

# EMR Optimization

## Reference Guide

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**Shared health**  
**Soins communs**  
Manitoba

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## Orientation to EMR optimization

This guide provides an orientation of key concepts to support Home Clinics in optimizing use of their electronic medical record (EMR) and improving EMR data quality. Additional supporting resources can be found in the [Home Clinic Toolkit](#).

### Why do I need to optimize use of my EMR?

Using an EMR to its full potential provides your Home Clinic with the required information to meet clinic needs and provide comprehensive patient care. EMR optimization enables clinics and health-care providers to realize the full benefits of using information technology and facilitates comprehensive and complete data capture which in turn supports clinical information sharing between primary care and other health-care sectors.

#### What is EMR optimization?

EMR optimization involves using advanced features and functions and improving EMR data quality with the goal of supporting clinic workflows, health-care provider efficiencies and quality of care for patients.

### Getting started

Optimizing your EMR can feel like a daunting task. The [Primary Care/Community Information Systems \(PCIS\) Office](#) at Shared Health is here to help. Your Home Clinic Liaison can guide you through this series of modules to help maximize the value of your EMR and achieve optimal use. The modules have been developed to cover a variety of topics for Home Clinics as shown below:

- Reference Guide
- Module 1: Home Clinic Foundations
- Module 2: Enrolment Correctness
- Module 3: Primary Care Quality Indicators, Primary Care Data Extract and Reports
- Module 4: Quality of Clinical Data

To access each module, visit the [EMR Optimization Modules page](#)

Each module:

- Provides high level information about topics important to Home Clinics outlined at a quick glance in the Table of Contents
- Highlights key takeaways and next steps focused on improving EMR use; and
- Outlines suggested measures to review, practice reflection exercises, and actionable items to consider.

Home Clinics can progress through the modules in order or select certain components to target based on their individual needs or clinic roles. To supplement the modules, access additional content in the [Home Clinic Toolkit](#) or contact your Home Clinic Liaison directly.

## Benefits of the EMR optimization modules

Progressing through the modules will help your Home Clinic:

- Ensure EMR data is reliable at point of care (e.g. complete, current, consistently captured)
- Improve EMR data recording practices for:
  - Patient enrolment
  - Primary Care Quality Indicators (PCQIs) to assist in clinical decision making related to chronic disease management including mental health, addictions and sexually transmitted and blood borne infections (STBBIs)
  - Submitting a comprehensive Primary Care Data Extract (PCDE)
  - Sending Home Clinic Client Summaries to eChart Manitoba
- Perform practice reflection related to participating as a Home Clinic and using your EMR
- Meet primary care deliverables (e.g. Home Clinic and/or My Health Team)

## EMR data quality

### Why is good EMR data quality important?

Strong data quality supports a variety of key activities and functions:

1. **Informing day-to-day clinical practice.** An important benefit of using an EMR is retrieving and using the data to inform decision making and enhance patient care. This can only be supported when quality information is being captured in your system.
2. **Supporting patient-centred care.** Accurate and complete EMR data quality supports providers and clinic staff in maintaining patient-centered care. Strong data quality enables questions to be answered efficiently, provides a true snapshot of a patient's medical history, and allows timely and accurate decision-making to take place. Home Clinics who have implemented the Home Clinic Client Summary are sharing primary care information to eChart Manitoba and supporting continuity of care for patients who may be accessing episodic care outside the Home Clinic.
3. **Improving PCDE submissions.** High quality data can support achievement and completeness results in PCQIs for chronic disease management. By leveraging the reports provided by Manitoba Health after each submission, sites can better understand how their data reflects care of chronic disease patients in their practice. It can also help to identify ways to improve EMR use that may better indicate actual patient care activities.
4. **Informing administrative workflows.** EMRs can be used effectively to accurately record and maintain demographic data. Having this quality foundation supports a variety of clinical processes, patient communications and information sharing between providers and other areas of the health-care system.
5. **Optimizing billing opportunities.** Quality EMR data can support accurate billing and becomes even more important if billing is completed by an external service. Specifically, good data quality may support the ability to streamline billing for applicable Family Medicine tariffs for eligible family physicians working in registered primary care Home Clinics for their enrolled patients.

## Common data quality issues

Definitions and implications of EMR data quality have been studied in Canada (Lix, 2017; Singer, 2016). Research in 2009 identified general data quality issues that compromise the use of EMR data (Birtwhistle, 2009). Examples of these issues include:

- “Dirty Data” (e.g. misspelled words, multiple words for the same item)
- Missing data
- Inconsistently stored/entered data
- Insufficient metadata (supporting information) to interpret the meaning of a value or field
- Absence of a reliable naming convention for diagnoses, lab tests and results.

## Strategies to achieve quality data

Data quality is part of a continuous improvement cycle. The following list outlines strategies for achieving quality data in your Home Clinic’s EMR and helps to incorporate data quality best practices into regular clinic workflows:

- Ensure patient demographic data is complete and correct
- Establish clinic-wide guidelines for how and where data is recorded
- Use structured data as much as possible (e.g. ICD-9 codes for diagnoses)
- Enter data into discrete data fields as much as possible
- Avoid using free text to record clinical information, particularly for data being shared with other systems (e.g. PCQIs, components of the Home Clinic Client Summary).
- Start the improvement process with data elements important to your practice (e.g. PCQIs, Home Clinic Client Summary data, specific patient population data).

## Data quality characteristics and metrics

The following data quality characteristics (Bowen, 2012) can be used to measure and analyze EMR data quality. More information on these metrics can be found in the [Home Clinic Toolkit](#).

**Figure 1: Data quality characteristics**

CHARACTERISTIC	DESCRIPTION
Completeness	Is the data free from significant gaps and reliable?
Correctness	Does the data accurately describe what it is intended to represent?
Currency	Does the data represent the most recent activities and reflect the most current information available?
Comprehensibility	• Are those intended to rely on the data able to understand and accurately interpret the information?
Consistency (form and capture)	• Are the data elements captured in the same way and consistently recorded in the same place?

Concordance	Is the data in agreement with other relevant and reputable sources? (e.g. Statistics Canada)
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## Tips and tricks for improvement

The following section provides information on key principles Home Clinics should consider that facilitate EMR data quality improvement:

**Figure 2: Strategies for EMR data quality improvement**



### Demographic foundation

Focusing on a strong foundation of current, accurate and complete demographic information in the EMR will better enable use of data and advanced features and functions. Being sure that patient records contain the correct demographic information such as date of birth, administrative sex, Personal Health Identification Number (PHIN) and enrolment details will support patient safety, accurate EMR reporting results and is a critical component of information sharing with other providers and the health-care system.

Learn more about the Client Registry Query Service

- [Info sheet](#)
- [FAQ](#)
- [5-minute video](#)

### Discrete data fields

Patient data and clinical information should be entered into a discrete data field wherever possible. Discrete data fields are specific locations in your EMR that only accept certain data values. These fields may contain information that is manually entered, received by an electronic interface (such as an electronic lab result) or automatically updated based on background configuration within your EMR. Many EMRs have a query or reporting tool that allows you to select a variety of discrete fields for the purpose of reporting on a patient population. Information entered in a free-text format (either by typing or via dictation) is typically not available for reporting or evaluation. If you are a practice that uses dictation on a regular basis, consider manually entering specific pieces of patient care information into discrete fields to allow for more meaningful reporting.

Using discrete data fields to capture PCQIs and other key clinical information can ensure your PCDE accurately reflects patient care activities and that current and comprehensive Home Clinic Client Summaries are posted to eChart Manitoba.

### Standardization

Clinics are encouraged to have discussions across their site about standardization of data capture to ensure consistency. Standardization of data across an EMR instance is also important for sites using a shared EMR. This will lead to more accurate clinical decision-making, reporting and improve the sharing of information between members of the clinic and external sites (e.g. Client Summaries). For example, using a standard set of agreed-upon ICD-9 codes can be a

good start to record patient problems. This becomes important when using query and reporting functionality to ensure results reflect accurate information. Standardization can also assist to ensure your PCDE accurately reflects patient care activities. One other area to consider is using your EMR communications, alerts, and reminders functionality. Sites can benefit from a standard agreed upon list of tasks, messages and communications that outline patient needs or activities that need to be completed. This will improve tracking of outstanding items and improve communication between providers, clinical and administrative staff, as well as with patients and external providers.

## EMR configuration

Configuration in your EMR refers to customizing certain features to meet your specific needs and can significantly contribute to efficiencies in recording patient data and standardizing the capture of information. To improve EMR data quality, sites should use all components and functionality in their EMR that support seamless data collection. Using these features of your EMR can eliminate duplicate data entry which ensures information is being stored in the correct fields and locations. This will support accurate reporting, comprehensive PCDE submissions and information sharing with other providers external to your site. If your site is on a shared instance or if your vendor completes configuration for you, discuss the configuration of your EMR with the role/person responsible to ensure it meets your needs and you understand the workflow.

Areas to consider for configuration include drop-down pick-lists, EMR forms and templates and mapping in the EMR so that data entered in one area is automatically pulled into other areas where they are needed (e.g. blood pressure entered into a discrete field is populated into a Lab Requisition Form).

## Supporting frameworks

Adopting the following frameworks can help plan activities to work towards improved EMR data quality in your practice.

### SMART goal setting

SMART goals enable your clinic to identify clear, tangible targets and recognize when they have been met. More resources can be found in the [Home Clinic Toolkit](#).

**Figure 3: SMART Goal setting**

<b><u>S</u>pecific</b>	<ul style="list-style-type: none"> <li>Clearly identify goal; be clear and detailed (e.g. reduce the number of records missing a date of birth)</li> </ul>
<b><u>M</u>easurable</b>	<ul style="list-style-type: none"> <li>Define the goal in measurable terms; how will you know when you've achieved it? (e.g. reduce to less than five)</li> </ul>
<b><u>A</u>chievable</b>	<ul style="list-style-type: none"> <li>Choose goals that are realistic and manageable (e.g. your staff confirms they can easily modify data stored in the date of birth field)</li> </ul>
<b><u>R</u>elevant/<u>R</u>ealistic</b>	<ul style="list-style-type: none"> <li>Make the goal something that is important to you/your practice. Can you realistically achieve it? (e.g. clinic agrees one staff person can focus on task)</li> </ul>
<b><u>T</u>ime-bound</b>	<ul style="list-style-type: none"> <li>Define the time frame during which you will achieve the goal (e.g. reduce in the next four weeks)</li> </ul>

Here is how the final SMART goal might be defined: “<Name of staff person> will reduce the number of records missing a date of birth to less than five in the next four weeks.”

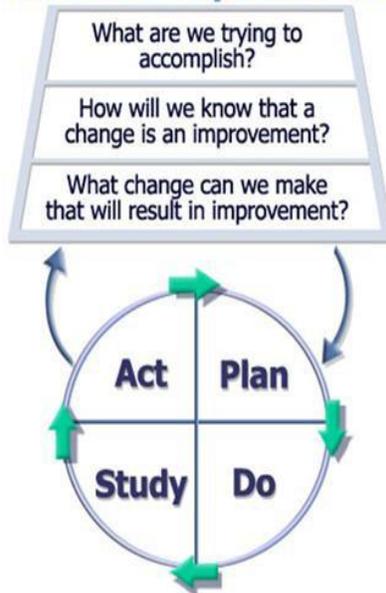
## Plan-Do-Study-Act Model for Improvement

The [Plan-Do-Study-Act \(PDSA\) Model for Improvement](#) is a recognized framework to guide and support change. Using PDSA cycles can help you conduct small tests of change with minimal risk and can be helpful to engage staff who are reluctant to change. PDSA is a valuable tool in a variety of areas related to continuous quality improvement. It can help you define a problem, better understand your systems, design, and test solutions, implement change, and ultimately sustain and spread change.

In the ‘plan’ stage, sites identify a change in process or practice aimed at improvement. The ‘do’ stage is a test of the change. The ‘study’ stage determines the success of the change. The ‘act’ stage completes the change process through implementation. Any adaptations from the original process are identified and incorporated into the next cycle for testing and implementation. Many small iterations of the PDSA over time help to refine the process and finalize the best approach. As PDSA is a recognized framework internationally, many online tools and templates exist to support sites through its model of improvement. Additional resources can be found in our [Home Clinic Toolkit](#).

**Figure 4: Plan-Do-Study-Act Model for Improvement**

### Model for Improvement



<b>STEP 1: PLAN</b>	What is the objective?
	What may happen and why?
	How to carry out the test (who, what, when, where)
	What is the data collection plan?
<b>STEP 2: DO</b>	Carry out a small-scale change
	Document outcomes (+/-)
<b>STEP 3: STUDY</b>	Analyze the data
	Compare to predictions
	Summarize/discuss what was learned
<b>STEP 4: ACT</b>	Decide whether to adapt, adopt or abandon plan
	Implement on larger scale
	Plan the next cycle



## Home Clinic support

Our Home Clinic Team is the main source of support for you as a Home Clinic. Contact your Home Clinic Liaison directly when you have questions or contact us at:

### Home Clinic Team

Phone: (204) 926-6010

Toll free: 1-866-926-6010

Email: [homeclinic@sharedhealthmb.ca](mailto:homeclinic@sharedhealthmb.ca)

## References

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