

## **Building organizational capacity for observational research within a health system**

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### **Background**

OHDSI presents a structural change in how the medical field can conduct reproducible observational research on medical records<sup>1</sup>. Historically, medical observational researchers have relied heavily on manual data collection methods with extensive chart abstraction. With the adoption of Electronic Medical Records and the use of automation in transforming localized data into standardized concepts, OHDSI presents researchers with a new ability to conduct observational research at scale.

The Johns Hopkins OHDSI research community was formed to help clinical researchers take advantage of OMOP in their clinical research project. We approached the institutional adoption of OHDSI as a socio-technical endeavor that benefits from social solutions in addition to providing new technical methods.

We propose that the work of Patterson et al. can be leveraged to highlight the sources of influence necessary to enact effective change within an institution and enable adoption of OHDSI practices<sup>2</sup>. This approach focuses on the motivations and abilities of researchers at the individual, team, and structural level. By addressing opportunities using this model, we aim to accelerate the use of OHDSI in creating value for our researchers and our organization.

### **Methods**

Patterson et al. describe the six sources of influence using the main categories of motivation or 'will this be worth it?' and ability or 'can I do this?' Motivation and ability are then subdivided into structural, team, and individual levels that encompass the six sources of influence. Structural ability refers to changes in the environment that can allow for organizational change. Team or social ability refers to the need to find strength in numbers to enact change. Individual or personal ability refers to the need to surpass your current skill level and develop proficiency. Structural motivation refers to extrinsic rewards and incentives that are built into the environment or organization. Team motivation refers to peer pressure and how we can harness that for change. Individual motivation refers to making the behavior desirable. We delineated the activities implemented at one institution to support researchers in their use of OHDSI within the organization using the six sources of influence model.

### **Results**

The Johns Hopkins adoption approach progresses through creating a common data model (CDM), training analysts to work with OMOP data, building an analytical platform and data quality dashboard, engaging interdisciplinary teams, spreading institutional awareness, and all the way to completing clinical research studies within the OHDSI framework.

1. Organizational Ability
  - a. Create up-to-date CDM of OMOP from local EMR data
  - b. Stand up OHDSI tools (Atlas, DQD, ETL)
  - c. Pre-IRB Cohort Discovery De-ID Atlas
  - d. Institutional Website to know what is available
  - e. Train research data service team in OMOP

- f. Provide R/Python/SQL environment
- g. Training workshops 2-hour orientations
- 2. Team Ability
  - a. Assemble interdisciplinary catalog of researchers working with OHDSI
  - b. Build Microsoft Teams environment
  - c. Clinical Registry construction process
  - d. Data Science Grad Student Projects
- 3. Individual Researcher Ability
  - a. Develop graduate training program in OHDSI/OMOP
  - b. EHDEN & Atlas training completion
  - c. Book of OHDSI
- 4. Organizational Motivation
  - a. IRB Templates lower cost of getting IRB approved
  - b. Streamline data provision
  - c. Make grants more competitive
  - d. Grant language on Data Management
  - e. Letters of Support
  - f. Being able to access multi-institution data through network studies
  - g. Make publications more competitive
- 5. Team Motivation
  - a. Local Institution OHDSI weekly meeting to facilitate team building
  - b. Team Science forming
  - c. Mentoring networks
  - d. Sharing best practices across teams
- 6. Individual Research Motivation
  - a. Building international professional network through OHDSI workgroup participation
  - b. Invited OHDSI Speakers to Grand rounds to raise awareness and interest
  - c. Testimonials of successful local researchers using OHDSI to get Grants

**Conclusion** This framework could be adopted to support clinicians and researchers as they incorporate OHDSI into their research efforts.

#### References

1. Thomas S. Kuhn. *The Structure of Scientific Revolutions*. University of Chicago Press, 1996
2. Grenny, Joseph, and Kerry Patterson. *Influencer: The Power to Change Anything*. McGraw-Hill Professional, 2013.