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Pediatric Anesthesia Editorial

The big research question: Who decides?

The importance of identifying unanswered questions to drive pediatric anesthesia research was highlighted in a 2012 editorial in *Pediatric Anesthesia* (1). Topics raised by academic anesthesiologists and scientific committees of pediatric anesthesia societies were listed, with recognition that these are often informed by individual researchers specific program, expertise or clinical practice. However, establishing research questions (and allocating funding) in this investigator-led or "bottom-up" approach has been questioned (1). Increasingly, funders are engaging in a "top-down" approach with patients and a range of public and professional caregivers involved in establishing research priorities. Patient-centred care and outcomes are then incorporated in commissioned calls to direct public research funds towards questions of relevance to both patients and health care providers.

A shift from investigator-led to commissioned calls for research requires recognition and consensus about areas of need, with a rigorous approach that encompasses: (i) an evaluation of current literature and available evidence to identify unanswered questions (i.e. "what we still don't know"); and (ii) identification of questions and outcomes that are of relevance to the user (i.e. "what we most urgently want to find out")(2). The latter requires consultation with a broad-range of 'stakeholders', and

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while different methods have been used to achieve this, not all are equal in terms of scope and rigor (3). In the UK, formation of priority setting partnerships (PSPs), often with specialist input from the James Lind Alliance (<http://www.jla.nihr.ac.uk>), is increasingly being utilized to identify and prioritize unanswered questions. An extensive process involves: (i) formation of a steering committee to guide and monitor the overall process; (ii) partnership with appropriate professional bodies, specialist societies, and consumer groups; (iii) advertising an open call for submissions to identify and gather research questions; (iv) processing and collating submitted questions; and (v) a final priority setting workshop to determine the leading research priorities (2, 4).

The joint National Institute of Academic Anaesthesia / James Lind Alliance Research (NIAA/JLA) Priority Setting Partnership recently published unanswered priorities in anaesthesia and perioperative care (2). Importantly, the Association of Paediatric Anaesthetists of Great Britain and Ireland (APAGBI) was one of the partner organisations and highlighted the call for submissions to members, other pediatric health care providers, consumer organizations and parents and carers. The PSP listed 10 top questions. One is specifically related to pediatric anesthesia while another four are relevant to both adult and pediatric care:

- What are the effects of anesthesia on the developing brain?
- What can we do to stop patients developing chronic pain after surgery?
- What long-term harm may result from anesthesia, particularly following repeated anesthetics?
- What outcomes should we use to measure the 'success' of anesthesia and perioperative care?
- For which patients does regional (local) anesthesia give better outcomes than general anesthesia?

A number of other PSPs have covered areas of practice that may involve pediatric anaesthetists, such as intensive care (5), preterm birth (6), emergency medicine (7), and pain management in palliative and end of life care (<http://www.palliativecarepsp.org.uk/finalreport/>), but pediatric anesthesia representation is documented in some (6) but not all.

As clear from the previous editorial (1) and in the recent NIAA/JLA PSP (2), pediatric anesthesia research questions predominantly cover different aspects of practice including efficacy and safety of anesthetic/analgesic agents and techniques, monitoring, specific anesthesia-related complications (eg. laryngospasm), and postoperative outcomes (eg. overall recovery, pain, nausea and vomiting, behavior), but relatively few relate to specific diseases (1). This is at odds with much charity-based research funding directed at specific conditions (eg. cardiac disease, arthritis, respiratory disease) that may be related to, but less accessible to, purely anesthesia-based applications. While specific anesthesia funding is available from professional bodies (eg. IARS, NIAA, ANZCA, ESA), dedicated pediatric funding is relatively limited and specialist society funding is necessarily limited by the size of the membership. Questions identified by PSPs can support applications for pediatric investigator-led research, and highlight the broader relevance and potential impact of the proposed research. Perhaps more significantly, recognised research priorities will inform commissioned calls for research by medical charities or leading government funding bodies, and it is therefore imperative that questions relevant to the care of children are not overlooked. While some may argue for more specific partnerships restricted to pediatric practice, the cost and expertise required are prohibitive for most pediatric organizations, and maintaining 'currency' across all aspects of health care is likely to improve the profile and recognition of pediatric research.

Awareness of who, how, and why research questions are prioritized can be key when competition for research funding is high. Large research projects addressing the "big questions" necessarily require significant grant funding, ethical review and approval, overview by regulatory authorities, and lead researchers/groups with significant time, expertise and infra-structure. A collaborative and multi-centre approach within the pediatric anesthesia research community has resulted in international collaborative trials, publications in high impact journals, and delivered large epidemiological studies. However, the importance of also addressing the "little questions" has been highlighted previously,(1) and quality improvement initiatives can also inform future research. While not all pediatric anesthesiologists have an interest

in becoming active researchers, all need to be sufficiently "research-aware" to appraise evidence and implement current best practice. In many large studies, pediatric anesthetists have played facilitatory roles in research led by anesthesia colleagues and/or collaborators from other specialties. In summary, involvement in research can take many forms, both in and out of the spotlight and in and out of the operating room, and a range of contributions (including engagement in priority setting exercises) will be vital for moving the research agenda forward, expanding the evidence base for our specialty, and ultimately improving outcomes for the children under our care. The first step is finding the right question.

Conflict of Interest

Andrew Davidson is editor-in-chief of this journal. Suellen Walker is the Chair of the Scientific Committee for the APAGBI.

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