Infoway Guiding Principles and Rules for creating a pan-Canadian Laboratory iEHR Viewer Name

Introduction

In the development of pan Canadian Standards for Laboratory Messaging and Nomenclature, much has been focused on the electronic exchange of information. The base nomenclature standard used for electronic exchange and mapping of laboratory tests in Canada is the pan Canadian LOINC Observation Code Database (pCLOCD). It is based on the international LOINC® standard developed and maintained by the Regenstrief Institute.

The standards developed to date have resulted in pan Canadian Names that are not suitable for use in some iEHR or Laboratory Viewers due to varied restrictions of the number of characters or a misalignment with generally accepted clinical practise. As a result, the need to develop an appropriate guideline for a pan Canadian viewer name emerged.

Leveraging previous work done by the British Columbia Provincial Laboratory Coordinating Office the following guiding principles and the accompanying set of rules were developed and used to establish a pan Canadian viewer name. These rules were collaboratively developed by a Standards Collaborative Working Group (SCWG) 5 taskforce comprised of laboratory subject matter experts from Infoway,British Columbia,Saskatchewan,New Brunswick and an international nomenclature subject matter expert from 3M.

The pan Canadian Viewer Name is available to be utilized in all iEHR viewers deployed across Canada and leveraged in EMR, LIS, HIS/CIS and other electronic viewers when and where feasible. It is hoped that this document will provide the standard format to use for all viewer names used in the electronic display of laboratory information across Canada.

An example of the viewer names is published bi-annually in the pCLOCD. It is important to note that these guidelines and rules are considered “living” principles. They will be reviewed and revised as experience with and adoption of interoperable electronic health records increases and in accordance with current regulatory requirements.

NOTE: Use of these viewer names is not tied to conformance specifications and lab implementations are able to use a nomenclature that best fits with their Clinical requirements. For the most part, these guiding principles and rules have only been applied to English terms and would require a review by French and/or bilingual implementers to provide specific guidance how to apply them in that language.

Definitions:

1. ‘**Shall be’** - The term is used to indicate mandatory requirements strictly to be followed and from which no deviation is permitted *(shall* equals *is required to)*.
2. ‘**Shall NOT’** - Negative form of “Shall”?
3. ‘**May**’ – The term is used to indicate a course of action permissible within the limits of the standard *(may* equals *is permitted to)*.
4. ‘**Need NOT’** - The negative form of "may" is not "may not", but is "need not". The use of "may not" shall be avoided.

Glossary of Acronyms:

AABB	American Association of Blood Banks
CIS	Clinical Information System
CPS	Compendium of Pharmaceuticals and Specialties
EMR	Electronic Medical Record
HIS	Health Information System
iEHR	Interoperable Electronic Health Record
LIS	Laboratory Information System
LOINC	Logical Observation Identifiers Names and Codes
pCLOCD	pan Canadian LOINC Observation Code Database
SCWG	Standards Collaborative Working Group
SI	International System of Units
UCUM	Unified Code for Units of Measure

Version	Author(s)	Change Description	Date
1.0	SCWG-5 Task Force	First Published Draft Version	2009-Nov-17

1.1	L Carey	Applied approved changes from SCWG-5	2009-Dec-3
2.0	L. Carey	Applied changes from SCWG-5 review describing intended use and applying to French language	2011-Jan-25
3.0	L. Carey	Applied changes as voted on by SCWG-5 February 8, 2013	2013-05-03
4.0	L. Carey	Updated hyperlinks and reference information only	2017-07-24

Guiding Principles:

1. The pan Canadian[1] Name will provide a starting point for the development of a standardized viewer name.
2. The pan Canadian Name is a result of a specific set of rules applied to the LOINC component name; these rules are in Section 3.1 of the pCLOCD-EN-Maintenance Guide found on InfoCentral under the Maintenance section of the LOINC and pCLOCD Standards page.
3. Number of characters shall be considered.
4. Viewer names shall be unique where necessary.
5. In general, when the specimen is assumed, the viewer name shall not include the specimen type. The specimen type is assumed in the following:
    - Chemistry – Serum/Plasma
    - Allergen – Serum
    - Serology – Serum
    - Immunology – Serum
    - Urinalysis – Urine (only applicable to random urine. Timed samples should be identified)
    - Blood Bank – Whole blood
    - Hematology - Whole blood
    - Microbiology – N/A
    - Pathology – N/A
    - Toxicology – Serum
    - Flow Cytometry – Whole Blood
6. When clinically required, the specimen type serum or plasma shall be included. (e.g. Adrenocorticotropic Hormone; Plasma)
7. Other specimen types shall be included where clinically significant. (e.g. Glucose; Urine)
8. Whole blood specimens containing the word ‘Blood’ such as Arterial Blood shall be differentiated by type only with the exception of those that include Cord Blood. Cord Blood shall remain as Cord Bld. (e.g. Arterial, Venous, Arterial Cord Bld)
9. Method should be included where it is significant to the interpretation of the result.
10. Common names and not scientific names may be used when generally accepted clinical practise indicates a preference for the common name.
11. Acronyms shall be avoided where possible.
12. Standardized abbreviations shall be used where feasible e.g. min for minutes (from Unified Codes for Units of Measure).[2] Abbreviations for which there is no standard will strive to be as intuitive as possible.
13. Timing shall be included when required.
14. When punctuation is required, a semi-colon shall be used to separate components and a coma shall be used for clarification within a component. (e.g. Cadmium; Urine; 24h for semi-colon and Vitamin D, 1,25-Dihydroxy for comas)
15. Consistent wording and language may be utilized where possible and on a best effort basis.
16. Not all codes in the pCLOCD will be able to fit within a restricted number of characters of less than 50. In those cases, a best possible name shall be provided and it will be up to the implementer to shorten the name to fit their individual requirements.
17. To increase the acceptance and adoption of this Viewer Name, a more common name may be included in brackets behind the designated viewer name (e.g. Methylenedioxyamphetamine (Ecstasy)).
18. The abbreviation ‘PO’ will not be used in Viewer Names as PO is assumed unless another method is provided as part of the component name.

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[1] Name is a specific attribute in pCLOCD; Viewer Name refers to the lab test name used in an electronic viewer.

[2] AABB, UCUM, SI Manual, Pharmacy CPS

Viewer Names Rules

Rule #	Rule	Exceptions to the Rule	Options Considered	Examples of Options	Reasons for Decision	Items for Follow-up
1	Viewer Name shall follow a prescribed format when the pCLOCD Name is not sufficiently informative for a viewer test name: Component; System; Time Aspect; Method; Property	None.	a) use existing format b) create new format	**a) Albumin; Fld** **b) Fld Albumin**	Example a) aligns with pan Canadian Name format, keeps formatting consistent	None

2	Each pCLOCD entry shall be assessed to ensure the viewer name is appropriate. Each name shall be reviewed individually and by group.	None.	a) creating one viewer name per code b) creating one viewer name for many codes	**a) Albumin** **Albumin; Fld** **Albumin; CSF** **b) Albumin**	This provides complete analysis for the many LOINC codes to one viewer name scenarios.	Full review of pCLOCD required.
3	Test names shall be mixed case.	i) The first word of the test name is *pH*. ii) The test legitimately starts with a number, e.g.: ?17 Hydroxyprogesterone In these cases, the first letter after the numeral shall be capitalized.	a) Test names must be mixed case. b) Test names must be all upper case. c) Test names must be all lower case.	**a) Albumin; Fld** **b) ALBUMIN; FLD** **c) albumin; fld**	Mixed case is easier to read than all upper case. Mixed case aligns with pan Canadian standards in other areas.	None
4	Each word in the test name shall begin with an upper case letter.	i) The word *pH* (which shall be written as pH, never as PH). ii) The species (second word) of organism names such as *Escherichia coli*. iii) Abbreviations that align with other standards need not begin with a capital (min from UCUM) iv) Lipoprotein a	a) Each word in the test name must begin with an upper case letter. b) Each word in the test name must begin with a lower case letter.	**a) Blood Gas** **b) blood gas**	? Requiring every word to begin with a capital letter will eliminate confusion as to which words must be capitalized and which must not. ? Using lower case letters for words related to timing is an SI convention.	None
5	There shall be one and only one space between each word.		a) Allow one and only one space between each word. b) Allow an unlimited number of spaces between words.	**a) Blood Gases Venous** **b) Blood Ga ses Venous**	? Following the conventions of the English language enhances readability.	None
6	Where the analyte is a vitamin or a pharmaceutical which can be prescribed, the lab test may be specifically identified as required.	None.	a) Specify a qualifier to distinguish the drug name from the lab test name. b) Use the drug name alone and have the qualifier implied.	**a) Acetaminoph en Level** **b) Acetaminoph en**	? In circumstances where electronic ordering is available, the use of two different names for the drug and the lab test decreases the risk that a drug will accidentally be ordered for a patient when the intention was to order a lab test.	None
7	Extraneous words may be dropped from the viewer name if they are not required: • Test • Culture • Total • Panel	In keeping with convention, exceptions shall be allowed.	a) Extraneous common words b) Extraneous words removed	**a) Calcium Total** **Differential Panel** **b) Calcium** **Differential**	? Unnecessary or redundant words can reduce clarity and take up limited character space.	None
8	The taxonomic name of an organism or virus shall be used. Both the genus and the species shall be used when available.					None

9	For immunological test names: i) Antibody shall be replaced with Ab ii) Antigen shall be replaced with Ag			**Smooth Muscle Antibody** **Smooth Muscle Ab** **Adenovirus Antigen** **Adenovirus Ag**	? Using the abbreviations follows the LOINC standard.	None
10	A timing of “Random” is implied. “Random” may only be used when other identical timings are available for the same test.		a) Using Random for any point in time tests b) Using random only when there are multiple point in time tests	a) Glucose Random Cholesterol Random Protein Random b) Amikacin Random Amikacin	? Option b) was chosen as random is the most common timing and does not need to be called out routinely.	None
11	A specimen type shall be included as per generally accepted clinical practises (e.g., where a category has a presumptive specimen type, this specimen type shall not be included in the viewer name) e.g: Chemistry – ser/plas presumed Flow Cytometry – bld presumed Hematology – bld presumed Pap Smear – specimen type not used				? The most common specimen types are understood.	None
12	The use of the words ‘Little’ and ‘Superscript’ shall not be permitted. Little letters shall be displayed in lower case and superscript letters displayed in brackets. There shall be no spaces between the lower case letters.		a) Using ‘Little’ and ‘Super’ b) Not using ‘Little’ and ‘Super’	a) Lipoprotein Little A F Little Y Super Little A Ab b) Lipoprotein a Fy(a) Ab	? Example b) aligns with accepted clinical practises	None
13	When a blood bank antibody or antigen test begins with a lower case letter, it will be followed by (small) to align with National Blood Bank standards	Restricted to Blood Bank terms	a) not specifically identifying the case difference b) identifying lower case to remove clinical risk of error	a) C Ag c Ag C Ab c Ab b) C Ag c (small) Ag	Option b) was chosen to align with National Blood Bank standards	None
14	To differentiate between quantitative and non-quantitative tests, the word ‘Titre’ may be used to identify quantitative tests in Serology testing when the property is a titre		a) Using ‘Titre’ to align with the Property Titr b) Using Qn, Ql to differentiate	a) Cold Agglutinin; Titre b) Acetone; Ql Cold Agglutinin; Qn	? Option a) was chosen to assist clinicians with informatively choosing lab results from a pick list.	None