# Table Of Contents

**Introduction** ........................................................................................................................................... 4

**Welcome from Partner Organizations** ..................................................................................................... 5
  Michael Villeneuve, Chief Executive Officer, Canadian Nurses Association .............................................. 5
  Susan Sepa, Former Group Director Clinical and Change Leadership, Canada Health Infoway .................. 5
  Natalie Damiano, Director Specialized Care, Canadian Institute for Health Information ............................ 6

**Advancing National Nursing Data Standards in Canada** ............................................................................ 7

**Introducing Standards in Healthcare: Challenges and Opportunities** ......................................................... 9
  Eric Sutherland, Former Director of Information Management Strategy and Policy Branch, Ontario Ministry of Health and Long-term Care ................................................................. 9
  Tim Guest, Vice President, Integrated Health Services Program Care & Chief Nursing Officer Nova Scotia Health ........................................... 10
  Sean Chilton, Vice President, Collaborative Practice Alberta Health Services ........................................ 12
  Marion Dowling, Chief, Nursing, Allied Health & Patient Experience Health Prince Edward Island ...... 13
  Discussion .................................................................................................................................................. 14
  Findings from Chart Reviews: An Essential Clinical Data Set for Admission Intake .................................... 15
  Sonja Pagliaroli, Chief Nursing Officer, Cerner Canada ......................................................................... 15

**Report Back and Discussion from Working Groups** .................................................................................. 17
  NNDS Clinical Practice Working Group – Lead, Peggy White ................................................................ 17
  Questions ................................................................................................................................................... 18
  NNDS Administration Working Group – Lead, Julia Scott .................................................................... 19
    Leadership Competencies – Gillian Strudwick ...................................................................................... 19
    Goals of the NNDS Administration Working Group ......................................................................... 19
  Discussion .................................................................................................................................................. 21
  NNDS Education Working Group – Lead, Margaret Kennedy ................................................................. 22
  NNDS Research Working Group – Lead, Nancy Purdy ........................................................................... 23
  NNDS Policy Working Group – Lead, Kathryn Hannah .......................................................................... 24
    Inclusion of the C-HOBIC Dataset in the Discharge Abstract Dataset Submission to CIHI Dr. Lianne Jeffs, Scientist, Keenan Research Centre of the Li Ka Shing Knowledge Institute, St. Michaels Hospital .................................................. 26
    Discussion .............................................................................................................................................. 27
Report Back on Action Plans for 2018 from Working Groups

NNDS Clinical Practice Working Group
NNDS Administration Working Group
NNDS Education Working Group
NNDS Research Working Group
NNDS Policy Working Group

Continuing to move forward with Nursing Data Standards in Canada

Appendix A
Appendix B
Appendix C
Introduction

This document reflects the proceedings of the 3rd National Nursing Data Standards symposium that was held May 4 and 5th, 2018 at the Lawrence S. Bloomberg Faculty of Nursing, University of Toronto. Nursing and other healthcare leaders from across Canada were invited to participate in discussions regarding advancing the uptake and use of clinical data standards across Canada (see Appendix A). Over the two days, participants were provided with a series of presentations and opportunities for input into the action plans of working groups in the areas of clinical practice, administration, education, research and policy (see Appendix B). This year the planning team reached out to Accreditation Canada for a patient representative and were glad to include David Wells in the deliberations. Many thanks to the student scribes: Maximillian Besworth, William Underwood, Sally Remus, Lori Block and Sabrina Millis for taking notes during the symposium to support the development of these proceedings. Thank you to our host sponsors and vendor sponsors for their continued support of this work (see Appendix C).
Welcome from Partner Organizations

Michael Villeneuve, Chief Executive Officer, Canadian Nurses Association

The Canadian Nurses Association (CNA) recognizes the importance of:

- Collecting, analyzing and using data;
- Setting a path to identify how nurses tie information to their practice;
- Developing and using technology to capture information seamlessly and to move away from faxing and paper documentation;
- Transferring information across different levels of care around the world,
- Minimizing the gap in the electronic information sharing.

In the 1980’s, clinical data collection and documentation was largely a paper exercise. Michael reported that as a clinical educator in the mid 1980s, he trained staff to turn on the computer, log in and log off. Some 30 years later, massive changes in information management have transformed society as a whole. In health care settings nurses have access to a significant amount of information instantaneously and are using clinical information systems to support care delivery. But they could be doing so much more. We now need to ask what data nurses collect data to support the analysis and sharing of information to support quality care, and how they collect it. We work today with the best educated generation of nurses in history – nurses who have been trained to utilize technology to advance care. To some extent the educational sector uses cutting edge information and communication technology much more effectively than hospitals, where the clinical technology is like Star Trek but people still exchange vital information using fax machines. This needs to change. CNA is on the cusp of big changes that require strong governance timely information. We continue to tackle many of the same problems today as we have in the past and there is recognition that the pace of change in the area of informatics has been slow.

Susan Sepa, Former Group Director Clinical and Change Leadership, Canada Health Infoway

Canada Health Infoway (infoway) is focused on building national relationships with a focus on:

- Data and technology;
- Adoption and use of interoperability standards;
- Supporting and promoting the use of data standards and data collection.

Infoway’s vision is for Healthier Canadians through innovative digital health solutions. The current focus is on an e-prescribing (Prescribe IT) solution and the development of personal health information access (‘My Health Gateway’). Prescribe IT is a platform that takes electronic data from an EMR
(prescription information) and sends it to the pharmacy of the patient's choice. They are currently live in pilot sites in Alberta and Ontario with 17 pharmacies and 62 prescribers. Infoway will leverage the learning and the methodology to scale up this initiative across Canada.

My health gateway will provide access to personal health information on a person's device of choice. Canadians will be able to login to a gateway to access health information. As more organizations and partners join the information sharing will improve. My gateway will partner with patient portals from organizations across Canada. The following eServices will be available:

- Consumer access to health information;
- E-mental health;
- E-referral/consult;
- Chronic disease management; and
- Notifications, appointments.

**Natalie Damiano, Director Specialized Care, Canadian Institute for Health Information**

Standards are important to the Canadian Institute for Health Information (CIHI). CIHI is built on a foundation of standards; they set standards for many different areas and are a trusted source of standards in Canada. Standards allow for many things, including:

- Public reporting for health systems;
- Providing a point of reference for patient care and monitoring patient outcomes;
- Assessing how information is used for patient care planning and delivery; and
- Assessing the number of nurses needed to ensure a sustainable workforce.

Standards are critical to clinical nursing work as they give clinicians a point of reference to help measure success in care of a patient and assist with supply planning in nursing education.

“Collect once, use many” is an foundational concept in the use of standards. The same information collected through standardized point of care assessments can be leveraged for management use such as staffing decisions, for quality improvement teams to monitor the outcomes of initiatives, and for system-level decisions. For successful implementation and use of standards, it is important to integrate the use of standards into the process of care rather than duplicate effort. Furthermore, to ensure that standards are successful it is important to share the information with staff and provide feedback to them about the data. Data is only as good as the source and clinical personnel are key to accurate and quality data.
Advancing National Nursing Data Standards in Canada

Dr. Lynn Nagle

The National Nursing Data Standards Initiative (NNDS) supports the adoption and use of clinical data standards in Canada. NNDS has partnered with the Canadian Nurses Association (CNA), Canada Health Infoway and the Canadian Institute for Health Information (CIHI). In addition, key stakeholders are engaged in this initiative to advance the conversation about the value of data standards within healthcare organizations in all sectors of care across Canada.

Healthcare still struggles with a lack of comparable, shareable data. It is important to bring data forward in digestible chunks that can be used and understood easily to inform clinical and administrative decisions. Currently most clinicians have little understanding on how the data that they input into EHRs is used and why we are capturing it. Many administrators are unaware of the potential value to be derived from having more comparable, sharable data to inform staffing decisions and quality improvement initiatives.

It is important that we standardize the collection of clinical data – collect once, use for many purposes (see Figure 1).

- Individual level (assessments, interventions, outcomes, provider, hours of care, adverse events, cost);

Figure 1: Standardized Data – Collected Once, Used for Many Purpose
• Organizational/sector level (case volumes, outcomes, cost of care, resource utilization);
• Regional/jurisdictional (disease incidence, prevalence, outcomes, cost of care, resource utilization); and
• National (disease prevalence, policy changes).

It is important that we design clinical documentation tools with data standards embedded into the documentation. What evidence do we have that demonstrates the work nurses are doing and their contributions to clinical outcomes? Predictive modeling and clinical intelligence based on data standards can be used to derive and predict; informs us what is/isn’t working and provides a foundation for generating practice-based evidence.

• We are making progress in the area of national nursing data standards but are frustrated that it isn’t going faster. We need to Impact nursing in all areas (Policy, Clinical, Administration, Education, & Research).
• When we think about our work in nursing the Clark & Lang\textsuperscript{1} quote is still relevant – If we can’t be consistent in describing our work, others will not be able to understand or appreciate its value to clinical outcomes.
• In the early 1990’s, CNA and CIHI co-hosted a symposium to identify nursing data standards and to find consensus on the terms to use to reflect nursing practice. More than 15 years later, the agreed upon categories of: Client Status, Interventions, Outcomes, Nursing Intensity and Primary Nurse Identifier have yet to be widely or consistently adopted in practice. However, with the advent of EHRs there is an increased focus on the value of clinical data standards and the need to quantify the work of nursing.
• Overtime, there has been work done to examine data being collected, efforts to map standardized clinical terminologies, analyses of outcome data specific to nursing practice, and some beginning analysis of these data relative to other clinical and administrative data being captured and reported to CIHI. Work to date has also included the creation of a rose diagram using the C-HOBIC dataset providing a comparative “snapshot” of patients from admission to discharge.
• There has been an increased focus on data collection requirements but clinicians are not seeing the results of their efforts hence are not seeing the value of the data that they are gathering and documenting and are also not able to use this data in planning for and delivering care.
• It is important going forward that clinicians, patients and healthcare system realize the benefits of EHRs, but to do so clinical data standards need to be embedded into the design of EHRs.
• Standardized data is also needed to support patient transitions.

• We need to be thinking about the visibility and representation of nursing – our existing national repository does not reflect the contributions of nurses to the health care of Canadians

• Thinking about the future and BIG DATA: clinical decision support, continuity of care, clinical intelligence, etc., data standards are essential for all of these opportunities to be realized.

Much of the work that the NNDS group has been doing over the last year has been largely focused on creating partnerships, engagement, and communication.

Introducing Standards in Healthcare: Challenges and Opportunities

Eric Sutherland, Former Director of Information Management Strategy and Policy Branch, Ontario Ministry of Health and Long-term Care

The Information Management Strategy and Policy Branch is focused on ensuring that there are appropriate privacy controls and access to data to create value within the healthcare system. A major emphasis is on ensuring governance structures balance privacy, data collection, and data sharing for better outcomes.

It is important to ask:

• What are your data standards?
• Are they being applied consistently?
• How are you ensuring competency – staff feedback?
• There is a need for data stewards to define standards and then propagate them.
• “The importance of what you do” linking the person across all public service systems.
• How do we unlock data while navigating the different priorities (e.g., privacy, financial). There is a need to look at PHIPA to understand the principles of the privacy of health records, but also, the strategy to balance privacy and create trust while providing access to data to create value. When you have trusted information and create access to this information – you can drive action to identify the clinical questions you need to consider.

• What are the Outcomes? Provide better care; improve access, better diagnosis – and then what are the actions I can take? Then what insights do I need to create the scenario to look at these? Thus, we need data to affect the insights you want to achieve. We need to look at how and where we get the data? (Thus, back to the equation – what are the data standards, how is it sustained (data stewardship). To affect the change, we need data sharing across hundreds of systems.
How do we enable those pathways to support access to information?

- There is a change in that people are appreciating and noticing the importance of data.

**Tim Guest, Vice President, Integrated Health Services Program Care & Chief Nursing Officer Nova Scotia Health**

Nova Scotia is a two-health authority system (IWK Health Centre (Tertiary women and children’s care for Atlantic Canada, and NSHA). Nova Scotia currently has some of the poorest health outcomes but is one of the highest spenders on health care per capita. There are three different clinical information systems and about 900 additional clinical applications in use most with no interoperability. Two of the HIS systems are very out dated and many other applications don’t work well together. The province has initiated their clinical IT renewal project “One patient, one record” – every person from birth to death will have all their health information in one place and all clinicians will have access; patients will also have access to their own information. A foundational component is the process of procuring a new CIS and significant work is underway with a focus on readiness, the goal is to standardize provincially, implement best practices, focus on clinical data standards, care maps, and protocols, as much as possible. In addition, there is a significant focus on synoptic reporting.

The current emphasis is on using an alignment approach: work needs align with end vision, conversations are happening about electronic clinical information.

- Shifting away from thinking about forms to thinking about data. A change management strategy is a significant component of the plan.
- Making sure that all interests are represented (academic, acute, rural).
- Evidence informed approach as a starting point as well as taking time to implement.
- Efforts to have wide clinical engagement and better decision-making.
- Proof of concept approach to choosing the CIS is happening now by involving approximately 300 clinicians in the discussion about the procurement of the provincial CIS;
- Recruiting a nursing leadership role to drive the clinical transformation (Clinical Transformation and Informatics Officer). The focus will be on transforming the system. Want to help teams as the new technology is implemented, help them to incorporate this into their workflow by teaching them how to use data and see the benefits.
- Significant nursing engagement (NP and RN) in every aspect of the process.
- Standardization of interprofessional collaboration, helping teams work together more effectively by understanding what all team members do and what value they bring to quality patient care.
- Nurse Focus groups provided significant information to assist with project (approx. 200 participated), they want to be part of the solution, and huge issue is reducing documentation duplication across similar forms.
- Province is going through major organizational change and they are using external experts to help move them forward.
• Staff education – informatics rounds, encouraging staff participation, lunch and learn sessions
• Contractually require vendors to participate in their standards work as the project moves along
• Efficiency and patient safety are goals with a focus on better clinical outcomes
• Decreasing variation in care with potential positive cost impacts for the province
• Although staff have used digital systems; they have not always understood how to exploit the functionality to drive patient care decisions. Also, most do not focus on the value of data when using digital systems but rather focus on the technology.
• Variety of different documentation practices; some computerized but the majority are still using paper and differ between hospitals.
• Nurses are asking to be part of the change because they do not wish to be asked to complete/use one more form.
• Actively engaging nurses as transformation initiative is launched; embedding within this the value for standards.

Considerations:
• Intentional sharing of the work that is being done in healthcare to decrease the reinvention of the wheel and leverage lessons learned moving forward.
• Collaboration from provincial and national bodies facilitates the work and implementation of clinical data standards.
• Do not silo information.
• Maximize effort and impact by sharing knowledge.

With the new clinical information system Nova Scotia hopes to bridge the gap between patients and the care team, providing the best possible information to support that journey. Nova Scotia worked with Healthtech Consultants to familiarize them with clinical workflows and the conducted a focus group with clinicians and will also be engaging patients/families as the project moves forward. The goal is to implement by 2022 with a focus on how information can be shared throughout the continuum of care and to reduce documentation burden. Data utilization will be a bi-product of documentation – not an add-on for the clinicians. We need to think about how we work as interdisciplinary teams and measure care delivery as a team.

Call to action: We need to all commit to collaborate across jurisdictions, huge impact on resource consumption when we share information with each other.
Sean Chilton, Vice President, Collaborative Practice Alberta Health Services

Connect Care is the provincial CIS in Alberta. Currently there are over 1300 systems that do not connect with each other. The goal of Connect Care will be to integrate them into one CIS and end up with less than 200 integrated systems covering the entire province (4.3 million residents). It would be impossible to end up with just one system so the integration is critical. From a nursing perspective one of the things they are currently focused on is the development of a province wide assessment standard. One of the challenges is that they want to include C-HOBIC in that assessment but their hope is the assessment will be for all disciplines. In addition, they are currently examining the RAI-AC tools and the opportunities to be derived from this.

Governance structure is important. They recognize that decisions need to be made by front-line staff and be led by clinicians. Patients are embedded in the governance structure - they remind you what it’s about and why this work is being done. From a governance perspective, it’s important to make sure the decisions are made at the right level (over 65% by front line clinical staff). From an executive sponsorship perspective, this is a clinically led transformation project and IT is there to support this work. With the clinical information system, they hope to bridge the gap between patients and the care teams, providing the best possible information to support that journey. We need to think about how we work as interdisciplinary teams and measure the impact of care delivery as a team.

Following a compressive RFP and selection of a vendor their process started with the successful vendor (EPIC), familiarizing themselves with AHS organizational workflows. Focus groups were conducted with clinicians as well as patients/families. Validation sessions will follow with the goal of full implementation by 2022. Key focal points for the project are creating a collaborative care environment that focuses on clinical knowledge and content management and creating councils and networks comprised of clinicians from across the province. The key is to strategize how information can be shared throughout the continuum of care and determine how to reduce the documentation burden for all clinicians. There is a recognition that data needs to be a bi-product of documentation and cannot be seen as an add-on for the clinicians.

One of the current challenges is how to standardize across the province that was made up of a number of former organizations (there is still significant variation). Furthermore there are significant change management issues, aggressive timelines, and culture changes that need to be addressed. One of the strategies for success is building and maintaining relationships with all our partners (internally and externally), clinicians, patients, and families.
Marion Dowling, Chief, Nursing, Allied Health & Patient Experience
Health Prince Edward Island

Ten years ago, PEI implemented the Cerner system in acute care for clinical documentation. Prior to this there were no provincial standard order sets, practice standards and standardized workflows for providing care. There is recognition that standards will facilitate a systems approach and improved evaluation focus on patients’ care by the clinician versus a traditional task focus.

When implementing the clinical information system, they established a provincial clinical standardization team focused on assessments (data capture) & processes. They are linking the work of various teams through a governance structure. The governance structure for this work is multi-disciplinary and focused on incorporating best practice guidelines. As they planned for the CPOE and electronic documentation they worked to include patients and families in decision-making. After working within the electronic clinical information system for several years there was anecdotal information from staff indicating that the processes for admission were taking up to 2 hours for a nurse to admit a patient. As they transition from paper to electronic documentation teaching and training staff is key in obtaining results. The teams are working on examining workflows to understand the flow of the patients and to map out the care needed. Key to this was ensuring that the right person with the right authority was involved in the decision-making. For example, in patient handovers either nurse-to-nurse, unit-to-unit or unit to community the question was: What information is a must versus what information is not necessary? The questions were repeated towards the patient around their care and health status. Work needed to be done around consistency in how care was delivered and documented. Revisions to the documentation processes at admission were completed from a standardized, provincial perspective.

They established a provincial nursing leadership committee to lead the nursing strategy with a focus on innovation to inform practice, maximize outcomes and improve the quality of healthcare. They utilized C-HOBIC to establish standards and incorporate this into their system. One goal of the implementation of the C-HOBIC data set was to decrease the documentation burden for nurses and ensure that the data collected is meaningful to nurses and the patient. The focus is to streamline assessments, standardizing work processes and improve communication.

Core data sets are being built on standards within their assessments and need to meet the needs of the patient, as well as staff. Move from being 'task focused' to 'patient focused'. They continue to ask if the data is meaningful or valuable – from the patient’s perspective. The overall goal under the Provincial Nursing Strategy states that: Health PEI will have standardized nursing documentation, that is measureable, comparable and sharable at pivotal points as the patient transition through and between the health care system.
DISCUSSION

There is significant work happening across the country – where are we at in terms of human resources? Are there people with the proper training and resources?

- In PEI they utilized program planning and funding with a focus on quality improvement. They don’t have the expertise so they networked with other organizations, other provinces.
- PEI has applied to the EXTRA program for C-HOBIC education and coaching to move this work forward. They don’t have experts in their province to help them; they have been reaching out to others for help as they move along, as they want to measure the impact of this improvement. In addition, they want feedback to give back to the nurses about how care is improving.
- Clinical informatics needs to be recognized as a partner in this work. There is a need for individuals with the foundational knowledge in this area.
- Data governance needs to be focused on – not just technology. People need to realize that data is the new oil and we need to be investing people in that mentality.
- The opportunity exists for educational facilities to train and provide education in this area.
- In Alberta there is a great group of experienced clinicians but not necessarily in informatics. Alberta is developing an e-competency program to bring people up to speed. They are also working with post-secondary to see how educators and regulators can influence the workforce of the future. It is important that we reach people as they enter they profession.
- Nova Scotia has pockets of individuals with expertise, so they have a foundation to build on. In addition, they are using expertise from outside the province to help them. They have made site visits across the country to see how others have implemented their CIS. They are working with their vendors to develop a relationship with their academic institutions to encourage R&D and also to let the Nova Scotia universities to have access to their system without actually seeing sensitive data. This would assist in having clinicians trained before they have to use the system.

Where are we at with consulting and partnering with primary care and integration of sharing information?

- Alberta health services has had robust conversations with primary care partners and the tool they have chosen has capacity for primary care provider information embedded within the system. This allows two-way communication between systems rather than view only. They are in discussions with primary care providers regarding how to maximize data sharing. Patients have said that the most important part is connecting the primary care visit with the hospital or other providers. Alberta is having positive conversations with many different organizations and information sharing agreements are being worked out with many of these partners to help bridge that gap.
- Nova Scotia is further away from some of their decisions. They have a more integrated approach to how IT is delivered in the province. The government made the decision early on that there would be a limited number of vendors to choose from. Their vision is that primary care will be integrated.
Findings from Chart Reviews: An Essential Clinical Data Set for Admission Intake
Sonja Pagliaroli, Chief Nursing Officer, Cerner Canada

Cerner has been an active partner in the National Nursing Data Standards efforts since its inception three years ago.

As part of that work, we have been working with national nursing leaders across Canada to develop national standards for nursing assessments in order to reduce the burden of documentation on nurses and collect meaningful clinical information that will help measure nurses impact on patient outcomes.

With the more advanced adoption of clinical systems in the US, clinicians are noted as spending 30-50% of their time performing documentation activities (Munyisia EN, 2012) (Oxentenko AS, 2010) (Block L, 2013) (Kelley TF, 2011).

The US 21st Century Cures Act (Dec 13, 2016) has identified the burden and included recommendations to address the problem stressing that actions need to be taken to improve the clinical documentation experience.

Cerner has partnered with clients to expedite the implementation of change through the consolidation of evidence-based practice and practice-based evidence. By thoroughly assessing best practices and applying knowledge of utilization practice patterns across multiple sites, we have developed an Essential Clinical Dataset that is embedded in the Model Experience standard content build. Review of existing Admission History forms measured an average of 352 questions which though the process of evidence and practice reviews was reduced to 82 questions.

They conducted pre and post measurement to evaluate the effectiveness of the initiative
• Premeasure
• Evaluate the time taken to complete history assessment
• Number of clicks
• Number of assessments completed in one pass
• Quality of data

RESULTS:
Since implementations, clients have realized the following benefits;
• 72% decrease in the average time spent documenting the Adult Admissions History since go-live
• 39% increase of admission and intake PowerForm completed in one sequence, without saving and signing or modifying later
• 2,364 hours Given Back to Patient Care in first year from the implementation of Adult Patient History ECD
LESSONS LEARNED

- Leaders need to be engaged.
- Drive documentation to be patient centered while keeping nursing efficiency in mind.
- Challenge the why: does this data need to be collected right at admission? Does this data need to be collected by an RN? Is the policy that drives this practice valid (relevant reason and/or evidence)?
- There is a need to review and update policies.
- They did not find any items that other departments needed to take on.
- The process was just as valuable as the outcome.

DISCUSSION

- There are a number of quality improvement initiatives happening in organizations that impact patient care. It is important that we review what we are doing, establish standards and integrate into nursing workflow. It is important that the data collection not dictate the nurses’ work.
- Need to examine current state analysis to determine the gaps.
- Have a standardized dataset and hold staff accountable.
- Deter the development of non-evidenced based assessments.

The Canadian National Nursing Data Standards practice group are following similar process as Cerner’s Essential Clinical Dataset project in order to establish a Canadian Nursing Admission Dataset. In the spirit of Canadian values, this initiative is expanding across the country in a vendor agnostic style in order for the outcomes to benefit all Canadians. Our first testing partner, Island Health has committed to this project with an anticipated implementation date of November 2018.

REFERENCES

Block L, H. R. (2013). In the wake of the 2003 and 2011 duty hours regulations, how do internal medicine interns spend their time? Journal of General Internal Medicine, 1042-1047.
NNDS Clinical Practice Working Group – Lead, Peggy White

The group undertook mapping multiple admission assessments from across Canada. On average admission assessments had approximately 200 items assessed with no standardization. Most of the assessments included common items such as vital signs, functional status, and skin assessment; however, there was often poor design and duplication. As an example, the Braden scale is included in one screen while the skin assessment is included in the general status screen. Considering that the LOS in acute care hospitals is decreasing, most organizations have not re-examined their admission assessment with a focus on the information that clinicians need to inform practice. Furthermore, items such as Past history need to be removed as much of this information comes through in General Status and therefore is a repetition or not completed. Nurses should not be responsible for an inventory of patient belongings but do need to ask re: medical devices.

Generally, acute care sites have continued to add fields to nursing documentation rather than examining how to ‘optimize’ clinical information systems to support clinical practice. Every time you add something it can add up to another click and/or requires the nurse to scroll through = TIME. When we build systems need to lay them out so that they are intuitive to nursing staff. Need to consider the following:

• What are the key items in the systems assessment?
• How frequent is this done? (may vary by unit e.g. ICU)
• How often do you need to document specific elements?
• How many descriptors are essential for items such as urine/stool/sputum?
• What is the Source of Truth for head to toe assessments?

When we build new clinical assessments it is important to use the development of documentation review as a driver – anything that impacts nursing staff will impact patient care; and to work with staff to examine what historical practices we can let go of; review the literature and seek advice/input from clinical experts.

Many organizations have focused on ‘patient rounding’ and nurses’ check off that this was done but they do not always document the clinically relevant information that they observed on the round. Documentation needs to improve communication to the whole healthcare team and also tell the patient story. Clinicians on the Working Group spoke of the need for assessments that are intuitive for clinicians and the need for information that is accessible to track and trend changes in patient’s status and to develop care plans. There was also recognition that documentation needs to tell the patient’s story. This is currently lacking on most documentation.
Many clinical information systems allow for entering ‘within defined limits’ however not all nurses may be aware of the defined limits, i.e. novice nurses. There needs to be an area available that identifies what the ‘normal’ is.

There was discussion about ‘charting by exception’. A member of the Working Group undertook a review of the literature as well as the regulatory standards across Canada. The research and also legal perspective supports that if it not charted then it is not done.

**NEXT STEPS**
- Identify key concepts and see if there are exiting standardized tools that the team can agree on.
- Seek input from professional practice experts for acute care assessments.
- Recommend what can be collected in a standardized way across Canada.

**QUESTIONS**
1. **Is it possible to standardize admission assessments?**
   - It is possible – perhaps create a model with recommended standards i.e. C-HOBIC and others but not make it mandatory. Begin with the 2/3 provinces as examples and lessons learned for adoption across Canada.
   - When adding items to assessments we need to ask why we are adding this, is there a standard that exists. Information needs to be clinically useful for clinicians.

2. **What other issues do the clinical working group team need to consider?**
   - Make sure the right questions are being asked when engaging front-line staff (e.g. pain assessment)
   - Recognize the need for clinical informatics specialists to bridge the human resources with the systems.
   - Recognize that having consistency for how we document and what language we use, can improve patient/family trust.
   - When the clinical group has recommendations share these with vendors.
   - Work being done in the NE LHIN in Ontario, keeping documentation simple and only adding extra information when specialty areas are involved.

3. **Does anyone have experience at using this as an approach to workload allocation?**
   - HOBIC first established in Ontario, looked at the clinical data such as, acuity to determine the clinical care needed for a patient.
   - Potential plan for research to review and develop workload/acuity to measure allocation needs.
NNDS Administration Working Group – Lead, Julia Scott

LEADERSHIP COMPETENCIES – GILLIAN STRUDWICK
This work focused on identifying the informatics competencies for nurse leaders that are relevant in the Canadian context. A scoping review was completed and the protocol published\(^2\). The scoping review manuscript is currently in review with the Journal of Nursing Administration. The team is in the process of developing a protocol for a modified Delphi study to get consensus on required informatics competencies for nursing leaders using an expert panel. Subsequent to this, efforts will be directed to the development of an instrument to measure these competencies that can be used by nurse leaders as a self-assessment.

GOALS OF THE NNDS ADMINISTRATION WORKING GROUP
The goals of this group were to:

- Establish a nursing management minimum data set (based on the NNQR) and bring it to the next level (cross sector, etc.), ensuring a core set of structure, process, and outcome measures. These should replace, not add, to existing reporting requirements.
- Continue the work of developing nursing leadership competencies.

The group has:
- Developed a Guiding Principles & Framework document
- Performed an Environmental Scan of Current Nursing Data Reference Sets:
  - Evaluated for conceptual likeness of fit
  - Prioritized for the Canadian context
  - Mapped to existing Canadian Institute for Health Information reported indicators, and
  - Assessed for existing clinical terminology standards mapping. Concurrent to this work, members also considered and added indicators that were missing from those examined reference sets.
- Performed a scoping review to identify informatics competencies of relevance to nurse leaders.

NNDS ADMINISTRATION WORKING GROUP GUIDING PRINCIPLES
- We will build on existing knowledge/experience with the NNQR-C.
- We will start with measures that currently exist and add others in the future.
- The measures will be captured electronically and have a standardized definition to ensure reliability and comparability.

\(^2\) Kassam, I. Nagle, L. & Strudwick, G. Informatics competencies for nurse leaders: protocol for a scoping review http://bmjopen.bmj.com/content/7/12/e018855
Nursing Leaders have a responsibility to advocate for information systems that include the essential management indicators, ensuring that documentation/data collection is:
- Efficient and minimizes the burden of data collection.
- Integrated into nursing workflow.
- Relevant to front line clinicians in their practice settings, adds value to their practice.
- Understandable and adds value to clients/patients/families.
- Supportive of inter-professional communication.

Lori Block undertook performing an environmental scan of the current Nursing Data Reference Sets. Specially, reference sets regarding data elements & parameters, which were identified to measure nursing related structures, processes, and outcomes. The following reference sets were examined:
- Canadian National Nursing Quality Report (NNQR-C) Canada
- Canadian Health Outcomes for Better Information and Care (C-HOBIC) Canada
- Hospital Harm Canada
- National Database of Nursing Quality Indicators (NDNQI) USA
- Nursing Management Minimum Dataset (NMMD) USA

Once the indicators from each reference set were identified, those, which were conceptually close, were clustered into groups. These groupings were then (1) evaluated for conceptual likeness of fit, (2) prioritized for the Canadian context, (3) mapped to existing Canadian Institute for Health Information reported indicators, and (4) assessed for existing clinical terminology standards mapping. Concurrent to this work, members also considered and added indicators which were missing from these examined reference sets.

The Administration Working Group examined the Staff Mix Decision-making Framework for Quality Nursing Care regarding indicators that are of value to administrations in decision-making. The group focused on currently available indicators for the client, nurse and organization based on Donabedian’s model (see Figure 2).

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### Figure 2

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<td>Self-Care Ability</td>
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<td>Turnover</td>
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<td>Education Experience</td>
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<td>Absenteeism</td>
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<td>Injury</td>
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<td></td>
<td></td>
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<td>Satisfaction/Engagement</td>
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<td><strong>Organization</strong></td>
<td>Management/Staff Ratio</td>
<td>Hours of orientation and professional</td>
<td>Retention</td>
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<td></td>
<td>Hours of Nursing Care</td>
<td>development per nurse</td>
<td>Cost of Care</td>
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### Questions for Discussion
- Is there value in having standardized structure process outcome measures collected across Canada?
  - What’s possible in the short, medium and longer term?
  - What needs to be in place for this to succeed?
  - Who is best positioned to lead this work?
- How best to support nurse leaders to make informed decisions when selecting and implementing EHRs?
- Other thoughts/considerations?

### Discussion
- Consider examining the Nursing Role Effectiveness Model. This model focuses on key clinical role accountabilities and moves nursing away from the tasks. There is an emphasis on the critical thinking and knowledge/skills of the nurse.
- Ensure that the outcome data reporting flows (and is not duplicated) from clinical data sets.
- Don’t de-professionalize nursing.
- Much of this data is already being collected – think about how this is already captured.
- CNA is working with the Nursing Leadership Network of Ontario to advance nursing leadership in Canada and this group may be able to advance this work.
- It may be of value to examine a recent article by John Welton and Ellen Harper Measuring Nursing Care Value. NURSING ECONOMICs/ January-February 2016/ Vol. 34/ No. 1
NNDS Education Working Group - Lead, Margaret Kennedy

In 2018 the working group focused on the following:

- Faculty survey;
- Accreditation survey;
- Shared virtual platform.

**FACULTY SURVEY**

Lynn Nagle worked with a team, with funding from Infoway, to develop a survey for nursing school administrators and also individual educators. The survey focused on understanding how to support nurse educators in building capacity in the digital health era. To date the response rate is low but the team is brainstorming about how to achieve deeper penetration (CASN events, webinars, news blasts, etc.). The survey will be left open during the summer.

**ACCREDITATION STANDARDS**

Karen Furlong led a group focused on the accreditation standards for colleges and universities. The group created an advisory document that focused on revising/augmenting the Canadian Association of Schools of Nursing (CASN) accreditation program to address education curriculum gaps related to digital health and standards. The group also reached out to include other key stakeholders such as Canadian Council of Regulatory Nurses (CCRNR) and all regulated nurses (RN, LPN/RNA, RPN, etc.). Regulator accreditation is mandatory, however CASN accreditation is voluntary, so there is a need to focus on both. This group will design a visual algorithm of the process of mapping accreditation standards with education activities.

Accreditation standard – Organization must show evidence of informatics competency

- By 2040, data standards could be international.
- Everyone will be informatics literate; patients will contribute to their own health records.
- Digital skills and data standards competencies must be built in as a ubiquitous skill set for all plus advanced skills sets for the informatics leaders.
- Recommend triangulating informatics requirements between accreditation, health service organizations & education.

**SIMULATION DEMONSTRATIONS**

The University of Sherbrooke under the leadership of Sylvie Jette, has developed a simulation program “EVA” Nursing - Nursing EHR using ICNP. It includes:

- Nursing assessment designed based on 4-5 categories with a number of questions.
  
  E.g. Consultation - What brought you here today?
• Assessment questions - for example - physical assessment tabs - findings that align with categories such as diagnoses – psychosocial stress that are then aligned with ICNP terminology
• Ability to create a nursing care plan: e.g., stress management – choose intervention (ICNP) art therapy.
• System evaluates student assessment and documentation experience. If you asked the best questions what you should have asked/documented as a novice; what would an expert have asked.
• Voluntary use by faculty and students – assists in learning assessment/evaluation in EHRs.
• Initially started for general physical assessment course. Now expanded with acute use cases – homecare – health community & perioperative care.
• Available in English & French. Open to developing strategic partnerships.

Glynda Rees at British Columbia Institute of Technology is working on a program and there may be opportunities to share this work in Canada. The goal of this program is to prepare students for practice.
• Open source software - so it can be shared
• Created case studies that focused on learning:
• To facilitate interprofessional & patient communication.
• Novice to expert student documentation activities.
• Terminology is a challenge because it is an event, visit, encounter etc. in the specific clinician lens of practice
• It should be ready for pilots in January 2019 and then they will scale up with case studies

**NNDS Research Working Group – Lead, Nancy Purdy**
The working group developed a survey to understand priority areas for research in this area. The group is hoping to establish a national nursing data standards research consortium to identify priority areas for research to advance the adoption of data standards. The goal is to secure funding for initial research initiatives both as individuals and as a collective to receive funding.

A survey is currently underway with experts from across Canada. Using a modified Delphi approach the experts will provide feedback on 22 statements grouped in the categories of:

**QUALITY OF CARE**
• Does having clinical data standards improve patient outcomes?
• Work practices – staff outcomes
• Organizational performance
• Systems
UPTAKE
- How aware are people of these data standards?
- What value do they hold?
- What action is taken as a result?

EDUCATION
- How to we teach clinical data standards (to new and experienced nurses)?

**NNDS Policy Working Group – Lead, Kathryn Hannah**
The group discussed interweaving the policy group into other groups. The concern is that if all provinces have their own documentation then how will we appropriately standardize practice? We need a framework so that we could easily implement a system. Nursing data standards policy is probably abstract to many people but policy in general needs to underpin much of the other working group activities.

The focus should be on patient data standards. Moving the focus to patient data standards opens it up for physicians, OT, etc., to participate and get involved. There is concern that if we take the focus off nursing then we lose interest in the cause and it gets lost. The moniker might give a political advantage in that sense. Every provider should have an identifier, nursing focus shouldn’t be lost, but maybe there should be a general focus on data standards and then have every provider buy in from their angle.

There is a potential opportunity around shifting this focus to a client-centered focus, there’s not only one discipline that does informatics. We need a patient centered approach to think about what information does the patient need in the system, then as nurses tailor our practice around that.

We need to have a policy direction
- Does it need to be a position statement? What direction do we want to go in?
- How can we put standardization of clinical information collection into a policy?
- How can we address this increasing data capture burden that was discussed yesterday?
- What’s the right level for policy setting? Position statement? Guideline? Formal policy?

**NATIONAL NURSE IDENTIFIER**
- A national nurse identifier is needed to show the footprint of our profession. It is a critical piece in the data standards work. Right now, the work to develop and national nurse identifier rests with the regulators and it may be a long time before this is addressed on a national level. We want to uniquely identify the contribution of the provider to help inform policy. Even though we don’t have this identifier yet on a national level, we can still be identifying each profession and using that to report on outcomes.
• We need to maintain the need for a national nurse identifier with the regulatory bodies for the family of nursing. We need to keep that on their agenda to work towards it.

HOW TO MOVE THE NURSING IDENTIFIER ISSUE FORWARD?
• The jurisdictional associations within the provinces need to keep this on the agenda of the Minister of Health for their province.
• Frustration comes from talking about this for 25 years, all the regulators know, CIHI knows, but it has not been a high priority; however if they want data about the impact of nurses and they want outcomes, they need to recognize the value of a unique identifier. There is a policy benefit in extracting data unique by who it was and what position they were in.
• We need to keep this issue on the agenda in multiple areas.
• We need a policy window and an opportunity to push it to move forward. We may need to meet with some government figures and see if we can get support.
• Nova Scotia could be used as an example. They’re at the early stages still but it could be an opportunity to take this idea back to them, they’re already looking at C-HOBIC, they’re using that subset as a starting point so they could incorporate the primary nurse identifier.
• Tracking nurses between provinces such as good character, nurse in good standing, fitness to practice, safety, public interest, an identifier could help with these. This is the value proposition that could be laid out.
• The value statement can’t be too academic; they need to be more scenario driven so that it aligns with the patient safety agenda and it should be patient centered, not provider centric. It’ll go further.
• We want to know who is delivering care as the identifier and what role they had. There needs to be a unique identifier for all care givers but start with our scope, so regulated nursing professionals or practitioners.
Inclusion of the C-HOBIC Dataset in the Discharge Abstract Dataset Submission to CIHI

Dr. Lianne Jeffs, Scientist, Keenan Research Centre of the Li Ka Shing Knowledge Institute, St. Michaels Hospital

Two acute care sites in two different provinces were involved in the study; however one organization ended up withdrawing due to other provincial priorities. Both organizations, the two DAD vendors and CIHI participated at their own expense using their own resources. The special project fields in the DAD were utilized for this and data was abstracted from the Clinical Information System to the DAD extract and submitted to CIHI. The limitations of this research are the fact that only two sites were involved and that it was voluntary in nature.

The focus of the study was on the C-HOBIC submission to the DAD, specifically the experience and perceptions of the stakeholders to uptake C-HOBIC. There were 7 participants in the study.

THREE KEY THEMES:
• Building the interface: challenges, long process, feasibility concerns
• Varying levels of participation: concerns with double documentation, concerned with how people were involved in design. One site had built the C-HOBIC questions as a separate screen; therefore nurses viewed it as double documentation
• Differing views on scalability and moving forward: concerns with integrating into existing EHR.

CHALLENGES IDENTIFIED:
• Competing priorities
• Issues around when people were included.
• Human factors & workflow
• Time spent with vendors and staff to complete this work.

KEY RECOMMENDATIONS
1. Integrate CHOBIC into clinical documentation systems
2. Implement strategies to increase the documentation of CHOBIC on admission and discharge
3. Standardize clinical documentation nationally to facilitate the extraction for data to the DAD SPFs
4. Adapt a nation-wide roll out approach of including CHOBIC in the DAD special project fields (SPFs) similar to the approach used for the ICD–10 roll out
DISCUSSION

- The ability to extract data for nursing exists but nursing needs to build the clinical data standards into systems. It is harder to build into existing systems & make sure it is integrated into an assessment protocol.
- CIHI was excited to work with the CHOBIC team and collect data closer to the patient. CIHI is currently focused on modernizing the data we are collecting. Their vision is to see standards built into EHRs.
- What are we doing about the middle ware/data exchange vendor systems for data collections that are abstract systems (not direct CIS at point of care)? There is data collected from CIHI that is looking at the data submission vendors and CIHI noted that they have a role and see the automated data extraction must be augmented by an effective human interface.
- Having this clinical data as part of the DAD will support researchers examining clinical outcomes across the continuum of care.
Report Back on Action Plans for 2018 from Working Groups

**NNDS Clinical Practice Working Group**

Chair: Peggy White  
Scribe: William Underwood  

The NNDS Working Group had a presentation on the interRAI tools. These tools are widely used in home care, community care and long-term care homes in Canada but not in acute care. The collection of data standards will allow for sharing of information and as we look at the development of a ‘model’ for an admission assessment we need to review the interRAI tools and see what data standards could be used in acute care so that we can follow the patient across the continuum.
• Identify key concepts for inclusion in an admission assessment and develop a model for acute care
• Identify concepts that can be collected in a standardized way across the healthcare system to support sharing of information with care providers and patients. Going forward it is important to focus on collecting information that adds value to their practice. Nurses need to be informed as to how the information is being used within their organization.
• Engage with and communicate with the vendor community to integrate the tools for generating reports and setting up collection of purposeful data.

**NNDS Administration Working Group**

Chair: Julia Scott  
Scribe: Lori Block

• Create a working group and include research, policy and clinical.
• Consider a survey to define and refine the concepts & parameters for a phase three of the NNQR.
• Pilot with CIHI to collect and report what indicators we have now.
• Need to consider who/what organization is best positioned to lead this work?

These items will inform the next phase and refinement: 1) parameters to collect for the revised NNQR including definition of the parameters and 2) then create the data/informatics modeling.

**NNDS Education Working Group**

Chair: Dr. Margaret Kennedy  
Scribe: Sally Remus

• Continue work on Faculty survey, Accreditation and Simulation.
• Focus on quick wins, low hanging fruit, and strategic effort/directions/outcomes.

**NNDS Research Working Group**

Chair: Dr. Nancy Purdy  
Scribe: Maximillian Besworth

• Develop a one page briefing note outlining specific aims of the NNDS research working group.
• Create an online platform as a central repository for group document sharing and communication.
• Cultivate linkages with other NNDS working groups as aligned with individual programs of research.
• Networking to discuss applicable current national and international initiatives with the goal of acting as catalysts for collaboration.
• Identify and action manageable research projects (e.g. literature synthesis).
• Function as knowledge brokers/advocates for nursing data standard uptake.
**NNDS Policy Working Group**

Chair: Dr. Kathryn Hannah  
Scribe: Sabrina Millis

- Follow up on the nursing identifier issue. Nursing is the largest workforce in healthcare and we can't report on our outcomes. We need an identifier to extract them from all these different systems.
- Align policy within Clinical Practice, Administration, Research and Education

**Continuing to move forward with Nursing Data Standards in Canada Dr. Lynn Nagle**

Questions for consideration:
1. How do we keep moving forward?  
2. Who should own this work (e.g., CNA, CIHI, Infoway)?  
3. Should we host another symposium?

**KEY DIRECTIONS FOR THE FUTURE**

- There is a need for national organizations to support clinical data standards. A joint partnership between CNA, CIHI and Infoway may be the best model for sustaining this initiative  
- We need to address the issue of data governance related to how are standards are developed and maintained; who is monitoring them; who is evaluating and how is the data being used to influence decisions?  
- All supported the value of this work and also the opportunities that they NNDS symposiums offered to engage and learn about clinical data standards work in Canada.
# Appendix A

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<td>VandeVelde-Coke</td>
<td>Kerry’s Place Autism Services</td>
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<tr>
<td>Mike</td>
<td>Villeneuve</td>
<td>Canadian Nurses Association</td>
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<tr>
<td>David</td>
<td>Wells</td>
<td>Universities of New Brunswick &amp; Southern Mississippi</td>
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<tr>
<td>Peggy</td>
<td>White</td>
<td>C-HOBIC</td>
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<tr>
<td>Kelley</td>
<td>Wright</td>
<td>Health PEI</td>
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</table>
## Agenda

**Lawrence S. Bloomberg, Faculty of Nursing, 155 College Street, Toronto, Ontario 6th Floor Auditorium**

**Friday May 4, 2018**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Presenter(s)</th>
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</thead>
<tbody>
<tr>
<td>08:30-09:00</td>
<td>Breakfast</td>
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<tr>
<td>09:00-09:30</td>
<td>Opening remarks from Partner Organizations</td>
<td>Michael Villeneuve, Chief Executive Officer, Canadian Nurses Association</td>
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<td></td>
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<td>Susan Sepa, Group Director, Clinical and Change Leadership, Canada Health Infoway</td>
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<td></td>
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<td>Natalie Damiano, Director, Specialized Care, Canadian Institute for Health Information</td>
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<tr>
<td>09:30-10:15</td>
<td>Advancing National Nursing Data Standards in Canada</td>
<td>Lynn Nagle, Assistant Professor, Lawrence S. Bloomberg, Faculty of Nursing, University of Toronto</td>
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<tr>
<td>10:15-10:30</td>
<td>Break</td>
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<tr>
<td>10:30-11:30</td>
<td>Leadership Panel: Introducing Standards in Healthcare: Challenges and Opportunities</td>
<td>Eric Sutherland, Director, Information Management Strategy and Policy Branch, Ontario Ministry of Health and Long-Term Care</td>
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<td>Sean Chilton, Vice President, Collaborative Practice, Alberta Health Services</td>
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<td>Tim Guest, Vice President, Integrated Health Services Program Care &amp; CNO, Nova Scotia Health</td>
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<td>Marion Dowling, Chief, Nursing, Allied Health &amp; Patient Experience, Health PEI</td>
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<tr>
<td>11:30-12:00</td>
<td>Findings from Chart Reviews: An Essential Clinical Data Set for Admission Intake</td>
<td>Sonia Pagliaroli, Chief Nursing Officer,</td>
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<tr>
<td>12:00-13:00</td>
<td>Lunch &amp; Networking</td>
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<tr>
<td>13:00 – 13:30</td>
<td>Report Back &amp; discussion from Clinical Working Group</td>
<td>Peggy White, Project Director, C-HOBIC</td>
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<tr>
<td>13:30 – 14:00</td>
<td>Report Back &amp; discussion from Admin Working Group</td>
<td>Julia Scott, Principal, Clarendon Enterprises Ltd</td>
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<tr>
<td>14:00 – 14:30</td>
<td>Report Back &amp; discussion from Policy Working Group</td>
<td>Kathryn Hannah, National Executive Lead C-HOBIC &amp; Health Informatics Advisor, Canadian Nurses Association</td>
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<tr>
<td>14:30-14:45</td>
<td>Break</td>
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<tr>
<td>14:45-15:15</td>
<td>Report Back &amp; discussion from Research Working Group</td>
<td>Nancy Purdy, Associate Professor, Daphne Cockwell School of Nursing, Ryerson University</td>
</tr>
<tr>
<td>15:15-15:45</td>
<td>Report Back &amp; discussion from Education Working Group</td>
<td>Margaret Kennedy, Chief Nursing Informatics Officer &amp; Managing Partner, Clinical Informatics, Gevity Consulting Inc.</td>
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<tr>
<td>15:45 – 16:15</td>
<td>Wrap-up</td>
<td>Lynn Nagle</td>
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<tr>
<td>Time</td>
<td>Event</td>
<td>Presenter/Details</td>
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<tr>
<td>08:30-09:00</td>
<td>Breakfast and Networking</td>
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<tr>
<td>09:00-09:10</td>
<td>Introduction to Day 2</td>
<td>Lynn Nagle</td>
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<tr>
<td>09:10-09:40</td>
<td>Inclusion of the C-HOBIC Dataset in the Discharge Abstract Dataset (DAD) Submission to CIHI</td>
<td>Lianne Jeffs, Scientist, Keenan Research Centre of the Li Ka Shing Knowledge Institute, St. Michaels Hospital</td>
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<td>09:40-12:00</td>
<td>Working Groups Clinical, Administration, Education, Research, Policy</td>
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<tr>
<td>12:00-1:00</td>
<td>Lunch &amp; Networking</td>
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<tr>
<td>1:00-1:50</td>
<td>Working Groups Report Back</td>
<td>Clinical, Administration, Education, Research, Policy</td>
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<tr>
<td>1:50- 2:30</td>
<td>Going forward with Nursing Data Standards in Canada</td>
<td>Lynn Nagle</td>
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</tbody>
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Appendix C

Host Organizations
Canadian Nurses Association, Canadian Institute for Health Information, Canada Health Infoway, Canadian Nursing Informatics Association, and the Lawrence S. Bloomberg, Faculty of Nursing, University of Toronto.

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