THRIVE: Trajectories of Recovery after Intravenous propofol vs inhaled VolatilE anesthesia

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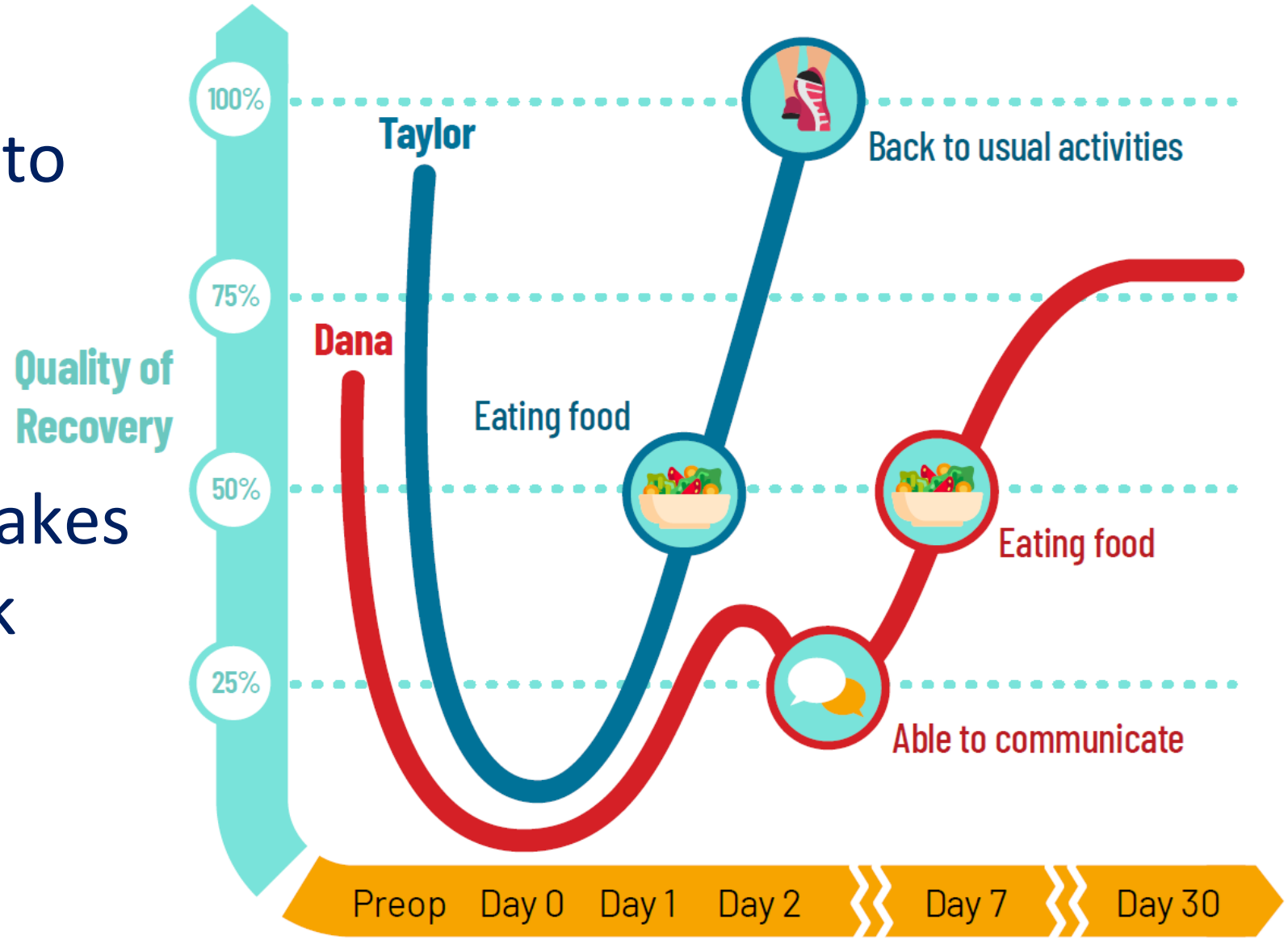
MPOG
MULTICENTER PERIOPERATIVE OUTCOMES GROUP

Outline

- Background
- Comparators and Outcomes
- Patient Population
- Study Phases
- Resources
- Projected Timeline

- One patient back to baseline in 2 days
- Another patient takes more than a week



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Propofol TIVA Advantages

Decreased postoperative nausea and vomiting

Fewer side effects

Gaps in our Knowledge

Awareness risk

Cognitive recovery

Sense of well-being

Postoperative pain

Ability to communicate

Return to usual activities

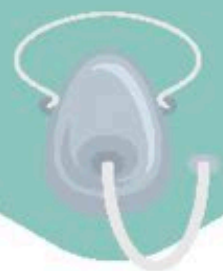
Sleep and restfulness

Enjoyment of food

Inhaled Volatile Advantages

Predictable dose-response relationship

Technical ease of administration

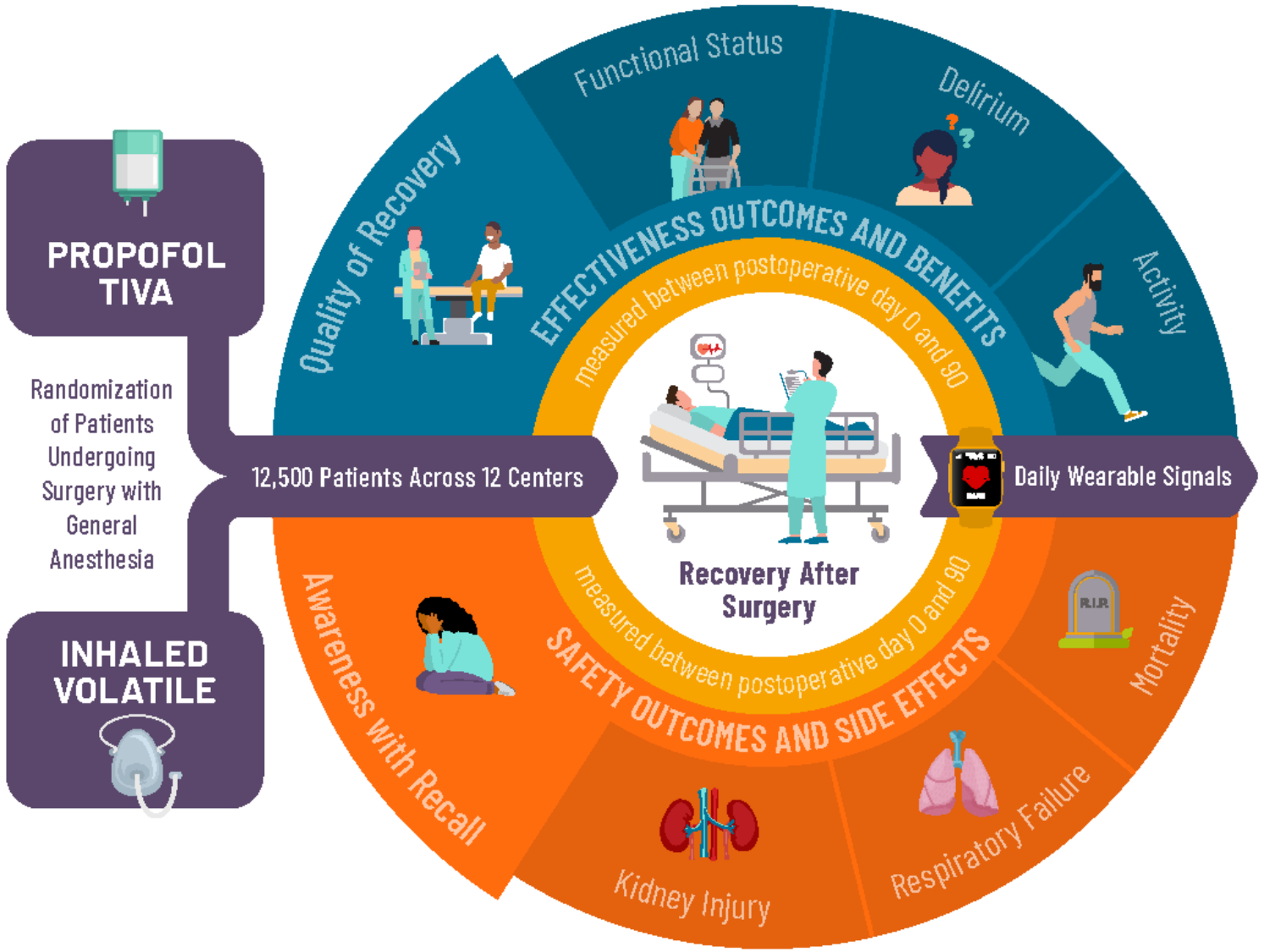


Background

- Multicenter, pragmatic randomized control trial to evaluate superiority of propofol TIVA over inhaled volatile general anesthesia for patient experiences and outcomes

- Support from the Patient-Centered Outcomes Research Institute (PCORI). $30M total over 6.5 years

Study overview



Patient Population

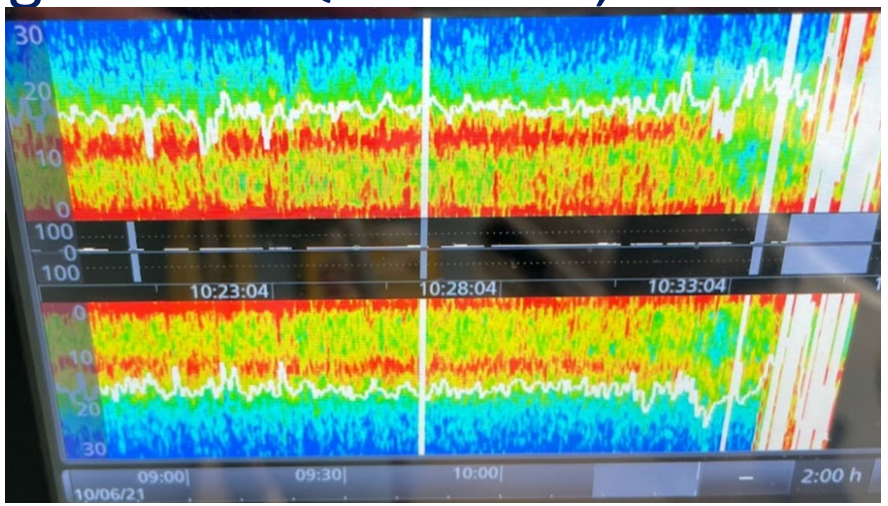
- 12,500 adult patients undergoing elective, non-cardiac surgery (≥60 min) requiring general anesthesia (both ambulatory and inpatient cases are eligible)
- Exclusions for patients precluded from receiving one of the techniques or if one technique is strongly indicated (thyroidectomy, spine with monitoring)

What does propofol TIVA and inhaled volatile mean?

- Pragmatic definition to reflect routine care
- We have learned “routine” care varies VERY widely across clinicians and centers
- Propofol TIVA
  - Propofol-based intravenous general anesthesia
  - No use of inhaled (nitrous, isoflurane, sevoflurane, desflurane) at any point in surgery
  - May use other intravenous adjuncts (dex, remi, sufentanil, lidocaine)
- Inhaled volatile
  - Inhaled-volatile based general anesthesia
  - Propofol infusion can be used
  - May use other intravenous or inhaled adjuncts (nitrous,dex, remi, sufentanil, lidocaine)
- Up to the clinician
  - Processed EEG monitoring
  - Regional anesthesia
  - ETT vs LMA

Time to put the T back in TIVA

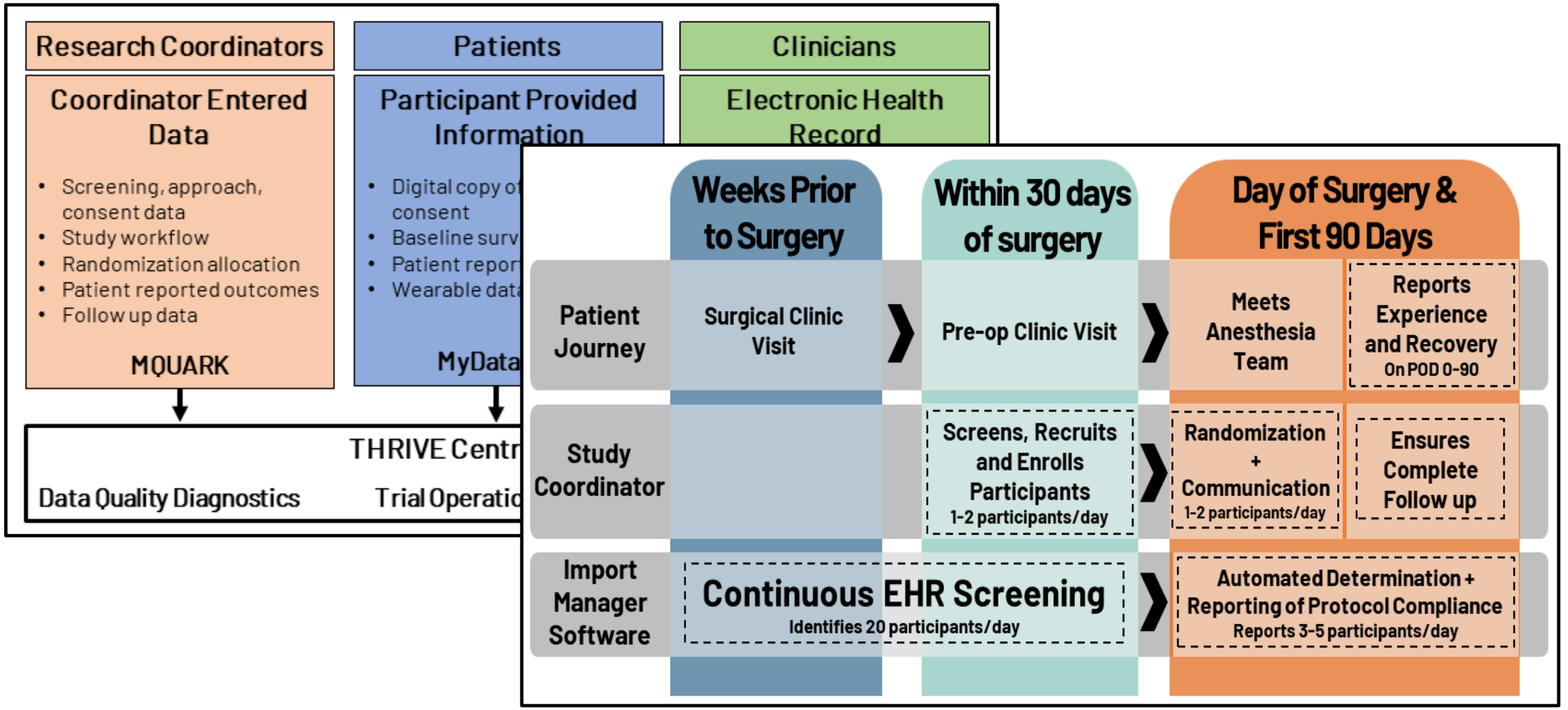
- 80-90% of GA in MPOG are inhaled volatile based
- MIVA and DIVA don't count
  - "mostly" and "dirty" IVA
- Will require cross MPOG education and building on our QI mission, regardless of THRIVE study
  - How to deliver a TIVA in 2021 without TCI pumps
  - How to use and interpret processed EEG
  - Best practices to avoid intraoperative awareness
  - Patient experiences after anesthesia
- Will advance patient care, regardless of THRIVE
- Anesthesia clinicians prefer TIVA 3:1 for their own care



Outcomes

Table 2. Patient Outcomes (IR-4)				
Type	Outcome	Specific measure or definition	Source	Timepoints
*Primary (effectiveness)	Quality of Recovery	Quality of Recovery 15 Instrument	PRO	Day 1
*Primary (safety)	Intraoperative Awareness	Modified Brice Interview	Interview	Day 1 or 30
Secondary (effectiveness)	Delirium	3D-CAM	Interview	Day 1
Secondary (effectiveness)	Quality of Recovery	Quality of Recovery 15 Instrument	PRO	Day 0 & 2 & 7
Secondary (effectiveness)	Functional status	Change from preoperative baseline in World Health Organization Disability Assessment Scale 2.0	PRO	Day 30 & 90
Secondary (safety)	Intraoperative Undesired Patient Movement	Moderate or Severe Undesired Intraoperative Patient Movement	Clinician report	Day 0
Secondary (safety)	Stage 1 Acute kidney injury	Creatinine increase of 50% or 0.3 mg/dl from preoperative baseline (KDIG`O)[80]	EHR	Day 7
Secondary (safety)	Respiratory failure	Reintubation or continued mechanical ventilation >6hr postoperatively	EHR	Day 0
Secondary (safety)	Mortality	All-cause mortality	NDI Query	Day 30
Exploratory safety	Intraoperative hypotension	Duration of mean arterial pressure < 65 mmHg (minutes)	EHR	During surgery
Exploratory safety	Mortality	All-cause mortality	NDI Query	Day 90
Exploratory effectiveness	Daily step count	Fitbit or Apple Watch	MyDataHelps	Day 7, 30
Exploratory effectiveness	Daily stand hours	Fitbit or Apple Watch	MyDataHelps	Day 7, 30
Exploratory effectiveness	Sleep duration	Fitbit or Apple Watch	MyDataHelps	Day 7, 30

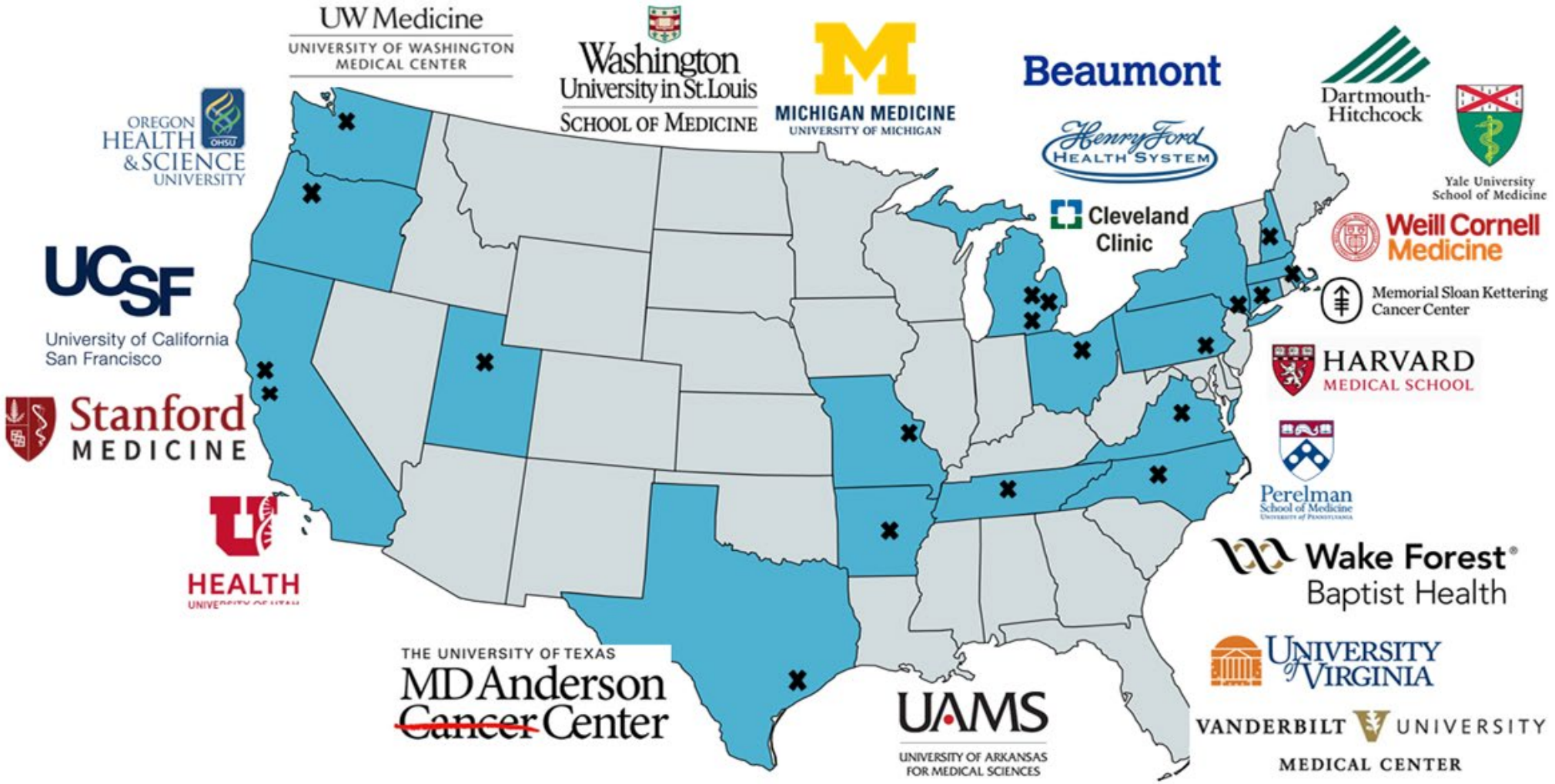
Data flows and processes



Study Phases

- **Feasibility Phase** (18 months) Establish enrollment sites, complete 200 patient feasibility RCT at Wash U & U-M, inform full-study protocol
- **Full Study Phase** (5 years) @ at least 12 MPOG sites, to include a 4 month ramp up period and full-scale enrollment of ~ 1 patient per weekday (22 / month)

THRIVE centers



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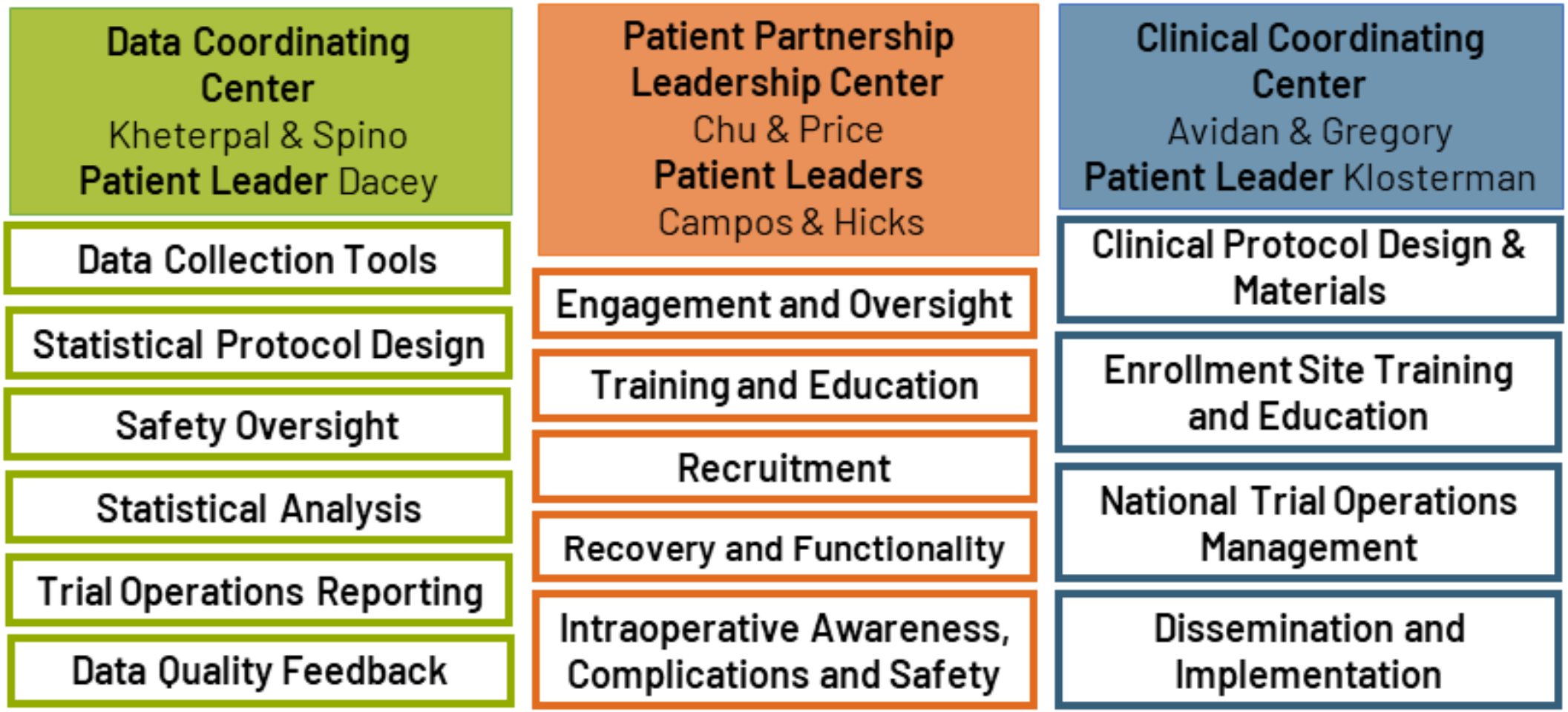
Collaboration across functional centers



Projected Timeline

Dates	Milestone
12/1/2021-6/1/2023	**Feasibility Study Phase**
6/1/2023-6/1/2028	**Full Study Phase**
10/1/2023	Begin patient enrollment (average across centers)
10/1/2027	Complete patient enrollment
6/1/2028	Full study phase end
6/1/2028-10/1/2028	**Peer Review / Report Writing Period**

Full scale phase

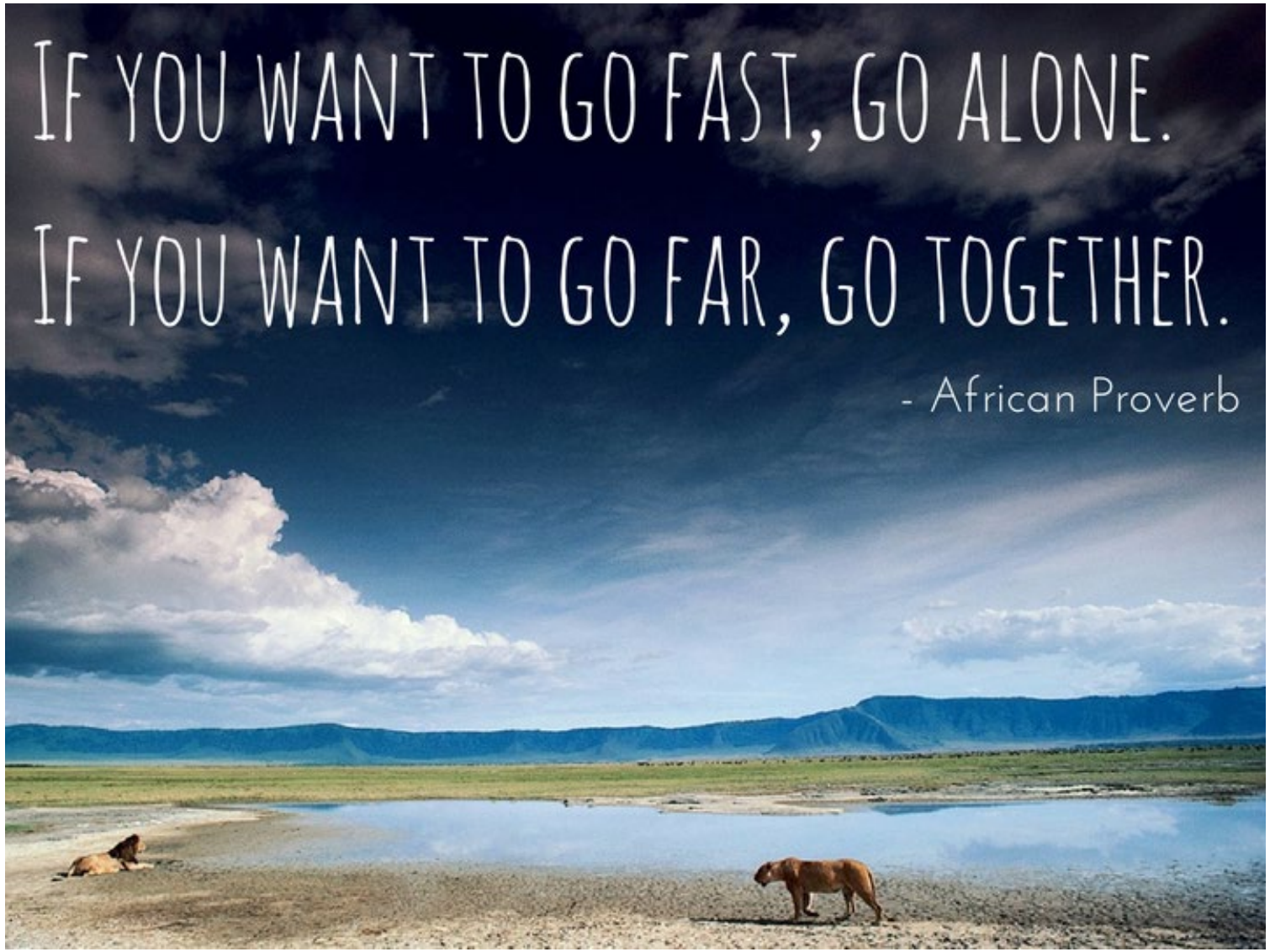
- Begin enrollment as early as 6/1/2023 (10/1/2023 likely)
- 12-18 MPOG centers
- 1042 patients/site, 22 per site/month, 1 per day
- Resource assumptions (per site)
  - 10-15% faculty FTE
  - Approximately 2 study coordinator FTE for enrollment
- Reimbursement
  - Fixed cost for participant engagement activities
  - Per patient reimbursement (~$1000 including PCORI 40% indirects)

What's next

- Now
  - Continued discussions with PCORI and contract signature for feasibility start
  - Work with patient partners and MPOG sites to finalize pilot trial
  - Get your feedback
- Soon
  - Enroll 300 patients at Wash U & U Michigan for pilot
  - Get your feedback
  - Work with interested MPOG sites to re-assess interest, capacity, finances
- Later
  - Contracting with MPOG sites

What have we learned

- The power of MPOG is recognized by funders
- The group comes together FAST for a good question
- Should be submitting more grants to address
  - Clinical questions
  - Informatics
  - Science of QI
  - Participant perspectives



Thank You