



Presentation to the
Federal, Provincial and Territorial (FPT)
Deputy Ministers of Health Meeting

Gatineau, Quebec

June 10, 2011

(Amended for Project Web Page)



Canadian Pharmaceutical Bar Coding Project

Improved Medication Safety Moving Forward

A National Collaborative

FPT Deputy Ministers of Health Meeting

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What's the Adverse Drug Event Problem?

- The number of Adverse Drug Events (ADEs) is unacceptably high (**3-6% of admissions to hospitals**).
- Medication errors reported in a 2007 CIHI report:
 - **10% Canadian patients** report experiencing a medication error in the previous two year period. (Commonwealth Fund Health Policy Survey, 2005)
 - “Medication safety has become an area of increasing awareness.”
- Of reported ADEs:
 - Serious patient injury or deaths, results in **20-30%** of events.
 - The more serious the ADE, the more likely the event was preventable.
 - Overall **30-40% of ADEs are preventable medication errors**.
 - Many ADEs are caused by **human error**.
 - **Errors occur at each stage** of the medication process

What's the cost impact of ADEs?

Baker Norton Canadian Adverse Event Study (2004)

* The overall annual number of all adverse events is 185,000 and **70,000 are potentially preventable.**

* **24% of Adverse Events were related to medication or fluid errors.**

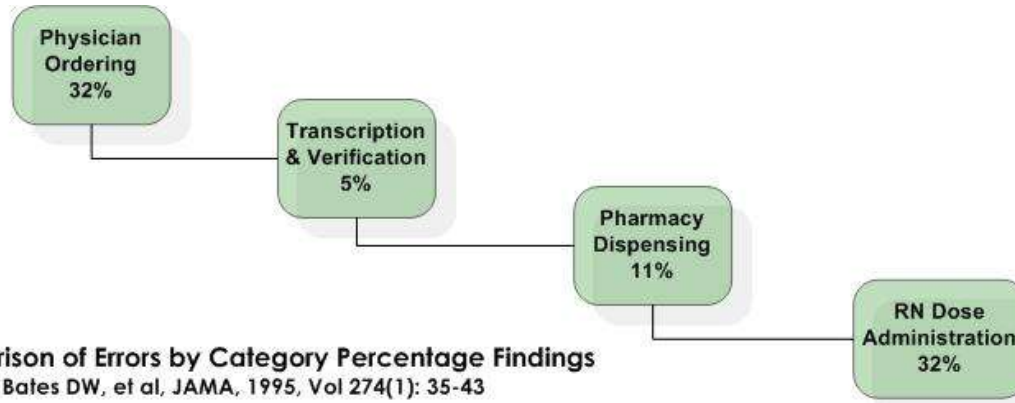
* The Mean Increased **Length of Stay** related to an AE was;

- **For small hospitals: 7.7 days**
- **For Large hospitals: 3.6 days**
- **For Teaching hospitals: 6.2 days**

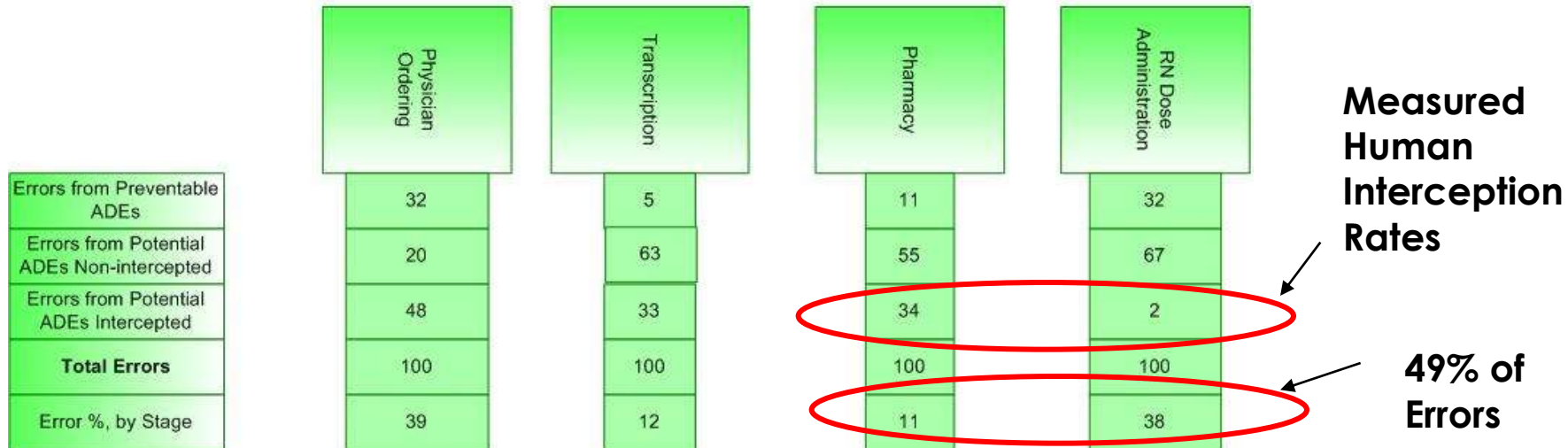
Note: Morbidity and cost on ambulatory, residential or home care errors has not been well studied in Canada, but has been found to be equally significant in U.S. studies.

Where Can Bar Coding Help?

System Sources of Errors: Leap LL, Bates, DW. et al, JAMA 1995



Comparison of Errors by Category Percentage Findings
(Leape L, Bates DW, et al, JAMA, 1995, Vol 274(1): 35-43)



Effectiveness of Bar Code (AI) in Safety (Examples of Effectiveness)

- A **63% reduction pharmacy dispensing**. Study shows a return of Investment of approximately 1 year.

Maviglia SM, Churchill, Wm et al. *Arch Intern Med*. 2007; 167: 788-794

- A **41.4 % reduction in dose administration** and order transcriptions, excluding potential timing errors. A **27.3% reduction** in dose timing errors.

Barcode technology is an integral piece of safe medication management systems like Electronic Health Records (EHR) and medication reconciliation.

Poon EG, et al. *New England Journal of Medicine* 2010; 362:1698-707

- A **54% reduction in dose administration errors with bar coding** with Electronic Medication Records.

Paoletti R et al. *American Journal of Health-Systems Pharmacists*. 2007; 64(5): 536-543

What's the situation in Canada?

Medication Practice Situation in Canada, as of 2009 ...

- Many primary (e.g. vial) and secondary (outer package) labels **did not** have a bar code.
- There were **no national standards** for the type of bar code to use, nor the required information within the code itself. Reader/scanners and software cannot be seamlessly written to read the codes.
- There were **no national standards** for the rules regarding how to assign a global identification number, which is used continuously through the medication chain, and at every package level, nor a common product descriptor database connected to such bar codes.
- Bar codes, when applied were **different** between hospitals and community, and often between healthcare provider sites.

Canadian Pharmaceutical Bar Coding Project: Setting competing interests aside...



Project Overview

**A National Collaboration between six
healthcare sectors.**

Major Objectives:

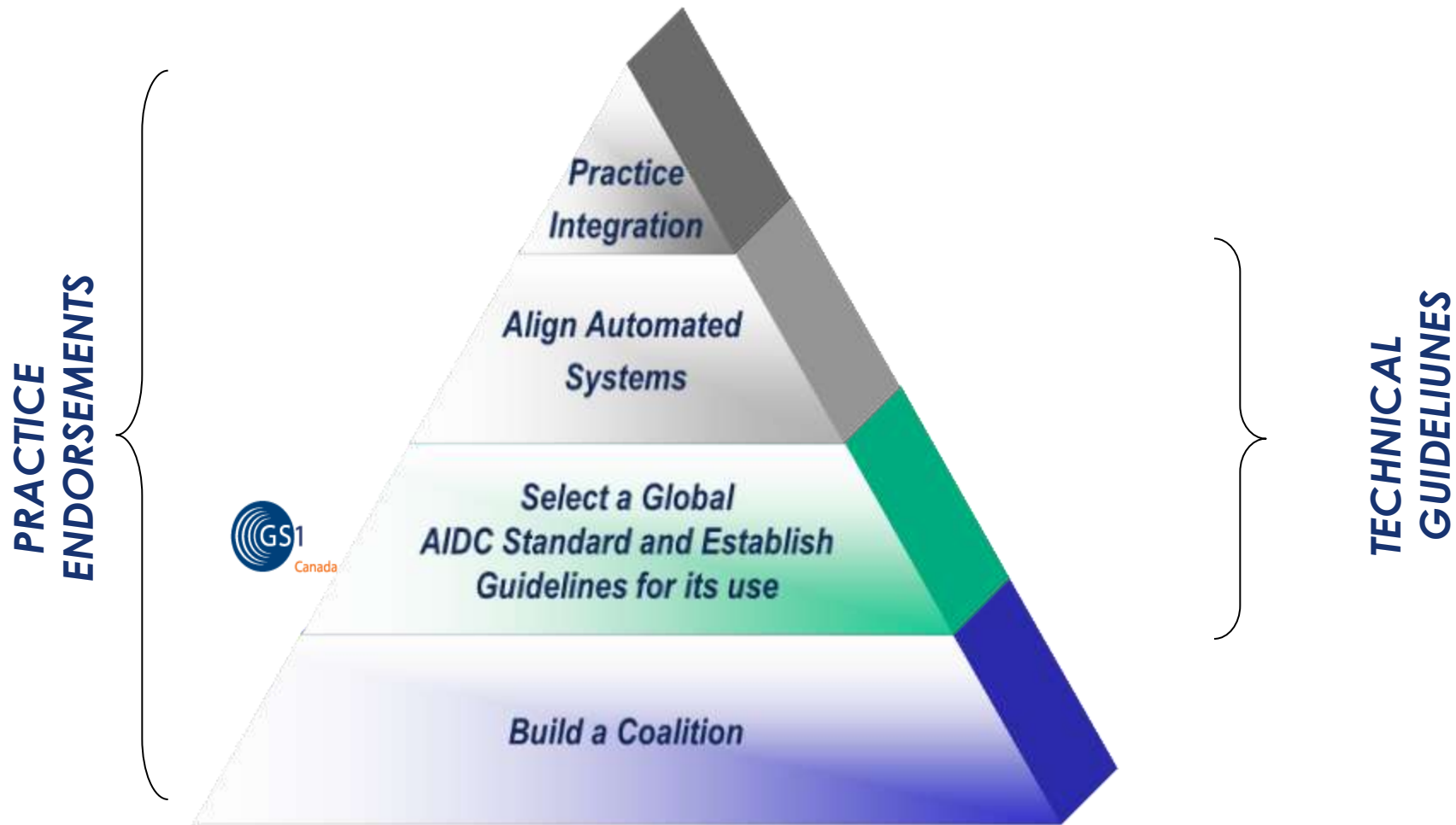
- * To develop a sustainable pan-Canadian strategy for bar coding of marketed pharmaceutical products.
- * To select a common product database for standardized product descriptor data.
- * To encourage clinical information systems development which utilize automated identification and data capture at each point of the medication chain.
- * To create a national environment for the implementation of aligned automated identification practices within each identified healthcare sector.

National Advisory Partners

- Public Health Agency of Canada
(reciprocal Project lead for Canadian vaccine project)
- Canada Health Infoway
- Canadian Nurses Association
- Canadian Society of Hospital Pharmacists
- Canadian Generic Pharmaceutical Association
- Canada's Research-based Pharmaceutical Companies
- Canadian Association of Chain Drug Stores
- Canadian Association for Pharmacy Distribution Management
- Selected Group (Public) Contracting Organizations
- GS1 Canada

- Health Canada (Observer)

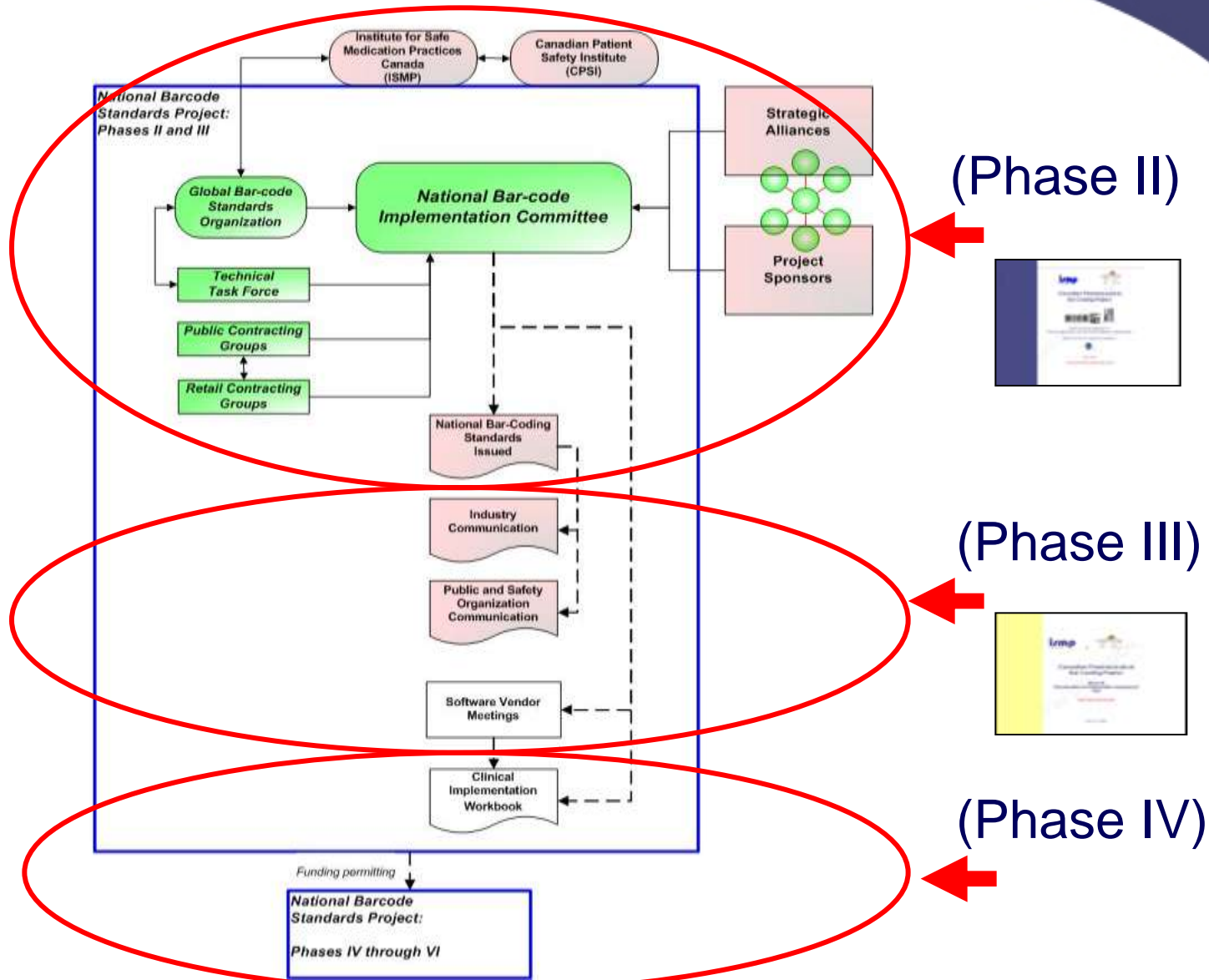
Progressive Practice Integration



National Bar-coding Project Process

September 2008

Project Structure & Flow



The Voluntary "Joint Technical Statement" (2010)

Section 1: Pharmaceuticals to be Encoded

Section 2: A National Automated Identification Standard

Section 3: Content of the Bar Codes

Section 4: Pharmaceutical Packaging Levels and Placement of Bar Codes

Section 5: A Common Canadian Pharmaceutical Product Registry (CCPPR)

Section 6: Bar Code Symbolologies

Section 7: Expectations of Professional Practice Organizations and End-Users

Section 8: Timeline Adoption of Standard (Pharmaceuticals Dec 2012)



Health Organization Formal Endorsements

Key Canadian Organizations have endorsed our Strategy, including:

- *Canada Health Council*
- *Canadian Healthcare Association*
- *Canadian Medical Association*
- *Canadian Nursing Association*
- *Canadian Society of Hospital Pharmacists*
- *Healthcare Insurance Reciprocal of Canada (HIROC)*
- *Ontario Hospital Association*
- *3 Provincial Health Quality Councils (AB, BC, and MB)*



Selected International Recommendations for Bar Coded Medications and Systems

- US: “The Council recommends that health care organizations employ machine-readable systems (e.g., bar coding) in the management of the medication use process.”

National Coordinating Council for Medication Error Reporting and Prevention, 2007 (U.S.)

- US: “The use of bar coding in several hospitals has shown that the system can significantly diminish medication errors.”

Lester Crawford, Deputy Commissioner, FDA, 2002

- UK: “The case for [bar] coding is compelling, but all stakeholders need to work to commonly agreed standards if the benefits are to be realised fully.”

UK NHS Department of Health: Coding for Success, 2007

- Australia: “ TGC notes: That inclusion of bar codes on medicines has potential to improve patient safety through reducing dispensing errors.”
“Agrees: That consideration of mandatory bar coding requirements for medicines should be given high priority.”

Therapeutics Goods Committee, Dept of Health and Ageing, Australian Government, 2008

How will the standardized bar coding integrate into professional practices?

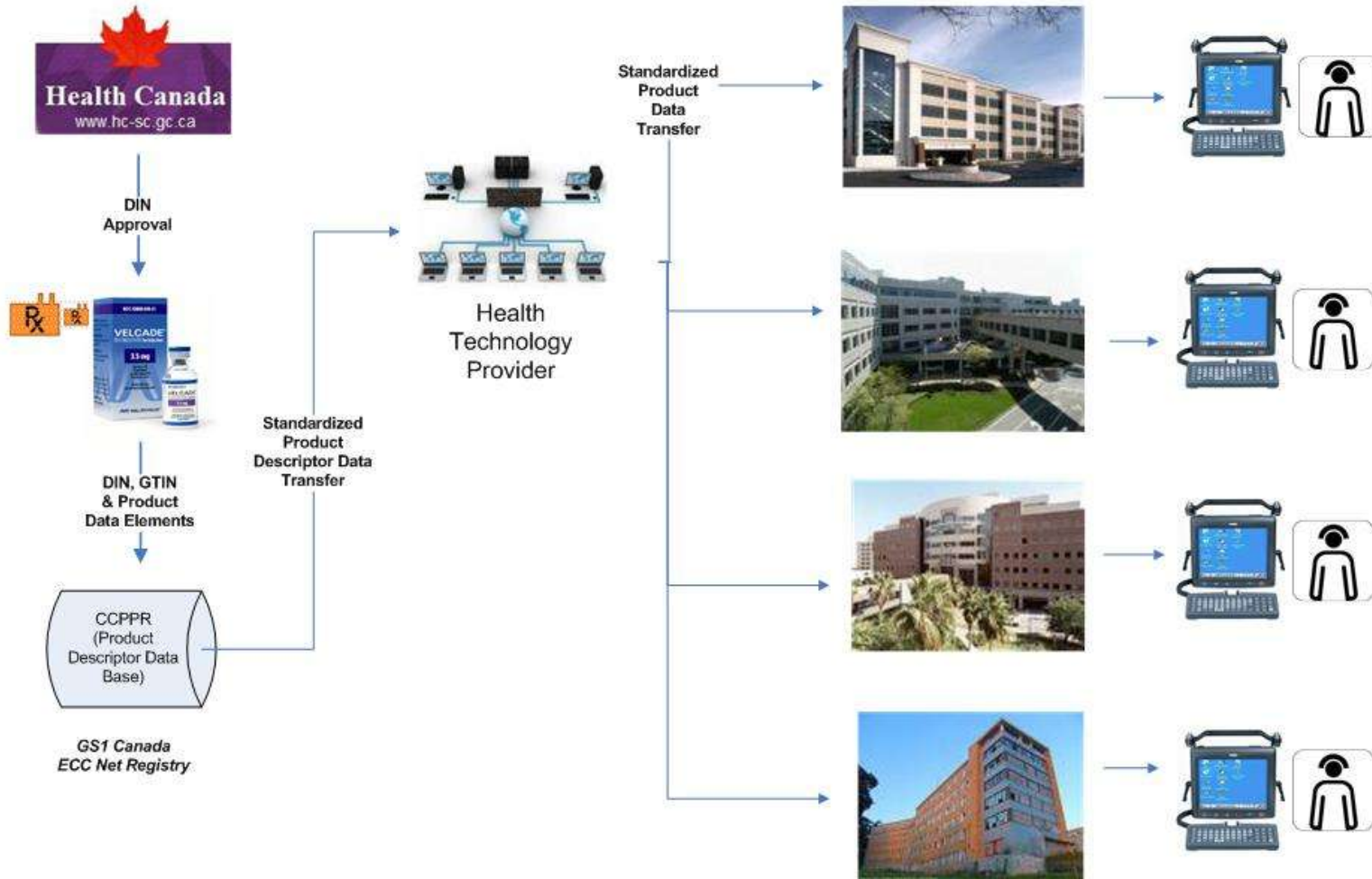


Practice Implementation

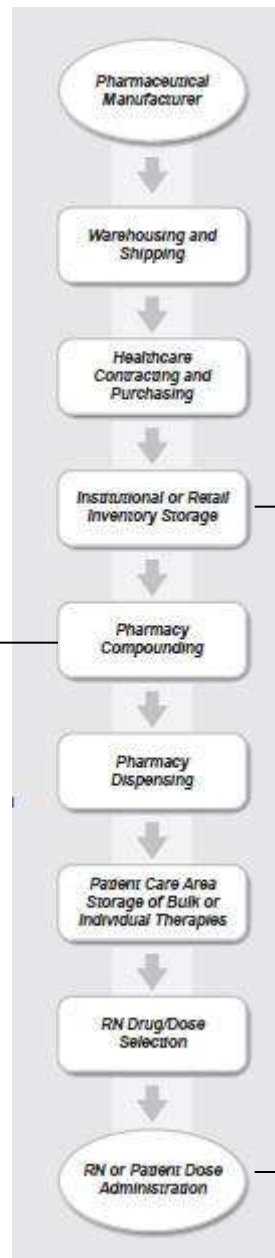
Pharmaceutical Manufacturer
Adoption

Health Technology
System Engagement

End User (Clinical)
Adoption Begins



A Safe Medication Chain



Canadian Bar Coding Key Points

- Medication error rates are too high. The public and health professionals are concerned.
- Evidence shows many errors are preventable through medication bar coding and related patient care system improvements.
- Other international health jurisdictions have embraced medication label bar coding requirements as a critical first step toward improved public safety.
- ISMP Canada and CPSI have facilitated a collaborative strategy with over 50 participating organizations to address the technical approach to bar coding, adopting a common global standard (GS1).
- Health Canada companion regulations, with practice support from Provincial and Territorial health ministries, can improve public medication safety, in a cost-effective manner.

Future Discussion Opportunities

- Support for Health Canada companion regulations for pharmaceutical automated identification (e.g. bar code).
- Reference to the Canadian Pharmaceutical Bar Coding Strategy and the Joint Technical Statement on Canadian Pharmaceutical Automated Identification and Product Data Requirements, within Health Canada guidance documents to manufacturers.
- Advice on how best to move this collaborative strategy forward, with an opportunity for continued dialogue and a report back to the FPT Deputy Ministers' Committee.
- Support from Provincial and Territorial Health Ministries to promote automated identification knowledge transfer and practice integration as a key patient safety priority.
- Release funds to support future trials and implementation of medication automated identification practices, within both institutional and community care environments.



Thank You

