



Advancing Simulation in Urologic Education: SAU SIMULATE Taskforce

**(Standardized Instructional Models for Urology Learning
and Training Excellence)**

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FINANCIAL DISCLOSURE

I have the following financial relationships to report with ACCME defined ineligible companies.

| Name of Company | Nature of Relationship | Current Status |
|------------------------|-------------------------------|-----------------------|
| Intuitive | Research grant | Active |
| Ambu | Consultant | Active |
| Leeve | Consultant | Active |
| Civco | Consultant | Active |
| Olympus | Consultant | Active |

I will not be discussing unlabeled/investigational uses of medical devices or pharmaceuticals during this presentation.



375 respondents



Survey Participation included junior, senior urologists and PDs



Simulation Resource Availability

- Dry lab ~50%
- VR ~31%, 18%
- Wet lab -16%



Status of Urology Resident Simulation Training



- Standardization Gap
- <25% follow a structured, standardized training program
- Validity evidence



Surgical Modality Access

- Cadaver, Pigs, VR,
- Physical Models



Trainee Satisfaction

- ~50% rating training satisfaction
- Likert 4-5



Heterogeneity of Training

- Variable access by center
- Many differences implementation





Development of National Urology Simulation Curriculum



**Step 1:
Needs Assessment
Survey**



**Step 4:
Widespread
Implementation**



**Step 2:
Design of Simulation
Models**



**Step 3:
Pilot Testing at
selected sites**



Step 1: Needs Assessment Survey



• Outline

- Circulated to SAU members Oct 25
- Will identify **the most critical and challenging procedures** prioritized for simulation training
- From previous SAU Delphi for EPAs (minimal competencies)
- Targets procedures that are **BOTH**
 - **Essential** for residency completion + **Difficult** to teach effectively in the operating room
- **3 phase Delphi consensus** process will refine the list of procedures to be included in next step

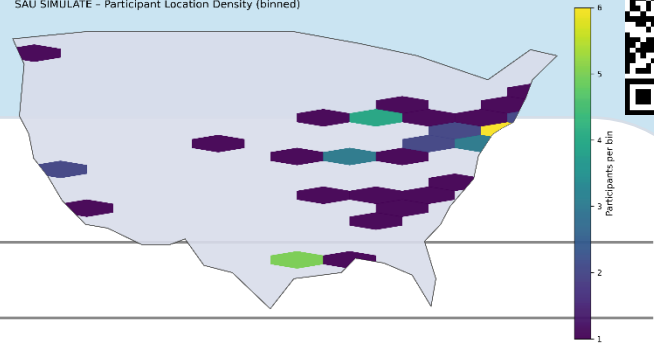


Dataset snapshot

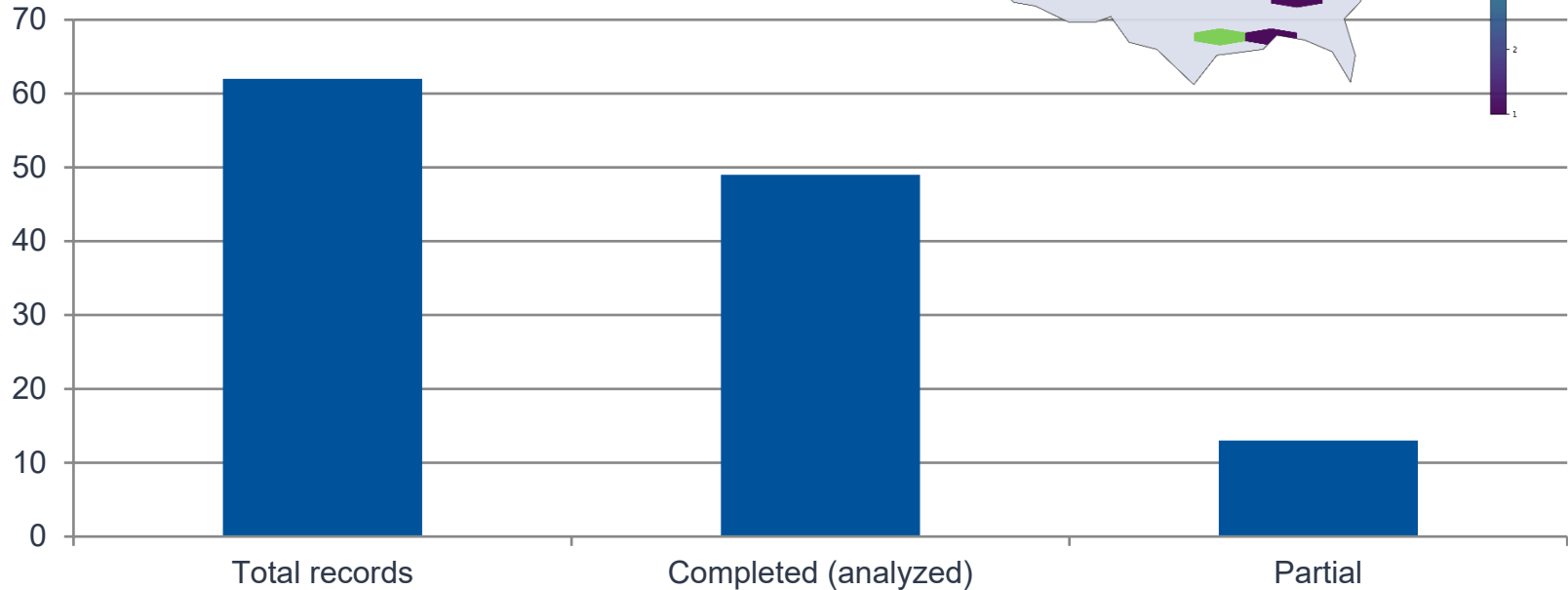
Survey export overview



SAU SIMULATE – Participant Location Density (binned)



Records by completion status



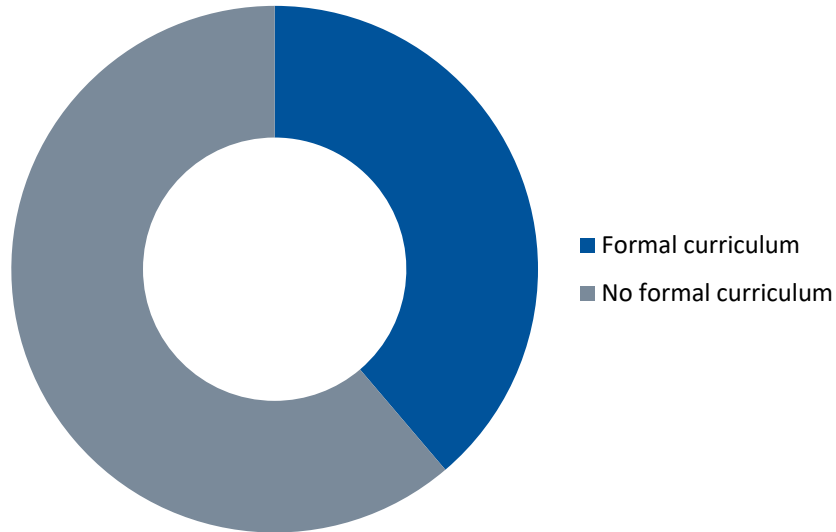
Completed responses: 49

Partial: 13



Current state: formal simulation curriculum

Completed responses (n=49)



19/49 (39%)

Programs report a formal simulation curriculum

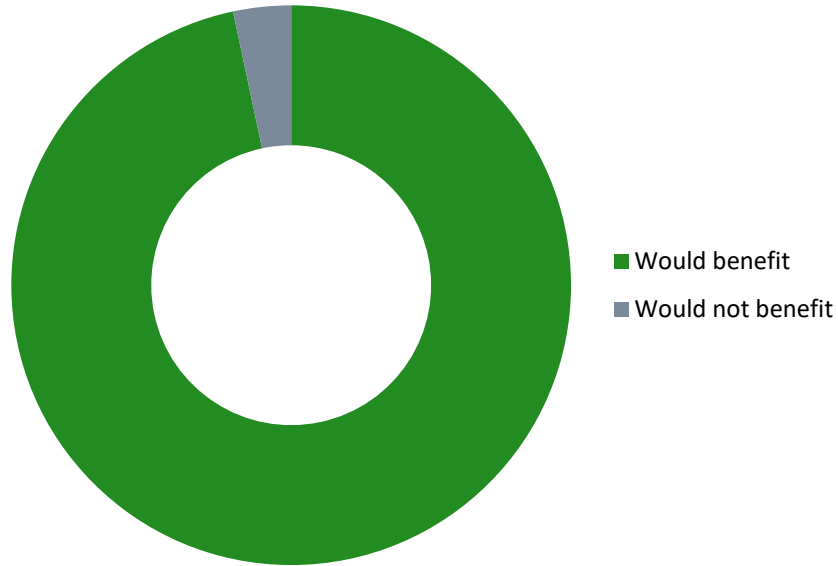
30/49 (61%)

Programs report no formal simulation curriculum



Demand signal for a national curriculum

Programs without a formal curriculum (n=30)



29/30 (97%)

Report they would benefit from a national simulation curriculum

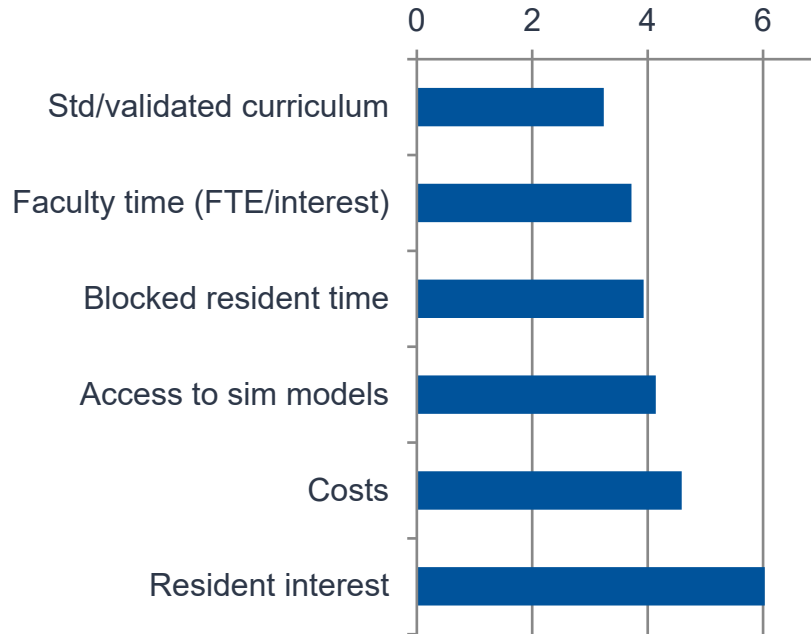


Barriers (no formal curriculum)

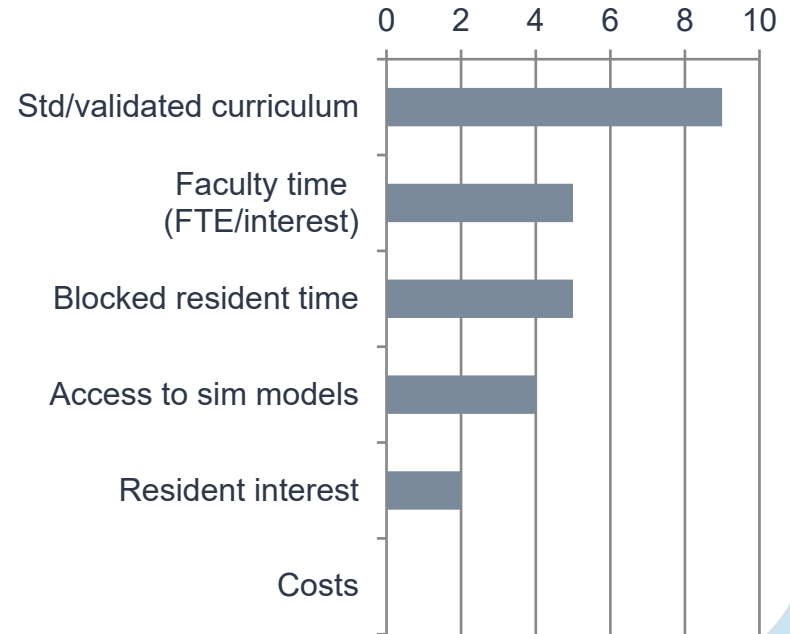
Programs without a formal curriculum (n=30) — ranking results



Mean rank (lower = more important)



#1 votes (ranked most important)

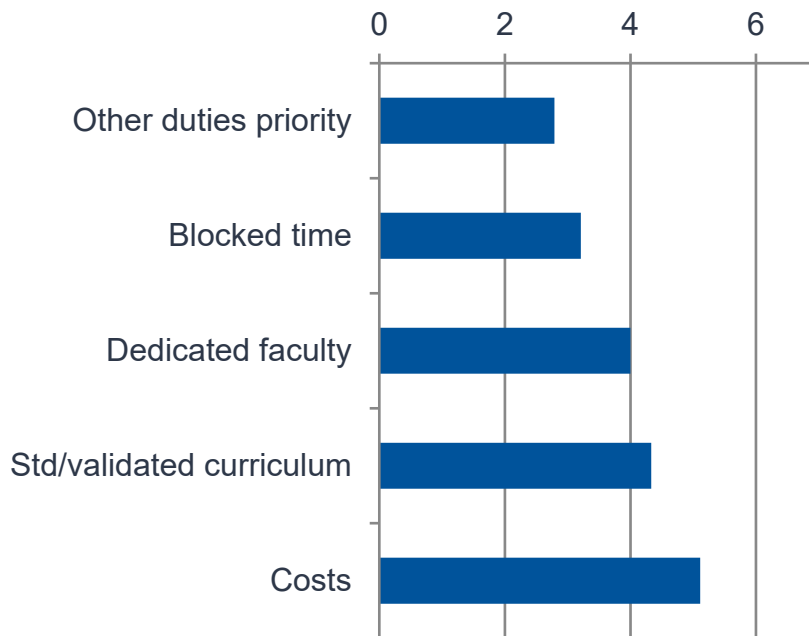


Barriers (formal curriculum exists)

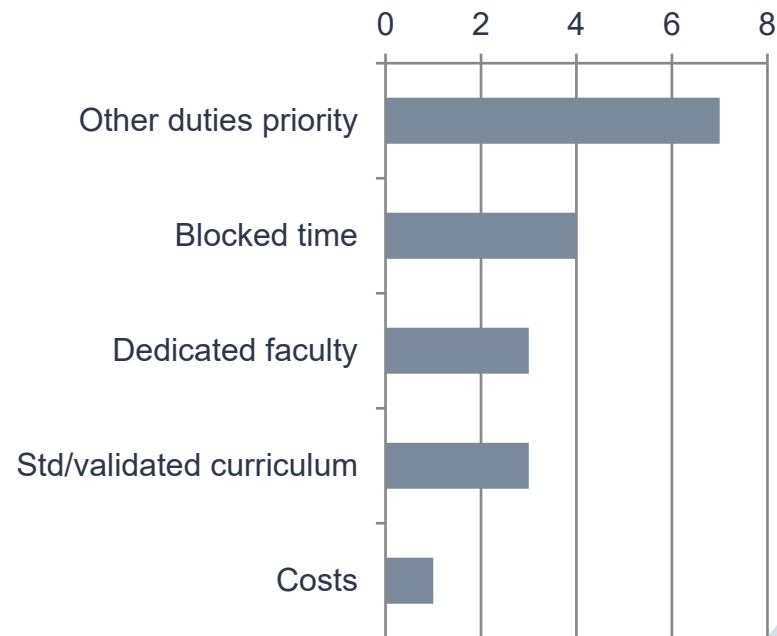
Programs with a formal curriculum (n=19) — ranking results



Mean rank (lower = more important)

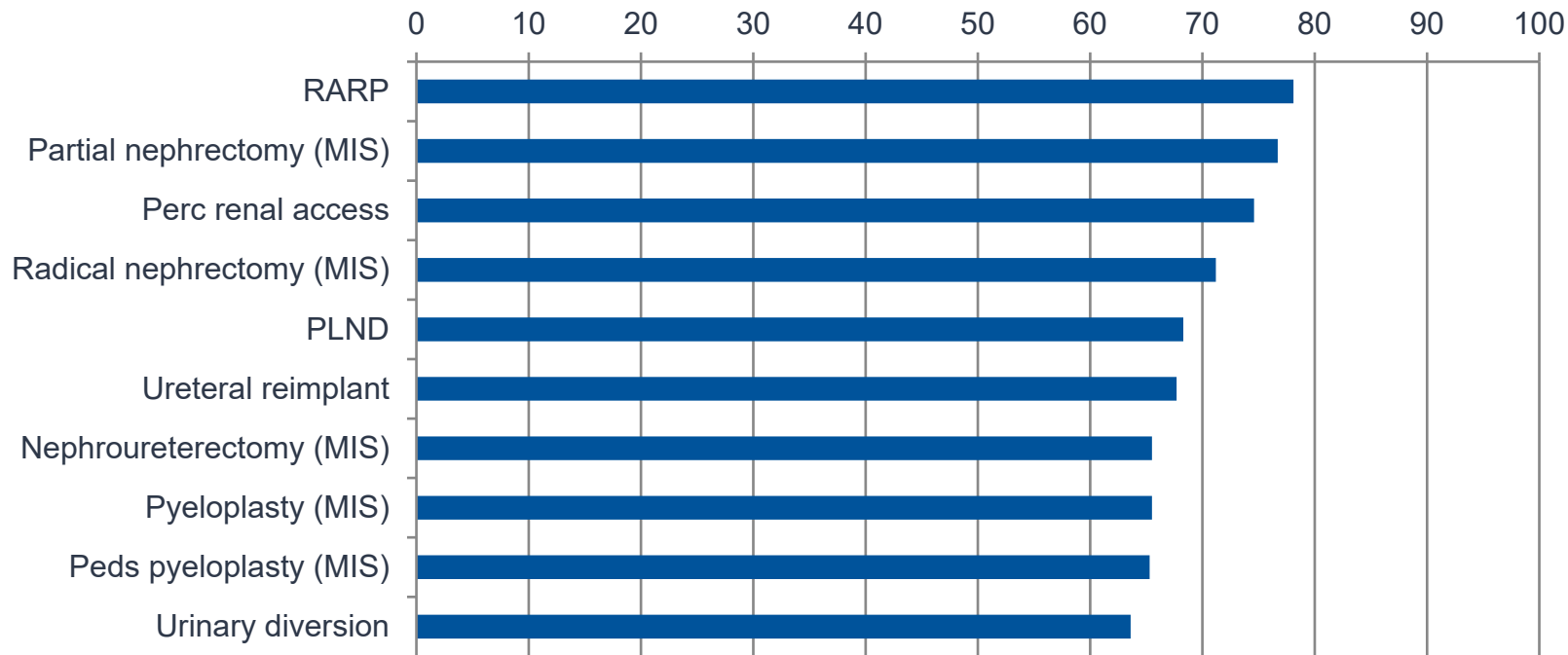


#1 votes (ranked most important)



Procedure priorities (top 10)

Mean priority score (0–100 scale)



Domain-level signal

Relative priority tiering (high-level)



Oncology

Highest

Reconstructive Urology

High

Pelvic/Female

Mid-high

Pediatrics

Mid-high

Urolithiasis

Mid

Andrology

Lower





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Step 2: Development of Simulation Models



Critical Decision Analysis (CDA)

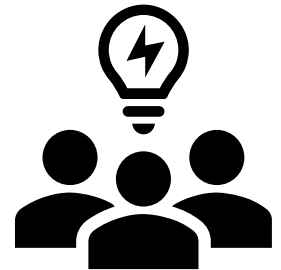
- Identify procedure
- Procedure breakdown to critical steps
- Focused interviews with experts to develop a decision analysis table
- List of task deliverables to convert to simulation trainers



Step 2: Why use Critical Decision Analysis



- **Cognitive Task Analysis** is a toolkit used by researchers to understand proficient performance & how people achieve expertise
- **Critical Decision Analysis** is a framework used to study , inform, and shape how people make decisions in demanding real-world situations
 - **Understand** how proficient individuals perform the task
 - Study knowledge, specific information & **reasoning process of experts**
 - **Identify Cues** for recall of critical information and prior knowledge





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Step 3: Pilot testing with selected sites



• Outline

- **5-10 pilot sites** with up to 60 residents (30 on Curriculum vs 30 control already performing OR training)
- **Models** supplied from SAU grant for pilot
- Development of **on-line education** & evaluation platform
- **Data collection**
 - Video recording of SIM to validate AI algorithm
 - Guidelines for practice (Time commitment, frequency of practice, protected time, prerequisites etc.)
 - Feedback survey (barriers, Impact on clinical care (Proctor and trainee feedback))





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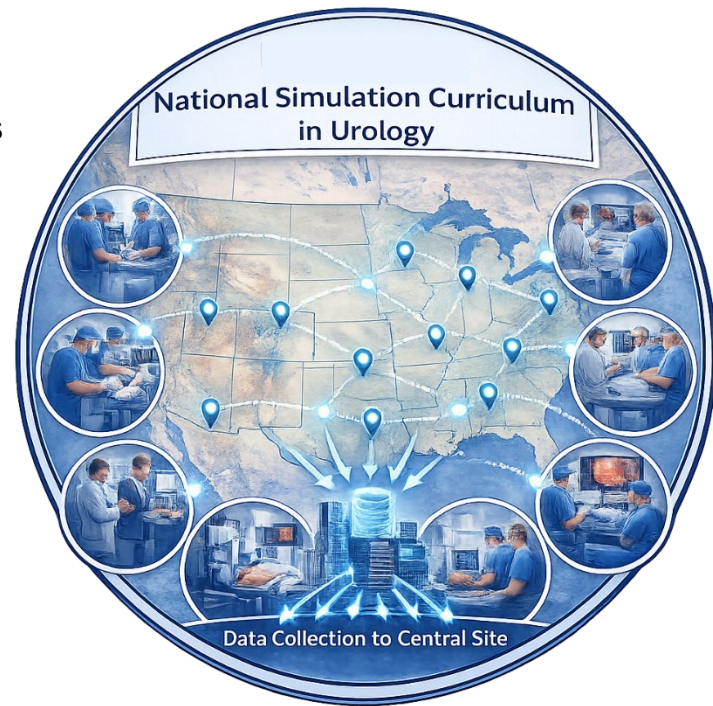
**Step 3:
Pilot Testing at
selected sites**



Step 4: Widespread Implementation



- **Presenting DATA of the pilot trial to SAU PDs**
- **Finalizing**
 - On site development vs 3rd party supply of models
 - Establishing a Database
 - Publish guidelines (Time commitment, frequency of practice, protected time, prerequisites etc.)
- **Testing predictive validity**
 - Impact on clinical care (Proctor and trainee)
 - Improved operative performance (Video collection of clinical cases for analysis)





Covering all Urology



- Starting with the top Urology subspecialty identified via needs assessment (e.g., robotic surgery)
- Taskforce will follow the template to develop the next subspecialty
- Continue until a standardized , structured , validated curriculum is developed for ALL urology subspecialties

Questions



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