How to Build a Research Program From the Ground Up in a Traditionally Clinical Department-

The Center for Anesthesia Research Excellence

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HUMAN FIRST

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Step 1- Admit you have a problem

- Department not as successful in research as it could be.
- No pipeline of new investigators.
- Staff satisfaction impacted.
- Residents unhappy
- Becoming an issue in recruitment.

Step 2- Take inventory

- Commitment on the part of the medical center to an academic department of anesthesia.
- Overall commitment on the part of the faculty to academics.
- A number of baseline strengths-
  - Very successful basic science in pain and headache.
  - Successful clinical research in ICU.
  - Strong program in cardiac / ECHO.
  - Smaller program in OB anesthesia.
  - Able to recruit excellent young faculty.

Step 3- What are our goals? Our mission statement

- Improve the quality of our patients' lives by providing compassionate, state-of-the-art care.
- Advance the field of perioperative medicine by
  - Generating new knowledge
  - Educating the next generation of leaders in anesthesia
  - Driving expansion, improvement, innovation, and integration across the system of perioperative care delivery.
- Support personal and professional development and fulfillment for Department members.

Step 4- Choose a direction

- Basic vs. clinical research?
  - Clinical
- Investigator initiated or Industry
  - Mostly Investigator initiated
- PhDs vs. Clinician scientists?
  - Clinician scientists
- Recruit or grow?
  - Mostly grow

Step 4- Choose a direction

- What will department commit to research?
  - 2% of revenue
  - Approximately $1 M/Y
- What else is available?
  - Chair package
  - IDC rebate
- How will we measure success?
  - numbers of faculty and trainees involved
  - Strength of the "pipeline"

Step 5- What are the barriers to success?

10/13/15

- Non- clinical time is limited.
- Young faculty lack experience and knowledge in research.
- Without a full study team, it is difficult to conduct research on top of existing responsibilities.
- Not enough mentors.
- Money is not unlimited.

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CARE
Center for Anesthesia Research Excellence

- CARE is a one-stop shop for department members who want help conducting clinical research.
- Goal is to simplify and streamline research endeavors in the department, and help ensure successful research.
- Work across all divisions
- Provides education
- Manages internal grants

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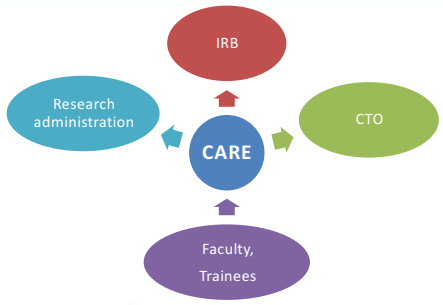
Where does CARE fit in?



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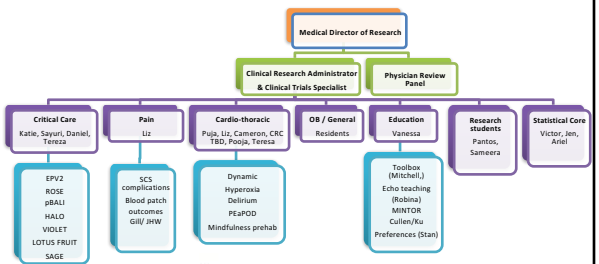
CARE: Projects



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How Does CARE Work?

10/13/15

- Bring the research idea.
- Present to the Physician Review Panel.
- Modifications based on feedback and suggestions.
- CARE sends proposal of resources to support.
- Provide CARE with regular updates on progress.
- Must prioritize projects.

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CARE Services

- Development of core research idea
- Study design
- Mentorship facilitation
- Protocol writing
- IRB communications
- Database and Case Report Form building
- Survey design
- Patient screening & recruitment strategies
- Data collection and source documentation
- Audit readiness
- Research regulation education, team training
- Manuscript & grant writing
- Sample processing & storage
- Administration of John Hedley-Whyte Award

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CARE: Personnel (Summer 2016)

What do faculty need to do?

10/13/15

- Bring good ideas
- Be willing to work
- CARE facilitates, does not replace
- Notify us about success: publications, presentations, grants
- CARE is not a free ride

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CARE Education

10/13/15

- Education lectures held during faculty hour. Open to faculty & trainees.
- Prior Topics:
  - Statistics: power calculations, sample size estimates
  - Grantsmanship
  - IRB application process
  - Research consenting
  - Source documentation
- Discussion are problem-based using specific examples from the audience – bring your own study questions

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CARE Education

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CARE Projects: Cardiothoracic

10/18/16

Dexmedetomidine and IV acetaminophen for the prevention of postoperative delirium following cardiac surgery in adult patients 60 years of age and older.

PI: Balachundhar Subramaniam, MD MPH

- Purpose: use intravenous dexmedetomidine and acetaminophen for postoperative sedation and analgesia (compared to current management with intravenous propofol and morphine or hydromorphone for sedation and analgesia) in patients ≥60 years old undergoing CABG
- CARE: IRB, project planning, operations, CRF/database, subject recruitment, data collection, data entry, data analysis.

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CARE Projects: Cardiothoracic

10/18/16

The relationship between administered oxygen levels and arterial partial oxygen pressure to neurocognition in post-operative mechanically ventilated cardiac surgical patients.

PI: **Shaz Shaefi, MD**

- Hypothesis: Cardiac surgical patients who undergo normoxic conditions throughout the intraoperative and early post-operative period will have better neurocognitive function than those with maintenance of hyperoxia.
- CARE: IRB, project planning, operations, grant submissions, CRF/database, subject recruitment, data collection, data entry, data analysis.

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CARE Projects: Cardiothoracic

10/18/16

Prevention of Early Postoperative Decline "PEaPOD"

PI: Brian O'Gara, MD

- Hypothesis: Patients undergoing cardiac surgery have a high risk of postoperative cognitive decline. Patients who participate in a neurocognitive training program pre- and post-operatively will have a lower incidence of postoperative cognitive decline after cardiac surgery than do controls receiving standard of care.
- CARE: IRB, project planning, operations, grant submissions, CRF/database, subject recruitment, data collection, data entry, data analysis.

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CARE Projects: ICU

10/18/16

Reevaluation Of Systemic Early neuromuscular blockade "ROSE"

PI: Danny Talmor MD MPH & Nate Shapiro, MD MPH

- Hypothesis: Early neuromuscular blockade will improve mortality prior to discharge home before day 90, in patients with moderate-severe ARDS.
- CARE: Funded by NIH as part of PETAL Network. Protocol writing, grant writing, IRB, subject screening, data collection, data entry, sub-site management.

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CARE Projects: ICU

10/18/16

Mechanical Ventilation in Severe Brain injury: The effect of positive end expiratory pressure on intracranial pressure. "p-BALI"

PI: Dustin Boone, MD

- Hypothesis: To determine whether the mode of mechanical ventilation and ventilator parameters influence intracranial pressure.
- CARE: IRB, project planning, operations, CRF/database, subject recruitment, data collection, data entry, data analysis.

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CARE successes

- Users
  - 27 Anesthesia faculty
  - 6 faculty from other departments
  - 22 residents
- Pipeline
  - 2 investigators on T-32
  - 2 FAER MRTG
  - 4 PCE participants last summer.

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