

Getting connected: Electronic delivery of lab, radiology, and hospital reports

The ability to electronically receive lab results, imaging reports, and hospital reports directly is consistently cited as one of the greatest benefits of adopting an electronic medical record (EMR) system. EMR adoption enhances care and increases office efficiency.

Instead of waiting for reports to be printed, mailed, or faxed, and placed into a chart for review, the reports are sent via secure electronic interface, like a secure e-mail, and immediately imported directly into the patient's chart in the EMR at any hour. They show up in the physician's inbox, ready for review, and can be sorted by date, type, patient, or normal/abnormal condition. Whether at the office, home, or away, the physician can review the new reports, quickly spot those flagged as abnormal, and flag reports for the MOA to follow up with the patient.

Some of the benefits of using interfaces that enable standardized electronic delivery of test results and hospital reports include:

- **Utility:** data can be graphed, pre-populated into flowsheets and forms, and searched for doing recalls, and a patient summary can be printed for the patient.
- **Access:** the physician can log in remotely, giving greater flexibility and eliminating the need to hunt through stacks of paper charts.
- **Efficiency:** electronic results are automatically attached to the patient's chart, not dependent on human intervention during office hours.
- **Accuracy:** the information is recorded digitally at source and sent electronically, thus preventing human error in transcription.
- **Cost:** data are sent via the interface at no charge.

- **Security:** the system matches physician and patient IDs to avoid mismatches, and data are sent over a secure encrypted connection.

Dr Jeanie Chan of Vancouver calls the electronic delivery of lab results "a one-stop process." She says, "I can open the chart immediately, find out why I ordered the test, and compare to previous results. I can also find out if the patient has a future appointment, and delegate the disposition to the MOA. The patient's demographic data are immediately accessible and I can call up the patient without even asking for the chart."

According to Dr Jeff Harries of Penticton, "The interfacing is a tremendous advancement. Without it, going to EMR was a tough sell. In the past, the moment you stepped out of the hospital, you were orphaned, going back 50 years to paper mail, or perhaps fax. Now, however, you feel like you are still connected and part of the larger care system, whether you are at your clinic, or logging in remotely from home or out of town.

"It makes you feel more secure in making decisions as you feel more confident that you have complete, accurate, and timely information. And by having the data imported into the EMR, you can do so much more, such as graphing the results to assess trends, graphically comparing changes in medications to what is happening with lab values to see the impact of dosage changes or new medications, and setting up alerts and reminders for follow-up care and testing for preventive care or chronic disease management. The patients love it too because we can show them a graph of how they're doing. I can show them the goal line on the graph, and how their results have been trending."

Dr Andrew de Wit, a GP in Port Hardy on the remote northern tip of Vancouver Island, comments: "The day Vancouver Island Health Authority went live with the new lab interfacing system, I started getting the lab reports back from patients I referred down to Victoria and Nanaimo. I usually get the report even before the patient makes it home to Port Hardy. That is a real improvement. Now we can be proactive and feel confident of having complete and accurate information."

Dr Satish Desai of Parksville notes the benefits for his patients: "I have been using an EMR for more than a year now and I've noticed that patients always want to see their graphs and results. This wouldn't be possible without receiving the test results directly into my EMR. I am able to check the lab results late on a Friday night and then I can call my patients to say that the results were good, thereby providing them with peace of mind over the weekend."

BC already advanced in electronic report delivery

BC is already very advanced in electronic results and reports delivery compared with almost any other jurisdiction in North America. Physicians using an EMR in BC can now expect to receive lab results from virtually every private or hospital lab in the province. The reports from the private labs are delivered through one of two companies, Excelleris and Medinet. The hospital reports are delivered either through those commercial services or through a system developed by one of the health authorities. Some of these interfaces have been available for several years, but they are now

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becoming widespread and broadly adopted.

Interior Health has been leading the way in recent years, adding diagnostic imaging reports and hospital transcribed reports (operative, discharge, and consult notes) to its interface. Northern Health and Vancouver

health authority's picture archiving communication system (PACS), which stores the full high-resolution images and video from diagnostic imaging tests ranging from traditional X-rays to MRI and CT scans. When the text report is not sufficient, this system allows the physician to look at the original image to get a better under-

- Pathology
- Health record (transcribed) reports
- Radiology (diagnostic imaging)

Northern Health has adopted the same system as Interior Health, first delivering electronic lab results and preparing to add diagnostic imaging and hospital transcribed reports. Both these health authorities have web sites with details of how to sign up and get started (linked from the PITO web site).

The other health authorities and private laboratories deliver their lab reports through Excelleris or Medinet. Excelleris delivers lab results for BC Biomedical Laboratories, LifeLabs, and hospital labs in the Vancouver Coastal, Fraser, and Vancouver Island Health Authorities. Vancouver Island Health Authority is currently pilot testing a text report delivery mechanism through Excelleris to send anatomical pathology, diagnostic imaging, and hospital transcribed reports to the physician's EMR through the same mechanism as the lab reports. Excelleris also provides a secure web browser access to PharmaNet through the Medical Practice Access to PharmaNet (MPAP) program.

Medinet delivers text-based reports for the BC Cancer Agency, Children's and Women's Health Centre of BC, and BC Centre for Disease Control, as well as several of the hospitals in the Vancouver and Fraser Valley areas. Medinet also provides a secure web browser access through the MPAP program.

PITO has recently added a new section on its web site with information on the various ways in which physicians can get their EMRs hooked up to electronic lab, diagnostic imaging, and hospital reports interfaces; the benefits of electronic reporting; and the MPAP service.

For further information, please go to www.pito.bc.ca/benefits/.

—**Jeremy Smith**
PITO Program Director

Physicians in several BC communities are sending secure electronic referrals between GPs and specialists, and visit summaries from walk-in visits to the primary GP.

Island Health are currently adding this information to their interfaces as well.

In addition to these reports, with patient consent, physicians can access the patient's medication profile via the PharmaNet interface, either through a web browser or through an interface directly to their EMR.

Through PITO Community of Practice initiatives, physicians in several BC communities are sending secure electronic referrals between GPs and specialists, and visit summaries from walk-in visits to the primary GP. This capability was piloted first in the south Okanagan and Powell River and is now being prepared for implementation in several other communities.

All of these report and referral interfaces are based on a standard called HL7, or Health Level 7, an extensive international standard that defines how data must be formatted to be transferred between disparate systems and still be understood by the receiving computer and the user.

Sometimes, however, reading the report itself is not enough, particularly for certain specialties. Physicians in most health authorities can now also log in remotely to access the

standing of the situation, and show the image to the patient—a very popular feature. This service is even available in the most remote locations.

Over the next few years, the interfaces available in BC will continue to expand so that physicians can not only receive electronic results and reports, but also send secure electronic prescriptions and referrals (e-prescribing and e-referrals).

Mechanisms of electronic test results delivery

The interface mechanisms vary by type, location, and private vs public facility. Full details are available on the PITO web site.

Interior Health is leading the way in BC with the Physician Office Integration program, an initiative that allows the delivery of test results to clinics throughout the service area. Custom interfaces have been developed directly between Interior Health laboratory systems and physicians' EMRs. The following types of results are being delivered:

- Chemistry
- Hematology
- Microbiology
- Blood bank