



# Moving towards digital hospital records

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Digitization of paper records is a necessary component in every organization's evolution to fully electronic records systems. For Canadian hospitals already under pressure to adopt electronic medical records, the additional challenges associated with digitizing paper records can be overwhelming. How will paper digitization occur, who will complete this new work, how will the costs of time and equipment be paid, and who will ensure that the necessary quality standards are established, maintained and monitored? Completing a detailed business case, and developing a best practice checklist significantly increases the likelihood of success.

## ***Business Case***

Converting paper records to digital images eliminates the labour costs associated with filing and retrieving paper records. For most hospitals with high daily outpatient activity, pulling and filing paper patient records requires significant work. If all newly-created paper records and legacy paper records are digitized, the associated labour savings for all sizes of hospitals can be significant. Added to these savings is the elimination of costs associated with either on-site or off-site paper record storage. There will also be labour savings at the individual patient care unit, once it's no longer necessary to contact Health Records to retrieve historical patient records. These costs are more difficult to quantify and eliminate.

All initial savings will be offset by the new capital and operating costs associated with implementing a record scanning program. These programs require very focussed project management to achieve a return on investment. Developing a positive business case will require a detailed project plan and specific process testing, so that valid costs and potential savings can be assessed. Process testing will also provide benchmark productivity standards against which ongoing improvements can be measured.

A simple guide to developing a business case for patient record scanning implementation can be done by developing a chart with the headings across the top: record type, daily volumes, average image count per record (with a double-sided document representing two images), average number of records inventoried per hour, average number of images prepared per hour, average number of images scanned per hour, average number of images indexed per hour (with indexing being the data entry function associated with naming a digital image) and average number of records checked for quality control per hour. On the column under "record type" can be listed ER, impatient, same day care, clinics, and loose documents – with values and totals filled in for each heading.

Once the chart has been completed then costs can be estimated by developing three further charts. The headings across the top of the first chart can be labour, number, hourly rate and total cost. Under "labour," can be listed staff required to prepare records, staff required to scan records, staff to index records, staff to perform quality control, staff to shred original paper records, supervisory staff, IT/application support staff, vacation and sick time coverage and staff training.

The headings across the second chart would be hardware, number, cost and total cost, with the headings under "hardware" being scanners and PC workstations.

The third chart would have headings: consumables, number, cost and total cost, with the items listed under "consumables" being scanner cleaning kits, scanner rollers, scanner pads, print cartridges, matt tape, staple removers and document sorters.

Together, these three charts can provide an indication of the cost of moving towards a digitized records system. They, with the business case chart mentioned previously, will be able to provide hospitals with an overview of the benefits of digitized patient records.

### ***Best Practice Checklist***

Effectively digitizing patient records can be technically challenging, particularly if high daily throughput at minimal cost is to be achieved. The quality of every image must be at least as good as

the original paper record, and all processes must be clearly documented and followed, to meet the Canadian standards for Electronic Records as Documentary Evidence (CAN-CGSB-72.34-2005). The checklist below – based on best practice experience – provides a guideline for hospitals embarking on a digital records management project:

- Complete comprehensive forms redesign before implementing records scanning; for example, eliminate expensive colour-coded forms that will have no relevance in a black and white digital record, and multi-copy forms with bindings that will impede record preparation for scanning; add bar codes and standardized titles to forms to significantly enhance record scanning productivity
- Develop productivity standards for each records conversion function and hold staff accountable for meeting or exceeding these standards – realizing the business case will be based on the daily achievement of these standards
- Overstaff at start up and ensure that all records received each day can be processed within the expected turnaround times; falling behind is both demotivating for staff and undermines the project's success; gradually decrease staff as productivity improves
- Create an inventory – or log – of all records to be digitized, and cross check against a log created post digitization, to ensure 100 per cent reconciliation; every record needs to be accounted for and retrievable at all times
- Organize records in batches of similar types – such as double-sided versus single-sided documents, oversized versus standard sized documents, and landscape versus portrait documents
- Assign staff to the same types of records and have them sign off and take accountability for the batches that they complete; this adds to enhanced proficiency and provides valuable tracking data to identify staff who may need additional training to meet quality and productivity standards
- Ensure any tape used to repair documents, or to mount small documents, is tested pre-production. High gloss tapes can cast shadows and interfere with good image quality, and the glue in some tapes will obliterate whatever is written underneath
- Complete extensive document type testing pre-production. Can all documents be scanned in black and white or will colour be required to provide a good quality image for such documents as ECGs? Can all documents be effectively scanned at 200 dpi (dots per inch) or will some documents require 300 dpi (300 dpi is the standard for any documents that require electronic data capture or Optical Character Recognition)
- Poor quality and illegible documents should be returned to their source before scanning, for correction. The legibility of patient demographic information is particularly important on a

digital image. Printed demographic labels, or demographic bar codes, are best practice in a digital record environment.

- Clean scanning devices well and often, and make sure consumable products – such as rollers and pads – are replaced regularly.
- Use the “4 Eyes Principle” for all quality control checks. This means one person is checking the work of another, and never checking his or her own work.

Eventually, all hospitals will be required to have fully electronic health records, and digitizing existing paper records is an important first step. While significant time, cost and space savings can be achieved by digitizing patient records, the process of doing so can also be fraught with problems – especially at the outset – without careful consideration of the standards required and the issues that may arise. Ensuring that a business case can be made, and best practices followed, are critically important to the successful implementation of a digital health records program.

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