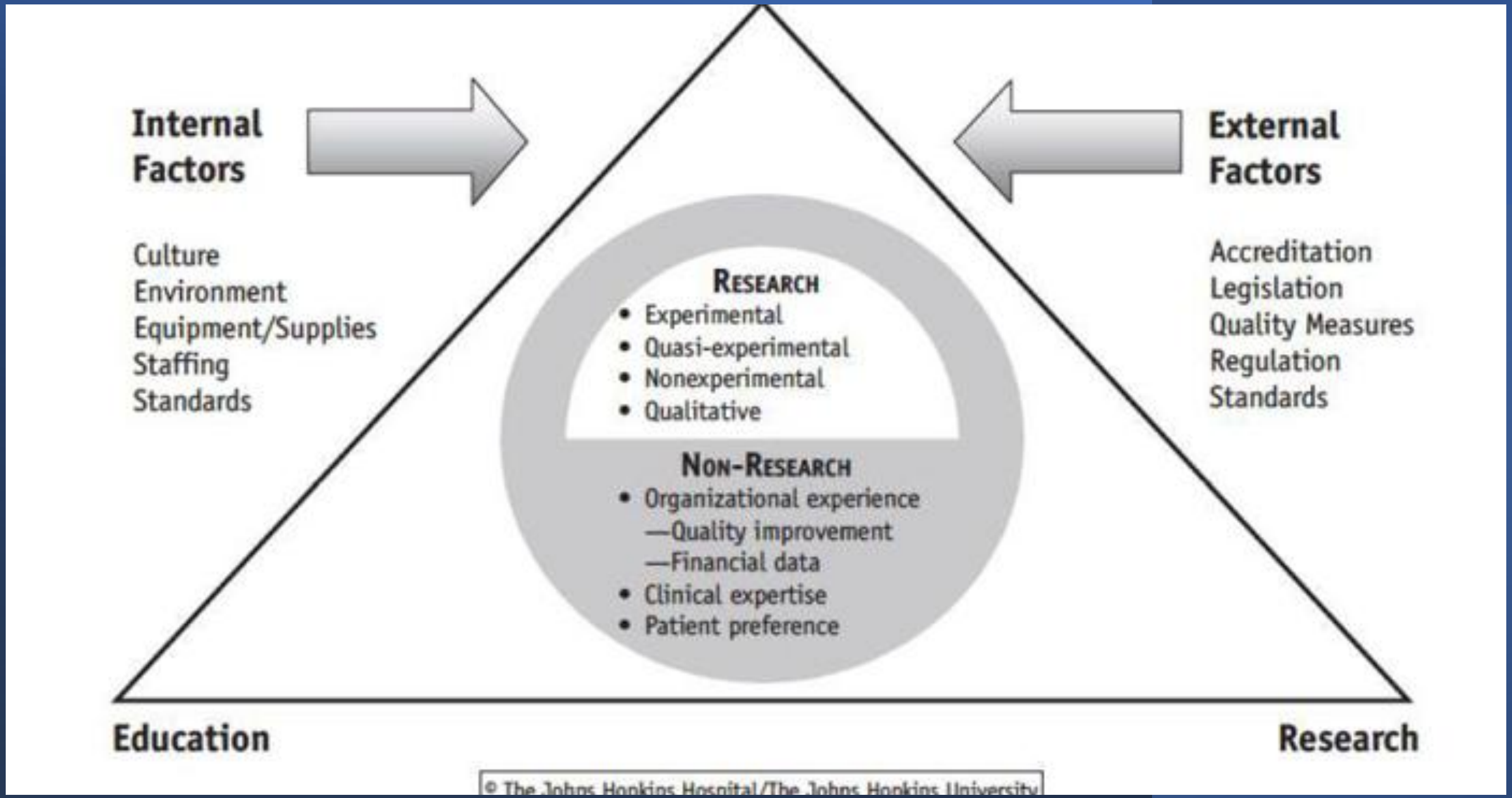
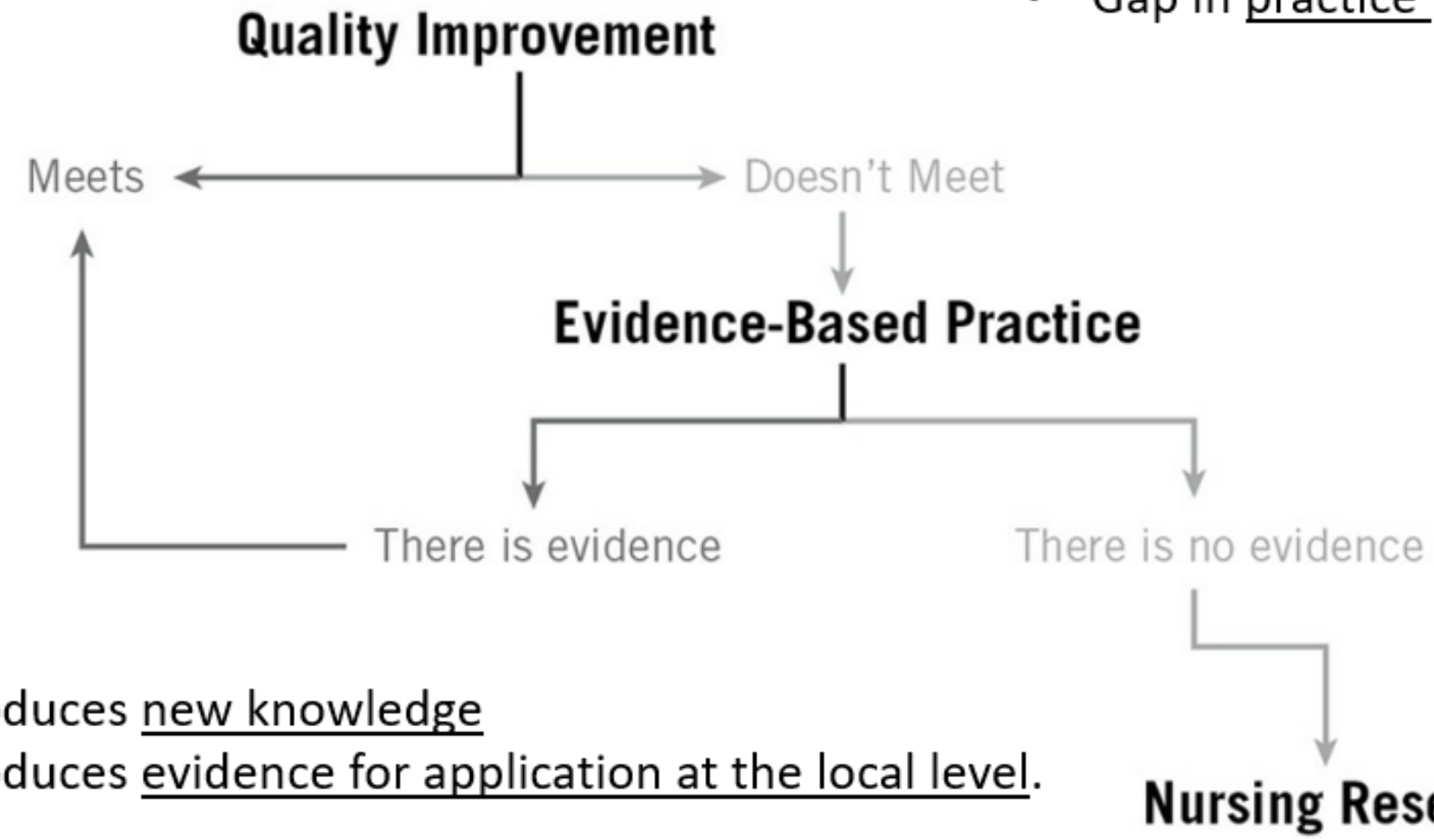
# Priority Population Health Problems: The Role of Research, Quality Improvement and Evidence Based Practice

**NAP 302: Evidence Based Practice: Appraising and Translating Evidence to Improve Anesthesia Practice**

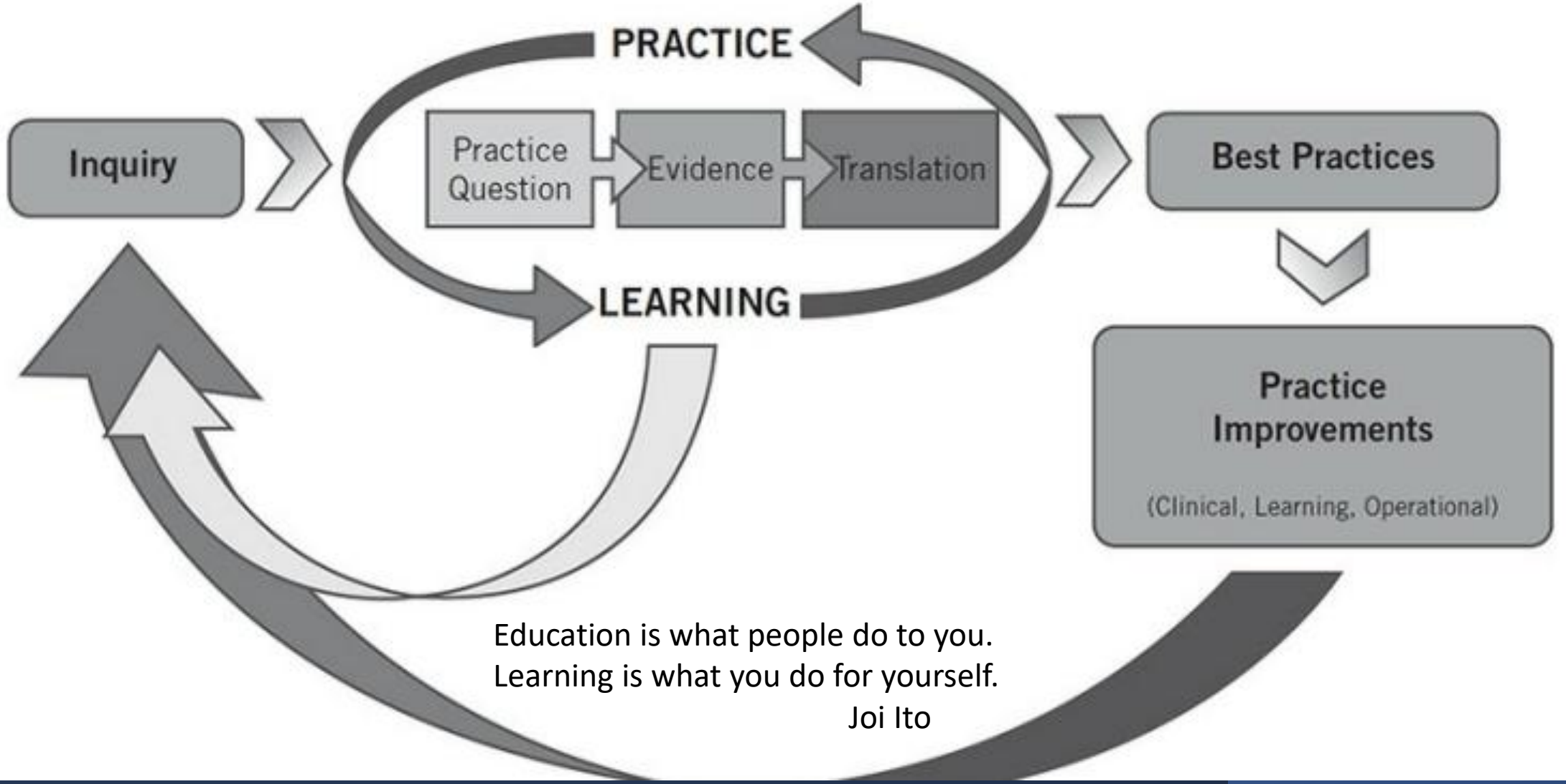

Internal Factors
Culture
Environment
Equipment/Supplies
Staffing
Standards
External Factors
Accreditation
Legislation
Quality Measures
Regulation
Standards
RESEARCH
• Experimental
• Quasi-experimental
• Nonexperimental
• Qualitative
NON-RESEARCH
• Organizational experience
—Quality improvement
—Financial data
• Clinical expertise
• Patient preference
Education
Research
© The Johns Hopkins Hospital/The Johns Hopkins University

- Gap in knowledge
- Gap in practice

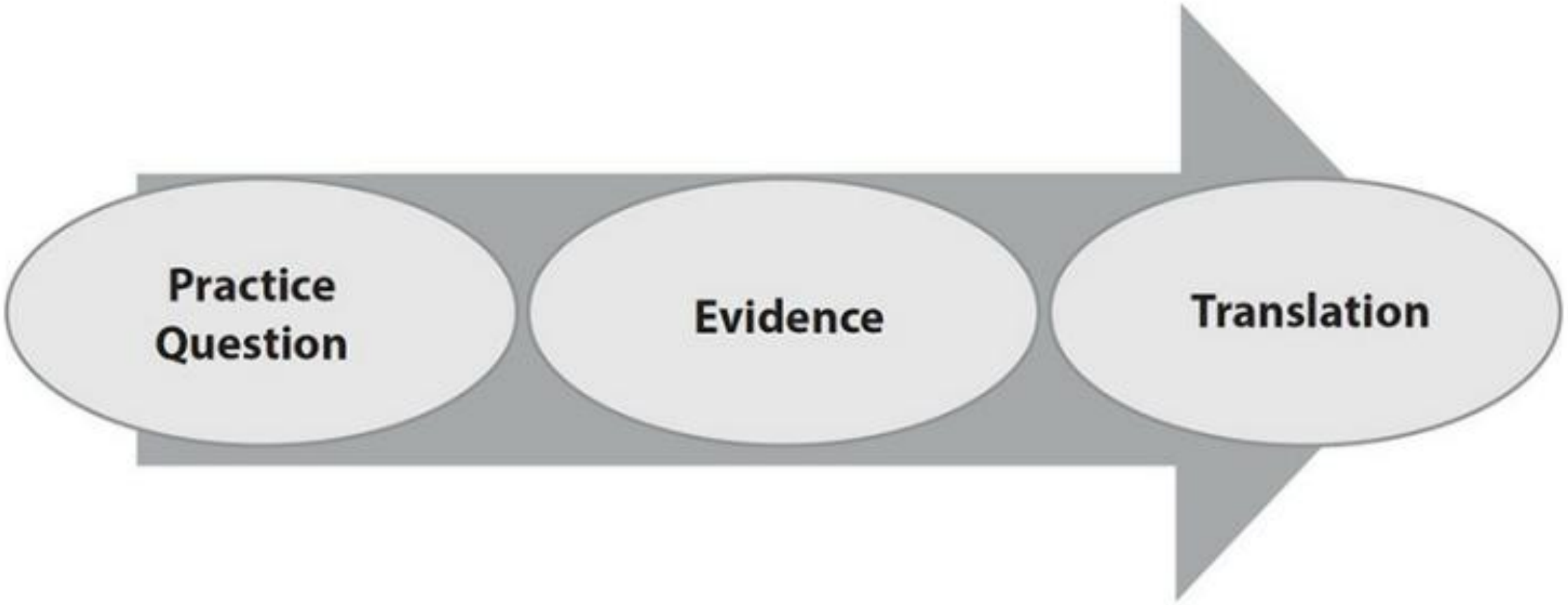



- Produces new knowledge
- Produces evidence for application at the local level.

Model (see Figure 5.1) is composed of three interrelated components: inquiry, practice, and learning.




Education is what people do to you.
Learning is what you do for yourself.
Joi Ito

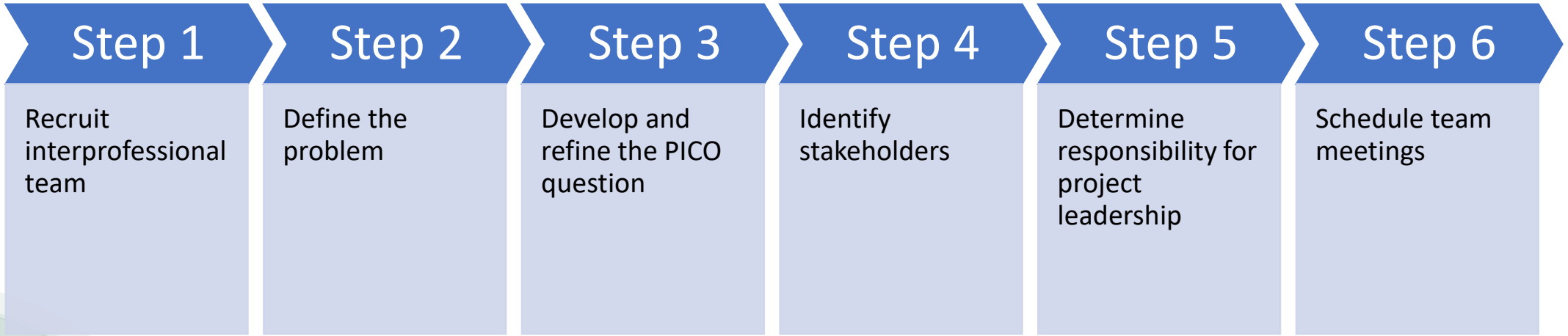



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Figure 3.3 JHNEBP PET process.

# Practice Question

The first phase of the PET process includes forming a team and developing an answerable question.



# Application of the PICO elements

- **P**atient, population or Problem
- **I**ntervention, innovation or improvement
- **C**omparison with other interventions, if applicable
- **O**utcomes

# Evidence

The second phase of the PET process addresses the search for, appraisal of, and synthesis of the best available evidence.

- Step 7: Conduct internal and external search for evidence
  - Clinical practice guidelines, community standards, expert opinion, professional association statements, research, QI data
- Step 8: Appraise the level and quality of each piece of evidence
- Step 9: Summarize the individual evidence
- Step 10: Synthesize overall strength and quality of evidence
- Step 11: Develop recommendations  for change based on evidence synthesis
  - Evidence compelling – support practice change
  - Evidence good – support practice change
  - Evidence good but with conflicting results that may or may not support change
  - Evidence may be nonexistent or insufficient to support a practice change

# Translation

The third phase  of the PET process, the EBP team determines whether the changes to practice are feasible, and a good fit; if so, implement and evaluate the change.

- Step 12: Determine fit, feasibility and appropriateness of recommendation(s) for translation pathway
- Step 13: Create action plan
- Step 14: Secure support and resources to implement action plan
- Step 15: Implement action plan
- Step 16: Evaluate outcomes
- Step 17: Report outcomes to stakeholders
- Step 18: Identify next steps
- Step 19: Disseminate findings

**Example 1: Administrative Process**

Problem: In an HIV clinic, the record filing system is set up such that HIV patient records are arranged serially according to patient clinic identification numbers. Patients coming for clinic appointments have a long waiting time as the registration officers' search for their files before the clinical consultation.

Improvement team: Registration officers, head nurse, clinician, and community health worker

Aim: To reduce client waiting time for clinical consultation by 50% in the next two weeks by retrieving patient files a day before their scheduled appointments.

Measure: Waiting time for clinical consultation. To record the data, the registration officer will record the time the patient arrives at the registration desk and the clinician will record the time the patient arrives in the consultation room. They will record their information in a simple table. The baseline average waiting time for clinical consultation is 60 minutes.

Change idea: Community health workers will retrieve files for clients who are expected for clinic visits a day before and arrange them by serial number. During clinic days, the client appointment cards will be received by the registration officer and handed over to the community health worker on duty to retrieve the particular patient files.

Prediction: This change will reduce client waiting time for clinical consultation to 30 minutes.

Plan:

- *Who*: Registration officers, community health worker
- *What:* The registration officers will provide the appointment diary to the community health worker on duty to retrieve the files for 10 expected appointments for the following day. These files will be arranged serially in a box. The registration officer will have a list of the 10 clients included in the test. The following day, as the clients in the test come in for their appointments, the registration officer will receive the client appointment reminder cards and retrieve their file.
- *When:* Two days after the QI team meeting; will last for 1 day
- *Where:* HIV Clinic registration desk and file room
- *Data collection*: The registration officer will give the 10 clients in the test a special table to record the times of their visit, including registration time, start and end of consultation with the provider, and wait time at pharmacy. The client will leave the card with the pharmacy as s/he picks his medication. At the end of the day the registration officer will pick all the cards to summarize the waiting times in a summary table.

Do: On Friday, the registration officers and community health workers retrieved the files for Monday's appointments as per their plan. On Monday, they recorded the waiting time for clinical consultation.

| **Monday** | | | |
|---|---|---|---|
| ***Patient*** | ***Time*** | ***Patient*** | ***Time*** |
| 1 | 40 | 6 | 43 |
| 2 | 32 | 7 | 41 |
| 3 | 30 | 8 | 35 |
| 4 | 39 | 9 | 37 |
| 5 | 34 | 10 | 42 |
| Monday average wait time: 37.3 minutes | | | |

Study: This change idea reduced the time by around 23 minutes, but they didn't quite reach their goal of reducing wait time by 50% (30 minutes). Recording the time for when the patient came in and left did take extra time, but they will only have to do this until they know the new system works.

Act: The team decided that this was a good change. They felt that they needed to try it on a larger scale to see if they would get the same results. They decided to test the new record retrieval system for one day to see if having all patients on the same system will improve times further. If they have still not reached their goal of 50% reduction, they will look at other places where there are delays.

The Lancet Commissions

# Global Surgery 2030: evidence and solutions for achieving health, welfare, and economic development

*John G Meara*, Andrew J M Leather*, Lars Hagander*, Blake C Alkire, Nivaldo Alonso, Emmanuel A Ameh, Stephen W Bickler, Lesong Conteh, Anna J Dare, Justine Davies, Eunice Dérivois Mérisier, Shenaaz El-Halabi, Paul E Farmer, Atul Gawande, Rowan Gillies, Sarah L M Greenberg, Caris E Grimes, Russell L Gruen, Edna Adan Ismail, Thaim Buya Kamara, Chris Lavy, Ganbold Lundeg, Nyengo C Mkandawire, Nakul P Raykar, Johanna N Riesel, Edgar Rodas‡, John Rose, Nobhojit Roy, Mark G Shrime, Richard Sullivan, Stéphane Verguet, David Watters, Thomas G Weiser, Iain H Wilson, Gavin Yamey, Winnie Yip*

# Key Messages

1. 5 billion people lack access to safe affordable surgical and anesthesia care when needed.
2. 143 million additional surgical procedures are needed in LMICs each year to save lives and prevent disability. Of the 313 million procedures undertaken worldwide each year, only 6% occur in the poorest countries, where over 1/3 of the world population lives. Low operative volumes are associated with high case-fatality rates from common, treatable surgical conditions. Unmet need is greatest in eastern, wester, and central sub-Saharan Africa, and south Asia.
3. 33 million individuals face catastrophic health expenditure due to payment for surgery and anaesthesia care each year. An additional 48 million cases of catastrophic expenditure are attributable to the nonmedical costs of accessing surgical care. A quarter of people who have a surgical procedure will incur fi nancial catastrophe as a result of seeking care. The burden of catastrophic expenditure for surgery is highest in low-income and lower-middle-income countries and, within any country, lands most heavily on poor people.

# Key messages continued

4. Investing in surgical services in LMICs is affordable, saves lives, and promotes economic growth. To meet present and projected population demands, urgent investment in human and physical resources for surgical and anaesthesia care is needed. If LMICs were to scale-up surgical services at rates achieved by the present best-performing LMICs, two-thirds of countries would be able to reach a minimum operative volume of 5000 surgical procedures per 100 000 population by 2030. Without urgent and accelerated investment in surgical scale-up, LMICs will continue to have losses in economic productivity, estimated cumulatively at US $12·3 trillion (2010 US$ purchasing power parity) between 2015 and 2030

5. Surgery is an “indivisible, indispensable part of health care.” Surgical and anaesthesia care should be an integral component of a national health system in countries at all levels of development. Surgical services are a prerequisite for the full attainment of local and global health goals in areas as diverse as cancer, injury, cardiovascular disease, infection, and reproductive, maternal, neonatal, and child health. Universal health coverage and the health aspirations set out in the post-2015 Sustainable Development Goals will be impossible to achieve without ensuring that surgical and anaesthesia care is available, accessible, safe, timely, and affordable.

ORIGINAL CLINICAL RESEARCH REPORT

# An Assessment of Anesthesia Capacity in Liberia: Opportunities for Rebuilding Post-Ebola

Didi S. Odinkemelu, MD,* Aaron K. Sonah, RN, MPH,† Etienne T. Nsereko, RN, MSc,‡ Bernice T. Dahn, MD, MPH,§ Marie H. Martin, PhD, MEd,‖ Troy D. Moon, MD, MPH,‖ Jonathan A. Niconchuk, MD,¶ Camila B. Walters, MD,¶ and J. Matthew Kynes, MD¶

**BACKGROUND:** The health system of Liberia, a low-income country in West Africa, was devastated by a civil war lasting from 1989 to 2003. Gains made in the post-war period were compromised by the 2014–2016 Ebola epidemic. The already fragile health system experienced worsening of health indicators, including an estimated 111% increase in the country's maternal mortality rate post-Ebola. Access to safe surgery is necessary for improvement of these metrics, yet data on surgical and anesthesia capacity in Liberia post-Ebola are sparse. The aim of this study was to describe anesthesia capacity in Liberia post-Ebola as part of the development of a National Surgical, Obstetric, and Anesthesia Plan (NSOAP).

**METHODS:** Using the World Federation of Societies of Anaesthesiologists (WFSA) Anaesthesia Facility Assessment Tool (AFAT), we conducted a cross-sectional survey of 26 of 32 Ministry of Health recognized hospitals that provide surgical care in Liberia. The surveyed hospitals served approximately 90% of the Liberian population. This assessment surveyed infrastructure, workforce, service delivery, information management, medications, and equipment and was performed between July and September 2019. Researchers obtained data from interviews with anesthesia department heads, medical directors and through direct site visits where possible.

**RESULTS:** Anesthesiologist and nurse anesthetist workforce densities were 0.02 and 1.56 per 100,000 population, respectively, compared to 0.63 surgeons per 100,000 population and 0.52 obstetricians/gynecologists per 100,000 population. On average, there were 2 functioning operating rooms (ORs; OR in working condition that can be used for patient care) per hospital (standard deviation [SD] = 0.79; range, 1–3). Half of the hospitals surveyed had a postanesthesia care unit (PACU) and intensive care unit (ICU); however, only 1 hospital had mechanical ventilation capacity in the ICU. Ketamine and lidocaine were widely available. Intravenous (IV) morphine was always available in only 6 hospitals. None of the hospitals surveyed completely met the minimum World Health Organization (WHO)-WFSA standards for health care facilities where surgery and anesthesia are provided.

**CONCLUSIONS:** Overall, we noted several critical gaps in anesthesia and surgical capacity in Liberia, in spite of the massive global response post-Ebola directed toward health system development. Further investment across all domains is necessary to attain minimum international standards and to facilitate the provision of safe surgery and anesthesia in Liberia. The study results will be considered in development of an NSOAP for Liberia. (Anesth Analg 2021;132:1727–37)

## KEY POINTS

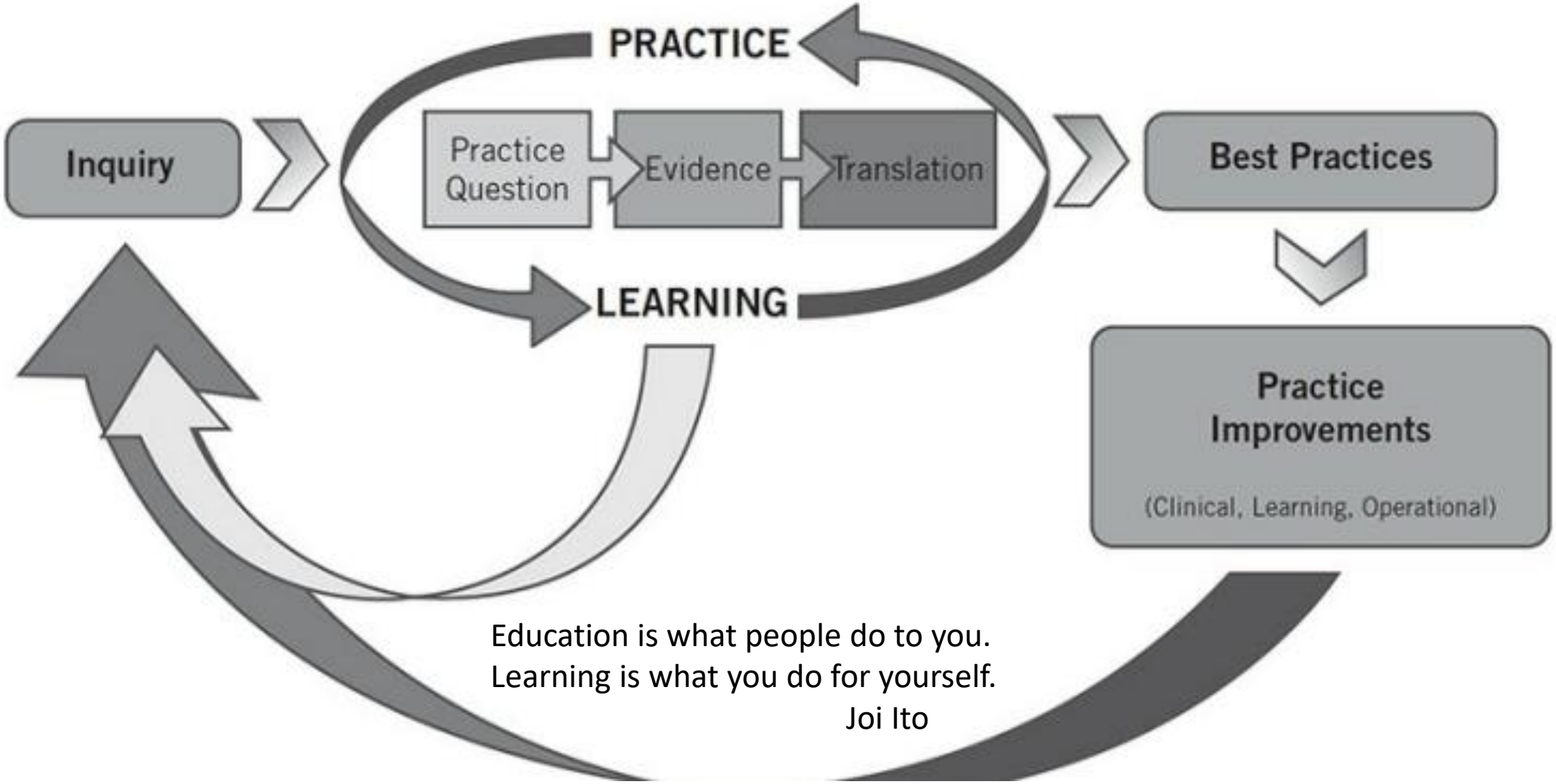
- **Question:** What is the current baseline anesthesia capacity in Liberia post-Ebola?
- **Findings:** Anesthesia capacity in Liberian hospitals does not meet minimum international standards, with critical shortages across domains.
- **Meaning:** Despite the massive global response directed at health system development post-Ebola, anesthesia capacity has remained stagnant in Liberia and warrants further resource allocation.

# Measures of anesthesia capacity in Liberia

- Basic Metrics of 26 Hospitals Surveyed Using the WFSA Anaesthesia Facility Assessment Tool
- Availability of “Highly Recommended” Infrastructure Reported by 26 Facilities Surveyed in Liberia
- Number of SAO Providers Reported by 26 Hospitals Surveyed Using the WFSA Anaesthesia Facility Assessment Tool
- Availability of “Highly Recommended” Monitoring Standards and Service Delivery Requirements Reported by 26 Facilities Surveyed in Liberia
- Availability of “Highly Recommended” Medications Reported by 26 Facilities Surveyed in Liberia
- Availability of “Highly Recommended” Equipment Reported by 26 Facilities Surveyed in Liberia

Odinkemelu, Sonah et al 2021, An Assessment of Anesthesia Capacity I Liberia: Opportunities for Rebuilding Post-Ebola

Model (see Figure 5.1) is composed of three interrelated components: inquiry, practice, and learning.




Education is what people do to you.
Learning is what you do for yourself.
Joi Ito

# Summary

- Identify a priority population health **problem**.
- Examine the **evidence**
  - Describe the problem
  - Identify evidence-based strategies to mitigate the problem
- **Translate** best practices (evidence) into practice.
  - Make recommendations for practice
  - Implementation of best practices
  - Continued inquiry/learning/

# Scoping Review and Annotated Bibliography

The first step in your EBP Course Paper

# Scoping Review

- The general purpose for conducting scoping reviews is to **identify and map the available evidence.**
  - To identify the types of available evidence in a given field
  - To clarify key concepts/ definitions in the literature
  - To examine how research is conducted on a certain topic or field
  - To identify key characteristics or factors related to a concept
  - As a precursor to a systematic review
  - To identify and analyse knowledge gaps



# Scoping Reviews: Mapping the Evidence

- **Purpose:**
  - To identify the types of available evidence in a given field
  - To clarify key concepts/ definitions in the literature
  - To examine how research is conducted on a certain topic or field
  - To identify key characteristics or factors related to a concept
  - As a precursor to a systematic review
  - To identify and analyze knowledge gaps

- **Maps the literature in your area/problem of interest**
  - Define the problem and describe across the biopsychosocial domains
  - Prevalence
  - Factors associated with the problem
  - Observed disparities (if any)
  - Systems considerations including cost

# Annotated Bibliography

**A way to organize your scoping review**

**Sort your information by thematic areas**

- Description
- Prevalence
- Factors associated with the problem
- Observed disparities
- Systems considerations including cost

**Reference citation (APA 7th edition)**

- Just the facts. Narrative or bulleted list.
- Single space and double space b/w reference citation.

# Systematic Review | Identifying the evidence underlying your project

The next step in your EBP course paper

- Systematic reviews can be used to produce statements to guide clinical decision-making, the delivery of care, as well as policy development. Broadly, indications for systematic reviews are as follows
  - 1. Uncover the international evidence
  - 2. Confirm current practice/ address any variation/ identify new practices
  - 3. Identify and inform areas for future research/quality improvement
  - 4. Identify and investigate conflicting results
  - 5. Produce statements to guide decision-making

# Scoping Review → Systematic Review

Prefer a scoping review over a systematic review where the purpose of the review is to identify knowledge gaps, scope a body of literature, clarify concepts, investigate research conduct, or to inform a systematic review

**Informs writing the Description of the Problem section of your EBP Paper.**

Prefer a systematic review to identify whether current practice is based on relevant evidence, to establish the quality of that evidence, understand variance in practice and the most effective strategies to produce intended outcomes.

Conducting a systematic review may also identify gaps, deficiencies, and trends in the current evidence and help underpin and inform quality improvement.

**Informs writing the Available Evidence section of your EBP Paper.**