

Welcome to Hematopathology – Residents' Survival Guide v4

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Hematological Pathology website ([HP Residency Program](#))

Resources are available via the Hematological Residency Pathology website. This is a secured website. If you do not have access please email the Hematological Pathology program administratory (hemepath@ualberta.ca)

Locations

- Medical Outpatients – 1C3
- Classroom – 4B1.38
- Blood Bank – 4B2.08
- Heme/Coag Lab – 4B2.23
- Multihead room/Consults room – 5B4.44 (Code 1133*)
- HLA – 4B4.19
- Molecular Pathology – 4B4.30
- Hemepath residents room (locked) – 5B3.08
 - HP and off-service resident will have space to work here. Off-service residents can get a key from Lead resident or Program admin at the start of their rotation. Please ensure this key is returned when you are finished HP.
- Anatomical Pathology teleconference room - 5B3.04
- KEC hematology clinic – 3D Kaye Edmonton Clinic

Rounds Schedule

- Bloodbank rounds:
 - Monday 10:00 AM In-person 5B3.09 (code: 2245*), mandatory in-person attendance and participation is required.
 - Thursday 10:00 AM virtual attendance
<https://albertahealthservices.zoom.us/j/62874394104?pwd=LaxxbT1CSTkGUgprbgJtD0KtmmEF6C.1>
 -
- **W - 12PM** – Joint Hematology Rounds.
- **Fri 11AM** – QA rounds Virtual
- **Thurs 2:30PM** – Lymphoma rounds in AP Teleconference Room (sometimes)
- **Tuesday**
 - **1PM** – Academic Half Day, usually in classroom, or via skype
 - MEPC for Adult hematology sends out calendar invites with the exact start time and information
 - No scheduled coag rounds, please communicate with staff to arrange these on an ad hoc basis with the responsible staff. The staff are usually unavailable from 11:00-12:00 due to heme ops meeting.

Call Schedule Terminology

- **UAH** – University of Alberta Hospital
- **RAH** – all hospitals in the Edmonton Zone excluding UAH (includes RAH, MIS, GNH, SGH, NEC, FSH, SHPK)

- **ROCA** – Regional On Call Application, available through AHS insite. This is the master call schedule used by HP and most other services, that switchboard uses and that the techs use to find out who is on call.
 - <https://insite.albertahealthservices.ca/tools/Page6492.aspx>
- **Morph call** – morphology/coagulation issues, such as unusual/urgent findings on a peripheral blood smear (blasts, schistocytes, malaria, etc.), mixing study interpretation, etc.
- **TM call** – transfusion medicine (blood bank) issues, such as massive hemorrhage protocols (MHPs), pan-reacting antibodies, product requests, etc.
- **Day call** – Monday to Friday 8AM – 5PM (excludes statutory holidays)
- **Night call**
 - Weekdays: 5PM – 8AM
 - Weekends: Full day, ending on Monday at 8AM (if statutory holiday, might end on Tuesday 8AM)
 - Night call is generally split into two blocks, M-Th and F-Su, unless the resident requests 7 nights in a row or there are scheduling conflicts.

Call requirements

Clin Heme residents:

DAY CALL 1st rotation (PGY-4):

- 2 weeks TM RAH (during blood bank weeks) and 4 weeks morph UAH across 3 blocks (2 weeks of day call per block)

2nd rotation (PGY-5):

- 2 weeks TM UAH (during blood bank weeks) and 4 weeks morph UAH across 3 blocks (2 weeks of day call per block)

OVERNIGHT CALL requirements have not been changed and remain as follows:

1st rotation (PGY-4):

- first block: no night call

- other blocks: 1 week TM RAH or morph UAH+RAH per block

This is usually split as weekday nights (monday-thursday), and a weekend, and alternating services (TM or morph).

For example: weekday nights of TM, and weekend of morphology in one block, and weekday nights of morphology and weekend of TM in the next block

2nd rotation (PGY-5):

- 1 week of TM UAH or morph UAH+RAH per block

Split as described above

- **HP1, DCP3, Heme R4** residents on their junior HP blocks
 - on their first block of HP: TM RAH day call, no night call
 - subsequent blocks:
 - Day call = Morph UAH + TM RAH
 - Night call = Morph UAH+RAH **OR** TM RAH

- Generally 7 nights of call per block which will be split evenly between the two services each block
- **HP2,3,4, DCP4/5, Heme R5** residents on their second set of HP rotations
 - o Day Call = Morph UAH + TM UAH
 - o Night call = Morph UAH+RAH **OR** TM UAH
 - Generally the 7 nights of call per block will be split evenly between the two services
- **When you have a day or night call coming up, please check ROCA to ensure it is correct,** as there are sometimes transcription errors. The schedule sent by the Lead resident each block is the correct one (usually ☺)
 - o If you think there is an error, please contact the HP Lead resident (Beau Beauliene: Isaac.Bouliane@albertahealthservices.ca). If the lead resident is not available, you can email our admin directly and ask them to fix it.
 - **Sam Diluvio:samantha.diluvio@albertaprecisionlabs.ca**

HP Staff schedule

- The staff operate on a virtual hub model. Slides from various hospitals are moved around the city depending who is on for a certain role.
 - o **Trg** - Triage marrows, dictate P1 marrows, Morph UAH Day Call, UAH LI's, CSFs, special coagulation
 - o **BM** – Primary Bone Marrow - Takes all P2 marrows from the preceding day. If there are less than 4 P2 marrows, takes additional P3 marrows to a total (P2 + P3) of 4. Sign out all other non-marrow flow (PNH, EMA, CSF, etc).
 - o **OF** – Overflow person does marrow catch-up, Morph RAH day call, QA for others, assists with PCs as available.
 - o **PC** - PCs, Malarias, RAH Lis/RTPs, MIS Lis/RTP's
 - o **TM** call – the staff are always on for the entire Edmonton Zone (residents are usual only on for either UAH or RAH)
- The most recent staff schedule is always posted outside Special Hematology and sent to the department via email – Off-service residents can ask of the HP residents to forward it if you would like an electronic copy.

Daily Workflow on HMCT

Procure bone marrows (once or twice per week).

- **Kaye Edmonton Clinic**
 - o During your first HP block, you will be scheduled for a few supervised bone marrow procurement clinics (Tuesdays in AM) at the Kaye Edmonton Clinic (the reception at 3D will tell you where to go) starting at 8 or 9AM. Bring your bone marrow objectives checklist (available on The Hematopathologist website) and give it to the staff so they can evaluate you.
- **UAH Marrows:**
 - o Once you are comfortable with marrows you will do them unsupervised on inpatients.
 - o The resident procurement schedule will always include a staff member of the clinical hematology team as backup, should you run into problems. This is sent

out each block in a google sheet and is also posted on the whiteboard in special hematology. **DO NOT HESITATE TO CALL FOR HELP IF YOU NEED IT.**

- The patients booked can be seen on the UAH WMC LAB schedule in beaker (EPIC) or on the whiteboard in special hematology. The earliest inpatient marrow is at 9AM. Generally, each marrow should take no longer than 45 minutes so that you finish on time.
- Remember to obtain consent through the consent manager on Epic and write a procedure note and nursing communication in the patient's chart afterward. See **Appendices A-C** for more info on how to do these things in EPIC.
- Techs need to finish by 11AM but they will stay slightly longer if necessary.

Sign out Special Coagulation tests

- The paperwork is in a tray by the special coag bench in the lab.
- Scan or type the batch number into "results entry and verification" in EPIC. This should bring up the entire batch for you to edit.
- Some tests may be already final verified (eg. standard factor levels). Here you just need to review them quickly and do a history check to ensure any abnormal results are known. If not previously known then you will need to contact the ordering physician and usually suggest referral to hematology. Discuss with staff if you are at all unsure.
- For other tests that need interpretation, please refer to the most recent version of the **Survival Guide to Coagulation** for info on how to interpret and report. Some tests have smartphrases you can enter (ex .LAPOS for lupus anticoagulants) while other have a drop down list of choices in EPIC (ex. PTT inhibitory screens). (See **Appendix F**)
 - Ensure that a "Reviewed by (resident name) and (staff name)" is included.
- **Ideally, coag should be reviewed first as coag rounds are at 11AM.** During coag rounds, the cases will be reviewed and signed out, and there may be questions/discussion about the underlying disease, assay, clinical significance, etc.

LIs (laboratory-initiated slides)

- AKA: RTPs ("referred to path")
- These are slides automatically flagged for review by certain lab criteria or by techs. They are in a black tray in the lab beside Special Hematology.
 - Different from a "Smear for Consult" (SMEC) (EPIC) or "Pathologist Comment" (PC) (non-EPIC) which is a slide review requested by the clinician
- Look at the CBCD and the slide, then look up the patient on Netcare/Epic, and see if you can explain what you're seeing on the slide. (eg. decreased ANC. Are they on chemo? If yes, there's your answer. If no, is there anything on the slide that explains the decreased ANC, eg. dysplastic features?)
- Decide if there is anything **actionable** that you should write a full peripheral smear report on. For your first few heme blocks, you will review all of the smears with staff (**Triage** staff is responsible) until you are explicitly told that you can sign them out independently. Set a time to review with staff, usually aim for early in the afternoon.
- If there is nothing actionable, enter the **.LI smartphrase** (or make your own similar one) into the "Peripheral Blood Film to Pathologist" field

- .LI reads: "Results and blood smear reviewed as part of laboratory protocol and verified by resident or pathologist. No additional comment. Reviewed by Dr. ____MD"
- This can be modified to say the findings are consistent with the clinical history.
 - For example: "Results and blood smear reviewed as part of laboratory protocol and verified by pathologist. The presence of occasional circulating blasts is consistent with the clinical history of MDS on Vidaza. No additional comment."
- Don't forget to sign your name after (and the name of the pathologist you reviewed with if applicable). You can make smartphrases for this as well
 - "Reviewed by Dr. Bugs Bunny (resident) and Dr. Michael Jordan (hematopathologist)"

Review CSFs

- Most of the CSFs we get are from patients with ALL, but sometimes there are other indications.
- For the ALL patients, review their past CSF results thoroughly to determine if they have ever been CNS positive (look at all the fluids and also look to see if flow cytometry on CSF has ever been done). Then scan the entire slide very carefully (on 50x) to see if there are any blasts.
- Please see **Appendix E** for info on how to result CSFs in EPIC.
- **Be very careful in wiping the oil off CSF and other fluids!** They are not fixed so you can wipe off all the cells if you are too vigorous. A gentle dab will suffice.

Attend Blood Bank rounds

- These occur Mondays and Thursdays at 10 AM, on Zoom, (or in the multihead room), usually run by Dr Nahirniak/TM physician on call/senior HP resident.
- These rounds are mandatory if you are on HMCT or if you are on TM call during any other rotation
 - You should also attend if you are just coming off or just starting a stretch of TM call
- If you are on call, you may be asked to present TM cases you had the previous night, so bring your Call to TM Physician forms.

Attend QA rounds

- These occur on Weds 3PM and Fri 11AM (currently on Skype, but may transition back to the multihead room eventually). Staff will present challenging bone marrow cases that they currently have. Occasionally, residents working on bone marrow cases will also present.

Morph/Coag Call

- 3 Main scenarios that you will be called about:
 - Urgent Lis
 - This includes scenarios such as bacteria on slide, schistocytes, blasts, etc.
 - Urgent Coag interpretation

- Mixing studies, positive HITT assays, critical factor levels not previously known etc.
 - Calls from a clinician to review a blood film
- Pick up slides at the UAH at the routine heme bench or ask them to leave it in the residents' tray.
- Review the slide and see if you can identify the morphologic finding, which the tech called you about. If it is something like a rare blast, where you are going to spend a long time hunting for it, remind the tech to circle it on the slide directly (getting slide coordinates is often not sufficient).
 - If you are on night call and don't have immediate access to a slide, or the slide is at a different site, there are several options available depending on the urgency and slide location. This can be decided in consultation with your staff if you aren't sure:
 - Review UAH and RAH slides on CellaVision (ask tech to scan it to the Path Sandbox)
 - Ask the tech to take a photo of the slide if the site has a microscope camera and email it to your AHS email (encrypted)
 - We sometimes ask techs to take pics with their personal cellphones, but they always have the right to refuse this so don't push them!
 - Ask the tech what they think – ie) do they see any schistocytes?
 - Ask for the slide to be sent to either UAH or RAH and be scanned into CellaVision
- Review the pertinent history on Netcare/EPIC– is this something new or is it already known? If it warrants a peripheral smear report, then draft one and email it to staff.
- Please refer to the most recent version of the **Survival Guide to Hematopathology** for details and useful suggestions for common scenarios.
- **Review every morph/coag issue you encounter with staff initially until you gain sufficient experience with common scenarios.**

NB: If you get called about an issue, it is now your responsibility to follow through on it!!! DO NOT just leave it for the day person to take care of.

Ex) Called overnight to assess for hemolysis on a PC/SMEC that was ordered earlier in the evening. You should review the morph on CellaVision if possible, get a photo from tech, ask the techs what they think etc. Then discuss with staff about whether a full report needs to be written – If the review was initiated by a clinician, the answer is always YES. A verbal report will often suffice overnight, however the full report should be written first thing in the morning.

- Provide a verbal report to the clinician once you have made your assessment and discussed with staff
 - Be sure to document who you spoke to and the time and include this in the report or Comm Log (if EPIC site)
- Call the lab and ask the techs to send you the slide “Attn Dr. ___ 4th floor hematology lab resident tray”
 - Also ask the staff where they would like a slide sent for them to review (if different from where you will be)

- In the morning, review the slide, write the report and email it to staff for sign out.

Occasionally the staff may arrange to hand over the case to the daytime person, but this is usually staff-to-staff communication and should not be assumed.

TM Call

- Residents cover either UAH or RAH, while the staff is always on for the entire Edmonton zone.
- Common calls include:
 - Product requests
 - Massive hemorrhage protocols (MHPs)
 - Antibody issues
 - Transfusion reactions
- Make sure you get the patient's ULI, location, and pertinent lab values, as well as any other relevant history/TM investigation results. The **"Call to Pathologist"** forms in the Blood Bank are both good for documenting your pages and reminding yourself what questions to ask when it is the middle of the night. You will be reviewing pretty much every call with staff at first, they know that and expect it.
 - **Note:** be sure to keep your Call to Path forms as they might need to be given to Heather/TM techs during Blood Bank rounds.
- Please refer to the most recent version of the **Survival Guide to Transfusion Medicine**, which is a very useful resource, and Bloody Easy is also very helpful too.
- Since there are many aspects and issues to consider with TM call, it is important to review TM issues with staff especially when you are starting your hemepath rotation.

UAH Expectations Summary

- Procure marrows if you are scheduled.
- Complete LIs/coag daily.
- Attend all rounds as above.
- When you feel comfortable with writing smear reports, you can ask the PC pathologist for additional smears.
- Start working on marrows as you become comfortable
 - HP residents should start marrows early, probably toward the end of your first HMCT block
 - For GPs this is likely towards the end of your first HP rotation
 - For Heme fellows this is likely towards the middle of your second HP rotation
- Do TM and morph call as scheduled.

Other Rotations

- **Lymphoma (CCI or DLDx):** Try to get as much exposure possible to lymphoid flow, bone marrows, and lymphoma cases while you are at CCI. A helpful resource for lymphoid flow is the flow cytometry review article in *Blood* (see resources).
 - Dr. Deschenes and Dr. Dong work from CCI
 - email the staff directly prior to meeting
 - Drs. Lai, Chen and Zhu work from DLDx

- Contact Erin (administrative assistant) to ensure you have a workspace prior to coming and to arrange for her or someone else to let you into the building on the first day. \$50 deposit is required for an access card.
- Erin Goulet: erin.goulet@dynalife.ca
- Mary Melnyk: mary.melnyk@dynalife.ca (if Erin is away)
- **HLA:** You will spend some time with the techs on the bench observing common HLA procedures, and typically the HLA directors will spend some time doing one-on-one teaching with you. The HLA Tech IIs can also send you some recorded lectures. It is a pretty flexible rotation. If you are a super keener, there is a book called *HLA Beyond Tears* which is available in the HLA lab. Contact the tech IIs the week prior to your rotation so set up a meeting time and plan. (You might still be scheduled for BMBx procurement during this time)
 - **Contact:** Newson.Ly@albertaprecisionlabs.ca (Tech II)
 - Deanna.Manna@albertaprecisionlabs.ca (Tech II)
- **Molecular:** You will rotate with the techs and learn about various molecular tests and methods. There is usually also an excellent quality session with the Tech III, Teresa, as well as some time with the molecular pathologists to discuss test interpretation. Contact the Tech IIs the week prior to your rotation to set up a meeting time and plan. (You might still be scheduled for BMBx procurement during this time).
 - **Contact:** Lynden.Jones@albertaprecisionlabs.ca (Tech II)
 - Christine.Choma@albertaprecisionlabs.ca, (Tech II)
 - Teresa.Paonessa@albertaprecisionlabs.ca (Tech III)
- **Dynalife:** Work with clinical chemists on hemoglobinopathies and protein electrophoresis. On the first day you can go to the main reception and ask for Dr. Estey or any clinical chemist if he is not there. They will then give you a swipe card to get in on subsequent days (they will ask you for a \$50 cash refundable deposit for the card). Note there is no reciprocal parking available for residents at DL so plan your transportation accordingly. (You should not be scheduled for day call or BMBx procurement during this time - if you are scheduled by mistake, contact the chief resident to adjust this).
 - **Contact:** Dr. Matt Estey: Mathew.Estey@dynalife.ca

Resources

This is a non-exhaustive list of the key resources you might find helpful. Some are quite detailed and might be more for HP residents only, but there are many good ones for beginners as well.

- **SOP Database (SoftTech)**
 - o <https://ahs.labqms.com/>
 - o UN: theresidents
 - o PW: HPresident
- **General**
 - o Quick Compendium of Clinical Pathology 4th ed. (hardcopy)
 - used by GPs for board exams, excellent place to start
 - o Quick Reference Handbook for Surgical Pathologists. Natasha Rekhtman et al. (pdf)
 - This has excellent tables on IHC and special stains, genetic markers, and working up primary of unknown origin
 - o Henry's Clinical Diagnosis and Management by Laboratory Methods, 23e
 - See also the quality and lab mgmt. section
- **Morphology**
 - o WHO Classification 2017 (hardcopy and pdf)
 - You will learn to know this book intimately
 - o Survival Guide to Hematopathology (local reference, available on the hematopathologist website)
 - o Bain Blood Cells and companion DVD – excellent for learning PB morphology
 - o CAP Color Atlas of Hematology (hardcopy)
 - o Clinical Hematology Atlas by Rodak (pdf)
 - o Interesting Cases Slide Set in Hemepath Residents' Room
 - o For Marrows:
 - Bone Marrow Pathology (2 volumes) by Foucar (hardcopy only, despite all our best efforts to find a pdf)
 - the HP staff/resident favorite for marrow pathology
 - Jaffe Hematopathology textbook (pdf and hardcopy)
 - Bain Bone Marrow Pathology (pdf)
 - a bit less detailed than Foucar but great for beginners
 - Diagnostic Pathology: Bone Marrow Pathology (hardcopy and ebook) Foucar
 - Bone Marrow Immunohistochemistry (hardcopy)
 - o For Lymphoma:
 - Diagnostic Pathology: Lymph Nodes and Extranodal lymphomas (hardcopy, pdf, ebook)
 - Diagnosis of Cutaneous Lymphoid Infiltrates. Subtil 2019. (pdf and hardcopy)
- **Coagulation**
 - o Survival Guide to Coagulation (local reference, available on the hematopathologist website)
 - o Practical Hemostasis website <https://practical-haemostasis.com/>

- o Dacie and Lewis Practical Hematology (hardcopy in multihead room, pdf.)
- o Bloody Easy Coagulation v2 (hardcopy and pdf)
- o Laboratory Hemostasis: A Practical Guide for Pathologists by Bennett (hardcopy in multihead room and pdf)
- o An Algorithmic Approach to Hemostasis Testing by Kottke-Marchant (hardcopy and ebook)
- **Flow Cytometry**
 - o <http://www.bloodjournal.org/content/bloodjournal/111/8/3941.full.pdf?sso-checked=true>
 - o Flow Cytometry in Neoplastic Hematology 3rd Edition. Gorczyca (pdf)
- **Transfusion Medicine**
 - o Survival Guide to Transfusion Medicine (local reference, available on the hematopathologist website)
 - o Practical Guide to Transfusion Medicine (hardcopy and PDF)
 - o AHS Transfusion Medicine <https://www.albertahealthservices.ca/lab/lab.aspx>
 - o Antibody ID practice cases (ask the techs, Danielle also has electronic copies)
 - o National Advisory Committee on Blood and Blood Products <https://nacblood.ca/>
 - o Bloody Easy 4
 - http://transfusionontario.org/en/documents/?cat=bloody_easy
 - o CBS Professional Education website, especially the Clinical Guide and Best Practices
 - <https://profedu.blood.ca/en/transfusion>
 - o Blood Bank Guy <https://www.bbgy.org/>
 - o Blood Group Antigens Facts Book by Marion Reid.
 - Hardcopy in rounds room or ebook available through ualberta libraries <https://ezpa.library.ualberta.ca/ezpAuthen.cgi?url=https://login.login.ezproxy.library.ualberta.ca/ebary/ualberta/unauthorized?url=https%3A%2F%2Fbookcentral.proquest.com%2Flib%2Fualberta%2Freader.action%3FdocID%3D1031882>
- **Molecular Pathology**
 - o Diagnostic Pathology: Molecular Oncology
- **Quality and Lab Management**
 - o Henry's Clinical Diagnosis and Management by Laboratory Methods, 23e (pdf and ebook on Clinical Key through ualberta libraries)
 - First 10 chapters are especially good for quality stuff
 - o Clinical Laboratory Management 2ed. 2014. Garcia. (pdf)

Free Hemepath Remote Learning Resources

Virtual grand rounds/Live Conferences/Webinars:

1. MD Anderson Lectures: check Kirill Lyapichev's Twitter for updates/links @KirillLyapichev
 1. 05/28/2020 at 9:15 AM CST, Dr. Kyle Bradley: "Benign Lymphoid Proliferations, Part 2"
 2. 5/29/20, 4:00 pm CST, Dr. Medeiros: lymphoma unknown conference

3. 06/01/2020 at 9:00 AM Central time, Dr. Thakral: "Potpourri of myeloid neoplasms"
2. CAP Virtual Lecture Series (free for CAP members); previous lecture recordings available at <https://www.gotostage.com/channel/capvls>
 1. May 29, 8:00 PST, Myeloid neoplasms
3. ICCS Webinar:
 1. Jun 4, 2020 02:00 PM EST, Panel Discussion: The Practice of Screening Tubes in Flow Cytometry Laboratories, https://zoom.us/webinar/register/WN_s4aOr8eoRCSf0QDmiolLpA
4. Blood and Bone webinar series (basic science oriented)
 1. Daily at 13:00 EST; additional trainee seminars every Thursday at 14:00
 2. Follow Kellie Machlus @thecloththickens on Twitter for more info; also livestreamed/archived on YouTube
5. MSKCC Clonal Hematopoiesis Seminar Series, @rosslevinemd lab
 1. 5/27 10:30-12:00 EST
 2. 6/4 8:30-10:00 EST

Websites:

1. Videos and review material:
 - [Society for Hematopathology](#) (New "virtual curriculum", new videos posted regularly).
 - [ISLH Education](#) (latest webinars, E-cases, and tutorials are free, others require membership)
 - [ICCS](#) (some powerpoints for free; other resources require membership)
 - [USCAP Hemepath Course](#) (CODE: USCAPath)
 - [Hemepathreview.com](#) (review outlines and presentations)
 - [ARUP Education](#) (videos and archived webinars for free; sort by category to get hemepath-related content)
 - [AMP Education](#) (search "free4all" in the search bar for free content)
 - [British Society for Haematology Education](#) (Images, case reports, MCQs, tutorials for free with website account; video lectures require membership).
 - [EHA Open Access Library](#) (tons of free archived lectures)
 - [HaemBase](#) (free board review summaries, primary focused on FRCPath exams)
 - [Haematologyetc.co.uk](#)
2. Morphology/Images:
 - Very useful morphology atlas: [Atlas of Haematological Cytology](#)
 - [ASH Image Bank](#) (need to make free account)

Digital Slide Boxes:

3. [University of Leeds hemepath digital teaching slide collection](#)
 - Click "advanced search" and select "haematology" or "lymph nodes, spleen, thymus" from the organ system dropdown
 - If "view full details" does not work, make sure popup blocker is turned off.
4. [University of Michigan hemepath digital teaching slide collection](#)
 - Massive collection of digital hemepath slides, including peripheral blood and bone marrow aspirate smears
5. [University of Toronto Image and Digital Slide Library](#)
6. [University of British Columbia Hemepath Digital Slide Library](#)

Podcasts:

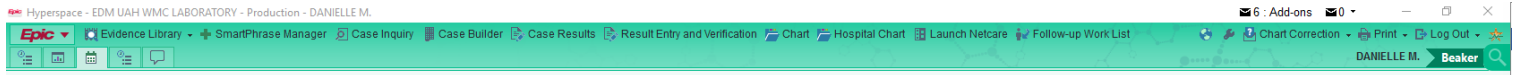
- [Blood Podcast](#) (summarized articles recently published in Blood)

- [Deeper Levels](#) (not strictly hemepath)

Basic Beaker/EPIC info

Assuming you have had introductory Beaker/EPIC training, this section will highlight some of the main functions used on hemepath.

- This is a screen shot of my main tool bar with all of my most used functions pinned (case builder, chart, etc)



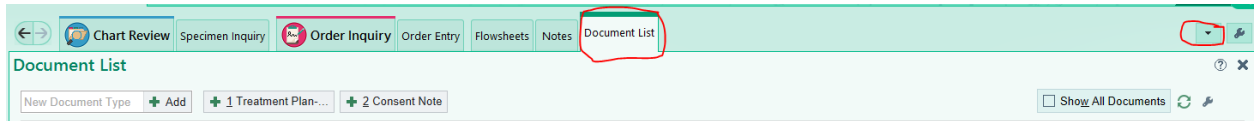
- To pin a function to the toolbar, click on the wrench and you can arrange your toolbar.
- To search for a function, use the magnifying glass next to your name



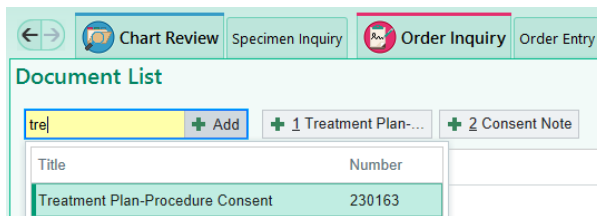
- **Smart phrase manager** – edit or create smartphrases
- **Case Inquiry** – to look up a specific result by accession number
- **Case Builder** – order IHC for marrows
- **Case Results** – Write bone marrow reports
- **Result Entry and Verification** – result peripheral films/Lis, CSF, transfusion reactions, coag
- **Chart** – the patient's entire outpatient style chart. Can see notes, labs etc but won't see all the small details of an admission
- **Hospital Chart** – this the chart for a specific admission. It will ask you to choose the episode when you search so choose the current admission or ED visit. This one is especially useful for transfusion reactions (getting all the vitals, nursing notes etc) and is also used for writing procedure notes and entering orders.
- **Launch Netcare** – opens the Netcare tab directly in a patient's chart
- **Follow up Worklist** – Can add things to there that you want to follow up on (not often used)

Appendix A – Getting consent for BMBx in EPIC

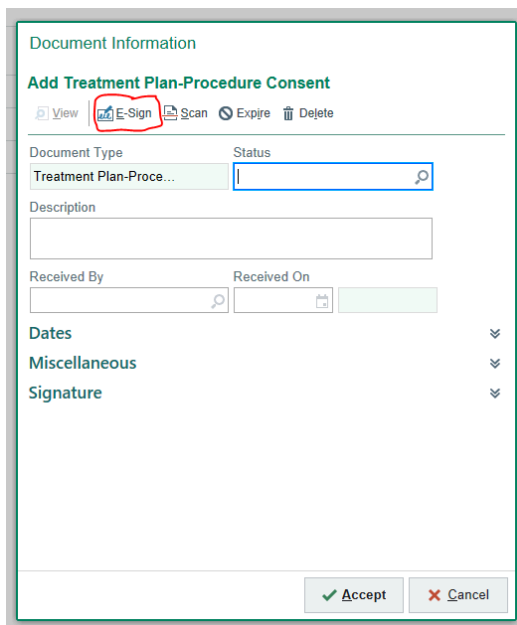
- Find a computer on the ward that has the E-signature pad. Just ask the unit clerk or a nurse which one has it.
- Open the **Hospital Chart** for the current admission



- Open the **Document List** tab. If you don't see this click on the arrow beside the wrench and you will find it there. (click the star beside it to pin it to your menu)
- Add new "Treatment Plan – Procedure Consent"



- Click on E-sign



- The E-sign window will then open

E-Signature Document Collector

Written Consent Verbal Consent Implied Consent

Switch collection mode to:

Scan

Consent Information

Treatment or Procedure details

100%

Provider performing procedure or treatment:

Signature Information

Specify role of person(s) providing consent

patient (adult)
patient (mature minor)
parent (with legal authority to consent)
co-decision maker
agent
guardian/legal representative
specific decision maker (relationship to patient)

Name of person providing consent:

Failed to connect to primary device: EVOLISSIGPAD. Successfully

Alberta Health Services

Consent to Treatment Plan or Procedure

Details of treatment plan or Procedure

Detailstreatmentplanprocedure

writtencentconfirmation

☒ Clinicianperformingprocedure will perform this treatment of any other healthcare practitioners including medical stud

I understand that I may, at any time, withdraw consent to th detailed above) or any other related matter.

Name of person providing consent Role

Nameprovidingconsent patient (adult)

Signature

Capture Signature

Co-decision Maker (if applicable): Namecodecision

Capture Signature

Edit Data

- Fill in the name of the procedure "Bone marrow aspiration and trephine biopsy"
- Use the magnifying glass to find your name (as the provider performing procedure)
- Type in the name of the person providing consent (usually the patient)

Witness

Name:

Name of most responsible healthcare practitioner:

If the person obtaining consent has been delegated to do so by the Most Responsible Health Practitioner, specify role

Physician
Resident
Other healthcare practitioner

Telephone/Fax Consent

Fax Telephone

Interpreter

Name:

Additional Comments (as applicable)*

100%

Co-decision Maker (if ap

Capture

Note: When an individu; personal directive, or oth record.

Witness Statement

I observed the person pr of age.) witnessdisclaime

Name: Nameofwitness

Signature

Capture

Most Responsible Heal

I have explained the trea this person understands

Name: Nameofmostres;

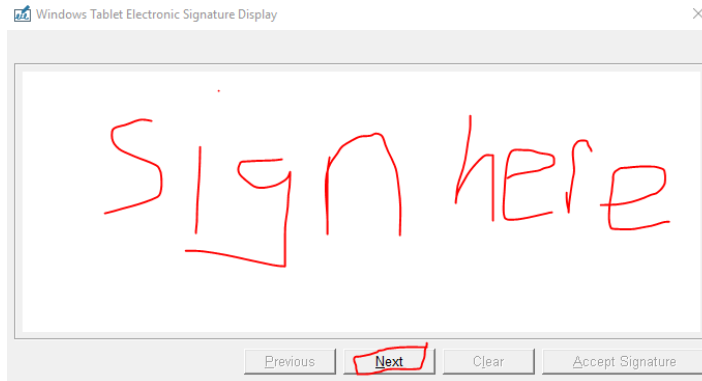
Signature

Capture

If the person obtaining c by the Most Responsible

- Enter the Witness Name

- Enter your name for the Most Responsible – select Resident
- Now you are ready to sign the E-signature pad. Click on the first Capture Signature (person providing consent) field and the E-sig pad the prompt them to sign. Click next and repeat until all applicable fields are signed. Not every field needs a signature (ex. Co-decision maker, just click Next to skip)



- When all signatures are captured, click "Accept" and the completed consent form should show up on the list of documents.

Appendix B – Writing a procedure note in EPIC

- In the **Hospital Chart**, open the current admission/ED visit

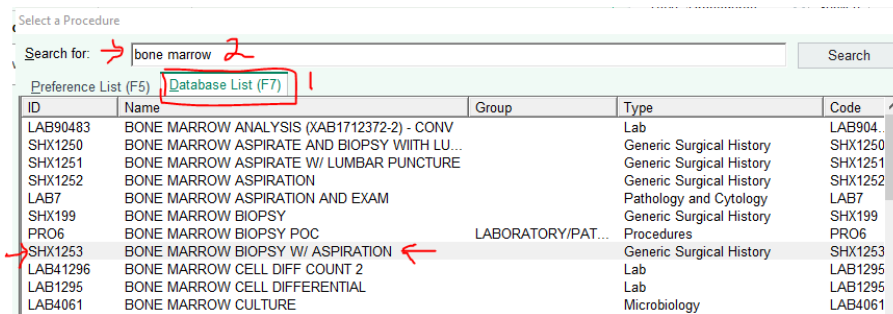
The screenshot shows the EPIC Hospital Chart interface. The top navigation bar includes tabs for Chart Review, Specimen Inquiry, Order Inquiry, Order Entry, Flowsheets, Notes, and Document List. The 'Notes' tab is selected. Below the navigation bar, there is a 'Notes' section with a 'New Note' button highlighted by a red box and a red arrow. Other buttons include 'Create in NoteWriter', 'Filter', 'Load All', 'Show My Notes', 'Show Notes by ...', 'My Last Note', 'Mark All as Not New', 'Refresh', 'Legend', and 'Note Editor Settings'. Below these buttons, there is a row of tabs: All Notes, Prog Notes, Consults, Procedures, H&P, Transfer, Discharge, Emergency, Tracking Record, Plan of Care, Periop, Events, and Incomplete. The 'Procedures' tab is highlighted with a red box and a red arrow.

- Click on the **"Notes"** tab (if you don't see it, find it in the arrow menu beside the wrench)
- Click on **"Procedures"**
- Click on **"New Note"** and the Edit Note sidebar will open

The screenshot shows the EPIC 'Edit Note' sidebar. The 'Type' is set to 'Procedures'. The 'Service' field is empty. The 'Date of Service' is set to '29/05/2020' at '1415'. The 'Cosign Required' checkbox is unchecked. Below this, there is a table for 'Associated Orders' with columns for Date/Time, Order Name, Provider, Specialty, and Status. The table contains one row: '28/05/20 1114', 'Pulmonary Function Test', 'Juan Gonzalez-Abr...', 'Sent'. Below the table, there is a 'Procedure Name' field with a red box around it and an 'Add to History' button. Below the 'Procedure Name' field, there are two sections: 'Pre-procedure Diagnoses' and 'Post-procedure Diagnoses', each with a '1' in the first column. At the bottom, there is a large text area for 'Enter Procedure note here' with a red box around it and a red arrow. The text area contains the text: 'Enter Procedure note here - creation of a smart phrase is helpful. Ask one of the HP residents to share theirs with you'. At the bottom right, there are three buttons: 'Pend', 'Sign' (highlighted with a red box), and 'Cancel'.

- Fill in the Service – Pathology
- Fill in the correct date and time that the procedure was performed

- Fill in the Procedure Name – click on the magnifying glass  Database List  search for “bone marrow” and select the “Bone Marrow Biopsy W/ Aspiration” procedure  click Accept



ID	Name	Group	Type	Code
LAB90483	BONE MARROW ANALYSIS (XAB1712372-2) - CONV		Lab	LAB904
SHX1250	BONE MARROW ASPIRATE AND BIOPSY WITH LU...		Generic Surgical History	SHX1250
SHX1251	BONE MARROW ASPIRATE W/ LUMBAR PUNCTURE		Generic Surgical History	SHX1251
SHX1252	BONE MARROW ASPIRATION		Generic Surgical History	SHX1252
LAB7	BONE MARROW ASPIRATION AND EXAM		Pathology and Cytology	LAB7
SHX199	BONE MARROW BIOPSY		Generic Surgical History	SHX199
PRO6	BONE MARROW BIOPSY POC	LABORATORY/PAT...	Procedures	PRO6
SHX1253	BONE MARROW BIOPSY W/ ASPIRATION		Generic Surgical History	SHX1253
LAB41296	BONE MARROW CELL DIFF COUNT 2		Lab	LAB1295
LAB1295	BONE MARROW CELL DIFFERENTIAL		Lab	LAB1295
LAB4061	BONE MARROW CULTURE		Microbiology	LAB4061

- Enter your note – I recommend creating a smartphrase for this to save time. The HP residents should have one they can share with you, then just change the name at the bottom.
 - o Example Note:

Hematopathology

Procedure Note: Bone Marrow Aspiration and Biopsy

Roger Rabbit was assessed today DATE. The patient understands the indication for biopsy/aspirate to be INDICATION

Vitals:

Blood pressure 115/71, pulse 105, temperature 37.1 °C, temperature source Temporal, resp. rate 18, height 1.54 m, weight 53.8 kg, SpO2 97 %.

The patient denies allergy to local anesthetic. Informed consent was obtained. Patient is aware of the risks of the procedure including bleeding, infection, and damage to surrounding tissues.

The patient was placed in the {Side:17767::"right","left"} supine position and the skin over the {Side:17767::"right","left"} posterior iliac crest was antiseptically prepared. Approximately *** mL of 1% lidocaine was injected. Bone marrow aspirate was obtained. Biopsy sample was obtained and an aseptic dressing was placed.

The patient tolerated the procedure well with no immediate complication. The patient was told to return to care if signs of bleeding or infection. Patient was instructed to leave dressing intact and dry for 48 hours, and follow up with referring physician for results.

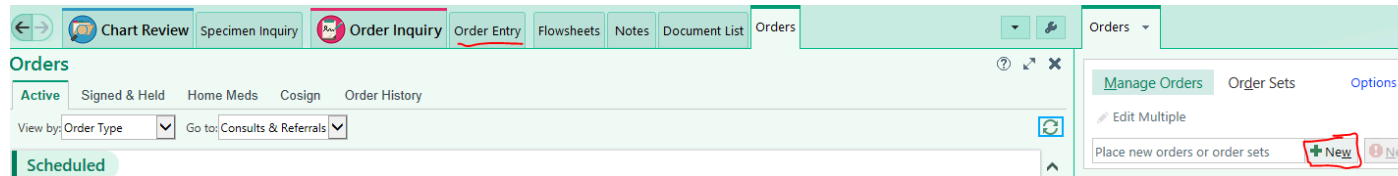
Thank you for involving me in the care of this patient.

Sincerely,
Bugs Bunny, HP R2
Pager: 777-777-7777

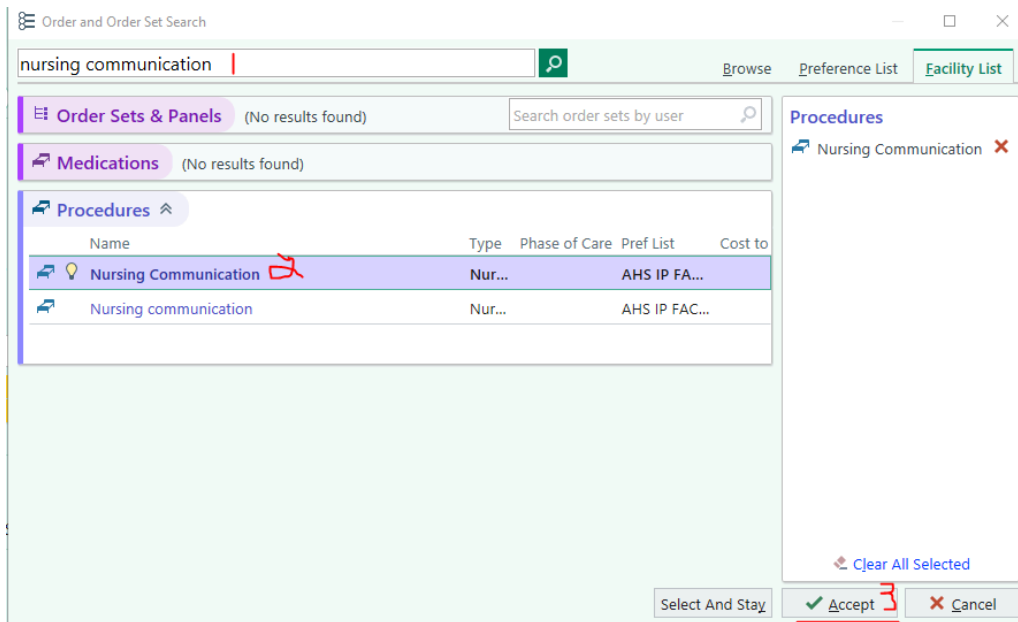
- When you are done, click “Sign”

Appendix C – Submitting post BMBx nursing communication in EPIC

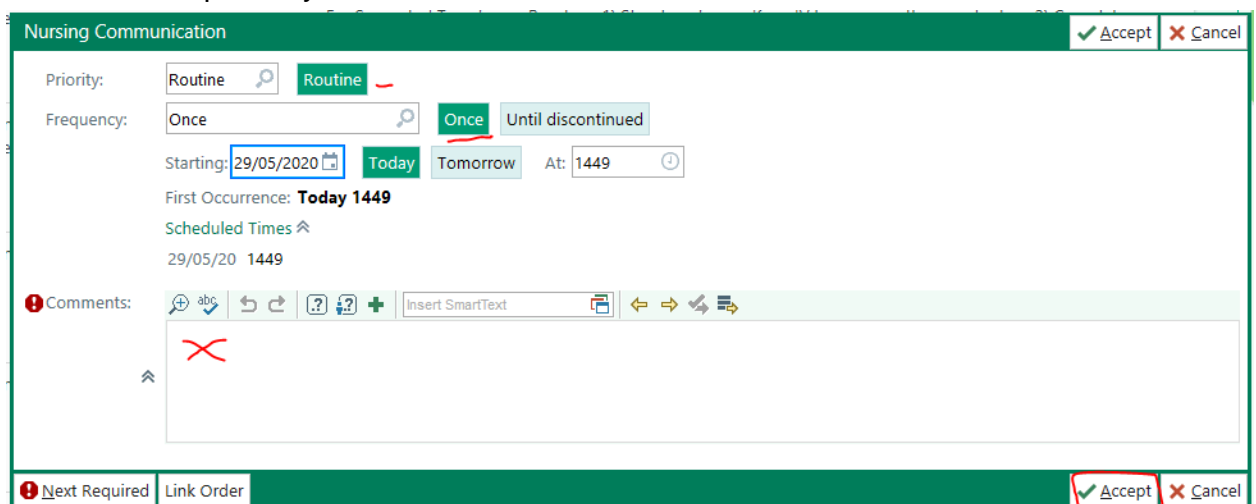
- This is a quick note to the nursing staff about post BMBx care



- Click on **Order Entry** and the Orders sidebar will open. Click “New”
- Search for “Nursing communication”
- Double click on the Nursing Communication
- Click Accept



- A window will open for you to enter the comment



- o Example Comment (creation of smartphrase recommended):

Bone marrow biopsy care instructions:

1. Please keep patient supine for a minimum of 20 minutes post procedure.
2. Bone marrow dressing should stay dry and intact for 48 hours.
3. Please page Dr. B Bunny if significant bleeding through bandage occurs.
4. Dressing may be removed after 48 hours.

Appendix D – Entering LIs and SMECs in EPIC (incomplete)

- LI (aka RTP) = Lab Initiated blood film review (usually just write a quick short comment)
- SMEC = Smear for Consult ☐ clinician initiated blood film review (write full report)
- Function: **Result Entry and Verification**

PC TEMPLATE

PIC of Battlement Technique

Miller Ocular

Appendix E – Resulting CSFs in EPIC (incomplete)

Appendix F – Resulting Coagulation Tests in EPIC (incomplete)

Appendix G – How to Interpret PTT Inhibitor Screens

Appendix H – Entering bone marrow reports in EPIC (incomplete)
EZ-SMART link