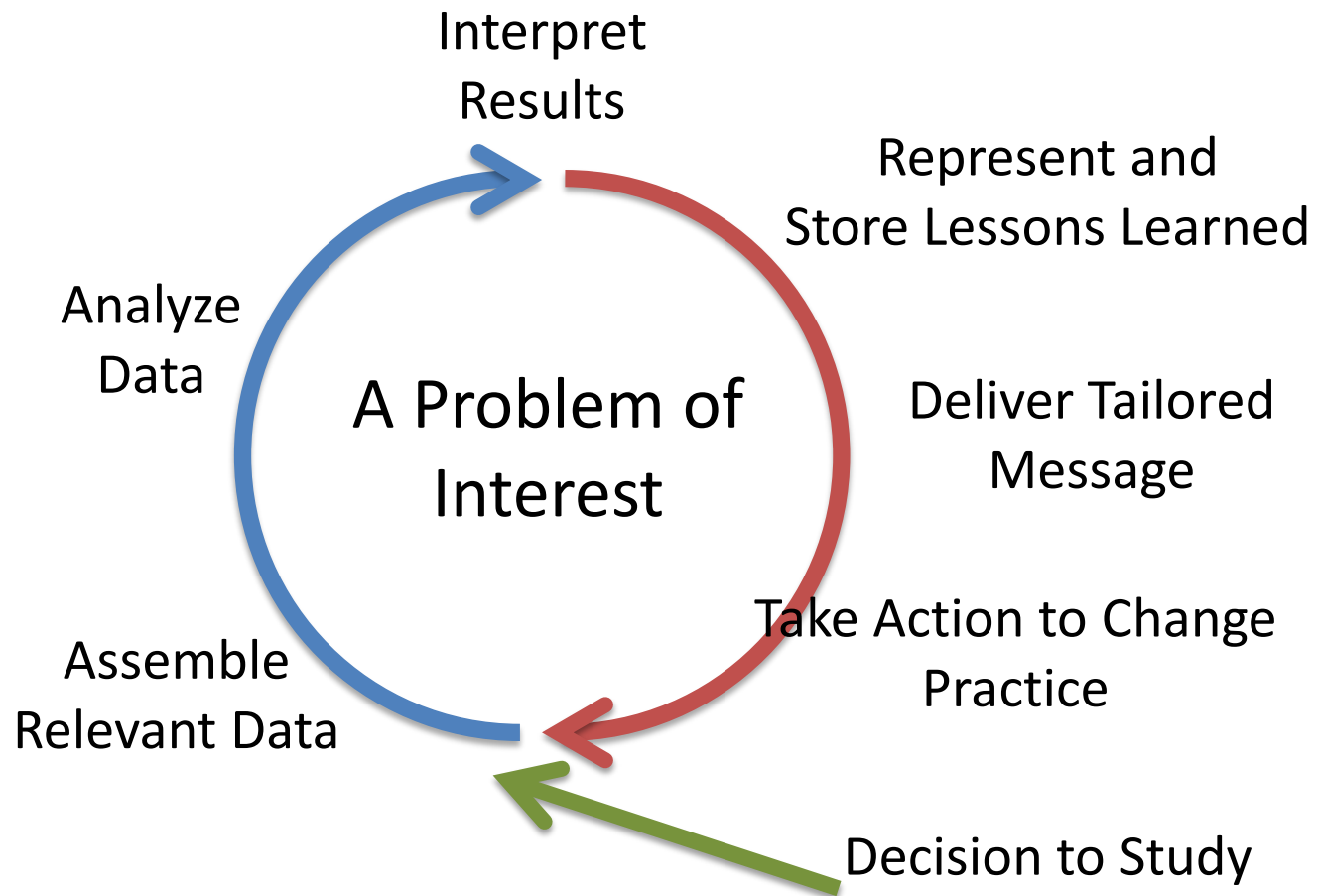


# Learning Health Research Use Cases involving Data Science



# Research Use Cases? What are they?

- Descriptions of a general pattern of possible research activity
- Focused on solving a set of seemingly similar real-world problems
- Suggest an infrastructural approach to developing sustainable new capabilities with potentially broad applicability

# Use Case 1: Health Services Individualization

## GENERAL PROBLEM

“One-size fits all” health programs don’t fit all

## POTENTIAL SOLUTION

Understand patient **prefs & needs** at an individual level and individualize accordingly

- frequency of in-person visits
- use of remote contact and/or tele-visits instead

## DATA SCIENCE INVOLVEMENT

- preferences are not necessarily stable
- predict needs using machine learning
- modeling & predicting of hypothetical impacts
- linking outcomes of interest to individualized factors

# Use Case 2: Evidence-based Disease Impact Prognosis

## **GENERAL PROBLEM**

Difficulty motivating people to maintain treatments for chronic disease

## **POTENTIAL (PARTIAL) SOLUTION**

Predict and communicate the likely course and time-frames of chronic disease **impacts** for individuals with / without intervention(s)

## **DATA SCIENCE INVOLVEMENT**

- data scrubbing and wrangling
- machine learning
- integration and linking of heterogeneous data
- visualization/simulation of disease impact courses