a) Programs must design clinical assignments to optimize transitions in patient care, including their safety, frequency, and structure. (Core)

VI.E.3.b) Programs, in partnership with their Sponsoring Institutions, must ensure and monitor effective, structured hand-over processes to facilitate both continuity of care and patient safety. (Core)

VI.E.3.c) Programs must ensure that fellows are competent in communicating with team members in the hand-over process. (Outcome)

VI.E.3.d) Programs and clinical sites must maintain and communicate schedules of attending physicians and fellows currently responsible for care. (Core)

VI.E.3.e) Each program must ensure continuity of patient care, consistent with the program's policies and procedures

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referenced in VI.C.2-VI.C.2.b), in the event that a fellow may be unable to perform their patient care responsibilities due to excessive fatigue or illness, or family emergency. (Core)

VI.F. Clinical Experience and Education

Programs, in partnership with their Sponsoring Institutions, must design an effective program structure that is configured to provide fellows with educational and clinical experience opportunities, as well as reasonable opportunities for rest and personal activities.

Background and Intent: In the new requirements, the terms "clinical experience and education," "clinical and educational work," and "clinical and educational work hours" replace the terms "duty hours," "duty periods," and "duty." These changes have been made in response to concerns that the previous use of the term "duty" in reference to number of hours worked may have led some to conclude that fellows' duty to "clock out" on time superseded their duty to their patients.

VI.F.1. Maximum Hours of Clinical and Educational Work per Week

Clinical and educational work hours must be limited to no more than 80 hours per week, averaged over a four-week period, inclusive of all in-house clinical and educational activities, clinical work done from home, and all moonlighting. (Core)

Background and Intent: Programs and fellows have a shared responsibility to ensure that the 80-hour maximum weekly limit is not exceeded. While the requirement has been written with the intent of allowing fellows to remain beyond their scheduled work periods to care for a patient or participate in an educational activity, these additional hours must be accounted for in the allocated 80 hours when averaged over four weeks.

Scheduling
While the ACGME acknowledges that, on rare occasions, a fellow may work in excess of 80 hours in a given week, all programs and fellows utilizing this flexibility will be required to adhere to the 80-hour maximum weekly limit when averaged over a four-week period. Programs that regularly schedule fellows to work 80 hours per week and still permit fellows to remain beyond their scheduled work period are likely to exceed the 80-hour maximum, which would not be in substantial compliance with the requirement. These programs should adjust schedules so that fellows are scheduled to work fewer than 80 hours per week, which would allow fellows to remain beyond their scheduled work period when needed without violating the 80-hour requirement. Programs may wish to consider using night float and/or making adjustments to the frequency of in-house call to ensure compliance with the 80-hour maximum weekly limit.

Oversight
With increased flexibility introduced into the Requirements, programs permitting this flexibility will need to account for the potential for fellows to remain beyond their assigned work periods when developing schedules, to avoid exceeding the 80-hour maximum weekly limit, averaged over four weeks. The ACGME Review Committees will strictly monitor and enforce compliance with the 80-hour requirement. Where violations

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of the 80-hour requirement are identified, programs will be subject to citation and at risk for an adverse accreditation action.

Work from Home

While the requirement specifies that clinical work done from home must be counted toward the 80-hour maximum weekly limit, the expectation remains that scheduling be structured so that fellows are able to complete most work on site during scheduled clinical work hours without requiring them to take work home. The new requirements acknowledge the changing landscape of medicine, including electronic health records, and the resulting increase in the amount of work fellows choose to do from home. The requirement provides flexibility for fellows to do this while ensuring that the time spent by fellows completing clinical work from home is accomplished within the 80-hour weekly maximum. Types of work from home that must be counted include using an electronic health record and taking calls from home. Reading done in preparation for the following day's cases, studying, and research done from home do not count toward the 80 hours. Fellow decisions to leave the hospital before their clinical work has been completed and to finish that work later from home should be made in consultation with the fellow's supervisor. In such circumstances, fellows should be mindful of their professional responsibility to complete work in a timely manner and to maintain patient confidentiality.

During the public comment period many individuals raised questions and concerns related to this change. Some questioned whether minute by minute tracking would be required; in other words, if a fellow spends three minutes on a phone call and then a few hours later spends two minutes on another call, will the fellow need to report that time. Others raised concerns related to the ability of programs and institutions to verify the accuracy of the information reported by fellows. The new requirements are not an attempt to micromanage this process. Fellows are to track the time they spend on clinical work from home and to report that time to the program. Decisions regarding whether to report infrequent phone calls of very short duration will be left to the individual fellow. Programs will need to factor in time fellows are spending on clinical work at home when schedules are developed to ensure that fellows are not working in excess of 80 hours per week, averaged over four weeks. There is no requirement that programs assume responsibility for documenting this time. Rather, the program's responsibility is ensuring that fellows report their time from home and that schedules are structured to ensure that fellows are not working in excess of 80 hours per week, averaged over four weeks.

VI.F.2. Mandatory Time Free of Clinical Work and Education

VI.F.2.a) **The program must design an effective program structure that is configured to provide fellows with educational opportunities, as well as reasonable opportunities for rest and personal well-being.** (Core)

VI.F.2.b) **Fellows should have eight hours off between scheduled clinical work and education periods.** (Detail)

VI.F.2.b).(1) **There may be circumstances when fellows choose to stay to care for their patients or return to the hospital with fewer than eight hours free of clinical experience**

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and education. This must occur within the context of the 80-hour and the one-day-off-in-seven requirements. (Detail)

Background and Intent: While it is expected that fellow schedules will be structured to ensure that fellows are provided with a minimum of eight hours off between scheduled work periods, it is recognized that fellows may choose to remain beyond their scheduled time, or return to the clinical site during this time-off period, to care for a patient. The requirement preserves the flexibility for fellows to make those choices. It is also noted that the 80-hour weekly limit (averaged over four weeks) is a deterrent for scheduling fewer than eight hours off between clinical and education work periods, as it would be difficult for a program to design a schedule that provides fewer than eight hours off without violating the 80-hour rule.

VI.F.2.c) **Fellows must have at least 14 hours free of clinical work and education after 24 hours of in-house call.** (Core)

Background and Intent: Fellows have a responsibility to return to work rested, and thus are expected to use this time away from work to get adequate rest. In support of this goal, fellows are encouraged to prioritize sleep over other discretionary activities.

VI.F.2.d) **Fellows must be scheduled for a minimum of one day in seven free of clinical work and required education (when averaged over four weeks). At-home call cannot be assigned on these free days.** (Core)

Background and Intent: The requirement provides flexibility for programs to distribute days off in a manner that meets program and fellow needs. It is strongly recommended that fellows' preference regarding how their days off are distributed be considered as schedules are developed. It is desirable that days off be distributed throughout the month, but some fellows may prefer to group their days off to have a "golden weekend," meaning a consecutive Saturday and Sunday free from work. The requirement for one free day in seven should not be interpreted as precluding a golden weekend. Where feasible, schedules may be designed to provide fellows with a weekend, or two consecutive days, free of work. The applicable Review Committee will evaluate the number of consecutive days of work and determine whether they meet educational objectives. Programs are encouraged to distribute days off in a fashion that optimizes fellow well-being, and educational and personal goals. It is noted that a day off is defined in the ACGME Glossary of Terms as "one (1) continuous 24-hour period free from all administrative, clinical, and educational activities."

VI.F.3. **Maximum Clinical Work and Education Period Length**

VI.F.3.a) **Clinical and educational work periods for fellows must not exceed 24 hours of continuous scheduled clinical assignments.** (Core)

VI.F.3.a).(1) **Up to four hours of additional time may be used for activities related to patient safety, such as providing**

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effective transitions of care, and/or fellow education. (Core)

VI.F.3.a).(1).(a) **Additional patient care responsibilities must not be assigned to a fellow during this time.** (Core)

Background and Intent: The additional time referenced in VI.F.3.a).(1) should not be used for the care of new patients. It is essential that the fellow continue to function as a member of the team in an environment where other members of the team can assess fellow fatigue, and that supervision for post-call fellows is provided. This 24 hours and up to an additional four hours must occur within the context of 80-hour weekly limit, averaged over four weeks.

VI.F.4. Clinical and Educational Work Hour Exceptions

VI.F.4.a) **In rare circumstances, after handing off all other responsibilities, a fellow, on their own initiative, may elect to remain or return to the clinical site in the following circumstances:**

VI.F.4.a).(1) **to continue to provide care to a single severely ill or unstable patient;** (Detail)

VI.F.4.a).(2) **humanistic attention to the needs of a patient or family; or,** (Detail)

VI.F.4.a).(3) **to attend unique educational events.** (Detail)

VI.F.4.b) **These additional hours of care or education will be counted toward the 80-hour weekly limit.** (Detail)

Background and Intent: This requirement is intended to provide fellows with some control over their schedules by providing the flexibility to voluntarily remain beyond the scheduled responsibilities under the circumstances described above. It is important to note that a fellow may remain to attend a conference, or return for a conference later in the day, only if the decision is made voluntarily. Fellows must not be required to stay. Programs allowing fellows to remain or return beyond the scheduled work and clinical education period must ensure that the decision to remain is initiated by the fellow and that fellows are not coerced. This additional time must be counted toward the 80-hour maximum weekly limit.

VI.F.4.c) **A Review Committee may grant rotation-specific exceptions for up to 10 percent or a maximum of 88 clinical and educational work hours to individual programs based on a sound educational rationale.**

The Review Committee for Pathology will not consider requests for exceptions to the 80-hour limit to the fellows' work week.

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VI.F.4.c).(1) **In preparing a request for an exception, the program director must follow the clinical and educational work hour exception policy from the *ACGME Manual of Policies and Procedures*.** (Core)

VI.F.4.c).(2) **Prior to submitting the request to the Review Committee, the program director must obtain approval from the Sponsoring Institution's GMEC and DIO.** (Core)

Background and Intent: The provision for exceptions for up to 88 hours per week has been modified to specify that exceptions may be granted for specific rotations if the program can justify the increase based on criteria specified by the Review Committee. As in the past, Review Committees may opt not to permit exceptions. The underlying philosophy for this requirement is that while it is expected that all fellows should be able to train within an 80-hour work week, it is recognized that some programs may include rotations with alternate structures based on the nature of the specialty. DIO/GMEC approval is required before the request will be considered by the Review Committee.

VI.F.5. **Moonlighting**

VI.F.5.a) **Moonlighting must not interfere with the ability of the fellow to achieve the goals and objectives of the educational program, and must not interfere with the fellow's fitness for work nor compromise patient safety.** (Core)

VI.F.5.b) **Time spent by fellows in internal and external moonlighting (as defined in the ACGME Glossary of Terms) must be counted toward the 80-hour maximum weekly limit.** (Core)

Background and Intent: For additional clarification of the expectations related to moonlighting, please refer to the Common Program Requirement FAQs (available at http://www.acgme.org/What-We-Do/Accreditation/Common-Program-Requirements).

VI.F.6. **In-House Night Float**

Night float must occur within the context of the 80-hour and one-day-off-in-seven requirements. (Core)

Background and Intent: The requirement for no more than six consecutive nights of night float was removed to provide programs with increased flexibility in scheduling.

VI.F.7. **Maximum In-House On-Call Frequency**

Fellows must be scheduled for in-house call no more frequently than every third night (when averaged over a four-week period). (Core)

VI.F.8. **At-Home Call**

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VI.F.8.a) **Time spent on patient care activities by fellows on at-home call must count toward the 80-hour maximum weekly limit. The frequency of at-home call is not subject to the every-third-night limitation, but must satisfy the requirement for one day in seven free of clinical work and education, when averaged over four weeks.** (Core)

VI.F.8.a).(1) **At-home call must not be so frequent or taxing as to preclude rest or reasonable personal time for each fellow.** (Core)

VI.F.8.b) **Fellows are permitted to return to the hospital while on at-home call to provide direct care for new or established patients. These hours of inpatient patient care must be included in the 80-hour maximum weekly limit.** (Detail)

Background and Intent: This requirement has been modified to specify that clinical work done from home when a fellow is taking at-home call must count toward the 80-hour maximum weekly limit. This change acknowledges the often significant amount of time fellows devote to clinical activities when taking at-home call, and ensures that taking at-home call does not result in fellows routinely working more than 80 hours per week. At-home call activities that must be counted include responding to phone calls and other forms of communication, as well as documentation, such as entering notes in an electronic health record. Activities such as reading about the next day's case, studying, or research activities do not count toward the 80-hour weekly limit.

In their evaluation of fellowship programs, Review Committees will look at the overall impact of at-home call on fellow rest and personal time.

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***Core Requirements:** Statements that define structure, resource, or process elements essential to every graduate medical educational program.

†**Detail Requirements:** Statements that describe a specific structure, resource, or process, for achieving compliance with a Core Requirement. Programs and sponsoring institutions in substantial compliance with the Outcome Requirements may utilize alternative or innovative approaches to meet Core Requirements.

‡**Outcome Requirements:** Statements that specify expected measurable or observable attributes (knowledge, abilities, skills, or attitudes) of residents or fellows at key stages of their graduate medical education.

Osteopathic Recognition

For programs with or applying for Osteopathic Recognition, the Osteopathic Recognition Requirements also apply (www.acgme.org/OsteopathicRecognition).

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