The need for predictive analytic governance
Ensuring predictive analytics coordination and integration

Key stakeholders:
- Hospital Executive Leadership
- Regional Directors
  - Hospital Operations
  - Hospital Quality
  - Hospital Performance
- KP HealthConnect Leadership
- Internal Analytics Consulting
- Division of Research
The lifecycle of a predictive model

**Prioritization**
- High-value targets
- Modifiable outcomes

**Assessment**
- Landscape survey
- Buy versus build

**Development**
- Technical implementation
- Calibration/customization
- Internal validation

**Deployment**
- Playbook development
- Workflow alignment
- End-user interface

**Evaluation**
- Outcomes assessment
- Balancing measures
- Model maintenance
Case example: Advance Alert Monitor
A predictive model to reduce adverse hospital outcomes

Meet Roger…
• 60 years old, with diabetes and COPD
• ED Chief Complaint: Confusion, Back Pain

• Temp 101°
• Lactate: 2.7

• Repeat lactate normalized
• Admitted to telemetry with disorientation, otherwise stable.
Roger’s Hospital Course – 4 years ago

- **Overnight**: Roger is “stable” on telemetry

- **8 am**: Unchanged from yesterday?

- **3 pm**: Code Blue called to Roger’s hospital room
  - CPR in progress
  - Cathy, Roger’s wife, is at the bedside
  - Roger’s goals of care are quickly discussed during CPR

- **3:47 pm**: CPR continues until Roger is pronounced dead
Principles guiding the development of Advanced Alert Monitor

Patient-centered and clinician-aligned prioritization

Principles for AAM development:
1. Identify the highest-risk inpatients
2. Respect patients’ goals of care
3. Give clinicians enough time for action
4. Minimize false alarms for busy clinicians
Overview: Path to Implementation of AAM across 21 KPNC hospitals
Building a clinical program by redesigning workflows, teams, and technology

- **Alpha Pilots**
  - 2014
  - Test the algorithm
  - 1st Gen Platform
  - Local teams/workflow

- **Beta Pilots**
  - 2016
  - Test the workflows
  - 2nd Gen Platform
  - Regional team/workflow

- **Regional Spread**
  - 2017
  - Test implementation
  - 2nd Gen Platform
  - Standard playbook

- **Full KPNC Implementation**
  - 2018
  - Regional implementation
  - 3rd Gen EPIC-based platform
  - Embedded Epic interface