Patients

Certain patients followed by ID during an inpatient stay require outpatient ID follow-up. These patients may fall into several categories:

1. **Outpatient Parenteral Antibiotic Therapy (OPAT):** This is the most common population for whom inpatient-to-outpatient continuity of care by the ID service is required. These are patients receiving IV antibiotics at the recommendation of the inpatient ID team who are discharged to continue IV therapy for a defined period of time as an outpatient. We frequently provide outpatient follow-up for patients on OPAT from orthopedics, neurosurgery, ORL, cardiology, and general pediatrics, as well as other services.

2. **Perinatal diagnostics clinic (PDC) patients:** These are infants for whom a consult is performed in the newborn nursery or NICU, typically by the Immunocompromised (ICH) ID service, who have been diagnosed with or whom we are screening for congenital/perinatally-acquired infections. Examples include infants born to mothers with HIV or hepatitis C and infants with congenital syphilis, congenital CMV, or toxoplasmosis.

3. **Immunocompromised ID/transplant patients:** Patients seen by the ICH ID service in the hospital may require follow-up because of the need for continued IV antimicrobials (OPAT), as well as for other, often chronic, infectious conditions. In addition, patients discharged after solid organ transplantation should have a routine ICH ID follow-up visit scheduled for 6 months post-transplant.

4. **Any other patient who is being discharged for whom ID clinic follow-up is deemed appropriate.**

All patients scheduled to be seen by fellows in the follow-up clinics must have been seen in consultation by the ID service as an inpatient. Patients who were not seen by the inpatient ID team but for whom a provider would like ID follow-up can be scheduled as a new patient in ID clinic and will not follow the procedures outlined below.

**Designated Outpatient Physicians**

During the course of outpatient ID management, the fellow who was on service at the time of the inpatient consultation generally serves as the primary outpatient ID consultant, with attending support and staffing around decision making and recommendations. However, there are occasions when patients have a particularly prolonged hospital stay or the fellow performing the initial consult goes off service within a day or two. In these cases, the fellow on service at the time of sign-off or discharge often has greater knowledge and involvement with the management plan for the patient and should serve as the outpatient continuity provider. **In all situations, the fellow writing the sign-off note is responsible for indicating which fellow will be the primary outpatient ID continuity and ensuring that this information is communicated to all fellows and attendings involved in the care of the patient.**

In the outpatient setting, the clinic attendings who typically assume care of the patient with the fellows are as follows:

- **OPAT or other general ID patients:** Catherine Lachenauer, Mari Nakamura (Wednesday clinic/Friday clinic)
- **PDC patients:** Sandy Burchett (Tuesday clinic)
- **ICH ID/solid organ transplant patients:** Tanvi Sharma (Monday clinic); ICH patients with primary immunodeficiencies and hematopoietic stem cell transplant (HSCT) should be preferentially scheduled with Sandy Burchett (Tuesday clinic)

These designated attendings may vary on occasion if attendings are away or on service; all attendings are willing to see inpatient follow-ups with fellows and can fill in for each other as needed.

The inpatient attending remains a part of the continuity team with the fellow until the patient comes to the first clinic visit after discharge and the outpatient attending assumes the care of the patient. Therefore, any patient questions, emails from teams, abnormal lab results, etc., should be communicated by the fellow to BOTH the inpatient attending who knows the patient (even though he/she may no longer be on service) and the designated outpatient attending.
If an inpatient was seen by a visiting fellow, the BCH co-fellow on the team is the outpatient fellow responsible for seeing the patient. Similarly, patients seen by the consult attending who require outpatient follow-up should be seen by the fellow who was on service at the time and the designated outpatient attending.

If a 2nd or 3rd year fellow was on service at the time of the inpatient consultation, the patient should be managed and seen as an outpatient by the 2nd or 3rd year fellow with the designated outpatient attending. Second or 3rd year fellows may not schedule their follow-up patients to be seen by 1st year fellows.

**Clinic Scheduling and Visit**

Any patient who was seen by an ID consultant in the hospital and requires outpatient ID follow-up should be scheduled for an ID clinic visit with the fellow and outpatient attending, as above. For OPAT patients in particular, an ID clinic visit should be scheduled within the first 1-2 weeks after discharge, with likely at least one additional appointment during the OPAT course, usually near the end of therapy. Other general ID, PDC, and ICH ID patients may also be scheduled to be seen within a week after discharge, but at times the follow-up plan for these patients may differ from that of OPAT patients.

Outpatient clinic visits should be scheduled as follows:

- OPAT or any other general ID inpatient follow-up – Wednesdays preferentially, but may also be scheduled on Fridays as needed
- PDC or ICH patients with primary immunodeficiencies/HSCT – Tuesdays
- All other ICH/solid organ transplant – Mondays

At times, patients may have multiple providers they need to see and request appointments to be batched on a single day. When possible, we should make every effort to accommodate these requests from patients, which may mean scheduling the patient on a different day of the week than indicated above. The fellow should discuss these requests with the designated outpatient attending so that the plan that works best for the patient can be put in place.

Fellows are expected to speak directly with Elizabeth Nolan or other administrative staff to arrange follow-up appointments. Whenever possible, the ID clinic appointment should be scheduled prior to discharge. The date, time, and designated fellow/attending for the outpatient visit should be specified in the sign-off note. If a patient is unexpectedly discharged on the weekend, please select an open clinic spot (refer to the clinic schedules saved on Infect_share) and submit a scheduling request to administrative staff.

If the fellow is off-site (at BMC or on away elective) or on vacation during the time that the patient should be seen, scheduling should be discussed with the inpatient and designated outpatient attending. It is often reasonable to schedule the patient a week earlier or later than the anticipated window so that the fellow will be available to see the patient with the outpatient attending. If this is not possible, the outpatient attending may opt to see the patient without the fellow as long as detailed communication and sign-out is provided by the fellow to the designated outpatient attending.

In preparation for the ID clinic visit, the fellow is responsible for being up to date on the interval history since ID sign-off (lab/imaging results, ED/PMD/primary service visits for acute issues such as malfunctioning PICC line, new/worsening symptoms, rash, etc.). Remember that the attending in clinic is usually meeting the patient for the first time. The fellow provides key ID continuity of care and should be fully aware of what is going on with the patient.

Following the ID clinic visit, the fellow is responsible for communicating directly with the primary team(s), via email or phone, regarding recommendations. All members of the outpatient ID team – fellow, attending, and NP – should be cc’d on correspondence with other teams.
General ID OPAT Patients: Lab Monitoring and Therapy Changes for Patients on IV Antimicrobials

1. Recommendations for antibiotic therapy and weekly toxicity labs (and instructions for faxing results to the ID office) are detailed in the inpatient OPAT signoff note and implemented by the discharging (e.g., surgical) team (see sign-off note instructions below).

2. A Powerchart message to XXX pool from the inpatient ID fellow, notifies the outpatient ID team that the patient should be added to the OPAT roster and outlines the recommendations. For patients scheduled to be seen in PDC or ICH ID clinic, the designated attendings for those clinics should similarly be notified through the appropriate pool in Powerchart Message Center. See below for follow-up processes for ICH ID clinic.

3. Weekly labs are obtained on Monday or Tuesdays, and results are received by the general ID NPs (Helen Mahoney-West and Leandra Davis) and then scanned and emailed to the outpatient ID team (fellow, attending, and NP). It is the fellow’s responsibility to review these labs and to communicate with the appropriate attending in a timely manner if changes in therapy are to be considered. Helen and Catherine generally review outpatient labs on Wednesdays to provide additional back-up.

4. If changes to therapy are indicated, e.g., change in vancomycin dosing based on level, it is the fellow’s responsibility to communicate the recommendations to the primary team. As we are a consulting service, we (the ID fellow or in some cases the attending) always notify the primary team of our recommendations although our service will generally call in any change in antimicrobial orders to the home healthcare service. Recommended changes should be documented in Powerchart. If the change occurs prior to the first clinic visit following discharge, the note should be included as a Communication Note and an Addendum to the sign off note. If the change occurs after the first clinic visit, it should be entered as a brief communication note, which will be filed under the ID clinic section.

5. An OPAT registry is maintained by the General ID NPs in REDCap and includes details about the patient’s planned antimicrobial course, home healthcare service contact information, and documentation of outpatient lab abnormalities. All fellows have access to view data in this registry. A link to the registry is on the home page of ChasingMicrobes; use your usual BCH username and password to log in.

6. Occasionally, outside labs will be anticipated at irregular times, e.g., vancomycin changes necessitating levels drawn on a weekend. In these cases, the on-call fellow will be notified to expect the lab result by email and will be expected to discuss with the appropriate attending if further actions are required.

7. If a patient is discharged on OPAT but will not be following up in ID clinic (e.g, the OPAT course will end within several days of discharge and there is not felt to be a need for an ID clinic visit), the outpatient service (NPs and attending) will not follow labs and/or discontinuing IV antibiotics. In those situations, the primary team should be responsible for writing the orders to d/c antibiotics.

In order for ID to follow outpatient labs, the patient must be scheduled for follow-up in ID clinic. We do not monitor labs if we are not going to see the patient. In addition, we will only follow labs pertaining to ongoing antibiotic therapy or other aspects of ID outpatient care. The primary team or other consulting teams may add other labs to the weekly schedule but in that case is responsible for reviewing and acting upon the results.

IV Antimicrobials - End of Therapy

Final recommendations for stopping outpatient IV antimicrobial therapy should be clearly communicated by email or verbally to the primary team AND documented in Powerchart. Often, these recommendations will coincide with a clinic visit, but sometimes they will not, in which case a brief additional communication note in Powerchart is required.

PICC lines are not d/c’d in ID Clinic. Usually PICCs are d/c’d by the home healthcare agency, with an order from our service (usually Helen) after email or phone confirmation with the primary service. Alternatively, they may be d/c’d at a scheduled CAT/CR visit if preferred by the family or if the home healthcare service is unable to remove the catheter.

The ID outpatient service generally does not continue to follow toxicity labs for long-term oral antibiotics.
Summary of Process for Clinic Referrals for Patients Requiring General ID OPAT Clinic Follow-up

1. Write sign-off note in Powerchart (see OPAT sign-off note template). This should include:
   a. Brief summary of ID problem including relevant details of ID workup (e.g. key culture results, diagnostic studies) and final diagnosis.
   b. Planned antibiotic course, including effective start date, anticipated stop date, and anticipated duration. The specific antimicrobials the patient is receiving, including precise weight-based dosing and frequency, should be stated. Do not say “continue current antibiotics” or “duration to be determined in clinic.” If the total duration will be dependent on certain clinical criteria, specify the criteria.
   c. Outpatient labs that need to be drawn, e.g. “Please obtain (CBC, vancomycin levels, etc.) weekly, on Monday or Tuesday, and ask the home care company to fax results to Helen Mahoney-West at 617-730-0911.”
   d. Other follow-up plans when relevant, e.g., dates for follow-up imaging.
   e. Date and time the patient is scheduled for a first follow-up visit in clinic and with whom. The sign-off note template states: “The patient is scheduled to see Dr. <indicate fellow’s name and attending’s name> on <date and time>. “ OR “The patient should be seen in ID clinic by Dr. <indicate fellow’s name> within <indicate appropriate time period> after discharge. Prior to discharge, please call 617-355-6832 to schedule the appointment.” Use the second option only if the timing of discharge cannot be predicted at all at the time you sign off. Otherwise, if at all possible, please schedule a visit (even if it may need to be rescheduled later) to avoid delayed or missed follow-up.
   f. Home health agencies, parents, or primary providers should be directed to call the ID office (not the fellow on call) if they have questions regarding home antibiotic therapy. PICC line-related issues should be directed to the PICC hospitalist on call. The sign-off note template states: “Questions relating to PICC mechanical issues should be direct to the PICC hospitalist on call, by calling the Children's Hospital Page Operator at 617-355-6369. Other questions relating to home IV antimicrobials should be directed to the ID office at 617-355-6832.”

2. Using the Powerchart pools process to submit requests for outpatient follow-up scheduling.

ICH ID OPAT Patients: Lab Monitoring and Therapy Changes for Patients on IV Antimicrobials – exceptions to General ID OPAT processes

1. ICH ID OPAT patients will also often be seen in our ICH ID clinics. There are a few notable differences between the general ID OPAT patients’ follow-up process and the follow-up process for ICH ID OPAT patients.
2. A Powerchart message to XXX pool from the inpatient ID fellow notifies the outpatient ICH ID team that the patient should be added to the follow-up list and outlines the recommendations. This email should include the sign-off note and all other necessary information as indicated above for General ID OPAT patients.
3. Unlike for General ID OPAT patients, labs for ICH ID OPAT patients are rarely followed by our outpatient ID team. For most ICH patients, primary teams will want to follow labs and deal with line issues, as they may have other labs or medications to monitor and it can be cumbersome for our office to receive all of the labs for things we are not following (e.g. tacrolimus levels, electrolytes for PN). However, your sign-off note should specify the needed laboratory monitoring depending on the antimicrobial being given and should also request that the primary team inform the ICH ID follow-up team about lab abnormalities.
4. In addition to specifying the ID fellow and attending who will be following the patient in ICH ID clinic within the sign-off note, you must also document who the primary team fellow/attending for the patient will be in the outpatient setting in order to ensure appropriate communication in the outpatient setting. Unlike General ID OPAT patients, many ICH ID patients have an established primary fellow/attending within their primary service (e.g., oncology) who are often different from the inpatient fellow/attending for the primary service.

General Principles summarized

1. We aim to provide smooth continuity of care between inpatient and outpatient ID care. The fellow is the primary ID provider in both settings.
2. We remain a consulting service. All recommendations should be clearly communicated to the primary service AND documented in Powerchart.
3. The fellow ALWAYS has attending backup when providing outpatient care. The outpatient attendings, inpatient attendings, and NPs are available to help. If urgent questions arise and your outpatient attending is not available, please seek help from the inpatient attending on call. If you are dealing with questions from families or the home healthcare companies, you should discuss with the attending(s) and keep everyone in the loop. In addition, if the number of outpatients you are seeing in a given week while on service exceeds 3-5 patients or specific patients require a significant amount of coordination time, please speak with Catherine and Tanvi so that we can assist you.

If there are any questions or concerns about these policies, please contact Catherine Lachenauer or Tanvi Sharma.
GENERAL ID OPAT SIGN-OFF NOTE TEMPLATE

BRIEF SUMMARY

Key Microbiological Studies:

Key Diagnostic Studies:

FINAL DIAGNOSIS:

FINAL RECOMMENDATIONS

1. Antimicrobial therapy recommendations:
   Name, dose (including mg/kg DOSE), frequency, and route of antimicrobial:
   Effective start date for this drug:
   Anticipated end date for this drug:
   Anticipated total duration of this drug: [If duration is dependent on imaging results or other clinical criteria, include those criteria]

   [Duplicate these headers and include the indicated information for each antimicrobial the patient is receiving]

2. While the patient is receiving IV antimicrobial therapy, please check the following labs weekly to monitor for inflammation and antibiotic toxicity: CBC with differential, CRP, ESR, BUN, creatinine, AST, ALT.
   Please also obtain the following antimicrobial-specific studies: [Include trough levels for vancomycin or aminoglycosides, CK for daptomycin, EKG for fluoroquinolones or clarithromycin, or other studies as appropriate for the specific antimicrobials being recommended. Include recommended frequency of monitoring for each study]

   Please obtain labs on Mondays or Tuesdays and have results faxed to Helen Mahoney-West at 617-730-0911.

3. The patient should be seen in ID clinic by Dr. <indicate fellow’s name and if known, attending’s name> within <indicate appropriate time period> after discharge.
   Prior to discharge, please call 617-355-6832 to schedule the appointment. Possible clinic dates are:
   OR The patient is scheduled to see Dr. <indicate fellow’s name and, if known, attending’s name> on <date and time>.

4. After discharge, questions relating to PICC mechanical issues should be direct to the PICC hospitalist on call, by calling the Children’s Hospital Page Operator at 617-355-6369. Other questions after discharge relating to home IV antibiotics should be directed to the ID office at 617-355-6832.

   We have discussed our final recommendations with <insert name of primary team member>.

Please page the ID fellow on call with any questions regarding these final recommendations or any new issues that arise before discharge.

Fellow:
Pager:

Attending Attestation:
ICH ID SIGN-OFF NOTE TEMPLATE

BRIEF SUMMARY

Key Microbiological Studies:

Key Diagnostic Studies:

FINAL DIAGNOSIS:

FINAL RECOMMENDATIONS [If no continuing antimicrobials are recommended, you can delete #1 and #2]

1. Antimicrobial therapy recommendations:
   Name, dose (including mg/kg DOSE), frequency, and route of antimicrobial:
   Effective start date for this drug:
   Anticipated end date for this drug:
   Anticipated total duration of this drug: [If duration is dependent on imaging results or other clinical criteria, include those criteria]

   [Duplicate these headers and include the indicated information for each antimicrobial the patient is receiving]

2. While the patient is receiving IV antimicrobial therapy, please check the following labs weekly to monitor for inflammation and antibiotic toxicity: CBC with differential, CRP, ESR, BUN, creatinine, AST, ALT. Please also obtain the following antimicrobial-specific studies: [Include trough levels for vancomycin or aminoglycosides, CK for daptomycin, EKG for fluoroquinolones or clarithromycin, or other studies as appropriate for the specific antimicrobials being recommended. Include recommended frequency of monitoring for each study]

Please specify the recommendations below if outpatient ICH ID follow up is indicated: [For most ICH patients, primary teams will follow labs and deal with line issues, as they may have other labs or medications to monitor and it can be cumbersome for our office to receive all of the patient’s labs for things we are not following. However, if you decide that labs do need to be directly monitored by ID, you should change this section wording to be the same as what is in the OPAT signoff template, with ICH ID NP as the designated nurse practitioner rather than Helen Mahoney-West.]

3. The patient should be seen in ID clinic by Dr. <indicate fellow’s name and if known, attending’s name> within <indicate appropriate time period> after discharge. Prior to discharge, please call 617-355-6832 to schedule the appointment. Possible clinic dates are:
   OR The patient is scheduled to see Dr. <indicate fellow’s name and, if known, attending’s name> on <date and time>.

4. Please call Dr. <indicate outpatient follow up fellow/attending name from #3 above> to discuss any concerning or abnormal laboratory results while the patient is receiving IV antimicrobial therapy.

Please specify the recommendations below if outpatient ID follow-up is NOT indicated for this particular problem.

3. Please call the ICH fellow on call when the results of the <diagnostic study for restaging> is available and we would be happy to assist with further management of antimicrobials.

4. <Name of Doctor or Name of Service> will plan to follow up on results of additional laboratory testing and antimicrobial-specific studies recommended above. If the patient shows signs of clinical worsening or medication toxicity, please contact the ICH fellow on call so that we may assist with further management of antimicrobials.

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OR if no active ID issues and not planning to follow-up on anything for the current ID problem

3. “Currently, [Name] does not have a need for ongoing ID follow-up while inpatient or in Infectious Diseases Clinic. However, given his/her complex course, it is possible that new questions may arise; if so, please page the ICH fellow on call.”

We have discussed our final recommendations with <insert name of primary team member>.

Please page the ID fellow on call with any questions regarding these final recommendations or any new issues that arise before discharge.

Fellow:
Pager:

Attending Attestation: