Indiana University School of Medicine

Anesthesiologist Assistant Program

Master of Science in Anesthesia
Topics for discussion

• History of Profession
• What is a Certified Anesthesiologist Assistant
• Drivers of AA Profession
• Indiana University School of Medicine
  – Master of Science in Anesthesia (MSA) program
Historical Perspective

Analysis of Manpower in Anesthesiology (1969)

John Steinhaus, MD
Atlanta, GA

Perry Volpitto, MD
Augusta, GA

Joachim Gravenstein, MD
Cleveland, OH

SCHOOL OF MEDICINE
Historical Perspective
Moving Forward

1969
- Emory University (1969)
- Case Western Reserve – Cleveland (1970)

2004
- South University (2004)
- CWRU – Houston (2008)
- UMKC (2008)
- Nova – Tampa (2009)
- CWRU - DC (2010)

2008
- South University (2008)
- Nova – Tampa (2009)
- CWRU – Houston (2008)
- UMKC (2008)

2017
- Colorado University (2013)
- Medical College of WI (2016)
- Indiana University (2017)
- Nova – Jacksonville (2020)

2020
- South University – West Palm Beach (2021)
- Northeast Ohio Medical Center (2022)
- Nova – Denver (2022)
- South University-Orlando (2023)
- University of Texas-Houston – (2023)
- VCOM – Auburn – (2023)
- Ohio Dominican University-(2023)
- CWRU- Austin (2023)
- University of New Mexico - (2024)
- University of Utah – ?

2022
- Ohio Dominican University - (2023)
- University of New Mexico - (2024)
- University of Utah - ?

SCHOOL OF MEDICINE
Moving Forward

- CAAs in 2022: ~3000
- CAAs Predicted by 2027: 6,000

- Quickly growing field
  - 20 practicing states
  - Washington DC
  - Guam
What is a Certified Anesthesiologist Assistant (CAA)?
Anesthesia Care Team

Anesthesiologist
4 years undergraduate Pre-med
4 years medical school
4 years of residency training

Anesthesia Resident  Certified Anesthesiologist Assistant (CAA)
4 + 4 + 4

Nurse Anesthetist (CRNA)
4 + 3 years

4 + 2 years

AAs and NAs are equivalent providers in the Care Team Model
Certified Anesthesiologist Assistants
Certified Anesthesiologist Assistant (CAA)

• Highly skilled health professionals who work under the direction of a licensed anesthesiologist to implement anesthesia

• **Work exclusively within the anesthesia care team (ACT)**

• Supervising Ratios (via Center for Medicare/Medicaid Services)
  • Anesthesiologist may supervise up to 4 anesthetizing locations (ratio 1:4)
  
  • State/Local Options may alter this ratio
Certified Anesthesiologist Assistant (CAA)
Clinical Duties and Scope of Practice

• Perform pre-anesthesia history and physical exam
• Carry out anesthesia plan within the anesthesia care team
  – Administer anesthetic, adjuvant, and accessory drugs used in anesthetic practice
• Airway Management
• Regional and neuraxial anesthesia blocks
• Fluid and blood product administration
• Insertion of peripheral and central venous catheters, and arterial lines
• Patient monitoring and data interpretation via noninvasive and invasive techniques
Certified Anesthesiologist Assistant (CAA)  
CAA Workforce Diversity

• **Clinical Settings:**
  – Preoperative Anesthesia Clinics
  – Outpatient surgery centers
  – Large hospital centers
  – Private practices
  – Academic practices

• **Specialties**
  – Pediatrics
  – Cardiovascular

• **Variety of Cases**
  – General surgery
    • ENT, urology, orthopedics, burns, plastics, ophthalmology, gynecological, dental/oral, colorectal
  – Trauma
  – OB
  – Neurosurgery
  – Transplant
Certified Anesthesiologist Assistant (CAA)

“A Day in the Life”

0630
Arrive to OR
• Room setup
• Patient Interview (H&P)

0730
First Start of the Day
• Monitors
• Induction of anesthesia
• Airway manipulation

0745-???
Interoperative Anesthetic Management
• Balanced anesthesia delivery
• Monitor and evaluate vital signs
• Invasive monitors (IV, CVC, A-Line)
• Regional or neuraxial anesthesia

Emergence from Anesthesia

Repeat the Process

SCHOOL OF MEDICINE
Certified Anesthesiologist Assistant (CAA)
Hands-On Daily Patient Care
Wide Range of Salaries

$217,997 / yr

Total Pay

$191,715 / yr
Base Pay

$26,282 / yr
Additional Pay

IUH starting new grad salary ~$180,000

https://www.glassdoor.com/Salaries/anesthesiologist-assistant-salary-SRCH_KO0,26.htm
https://explorehealthcareers.org/career/allied-health-professions/anesthesiologist-assistant/

SCHOOL OF MEDICINE
Drivers of The AA Profession
Supply and Demand Imbalance

Supply

Demand

https://www.rand.org/content/dam/rand/pubs/research_reports/RR600/RR650/RAND_RR650.pdf

Student Anesthesiologist Assistants
Individual who were Medical School Bound

Medical School Acceptance Rates

• In 2018–2019, 21,622 applicants were accepted to allopathic (MD) medical schools out of the 52,777 who applied, for an overall acceptance rate of 41%.
• The average medical school acceptance rate for allopathic and osteopathic medical schools in the United States is 7%.
• ~60% of Medical School Applicant
  – DON’T GET INTO MEDICAL SCHOOL
  – BUT HAVE THE PREREQUISITES
IUSOM

- **7315** MD Applicants for Class of 2020
- **365** First-Year Med Students
- **42** Partner Teaching Hospitals Statewide
- **1400** Current Number of MD Students

- \(\frac{365}{7315} = 4.98\%\)
Risks of Medical School

• Average Cost of in State MS Tuition ~$250,000
• Only ~90% of Graduating MS Match in the primary Match
• Of the 10% that don’t capture a position half are able to match during the secondary match
• Hence approximately 1 in 20 MDs don’t get a residency

AMA March 18, 2021
Indiana University
Master of Science in Anesthesia Program
IU MSA Program

• Founded in 2017 (Accredited by CAAHEP)
  – Indiana licensure passed in 2014
• Faculty within the IU MSA Program
  – Physician Anesthesiologists
  – Anesthesiology Residents and Fellows
  – Certified Anesthesiologist Assistants
• MSA Program is 28 consecutive months
IU MSA program eligible applicants

- Bachelor's Degree
- Pre-Med curriculum (GPA ≥ 3.4)
- Entrance Examination MCAT (≥499) or GRE (≥50 VR, ≥50 QR)
- In person interview
- Professional Recommendations (Three total)
- Anesthesia Shadowing experiences (≥8 hours)
## Applications and Class Size

<table>
<thead>
<tr>
<th>Admissions Cycle</th>
<th>Applications</th>
<th>Cohort</th>
<th>Acceptance</th>
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<td>2016-2017</td>
<td>60</td>
<td>12</td>
<td>20%</td>
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<tr>
<td>2017-2018</td>
<td>166</td>
<td>12</td>
<td>7.2%</td>
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<tr>
<td>2018-2019</td>
<td>177</td>
<td>12</td>
<td>6.8%</td>
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<tr>
<td>2019-2020</td>
<td>176</td>
<td>16</td>
<td>6.3%</td>
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<tr>
<td>2020-2021</td>
<td>176</td>
<td>18</td>
<td>10.2%</td>
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<tr>
<td>2021-2022</td>
<td>209</td>
<td>20</td>
<td>9.6%</td>
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# Program Averages

<table>
<thead>
<tr>
<th></th>
<th>Class of 2019</th>
<th>Class of 2020</th>
<th>Class of 2021</th>
<th>Class of 2022</th>
<th>Class of 2023</th>
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<tbody>
<tr>
<td>Overall GPA</td>
<td>3.48</td>
<td>3.59</td>
<td>3.55</td>
<td>3.69</td>
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<tr>
<td>Science GPA</td>
<td>3.5</td>
<td>3.43</td>
<td>3.45</td>
<td>3.58</td>
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<td>Pre-req GPA</td>
<td>3.55</td>
<td>3.5</td>
<td>3.42</td>
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<td>GRE - Verbal</td>
<td>60</td>
<td>61</td>
<td>62</td>
<td>64</td>
<td>65</td>
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<tr>
<td>GRE - Quant</td>
<td>68</td>
<td>60</td>
<td>55</td>
<td>63</td>
<td>62</td>
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<tr>
<td>MCAT</td>
<td>498</td>
<td>496</td>
<td>499</td>
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</table>
Prerequisite Requirements

All courses should be completed with a B- or better

- **Biology – 2 semesters** (Microbiology, Cell & Molecular Biology, and Biochemistry may be substituted for this requirement)
- **Human Anatomy – 1 semester**
- **Human Physiology – 1 semester** (A two-semester combined Anatomy and Physiology course will be accepted)
- **Chemistry with Lab – 2 Semesters**
- **Organic Chemistry with Lab – 2 Semesters**
- **Physics with Lab – 2 Semesters**
- **Statistics – 1 semester** (Biostatistics may be substituted for this requirement. Introductory/100-level statistics classes are accepted)
MSA Program Timeline

**Didactic Year**

- **Fall I**
  - Clinical Science
    - Anatomy
    - Physiology
    - Pharmacology
  - Anesthesia Practice
    - Airway
    - Preoperative Evaluation
    - Regional Anesthesia
  - Anesthesia Science
  - Simulation Lab
  - Part-Time Clinical Rotations (600 hours)

- **Spring II**

- **Summer III**

- **Fall IV**

**Clinical Year**

- **Spring V**
  - Clinical Rotations (13 total)
    - Trauma
    - Obstetrics
    - Cardiac Surgery
    - Pediatric Surgery
    - Neurosurgery
    - Acute Pain Service (APS)
    - Intensive Care Unit (ICU)
    - Transplant Surgery
  - Full Time Clinical Rotations (2000 hours Total)

- **Summer VI**

- **Fall VII**

- **In-Training Certification Exam**
  - December
- **Certification Exam**
  - December
- **Graduation**

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SCHOOL OF MEDICINE
<table>
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<tr>
<th>Semester</th>
<th>Course</th>
<th>Title</th>
<th>Credit Hours</th>
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<tr>
<td><strong>I. FALL</strong></td>
<td>ANES-B501</td>
<td>Orientation to Simulation and Clinical Anesthesia</td>
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<td>ANES-B511</td>
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<td></td>
<td>ANES-B521</td>
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<td>ANES-B531</td>
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<td>ANES-B541</td>
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<td><strong>II. Spring</strong></td>
<td>ANES-B561</td>
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<td>ANES-B542</td>
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<td><strong>III. Summer</strong></td>
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<td>ANES-B513</td>
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<td>ANES-B533</td>
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<td>ANES-B543</td>
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<td><strong>IV. Fall</strong></td>
<td>ANES-B563</td>
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<td>Professionalism IV</td>
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<tr>
<td></td>
<td>ANES-B580</td>
<td>Anesthesia Didactic Competency</td>
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</table>

**DIDACTIC PHASE**

**CLINICAL PHASE**

| Spring | ANES-B571 | Advanced Clinical Anesthesia I | 12 |
| | ANES-B591 | Senior Seminar I | 1 |
| | ANES-B581 | Anesthesia Knowledge I | 1 |
| | | | 14 |
| Summer | ANES-B572 | Advanced Clinical Anesthesia II | 11 |
| | ANES-B592 | Senior Seminar II | 1 |
| | ANES-B582 | Anesthesia Knowledge II | 1 |
| | | | 13 |
| **VII. Fall** | ANES-B573 | Advanced Clinical Anesthesia III | 12 |
| | ANES-B593 | Senior Seminar III | 1 |
| | ANES-B583 | Anesthesia Knowledge III | 1 |
| | | | 14 |

**Academic Calendar Year 2023 - 2025**
Clinical Curriculum

• 3060 scheduled hours

• Hospitals
  – University
  – Riley
  – Methodist
  – Eskenazi

• Rotations
  – Indianapolis
  – Outside Indianapolis

• Faculty
  – Physician Anesthesiologists
  – Anesthesiology Residents
  – Certified Anesthesiologist Assistants
Graduation
Master of Science in Anesthesia

Continuing Medical Education (CME)
Year 0  Certifying Examination
Year 1
Year 2  CME Registration
Year 3
Year 4  CME Registration
Year 5
Year 6  CME Registration & CDQ Examination

Certification through National Commission for Certification of Anesthesiologist Assistants (NCCAA)

Valued member of the Anesthesia Care Team, Certified Anesthesiologist Assistant (CAA)

Pathway from Education to Practice

Graduation
Master of Science in Anesthesia

National Certification

Licensure & Credentialing
### Indiana University Anesthesiologist Assistant Program

#### Outcomes

**Matriculation & Retention**

<table>
<thead>
<tr>
<th>Cohort</th>
<th>Initial Enrollment</th>
<th>Separated</th>
<th>Voluntary Withdrawal</th>
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<tr>
<td>2023</td>
<td>18</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>2022</td>
<td>16</td>
<td>0</td>
<td>0</td>
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<tr>
<td>2021</td>
<td>12</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>2020</td>
<td>12</td>
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<td>0</td>
</tr>
<tr>
<td>2019</td>
<td>12</td>
<td>1</td>
<td>0</td>
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<tr>
<td><strong>Totals</strong></td>
<td><strong>72</strong></td>
<td><strong>2</strong></td>
<td><strong>1</strong></td>
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<tr>
<td><strong>Rate</strong></td>
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<td><strong>96%</strong></td>
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**Certification Exam Results**

<table>
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<tr>
<th>Cohort</th>
<th>Examinees</th>
<th>1st Attempt Pass</th>
<th>Total Pass Rate</th>
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<tr>
<td>2021</td>
<td>11</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>2020</td>
<td>12</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>2019</td>
<td>11</td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>34</strong></td>
<td><strong>33</strong></td>
<td><strong>34</strong></td>
</tr>
<tr>
<td><strong>Rate</strong></td>
<td></td>
<td><strong>97%</strong></td>
<td><strong>100%</strong></td>
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**Job Placement**

<table>
<thead>
<tr>
<th>Cohort</th>
<th>Graduated</th>
<th>Employed</th>
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<tbody>
<tr>
<td>2021</td>
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<td>2020</td>
<td>12</td>
<td>12</td>
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<tr>
<td>2019</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>11</strong></td>
<td><strong>11</strong></td>
</tr>
<tr>
<td><strong>Rate</strong></td>
<td></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>
Matriculants

SCHOOL OF MEDICINE
Employment

SCHOOL OF MEDICINE
Indianapolis

- Cost of living
- Sports
- Culture
- Concerts
- Family
- Outdoors
Interpersonal Skills  Integrity  Detail Oriented
Professional  Foresight
Empathetic  Articulate
Diligent  Motivated
Attentive  Decisive
Efficient  Caring
Responsive  Adaptable
Compassionate  Dependable
Life-Long Learner  Task Oriented
Humility  Critical Thinker

SCHOOL OF MEDICINE
Questions?

Certified Anesthesiologist Assistant (CAA)
IU MSA Contact Information

- Wen Li Chen, MSA, CAA (wenlchen@iu.edu)
  - Assistant Program Director
  - 224.345.9856
- Richard Bassi, CAA, MMSc, MEd (rbassi@iu.edu)
  - Program Director
  - 317.274.0277
- Chris Guagliardo, MTS (iusmaa@iu.edu)
  - Program Coordinator
  - 317.274.2532
- [https://medicine.iu.edu/departments/anesthesia/education-programs/ms/](https://medicine.iu.edu/departments/anesthesia/education-programs/ms/)
Airway Management Demo

- https://www.youtube.com/watch?v=8AOB2PtHfVM&ab_channel=InterAnest
- Bag mask ventilation
- Intubation
- Laryngeal mask airway placement