Competency Evaluation, Simulation and the Future of Certification and Recertification

John M. O’Donnell CRNA, MSN, DrPH
Director, University of Pittsburgh Nurse Anesthesia Program
Associate Director, WISER
Objectives

• Review the current processes for competency evaluation, certification and recertification

• Discuss emerging trends in healthcare education toward proof of competency using new educational methods
What is competence and how is it currently measured?

Student
Clinician
Educator
Administrator
In the health care setting, *clinical* competence is....

The mastery of relevant knowledge, attitude and skill at a *satisfactory* level .......at a *certain* point in the educational process

modified from www.qualityresearchinternational.com
In the case of clinical training, which is primarily based on an apprenticeship model, teachers define what the student is expected to do and then test their ability to do it.

modified from www.qualityresearchinternational.com
most clinical actions are concerned with problems for which there are no clear answers and no single solution.....in some cases the solution will be something he or she has never arrived at before.
Complexity in Clinical Problem Solving

Knowledge A
Experience

Knowledge B
Book Knowledge

Knowledge C
Your Course

Clinical Problem

Decisions

Feedback

Correct or Incorrect Solution

Adapted. With permission from Dr. Paul Phrampus MD
Competence itself is only of value as a prerequisite for performance in a real clinical setting and does not always correlate highly with performance in practice.

modified from www.qualityresearchinternational.com
Bottom Line: We are looking for the threshold level of competence established through some sort of standard setting.

The assessment is thus:
Is he or she good enough?
Does Competence Increase with Years of Practice?

• **Conclusions:** Physicians who have been in practice longer may be at risk for providing lower-quality care. Therefore, this subgroup of physicians may need quality improvement interventions.  
  

**Experience does not always equal better quality**
“I’ll know when it’s time”
Hines Ward, 2011

When talking about competence-

Does the person know when they have lost it?
How many times have you encountered a student/ or other provider who is not consciously aware of their performance issues?

1. Never 2%  
2. Once or twice 3% 
3. Several times 30% 
4. Frequently 47% 
5. Daily 18%

N = 170 responses, 2010 Assembly of School Faculty
Self-Assessment and Competence

“the preponderance of evidence suggests that physicians have a limited ability to accurately self-assess. The processes currently used to undertake professional development and evaluate competence may need to focus on more external assessment.”  JAMA 2006;296: 1094-1102

Unskilled and Unaware of It: How Difficulties in Recognizing One’s Own Incompetence Lead to Inflated Self-Assessments

Justin Kruger and David Dunning
Cornell University

Skills needed to be competent = skills needed to self assess
Levels of Competence?

- Unconsciously incompetent
- Consciously incompetent
- Consciously competent
- Unconsciously competent

So What *Does* Increase Competence?

- Deliberate practice (DP)
- Ericsson, 2008,
  - Concept of ‘deliberate practice’ as the route for development of new skills (up to the expert level)

**Deliberate Practice and Acquisition of Expert Performance: A General Overview**

K. Anders Ericsson, PhD

Developing Metrics

What kind of competency evaluation is used in anesthesia for entry to practice?

How about for ongoing practice?
What are our current ways to teach and measure ongoing competencies?

- Lectures and tests
- Annual ‘competencies’
- Annual performance reviews
- Request cases: OR street level

Do we need new methods?
‘Traditional’ Methods….

• It has worked for 2500 years – why change?

Traditional lecture is pedagogy
Lecture (5%)*
Reading (10%)
Audiovisual (20%)
Demonstration (30%)
Discussion/Interaction (50%)
Practice / Role Playing / Simulation (75%)
Application and Utilization of New Learning Situations (90%)

*Average Retention Shown as % of Material Retained
Source: National Training Laboratories Institute (1970)

Pyramid of Learning Retention
Pyramid of Teaching Practices

- Lecture (5%)
- Reading (10%)
- Audiovisual (20%)
- Demonstration (30%)
- Discussion/Interaction (50%)
- Practice / Role Playing / Simulation (75%)
- Application and Utilization of New Learning (90%)

*Average Retention Shown as % of Material Retained

Source: National Training Laboratories Institute (1970)
The Interactive Learning Puzzle

LEARNERS  OBJECTIVES  SIMULATORS  FIDELITY  PARTICIPATION  ENVIRONMENT
Industry and Military Recognition of Value in Simulation

- Aviation, military, NASA, nuclear etc
  - Simulation used and in many cases now *required*
  - Adopted as a matter of necessity and expediency
  - Now culturally embedded e.g. FAA requirement for pilot simulation

- Until the 1990’s- Obscure area in healthcare education
  - Technology advances and miniaturization
  - 1999 IOM Report and subsequent national safety movement

Captain Chesley Sullenberger

Mrs. Chase - 1905

SimMan™ - 1999
Simulation is One Bridge to Teach Skills and Measure Some Areas of Competence

Present clinical problems authentically.....
What simulation is NOT Real…..

But we can make some aspects of it close…
Do we have the know how?

<table>
<thead>
<tr>
<th>Access to Simulation (108 Programs)</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Computer Simulation</td>
<td>61 (56%)</td>
<td>47 (44%)</td>
</tr>
<tr>
<td>• Full Body Simulation</td>
<td>100 (93%)</td>
<td>8 (7%)</td>
</tr>
<tr>
<td>• Type of Full Body Simulator:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Laerdal SimMan</td>
<td>66 (61%)</td>
<td>42 (39%)</td>
</tr>
<tr>
<td>• Meti</td>
<td>43 (40%)</td>
<td>65 (60%)</td>
</tr>
</tbody>
</table>

2010 COA Annual Report
My current experience level in simulation education is:

1. Novice
2. Some experience
3. Moderate experience
4. Significant experience
5. Expert

2010 AOSF
My current experience level in simulation education is:

1. Novice: 34%
2. Some experience: 26%
3. Moderate experience: 19%
4. Significant experience: 16%
5. Expert: 6%

2010 AOSF, N= 190
Current Pitt NAP Sim Contact Hrs
(110+ per student)

Year 1-
Participant
(70 hrs)

Year 2-
Participant and Volunteer
(30 hrs)

Year 3-
Participant, Volunteer,
Student Instructor
(10-40 hrs)
We use it to develop and measure a variety of competencies.

- Assessment
- Individual Psychomotor Skills
- Monitoring and Intervention Skills
- Clinical Problem Solving
- Clinical Reasoning
- Learning roles and goals within a team
Spinal & Epidural
Double Lumen Endobronchial Tube Placement
Fiberoptic Bronchoscopy
Jet Ventilation
CVC Insertion
Ex: Inducing Anesthesia

- **Value:**
  - Confidence
  - Basic skills
  - Decreased anxiety

- **Strategy is Scaffolding**
  - Didactic
  - Standardized patients
  - Part task trainers
  - Full task trainers
  - Practice sessions
  - Full context simulation
Problem-Based or Crisis Simulations
Critical event simulation has helped our grads prepare for real life.
July 2008

• …we all agree that such learning activities as anesthesia crisis leadership training (ACLT), other WISER simulations, and the variety of clinical experiences that Pitt had to offer are extremely beneficial downrange. We provide anesthesia in some of the most austere and unforgiving environments, sand, lack of transport for supplies due to bad weather conditions, and overall enemy activity necessitating the need for adaptation and quick thinking when faced with taking care of critical patients.
Can simulation be used to evaluate providers?
Henrichs (2009): CRNAs vs. MDs


- Head to head comparison of providers
- Population:
  - 35 MDs, 24 CRNAs
- Intervention
  - Scenario management
- Outcome:
  - Comparison of completion of critical steps
- MDs did a little better overall
How Serious is the ASA?

- MOCA- maintenance of certification in anesthesiology
- Once q 10 years- **must** take simulation as part of accreditation- ABA is offering incentives (enhanced CE credit)
- ASA endorsed (accredited) centers- 18 in US
- 3000-5000 participants per year starting this year
Is high stakes testing on the way?

Ziv et. al. (Israeli National Simulation Center-MSR) Standardized Testing, Selected Specialties (2004-present)

Schaeffer, Quinlan et. al. DAW Course University of Pittsburgh (2006-present)
Difficult Airway
# CRNA DAW Skill and Process Criterion Checklist

## CRNA Difficult Airway Summative Evaluation Checklist

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adhered to the DAW Algorithm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Called for help appropriately</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communication effective</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preoperative evaluation (airway)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical exam</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preoxygenation/ Induction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Airway technique sequence*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BVMV - one or two person</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reposition</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Airway - oral</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DL X 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supraglottic technique</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subglottic technique</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*In order to satisfy 'yes' for any category, student must successfully pass ALL elements, otherwise the section is coded 'No'.

©Copyright: John O'Donnell and WISER

## Airway Evaluation
- **Awake Intubation**
  - General Anesthesia Initiated:
    - CAN Ventilate
    - CANNOT Intubate

## General Anesthesia: CANNOT Ventilate/CANNOT Intubate
- **Supraglottic Techniques:**
  - LMA/FTLMA
  - Combitube
- **Subglottic Techniques:**
  - TTJV
  - Tracheotomy (variety of methods)

## Procedural or Criterion Rating
Where does AANA Stand?

• No widespread agreement or white paper
• No infrastructure
• Simulation Users Group of National Faculty

• New NBCRNA recertification initiative counts simulation but there is no mandatory requirement
Continued Professional Certification (CPC)

WELCOME TO THE NBCRNA WEBSITE

The mission of the National Board of Certification and Recertification for Nurse Anesthetists (NBCRNA) is to promote patient health and safety through credentialing programs that support lifelong learning.
NBCRNA vs. AANA Missions

NBCRNA Mission
To promote patient health and safety through credentialing programs that support lifelong learning- Credentialing

AANA Mission
AANA advances patient safety, practice excellence, and its members’ profession- Practice/Profession

Slightly Different Missions
AANA Does **NOT** Control NBCRNA

They have to be independent
Why Recertification Change - NOW?

- Raising the bar?
- IOM reports?
- NCSBN expectations?
- Public expectations?
- PEW/ Credentialing bodies

- Outdated system?
- Financial motives?
- APRN equivalence?
- AA equivalence?
- MD equivalence?
Drivers for Change

- Citizens Advisory Council and AARP
- Politics
- Financial pressures? AANA/NBCRNA
- Regulators- accreditors of certifying bodies
- Institute of Medicine Reports
  - Crossing the Quality Chasm: A new Health System for the 21st Century
  - To Err is Human
  - The Future of Nursing
  - Redesigning Continuing Education in Healthcare Professions

Implementing Continuing Competency Requirements for Health Care Practitioners
Swankin, et al.. Citizen Advocacy Center #2006-16 July 2006
“The absence of a comprehensive and well-integrated system of continuing education (CE) in the health professions is an important contributing factor to knowledge and performance deficiencies at the individual and system levels”

Does certification (re-certification) improve care?
Does Certification Improve Care?

- Holding all other variables constant, treatment by a certified physician was associated with a 15% reduction in mortality among patients with an AMI.

- Less patient mortality was associated with treatment by physicians who were cardiologists, cared for a large number of AMI patients, were closer to graduation from medical school, and were certified.
  

Less mortality from AMI when certified
Does Certification Improve Care?

• **Conclusions:** Few published studies (5%) ... [of the studies published]....more than half support an association between board certification status and positive clinical outcomes

Does Certification Improve Care?

• Grosch: “Sharp et al. ignored the evidence … and proposed enthusiastic but unjustified conclusions in support of specialty board certification

• Conclusion: No evidence supports the clinical benefit of specialty board certification…..”

Bottom Line

• “The public perceives that board certification .....is the “gold standard”” and if a clinician possesses this credential, he or she has the knowledge and skills required to be competent.

A Big Driver

Equivalency with other providers
Questions?

Otto Rohwedder