Introduction to
Healthcare Standards and
Health Level Seven

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Topics

- **Need for electronic Healthcare Information Exchange**

- **Role of Healthcare Standards and benefits**
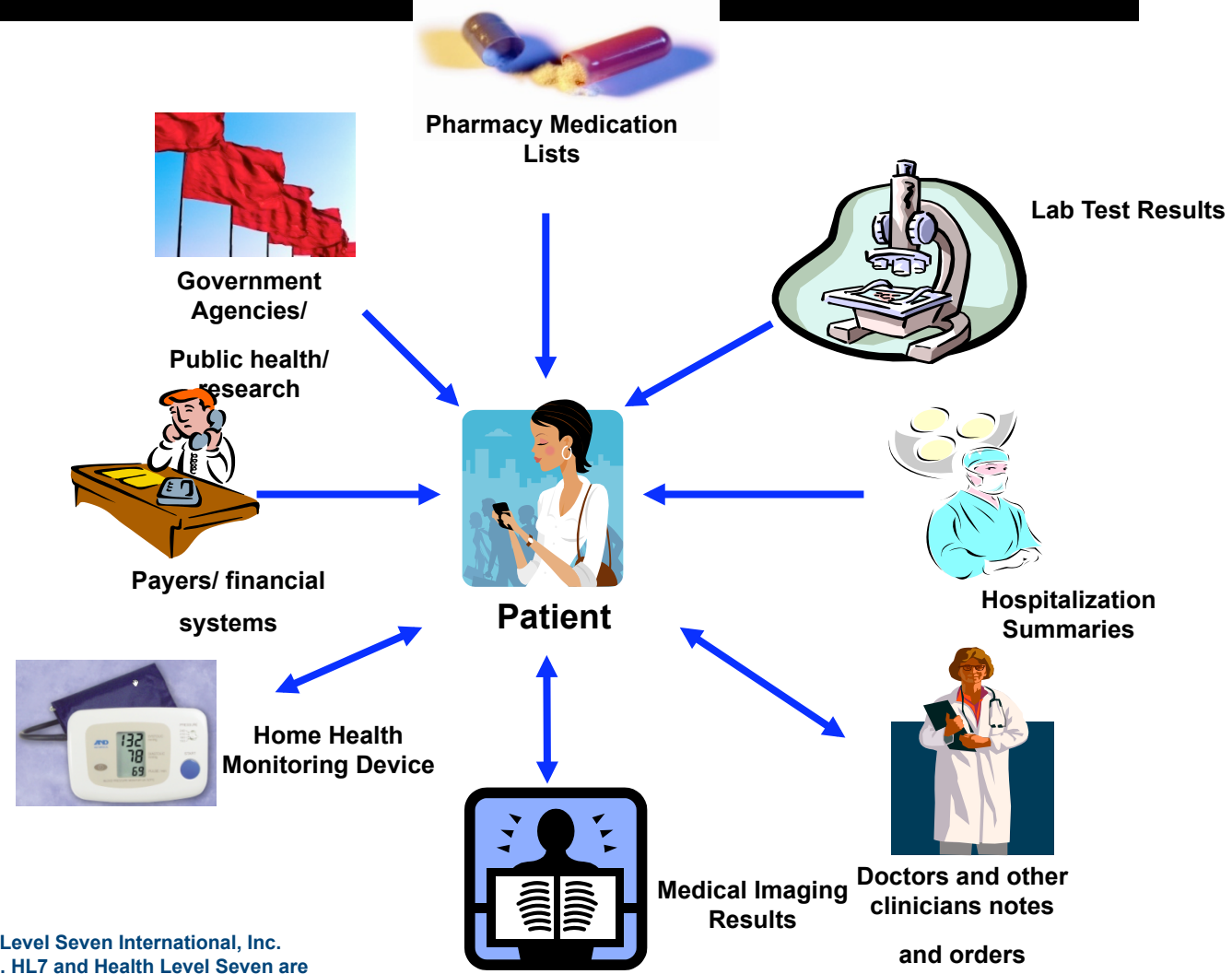
- **What is HL7 and examples of standards**

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Global Healthcare Trends

- Rising cost of healthcare
  - **Under or not insured**
  - **Aging population**
  - **High cost of chronic care**
  - **Demand on public health hospitals**
  - **System and organizational inefficiencies**

- Paper to Electronic Records
  - **Better clinical outcomes**
  - **Cost effective**

- Public Health
  - **Prevention efforts**
  - **Bioterrorism and pandemic events: Anthrax, Avian Flu, TB, etc**

- Consumer Empowered
  - **Patients and providers seeking greater access and control over information**
  - **Personal Health Records empower an consumer to manage their own health**

- National-Regional IT Networks
  - **Canada, Finland, Denmark, Austria, USA, UK, Australia**
  - **Government select Healthcare Standards**
  - **Emerging government-sponsored conformance testing**

- Biotech Era
  - **Personalized medicine is beginning to emerge, e.g. genomic data and test for cancer drug**

Many types of healthcare information need to be exchanged

Pharmacy Medication Lists

Lab Test Results

Government Agencies/

Public health/ research

Payers/ financial systems

Patient

Hospitalization Summaries

Home Health Monitoring Device

Medical Imaging Results

Doctors and other clinicians notes and orders

4

Healthcare Information Exchange Challenges

- *Across* Healthcare Institutions and others groups needing HC data (insurance, public health, research) :

    - How can clinical data be shared among different healthcare enterprises using different technology?

    - How can the same patient be identified across different institutions?

    - How can data exchange be secured and access to patient data be monitored?

- *Within* Healthcare Institutions:

    - How can patient's clinical data from different sources (lab, pharmacy, clinician notes, etc) be brought to patient's point of care and into an electronic medical record?
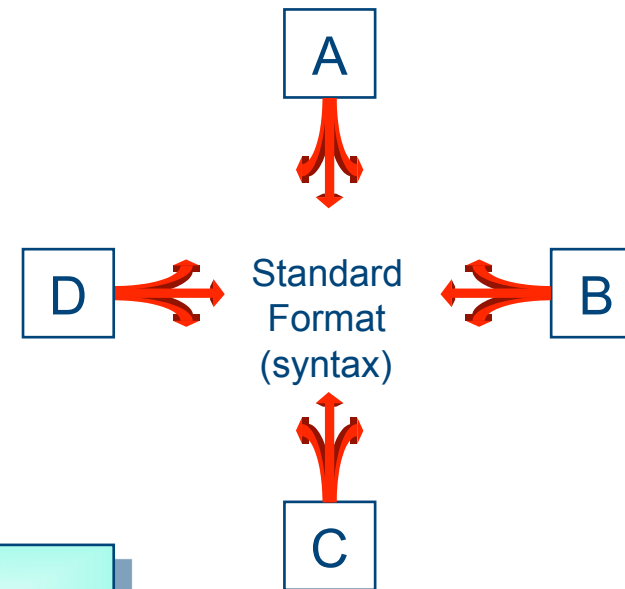
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Standards = Common exchange format

Before – Custom Interface
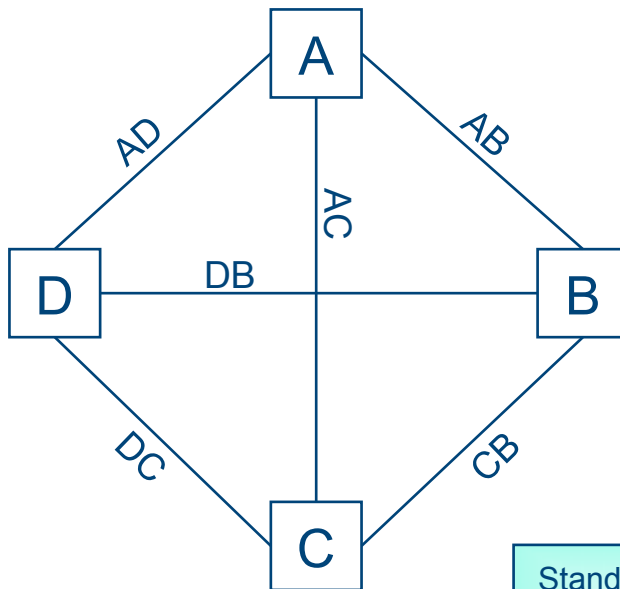
After Standards
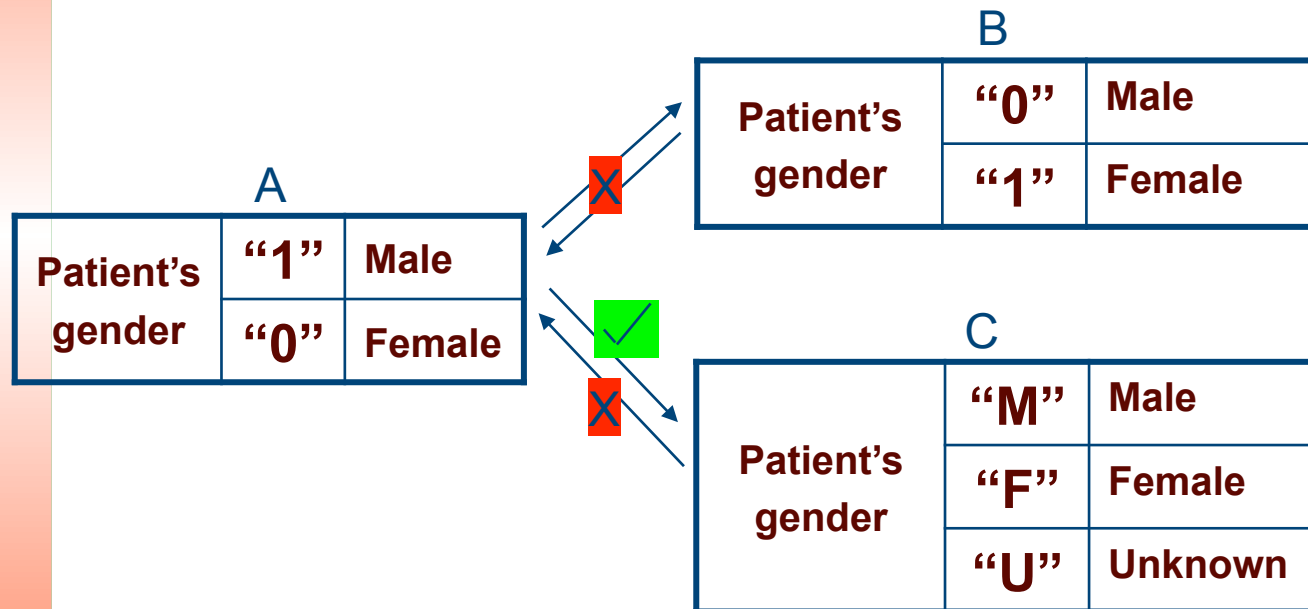**Hospital uses standard format**
Document, message or service)

Standards
- Common denominator
- Saves time and money
- Enables interoperability
- Industry effort

Need common Coding Systems and Vocabularies – for common understanding

Examples of different systems trying to interoperate.

B

Patient's gender	"0"	Male
	"1"	Female

A

Patient's gender	"1"	Male
	"0"	Female

A and B differ syntactically and cannot interoperate without translation.

C

Patient's gender	"M"	Male
	"F"	Female
	"U"	Unknown

A and C differ semantically.

A cannot represent the concept, "Unknown".

Standards drive good business for Healthcare IT vendors and service providers

- **Speed of development, faster time to market.**

- **Lower development cost, lower installation costs, over customized interfaces.**

- **Overall, enhanced interoperability of product.**

- **Clients prefer the flexibility of products with standardized interfaces therefore a sales advantage in using standards.**

- **More scalable solution.**

- **Standards = International community best practices.**

HL7: Health Level Seven International

● **Creates healthcare IT standards widely used around the world.**

HL7 Interoperability goals

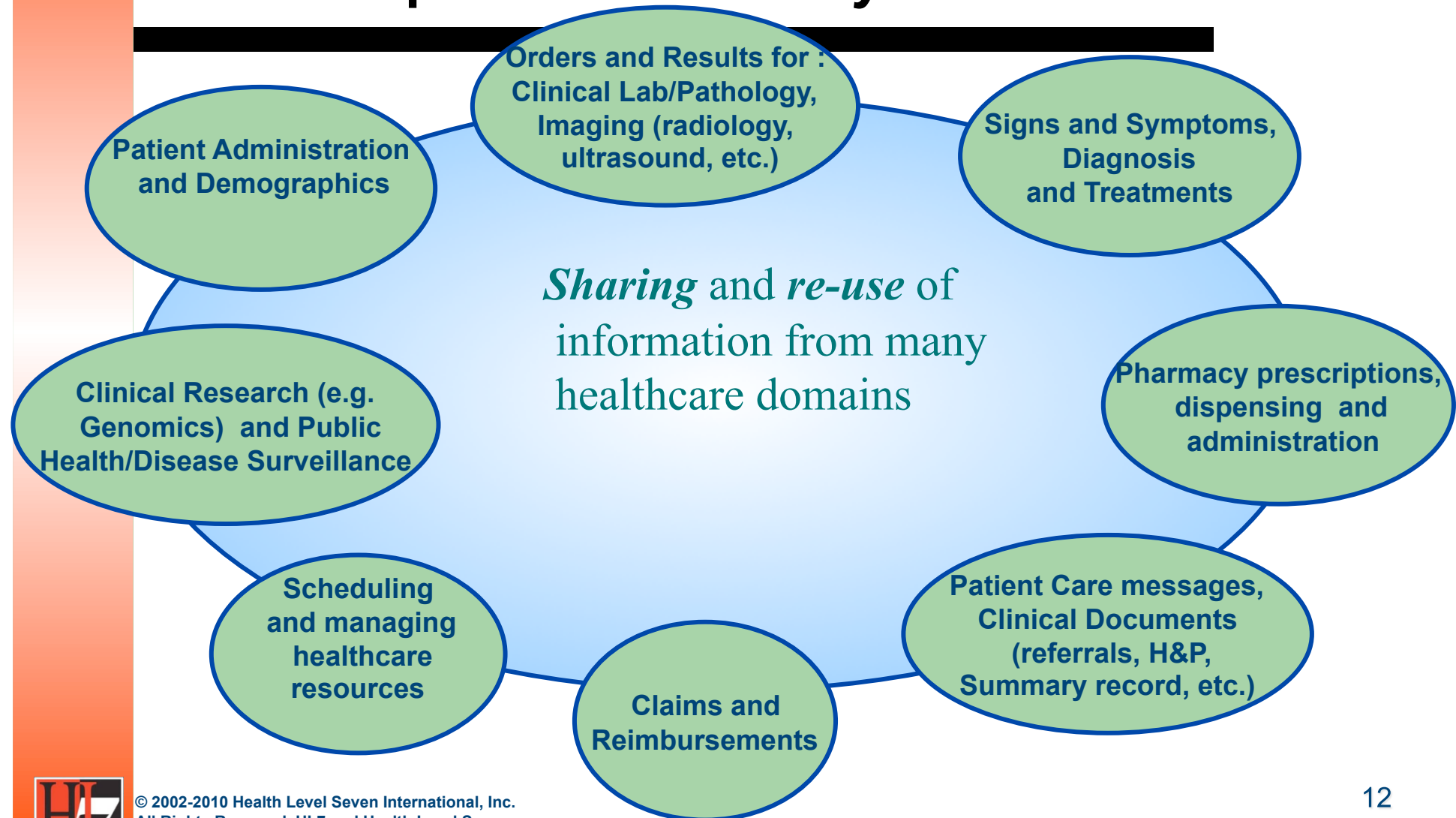- **HL7 Mission: committed to advanced standards for interoperability in healthcare**

- **HL7 has created a family of standards that enable interoperability of healthcare information via:**
  - **The exchange of electronic messages**
  - **The use of (web-) services**
  - **The process of sharing documents**

- **Standards and Implementation Guides built on Standards**

Examples of HL7 scope and programs
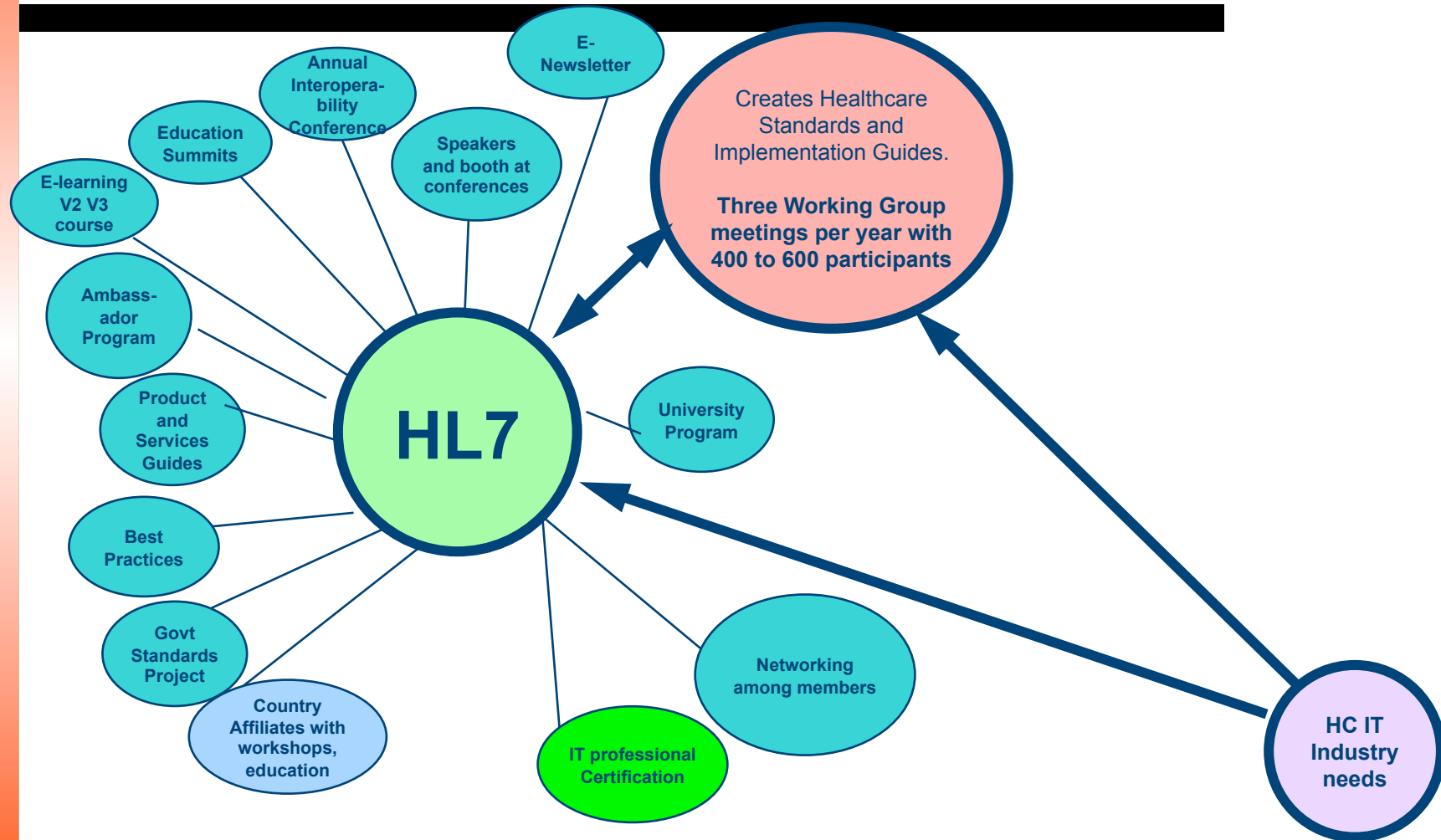
HL7 has produced *a family of* Standards for

Orders and Results for :
Clinical Lab/Pathology,
Imaging (radiology,
ultrasound, etc.)

Patient Administration
and Demographics

Signs and Symptoms,
Diagnosis
and Treatments

Sharing and *re-use* of
information from many
healthcare domains

Clinical Research (e.g.
Genomics) and Public
Health/Disease Surveillance

Pharmacy prescriptions,
dispensing and
administration

Scheduling
and managing
healthcare
resources

Claims and
Reimbursements

Patient Care messages,
Clinical Documents
(referrals, H&P,
Summary record, etc.)

HL7 Messages and Documents

Messages	Documents
▪ A message is event driven and includes workflow.	▪ The Clinical Document Architecture (CDA) can facilitate clinical document exchange within and between medical institutions.
← Order Lab Tests	▪ CDA can be used to a bring patient's clinical documents into a patient-centric EHR.
▪ A fragment of information	▪ A collection of information about an encounter
Lab Test Results →	▪ Can be digitally signed

Conclusion: HL7 Healthcare standards

- **Enabling the sharing and re-use of *healthcare information*, especially**
  - **Clinical information**

  And healthcare-related information, including

  - **research, clinical trials, administrative, financial, resource utilization, public health, supply chain**

- **All based on the sharing and re-use of Healthcare information**
  - **Using Messaging, Clinical Documents, and Services**
  - **Providing Functional Models to ensure interaction**

14

Summary

- **Need for computable healthcare information**

- **Standards are critical for exchanging electronic healthcare information**

- **HL7 is the key organization for producing relevant global healthcare information standards**

How to get more info on HL7

- **Web site:**
  - http://www.hl7.org
- **International Affiliates**
  - http://www.hl7.org/Special/committees/international/intl.htm
- **Education and Tutorials**
  - http://www.hl7.org/education/index.cfm
- **How to request and HL7 Ambassador speaker**
  - mailto:hq@hl7.org
- **Contact info for HL7 HQ**
  - mailto:hq@hl7.org

16

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