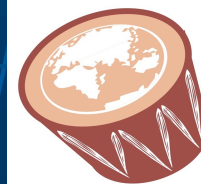


Improving Perioperative Care in Sub-Saharan Africa: A Regional Anesthesia Educational Program Based in Ghana.

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Introduction

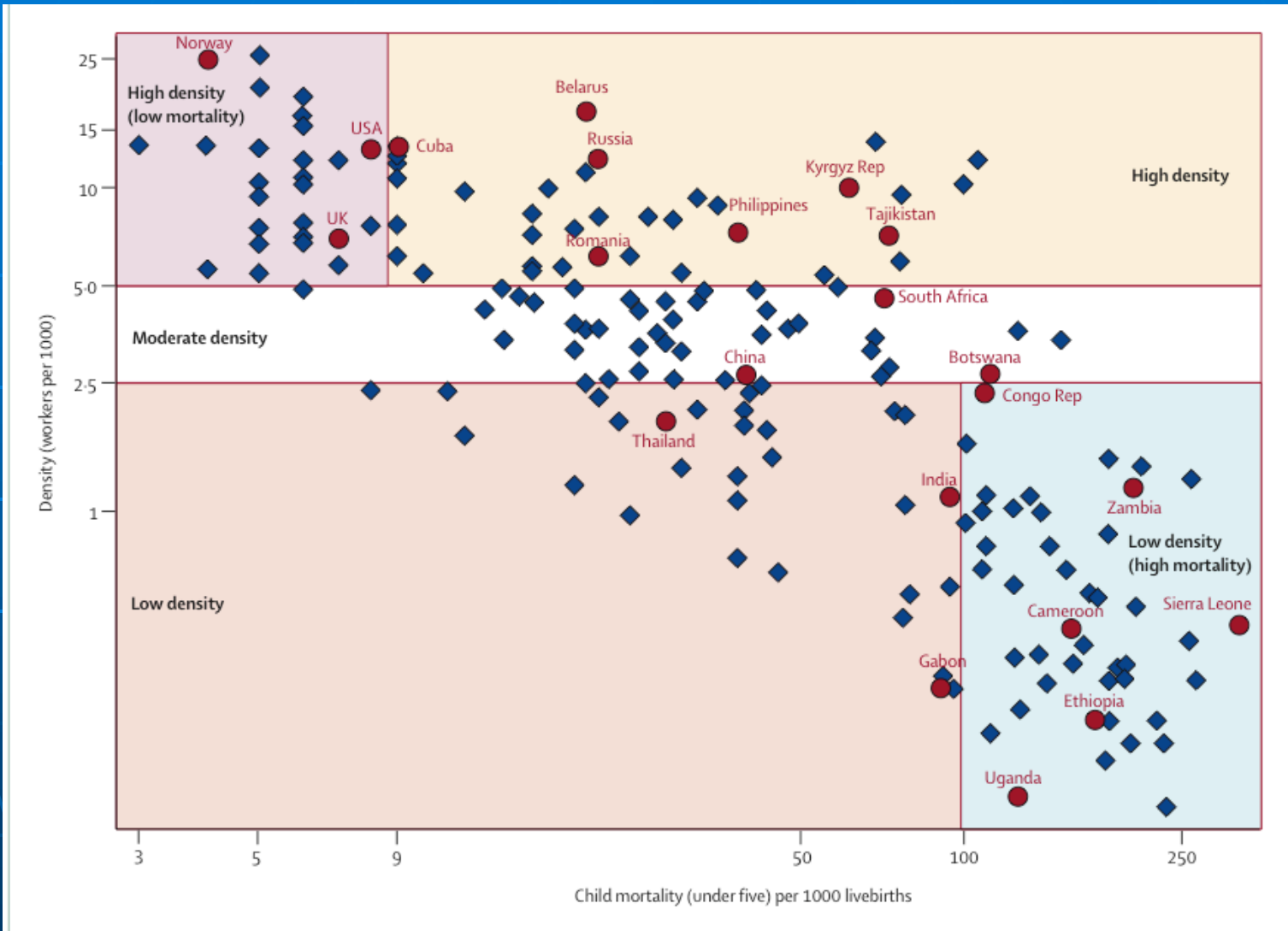
- Health care in Africa has many challenges and is greatly in need of improvement. In addition to enhanced primary medical care, African hospitals can greatly reduce morbidity and mortality rates via improvements in perioperative care.
- Johns Hopkins Hospital Department of Anesthesiology & Critical Care Medicine, The University of Ghana at Korle-Bu and Doctors for United Medical Missions (DrUMM) are partnering to create models for improving perioperative care. The establishment of high competency in regional anesthesia is the current area of focus.



Background

- In Africa there is an overall shortage of healthcare manpower
- In many African countries there is less than one anesthesiologist per million population.
 - **Liberia** has no indigenous physician anesthesiologists.
 - Personal communication with medical director of JFK Hospital in Monrovia, Liberia.
 - **Sierre Leone** has no indigenous physician anesthesiologists.
 - World Federation of Societies of Anesthesiology.
 - **Eritrea** has no indigenous physician anesthesiologists.
 - Personal communication with Eritrea Ministry of Health.
 - **Burkina Faso** has ten physician anesthesiologist for nine million population.
 - Personal communication with President of the Burkinabe Anesthesia Society.
 - **Ghana** has fifteen anesthesiologists for eighteen million population.
 - Personal communication with Chief of Anesthesia at The University of Ghana.

The General Healthcare Manpower Shortage Results in a Worsening of Health in Africa and other Developing Nations.



Country clusters
Scales are log.

United Nations Children's Fund. State of the world's children 2003. New York: UNICEF, 2003.

Goals

1. To substantially improve the quality and quantity of anesthesia opportunities that are available in Africa.
2. To alleviate postoperative pain management challenges that exist because of nursing shortages, opioid shortages, oxygen shortages and limited access to sophisticated anesthesia equipment in the austere environment.
3. To Contribute to the options for providing anesthesia care in situations where equipment limitations make general anesthesia dangerous.
4. To further professional development through international collaborations.

Ghana

A Portal to Improvement in Africa

- **Economic progress is being realized.**
 - Government economic improvements are
 - developing an improved trade policy framework⁹
 - actively promoting investment⁹
 - strengthening good governance and transparency.⁹
 - Ghana is the United States' third largest trading partner in Sub-Saharan Africa.⁹

- **Healthcare improvements are underway**
 - 300% increase in government health expenditure from 2000-2003.⁹
 - Increasing health insurance enrollment.⁹
 - Emerging cardiothoracic program in Accra.⁹
 - HIV infection rate is stabilizing at 4%.⁹

- **The goals of the program have been agreed upon by the University of Ghana, Korle-bu Department of Anesthesiology and the Ghana Anesthesia Society**

Phase I

Training in the U.S.A.

- Two Ghanaian Anesthesiologists will travel to the United States for three weeks of intensive exposure to regional anesthesia.
 - Observership at Johns Hopkins Hospital, Walter Reed Hospital and two other academic institutions with established regional anesthesia programs.
 - Participation in an established two-day regional anesthesia course.
 - Discussion of the web based data collection tool which will be used during phase III.



Phase II

Training in Ghana

- Three anesthesiologists from Johns Hopkins Hospital (JHH) will travel to Ghana to organize a regional anesthesia training course at the University of Ghana, Korle-Bu Hospital.
- The course will include a written pre-test and post-test.
- The course will have an emphasis on hands-on skill stations utilizing cadaveric specimens, live human models and anesthetized animal models.



Phase II

Training in Ghana (Continued)

- Clinical demonstrations will be arranged.
- Identify methods of maximizing efficiency, and nurse anesthetist collaboration;
- Discuss systems for utilizing block catheters for post-operative pain management.
- Train Ghanaian anesthesiologists on utilization of the finalized web based data collection tool.

Phase III Implementation

- Ghanaian anesthesiologists return to their practices to implement what they have learned.
- Nerve stimulators, appropriate block needles and local anesthetics will be provided to the 15 participating anesthesiologists.
- Computer based tools, hand-outs, teleconferencing and intermittent site visits by the American participants will be used to enhance competency during phase III.
- Data collected will identify areas that require greater emphasis.
 - The American project participants will individually travel to Ghana annually during the three year project for continued medical education.
 - The University of Ghana Anesthesia department will also serve as a remedial resource for physicians requiring further study.

Phase IV

Achieving Results

- In the third year of the program The University of Ghana, Korle-Bu and The Johns Hopkins Hospital Department of Anesthesiology and Critical Care Medicine will jointly host an international symposium on regional anesthesia in Accra, Ghana.
 - Guest presenters will be invited from America, Europe and Africa.
 - American and Ghanaian program organizers will discuss results obtained from the project data in areas of
 - Patient and surgeon satisfaction
 - Issues related to complications
 - Intraoperative and post-operative analgesia
 - Cost effectiveness
 - Nursing issues
 - Staff utilization efficiency
 - Anesthesia physician-nurse anesthetist cooperation
 - General vs regional anesthesia equipment issues
 - A regional anesthesia training course will be conducted with both lectures and hands-on skill stations utilizing cadaveric specimens, live human models and anesthetized animal models.

Conclusion

- The creation of an increased level of regional anesthesia expertise in Ghana will result in less reliance on airway acquisition, and mechanical ventilation, improved intraoperative hemodynamics, safer and more effective post-operative pain control.
- The Ghanaian Anesthesiologists will be empowered to serve as a resource for spreading the relevant knowledge and skills of regional anesthesia to anesthesiologists in other African countries.

References

1. Archampong EQ, Darko R. Day surgery at Korle Bu Teaching Hospital: a six year review. West African Journal Medicine. 1996 Jul-Sep;15(3):143-8.
2. Bateman C. Regional analgesia abseils into the limelight. South African Medical Journal. 2003 Oct; 93(10): 730-1.
3. Faponle AF. Anesthesia as a Career--The Influence of Undergraduate Education in a Nigerian Medical School. Nigerian Postgraduate Med Journal. 2002 Mar;9(1):11-2.
4. Lincoln Chen, Timothy Evans, et al. Human Resources for Health: Overcoming the Crisis. Lancet, 2004.
5. Nkanga S. Aseno O. A Hazard of an Anesthesia Delivery System in a developing Country: Intraoperative Subcutaneous Emphysema, pneumomediastinum and Cardiac Arrest. Anesthesia Analgesia 1995 Feb; 80(2): 424-6.
6. Soyannwo OA, Elegbe EO. Anesthesia Manpower Development in West Africa. African Journal of Medical Science. 1999 Sep-Dec;28(3-4):163-5.
7. Soyannwo OA, Elegbe EO, Orubo CN. Problems in Extubation of Endotracheal Tube in Anaesthesia in the West African Sub-region. West African Journal of Medicine. 1995 Apr-Jun;14(2):124-6.
8. USAID Congressional Budget Justification FY 2005 Report.
9. USAID/Ghana Country Strategic Plan (2004-2010) Empowering Ghana Through Partnerships to Build a Prosperous Nation. 2003.
10. Vasant Narasimhan, Hilary Brown, et al. Responding to the Global Human Resources Crises. Lancet, 2004 Vol. 363, page 1469-72.
11. Yasmin Von Schirnding Health and Sustainable Development: Can We Rise to the Challenge? Lancet, 2002 Vol. 360, page 632-37.