

LAB RESULTS REVIEW & REPORTING PROJECT

SETTING UP *a* TEAM PROCESS *to* MANAGE PATIENTS DISCHARGED *with* LABS STILL PENDING

A process for Calgary Zone acute care physician teams

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EXECUTIVE SUMMARY

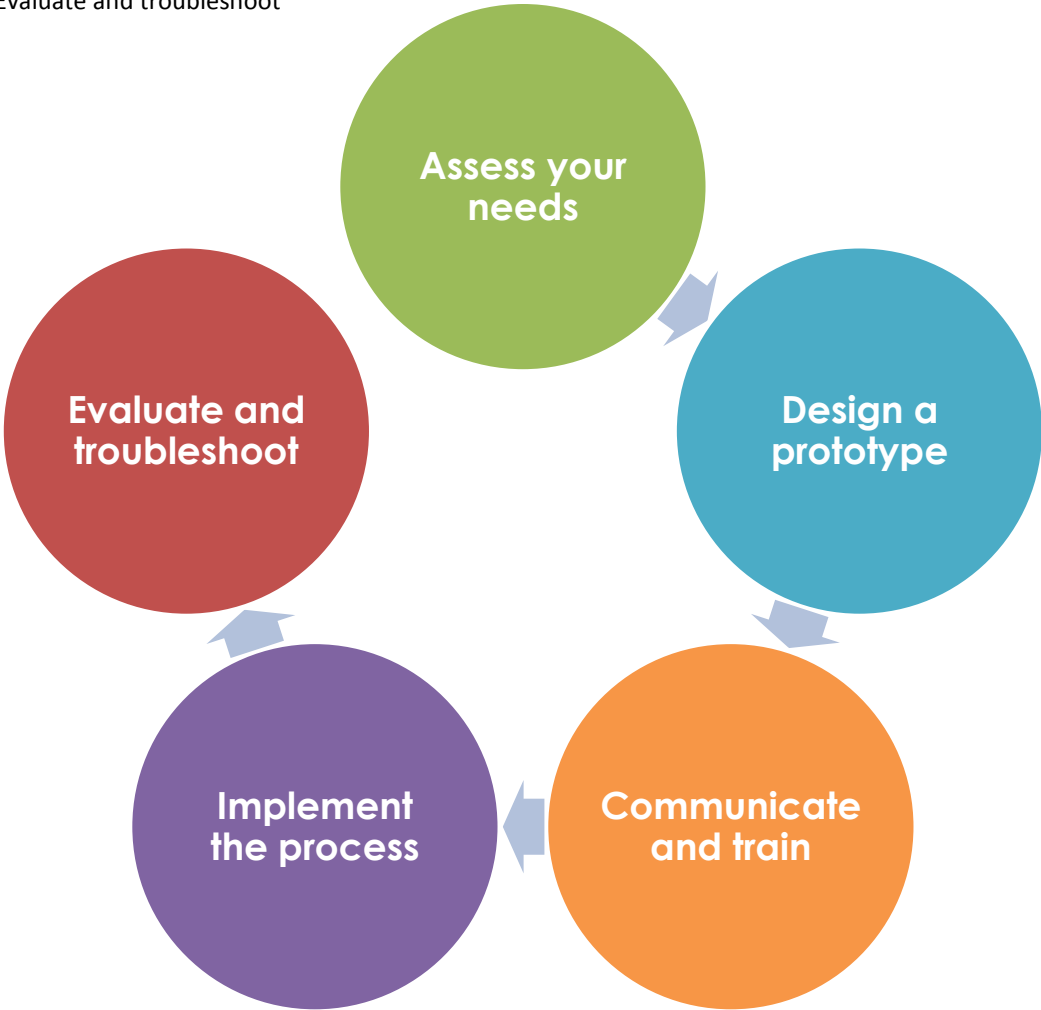
In a single year, there were over 180,000 lab results returned after patients were discharged from hospitals within the Calgary Zone. Nearly 1 in 5 (19.1%) of these were classified as “abnormal,” and the true number is likely higher because it does not include tests that cannot be flagged, such as pathology reports.

It was recognized by medical staff that a reliable and user-friendly method is needed for tracking these pending lab tests in order to optimize safety and continuity of care for patients. The Lab Results Review & Reporting (LR³) project has worked with a number of stakeholders to develop processes to ensure the lab tests that you order (and are therefore responsible for) can be reliably tracked.

This document outlines a method for teams to develop their own reliable process, using the experience and approaches of two pilot groups (Calgary Zone Emergency departments, ACH Hospital Pediatricians) as a starting point. Because every team operates differently, a one-size-fits-all solution is not prescribed. However, there are some common tools and tactics that can be employed in just about every clinical setting.

The high-level steps for planning a team-based lab follow-up process are:

- 1. Assess your needs
- 2. Design a prototype
- 3. Communicate and train
- 4. Implement the process
- 5. Evaluate and troubleshoot



1. WHY TRACK PENDING LABS?

WHY *do* I NEED a PROCESS?

Some lab tests take a number of days to complete, and physicians will choose to discharge a patient and allow them to go home rather than remain in the hospital until all lab results have come back. But after discharge, the patient no longer appears on the standard SCM lists and results may go unnoticed unless individuals or teams have a plan to detect all of these results. This tends not to be a problem for normal results, and Calgary Lab Services has a reliable process to communicate critical results – so the real problem to focus on is ‘abnormal’ results (which also captures critical values).

Discharged patients are no longer on active SCM lists, which are based on patients admitted to a unit or service. Therefore, there is a real risk for patients who, for instance, screen positive for bacterial infection, but a care provider does not see or act on this result. These types of scenarios have occurred a number of times within the Calgary Zone (and other healthcare organizations, leading to poor patient outcomes.

A reliable and user-friendly method for tracking pending lab tests will prevent clinically relevant results from being missed.

In an effort to improve the continuity of care for patients, the Lab Results Review & Reporting (LR³) project has worked with a number of stakeholders and informants to develop this guide to help your physician team develop its own system for ensuring the lab tests that you order (and are therefore responsible for) can be reliably tracked.

BENEFITS

Most physicians will have already worked out a system for themselves—an SCM list, a spreadsheet, sticky notes, calendar reminders, handwritten notes, or a great memory—and are hesitant to consider a new shared system with their colleagues.

Setting up a system *will* require some effort up front, but the rewards will be quickly realized once it is in place:

- Having an agreed-upon team process, and consistency across practitioners, will allow you to trust that pending lab results will be dealt with in your absence.
- Patient diagnoses and outcomes won't be compromised due to gaps in continuity of care.
- A team of staff physicians will watch for results of tests that are entered into the system by residents
- Depending on the features required, a process may be quickly built using SCM tools that already exist.

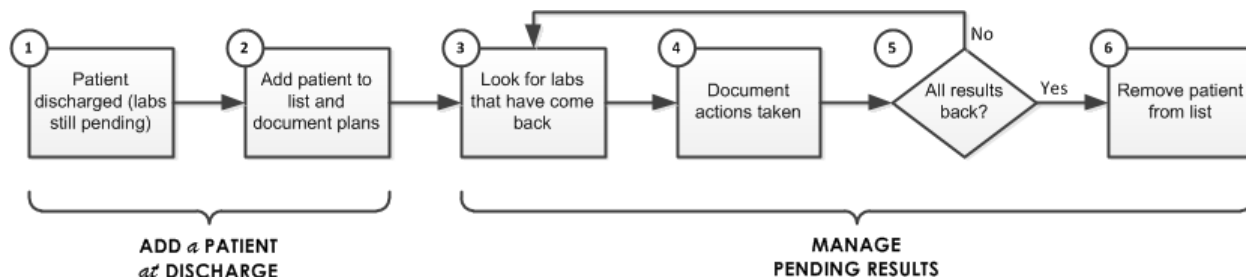
If those reasons aren't convincing enough, consider this: **You are legally responsible for following up on any lab tests that you order.** According to the CPSA's *Standards of Practice on Preventing Follow-Up Care Failures*, you must have a system in place for review of test results or consultations and arrangements for follow-up care when necessary.

"A physician who orders a diagnostic test is responsible for reviewing the test result and any follow-up care required unless another physician has agreed to accept responsibility for follow-up care."

— Sid Viner
Zone Medical Director, Calgary Zone

2. THE 10,000-FOOT VIEW

The diagram below illustrates the key components for a team process to manage pending lab results for discharged patients. We call this the **Vanilla Process**—a basic recipe to be customized to your group. The details of the process will vary from team to team.



In more detail:

1. The process starts when the discharged (or soon-to-be-discharged) patient still has lab results pending.
2. The patient is added to a shared list to which all team members have access. At this point you also document any instructions for what should happen when the results come back.
3. Periodically, the list is consulted to see if any of those pending labs have been completed.
4. If a test has come back, any actions taken as a consequence are documented.
5. If there are still outstanding labs for a patient remaining, the patient is kept on the list. Proceed to the next patient.
6. If all the results are back for a patient, then that patient can be removed from the list.

The pages that follow provide step-by-step instructions for how to set up and manage this system. By now you know the “why,” so it’s time to work out the “who,” “what,” “where,” “when” and “how.”

3. DESIGNING *your* PROCESS

There are no ‘ready-to-go’, plug-and-play solutions because every physician team will operate slightly differently. Planning will be necessary, perhaps with some support from a business analyst or process improvement facilitator, to customize the process for your team. However, there are many commonalities found among teams, so you won’t be reinventing the wheel.

Please note: Sunrise Clinical Manager (SCM) is ubiquitous throughout the Calgary Zone. Since every physician in an acute care setting will have SCM available as a tool, the LR³ project recommends that your team consider basing your lab follow-up process on SCM.

3.1 WHAT YOU NEED *before* YOU START

Be sure you have the following elements in place before you begin developing a team process:

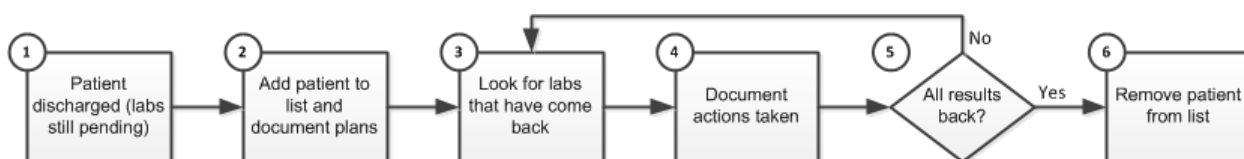
- ✓ **Physician leader:** Someone needs to take the reins and lead the charge. Since you are reading this document, it might very well be you.
- ✓ **Team definition and buy-in:** Your colleagues—*all* of them—need to agree that this endeavor is important enough to warrant effort, and are committed to following the end result. Reliability of the process depends on 100% compliance; otherwise, some results will get missed and you won’t know which ones. Compile a list of list of all individuals that will take part in the lab follow-up process in addition to staff physicians (e.g., residents, nurse practitioners, etc.).
- ✓ **Access to SCM:** All team members will require physical access to SCM through computer terminals, along with appropriate permissions.
- ✓ **Basic familiarity with SCM:** Your teammates will need to know how to use SCM and be able to navigate through its basic functionality. Where relevant, there are screenshots throughout this document showing click-by-click what to do, but it is no substitute for SCM training. Section 5, below, shows you where to access training resources for SCM.

Other things that are nice to have:

- ✓ **Business analyst or process improvement consultant:** Some groups may wish to recruit a process improvement expert to map out what you currently do and help you craft your new process.
- ✓ **Operations support:** If the unit or clinic in which your team operates is aware of what you are trying to do, then the managers, nurses, clerical staff and others may be able to help support you with different steps in the process.

3.2 QUESTIONS *that* NEED ANSWERS

Take a look again at the Vanilla Process. Each step is generic, so your team will have to answer some questions about each step before a process can be designed. For each step in the high-level process, a series of questions are presented below for consideration. Your responses are going to be used as inputs into the design of your team’s solution.



STEP 1: PATIENT DISCHARGED *with* LABS STILL PENDING

The process starts when the discharged (or soon-to-be-discharged) patient still has lab results pending. What you need to decide is the following:

- Which patients are going to trigger this algorithm? Will it be all patients with results still pending at time of discharge, or will it only be a subset of those patients?
- Are there only certain labs that you are interested in tracking post-discharge, or will it be any outstanding lab orders? For example, the Emergency Department was only concerned about abnormal microbiology results to begin with.

STEP 2a: ADD PATIENT *to* LIST

The patient is added to a shared list to which all team members have access.

- Who will have access to the list—will it be just for physicians? Will fellows, residents or clerks also be granted access? What about other providers such as nurses, pharmacists, etc.?
- Who will be responsible for administering the membership of this list—adding and removing users?
- What format will the list take? Examples include an Excel spreadsheet, a Word document, a big piece of paper, or a special list built in SCM.
- Where will the list reside? If it's built in SCM, then the location is obvious. But if it's a digital file then a commonly accessible (and secure) shared drive will be necessary.
- How are patients going to be added/pulled to the list? The answer will either be *manually* (i.e., you intentionally select the patient and move them to the list or type in the name) or *automatically* (e.g., when SCM runs a query and picks patients that meet a predetermined set of criteria).

STEP 2b: DOCUMENT PLANS

Outline any instructions for what needs to happen when the results come back.

- Does there need to be any documentation at this point? The answer is usually “yes” because it helps communicate to the future doctor looking at the result what your original intentions were.
- What guidelines or standards will your team develop for annotating lab orders? What absolutely needs to be in the annotation? Will there be any restrictions?
- Where will annotations be made? In the patient's progress notes, or using a tool such as SCM's Annotation Manager?

STEP 3: LOOK *for* LABS *that have* COME BACK

Periodically, the list of pending results will need to be checked to see if any results have been returned.

- Who will be responsible for checking for labs? You will likely have members take turns in order to spread this responsibility evenly throughout the team. If so, determine an appropriate rotation schedule.
- How often will the list need to be checked? The answer to this question will be determined by how many patients are on the list at a given time, and on the severity of the test results (e.g. 3 times a day, once a day, etc.).

STEP 4: DOCUMENT ACTIONS TAKEN

In addition to annotating anticipated follow up actions (Step 2b), it is important to communicate what was done once the results came back. This helps with continuity of care for the patient if additional health services are required.

- What guidelines or standards will your team develop for annotating lab orders? What absolutely needs to be in the annotation? Will there be any restrictions?
- Where will annotations be made? In the patient's progress notes, or using a tool such as SCM's Annotation Manager?

STEP 5: ARE ALL RESULTS BACK?

- How will you know all the results are back? It may be really evident, or it might require some brief instructions on where to look to verify that there are no more outstanding labs.

STEP 6: REMOVE PATIENT *from the LIST*

- How are patients removed from the list? Is this ability restricted to physicians only?
- Are there any more steps required before the patient is removed from the list? E.g., a note added in the chart, final communication printed, discharge summary appended.

Knowing the answers to these questions ahead of time will help as you head into the next phase, which will be design your team's follow-up process.

3.3 DESIGNING *your* PROCESS

Now comes the part where you envision the future state: The steps and procedures that will encompass your process for managing those pending lab results. This is the point where a process improvement specialist or business analyst will be most valuable.

1. Use the answers from the previous section to inform your process design. Try to figure out how you are going to address each of the six steps in the Vanilla Process.
2. Map out a prototype of your process. Some sample process maps can be found in Section 6 where the successful 'pilot project' models are presented.
3. Sit down with some colleagues and walk through a generic scenario. You can arm yourself with sticky notes and markers to capture ideas and mock up the process on a wall or whiteboard.
4. Test drive your process with a number of cases and scenarios to ensure that it is robust enough to catch all results.

If your process is going to include SCM (as the LR³ project recommends), you will want to ask the SCM team for help with identifying tools and features within the software that can help support your process (see Section 5.3, below, on how to contact the SCM team).

Additional nuggets of advice:

- ✓ Don't start from scratch – take a look at another team's model to help you get started. In the realm of process design, plagiarism is perfectly fine. Some examples can be found in Section 6 of this guide.
- ✓ Don't do it alone – work with your colleagues, and enlist the help of a process improvement expert who can help you explore options.
- ✓ Consider making a visual version of your process that shows the workflow to accompany a more text-based version. This allows for multiple learning modalities.

It is worth mentioning that a hybrid model can be created whereby team members manage a *personal list* while still on duty to handle discharged patients (after all, 91% of pending lab results are back within seven days of discharge), and move patients to the *team list* when the ordering physician will likely be off-service before the result comes back.

An individual post-discharge follow-up process is well-documented and available on the LR³ page on the AHS website at www.ahs.ca/LR3.

4. IMPLEMENTING *your* PROCESS

4.1 GETTING READY *to* IMPLEMENT

Now that your team has a process that you would like to put into action, choose a logical start date to launch your trial. Many factors might go into choosing the go-live date (holidays, vacation schedules, team rotations, etc.).

For the first little while, you should consider your process to be in the pilot phase as you may need to make tweaks and adjustments. Rarely is anything flawless on the first attempt, so keep tinkering as you test drive your new process.

Decide whether you want to switch over to your new process all at once, or if you want to ease your way in with just a few participants at a time. If your clinical environment allows it, doing a smaller experiment with just a few volunteers will minimize risk and allow for quick fixes before total commitment is made. Some clinical environments, however, will need to have every team member take up the process all at once.

4.2 COMMUNICATION

When you've identified your tentative start date and you have the first version of your process ready, circulate all the information to your team. Preferably this is done at a meeting where everyone is in attendance and questions can be answered right away.

Be sure to cover off the following details in your communications:

- ✓ Purpose of the process
- ✓ Targeted launch date
- ✓ Duration of trial period
- ✓ Who's involved in initial trial (e.g., entire team, subset of team)
- ✓ Training materials available
- ✓ The steps of the process
- ✓ Responsibilities of individuals within the process
- ✓ Plan for evaluation and troubleshooting

If only a subset of your team will be trying the new process first, it is still important for everyone to know when and what is happening. Keeping the entire team up-to-date on its success is also important to improve buy-in later on.

4.3 TRAINING *your* TEAM

It is vital that everyone on the team is using the new process in the same way, and that there aren't multiple interpretations of the instructions.

Ensure that there are detailed instructions and flow maps documenting the process. Consider generating both a step-by-step beginner's guide as well as a one-page quick reference guide (for ongoing use).

Determine who will provide training regarding the process. Options include self-directed learning, peer-to-peer teaching, or a group session. Also decide if and how this training will be incorporated into the orientation for new team members.

4.4 EVALUATING *and* TROUBLESHOOTING

Decide ahead of time what success will look like, and how you will know that you have succeeded. Typically this requires a manual effort to track indicators such as:

- Did the right patients end up on the list?
- Were all pending lab results viewed?

If some patients or results were missed, then the process needs to be tweaked and re-tested. Any changes to the process should trigger the following:

- Updates to the detailed instructions and/or flow maps that document the process.
- Updates to the training and/or orientation materials.
- Communication should go out to the team describing the change (decide whether it needs to be the whole team or just those involved in the pilot).

Once your system is reliably capturing all the patients of interest and their pending lab results, you can start moving into full implementation. However, evaluation should be done periodically to make sure the process is still performing as designed.

5. WHERE *to* FIND HELP

In addition to contacting any local QI/PI resources within your site (ask site leadership or your unit's manager), you can approach the following groups to see if there is an opportunity to support the development of your team's new process.

5.1 CLINICAL QUALITY IMPROVEMENT (CALGARY ZONE)

Clinical Quality Improvement (CQI) collaborates with staff, medical staff, and patients to improve clinical processes within each Zone. CQI teams report directly to the Zone leadership and focus on improvement initiatives prioritized by each Zone's leaders. Within the Calgary Zone, the CQI teams focus solely on clinical quality improvement in sites, sectors and programs.

You can try applying to CQI and hope a CQI Consultant can be assigned to help your team set up a follow-up process based on the above.

For more information, visit the CQI page on Insite: <http://insite.albertahealthservices.ca/9777.asp>

5.2 PROCESS IMPROVEMENT (PROVINCIAL TEAM)

The provincial Process Improvement team supports the Alberta Improvement Way (AIW), which is an organization-wide approach for solving problems, implementing improvements, and managing change based on Lean and Six

Sigma principles. AIW provides the principles, knowledge, and tools necessary to help you and your team make process changes in your area, both easy and complex.

Staff and medical staff can register for AIW training in order to learn the tools for process improvement. Alternately, for larger scale projects, Process Improvement Consultants may be available to provide support for developing a process (contact: process.improvement@ahs.ca).

There are several AIW workshops available (registration via MyLearningLink) as well as tools and templates on the webpage on Insite: <http://insite.albertahealthservices.ca/aiw.asp>

5.3 SUNRISE CLINICAL MANAGER

The Sunrise Clinical Manager (SCM) Clinical Operations Support Team provides clinical staff with SCM education and just-in-time training. The SCM team can help in a number of ways:

1. Consultation on existing tools and processes
2. Training and education on SCM, SEC or SCM Ambulatory.
3. Changes/enhancements to the SCM, SEC or SCM Ambulatory applications
4. Changes to clinical documentation (e.g., discharge summary)

A change is categorized as standard or non-standard depending on its clinical impact and risk, and whether it is a new change or change to existing functionality. When a change has been approved, clinical and IT teams work together to prioritize and plan the change. Then, the change is designed, developed and tested by IT teams, with input and approval from clinical teams. The process SCM change request process can be seen here: <http://insite.albertahealthservices.ca/assets/it/tms-it-scm-change-request-process.pdf>

The preferred method of contacting the SCM team is to call the Solution Centre at 403-310-3111, where they can direct you in the best direction based on your enquiry. You may be directed to complete an SCM request for service, which can be done by submitting an online request form (<http://insite.albertahealthservices.ca/9815.asp>).

ONLINE SCM REFERENCES

- SCM Acute Care: <http://insite.albertahealthservices.ca/9814.asp>
- Reference information: <http://insite.albertahealthservices.ca/9823.asp>
- Request for service: <http://insite.albertahealthservices.ca/9815.asp>

6. EXAMPLES

In this section, you will find two real-life examples that have been successfully implemented and which can provide you with some inspiration. The first example illustrates a solution using tools that already exist within SCM, while the second example shows an approach that required significant new development for SCM.

6.1 ALBERTA CHILDREN'S HOSPITAL

This example demonstrates a solution that required no additional development within SCM. It can be set up fairly easily by any team. What is important is that all physicians on the team are on board and participate in the process of managing the patients with pending results.

THE TEAM *and their* NEEDS

The hospital pediatricians at the Alberta Children's Hospital needed a method by which post-discharge labs could be monitored and tracked, especially after paper results were no longer being printed as a result of an organization-wide change. Some lab tests, particularly those sent to the Genetics Lab and the Tissue Typing Lab, could take many weeks or months before coming back.

It was decided that they needed a shared system for following up on these tests with a long turnaround time. The hospitalists are on a two-week rotation, so anything anticipated to take longer than that would need to be handed off. Anything expected to come back before the end of their service, though, would remain the responsibility of the ordering physician. The physicians would then take turns watching the team lab follow-up list, responding to all results that came back.

For information on the process used by individual physicians to manage their own personal follow-up lists, visit www.ahs.ca/LR3.

NON-ATTENDING GROUP

The first step was to set up a "non-attending group"—this would be used as a 'tag' to be added to a patient's chart (i.e., as a consultant within SCM) for patients to be tracked on the team's follow-up list.

Once a patient's pending labs had returned, an end date would be added to the non-attending group's consulting role, thereby removing the patient from the follow-up list.

CRITERIA-BASED LIST

Every team member had to set up a new list in their SCM user profile that would automatically search for patients who had had the non-attending group added to their chart. This is a criteria-based list, and only had to be set up once for each physician. Now, whenever a pediatrician on the team looks at the list, it will show them in real time who is still awaiting lab results.

DISCHARGE SUMMARY

Once the decision to discharge is made, all lab results still pending are added as a list to the discharge summary report. This report is uploaded to Netcare and forwarded to the family physician to let them know about the pending results. As results come back, the discharge summary is appended with notes about the actions that were taken.

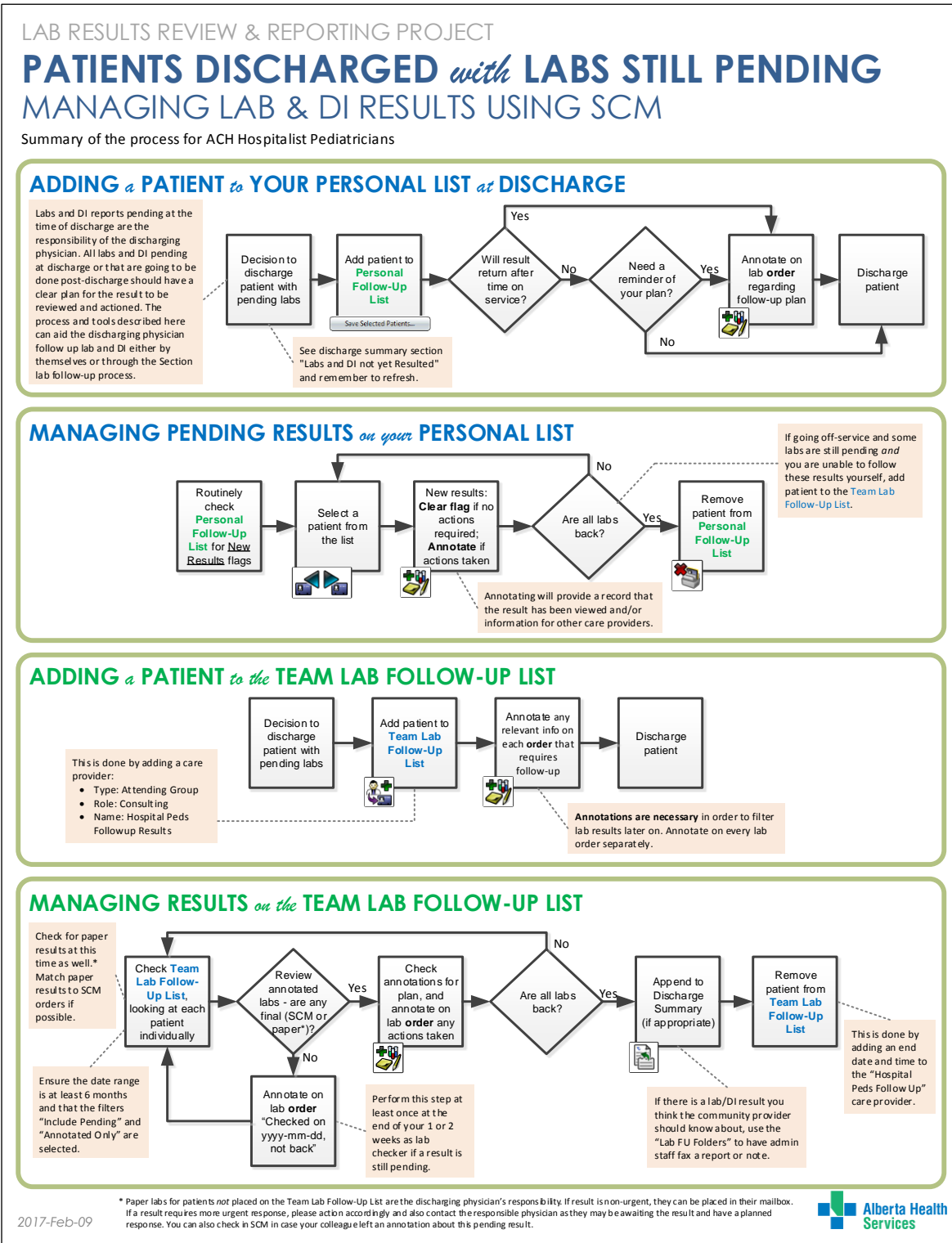
The option to add pending lab results to the discharge summary might not yet appear in the discharge summary report that you use. If your discharge summary report does *not* have pending labs as an option, call SCM Clinical Documentation at 403-310-3111 to have it added.

ANNOTATION MANAGER

To aid in the communication between the ordering physician and the physician who would act on the result, annotations were added to the lab orders using Annotation Manager (a feature within SCM made available in the fall of 2016). The ordering physician adds a note about their intended course of action depending on the results, and the lab checking physician adds a note about actions taken.

To learn more about Annotation Manager, visit the SCM Reference Information page at institute.albertahealthservices.ca/9823.asp.

This handout was developed to give an overview of the entire process used by the ACH Hospitalist Pediatricians. The top two boxes show the process used by individual physicians to manage their personal follow-up lists, while the bottom two boxes show the team follow-up process.



6.2 CALGARY ZONE EMERGENCY DEPARTMENTS

This example outlines a solution that required special technical development within SCM. It relies entirely on a feature called the Advanced Visit List, or AVL for short. The SCM team needs to be consulted in order to implement an AVL.

Creating an Advanced Visit List is a large undertaking and requires significant planning and development. If your team would like to explore the possibility of an AVL, contact the SCM team at 403-310-3111.

THE DEPARTMENT *and their* NEEDS

Lab tests require time for the samples to be processed and the results reported. However, physicians working in the Emergency Departments in the Calgary Zone are frequently off-service before the results come back, and some results need to be acted on immediately if they come back positive.

The ED physicians determined that they were most concerned about microbiology results, and wanted a list of all abnormal microbiology tests that came back after the patient was discharged home (i.e., no longer in the ED, nor admitted to an inpatient unit). Given the well-defined criteria, the SCM team determined that an AVL could be built that would automatically search for those patients and add them to a list that the whole ED team could view.

ROLES *and* RESPONSIBILITIES

In all Emergency Departments save one, there was a Clinical Pharmacist assigned to monitor the abnormal microbiology list. This pharmacist had a continual presence throughout the week, following up with patients and writing or adjusting prescriptions as necessary (in consultation with physicians) to respond to the positive screens.

The one ED that was different than the rest was at the Alberta Children's Hospital, where there was no pharmacist to take ownership of monitoring the list. In this location, the ED physicians themselves take turns reviewing the list twice a day and acting on results as they come back. This arrangement required a general agreement amongst all the physicians to share this duty.

ANNOTATION MANAGER

To aid in the communication between the ordering physician and the physician who would end up seeing the result, annotations are added to the lab orders using Annotation Manager (an embedded feature within SCM). The ordering physician adds a note about their intended course of action depending on the results, and the lab checking pharmacist or physician adds a note about actions taken.

To learn more about Annotation Manager, visit the SCM Reference Information page at insite.albertahealthservices.ca/9823.asp.

THE RESULTS

For abnormal post-discharge microbiology results, incorporating the AVL and Annotation Manager into their processes resulted in a significant swing in the proportion of lab results that were viewed. Previously, when results were being managed using paper, very few labs had digital evidence showing whether or not a physician had seen those results. Now, nearly every single abnormal microbiology result is being looked at, and there is digital evidence to prove it.

