

Outcomes Research Consortium's 25th Anniversary

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IMAGINE a research group made up of more than 100 members working both independently and collaboratively across many countries having no legal standing, no bank account, and loosely organized, but devoted to the goal of improving health care through the understanding of the results of health care practices. Furthermore, imagine that members of this organization have published more than 900 full journal articles since its inception and publish a new full paper every 5 days. It may be hard to believe that such a unique organization exists, but it does. It is known as the Outcomes Research Consortium.

The Outcomes Research Consortium (www.OR.org) was founded by Dr. Daniel I. Sessler in 1990. The Consortium grew out of The Thermoregulation group at the University of California, San Francisco, concerned with understanding the effects of anesthetics on thermoregulation. The group's studies showed that every major anesthetic and sedative alters thermoregulatory control and heat balance. The practical impact was the demonstration that even mild intraoperative hypothermia predisposes to surgical wound infection and impairment of coagulation.¹ These studies were landmarks that led to a change in practice that were reinforced by incorporating intraoperative normothermia into surgical quality measures for the colon and rectal surgery.

Once the most obvious thermoregulation studies had been completed, the group decided to broaden its scope. It was at that point that the Consortium decided to focus on "outcomes research," a term that was just beginning to be applied to clinical research studies. Dr. Sessler was named as the director of the Consortium. Currently, Dr. Sessler is the Michael Cudahey Professor and Chair, Department of Outcomes Research, Cleveland Clinic, Cleveland, Ohio.

The Consortium's administrative center moved to the University of Louisville, Louisville, Kentucky, in 2000; in 2005,



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Another far reaching decision was to expand to major issues in perioperative medicine, health policy, and problems extending beyond the immediate postoperative period that were conventionally considered surgical such as wound infection. The concept of anesthesiologists being perioperative physicians with interests that extend beyond operative anesthesia has now blossomed into the concept of the perioperative surgical home.

Studies emanating from Consortium members cover a wide array of topics from airway management and perioperative pain management, to the role of anesthetic agents in recurrence of cancer or spread of metastases, education of anesthesia providers, health policy, and many others. In addition, members of the Consortium train approximately 30 research fellows each year and a large number of graduate and medical students.

it moved to the Cleveland Clinic, Cleveland, Ohio, at which time Dr. Andrea Kurz was appointed as Associate Director, and Dr. Kurz is also the Professor and Chair of the Department of General Anesthesiology at the Cleveland Clinic, Cleveland, Ohio. The aspiration of the consortium, as explained on its website, is "... to understand the end results of particular health care practices and interventions." It does this by ongoing collaboration among about 130 investigators distributed over more than 20 countries. All members of the group agree to collaborate with at least one other member of the group from another institution. There are no membership dues, and the members are free to conduct independent research, but publications are attributed to the Consortium only when the affiliation includes "Outcomes Research." Financial support for the research projects is derived from governmental, foundation, and corporate grants to the investigators and their institutions, not the consortium, and is administered locally.

Image: Outcomes Research Consortium logo, courtesy of Daniel Sessler.

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The members of the group were among the first anesthesia investigators to conduct large-scale outcome trials. That is, randomized trials with meaningful “hard” primary outcomes such as 30-day mortality, myocardial infarction or injury, and wound infection. They were also among the first anesthesia investigators to conduct large-scale registry research. The group has conducted hundreds of cohort, case-control, and health policy analyses. For example, they have developed several accurate risk stratification models, which permit accurate comparisons across divergent patient groups (*i.e.*, risk-adjusted comparisons amongst hospitals).²

On the basis of collaboration with two other large anesthesia trial groups: (1) the Population Health Research Institute in Canada and (2) the Australian and New Zealand College of Anaesthetists Trials Network, a series of trials involving large numbers of patients, the groups have shown that perioperative myocardial injury is common, clinically silent, deadly, and hard to prevent. Hypotension appears to contribute. Several Consortium studies show strong associations between hypotension and postoperative mortality.³ Other studies, using a 2×2 factorial design with 10,100 patients, showed that aspirin administration before surgery and throughout the early postsurgical period had no significant outcome on death or nonfatal myocardial injury, but increased the risk of major bleeding.⁴ Another study showed that the administration of low-dose clonidine in patients undergoing noncardiac surgery did not reduce the risk of death or nonfatal myocardial infarction, but did increase the risk of clinically important hypotension and nonfatal cardiac arrest.⁵

Most recently, by using the Cleveland Clinic database involving more than 24,000 patients undergoing noncardiac surgery, the group showed that the combination of low mean arterial pressure during low minimum alveolar concentration fraction was a strong and highly significant predictor for 30-day mortality. When combined with a low bispectral index, the mortality risk was even greater. Hence, intraoperative physiologic deviations may have undesirable effects well into the postsurgical period.⁶

One indicator of the significance of the work emanating from the Consortium is that hundreds of the articles have been published in the leading anesthesiology journals and *The New England Journal of Medicine*, *JAMA*, and *Lancet*. Together these articles have been cited about 30,000 times!

In keeping the overall structure of the Consortium flexible and free from complex administrative constraints, the directors and the several site directors function as mentors and advisors, seeking to broker collaborations that benefit all participants. Most typically, members of the group have a good idea with whom to collaborate and directly contact those likely to make substantive contributions or help with their research projects. Other times, Consortium leaders help to match potential collaborators. Remarkably, there is

no central approval process. Thus, the group operates largely as a loose “exchange” or network for collaborations, rather than having a top-down structure.

In summary, the Outcomes Research Consortium is a unique, virtual research organization that values and promotes first-rate clinically relevant research related to anesthesia and perioperative medicine, while training future researchers. So much has been accomplished in the first quarter century. I look forward to the next 25 years!

Competing Interests

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