PHAC/CIHR Influenza Research Network

NCBO/IDO workshop
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PCIRN mission

• Canadian national network of key influenza vaccine researchers.
• Develops and tests methodologies/methods related to the evaluation of pandemic influenza vaccines as they pertain to safety, immunogenicity and effectiveness, and program implementation and evaluation.
• http://www.pcirn.ca/
PCIRN structure

• Theme I: Rapid Trials
• Theme II: Rapid Implementation
• Theme III: Vaccine Coverage
• Theme IV: Vaccine Safety
• Theme V: Vaccine Effectiveness
• + support groups

More than 90 investigators across 30 institutions
IT support group

- Aim: to standardize data (same variables, same coding) and to assure the use of standard validated definitions – if possible from an ontological resource.
- Objective is to ensure data quality and consistency across the network.
Standardization

• Determine controlled vocabulary
• **Minimum Information**: checklist to identify gap
• Identify existing ontologies terms supporting the network, and contribute to/develop resources as needed
Ontologies

• Areas addressed: Demographics, Lab shipping and results information, Vaccine details, Exposure, Specificity

• Existing relevant resources: IDO (Influenza and Vaccine Ontology), OBI (Ontology for Biomedical Investigations), OGMS (Ontology for General Medical Science)
Neuraminidase typing

• FLU_0000779, “An assay which aims at determining the neuraminidase type of an influenza virus”

assay (OBI_0000070) and (has_specified_output some
some
('measurement datum' (IAO_0000409) and ('is about' some neuraminidase (FLU_0000753))))
Influenza Ontology

• Influenza neuraminidase (FLU_0001034) is_a neuraminidase (FLU_0000753) part_of some Influenza virion (FLU_0000751)
• Influenza virion is_a virion (IDO_0000508)
• Neuraminidase is_a protein (PRO_0000000001) which has_function some catalytic activity (GO_0003824)
• Infers is_a enzyme (OBI_0000427)
Viral RNA extraction

- **viral RNA extraction** (FLU_0000829) is_a RNA extraction (OBI_0666666)
- **has_specified_input** some **Viruses** (NCBITaxon_10239)
- **has_specified_output** some **ribonucleic acids** (ChEBI_33697)
- **[..] sequencing assay** (OBI_0600047) **[..]** GenBank submission
Vaccine Ontology

• Canadian vaccines information
  – Manufacturer
  – Vaccine type (eg inactivated)
  – Adjuvant, preservatives
  – Potential allergens
  – Route of administration
  – Dose information
  – ...

Vaxigrip

• *has_part* neomycin (ChEBI_44577) and (*has_role* some 'vaccine allergen role'))

• *has_part* thimerosal vaccine preservative
  – 'vaccine additive' and (*has_role* some 'vaccine preservative role')
    – *has_part* some thimerosal (ChEBI_9546)

• **Intramuscular injection** (OBI_0000934)
  (through *skeletal muscle tissue* (FMA_14069))

• [...]
VO – Vaccine Ontology
Advantages of using IDO

• Less work for me
• Common infrastructure
• Collaborative platform
• Set of resources following similar guidelines and development principles
Thank you

• OBI, IAO, OGMS and IDO teams
• OBO Foundry
• PHAC/CIHR Influenza Research Network