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09/09/2025

RE: Lab Ergonomic Assessment Report

To: Kathleen Castillo, Teodorico Lee, Laura Buhlmann

Central Processing:

Purpose: to record receipt of specimens and redirect them to the correct lab BH location.

1. Six workstations:
 - a. Work benches 2, 3, 4, 5 counter heights are 29, ¾-inch high, no leg obstructions.
 - b. Work benches 6 and 7 counter heights are 30.5-inches high, no leg obstructions.
 - c. Work is done on top of the desktops.
2. Chairs:
 - a. A mixture of brands, but all are ergonomically adjustable task chairs for height, seat pan depth, lumbar adjustments for height and have adjustable armrests.
 - b. When the chairs are adjusted to allow keyboard and mouse work on top of the counter tops, if employees' feet dangle the footrests can be purchased to support their feet.
 - c. Seat cushions can be purchased if there are any height discrepancies, e.g., chairs are too low.
3. Computers:
 - a. The hard drives and monitors are attached to height adjustable and tilt adjustable frames, Digital Technology Solutions (DTS) Standard all-in-one frames.
4. Phones:
 - a. All phones are desktops style and allow for speaker use.
5. Accessories:
 - a. All stations have barcode scanners to minimize UE movement with scanning.
 - b. There are paper scanners available.
 - c. Printer is central and it is a short walk from all stations.

Central Processing Recommendations:

1. In-service on ergonomics specific to the laboratory setting.
2. If employees are ergonomically aligned to work on the desk / countertops and their feet dangle purchase them a footrest. Purchase a footrest via the YNHHS online WB Mason webpage. Alera Ergo Tilt Footrest, 13.75w x 17.75d x 3.38 to 5.13h, Black. Item Number: ALEFS312. If this model no longer exists, then any 4-inch-high footrest identified on the webpage will be sufficient.
3. Long term, if the space is renovated work with Facility Design & Construction and look to upgrade with the following concepts:
 - a. Chairs with an expanded height adjustable pneumatic cylinder.
 - b. Sit to stand work surfaces with an electric power source to eliminate the leg room obstructions and allow for sitting and standing options.

Send Out Process Area (an extension of Central Processing):

Previously the immunology lab

Purpose: To record, aliquot, package, and redirect specimens to other labs within or outside the YNHHS.

1. Three workstations:
 - a. Work Bench 8 and 9 have counter heights of 31.5-inches with leg obstructions like the drawer obstructions identified in the coagulation station and in the chemistry lab.
 - b. Workbench number 10's counter height is 35.5-inches.
2. Chairs:
 - a. A mixture of brands, but all are ergonomically adjustable task chairs for height, seat pan depth, lumbar adjustments for height and have adjustable armrests.
 - b. When the chairs are adjusted to allow keyboard and mouse work on top of the counter tops, if employees' feet dangle the footrests can be purchased to support their feet.
 - c. Seat cushions can be purchased if there are any height discrepancies, e.g., chairs are too low.
 - d. Workstation 10 requires a counter-height chair with a foot ring, which is appropriate for this station.
3. Computers:
 - a. The hard drives and monitors are attached to height adjustable and tilt adjustable frames, Digital Technology Solutions (DTS) Standard all-in-one frames.
4. Phones:
 - a. All phones are desktops style and allow for speaker use.
5. Accessories:
 - a. All stations have barcode scanners to minimize UE movement with scanning.
 - b. There are paper scanners available.
 - c. Printer is central and it is a short walk from all stations.

Send Out Process Area Recommendations:

1. In-service on ergonomics specific to the laboratory setting.
2. If employees are ergonomically aligned to work on the desk / countertops and their feet dangle purchase them a footrest. Purchase a footrest via the YNHHS online WB Mason webpage. Alera Ergo Tilt Footrest, 13.75w x 17.75d x 3.38 to 5.13h, Black. Item Number: ALEFS312. If this model no longer exists, then any 4-inch-high footrest identified on the webpage will be sufficient.
3. Long term, if the space is renovated work with Facility Design & Construction and look to upgrade with the following concepts:
 - a. Chairs with an expanded height adjustable pneumatic cylinder.
 - b. Sit to stand work surfaces with an electric power source to eliminate the leg room obstructions and allow for sitting and standing options

Hematology Lab: Micro, Coagulation, Urinalysis

Micro Area:

Micro Machines:

1. Cepheid GeneXpert Infinity:
 - a. Micro functions only
 - b. Counter used to feed the machine is 37-inches high, acceptable.
2. Biosafety Hood: next to the Cepheid GeneXpert Infinity machine
 - a. Where the material is prepared for the Cepheid GeneXpert Infinity machine
 - b. Work surface of the hood is 34-inches high, acceptable.
 - c. Does not filter to the outside. Filters through Hepa filters and back into the room.
3. Luminex:
 - a. Panels include:
 - i. Respiratory viral
 - ii. Stool
 - iii. Covid load
 - iv. These multiple machines will be condensed / upgraded to a smaller all-inclusive machine giving the computer workstation improved direct in front alignment.
 - b. Computer station:
 - i. Countertop height is 31 and 1/8-inches
 - ii. Chair allows for appropriate height adjustments, and no leg restrictions.
 - iii. Computer and monitor are adjustable for height and tilt.

Micro Area Recommendations:

No recommendations are required.

Coagulation Area:

Coagulation Machine:

1. Sysmex Cg2500 (two machines)
 - a. Centrifuge at each machine.
 - b. Countertops are 34.5-inches tall with the machines on top of them, appropriate.
 - c. These stations are standing stations with shock absorbing mats including beveled edges to reduce trip hazards.
2. Computer workstation:
 - a. Height: 31.5-inches
 - b. Drawer beneath the countertop impedes the legs and the ability to raise the chair height enough to ergonomically align with the keyboard and mouse functions, Attachment A.
 - c. Computer / monitor: All in one height adjustable and tiltable frame, acceptable.

Coagulation Recommendations:

When the computer workstation counter tops are renovated replace the old counter with an electrically adjustable sit-to-stand table.

Urinalysis Area:

Urinalysis Machines:

1. BeckmaniQ2000
 - a. Two machines linked together
 - b. Employees place tubes in the machines at a 36.5-inch height, acceptable.
2. Computer workstation:
 - a. Countertop height is 31-inches
 - b. No leg obstructions
 - c. Chair is ergonomically adjustable, acceptable.
 - d. Computer / monitor: All in one height adjustable and tiltable frame, acceptable.

Urinalysis Area Recommendations:

If employees' legs dangle when the upper body is in proper ergonomic alignment with the keyboard and mouse the purchase a footrest via the YNHHS online WB Mason webpage. Alera Ergo Tilt Footrest, 13.75w x 17.75d x 3.38 to 5.13h, Black Item Number: ALEFS312. If this model no longer exists, then any 4-inch-high footrest identified on the webpage will be sufficient.

Miscellaneous Hematology Lab Areas:

1. Manual Fluid Counts:
 - a. Two stations
 - i. Countertops heights 31.5-inches
 - ii. Microscopes on counters.
 - iii. Ergonomically adjustable chairs
 - iv. All-in-one HP adjustable monitor stands
2. Slide-staining Station
 - a. Spin in centrifuge that is on 31.5-inch countertop
 - b. Make two slides per tube
 - c. Stain both slides
 - d. Look at slides under microscope that is on countertop
 - i. Ergonomically adjustable chair
3. Trinity Premier A1C Auto Machine
 - a. QC pipetting done in the AM only
 - b. Standing
4. Gram Staining at sink for cerebral spinal fluids
 - a. Less than 20/month
 - b. Sink height is 31.5-inches
 - c. Ergonomically adjustable chair
5. Mononucleosis testing
 - a. 1 to 2/day
 - b. 31.5-inch countertop height
 - c. Ergonomically adjustable chair
6. Backup Urinalysis station
 - a. 31.5-inch countertop height.
 - b. Ergonomically adjustable chair
7. TEGGs Machine – evaluates the pathway for clotting
 - a. 35-inch countertop machine
 - b. Less than 1/day
 - c. Automated and interfaced machine
8. iSED Machine for sedimentation rates
 - a. 35-inch height, automated and interfaced machine

Chemistry Lab

Chemical Analysis Area

XN9100 Sysmex Machine

1. Tubes are placed in the machine loading area at 32.5-inch height
2. Two analyzer stations that are fed by the loading area.
 - a. Two keyboards, mouse, and monitors are fully mounted on adjustable arms for height.
 - b. One station crates a slide
 - c. The other station stains the slide
3. Computer reader station
 - a. One keyboard, mouse, and monitors are fully mounted on adjustable arms for height.
4. Reading table: Electronically adjustable for height, sit-to-stand. Three monitors: Two are adjustable for height and tilt, the third monitor is too high, but used infrequently, e.g., Attachment B

XN9100 Sysmex Machine Reading table Recommendations:

Contact Digital Technology Solutions (DTS) and place a work order to assess and re-mount the high monitor using a different bracket that lowers the height, attachment B.

8100 Machine

1. Automated preparation of the tubes for the Roche analyzers, two lines.
2. Ergonomic height for standing to load tubes into machine

Roche Analyzer

Automated chemical analysis

Computer Verification Stations (3)

1. Drop off area for samples
2. Electronic sit to stand tables
3. All with two monitors
4. Integrated system allowing for verification of chemical analysis

Blood Gas Area

2ABL800 Machine: Integrated

1. 34.5-inch height to load machine.
2. Automated process
3. Long term (~2-3 years) will be updated with further chemistry automated lines (core lab),

Miscellaneous Workbench Stations (2)

1. 37.5-inch-high countertop
2. One station the drawer is in the way of operator's legs during height alignment efforts, Attachment C.
3. The second station has no leg room to position legs beneath the workstation, Attachment D.
4. Appropriately sized chair with foot ring.
5. Long Term this area will become absorbed with the core chemistry update.

Miscellaneous Workbench Stations Recommendations:

Build a current countertop extender to allow for better leg room and replace countertops with electric high-low tables.

Liaison Testing / DiaSorin

1. Hepatitis testing and Vitamin D testing
2. 37.5-inch-high countertop
3. One station the drawer is in the way of operator's legs during height alignment efforts.
4. Appropriately sized chair with foot ring.
5. Long Term this area will become absorbed with the core chemistry update.

Liaison Testing / DiaSorin Recommendations:

Build a current countertop extender to allow for better leg room and replace countertops with electric high-low tables.

Histology Lab

Purpose: Create slides for optimal viewing of biological tissue samples.

Receiving Area

1. (2) desks, 28.75-inch
2. Adjustable monitors for height and tilt.
3. Chairs are Amia model task chairs, manufactured by Steelcase

Receiving area Recommendations: None

Grossing Area

1. Three bio-hood workstations, as samples arrive in formalin solutions
 - a. Two are electronically height adjustable
 - b. One is non-adjustable
2. Chairs (3)
 - a. Counter height, all are height adjustable with foot rings
3. Computer stations (3)
 - a. Keyboards and monitors are mounted on ergonomically adjustable arms to the side of the hoods; two to the right and one to the left.

Receiving area Recommendations:

Employee education for ergonomic workstation set up.

Processing Area

1. Slice the samples to create a cassette
2. Formalin soak to preserve the bio-specimen
3. Placed in a processor that dries the sample (heat and chemical process). Then sent to the embedding stations.

Processing Area Recommendations: None

Embedding Area: Stations (2)

1. Chairs: One task chair and one counter-top height chair with a foot ring.
 - a. Employees may prefer one chair over the other depending on their height.
2. Work surface: 35-inches high
3. Bar code scanners 31.5-inches high
4. Laptops:
 - a. Used for the monitor aspect and sit above the machines angled down to the embedding station.
 - b. Connected with a mobile mounting arm
 - c. Keyboard aspect is not used often.
5. Mouse: wireless and used to operate software, low frequency.

Embedding Area Recommendations:

Arrange stations to allow lower monitor placement

Cutting Area

1. Microtome stations (7)
 - a. Microtome machines sit on 31.5-inch countertops
 - b. Bar code scanners at each workstation
 - c. Chairs: There are several options
 - i. Task chairs for those who like to sit lower
 - ii. Countertop ring chairs for higher sitting preferences.
 - d. Foot pedals are available for operating the microtome machines, helping to decrease frequent arm motions.
 - e. Alternate to the foot control, hand operation with a small spinning wheel for improved control of the microtome machines.

Cutting Area Recommendations: None

Staining Room Area

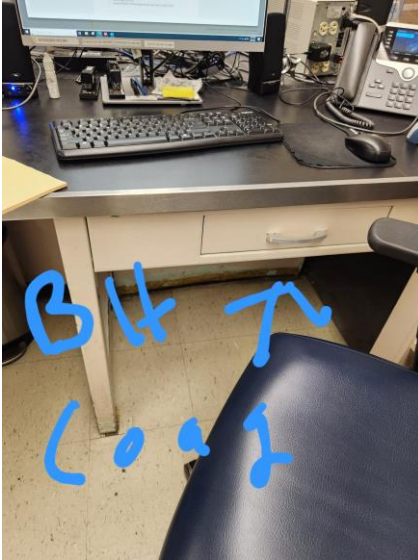
Purpose: staining biological samples for better viewing of the tissue

1. Immunological-histology chemistry (IHC) requires staining of slides
 - a. Three different staining machines
 - i. Dako Omnis staining machine
 - ii. Link machine: Pretreatment and staining
 - iii. Artisan machine for special staining
 - b. Loading water into machines requires use of good body mechanics as containers are close to floor, 16-inches, nine canisters.
2. Microscope station:
 - a. Two chairs: One desk task height and one with a foot ring to accommodate employees' heights
 - b. Process:
 - i. Embedding of material is completed in next room.
 - ii. Slicing of the sample
 - iii. Staining of the sample
 - iv. Floating the sample and placing on a slide
 - v. Scanning the sample

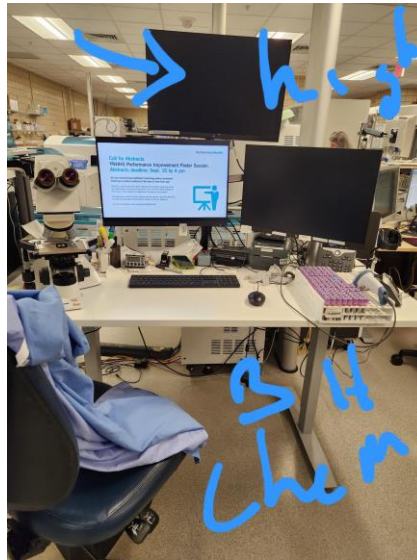
Staining Room Area Recommendations:

1. When upgrades re-engineer to place the solutions and water supplies and machine containers at waist level to minimize the temptation to bend while lifting.
2. Short term annual review of proper lifting technique for items below the knee level.

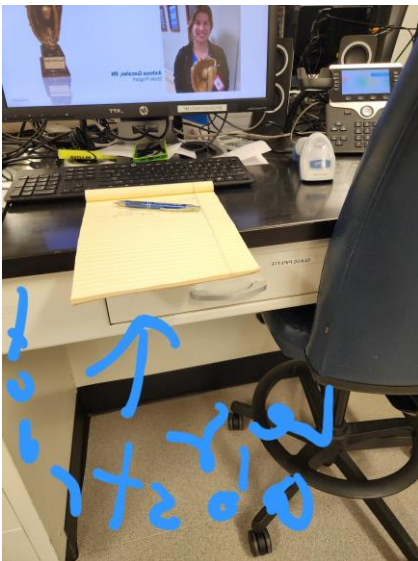
ATTACHMENTS



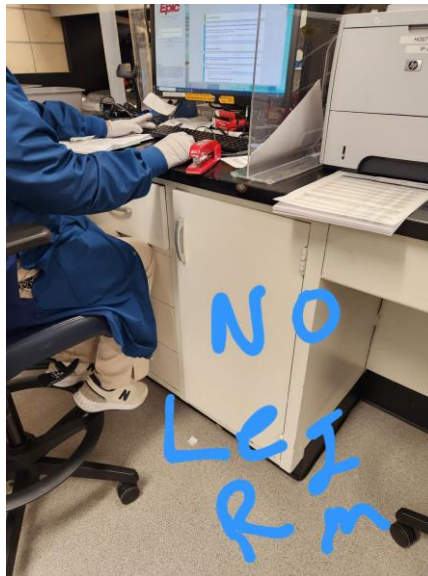
Attachment A: Drawer restricts legs.



Attachment B: Monitor Height



Attachment C: Drawer Leg obstruction



Attachment D: No leg room