Fogarty International Center
Global mHealth Research Training Institute

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Center for Global Health Studies

Health Informatics

Martin C. Were, MD MS

MOI UNIVERSITY — FOUNDATION OF KNOWLEDGE

Health Informatics

A multidisciplinary field at the intersection of information science, computer science, and health care which aims to use health information technology to improve care.

Fundamental Theorem of Health Informatics

"A person working in partnership with an information resource is 'better' than that same person unassisted."
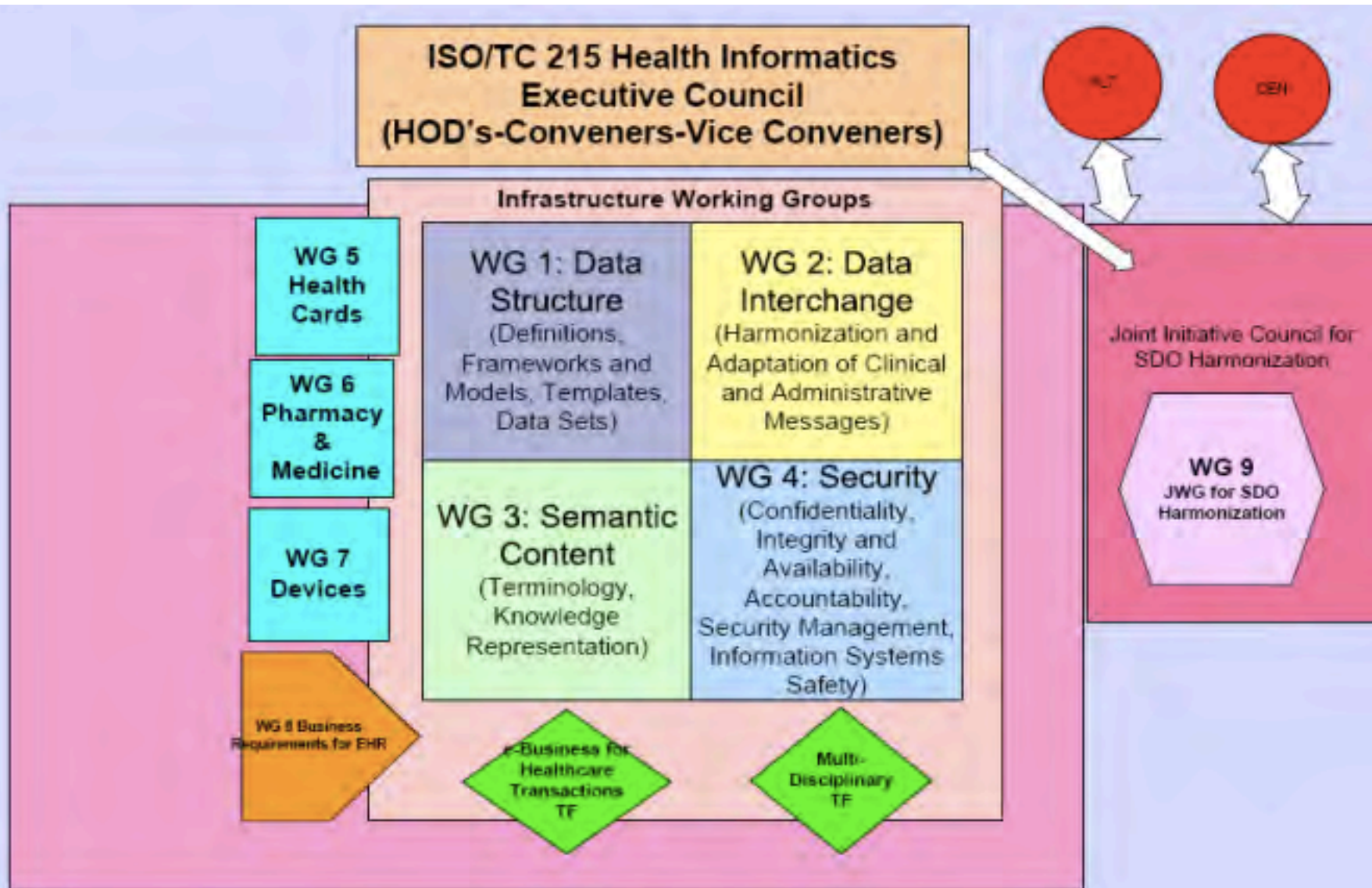
mHealth in an HI Context

- mHealth impacts
- Standards
- Interoperability
- Ethics
- Equity
- Governance
- Evaluation considerations

mHealth Impacts

- Health Outcomes.

- Health Systems Strengthening.

- Governance.

- Equity.

mHealth & HI Standards

ISO standards in Health Informatics (ISO ICS 35.240.80)

ISO/TC 215 - Health informatics

Items to be displayed:

☑ ✔ Published standards   ☐ ✏ Standards under development   ☐ ✖ Withdrawn standards   ☐ 🗑 Projec

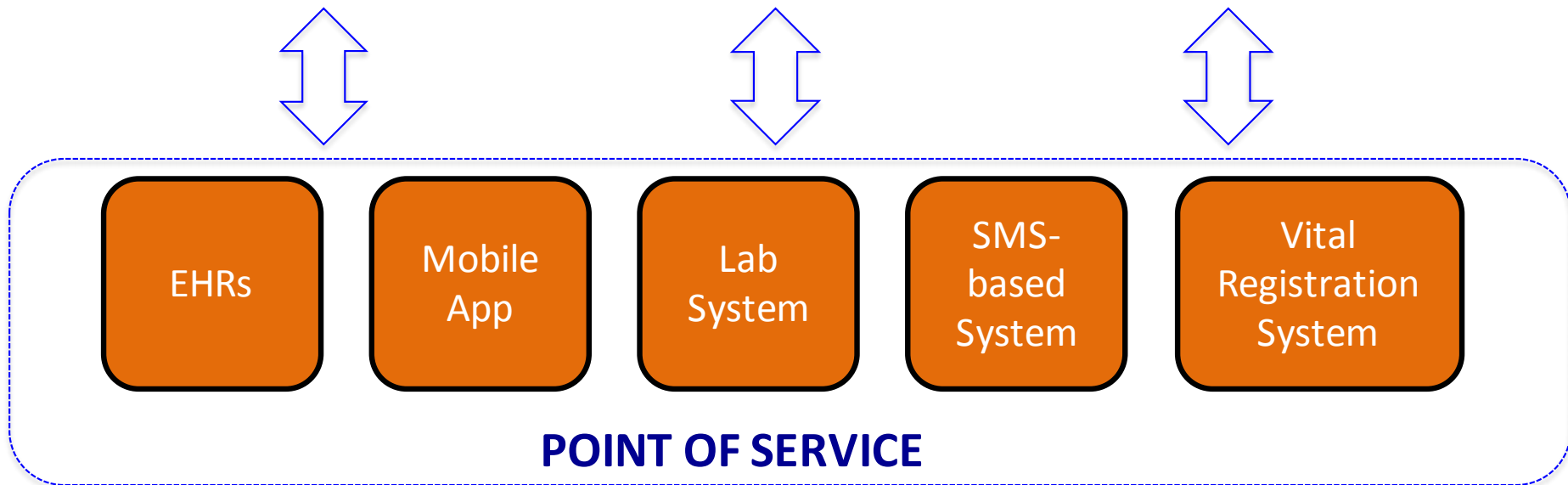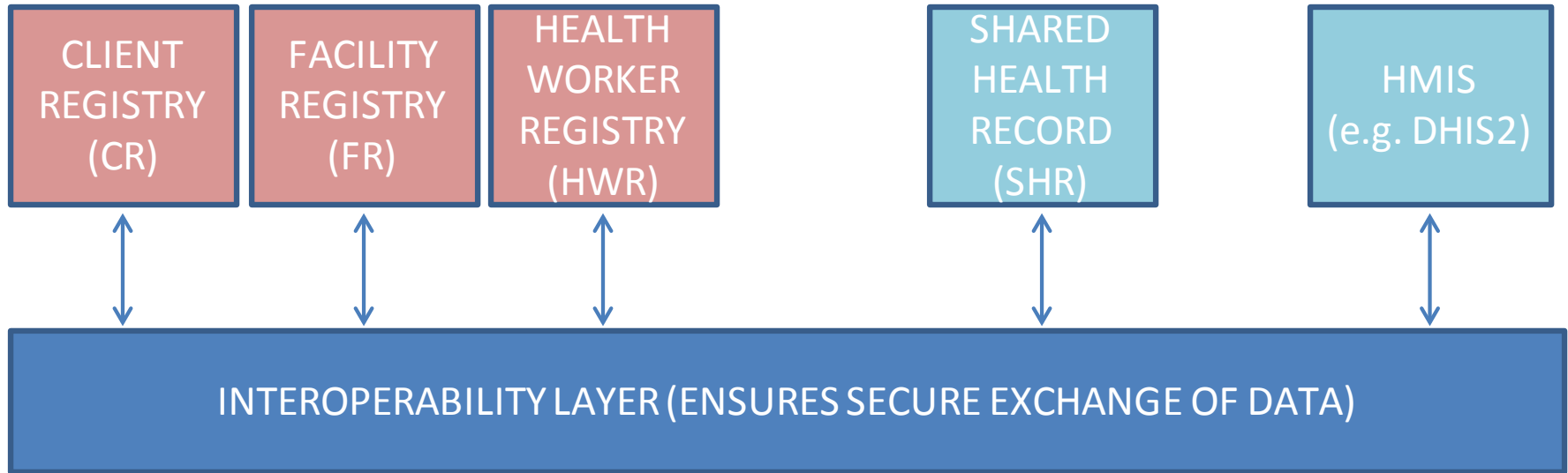## Standards and projects under the direct responsibility of ISO/TC 215 Secretariat

⇕ **Standard and/or project**

✔ ISO 1828:2012
Health informatics -- Categorial structure for terminological systems of surgical procedures

✔ ISO 10159:2011
Health informatics -- Messages and communication -- Web access reference manifest

✔ ISO/HL7 10781:2015
Health Informatics -- HL7 Electronic Health Records-System Functional Model, Release 2 (EHR FM)

✔ ISO/IEEE 11073-00103:2015
Health informatics -- Personal health device communication -- Part 00103: Overview

✔ ISO/IEEE 11073-10101:2004
Health informatics -- Point-of-care medical device communication -- Part 10101: Nomenclature

✔ ISO/IEEE 11073-10102:2014
Health informatics -- Point-of-care medical device communication -- Part 10102: Nomenclature -- Annotated ECG

✔ ISO/IEEE 11073-10103:2014
Health informatics -- Point-of-care medical device communication -- Part 10103: Nomenclature -- Implantable device, cardiac

✔ ISO/IEEE 11073-10201:2004
Health informatics -- Point-of-care medical device communication -- Part 10201: Domain information model

mHealth & HI Standards

- What are the HI standards in the country?

- Does the solution conform with these standards?

- Does the solution conform to international standards (ISO standards in Health Informatics (ISO ICS 35.240.80)?

Interoperability & HIE

| CLIENT REGISTRY (CR) | FACILITY REGISTRY (FR) | HEALTH WORKER REGISTRY (HWR) | | SHARED HEALTH RECORD (SHR) | | HMIS (e.g. DHIS2) |

INTEROPERABILITY LAYER (ENSURES SECURE EXCHANGE OF DATA)

| EHRs | Mobile App | Lab System | SMS-based System | Vital Registration System |

POINT OF SERVICE

mHealth & Interoperability

- Does the solution exist in a silo?

- Does the solution allow horizontal and vertical integration of data?

- Is the solution amenable to integration with a national-level or regional-level health information exchange infrastructure?

mHealth & Ethical Considerations

- Risk-benefit ratio & cost-benefit.

- Level of evidence.

- Collaborative partnership.

- Implementation strategy.

- Conflict of interest & oversight.

- Informed consent, confidentiality & trust.

- Data security.

- Equitable access.

Were, MC & Meslin EM. Ethics of Implementing Electronic Health Records in Developing Countries: Points to Consider. AMIA Annu Symp Proc. 2011; 2011: 1499–1505.

mHealth & Governance

- Alignment with national eHealth strategy.
- Clear direction and strategic vision.
- Compliance with the Law & respect for human rights (e.g. security).
- Public participation - Legitimacy . Voice . Participation . Consensus.
- Accountability - Performance . Responsiveness. Effectiveness . Efficiency.
- Transparency.
- Scalability of system.

mHealth & Equity

- Improve health and social status among the disadvantaged.
- Improve overall health and social status of the entire population, by leveling up and not down.
- Provide services according to need, not ability to pay.
- Provide primary health care for all.
- Engage users from underserved communities and populations in eHealth design, development, implementation ad evaluation.
- Build local capacity and facilitate empowerment of underserved communities and the people who serve them.
- Ensure open/public ownership and/or access to the tools, information, & research findings that are produced.

Value Proposition – Cost Evaluation

- Consider financial and non-financial costs.

- Use of primary sources of costs.

- Reach consensus on costs & conduct sensitivity analyses.

- Apportion shared costs appropriately – e.g. vehicle & personnel costs.

- Annuitize costs with a lifetime of over one year.

- Adjustment for inflation.

Bassi J. et al. Measuring value for money: a scoping review on economic evaluation of health information systems. J Am Med Inform Assoc 2013;20:792–801.

Analogy - Clinical Trial Phases

- **Phase I:** Testing with small group of to evaluate safety, dosage ranges, and identify side effects.
- **Phase II:** Effectiveness evaluation and further evaluation of safety.
- **Phase III:** Effectiveness, monitor side effects, compare it to commonly used treatments.
- **Phase IV:** Post-market evaluation on effects for various populations and side effects on long term use.

mHealth Evaluations

- Consider unintended consequences of solution.
- Avoid conflating other interventions as being an impact of the mHealth solution.
- Compare your intervention against other approaches.
- Is your evaluation replicable? How about the findings?
- Where possible, use an independent evaluator.
- Avoid publication bias.

Thank you!

martinwere@gmail.com

Breakout Discussion Questions

1. How do you approach your team's problem, given what you have just learned?

2. What did you incorporate into your project from what you learned?

3. What new subject matter experts do you need to work with? Why?