

Ann & Robert H. Lurie
Children's Hospital of Chicago

A New Question for USGRA

Old Question:
"Can ultrasound INCREASE the SAFETY of RA procedures?" → YES

Lumbar Neuraxial Ultrasound for Spinal and Epidural Anesthesia
A Systematic Review and Meta-Analysis
Isaaki Pavlov, MD, FRCPC,*; Lala E. Chapman, MD, J. Alan Choi, MD, FRCPC**

Ultrasound compared with nerve stimulation guidance for peripheral nerve catheter placement: a meta-analysis of randomized controlled trials
D. Schroeder***, C. H. Meyer-Friedlmann***, P. K. Zohri and E. M. Pogatzki-Zahn*

Cochrane Library
The use of ultrasound guidance for perioperative neuraxial and peripheral nerve blocks in children (Review)
Scott J. Grubb & Kippert

TEACHING →

NEW Question:
"How can we safely teach USGRA??"

- The evidence is clear for USGRA
- What has been the primary method for teaching USGRA?

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Teaching USGRA

- "See one, do one, teach one"
- Shortcomings:
 - Decreases quality of care
 - Unsuccessful blocks
 - Procedure-related pain
 - Impairs patient safety
 - Risks of complications and injury
- Dependent on:
 - Case mix, center volume
 - Teacher capacity
- Need for new ways of training colleagues

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Elements to be taught...

A Scoping Review of the Evidence for Teaching Ultrasound-Guided Regional Anesthesia

Catherine M. Nix, MBChB, FCARCSI,* Clarita B. Margarido, MD, PhD,†
Imad T. Awad, MBChB, FCARCSI,* Arsenio Avila, MD,* Jeffrey J.H. Cheung, MSc,‡
Adam Dubrowski, PhD,‡ and Colin J.L. McCartney, MBChB, FCARCSI, FRCA, FRCPC**

- Three main themes:
 - Development of **motor skills**
 - Learning and teaching **sonoanatomy**
 - Understanding the requirements for establish USGRA **education program and evaluation**

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USG RA Learning Curve

Characterizing Novice Behavior Associated With Learning Ultrasound-Guided Peripheral Regional Anesthesia

Brian D. Sites, M.D., Brian C. Spence, M.D., John D. Gallagher, M.D.,
Christopher W. Wiley, M.D., Marc L. Bertrand, M.D., and George T. Blike, M.D.
Reg Anesth Pain Med 2007;32:107-115.

- 6 Residents, No prior USG experience, performing 520 USG blocks, videotaped and reviewed
- Received: Introductory didactic, ultrasound imaging, simulated block training
- 93% success rate, 398 errors, 4 complications
- Common Errors: Failure to 1) visualize needle before advancing and 2) unintentional probe movement

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Errors Committed

Distribution of Errors Committed

5 New Behaviors Identified:

- Failure to recognize maldistribution of LA
- Fatigue
- Failure to correlated US and patient sidedness
- Failure to recognize intramuscular needle location
- Needle insertion site not consistent with ability to ever visualize it

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Errors Committed

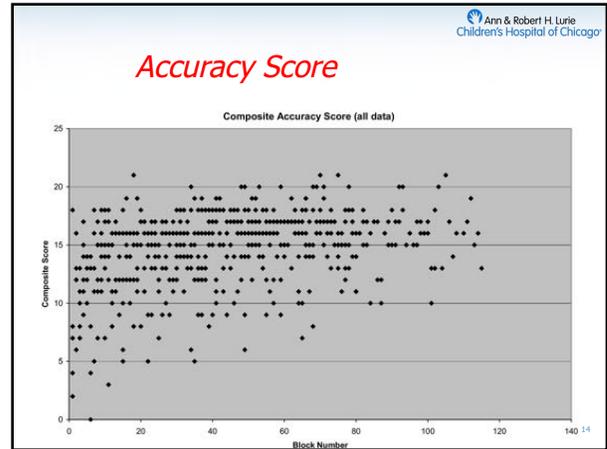
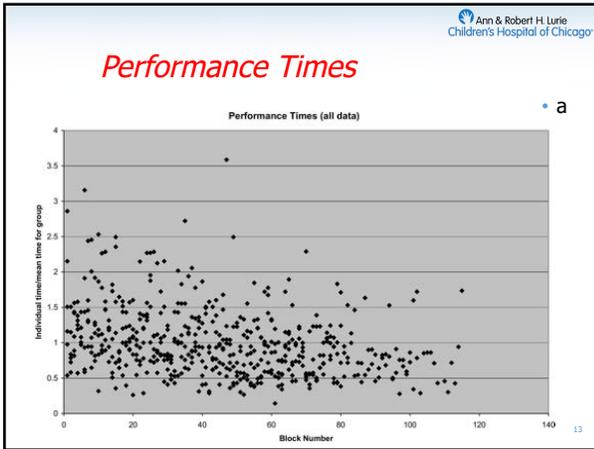
Distribution of errors for all residents combined

**Each performed at least 66 blocks

**Errors/Block per every 10 blocks performed

Block	Number Performed	Errors	Errors/Block	Errors	Errors/Block	Errors	Errors/Block	Errors	Errors/Block
1	100	21	0.21	10	0.10	11	0.11	10	0.10
2	142	28	0.20	10	0.07	10	0.07	10	0.07
3	78	25	0.32	7	0.09	3	0.04	2	0.03
4	80	18	0.22	11	0.14	11	0.14	11	0.14
Total	300	108	0.36	39	0.13	39	0.13	39	0.13

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Training Guidance

The American Society of Regional Anesthesia and Pain Medicine and the European Society of Regional Anaesthesia and Pain Therapy Joint Committee Recommendations for Education and Training in Ultrasound-Guided Regional Anesthesia

Brian D. Sites, MD, Vincent W. Chan, MD,† Joseph M. Neal, MD,‡ Robert Weller, MD,§
Thomas Gray, MD, PhD,|| Zhenqian J. Kuczbinski-Nelson, MD, PhD** and Giorgio Ianni, MD*

- 2010 ASRA Guidelines
 - TWO training pathways (practice pathway & residency-based pathway) to minimize **COMMON** mistakes
 - Needle advancement without visualization
 - Unintentional transducer movements
- Practice pathway includes:
 - CME accredited 8 hour didactic and hands-on event, imaging oneself/others, simulators/phantoms, spending time with **experienced** individuals, incorporating into practice
- Residency pathway:
 - Covers 6 core ACGME competencies, structure determined by residency directors

However no definition of "experienced individual" or who is qualified to teach USGRA

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One step further...

- 2012 ASRA Guidelines for USG Interventional Pain Procedures

The American Society of Regional Anesthesia and Pain Medicine, the European Society of Regional Anaesthesia and Pain Therapy, and the Asian Australasian Federation of Pain Societies Joint Committee Recommendations for Education and Training in Ultrasound-Guided Interventional Pain Procedures

Satoru N. Narasica, MD, PhD, David Provenzano, MD,† Philip Peng, MBBS, FRCPC,‡
Urs Eichenberger, MD,§ Sung Chul Lee, MD, PhD** Barry Nicholas, MD,††
and Brandon Metzger, MD, FRCPC***

- Has recommendation of "USG Pain Medicine Coordinator"
 - Identified by departmental leadership to assist in the safe and skilled implementation of USPM, overseeing education and supervision

Ultrasound-Guided Pain Medicine Coordinator

A staff physician in each Department of Pain Medicine may be identified by the departmental leadership to assist in the safe and skilled implementation of USPM. The USPM coordinator will support the education and supervision of pain physicians performing USPM. In a training institution, the coordinator, if available, will also be responsible for developing and coordinating the fellow educational instruction needed to achieve the core competencies required for USPM.

Recommendations for qualification (below):

The Joint Committee recommends that physician candidates for the position of USPM coordinator obtain the following:

1. a letter of recommendation from department leadership;
2. a written description of clinical experience, including case volume, length of experience, and safety; and
3. participation in at least 1 accredited ultrasound workshop (as described in the training section).

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Answering the question

- Defining How **Faculty** are **Qualified** to Teach Point of Care Ultrasound?
 - Defining the proficient practitioner→
 - Understands ultrasound image **generation, optimization, interpretation**
 - Good **ergonomics, economy of motion**
 - Direct or indirect **needle tip** identification
 - **Beyond "pattern recognition"**, ie. "advanced" using USG as a **tool**
- Should we? → **YES**
- And methods? →
 - **A yearly Competency testing for staff teaching regional anesthesia**
 - **Mandatory training for common blocks for all staff**
- Adjuncts to teaching/learning USGRA
 - **Faculty** to lead training programs
 - **Faculty** to teach simulation and phantom training

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Lurie Children's Anesthesia Faculty Training

- Hands-on workshop every Monday from 630 am to 7 am
- Teach the teachers workshop on Wednesdays for teaching nuances in regional anesthesia to faculty.
- Mandatory training and Competencies in
 - Caudal blocks
 - Supraclavicular brachial plexus blocks
 - Femoral nerve blocks
 - TAP blocks
 - Sciatic Nerve blocks
- **Tied to Yearly Incentives and performance reviews**

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Advantages in Faculty Training

- No need for separate regional anesthesia team especially on weekends and nights.
- Uniform care for all children 24/7
- Clear commitment to surgeons regarding care provided.
- ERAS protocol followed 24/7

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Summary

- "Can ultrasound INCREASE the SAFETY of RA procedures?"
- **"How can we safely teach USGRA??"**
- ASRA Guidelines detail elements to teach safely

Future Directions:

- Continued Growth
- Competition and Prospects
- Incentivizing Regional Anesthesia

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Thank you!



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