

Clinical Laboratory Science

2023-2024 MICHIGAN HOSA EVENT MODIFICATIONS FOR REGIONAL CONFERENCES!



future health professionals



New for 2023 - 2024

Skill events now require attire appropriate to the occupational area be worn for Round 2. These guidelines are written for ILC. States may modify events or have different event processes and deadlines. Be sure to check with your Local/State advisor (or state website) to determine how the event is implemented for the regional/area or state conference.

Editorial updates have been made. These guidelines are specifically for Michigan HOSA members in preparation for the regional leadership conferences. For more information about regionals, please visit www.michiganhosa.org/regionals.

Event Summary

Clinical Laboratory Science provides members with the opportunity to gain knowledge and skills required for a traditional laboratory setting. This competitive event consists of two rounds. Round One is a written, multiple choice test and the top scoring competitors will advance to Round Two for the skills assessment. This event aims to inspire members to learn more about clinical laboratory careers. At the regional level, all teams will advance to the round two- skill round. The test scores will be combined with the skill scores for final rating.

Sponsorship

This competitive event is sponsored by Charles River Laboratories



Dress Code

Competitors shall wear proper business attire or official HOSA uniform or attire appropriate to the occupational area during testing. Round 2 skill events require attire appropriate to the occupational area be worn. Bonus points will be awarded for proper dress. At the regional level, teams can wear the occupational appropriate attire to test in, in addition to the skills. They do NOT need to change into business attire to take the test. Bonus points will not be added for proper dress, but judges/event managers will make note if competitors are NOT in proper dress which could result in overall point deduction.

Competitors must provide:

- [A photo ID](#)
- Safety glasses or goggles
- Disposable gown (PPE)
- Sterile non-latex surgical gloves
- Disposable non-latex gloves
- Full-face shield (or equivalent PPE)
- Disposable masks with ties or loops
- Two #2 pencils (not mechanical) with eraser for both rounds

General Rules

1. Competitors in this event must be active members of HOSA and in good standing.
2. **Eligible Divisions:** Secondary and Postsecondary/Collegiate divisions are eligible to compete in this event.
3. Competitors must be familiar with and adhere to the “[General Rules and Regulations of the HOSA Competitive Events Program \(GRR\)](#).”
 - A. Per the [GRRs](#) and [Appendix H](#), HOSA members may request accommodation in any competitive event. To learn the definition of an accommodation, please read [Appendix H](#). To request accommodation for the International Leadership Conference, [submit the request form here](#) by May 15 at midnight EST.
 - B. To request accommodation for any regional/area or state level conferences, submit the request form [here](#) by your state published deadline. Accommodations must first be done at state in order to be considered for ILC. **Regional accommodations MUST be submitted two weeks prior to your regional conference date. Email Samantha.pohl@mhc.org for questions.**
4. All competitors shall report to the site of the event at the time designated for each round of competition. At ILC, competitor’s [photo ID](#) must be presented prior to ALL competition rounds. **Event managers will be checking photo IDs at the regional level as well. A digital copy of a photo is appropriate (i.e. picture on phone of photo ID on school portal).**

Official References

5. All official references, are used in the development of the written test and skill rating sheets.
6. [Estridge and Reynolds. Basic Clinical Laboratory Techniques. Cengage Learning. Latest edition.](#)
7. [Simmers, Simmers-Hartker, Simmers-Kobelak, Fuller. DHO Health Science. Cengage Learning. Latest edition.](#)

Round One Test

8. [Test Instructions](#): The written test will consist of 50 multiple choice items in a maximum of 60 minutes.
9. **Time Remaining Announcements:** There will be NO verbal announcements for time remaining during ILC testing. All ILC testing will be completed in the Testing Center and competitors are responsible for monitoring their own time. **There will be NO verbal announcements for time remaining during regional testing. Students are responsible for monitoring their own time.**
10. **Written Test Plan**
 - Clinical Lab Professions 8%
 - Biological Safety 12%
 - Laboratory Math 6%

- Hematology & Hemostasis 14%
- Immunology 16%
- Urinalysis 8%
- Clinical Chemistry 14%
- Clinical Microbiology 14%
- Parasitology 8%

11. The test score from Round One will be used to qualify the competitor for Round Two. **All teams will advance to the round two skills.**

12. **Sample Round One Test Questions**

1. What is the title for a person with a high school diploma or GED that has been trained to collect blood specimens for laboratory testing? (Estridge pp 25-26)
 - A. Medical laboratory assistant
 - B. Laboratory manager
 - C. Phlebotomy technician**
 - D. Medical laboratory technician
2. Which of the following solutions is a common disinfectant used to clean laboratory work surfaces before and after each use? (Estridge pp 56)
 - A. 40% alcohol
 - B. 2% iodine
 - C. 50% formaldehyde
 - D. 10% chlorine bleach**
3. What might be present in a milky colored urine specimen? (Simmers pp 75)
 - A. Glucose
 - B. Fats**
 - C. Nitrogen
 - D. Blood

Round Two Skills Highlighted in yellow are the two skills that will be evaluated at the regional level.

13. Round Two is the performance of a selected skill(s). The Round Two skills approved for this event are:

Skill I: Identifying Laboratory Instruments/Equipment (*Including name of instrument/equipment and purpose or use.*) 15 minutes

Instruments or photos from the following list:

24-hr Urine Specimen Container	Clinical Centrifuge	N95 Respirator	Single-Use Lancet
Acetest	Coagulation Instrument	Needleless Transfer Device	Slide Staining Rack
Agar Plate	Culture Swabs & Transport Tubes	Perianal Paddle Kit	Sterile Vacuum Tube for Urine
Acrylic Shield	Disposable Needle Holder with Safety Guard	pH Indicator Strips	Stool Specimen Container
Analytical Balance	Electric Incinerator	pH Meter	Tabletop Autoclave
Automatic Slide Stainer	Emergency Eye Wash Station	Pipet Aids	Test Tubes
Bacteriological Incubator	Erlenmeyer Flask	Plastic Vacuum Tubes	Top-Loading Balance
Beakers	Fume Hood	Platelet Aggregation Profiler	Tourniquet
Beral (Transfer) Pipette	Glucose Meter	Point-of-Care Coagulation Analyzer	Transmission Electronic Microscope
Binocular Bright-Field Microscope	Graduated Cylinders	Rapid-Latex Agglutination Test for D-Dimer	Urine Particle Analyzer
Blood Collection Tubes	Hemocytometer	Refractometer	Urine Reagent Strip
Blood Bank Refrigerator	Inoculating Loop	Saf-T Wing Blood Collection Set	Urine Sterile Collecting Straw
Candle Jar	Manual Differential Cell Counter	Safety Shower	Urine Strip Reader
Capillary Collection Vials	Microhematocrit Centrifuge	Safety Syringes	Urinometer

Chromatographic Immunoassay for Urine hCG	Microhematocrit Tubes with Sealant Pad	Scanning Electron Microscope	Volumetric Flask
Clean-Catch Urine Collection Kit	Micropipettes	Serological Centrifuge	

Skill II:	Infection control and transmission-based precautions	5 minutes
Skill III:	Using a microscope	10 minutes
Skill IV:	ABO Grouping	6 minutes
Skill V-A:	Preparing a Blood Film or Smear	5 minutes
Skill V-B:	Staining a Blood Film or Smear	10 minutes
Skill VI:	Physical Examination of Urine	6 minutes
Skill VII:	Inoculate and Streak Agar Plate	5 minutes

(FOR ALL SKILLS, BODY FLUIDS WILL BE A SIMULATED PRODUCT)

14. The selected skill(s) will be presented to competitors as a written scenario at the beginning of the round. The scenario will be the same for each competitor and will include a challenging component that will require the competitor to apply critical thinking skills. A sample scenario can be found [here](#).
15. Timing will begin when the scenario is presented to the competitor and will be stopped at the end of the time allowed.
16. The scenario is a secret topic. Competitors MAY NOT discuss or reveal the secret topic until after the event has concluded or will face penalties per [the GRRs](#).

Final Scoring

17. The competitor must earn a score of 70% or higher on the combined skill(s) of the event (excluding the test and ID lab equipment) to be recognized as an award winner at the ILC.
18. Final rank is determined by adding the round one test score plus round two skills score. In case of a tie, the highest test score will be used to determine the rank.

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Section # _____ Division: _____ SS _____ PS/C
 Competitor # _____ Judge's Signature _____

Skill II: Infection Control and Transmission-Based Precautions (Time: 5 minutes)	Possible	Awarded
1. Assembled equipment and PPE (Personal Protective Equipment - including gloves, mask and gown).	2 0	
2. Washed hands using antiseptic soap		
a. Turned on warm water using a paper towel to turn the faucet handle, then discarded the towel	2 0	
b. Dispensed soap into hands, then rubbed fronts and backs of hands and between fingers vigorously for 15 – 30 seconds.	2 0	
c. Rinsed hands, fingertips downward, under warm running water.	1 0	
d. Used clean towel to dry hands and turn off faucet.	1 0	
e. Disposed of towel, touching only the clean side.	1 0	
3. Used waterless antiseptic handrub.	2 0	
a. Applied handrub to palm of hand and rubbed hands together vigorously for at least 15 seconds, covering all surfaces of hands and fingers.		
b. Continued skill until all alcohol has evaporated and hands are completely dry.	1 0	
<i>* Steps for donning PPE must be performed in the order listed below.</i>	1 0	
4. Slipped arms into the sleeves of a gown, being careful to touch only the inside of the gown.		
5. Secured gown at neck and back of waist, covering clothing completely.	1 0	
6. Donned mask		
a. Picked up mask and place it over the mouth and nose, being careful not to touch the face with the fingers.	1 0	
b. Secured the mask by tying or looping over the ears.	1 0	
7. Donned sterile gloves		
a. Opened the package of gloves, avoiding touching the outside of the gloves.	1 0	
b. Picked up the right glove by the cuff and inserted the right hand.	2 0	
c. Picked up and held the left glove by inserting the fingertips of the gloved right hand under the cuff of the left glove.	2 0	

Skill II cont'd: Infection Control and Transmission-Based Precautions	Possible	Awarded
d. Inserted the left hand into the glove.	1 0	
e. Adjusted to cover arm and sleeve of gown.	1 0	
* Judge states, skill is completed, remove PPE.		
8. Removed the gloves by folding them down and turning them inside out, avoiding touching the outside of the gloves.	2 0	
9. Discarded gloves in biohazard receptacle.	1 0	
10. Untied gown ties at neck and waist.	1 0	
11. Removed gown by pulling down from the neck and slipping hands back into gown sleeve, touching only the inside of the gown.	2 0	
12. Folded the gown down over the arms inside-out and discarded in biohazard receptacle.	1 0	
13. Removed mask, touching only the ties.	1 0	
14. Held the mask by the ties and discarded in biohazard receptacle.	1 0	
15. Washed hands or used antiseptic hand-rub for hand hygiene	2 0	
TOTAL POINTS - SKILL II	34	
70% Mastery for Skill II = 23.8		

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Section # _____ Division: _____ SS _____ PS/C
 Competitor # _____ Judge's Signature _____

Skill V-B:	Staining a Blood Film or Smear	(Time: 10 minutes)	Possible		Awarded
1.	Assembled equipment and materials.		1	0	
2.	Washed hands or used alcohol-based hand-rub for hand hygiene.		1	0	
3.	Put on gloves and if splashing of blood is possible put on gown, mask or face shield, and protective eyewear.		2	0	
4.	Obtained blood smear film.		1	0	
5.	Placed the slide with the smear side up on the staining rack.		1	0	
6.	Made sure the staining rack is level.		1	0	
7.	Stained with Wright's stain.		1	0	
	a. Completely covered the dry smear with staining.				
	b. Counted out loud the number of drops of stain used as applied.		1	0	
	c. Verbalized stain left in place and timed for 1 -3 minutes.		1	0	
8.	Distilled water or Buffer in equal amount with stain				
	a. Placed distilled water or buffer on slide one drop at a time in equal amount of stain.		1	0	
	b. Between drops, blew gently along the length of the slide to mix the stain and water.		1	0	
	c. Verbalized allowed to stand and timed for 2 - 4 minutes.		1	0	
9.	Judge verifies that solution is well mixed as noted by oily, green sheen appearing.		4	0	
10.	Washed the slide by flooding gently with distilled water.		1	0	
11.	Cleaned and replaced all equipment.		2	0	
12.	Used a disinfectant to wipe the counter and any contaminated area.		2	0	
13.	Removed PPE and discarded properly in an infectious waste bag.		2	0	
14.	Washed hands or used alcohol based hand-rub for hand hygiene.		2	0	
TOTAL POINTS - SKILL V-B			26		
70% Mastery for Skill V-B = 18.2					