Clinical Coding and standardisation

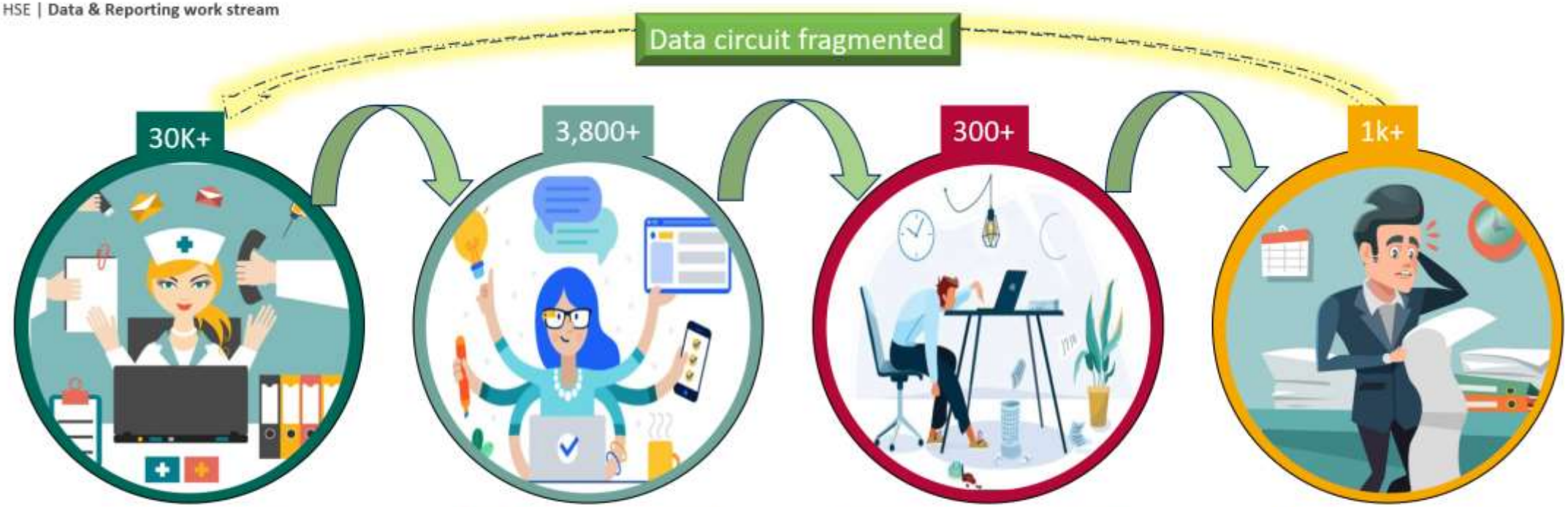
Theresa Barry

01/12/2023

Current data collection process

Current Data collection & reporting "as is" Process

HSE | **Data & Reporting work stream**



CLINICIANS

Numerous processes in place where clinicians record data.

Dependency on Clinicians returning data from diaries etc. to admin support

Clinical needs supersede service reporting needs

ADMIN SUPPORT

Reliance on a singular role to process and collect data from services or individual team members.

Processing data manually sourced from the services and aggregating, in the absence of any transactional systems can lead to errors.

DATA PROCESSORS

Data processors manually collecting, processing, validating & reporting data without necessary tool kit to show data validity or data gaps leads to

- Volatile reporting
- Disconnected data sets (double counting)
- Stakeholder confidence
- Rubbish In-Out scenario

MANAGEMENT

Decision making on data without solid foundation can lead to poor choices.

Data Information direction is only upwards and data circuit is not complete

However in the absence of an alternative process/system business must operate with the given tools

Interoperability Challenge

Different Documents

Different Terminologies

Different Formats

Different Systems

DATASET SPECIFICATION MANAGEMENT PROCESS

DSMP

WHAT IS DSMP

- The DSMP is a meeting with Subject Matter Experts (SME's) whom are the leading data experts in their department.
- This Process allows dataset owners to network with SME's managing data within the HSE and on behalf of the HSE.
- It is a process to prevent silos and ensure quality assurance of data, encouraging a standardised approach to dataset development.

BENEFITS OF DSMP

- Prevent silos within the health care setting.
- Ensure best practice is achieved by engaging with data expert.
- Allows for service evaluation, clinical audit and research and Interoperability.
- Provides networking opportunity.
- Provides opportunity for collaboration with others that perhaps were out of reach or scope previously.

WHO ARE THE SME'S IN THE DSMP?

The Subject Matter Experts (SME's) are made up of experts from the HSE along with other departments such as the National Office of Clinical Audit, Department of Health, Health Research Board, HIQA, HIPE, HPO, SNOMED CT, Technical Architecture, Data Dictionary, and the Health Intelligence Unit.

WHY STANDARDISE MY DATA?

The delivery of safe, effective healthcare depends on access to, and the use of information that is accurate, valid, reliable, timely, relevant, legible and complete.

1 REQUEST THE MEETING

Request a preliminary meeting with the DSMP Co-ordinator.

Contact: DSMP@hse.ie

2 PREPARE

The DSMP Co-ordinator will assist the data owner to prepare the dataset for the DSMP meeting (eg format, information regarding the dataset, sponsor etc).

3 ARRANGE THE DATE

The DSMP co-ordinator schedules the time and date for the data owner to attend, usually a 1 hour meeting - 3rd Friday of every month at 11a.m.

4 DSMP MEETING

Attend the meeting with DSMP SME's. Give a brief description and discuss your dataset. You will gain insights from the SME's on data standardisation.

5 NEXT STEPS

Progress your work with other SMEs as required, for example the SNOMED National Release Centre.

6 DATA DICTIONARY

Progress the dataset to the Data Dictionary.

7 MORE INFORMATION

Any questions or further assistance please contact the DSMP Co-ordinator:

DSMP@hse.ie

Scan our **QR CODE** to view our web page on ehealthireland.ie

eHealth Ireland

What would good look like

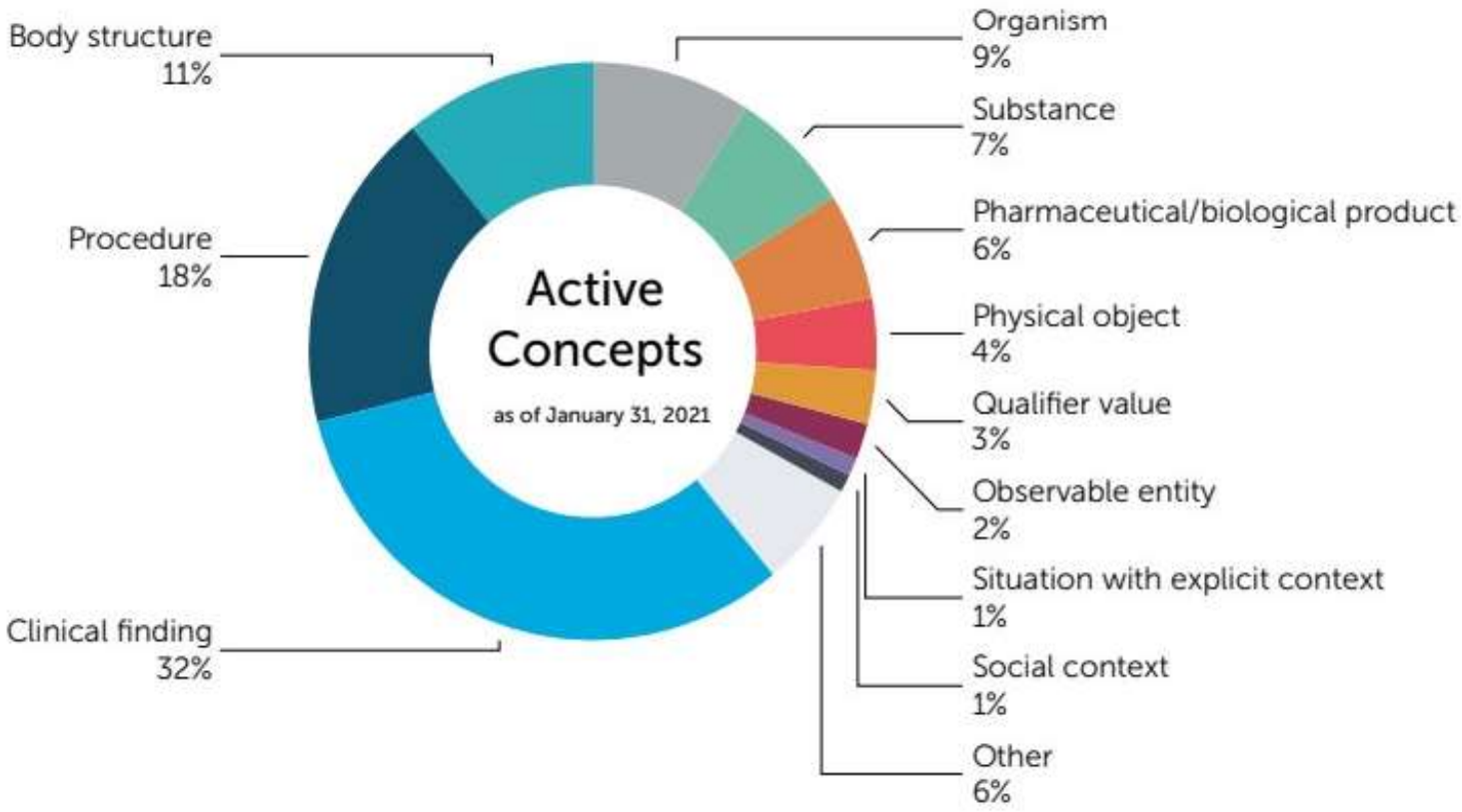
- **All clinical terms are standardised**
- **Vital information can be shared**
- **Comprehensive coverage and greater depth of details and content for all clinical specialities and professionals**
- **Should include diagnosis and procedures, symptoms, family history, allergies, assessment tools, observations, devices**.
- **Clinical decision making is supported**
- **It facilitates analytics/insights to support more extensive clinical audit and research for population health**
- **Reduced risk of misinterpretation or duplications**
- **Supports evidenced based healthcare**
- **Interoperable standardised data for all uses**

Introduction to SNOMED

SNOMED CT: A Quality Product

Maintaining the quality of SNOMED CT is of core importance and rigorously undertaken by the organization on an ongoing basis. We ensure a quality approach though:

- Expert personnel
- Guidance and training
- Collaboration



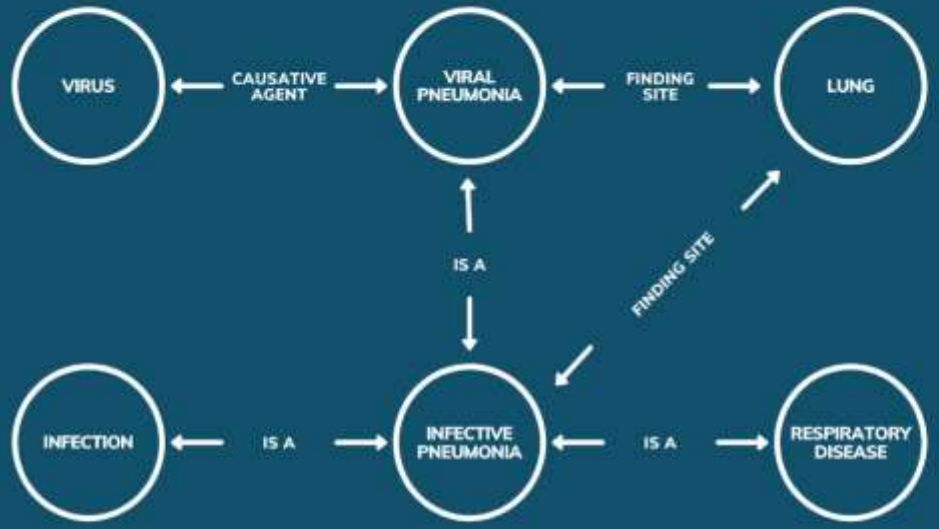
SNOMED CT

What is it?

- It is the most comprehensive, multilingual, clinical healthcare terminology in the world.
- It is a resource with scientifically validated clinical content that is released globally, twice per year.
- It enables the consistent representation of clinical content in clinical information systems, health data and analytics platforms, and interoperability solutions.
- It is mapped to other international standards.
- It is adaptable to each country's requirements.
- It is in use in more than eighty countries.

EXECUTIVE SUMMARY

The SNOMED CT Viral Pneumonia Example



Viral pneumonia is linked through a set of 'is a' relationships, that represent a poly-hierarchy of sub-types. Viral pneumonia 'is a' infective pneumonia. Infective pneumonia 'is a' infection, and similarly infective pneumonia 'is a' respiratory disease. SNOMED CT also links concepts to the applicable part of the body, or a finding site. For example, the viral pneumonia finding site is the lung. Finally SNOMED CT links concepts to a causative agent. For example, the viral pneumonia causative agent is a virus.

SNOMED CT

What is it?

Concepts

Represent clinical thoughts. Every concept has a unique numeric identifier.

Enable meaning-based queries

Descriptions

Link human readable terms to concepts.

Assist searching for concepts and provides multi-lingual support

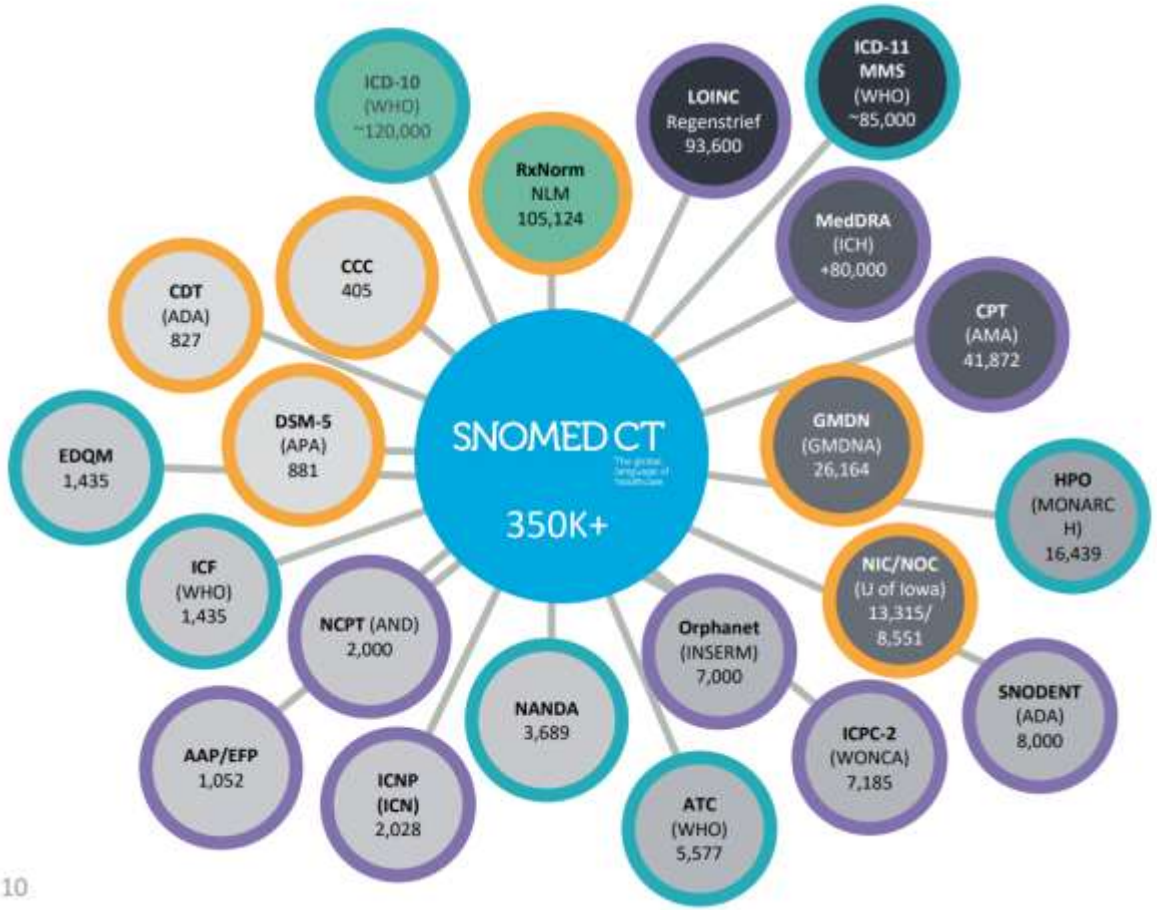
Relationships

Link concepts to other concepts whose meaning is related in some way.

Support aggregation and queries

SNOMED CT

Is a Core Reference Clinical Terminology



CONFIDENTIAL – NOT FOR FURTHER DISTRIBUTION

Terminology Standards content volume

LEGEND

- SNOMED CT Collaboration Partner
- Agreement in progress
- No agreement in place

# terminologies	# content
3	>1,000
4	1,001 - 5,000
4	5,001 - 10,000
1	10,001 - 20,000
2	20,001 - 40,000
2	40,001 - 60,000
1	60,001 - 80,000
1	80,001 - 100,000
1	100,001 - 200,000
2	200,000+
1	300,000+

Note: This diagram is intended to be reflective of SNOMED CT as a core reference terminology. It does not include all the national extensions of SNOMED CT (e.g. Australian Medicines Terminology with 100,000 concepts) that further expand the SNOMED CT hub-and-spoke model.

Where is SNOMED CT used?

Data Entry and Integration
The recording and integration of SNOMED CT in **clinical information systems** and **health data & analytics platforms**.

Clinical Information Sharing
The **electronic exchange of clinical data** and documents among Care Providers along the continuum of care, often using interoperability solutions.

SNOMED CT–embedded Clinical Information Systems, Health Data & Analytics Platforms and/or Interoperability Solutions

Research
Conducting **clinical research, laboratory research and scientific research.**

Point-of-Care Analytics
Creating **historical summaries, doing point-of-care reporting** and **using clinical decision support**.

Management Analytics
Conducting **trend & comparative analysis and health system value analysis.**

Population Analytics
Conducting trend & comparative analysis, pharmacovigilence and clinical audit.

Patient Outcome Benefits across the varied applications of SNOMED CT

Patient Service Outcome Improvements

- ✓ Patient (Panel) Management
- ✓ Health Record Management
- ✓ Diagnostic Tests
- ✓ Patient Safety
- ✓ Infection Control
- ✓ Referral Management
- ✓ Population Health
- ✓ Data Sharing
- ✓ Efficiencies and Cost Savings

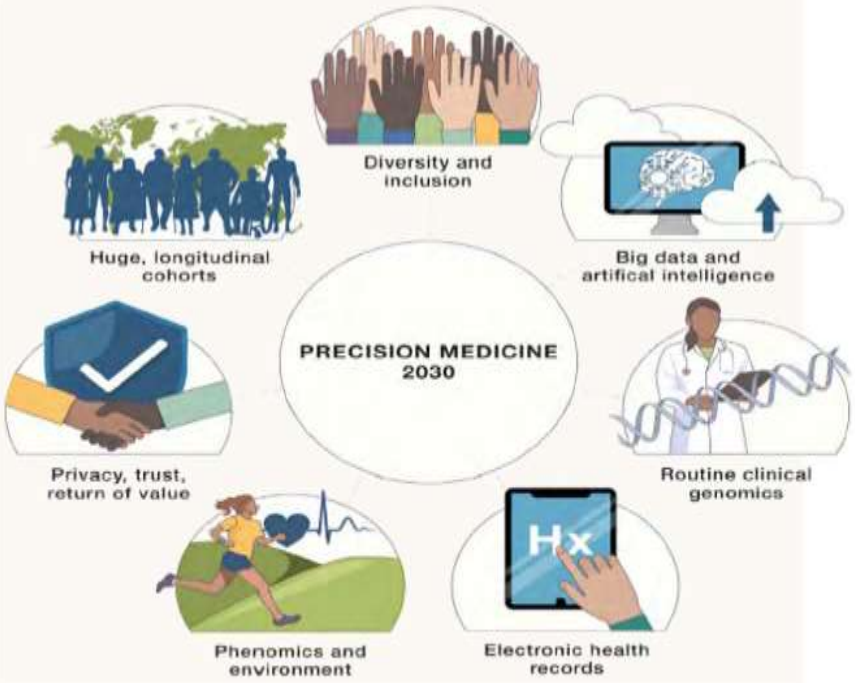
Patient Health Outcomes Improvements

- ✓ Patient Safety
- ✓ Infection Control
- ✓ Population Health
- ✓ Analytics and Research

SNOMED CT

Future Opportunities

Personalized, Precision Medicine 2030



1. **Huge Interoperable Longitudinal Cohorts** - Over the last 20 years, national cohorts (e.g. UK Biobank), have amassed huge populations with genomic, laboratory, and lifestyle assessments as well as longitudinal follow-up on health outcomes. The breadth and depth of data is staggering, as is the opportunities for discovery.
2. **Diversity and Inclusion** - With a growing depth of data, we have an opportunity to replace adjustments for race and ethnicity with more specific measures.
3. **Big Data and AI** - AI approaches in medicine have been limited by the (un)availability of large, commonly structured datasets. Looking forward, biomedical datasets will become increasingly ready for analyses.
4. **Routine Clinical Genomics** – Moving forward, whole genome approaches will become a routine, early step in the understanding, prevention, detection, and treatment of common and rare diseases.
5. **Electronic Health Records** – Many site-based and national research cohorts now use EHRs and other health data to provide up to decades of disease and treatment information that can be repurposed for research. This use will continue to expand.
6. **Phenomics and Environment** – Continued growth of research and clinical uses for different ways to measure clinical phenotypes, exposures, and lifestyles.
7. **Privacy, Trust and Return of Value** - The utility of precision medicine is dependent on broad participation, and broad participation of large populations requires trust, protection of privacy, and a return of value to the participants.[8]

Collaboration

Collaboration

We collaborate with many international clinical professional and standards development organizations, including:

- American Dental Association (ADA)
- American Medical Association (AMA)
- Global Alliance for Genomics and Health (GA4GH)
- Institut national de la santé et de la recherche médicale (INSERM)
- International Council of Nurses (ICN)
- Regenstrief Institute
- World Health Organization
- World Organization of Family Doctors (WONCA)

Visit our website for more information about these (and other) collaborations: snomed.org/snomed-international/our-partners

Join our Community

CLINICAL REFERENCE GROUPS: Contribute to the development of SNOMED CT and join a group focused on a clinical discipline (snomed.org/clinicians)

- Allergies Hypersensitivity and Intolerance
- Anaesthesia
- Dentistry
- Genomics and Precision Medicine
- General practice/Family practice
- Mental and Behavioural Health
- Nursing
- Pathology and Laboratory Medicine

ATTEND AN EVENT: We offer a variety of ways for the clinical community to connect including:

- SNOMED CT Clinical Web Series (online webinars)
- Biannual Business Meetings (working meetings for Clinical Reference Groups)
- Annual SNOMED CT Expo (conference that includes a clinical stream)

Visit our website (snomed.org) to find out more

GET INVOLVED LOCALLY: Contact your national release centre (snomed.org/our-stakeholders/members) for ways to be involved with SNOMED CT in your country

validated by

Data from Five Studies

Data from Model 1

Productivity (Model 1)

Cost savings from improvements in inpatient nursing time, lab te
drug utilization, length of stay and medical records; plus outpatie
transcription use, chart pulls, lab/radiology tests, & drug utilizatic

Disease Prevention (Model 2)

Reduced bed days, workdays missed, as well as increased deaths avoided and life years gained from immunizations and cancer screening.

Patient Safety (Model 3)

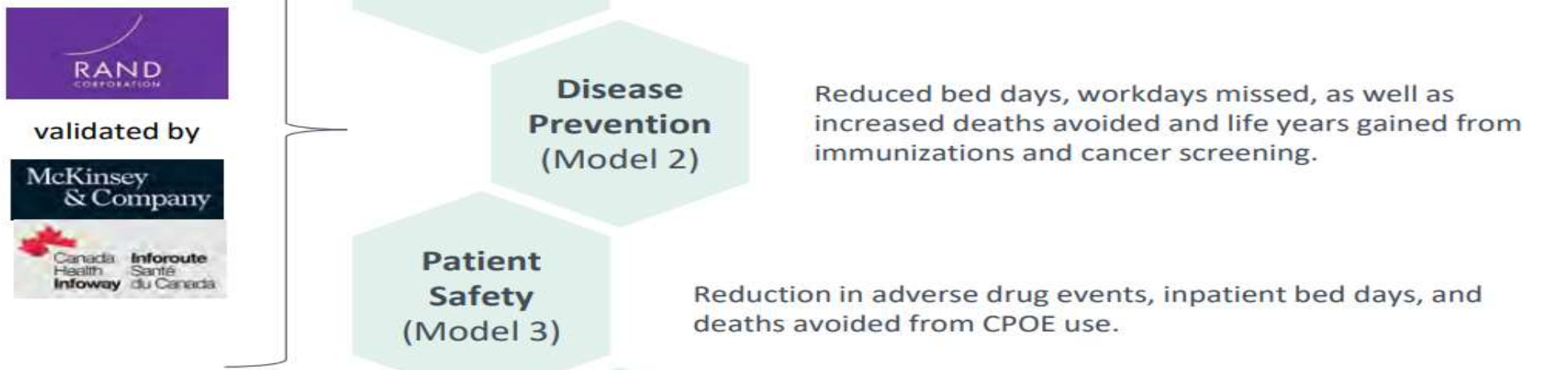
Reduction in adverse drug events, inpatient bed days, and deaths avoided from CPOE use.

BCM & IRR (Model 4)

The Benefits Cost Multiple and the Internal Rate of Return from investing in clinical information systems and interoperability solutions.

Impact on GNI (Model 5)

The average annual increase to a nation's GNI as a result of the investments in clinical information systems and interoperability solutions



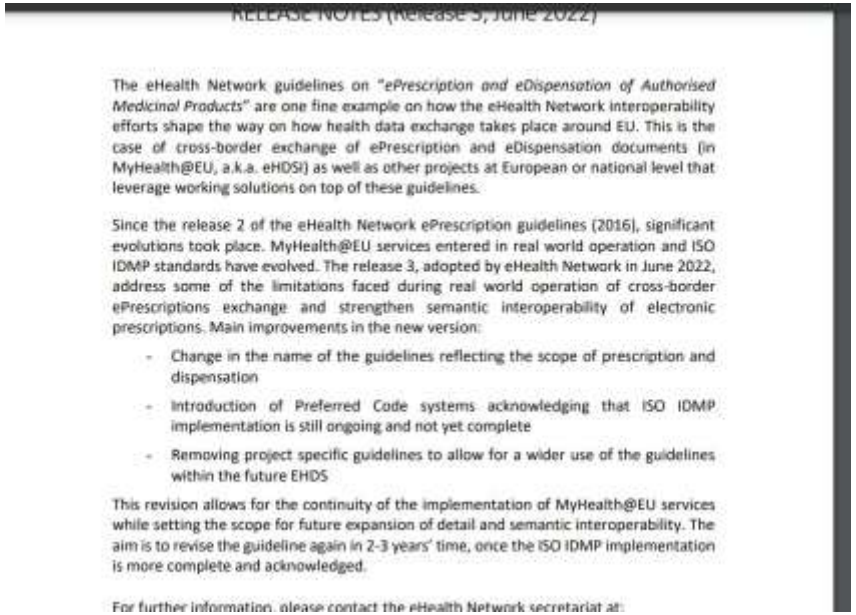
- 30 percent lower emergency department use than the national average
- 30 percent lower acute medical admission rate than the national average
- Held 2019 bed use to same numbers as in 2007 while serving a population that had grown by 80,000
- Identified vertebral fracture patients who had not received care or whose cases had been misclassified
- Saved a year of clinician time by automating previously manual processes
- Interoperable across best-of-breed system
- Ability to link clinical tools via a SNOMED code
- Ability to search for pathways and hierarchies and improved user search experience

Link

Drivers for Change in Ireland.

The eHealth Digital Service Infrastructure (eHDSI) is an infrastructure ensuring the continuity of care for European citizens while they are travelling abroad in the EU. This gives EU countries the possibility to exchange health data in a secure, efficient and interoperable way. Citizens can easily recognise the availability of the services under the brand “MyHealth @ EU”.

My health @ EU
eHealth Digital Service Infrastructure
A service provided by the European Union



RELEASE NOTES (Release 3, June 2022)

The eHealth Network guidelines on *“ePrescription and eDispensation of Authorised Medicinal Products”* are one fine example on how the eHealth Network interoperability efforts shape the way on how health data exchange takes place around EU. This is the case of cross-border exchange of ePrescription and eDispensation documents (in MyHealth@EU, a.k.a. eHDSI) as well as other projects at European or national level that leverage working solutions on top of these guidelines.

Since the release 2 of the eHealth Network ePrescription guidelines (2016), significant evolutions took place. MyHealth@EU services entered in real world operation and ISO IDMP standards have evolved. The release 3, adopted by eHealth Network in June 2022, address some of the limitations faced during real world operation of cross-border ePrescriptions exchange and strengthen semantic interoperability of electronic prescriptions. Main improvements in the new version:

- Change in the name of the guidelines reflecting the scope of prescription and dispensation
- Introduction of Preferred Code systems acknowledging that ISO IDMP implementation is still ongoing and not yet complete
- Removing project specific guidelines to allow for a wider use of the guidelines within the future EHDS

This revision allows for the continuity of the implementation of MyHealth@EU services while setting the scope for future expansion of detail and semantic interoperability. The aim is to revise the guideline again in 2-3 years’ time, once the ISO IDMP implementation is more complete and acknowledged.

For further information, please contact the eHealth Network secretariat at:

PAGE CONTENTS

Which services are available in which countries?

Governance and financing

Communication materials

Related information:

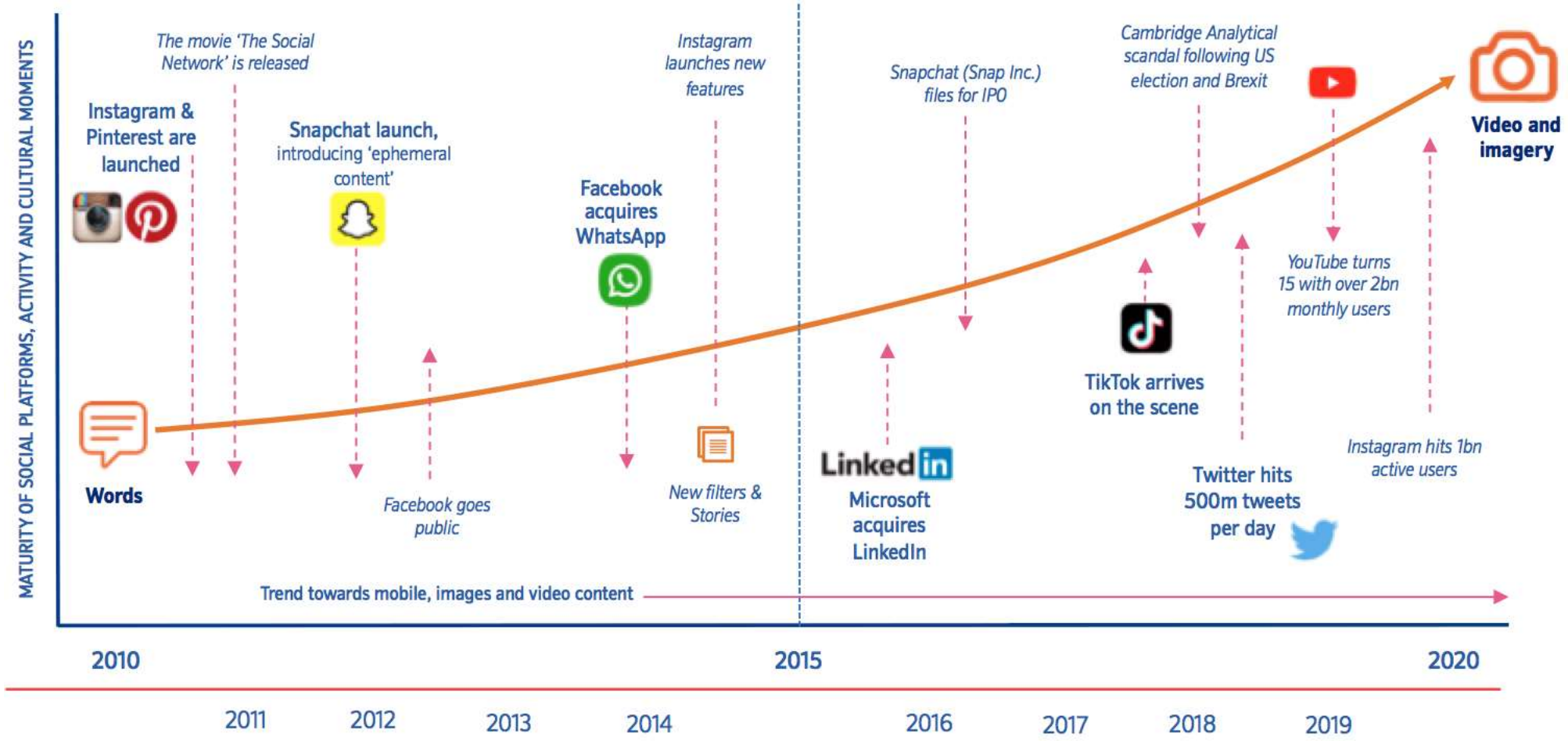
Estonia	Portugal
ePrescriptions of citizens from countries below:	**can be retrieved in pharmacies in:**
Croatia EN	Finland, Estonia, Portugal, Spain
Estonia	Finland, Croatia, Portugal, Poland
Finland EN	Estonia, Croatia, Portugal, Poland
Portugal (SNS and SPMS websites)	Estonia, Finland, Croatia, Spain, Poland
Spain	Portugal, Croatia, Poland
Poland	Croatia, Spain, Finland
Pharmacists of countries below:	**can dispense ePrescriptions presented by citizens from:**
Croatia EN	Finland, Estonia, Portugal, Spain, Poland
Estonia	Finland, Croatia, Portugal
Finland EN	Estonia, Portugal, Croatia, Poland
Portugal	Finland, Croatia, Estonia, Spain, Poland
Spain	Portugal, Croatia, Poland
Poland	Estonia, Portugal, Spain, Finland

What is Digital

That "D" word ....Digital

- Means (very) different things to different people.
- Comprises over a thousand phrases; digital media, digital economy, digital currency, digital camera, digital footprint, digital… anything and everything!
- Isn't often something you can see (like electricity).
- Is complex (sometimes technical and therefore confusing and 'unrelatable').
- Has negative connotations for some.
- Therefore, trying to define digital can be a distracting.

The evolution of digital



Web3 Ideology

Web 1.0

read-only
static

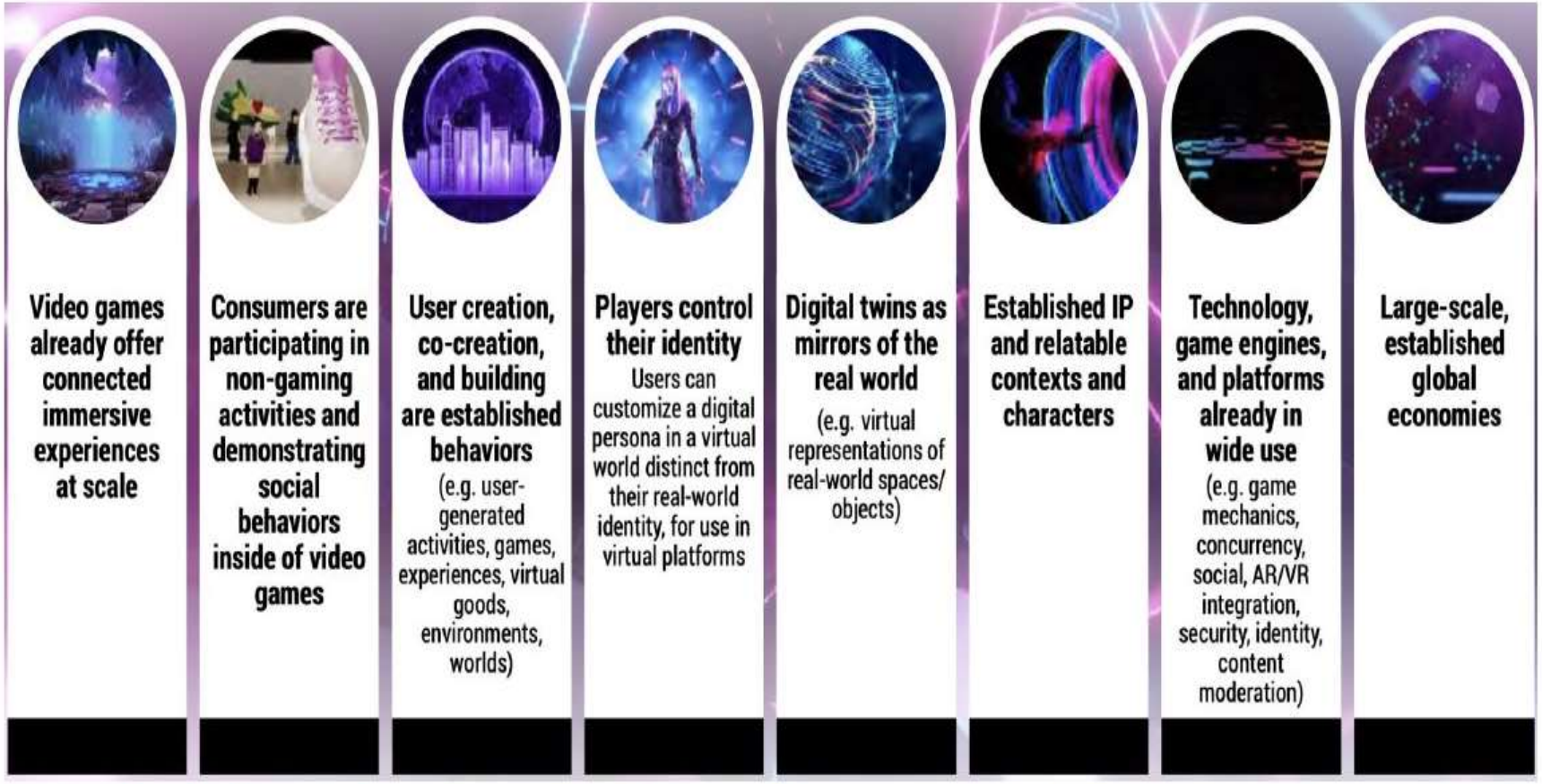
Web 2.0

read-write
interactive

Web 3.0

read-write-trust
verifiable

The Metaverse is Already Here!



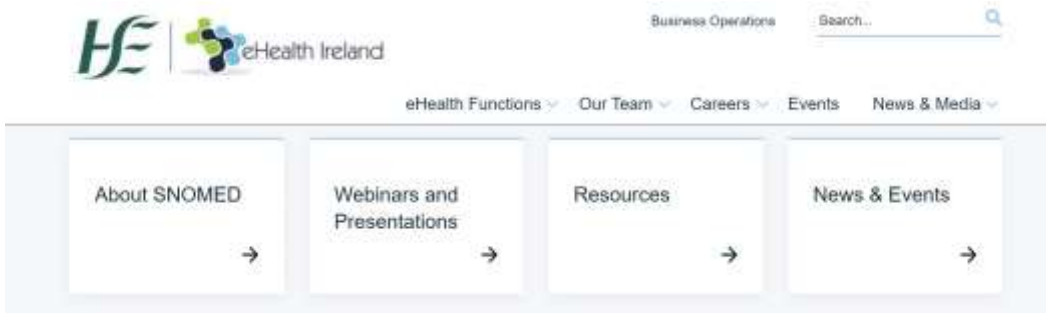
The Metaverse is already here (not years away): virtual worlds, experiences, large scale user bases, functionality, IP, and social activities largely exist inside of video games today and will provide the foundation for the future.

Links

[My Health @EU]

[SNOMED Browser]

[SNOMED page on eHealth Ireland]



Theresa.barry@hse.ie