Conducting Trials of Interventions to Improve Communication and Decision Making in ICUs

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University of Pittsburgh School of Medicine
The CRISMA Center
Overview

- Present two trials of interventions to support surrogate decision-makers in ICUs.

- Explore design considerations for clinical trials:
  - Intervention fidelity monitoring
  - Pragmatic-explanatory continuum
  - Stepped wedge cluster randomized design

the Clinical Research, Investigation, and Systems Modeling of Acute illness ©Univ Pittsburgh 2009
Background


- Patients are generally too sick to make decisions.

Three Interrelated Problems in ICUs

ICU care is frequently:


- **Expensive.** $82 billion spent on critical care in 2005 (0.66% of US GDP). Riley & Lubitz, *Health Serv Res*; 2010.
### Two Interventions to Support Surrogates

<table>
<thead>
<tr>
<th>Type of Intervention</th>
<th>Type of Trial</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Family support interventionist added to the ICU team.</td>
<td>1. Patient-level randomized explanatory trial</td>
</tr>
<tr>
<td>2. Family support intervention delivered by interprofessional ICU team.</td>
<td>2. Stepped wedge cluster randomized pragmatic trial</td>
</tr>
</tbody>
</table>
Randomized Trial of a Family Support Interventionist for Surrogate Decision Makers in ICUs

Study team:
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Mary Beth Happ, PhD, RN
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Charles Reynolds, MD
Derek Angus, MD, MPH
Jeremy Kahn, MD, MS
Joyce Chang, PhD
Anne-Marie Shields, MSN, RN
Robert Arnold, MD
Protocol and Fidelity Monitoring Plan for Four Supports
A Multicenter Trial of an Intervention to Support Surrogate Decision Makers in Intensive Care Units

Jennifer B. Seaman¹, Robert M. Arnold²,³, Praewpannarai Buddadhumaruk⁴, Anne-Marie Shields⁴, Rachel M. Gustafson⁵, Kristyn Felman⁴, Wendy Newdick⁴, Rachel SanPedro⁴*, Suzanne MacKenzie⁶, Jennifer Q. Morse⁷, Chung-Chou H. Chang⁴,⁸, Mary Beth Happ⁹, Mi-Kyung Song¹⁰, Jeremy M. Kahn⁴, Charles F. Reynolds III¹¹, Derek C. Angus⁴, Seth Landefeld¹², and Douglas B. White⁴

Research Questions:
Compared to usual care, does the Four Supports intervention decrease surrogates’ symptoms of anxiety and depression at 6-month follow-up?

Secondary endpoints include measures of patient- and family centeredness of care, quality of communication, ICU and hospital lengths of stay and total hospital costs.

Seaman J. Annals ATS. 2018
Methods

- **Design:** patient-level, equally randomized, parallel-group superiority trial in comparing the Four Supports intervention to usual care augmented with two 30-minute education sessions.

- **Patients:** 450 surrogates of incapacitated, critically ill patients at high risk of death and/or severe long-term functional impairment.

- **Setting:** 6 ICUs in 2 hospitals in western Pennsylvania
  - 2 neurological ICUs
  - Medical ICU
  - Surgical ICU
  - Trauma-Burn ICU
  - Cardiac ICU
Four Supports Intervention: adding to the ICU team a specially trained family support interventionist (RN or SW) to:

- Function as a member of the ICU team.
- Establish and maintain a supportive relationship with surrogates throughout ICU stay.
- Provide emotional support, communication support, decision support, and anticipatory grief support.
The Four Supports Intervention

- **Emotional Support**: Longitudinal relationship, empathy, daily check-ins.

- **Communication Support**: Scheduled family conferences

- **Decision Support**: Values clarification exercise; “nudges” clinicians to address prognosis, values, options

- **Anticipatory Grief Support**: Opportunity to share memories and say good-bye
The Four Supports Study: Timeline of Procedures

Procedures: Intervention Group Only
- Enrollment Day 1: FSS first interaction with family
- FSS first interaction with ICU Team

Procedures: Control Group Only
- Enrollment Day 2: Educational Session I
- Enrollment Day 5: Educational Session II

Daily:
1. Family Check-in
2. ICU Team Check-in
(Repeat process of daily check-ins, adding clinician-family meetings as needed)

Clinician-Family Meeting*
*First w/n 48 hrs. of enrollment and then weekly

Decision to WD LST/Death Imminent

Patient Death or Discharge

Anticipatory Grief Support

Admit to ICU

SCREEN AND ENROLL
Goal is ICU Day 1–2

Figure 1. Timeline for delivery of intervention and control procedures. FSS = family support specialist; ICU = intensive care unit; LST = life-sustaining treatment; WD = withdraw.
RCT of Family Support Intervention

**N=450 surrogates**
of ICU patients at high risk of death/disability in 6 UPMC ICUs

**Four Supports Intervention**

- 3 & 6 month follow-up

**Brief Educational Intervention**

- 3 & 6 month follow-up

**Study Outcomes:**

- **Decision-making process:** prognostic expectations; pt-centeredness of care; quality of communication
- **Surrogate DM:** symptoms of depression, anxiety, post-traumatic stress @ 6m
- **Patient:** hospital survival; 6 month mortality and functional status
- **Health system:** hospital costs and 6 month healthcare costs
Why Is It Important To Measure Intervention Fidelity?

Effect of a Nurse-Led Preventive Psychological Intervention on Symptoms of Posttraumatic Stress Disorder Among Critically Ill Patients
A Randomized Clinical Trial

Dorothy M. Wade, PhD; Paul R. Mouncey, MSc; Alvin Richards-Belle, BSc; Jerome Wulff, PhD; David A. Harrison, PhD; M. Zia Sadique, PhD; Richard D. Grieve, PhD; Lydia M. Emerson, MPH; Alexina J. Mason, PhD; David Aaronovitch, BA; Nicole Als, BA; Chris R. Brewin, PhD; Sheila E. Harvey, PhD; David C. J. Howell, PhD; Nicholas Hudson, BA; Monty G. Mythen, MD; Deborah Smyth, BSc; John Weinman, PhD; John Welch, MSc; Chris Whitman, BSc; Kathryn M. Rowan, PhD; for the POPPI Trial Investigators

Wade D. JAMA. 2019
Enhancing Treatment Fidelity in Health Behavior Change Studies: Best Practices and Recommendations From the NIH Behavior Change Consortium

**Establishing Intervention Fidelity**
- Detailed intervention manual
- Clearly defined performance criteria for each encounter
- 40 hours of standardized behavioral training
- Certification exam prior to study initiation

**Monitoring and Maintaining Fidelity**
- Interventionist completes daily checklist of components delivered
- Audiorecording of all encounters; coding of random subset
- <90% compliance in any encounter triggers case review
- Weekly supervision sessions with investigator

Bellg AJ. Health Psych. 2004
## Status of Four Supports Trial

<table>
<thead>
<tr>
<th>Metric</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enrollment status</td>
<td>450/450 surrogates</td>
</tr>
<tr>
<td>Adherence to protocol</td>
<td>&gt;95%</td>
</tr>
<tr>
<td>Retention to 6-month outcome assessment</td>
<td>87%</td>
</tr>
</tbody>
</table>

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Explanatory-Pragmatic Continuum for Trial Design

- **Explanatory RCT**: a trial undertaken in an idealized setting, to maximize the chance to demonstrate a beneficial effect.

- **Pragmatic RCT**: a trial undertaken in the “real world” intended to help understand whether an intervention is effective in actual clinical practice.
The PRECIS-2 tool: designing trials that are fit for purpose

Kirsty Loudon,¹ Shaun Treweek,¹ Frank Sullivan,² Peter Donnan,³ Kevin E Thorpe,⁴ Merrick Zwarenstein⁵

www.precis-2.org
Loudon et al, *BMJ*; 2015
1. **Eligibility**—To what extent are the participants in the trial similar to those who would receive this intervention if it was part of usual care?

2. **Recruitment**—How much extra effort is made to recruit participants over and above what would be used in the usual care setting to engage with patients?

3. **Setting**—How different are the settings of the trial from the usual care setting?

4. **Organisation**—How different are the resources, provider expertise, and the organisation of care delivery in the intervention arm of the trial from those available in usual care?

5. **Flexibility (delivery)**—How different is the flexibility in how the intervention is delivered and the flexibility anticipated in usual care?

6. **Flexibility (adherence)**—How different is the flexibility in how participants are monitored and encouraged to adhere to the intervention from the flexibility anticipated in usual care?

7. **Follow-up**—How different is the intensity of measurement and follow-up of participants in the trial from the typical follow-up in usual care?

8. **Primary outcome**—To what extent is the trial’s primary outcome directly relevant to participants?

9. **Primary analysis**—To what extent are all data included in the analysis of the primary outcome?
Applying PRECIS-2 Criteria to Four Supports Trial

The PRagmatic-Explanatory Continuum Indicator Summary 2 (PRECIS-2) wheel.

Loudon et al, *BMJ;* 2015
Justification for Explanatory Trial

- Multiple negative trials in the field motivated a focus on first establishing efficacy of an intervention that is rigorously deployed.
- Future dissemination will require careful accounting of time & costs.
Concerns about “External Interventionist” Model

- Scalability
- Complexity of adding more individuals to ICU teams
- Deskilling of ICU clinicians
A Randomized Trial of a Family-Support Intervention in Intensive Care Units


1. Department of Critical Care Medicine
2. UPMC Palliative & Supportive Institute
3. Donald D. Wolff Jr. Center for Quality Improvement and Innovation

Funded by UPMC Innovation Award and the Greenwall Foundation
Overarching Question:
Can outcomes be improved by instituting a protocolized family support intervention delivered by the existing interprofessional ICU team?

Research questions:
Compared to usual care, does the PARTNER intervention:
- decrease surrogates’ long-term psychological distress,
- improve the quality of decision making and clinician-family communication, and
- decrease the duration of intensive treatment among patients who ultimately do not survive?
The PARTNER Intervention

Pairing Re-engineered Intensive Care Teams with Nurse-driven Emotional Support and Relationship building (PARTNER)

A multicomponent family support intervention delivered by the interprofessional ICU team, overseen by 4-6 nurses in each ICU:

1. Institution of a protocolized family support pathway
2. Advanced communication skills training for the PARTNER nurses
3. Intensive implementation support

Conceptual grounding:
The PARTNER Intervention
Family Support Pathway

During this difficult time, you may have many questions about your loved one's care. Please check the questions that you would like the doctor or ICU team to answer.

Disease Information
- What is wrong with my loved one?
- What treatments is my loved one receiving?

Prognosis
- What happens to most people with the kind of illness my loved one has?

My Loved One's Values
- How can I make sure the doctors know about my loved one's values and treatment preferences?
- What should my role be in making treatment decisions?

Options
- What are the different treatment options that we should be thinking about?

Milestones
- How can we tell if my loved one is getting better or worse?

Social
- How do people cope having a loved one in the ICU?
- How do most people discuss the stress of having someone in the ICU, with their family and friends?
- Who can provide information about insurance and financial issues?

Questions the Doctor May Ask You:
- Have you ever made decisions for a loved one who was too sick to make decisions?
- What was your loved one like before this hospitalization. What does he or she do/enjoy?
- Has your loved one ever talked about treatment preferences and values if he or she were very sick?
- What role would you like to play in major medical decisions for your loved one?

Please be aware that any release of information about a patient must comply with applicable law. For details, please see UPMC's Notice of Privacy Practices on UPMC.com.
The PARTNER Intervention
Advanced Communication Skills Training for Nurses

12 hours of in-person training per ICU:

1. Overseen by expert educator
2. Training to deploy PARTNER intervention
   • Brief didactic introduction to each skill
   • Skills demonstration
   • Skills practice with trained actors as family members
   • Expert feedback
   • Observation of peers
   • Certification
The PARTNER Intervention
Intensive Implementation Support

Steps taken to foster implementation:

1. Explicit support for PARTNER initiative from leadership (CNO, CMO and ICU directors)
2. Identification of champions- (Nursing, Crit Care Medicine)
3. Academic detailing of physicians and bedside nurses.
4. On-site implementation support by QI specialist.
   • Weekly site visits (fidelity monitoring, coaching, troubleshooting)

Grimshaw JM. Health Technol Assess. 2004
Multicenter, stepped-wedge cluster RCT in 5 ICUs in the UPMC Health System.

<table>
<thead>
<tr>
<th>Study ICU</th>
<th>B1</th>
<th>B2</th>
<th>B3</th>
<th>B4</th>
<th>B5</th>
<th>B6</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICU 1</td>
<td>UC</td>
<td>P</td>
<td>P</td>
<td>P</td>
<td>P</td>
<td>P</td>
</tr>
<tr>
<td>ICU 2</td>
<td>UC</td>
<td>UC</td>
<td>P</td>
<td>P</td>
<td>P</td>
<td>P</td>
</tr>
<tr>
<td>ICU 3</td>
<td>UC</td>
<td>UC</td>
<td>UC</td>
<td>P</td>
<td>P</td>
<td>P</td>
</tr>
<tr>
<td>ICU 4</td>
<td>UC</td>
<td>UC</td>
<td>UC</td>
<td>UC</td>
<td>P</td>
<td>P</td>
</tr>
<tr>
<td>ICU 5</td>
<td>UC</td>
<td>UC</td>
<td>UC</td>
<td>UC</td>
<td>UC</td>
<td>P</td>
</tr>
</tbody>
</table>

B1, B2, etc = Block 1, Block 2; UC = Usual care; P = PARTNER intervention
Key Considerations in Trial Design

- Intervention deployed at ICU level. Patient-level randomization infeasible.
- No sites willing to serve as controls for multi-year period.
- Trial tests a novel strategy to implement care recommended by professional society guidelines.
5 ICUs in the UPMC Health System.

1. UPMC McKeensport Hospital- Medical-surgical ICU
2. UPMC Passavant Hospital- Medical ICU
3. UPMC St. Margaret Hospital- Medical-surgical ICU
4. UPMC Presbyterian Hospital- Neurological ICU
5. UPMC Montefiore Hospital- Surgical-transplant ICU
Patient Eligibility

Inclusion:
- Age $\geq 18$ yrs, lack of decision-making capacity, and $\geq 1$ of the following:
  - $\geq 96$hrs mechanical ventilation, or
  - $\geq 40\%$ risk of death, or
  - $\geq 40\%$ chance of severe long-term functional impairment

Exclusion:
- Lack of surrogate decision-maker
- Receiving only comfort-focused treatments at time of screening
Outcomes

Surrogates’ psychological outcomes:
- **Primary outcome**: surrogates’ Hospital Anxiety & Depression scale (HADS) score (0-42) at 6 months
- Impact of Events (IES) scale (0-88) at 6 months

**Quality of communication & decision making:**
- Quality of Communication (QOC) scale (0-100)
- Modified Patient-Perceived Patient Centeredness scale (1-4)

**Health care utilization**
- ICU & hospital length of stay
- Index hospitalization costs (total and direct variable costs)

Other outcomes: Hospital survival, 6-month survival, 6-month functional status (Katz ADL)
Statistical Considerations

Sample size calculation:
- 1000 surrogates provides 90% power to detect between-group differences as small 3pts on the HADS, assuming 25% loss to follow-up at 6 months.

Analyses
- All analyses are intention-to-treat
- Prespecified plan to adjust for baseline differences between groups
  - patient’s age, modified SAPS III, Elixhauser index, mechanical ventilation usage, primary diagnosis, and admission source.
- Generalized linear mixed models, with ICU and time as random effects
- LOS: zero-truncated negative binomial models
- Costs: log-linear regression modeling with log-transformed costs
The PRECIS-2 tool: designing trials that are fit for purpose

Kirsty Loudon,¹ Shaun Treweek,¹ Frank Sullivan,² Peter Donnan,³ Kevin E Thorpe,⁴ Merrick Zwarenstein⁵

The PRagmatic-Explanatory Continuum Indicator Summary 2 (PRECIS-2) wheel.

Loudon et al, BMJ; 2015
Applying PRECIS-2 Criteria to PARTNER Trial

The PRagmatic-Explanatory Continuum Indicator Summary 2 (PRECIS-2) wheel.
Results
Patient & Surrogate Enrollment

N=1420 pts met entry criteria & were included
N=1106 surrogates agreed to 6m contact

Control
N=873 patients
N=677 surrogates
Completed 6m f/u
N=501 surrogates (74%)

Intervention
N=547 patients
N=429 surrogates
Completed 6m f/u
N=308 surrogates (72%)
## Baseline Patient Characteristics

<table>
<thead>
<tr>
<th>Patient Characteristic</th>
<th>Control (n=873)</th>
<th>Intervention (n=547)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, mean (SD)</td>
<td>63.3 (15.5)</td>
<td>67.5 (14.9)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Female, count (%)</td>
<td>405 (46.4)</td>
<td>290 (53.0)</td>
<td>0.02</td>
</tr>
<tr>
<td>Raceb, count (%)</td>
<td></td>
<td></td>
<td>0.30</td>
</tr>
<tr>
<td>White</td>
<td>708 (81.1)</td>
<td>459 (83.9)</td>
<td></td>
</tr>
<tr>
<td>Black</td>
<td>64 (7.3)</td>
<td>43 (7.9)</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>101 (11.5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary Diagnosis, count (%)</td>
<td></td>
<td></td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Cardiovascular</td>
<td>36 (4.1)</td>
<td>33 (6.0)</td>
<td></td>
</tr>
<tr>
<td>Pulmonary</td>
<td>138 (15.9)</td>
<td>107 (19.6)</td>
<td></td>
</tr>
<tr>
<td>GI</td>
<td>94 (10.8)</td>
<td>49 (9.0)</td>
<td></td>
</tr>
<tr>
<td>Infection/Sepsis</td>
<td>212 (24.4)</td>
<td>159 (29.1)</td>
<td></td>
</tr>
<tr>
<td>Neurological</td>
<td>173 (19.9)</td>
<td>106 (19.4)</td>
<td></td>
</tr>
<tr>
<td>Admission source, count (%)</td>
<td></td>
<td></td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Direct</td>
<td>224 (25.7)</td>
<td>50 (9.1)</td>
<td></td>
</tr>
<tr>
<td>Emergency</td>
<td>549 (62.9)</td>
<td>422 (77.2)</td>
<td></td>
</tr>
<tr>
<td>Other hospital</td>
<td>100 (11.5)</td>
<td>73 (13.4)</td>
<td></td>
</tr>
<tr>
<td>Modified SAPS III score, mean (SD)</td>
<td>49.4 (12.0)</td>
<td>51.0 (11.8)</td>
<td>0.02</td>
</tr>
<tr>
<td>Elixhauser score (range 0-29), mean (SD)</td>
<td>5.1 (2.5)</td>
<td>5.8 (2.4)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>On mech ventilation, count (%)</td>
<td>759 (86.9)</td>
<td>479 (87.6)</td>
<td>0.73</td>
</tr>
</tbody>
</table>

**OVERALL**

- Hospital mortality: 33.2%
- 6-month mortality: 56.7%
- Living independently at 6 months: 2%
## Surrogates’ Psychological Distress at 6 Months

<table>
<thead>
<tr>
<th></th>
<th>Adjusted mean (95% CI)</th>
<th>Regression coefficient of intervention (95% CI)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Control</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HADS (range 0-42) (^1)</td>
<td>12.0 (11.3-12.8)</td>
<td>β: -0.34 (-1.67 to 0.99)</td>
<td>0.61</td>
</tr>
<tr>
<td>IES (range 0-88) (^1)</td>
<td>20.3 (18.8-21.9)</td>
<td>β: 0.90 (-1.66 to 3.47)</td>
<td>0.49</td>
</tr>
<tr>
<td><strong>Intervention</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HADS (range 0-42) (^1)</td>
<td>11.7 (10.7-12.7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IES (range 0-88) (^1)</td>
<td>21.2 (19.3-23.2)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

HADS= Hospital Anxiety and Depression scale  
IES= Impact of Events scale  
\(^1\)Adjusted for patient’s age, modified SAPS III, Elixhauser index, mechanical ventilation usage, primary diagnosis, admission source, surrogate’s gender and relationship to the patient.
## Secondary Outcomes

### Quality of Communication and Decision Making

<table>
<thead>
<tr>
<th></th>
<th>Adjusted values</th>
<th>Intervention coeff.</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Control</td>
<td>Intervent</td>
<td>β</td>
</tr>
<tr>
<td><strong>Quality of Communication (0-100)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (SD) 1</td>
<td>62.7</td>
<td>69.1</td>
<td>6.39</td>
</tr>
<tr>
<td>Proportion w score ≥80</td>
<td>30.5%</td>
<td>41.0%</td>
<td></td>
</tr>
<tr>
<td><strong>Patient-family centeredness (1-4)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>1.8</td>
<td>1.6</td>
<td>-0.15</td>
</tr>
<tr>
<td>Proportion with score &lt;2</td>
<td>63.8%</td>
<td>79.2%</td>
<td></td>
</tr>
</tbody>
</table>

All models were adjusted for patient’s age, modified SAPS III, Elixhauser index, mechanical ventilation usage, primary diagnosis, and admission source.

1Additional covariates included in the model: patient’s race (black vs. non-black)

2Additional covariates included in the model: surrogate’s age and gender
## Secondary Outcomes
### Healthcare Utilization & Costs

<table>
<thead>
<tr>
<th></th>
<th>Adjusted mean</th>
<th>Adjusted Regression coefficient of intervention&lt;sup&gt;a&lt;/sup&gt;</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Control</td>
<td>Intervention</td>
<td>P-value</td>
</tr>
<tr>
<td><strong>ICU LOS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>survivor</td>
<td>7.4 days</td>
<td>6.7 days</td>
<td>IRR: 0.90&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>decedent</td>
<td>7.6</td>
<td>8.0</td>
<td>0.48</td>
</tr>
<tr>
<td></td>
<td>6.8</td>
<td>4.4</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td><strong>Hospital LOS</strong></td>
<td>13.5 days</td>
<td>10.4 days</td>
<td>IRR: 0.77&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td><strong>Total hospitalization cost</strong></td>
<td>$32,104</td>
<td>$26,529</td>
<td>β: -0.33&lt;sup&gt;c&lt;/sup&gt;</td>
</tr>
<tr>
<td><strong>Direct variable cost</strong></td>
<td>$6,034</td>
<td>$3,912</td>
<td>β: -0.38&lt;sup&gt;c&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Cost to deploy intervention: (nurses’ time, training costs, costs of implementation support): **$170 per patient**
Post-hoc Sensitivity & Subgroup Analysis

- Intervention effect was consistent across sites and over time.
- No difference between arms when the HADS and IES scales were categorized using established cut-points, and when analyzed by subscale.
- Gray’s semiparametric survival regression model: 6 month survival similar across arms (p=0.17)
- Among subgroup of died vs. lived: similar effect of intervention on HADS, IES, QOC, PPPC.
Caveats and Limitations

- Baseline imbalances between arms that arose from case-mix differences in the 5 ICUs.

- Administrative dataset did not contain data on frequency/content of family communication.

- Secondary outcomes not adjusted for multiple comparisons.

- Trial conducted in single region of the country
  - Need to replicate study in different regions/health systems
Summary of Trial Results

• A low-cost family support intervention delivered by the interprofessional ICU team:
  • Did not impact surrogates’ symptoms of depression and anxiety at 6-month follow-up,
  • Improved surrogates’ ratings of the patient- and family-centeredness of care and the quality of communication,
  • Decreased ICU & hospital length of stay
  • Decreased index hospitalization costs
PARTNER at UPMC

PARTNER intervention currently being rolled out across all 35 UPMC ICUs by ICU Service Center.

- Aimee Skrtich, DNP, RN
- Chenell Donadee, MD