**HOD ACTION: Council on Medical Education/Council on Science and Public Health Report 1 adopted as amended, and the remainder of the report filed.**

JOINT REPORT 1 OF THE COUNCIL ON MEDICAL EDUCATION AND COUNCIL ON SCIENCE AND PUBLIC HEALTH (A-19)
Protecting Medical Trainees from Hazardous Exposure (Resolution 301-A-18)
(Reference Committee C)

## EXECUTIVE SUMMARY

Resolution 301-A-18, "Protecting Medical Trainees from Hazardous Exposure," introduced by the Illinois Delegation, asked that our American Medical Association (AMA): 1) call for the mandatory education of students, residents, physicians and surgeons on the deleterious effects of exposure to hazardous materials; 2) encourage the Accreditation Council for Graduate Medical Education and Liaison Committee on Medical Education to create standards that allow students and trainees to voluntarily avoid exposure to hazardous/biohazard materials without negatively impacting their standing in school or training programs; 3) support and encourage the specific option for students or trainees to be able to excuse themselves from exposure to methyl methacrylate if they are or think they may be pregnant without negatively impacting their standing in their school or training programs; and 4) support and encourage constant updating of the protection of medical trainees, physicians and surgeons from exposure to hazardous materials during the course of their medical school training and practice, using standards published by the Occupational Safety and Health Administration; the National Institute for Occupational Safety and Health and other Centers for Disease Control and Prevention agencies; the College of American Pathologists; and the American College of Radiology, as well as other relevant resources available for health workers.

Due to the complexity of the issues surrounding this topic, the resolution was referred.

This report:

- Provides legal definitions of hazardous chemicals, health hazards and physical hazards, and describes occupational exposure limits;
- Summarizes expected hazardous agent exposure in health care;
- Describes accreditation standards for medical school and residency/fellowship training regarding exposure to hazardous agents; and
- Discusses the need for learners' confidence in hazardous agent protection as well as greater clarity on hazardous agent avoidance.

The report recommends revising AMA Policy H-295.939, "OSHA Regulations for Students," to include residents and fellows. In addition, the report recommends new policy that: 1) encourages the Accreditation Council for Graduate Medical Education to require education on and demonstration of competence regarding potential exposure to hazardous agents relevant to specific specialties; 2) recommends medical schools include in their policies on hazardous exposure options for students to reduce exposure that will not negatively affect their ability to progress in their education; and 3) encourages medical schools and institutions with medical learners to vigilantly update educational material and protective measures on hazardous agent exposure, and make this information readily accessible.

**HOD ACTION: Council on Medical Education/Council on Science and Public Health Report 1 adopted as amended, and the remainder of the report filed.**

JOINT REPORT OF THE COUNCIL ON MEDICAL EDUCATION AND THE COUNCIL ON SCIENCE AND PUBLIC HEALTH

CME/CSAPH Joint Report 1-A-19

| | |
|---|---|
| Subject: | Protecting Medical Trainees from Hazardous Exposure (Resolution 301-A-18) |
| Presented by: | Carol Berkowitz, MD, Chair, Council on Medical Education<br>Robyn F. Chatman, MD, MPH, Chair, Council on Science and Public Health |
| Referred to: | Reference Committee C<br>(Nicole Riddle, MD, Chair) |

---

Resolution 301-A-18, "Protecting Medical Trainees from Hazardous Exposure," introduced by the Illinois Delegation and referred by the American Medical Association (AMA) House of Delegates (HOD), asks the AMA to:

1) call for the mandatory education of students, residents, physicians and surgeons on the deleterious effects of exposure to hazardous materials;

2) encourage the Accreditation Council for Graduate Medical Education and Liaison Committee on Medical Education to create standards that allow students and trainees to voluntarily avoid exposure to hazardous/biohazard materials without negatively impacting their standing in school or training programs;

3) support and encourage the specific option for students or trainees to be able to excuse themselves from exposure to methyl methacrylate if they are or think they may be pregnant without negatively impacting their standing in their school or training programs; and

4) support and encourage constant updating of the protection of medical trainees, physicians and surgeons from exposure to hazardous materials during the course of their medical school training and practice, using standards published by the Occupational Safety and Health Administration; the National Institute for Occupational Safety and Health and other Centers for Disease Control and Prevention agencies; the College of American Pathologists; and the American College of Radiology, as well as other relevant resources available for health workers.

Testimony during the meeting before Reference Committee C and the HOD on this complex issue reflected strong support for the importance of protecting students/trainees and colleagues from exposure to hazardous materials. In addition, it was noted that taking measures of self-protection should not negatively impact one's standing in a training program or workplace. Other testimony encouraged a more expansive proposed policy, to include all physicians and surgeons, and to incorporate hazardous materials more generally. That said, determining which substances would be allowed, and the acceptable level of risk for those substances, pointed out the complexity of the issue, and the need for referral.

This report: 1) provides legal definitions of hazardous chemicals, health hazards and physical hazards, and describes occupational exposure limits; 2) summarizes expected hazardous agent exposure in health care; 3) summarizes health system processes addressing hazardous materials and exposure; 4) describes accreditation standards for medical school and residency/fellowship training regarding exposure to hazardous agents; and 5) concludes with a discussion that emphasizes the need for learners' confidence in hazardous agent protection as well as greater clarity on hazardous agent avoidance.

## BACKGROUND

The Occupational Safety and Health (OSH) Act of 1970 was enacted "to assure safe and healthful working conditions for working men and women; by authorizing enforcement of the standards developed under the Act; by assisting and encouraging the States in their efforts to assure safe and healthful working conditions; by providing for research, information, education, and training in the field of occupational safety and health; and for other purposes."[1]

With the OSH Act of 1970, Congress created the Occupational Safety and Health Administration (OSHA) as part of the United States Department of Labor and established the National Institute for Occupational Safety and Health (NIOSH), a part of the Centers for Disease Control and Prevention (CDC). OSHA assures safe and healthful working conditions by setting and enforcing standards and by providing training, outreach, education and assistance. NIOSH researches and publishes worker safety recommendations which contain the latest U.S. Public Health Service guidelines.

### *Definition of Hazardous Chemicals*

OSHA's Hazard Communication Standard (HAZCOM), 29 CFR 1910.1200, was adopted in 1983, expanded in scope in 1987, and aligned with the United Nations' Globally Harmonized System of Classification and Labeling of Chemicals (GHS) in 2012.[2] The purpose of HAZCOM is to ensure that the hazards of all chemicals produced or imported are classified, and that information concerning the classified hazards is transmitted to employers and employees. The transmittal of information is to be accomplished by means of comprehensive hazard communication programs, which are to include container labeling and other forms of warning, safety data sheets, and employee training.

HAZCOM defines a "hazardous chemical" as "any chemical which is classified as a physical hazard or a health hazard, a simple asphyxiant, combustible dust, pyrophoric gas, or hazard not otherwise classified.[2] "A "health hazard" is defined as "a chemical which is classified as posing one of the following hazardous effects: acute toxicity (any route of exposure); skin corrosion or irritation; serious eye damage or eye irritation; respiratory or skin sensitization; germ cell mutagenicity; carcinogenicity; reproductive toxicity; specific target organ toxicity (single or repeated exposure); or aspiration hazard." A "physical hazard" is defined as "a chemical that is classified as posing one of the following hazardous effects: explosive; flammable (gases, aerosols, liquids, or solids); oxidizer (liquid, solid or gas); self-reactive; pyrophoric (liquid or solid); self-heating; organic peroxide; corrosive to metal; gas under pressure; or in contact with water emits flammable gas." HAZCOM addresses both physical hazards (e.g., flammability or reactivity) and health hazards (e.g., carcinogenicity or sensitization). For ease of language this report will use the term "hazardous agents" to refer all hazards covered by HAZCOM.

HAZCOM stipulates that employers shall provide employees with effective information and training on hazardous agents in their work area at the time of their initial assignment and whenever a new chemical hazard the employees have not previously been trained about is introduced into

their work area. Information and training may be designed to cover categories of hazards (e.g., flammability, carcinogenicity) or specific chemicals. Chemical-specific information must always be available through labels and safety data sheets.

*Exposure Limits*

An occupational exposure limit (OEL) is an upper limit on the acceptable concentration of a hazard in a workplace for a material or class of materials. Several different OELs exist in the United States and include:

- Permissible exposure limit (PEL), set by OSHA;
- PELs set by the California Division of Occupational Safety and Health (Cal/OSHA);
- Recommended exposure limit (REL), set by NIOSH; and
- Threshold Limit Value (TLV) and Biological Exposure Indices (BEIs), set by the American Conference of Governmental Industrial Hygienists (ACGIH).

The OSHA PEL is the legally enforceable limit in the United States for exposure of an employee to a chemical substance or physical agent, such as high-level noise.[3] Cal/OSHA has established an extensive list of PELs that are enforced in workplaces under its jurisdiction, no less protective than the OSH Act, and not enforceable in establishments outside of Cal/OSHA's jurisdiction. However, of all states that have OSHA-approved State Plans, California has the most extensive list of OELs, which can provide information on acceptable levels of chemicals in the workplace for other states and organizations.

The NIOSH REL is a non-mandatory, recommended occupational chemical exposure limit.[4] NIOSH RELs are authoritative federal agency recommendations established according to the legislative mandate for NIOSH to recommend standards to OSHA. RELs are intended to limit exposure to hazardous agents in workplaces. In developing RELs and other recommendations to protect worker health, NIOSH evaluates all available medical, biological, engineering, chemical, and trade information relevant to the hazard.

ACGIH is a 501(c)(3) charitable scientific organization that advances occupational and environmental health. TLVs are airborne concentrations of chemical substances and represent conditions under which it is believed that nearly all workers may be repeatedly exposed without adverse effects. BEIs are guidance values for assessing biological monitoring of concentrations of chemicals in biological matrices. ACGIH TLVs and BEIs are health-based values and are not intended to be used as legal standards without an analysis of other factors necessary to make appropriate risk management decisions. The ACGIH TLVs are widely recognized as authoritative and are required to be included on safety data sheets by HAZCOM.

OSHA recognizes that many of its PELs are outdated and reflect inadequate measures of worker safety. Both OSHA and NIOSH recommend that employers take actions to keep worker exposures below the NIOSH REL. NIOSH provides a Pocket Guide to Chemical Hazards (NPG) that gives general industrial hygiene information for hundreds of chemicals/classes and presents key data for chemicals or substance groupings that are found in workplaces.[4] The OSHA PEL Tables include a side-by-side comparison of OSHA PELs, Cal/OSHA PELs, NIOSH RELs and ACGIH TLVs.[3] Additionally, OSHA provides general information regarding training requirements for employers and offers resources for use such as publications and videos.[5]

*Health Care-specific Information*

The OSHA PEL Tables contain many chemicals prevalent in health care settings including, but not limited to, methyl methacrylate, ethylene oxide, and formaldehyde/formalin.[3] Recognizing that many hazardous chemicals and medications are present in health care settings and may pose an exposure risk for health care workers, patients, and others, NIOSH has developed a list of antineoplastic and other hazardous drugs specific to health care.[6] OSHA provides access to a "Hospital eTool" that focuses on some hazards and controls found in the health care setting and describes standard requirements and recommended safe work practices for employee safety and health.[7] NIOSH also provides resources regarding reproductive health and the workplace for men and women and outlines the risks from some specific, and health care setting-related, chemicals.[8]

Medical specialty societies have provided additional information and resources regarding safety in the health care setting. The American College of Radiology, with the American Association of Physicists in Medicine, publishes a manual detailing radiation safety officer resources. This guide provides models and educational materials for medical imaging facilities, including personnel monitoring, that cover pregnancy and breastmilk concerns.[9] The American Academy of Orthopaedic Surgeons (AAOS) published a document outlining risks and precautions for pregnant orthopaedic surgeons in the workplace. The document provides information on a variety of risks encountered in an operating room including anesthetic gases, radiation, and methyl methacrylate.[10]

The evidence base used by experts to evaluate hazardous agents is updated when new research emerges and new methods of risk avoidance or mitigation are developed. For example, the AAOS and others agree that although methyl methacrylate has historically been thought to be teratogenic, current research and evidence show that fumes have no effect on pregnant rodents and were not transmitted to the serum or breastmilk of breastfeeding surgeons.[11,12] Authors note that the greatest risk of exposure is during the mixing process; this risk can be reduced by using vacuum-mixing and extraction hoods.

## HEALTH SYSTEM PROCESSES ADDRESSING HAZARDOUS MATERIALS AND EXPOSURE

Hospitals are required by The Joint Commission to manage risk, coordinate risk reduction activities in the physical environment, collect deficiency information, and disseminate summaries of actions and results; most do this by establishing safety committees. Safety committee response plans should include policies and procedures that address exposures and require all-employee education about material safety. Employed physicians are required to complete such education (usually computer-based learning modules). Safety committees address the full range of hazardous materials, including cleaning materials, laboratory reagents, medical gases, contrast materials, and nuclear medicine products. Members of the medical staff who are not employees, and trainees who rotate through an institution for educational purposes, may not be required to complete such educational modules and may not know about Material Safety Data Sets (MSDSs) that the hospital has catalogued and how to respond to hazardous exposures.

## STANDARDS REGARDING HAZARDOUS EXPOSURE IN EDUCATIONAL SETTINGS

Although the discussion concerning hazardous exposure during the 2018 Annual Meeting suggested broadening hazardous agent exposure recommendations to include physicians in practice, those physicians are protected against hazardous agent exposure by OSHA workplace safety regulations, as outlined above, even if they are not specifically trained about the regulations or safety procedures. Less certain are the protections afforded learners in health care settings;

therefore, this report will concentrate on education about hazardous agent exposure and standards and regulations regarding prevention of exposure (including voluntary avoidance) for medical students, residents, and fellows. Our AMA recognizes that this issue also extends to non-physician health professions students and trainees.

*Medical School Accreditation Standards Regarding Hazardous Exposure*

The Liaison Committee on Medical Education (LCME) accredits allopathic medical education programs leading to the MD degree in the United States. Requirements regarding medical student exposure to hazards are addressed in Standard 12: Medical Student Health Services, Personal Counseling, and Financial Aid Services, which includes 12.8:[13]

> A medical school has policies in place that effectively address medical student exposure to infectious and environmental hazards, including the following:
> - The education of medical students about methods of prevention
> - The procedures for care and treatment after exposure, including a definition of financial responsibility
> - The effects of infectious and environmental disease or disability on medical student learning activities
>
> All registered medical students (including visiting students) are informed of these policies before undertaking any educational activities that would place them at risk.

In assessing compliance with Standard 12.8, the LCME survey team during the site visit (typically occurring every 8 years) will ask the school to provide the following information:[14]

1. Does the medical school have policies related to infectious and environmental hazards? Do the policies explicitly address the education of students about preventing exposure; the procedures for treatment after exposure, including financial responsibility for treatment and follow-up; and the implications of infectious and/or environmental disease or disability on medical student participation in educational activities?

2. Describe how and when in the curriculum medical students are instructed about preventing exposure to infectious diseases and about protocols for treatment and follow-up in the case of an occupational exposure.

3. Describe how visiting medical students are informed about the procedures to be followed in the event of an occupational exposure.

4. Is there evidence that students are familiar with the policies and procedures to follow in the event of an environmental exposure?

The American Osteopathic Association's Commission on Osteopathic College Accreditation (COCA) accredits osteopathic medical education programs leading to the DO degree in the U.S. Element 5.3 addresses health and safety issues in colleges of osteopathic medicine (COM):[15]

> Element 5.3: Safety, Health, and Wellness: A COM must publish and follow policies and procedures that effectively mitigate faculty, staff, and student exposure to infectious and environmental hazards, provide education on prevention of such exposures, and address procedures for care and treatment after such exposures. A COM must also publish and follow policies related to student, faculty, and staff mental health and wellness and fatigue mitigation.

During the continuing accreditation process COCA requires evidence that its elements of accreditation are met. Evidentiary Submission 5.3 requires the COM to:

1. Provide the policies and procedures addressing safety and health issues.
2. Provide a link to where the documents are published.
3. Demonstrate how this information is provided to students.

Policies regarding hazardous exposure and education and training regarding prevention and avoidance are often available on medical school, health science center, or university websites. Examples are included in the Appendix.

*Residency/Fellowship Program Accreditation Standards Regarding Hazardous Exposure*

The Accreditation Council for Graduate Medical Education (ACGME) accredits residency and fellowship programs and sets requirements for training programs as well as the institutions in which training occurs.

A review of ACGME institutional requirements[16] reveals general recommendations regarding safety of trainees as well as patients. As part of the learning and working environment, the sponsoring institution must ensure trainees have "access to systems for reporting errors, adverse events, unsafe conditions, and near misses in a protected manner that is free from reprisal" (III.B.1.a) and provide a healthy, safe and educational environment that provides for "safety and security measures for residents/fellows appropriate to the participating site" (III.B.7.d.(2))

The ACGME's Common Program Requirements (CPRs) include more specificity. The CPRs currently in effect include responsibilities of the program and its sponsoring institution to address resident well-being in several ways, including evaluating workplace safety data and addressing the safety of residents and faculty members (VI.C.1.c).[17] Program requirements that go into effect in July 2019 provide more detail. The program, with its sponsoring institution, must ensure healthy and safe learning and working environments that, among other things, provide "security and safety measures appropriate to the participating site." (I.D.2.d).[18] Concerning well-being, the revised CPRs provide background for VI.C.1.c:

> This requirement emphasizes the responsibility shared by the Sponsoring Institution and its programs to gather information and utilize systems that monitor and enhance resident 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.[18]

A review of specific program requirements for specialties that may have increased exposure to hazardous agents revealed minimal discussion of hazardous agent exposures. Program requirements for radiology, vascular surgery, neurosurgery, orthopaedic surgery, cardiology, and endovascular surgical neuroradiology were reviewed.

Program requirements for neurosurgery, vascular surgery, cardiology, and orthopaedic surgery did not include any mention of exposure to hazardous agents. Requirements for endovascular surgical neuroradiology[19] stated that fellow eligibility for entry to the program include "a course in basic radiographic skills, including radiation physics, radiation biology, and radiation protection; and the pharmacology of radiographic contrast materials acceptable to the program director where the

neuroradiology training will occur." (III.A.6.b.(1)). Not noted are the adverse effects of radiation exposure as a component of the medical knowledge that fellows are required to know.

Program requirements for radiology were the most extensive regarding hazardous agent exposure.[20] Didactic curriculum is to include a minimum of 80 hours of classroom and laboratory training in basic radionuclide handling techniques applicable to the medical use of unsealed byproduct material for imaging and localization studies (10 CFR 35.290)[21] and oral administration of sodium iodide I-131 for procedures requiring a written directive (10 CFR 35.392, 10 CFR 35.394). [IV.A.3.e.(5)]. These specific requirements are not those of ACGME or any health care accreditation agency but of the federal Nuclear Regulatory Commission; they appear in the Code of Federal Regulations.

Furthermore, residents in radiology programs must demonstrate competence in the ongoing awareness of radiation exposure, protection, and safety, and the application of these principles in practice [IV.A.5.a).(2).(e)]. And, finally, residents must have a minimum of 700 hours of training and work experience under the supervision of an authorized user (AU) in basic radionuclide handling techniques and radiation safety applicable to the medical use of unsealed byproduct material for imaging and localization studies (10 CFR 35.290) and oral administration of sodium iodide I-131 for procedures requiring a written directive (10 CFR 35.392, 10 CFR 35.394) [IV.A.6.f)]. Operational and quality control procedures should include ensuring radiation protection in practice, to include dosimeters, exposure limits, and signage [IV.A.6.f).(1)].[21]

*Reducing Hazardous Exposure in Educational Settings*

Medical school accreditation standards do not specifically address avoiding exposure to hazards that may be endemic to the educational environment. For example, what could a student expect if the student refuses a particular component of a rotation that puts him or her in proximity with a hazardous agent, in terms of completing the rotation? One college of osteopathic medicine catalog proactively addressed this issue by asking students to decide if they are comfortable with required levels of exposure prior to matriculation:

> Working and studying in these special environments may require the student to make an informed decision concerning continued participation because failure to participate in required classes could result in dismissal. Examples may include but are not limited to: students who believe they are allergic or sensitive to certain chemicals, students who are pregnant and are concerned about potential hazards to a developing fetus, or students who believe they are immuno-compromised or have increased susceptibility to disease. The student must decide upon their ability to participate prior to beginning school.[22]

Medical school deans of student affairs should be prepared to handle such requests and provide guidance to a student concerned about avoiding hazardous agent exposure. The type of counsel and outcomes will vary by the situation.

ACGME institutional and program requirements more generally address resident/fellow absences because of personal health or family circumstances, rather than an absence resulting from concerns about hazardous agent exposure. The CPRs note:

> VI.C.2. There are circumstances in which residents 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 residents unable to perform their patient care responsibilities. VI.C.2.a) The program must have policies and procedures in place to ensure

> coverage of patient care. VI.C.2.b) These policies must be implemented without fear of negative consequences for the resident who is or was unable to provide the clinical work.[18]

In addition, programs are to counsel residents that they may have to extend their length of training depending on the length of absence and specialty board eligibility requirements, and that teammates should assist colleagues in need and equitably reintegrate them upon return. Program requirements do not address the issue of avoidance of exposure to hazardous agents, and, as in medical schools, the subject is likely to be managed on a case-by-case basis.

## COMMUNICATION ON HAZARDOUS CHEMICAL AGENT EXPOSURE FOR TRAINEES

A significant number of informational resources and standards are available—including OSHA requirements, OSHA's Hazard Communication Standard, NIOSH recommendations, and 22 state-level OHSA plans (which may be more stringent than federal requirements)—to outline the requirements for a safe environment for institutions with students and with residents and fellows (as employees). Furthermore, educational accreditation requirements mandate policies for both maintaining a safe learning environment and for educating trainees on workplace safety. In addition, specialty societies produce material on current safety measures for exposure to materials relevant to the specialty. Assuring that all information and material is kept current, and new information on hazardous agents is added when available, is essential to allow medical trainees the confidence to learn and work safely in the health care environment.

## RELEVANT AMA POLICY

Existing AMA policy related to hazardous exposure during training is limited. Policy H-295.939, "OSHA Regulations for Students," encourages all health care-related educational institutions to apply existing Occupational Safety and Health Administration Blood Borne Pathogen Standards equally to employees and students. Policy D-135.987, "Modern Chemicals Policies," calls on the United States government to implement a comprehensive chemicals policy that is in line with current scientific knowledge on human and environmental health, and that requires a full evaluation of the health impacts of both newly developed and industrial chemicals now in use and encourages the training of medical students, physicians, and other health professionals about the human health effects of toxic chemical exposures.

## SUMMARY AND RECOMMENDATIONS

It is recognized that the risk of hazardous agent exposure exists in the health care setting and that additional considerations, including reproductive health, may represent another level of risk. Exposure levels for hazardous agents for employees in a medical setting, including residents and fellows, are regulated by OSHA after all available medical, biological, engineering, chemical, and trade information relevant to the hazard are thoroughly researched and evaluated by NIOSH and others. Exposure levels for hazardous chemicals for medical students are dictated by the student's educational institution and often are the same as OSHA standards.

There are standard employee education processes on the topics of hazardous materials, how to locate MSDSs, minimizing risks of exposure, and proper responses to employee exposure. Such education is required of all employees of hospitals and health systems, including physicians. To make such educational modules available to students and trainees, and to require medical students, residents, and fellows to complete such educational modules (as do faculty, who are institutional employees), would not be a complex task. It would also seem feasible to require and monitor the

completion of such education modules as a condition of program accreditation for a school of allopathic or osteopathic medicine or a residency or fellowship program.

Although the policies regarding hazardous agent exposure, education, and training vary depending on the medical school or residency program, accreditation standards require a healthy, safe and educational environment for medical students, residents, and fellows. It benefits educational and health care institutions to ensure that medical trainees are knowledgeable about hazards and confident that voluntary avoidance is possible, albeit with potential setbacks in educational and training progress. All learners should feel confident that the institutions in which they receive their education are attentive to the latest research and protective measures for their health and safety. The Council on Medical Education and the Council on Science and Public Health therefore recommend that the following recommendations be adopted in lieu of Resolution 301-A-18 and the remainder of the report be filed:

1. That our American Medical Association (AMA) amend Policy H-295.939, "OSHA Regulations for Students," by addition and deletion, to read as follows:

   H-295.939, "~~OSHA Regulations for Students~~ Protecting Medical Trainees from Hazardous Exposure"
   Our AMA will ~~The AMA, working in conjunction with its Medical School Section, to~~ encourage~~s~~ all health care-related educational institutions to apply the ~~existing~~ Occupational Safety and Health Administration (OSHA) Blood Borne Pathogen ~~S~~standard~~s~~ and OSHA hazardous exposure regulations, including communication requirements, equally to employees, students, and residents/fellows~~students~~. (Modify Current HOD Policy)

2. That our AMA recommend that the Accreditation Council for Graduate Medical Education revise the common program requirements to require education and subsequent demonstration of competence regarding potential exposure to hazardous agents relevant to specific specialties, including but not limited to: appropriate handling of hazardous agents, potential risks of exposure to hazardous agents, situational avoidance of hazardous agents, and appropriate responses when exposure to hazardous material may have occurred in the workplace/training site. (New HOD Policy)

3. That our AMA recommend a) that medical school policies on hazardous exposure include options to limit hazardous agent exposure in a manner that does not impact students' ability to successfully complete their training, and b) that medical school policies on continuity of educational requirements toward degree completion address leaves of absence or temporary reassignments when a pregnant trainee wishes to minimize the risks of hazardous exposures that may affect the trainee's and/or fetus' personal health status. (New HOD Policy)

4. That our AMA recommend that medical schools and health care settings with medical learners be vigilant in updating educational material and protective measures regarding hazardous agent exposure of its learners and make this information readily available to students, faculty, and staff. (New HOD Policy)

5. That our AMA recommend that medical schools and other sponsors of health professions education programs ensure that their students and trainees meet the same requirements for education regarding hazardous materials and potential exposures as faculty and staff. (New HOD Policy)

Fiscal Note: $500.

APPENDIX: EXAMPLES OF SCHOOL POLICY REGARDING HAZARDOUS EXPOSURE

*Elson S Floyd College of Medicine, Washington State University*

Policy Title: Medical Student Training on Universal Precautions and Biohazards

1.0 Policy Statement:
It is the Elson S. Floyd College of Medicine (ESFCOM) policy that all medical students, enrolled and visiting, learn precautions and infection control measures for pathogens and environmental hazards prior to patient contact and throughout matriculation.

4.0 Procedures
Ultimately, each student shares responsibility for his/her health and safety in the clinical/educational setting. Training begins with universal precautions prior to and during orientation and continues throughout foundational and clinical learning experiences.
Key policies and procedures, as well as locations of relevant information, will be provided during the student onboarding process.

Visiting medical students, prior to participation in ESFCOM sponsored clinical activities, will need to provide proof of appropriate universal precautions and post exposure care training. Verification of awareness of the ESFCOM online policies and protocols regarding Universal Precautions and Biohazards is required.

*University of Texas Rio Grande Valley School of Medicine*

The SOM will communicate with the university's Environmental Health, Safety, and Risk Management office (http://www.utrgv.edu/ehsrm) to promote a healthy and safe campus environment. This office oversees hazard communication, Occupational Safety and Health Administration compliance, indoor air quality, bloodborne pathogens, asbestos awareness, construction safety, accident investigation/reporting, ergonomics, and industrial hygiene.

*The University of Colorado School of Medicine*

Education and Training: Annually, all medical students are required to complete online modules entitled Hazardous Materials and Bloodborne Pathogens. The Hazardous Materials module includes: identification of workplace hazardous, use of personal protective equipment and response to a hazardous exposure. The Bloodborne Pathogens module provides instruction about: risks of bloodborne pathogens to health care workers, safeguards against bloodborne pathogen exposure, and how to manage exposures. Students must complete these modules annually. Students are not able to begin or continue clinical activities until satisfactory completion of the modules. Students have ongoing access to course material through online platform.

*The University of California Irvine School of Medicine*

Occupational Risk Training and Prevention

Participation in direct patient care activities can pose risks to health care professionals, particularly in terms of exposure to infectious diseases. The School of Medicine requires that all medical students participate in annual safety training that facilitates students' anticipation, recognition, and avoidance of potential occupational risks. The School of Medicine also provides practical training in safe practices so that students minimize risk in potentially hazardous situations, such as the

Anatomy lab and the operating room. A particular emphasis is placed on strict adherence to universal precautions. Finally, students are required to show proof of immunity to a series of vaccine-preventable diseases as outlined in the AAMC Standardized Immunization Form.

…Students receive training on occupational and environmental hazards as part of their orientation to the school. Students are required to complete an annual online safety training, which reinforces this information.

REFERENCES

[1] OSH Act of 1970. https://www.osha.gov/laws-regs/oshact/toc. Accessed January 7, 2019.

[2] 29 CFR 1910.1200. https://www.ecfr.gov/cgi-bin/text-idx?rgn=div8&node=29:6.1.1.1.1.1.1.36. Accessed January 7, 2019.

[3] Permissible Exposure Limits – Annotated Tables. https://www.osha.gov/dsg/annotated-pels/. Accessed January 7, 2019.

[4] NIOSH Pocket Guide to Chemical Hazards. https://www.cdc.gov/niosh/npg/default.html. Accessed January 7, 2019.

[5] OSHA Training Requirements and Resources. https://www.osha.gov/dte/library/ Accessed January 7, 2019.

[6] NIOSH List of Antineoplastic and Other Hazardous Drugs in Healthcare Settings, 2016. https://www.cdc.gov/niosh/docs/2016-161/pdfs/2016-161.pdf?id=10.26616/NIOSHPUB2016161. Accessed January 7, 2019

[7] OSHA Hospital eTool. https://www.osha.gov/SLTC/etools/hospital/ Accessed January 7, 2019.

[8] Reproductive Health and the Workplace. NIOSH. https://www.cdc.gov/niosh/topics/repro/default.html. Accessed January 15, 2019.

[9] American College of Radiology. ACR-AAPM Radiation Safety Officer Resources. Updated January 4, 2017. https://www.acr.org/-/media/ACR/Files/Radiology-Safety/Radiation-Safety/ACRAAPM-RSO-Resources.pdf. Accessed January 15, 2019.

[10] Wessel, LE, Mulcahey, MK, Sutton, KM. The Pregnant Orthopaedic Surgeon: Risks and Precautions. AAOS Now. 2018. https://www.aaos.org/AAOSNow/2018/Feb/Managing/managing01/. Accessed December 19, 2018.

[11] Hamilton LC. The lesser spotted pregnant surgeon. Ann R Coll Surg Engl. 2018;100(4):172-175.

[12] Linehan CM, Gioe TJ. Serum and breast milk levels of methyl methacrylate following surgeon exposure during arthroplasty. J Bone Joint Surg Am 2006; 88(9): 1,957–1,961.

[13] Functions and Structure of a Medical School: Standards for Accreditation of Medical Education Programs Leading to the MD Degree. March 2018. www.lcme.org. Accessed January 1, 2019.

[14] Survey Report Template for Full Survey Visit Reports. August 2018. www. Lcme.org. Accessed January 15, 2019.

[15] Accreditation of Colleges of Osteopathic Medicine: COM Continuing Accreditation Standards. https://osteopathic.org/wp-content/uploads/2018/02/com-continuing-accreditation-standards.pdf. Accessed January 3, 2019.

[16] ACGME Institutional Requirements, effective July 1, 2019. https://www.acgme.org/Portals/0/PFAssets/InstitutionalRequirements/000InstitutionalRequirements2018.pdf?ver=2018-02-19-132236-600. Accessed September 14, 2018.

[17] ACGME Common Program Requirements, effective July 1, 2017. https://www.acgme.org/Portals/0/PFAssets/ProgramRequirements/CPRs_2017-07-01.pdf. Accessed September 14, 2018

[18]ACGME Common Program Requirements (Residency), effective July 1, 2019. https://www.acgme.org/Portals/0/PFAssets/ProgramRequirements/CPRResidency2019.pdf. Accessed December 7, 2018.

[19] ACGME Program Requirements for Graduate Medical Education in Endovascular Surgical Neuroradiology, effective July 1, 2017. https://www.acgme.org/Portals/0/PFAssets/ProgramRequirements/163-182-422_EndovascularSurgicalNeuroradiology_2017-07-01.pdf?ver=2018-01-17-084822-243. Accessed January 14, 2019.

[20] ACGME Program Requirements for Graduate Medical Education in Diagnostic Radiology, effective July 1, 2018. https://www.acgme.org/Portals/0/PFAssets/ProgramRequirements/420_DiagnosticRadiology_2018-07-01.pdf?ver=2018-06-19-104001-783l. Accessed September 14, 2018.

[21] NRC Regulations Title 10, Code of Federal Regulations. https://www.nrc.gov/reading-rm/doc-collections/cfr/. Accessed January 23, 2019.

[22] Arkansas College of Osteopathic Medicine Student Handbook &Academic Catalog 2018 – 2019. http://acheedu.org/arcom/wp-content/uploads/sites/2/2018/11/ARCOM-Student-Handbook-and-Academic-Catalog-10_30_18.pdf. Accessed January 1, 2019.