Semiannual Newsletter *Spring 2024*

President's message

Anna Varughese, MD

Dear WakeUp Safe community,

I am excited to announce that we have completed our strategic planning session. In January of this year, we held a one-day meeting in St. Pete, Florida. The WakeUp Safe executive committee, committee chairs, representatives from SPA, Q&S committee, and APSF came together to address the challenges and opportunities we heard from you all. We brainstormed innovative strategies for a stronger and more resilient WUS of the future. I would like to express my gratitude to everyone who engaged with us in this process. Your invaluable input and engagement were crucial in shaping our path forward.

As a result of our discussions, we have identified several key initiatives that we will be working on in the next 2-3 years. These initiatives mark important steps toward our shared goal of advancing patient safety, quality, and pediatric anesthesia care. I look forward to sharing this information with you at the upcoming WUS business meeting in Anaheim on Sunday, April 13th.

Over the last few months, in addition to the continued progress with the data automation process and member submission of data, we have worked towards a closer collaboration with the SPA Q and S Committee, as well as with APSF. Drs. Megha Kanjia and Rahul Baijal have been appointed to serve on the APSF Newsletter Editorial Board for the next two years. In October of this year, it will be time to elect the incoming President-Elect. To facilitate this process, the WUS Executive Committee has appointed three individuals, Drs. Priti Dalal, Kim

Strupp, and Rahul Koka, to serve on the nominating committee for this position. They will be reaching out to you soon for your nominations.

I look forward to seeing and speaking with you all soon. Thank you for your dedication and commitment to WakeUp Safe!

Best,

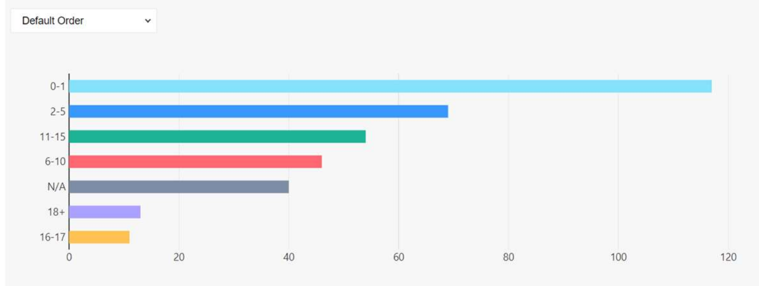
Anna

DATA Governance Committee

David Buck, MD
Chair, Data Governance Committee

I am delighted to announce that **Gina Whitney (Colorado Children's) has accepted the role of Co-Chair of the committee**. We are working to complete the automated upload of both denominator data (ready for Epic, in the works for Cerner and AllScripts) and also the cases-of-interest that should be reviewed for likely safety events.

Below are summary graphs of the latest data.



Executive Director

Jay Deshpande, MD MPH FAAP

Dear colleagues,

I am pleased to announce opportunities for members to engage in WakeUp Safe in committees as members or leaders (chairs or vice chairs). Standing committees are **Communications, Data Governance, Education, Quality Improvement, Research, and WakeUp Safe International**. Please email me if you have a particular interest or want to know more about what each committee does.

Recently, the Voting Members approved a **group authorship policy**, which is aimed at recognizing contributions of members and member institutions. This allows all of you who work hard to advance patient safety, mutual learning by contributing to the WUS database an opportunity to be listed as author.

Finally, I am delighted that **several new institutions** are currently working on the final paperwork to join WakeUp Safe.

Thank you for your commitment to making perioperative care better for children.

Jay

23. Primary maintenance drugs for general anesthesia or sedation if used at time of event (Choose all that apply)

Sevoflurane/Isoflurane/Desflurane
Propofol
Dexmedetomidine
Ketamine
Midazolam
0 50 100 150 200 250 300

25. Other medications for the anesthetic or sedation (check all that apply)

Opioids
Propofol
Benzodiazepines
Alpha adrenergic
Ketamine
Local anesthetics
Barbiturates
Etomidate
0 50 100 150 200 250

6. Length of anesthesia procedure in minutes

60-120
120-240
0-60
240-360
N/A
360-480
480-640
640 and above
0 20 40 60 80 100

30. What was the escalation of care due to the event? (Exclude change of surgery, wrong scheduling etc.)

Additional treatment by anesthesia team (e.g., medications, procedures)
Admit to ICU instead of ward
Admit to ward instead of home
Surgery/procedure cancelled
Perioperative response team activation
Prolonged PACU time
0 50 100 150 200

31. Was the event related to

Anesthesia Secondary (183, Anesthesia Secondary)
Anesthesia Primary
0 20 40 60 80 100 120 140 160 180

SPA Quality and Safety News

Priti Dalal, MD, Chair

First of all, let me thank Dr. Jay Deshpande, Dr. Anna Varughese, Dr. Bob Brustowicz and the entire WUS leadership for giving me this opportunity to present this update to WUS. It has been almost a year since the last update and there has been a lot of background work happening between SPA-QS (Society for Pediatric Anesthesia Quality and Safety) committee and WakeUp Safe. As mentioned in the summer newsletter, Drs Anna Varughese and Jay Deshpande have re-established an active collaboration and unified goals with the SPA-QS committee. This was highlighted at our fall SPA-QS committee meeting. To that extent the WUS research and communications committee (Manon Hache', chair) reorganized into the WUS research committee (Manon Hache', Chair) and the **new joint QS-WUS communications committee co-chairs, Drs. Megha Kanjia and Dr. Rahul Baijal**, who also lead SPA Newsletter's *QS Corner* group. This new joint committee will

work on regular contributions to the SPA Newsletter, WUS communications, and the APSF (Anesthesia Patient Safety Foundation) Newsletter. The '*QS corner* group' within the SPA-QS committee, now part of the 'QS-WUS communications committee' has done a marvelous job of identifying QS topics of interest for the group. The group has published four articles (sickle cell disease related blood transfusions, E-CPR, button batteries ingestion and unplanned extubations) in the SPA Newsletter.

So, what are the next steps? WakeUp Safe, a component of SPA, is a gold mine resource for QS data research and education. The WUS group as such has 40 institutions who are seriously committed to investing in quality and safety. The SPA-QS committee has more than 150 individual members are also extremely committed to pediatric QS. This unique collaboration between the two groups creates a giant powerhouse for future QS projects cropping up from the SPA.

This begs the next question - what potential areas will the SPA-QS collaborative focus on? Perhaps, these could be retrospective data analysis from the WUS registry, longitudinal quality studies implementing quality principles and prospective multi-institutional audit studies. The list is endless. It is especially pertinent to studies where large data sets are needed for making recommendations or consensus statements for issues such as pediatric-specific nil per os (NPO) guidelines. **This also is a whole new opportunity for participation by young talented faculty in national projects, mentorship and scholarship.** Further we will have a forum for sharing and exchange of ideas, education, and research for safer care of children undergoing anesthesia. With this positive energy, there is so much to come so please stay tuned!

2023 Fall Meeting in San Diego Highlights

Neha Patel, MD

We had a successful Fall Wake Up Safe meeting. Thank you to everyone who presented and for the dynamic conversations from people who attended the meeting.

- **Dr. Eric Williams** spoke on Creating Safety in Complex Clinical Environments: Building Adaptive Capacity and in the end there was a dynamic discussion on how we can employ safety II and safety III into practice.

- **Dr. Imelda Tija** spoke on the peripheral intravenous infiltration/extravasation prevention QI collaborative. All Children's Cincinnati, St. Jude, and TCH have made significant strides in meeting and working collaboratively on initiating changes to prevent injury, establish data,

and continue to discuss additional changes and appropriate follow up. This is a novel prospective safety initiative from our group, and we thank them for their efforts.

We also shared a **few recent publications from our collaborative dataset**. This highlights the benefits of our reporting system, allowing us to learn from our adverse events to improve patient outcomes. We were also able to also to discuss opportunities to improve our data capture. All of these studies were retrospective analysis of events that are hard to characterize without a large database. A common limited factor with the database was limited details and follow up information on the events for further analysis. Also, the risk of underreporting or skewing data to reporting severe injuries. The PubMed links to their publications are linked for your reading pleasure.

- **Dr. Raghavan** from St. Jude Children's Research Hospital reviewed the neurologic adverse events from our database. The rate was 1:20K which is significantly less than the adult population and occurred more frequently in older children. These patients had a higher risk of poor outcomes after surgery. Anesthesia contributed to <20% of the events, and 29% cases were preventable. Pubmed

- **Dr. Lee** from Children's National Hospital reviewed self-reported awareness during general anesthesia in pediatric patients. 14 patients in a study group over 10 years with an incidence of 1:40K. Average age was 13 and most of the cases occurred during cardiac and GI procedures. Recall event was hearing voices, consistent with existing literature. 10 cases used muscle relaxants. Pubmed

- **Dr. Hyder** reported from the University of Michigan on complications associated with removal of airways devices under deep anesthesia in children. Largest case series reported. 97% of the events were respiratory in nature, resulting in intensive care unit admission (37.5%), prolonged intubation and temporary neurologic injury but no permanent harm. Provider and patient factors were root causes in most events. The paper included many actionable items and learning points. Pubmed

- **Dr. Patel** reported for the research group at Nationwide Children's hospital on perioperative anaphylaxis in children. Incidence of 1:36K with 62 reported cases in our database. Antibiotics, neuromuscular blocking agents, and opioid analgesics were the main triggers and these events most often occurring in the operating room, during induction or during the procedure. 11% required CPR. Most often these events were deemed not preventable. Pubmed

Thank you all for reporting and contributing to our knowledge.

WakeUp Safe Educational Committee: **Neha Patel** (Shriners Pasadena, chair/program director), **Gina Whitney** (Children's Colorado), **Jami Miller** (Children's Health Dallas), James **Bradley** (LeBonheur Children's), **Priti Dalal** (Penn State).

Committee Reports

QS-WUS Communications Committee

Megha Kanjia, MD

The new **Communications Committee is a collaboration with the SPA Quality and Safety committee.** [chair **Megha Kanjia**, Texas Children's; Christine Jette, Stanford; Eva Lu-Boettcher, Wisconsin; Amanda Redding, MUSC; Lance Patak, Seattle Children's; Priti Dalal, Penn State; Joanna Rosing, Cincinnati Children's; Vanessa Olbrect, Nationwide Children's; Rahul Koka, Johns Hopkins Hospital].

The WUS/QS newsletter collaboration was put together by members of the WUS and QS committee within SPA with the goal of putting together Quality and Safety topics to reach a broader audience. The initial column was featured in the SPA newsletter in August of 2022 and we have had a total of four submissions. The goal of the committee is to produce and share both cutting edge as well as important safety topics with the pediatric anesthesia community. *This year, we have the privilege of joining forces with the* ***APSF*** to write three pieces for their tri-annual newsletter, which reaches over 7000 readers. We welcome the opportunity to build bridges within the pediatric community as well as educating non-pediatric anesthesia providers around safe anesthetic care to improve the anesthetic care provided to children around the world.

Quality Improvement Committee

Imelda Tjia, MD

NICU Hypothermia Prevention Task Force: Sarah Brown (Seattle Children's Hospital), Robert Brustowicz (Boston Children's Hospital), Priti Dalal (Penn State), Tatyana Demidovich (Cardinal Glennon Children's Hospital), Rebecca Isserman (Children's Hospital of Philadephia), Elizabeth Jacobson (Seattle Children's Hospital), Tessa Mandler (Children's Hospital Colorado), Jami Miller (Dallas Children's Hospital), Lance Patak (Texas Children's Hospital), Marnie Robinson (Arnold

Palmer Hospital for Children), Thomas Shaw (Texas Children's Hospital), Barbara Winters (Seattle Children's Hospital)

PIVIE Task Force: Nathan Blair (Stead Family Children's Hospital), David Buck (Cincinnati Children's Hospital), Priti Dalal (Penn State), Jenny Dolan (Johns Hopkins All Children's Hospital), Marc Mecoli (Cincinnati Children's Hospital), Kavitha Raghavan (St Jude Children's Research Hospital) and Anna Varughese (Johns Hopkins All Children's Hospital).

Institutions from WUS are working on two collaborative safety initiatives: prevention of NICU hypothermia in NICU patients and reducing peripheral IV infiltrations and extravasations (PIVIE).

With increased susceptibility to temperature instability, the neonatal patient population is at an increased risk of many complications including morbidity, pulmonary hypertension, cardiac dysrhythmias, apnea/hypoxia, coagulopathy, surgical site infections, and metabolic acidosis.[1-3] Using WUS data, the NICU hypothermia prevention task force is exploring various thermoregulation strategies to decrease the incidence of hypothermia in neonates and maintain normothermia while transporting to and from the NICU for peri-procedural anesthesia that could result in complications.

Infiltrations and extravasations from peripheral intravenous catheters can result in swelling, pain, blisters, chemical burns, soft tissue necrosis and possibly severe harm, such as compartment syndrome.[4-5] In addition to patient discomfort and emotional distress to patients and family, PIVIE's can negatively impact caregivers. The PIVIE task force have made efforts to standardize the classifications and reporting of infiltrations and extravasations between all institutions. With the standardization of PIVIE reporting, the task force can assess most effective strategies to decrease the incidence of perioperative PIVIE events.

References:

1. Duryea, E. L., Nelson, D. B., Wyckoff, M. H., Grant, E. N., Tao, W., Sadana, N., Chalak, L. F., McIntire, D. D., & Leveno, K. J. (2017). The impact of ambient operating room temperature on neonatal and maternal hypothermia and associated morbidities: A randomized controlledtrial. *Obstetric Anesthesia Digest*, *37*(1), 24–24.
2. Engorn, B. M., Kahntroff, S. L., Frank, K. M., Singh, S., Harvey, H. A., Barkulis, C. T., Barnett, A. M., Olambiwonnu, O. O., Heitmiller, E. S., & Greenberg, R. S. (2016). Perioperative hypothermia in Neonatal Intensive Care Unit Patients: Effectiveness of a thermoregulation intervention and associated risk factors. *Pediatric Anesthesia*, *27*(2), 196–204.
3. Schroeck, H., Lyden, A. K., Benedict, W. L., & Ramachandran, S. K. (2016). Time trends and predictors of abnormal postoperative body temperature in infants transported to the Intensive CareUnit. *Anesthesiology Research and Practice*, *2016*, 1–7.
4. Amjad, I., Murphy, T., Nylander-Housholder, L., & Ranft, A. (2011). A new approach to management of intravenous infiltration in pediatric patients. *Journal of Infusion Nursing*, *34*(4), 242–249.
5. HADAWAY, L. Y. N. N. C. (2002). I. V. Infiltration. *Nursing*, *32*(8), 36–43.

See you in Anaheim for the WakeUp Safe Annual Meeting 2024 in conjunction with the SPA-AAP Spring Meeting – Pediatric Anesthesiology 2024.
Sunday, April 14, 2024.
12:00-5:30 PM.