Canadian Pharmaceutical Bar Coding Project

Final Report and Recommendations

July 30, 2013

Project Overview and Report Summary

The *Canadian Pharmaceutical Bar Coding Project* has been co-led by the Institute for Safe Medication Practices Canada (ISMP Canada) and the Canadian Patient Safety Institute (CPSI), under the direction of a national advisory group, the Implementation Committee (IC). The project is now ended, and all of its original objectives, plus identified additional activities, have been completed on budget.

There was an evident need to adopt national standards for processes related to medication Automated *Identification and Data Capture (AIDC)* (i.e., bar coding and documentation) thorough a multi-staged process, from the point of manufacture to the patient for dose administration. There was also the need to integrate such standards into practices to reduce medication error potential and improve documentation; processes which continue to show an overreliance on human checking methods. These legacy processes have been shown to carry unacceptable preventable error rates.

The adoption of a global *AIDC* standard in Canada, with the availability of bar code reader technology connected to intelligent software, allows the country's healthcare system to advance patient safety practices. In particular, automated identification of medications allows healthcare solution providers to meet public expectations for safer healthcare practice, through the development of automated identification of products. Such innovations also support busy healthcare providers by identifying their work accurately, providing reliable access to standardized product descriptions from a common product data registry, enhancing the quality of documentation in the patient electronic health record, and providing access to additional relevant therapy information, thus making the Canadian healthcare system safer and more efficient.

The project has received multiple formal endorsements from major national practice and safety organizations, a U.S. safety project award, as well as provided many communications and presentations, including a presentation to the Federal, Provincial and Territorial Deputy Ministers of Health meeting.

This final report summarizes the completion of project objectives and provides recommendations for both further new facilitation work and the stewardship of certain documents arising from this project. It envisions a continued activity between partners and key stakeholders, as well as maintaining activity of the IC committee and Technical Task Force in a limited capacity. For these activities, new revenue will be required.

All documents and endorsements can be found on ISMP Canada's website:
http://www.ismp-canada.org/barcoding/index.htm

Project Scope and Phases

The specific project objectives were published in September 2008 and were fully supported by funding from both not-for-profit and for-profit organizations. The following is a synopsis of the four project phases:

Phase I: National Stakeholder Roundtable (January 2008)
The need for a pan-Canadian standard for bar coding of medications was affirmed by the National Stakeholder Roundtable, held in early 2008 under the sponsorship of ISMP Canada and CPSI and subsequently documented in the roundtable proceedings (published in July 2008), which incorporated broad input from the healthcare industry.
http://www.ismp-canada.org/download/BarCoding_Roundtable_Proceedings.pdf

Phase II: Project Charter and Adoption of the GS1 global Automated Identification Standard
The IC approved a project charter and a national process to review and adopt a pan-Canadian bar coding standard for pharmaceuticals.

In April 2009, ISMP Canada and CPSI issued a joint statement endorsing adoption of the GS1 global standard for Automated Identification of pharmaceuticals in Canada. In doing so, they recognized the importance of international integration of identification standards for pharmaceuticals, represented by the global collaboration established by GS1. The GS1 global standard has already been adopted by many Canadian and global manufacturers and by other healthcare-related organizations.

GS1's Canadian arm, GS1 Canada, a not-for-profit organization, worked with the Canadian Pharmaceutical Bar Coding Project and the project's Technical Task Force to identify the requirements of users in each healthcare sector and thus to ensure that existing or planned GS1 global standards will meet identified needs for efficiency of the supply chain and patient safety.

A 34-member national Technical Task Force was formed. The Technical Task Force consisted of members from six Canadian healthcare sectors: pharmaceutical manufacturers, supply chain and group purchasing organizations, retail pharmacy professionals, institutional pharmacy professionals, integrated providers of healthcare information technology, and professional practice and healthcare quality organizations.

A technical statement entitled *Joint Technical Statement on Pharmaceutical Automated Identification and Product Database Requirements* (*JTS*) was originally released in January 2010 and was updated as Version II: 2012 in February 2012. The document describes the pan-Canadian integration of Automated Identification of pharmaceutical products and provides a basis for the coordinated transfer of medications from the manufacturer to the patient-dose level with a single product bar code (identifier). The *JTS* (Version II: 2012) and its supplements are available for viewing or downloading at the following link: http://www.ismp-canada.org/barcoding/index.htm

Phases III and IV: Promotion of Improved Understanding and Adoption of Automated Identification
During Phase III of this project, the updated 2012 JTS was disseminated across all Canadian healthcare sectors, to encourage development of appropriate safety software and automated practice systems using a common *AIDC* standard and to promulgate a broad understanding of the safety benefits of bar coding among pharmaceutical manufacturers and technology providers.

During Phase IV, improved end-user and leadership knowledge and acceptance of bar coding methods were pursued. The purpose of Phase IV activities is to accelerate the adoption into practice of Automated Identification strategies for medications. For this purpose, a document was completed and released (pending) entitled *Medication Bar Code System Implementation Planning: A Resource Guide*. The guide is directed primarily to front-line healthcare executive and practice leaders, in both community and institutional practices. It also provides detailed explanations of bar coding methods, strategic arguments for bar code system acquisition, and implementation considerations.

Project Deliverables

Tables 1 and 2, below, summarize the project completed deliverables and dates.

Table 1: Phase II Deliverables and Status

Original Phase II Deliverables	**Status**
Agreement on project between ISMP Canada and CPSI	September 2008
Gain involvement of major stakeholders	Completed
Establish a national Implementation Committee	Completed
Create a Technical Task Force (TTF) for the development of user requirements for standards	Completed
Select and endorse an international bar-code standards organization	Completed
Meet funding targets (Phase II and III)	Completed
Recommendation from TTF for Canadian Bar-coding standard (**JTS**)	Completed
Sustainability strategy developed and approved by IC	Completed
Communications strategy developed and approved by IC	Completed
Implementation Roadmap developed and approved by IC	Completed
Provide Project funders with written report outlining progress.	Completed

Table 2: Phase III Deliverables and Status

Original Phase III Deliverables	**Status**
Gain involvement of major stakeholders	Completed
Pharmacy information (Software) Vendor Consultations	Completed
Clinical Implementation Best Practices Issues using approved standard	Completed
National Buying Groups collaborate in a Pharmaceutical Manufacturer compliance sustainability strategy	Completed
Provide Project funders with written report outlining Phase III project accomplishments.	Completed
Updated and released JTS Version II:2012* **Main Statement** **Supplement A: Bar Code Placement Guidelines** **Supplement B: Minimum Software Safety Functionality Checklist**	Completed and released February 2012)

* The updated J***oint Technical Statement on Pharmaceutical Automated Identification and Database Requirements*** **(Version II: 2012)** was not part of the original project deliverables. It was, however, completed within the original *Phase II and III* budgets, including additional working group and task force meetings.

Phase IV Deliverables (From March 2011 CPSI/ISMP Canada revised agreement)	Status
Phase IV agreement signed by ISMP Canada and CPSI	March 2011
Preliminary design of a Bar Coding Implementation Kit (draft title)	Completed (August 2012)
Establishment of a Review Panel provide advice on the kit content and dissemination of the Bar Coding Implementation Kit.	Panel Formed: Completed First Stage Review: Completed
Design and administration of a State of Readiness Survey for Bar Coding in institutional settings	Institutional: Completed Community: Completed
Creation of bar code system implementation planning resource guide DRAFT. (Medication Bar Code System Implementation Planning: A Resource Guide: Bar Code Knowledge Module Bar Code Strategic Argument Module Bar Code Implementation Consideration Bar Code References	Completed (April 30, 2013)
Second field review of resource guide	Completed (June 14, 2013)
Final Completion of Resource Guide	Completed (June 30, 2013)
Communications strategy developed	Completed (June 21, 2013)
Public launch of Resource Guide (CNA and CSHP Supported)	CPSI/ISMP Plan (Summer/Fall 2013)

Recommendations

Recommendations for future related activities are provided in Appendix 1. These have been separated into two categories: *Automated Identification Practices Stewardship* and *Follow-up Automated Identification Opportunities*. Major recommendations have associated contingent recommendations noted.

Resources for future activities are reliant on the success of new funding endeavours, and are likely to incorporate both general bar code funding support and targeted initiative funding.

Respectfully submitted,

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APPENDIX I: Final Project Recommendations

Submitted as part of the Canadian Pharmaceutical Bar Coding Project Final Report (June 30, 2013)

A. Automated Identification Practices Stewardship

General or Targeted	*Rec No*	*Recommendation*
General	A1	***Practice Oversight*** ISMP Canada should maintain independent oversight of recommended medication practices associated with Automated Identification and Data Capture (AIDC) standards. ▪ ISMP Canada should maintain organizational associations in relation to medication AIDC: ○ Canadian Patient Safety Institute ○ GS1 Canada (and seek representation on GS1 Canada's pharmacy board). ○ Canadian Nurses Association (CNA) ○ Canadian Society of Hospital Pharmacists (CSHP) ○ Canadian Medical Association (CMA) ○ Canadian Pharmacists Association (CPhA) ○ Canada Health Infoway ○ Accreditation Canada (to enhance accreditation required-organizational practices) ○ Community-based practice and standards organizations ○ Other key practice and AIDC support organizations ○ Pharmaceutical Group Purchasing Organizations ○ Pharmaceutical Manufacturers and their representative organizations. ▪ ISMP Canada should: ○ Maintain a modified national advisory committee ○ Reconvene and support a Technical Task Force, or other technical work groups, as necessary to maintain ISMP Canada technical statements. ○ Attend selected AIDC international and Canadian workshops and conferences, including GS1 Canada's workshops ▪ ISMP Canada should regularly issue communications to a broad selection of healthcare organizations and individuals

A2 ***Practice Oversight***

ISMP Canada should update the *Joint Technical Statement* every two years based on the GS1 global AIDC standard and Canadian expert advice, including reviews of:

- Variable Data elements (Lot number, Expiry date, Global Location Number)
- Serialization of medication packaging
- Medication RFID.
- Continued support for the selection of appropriate hand-held scanners.

A3 ***Promotion of AIDC Safety and Business Practices***

ISMP Canada should promote the use of AIDC in medication safety and business practices.

- Review and update the project Implementation *Resource Guide*, as necessary, continuing to follow literature-based information and evidence.
- Develop knowledge products and quality initiatives to apply pharmaceutical bar coding safety to practice (knowledge translation). (See also Follow-up Initiatives)
- Promote inclusion of accreditation standards in Accreditation Canada's Medication Management standards. And/or required-organizational practices.
- Investigate the appropriateness of automated verification and documentation within Canada's provincial pharmacy regulations.
- Facilitate provincial/territorial (and/or federal) integration with strategic investment and activities. This includes facilitating understanding and reduction of barriers to adoption; and leveraging drivers to assist in integration.

A4 ***Medication AIDC Research Support***

ISMP Canada should support and advocate for aligned research in Canada.

- Perform research and literature reviews and evidence related to health automated verification system design, effectiveness, usability testing , and implementation.
- Advocate the integration of research methods and quality measurements with healthcare implementations.
- As appropriate, support system usability testing within Canada.

B. Follow-up Automated Identification Initiatives

General or Targeted	Rec No	Recommendation
	B1	***Facilitated Sessions*** ▪ Develop a practice-based round table, including the CNA, CMA, CSHP, CPhA, and others, to: ○ Develop medication system design recommendations for bar coding within the local practice environments for both institutional and community-based organizations. ○ Develop interdisciplinary strategic support statements for medication systems using automated verification methods. ○ Review usability testing principles and develop recommended minimal heuristic testing methods for Canadian medication bar code technology software for both pharmacy and patient bedside practices.
	B2	***Facilitated Sessions*** ▪ Develop a standardized testing model, including recommended specialized medication practices testing.