

# Diagnostic services terminology in large scale eHealth projects

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# Who Am I?

- **Name:** Rob Hausam MD
- **Company:** Hausam Consulting LLC
- **Background:**
  - Electrical/Computer Engineer and Family Physician
  - Co-chair of HL7 Vocabulary and Orders and Observations WGs
  - FHIR specification and Terminology Module editor
  - Actively involved in HL7 and terminology standards/development and modeling for 18+ years
  - Active in SNOMED CT and LOINC

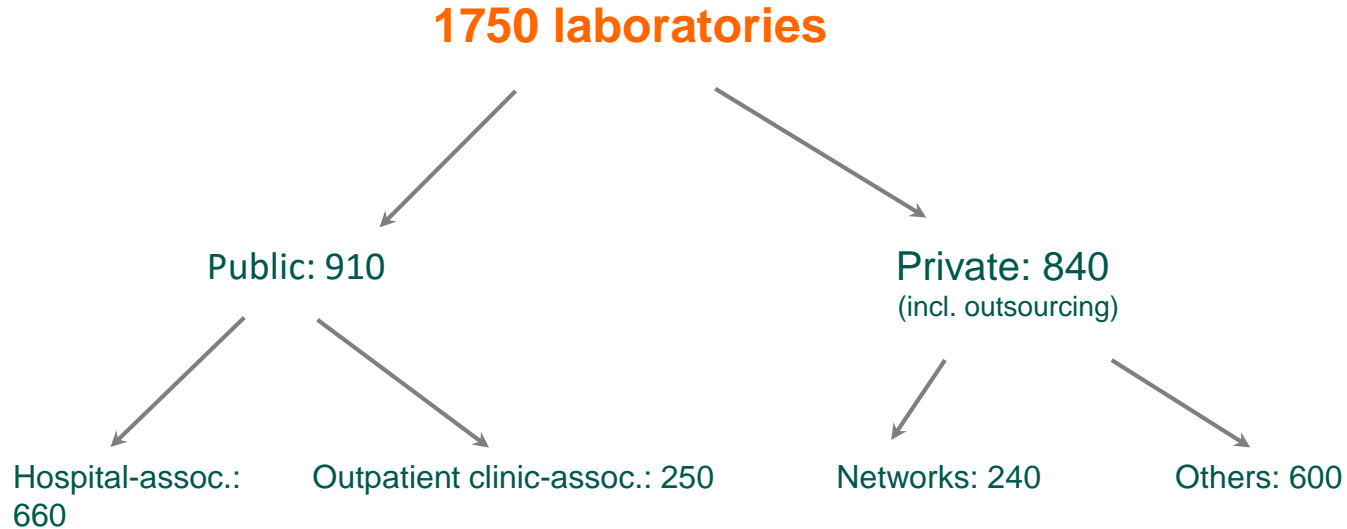
# Outline

## Diagnostic Services Terminology in Poland

- Background
- The Problems
- The Opportunities
- The Challenges
- Some Possible Solutions

# BACKGROUND

# Laboratory Diagnostics in Poland (Statistics)



# Laboratory Diagnostics in Poland (Statistics)

3 000

types of lab. tests

330 M

examinations yearly

20 M

patients yearly

# Imaging Diagnostics in Poland (Statistics)

1400

RTG devices

640

CT devices

280

MRI devices

5 M

patients yearly



# THE PROBLEM



# Primary Identified Issue

- Lack of common dictionary for diagnostic services to be used for exchange of orders/referrals and results

# Multiple maps required

- Labs and providers need individual maps to exchange data with each other
  - 4 entities requires 6 maps (if bi-directional) that need to be created and maintained

# Examples of Terminology Issues (Lab)

Glukoza

Glukoza godz. 23:00

Glukoza met. ISE

Glukoza met. kapilarną

Glukoza na glukometrze

Glukoza w DZM

Glukoza w płynie z jamy ciała

Profil glukozy

Profil glukozy 4 punkty

Profil glukozy 5 punktów

Profil glukozy 6 punktów

Profil glukozy 7 punktów

Profil glukozy 8 punktów

Test obciążenia galaktozą

Test obciążenia glukozą (2pkt, 50g, 1h)

Test obciążenia glukozą (2pkt, 50g, 2h)

Test obciążenia glukozą (2pkt, 75g, 2h)

Test obciążenia glukozą (3pkt, 50g, 1 i 2h)

Test obciążenia glukozą (3pkt, 75g, 1 i 2h)

Test obciążenia glukozą (pojedynczy punkt)

Test obciążenia laktozą

Test tolerancji glukozy ciężarnych (1pkt, 50g 1h)

Glukoza godz. 22:00

Glukoza godz. 01:00

Glukoza godz. 09:00

Glukoza godz. 00:00

Test obciążenia glukozą (4pkt, 75g, 0, 1, 2, 3h)

Glukoza godz. 07:00

Profil dobowy glukozy

Glukoza godz. 16:00

# You Are Not Alone

- Many (most?) other countries have similar issues
- For example, in the US most coding for laboratory and imaging **orders** (referrals) is done using the “local” codes that are published by each individual laboratory and published in their master service catalog
- Electronic Directory Of Service (eDOS) standard (June 2018) states:
  - “The laboratory’s **local** test code and coding system shall be used to identify the orderable test in its electronic Directory of Services.”

# Some Questions to Answer

- What are the identified purposes for integrating terminology?
- How will the data actually be exchanged, and by whom?
- Purposes of standardizing diagnostic services terminology?
  - Test identification and ordering/resulting at individual labs
  - Clinical decision support
  - Quality measurement, analysis and reporting
  - Research

# Some Questions to Answer

- Will adopting a common terminology (dictionary) for laboratory orders/referrals and/or results improve the healthcare system safety, quality and effectiveness?
- Will it ultimately improve patient outcomes?

# Two Approaches to Consider

- Choosing one (or more) of the global terminologies?
- Or agree on a common dictionary based on the currently used proprietary dictionaries?

# More Questions

- For managing the real-life variability in ordering, performing and reporting services, in addition to choosing the right dictionary should we develop implementation guide(s)?
- Will we still need to map local dictionaries between medical providers and laboratory/diagnostic service providers?
- Agreeing on the rules for common data exchange is a huge task, so in dealing with it what can we learn from similar projects worldwide?





# THE OPPORTUNITIES

# Opportunities

- You are in a “green field” situation – starting now to develop the solutions, with little or no legacy considerations to slow down or derail progress
- You have agreement and significant commitments from laboratories, clinical providers and government, all of whom seem to strongly desire to solve this problem
- This may be a somewhat unique situation (that many countries probably wish they had), so you should take advantage of that

# Opportunities

- The two biggest private medical providers together with two biggest laboratory services providers want to join forces and want to work out the best solution
- The government agency wants to join forces with the industry and declares to cooperate
- **Those sound like huge advantages, and hopefully you will be able to capitalize on them!**

# THE CHALLENGES

# Challenges

- This is hard to do!
- Human nature, and the tendency for multiple individuals and groups to have different priorities and want to go in different directions
- The standards that you want to have, and think you need to have, may not be readily available
- Multiple good standards and options for using them may be available, so how do you choose which ones to use?

# Challenges

- You will have your own specific challenges (in government, or industry or with providers) that I don't and can't really predict or know anything about – and maybe you don't, either (yet)

# SOME POSSIBLE SOLUTIONS

# Best Approach: Bottom-up vs. Top-down, Or Meet in the Middle?

- Bottom-up
  - Likely will have more commitment from those who actually have the problems and can benefit from the solutions
  - Often can bring more creativity to solving the problems
- Top-down
  - Can help set the direction and maintain focus
  - Can provide incentives and rewards that will spur the pace of developing the solutions



# Best Approach: Bottom-up vs. Top-down, Or Meet in the Middle?

- Meet in the middle
  - Can you figure out how to leverage the bottom-up commitment and creativity, and allow that to be encouraged and enhanced by the right amount of top-down incentives?
  - That may be the best approach, if the right people are involved on both sides and you can figure out how to make it work

# Back to The Questions

- Agreeing on the rules for common data exchange is a huge task, so in dealing with it what can we learn from similar projects worldwide?

# Experiences in Other Countries

- US
  - Not really that much experience, actually, especially with orders
  - [USCDI](#) specifies LOINC and SNOMED CT for tests and only LOINC for imaging
    - SNOMED CT isn't really in use for test ids
- Canada
  - LOINC and pCLOCD (pan-Canadian version of LOINC)

# Experiences in Other Countries

- UK
  - SNOMED CT is used for both orders/referrals and results
  - [NHS Digital National Pathology and Diagnostics](#)
- Norway (and Scandinavia generally)
  - [NPU](#)
  - Unclear (to me) if they did it again if they would still develop NPU or would use LOINC?
- South Korea
  - [K-LOINC](#) (includes Korean synonyms)

# Experiences in Other Countries

- Czech Republic
  - Národní číselník laboratorních položek ([NČLP](#))
- Others?
- Not sure how many other countries have (at least recently) started to do this from “scratch”!

# Available Terminology/Dictionary Choices

- LOINC
  - Comprehensive (becoming more so all the time) and rather widely used globally
  - Diagnostic services (lab and imaging) is a major focus
  - No licensing fee for use
- SNOMED CT
  - The most comprehensive clinical terminology available
  - Arguably is usable for diagnostic services coding (e.g. UK)
  - Licensing cost, but Poland is already a member!

# Available Terminology/Dictionary Choices

- NPU
  - Developed and widely used in Scandinavia
  - But not used much elsewhere (as far as I know)?
- Combined local dictionaries
  - This might be possible, but someone has to “own” and manage the combined terminology and do the work required to keep it up to date and in sync with the individual labs

# Back to The Questions

- Choosing one (or more) of the global terminologies?
  - Most likely yes, but still need to determine which one(s)
- Or agree on a common dictionary based on the currently used proprietary dictionaries?
  - Seems not likely to be the best choice?
  - But it could work



# Back to The Questions

- For managing the real-life variability in ordering, performing and reporting services, in addition to choosing the right dictionary should we develop implementation guide(s)?
  - Implementation guides will almost certainly be needed, whichever path is chosen
- Will we still need to map local dictionaries between medical providers and laboratory/diagnostic service providers?
  - Maybe not? – if the mappings are done to a standard terminology instead (or if the standard terminology can be used internally)

# Questions and Panel

- Feel free to ask questions now or later
  - Rob Hausam
  - [rob@hausamconsulting.com](mailto:rob@hausamconsulting.com)
- Let's see what the panel thinks!