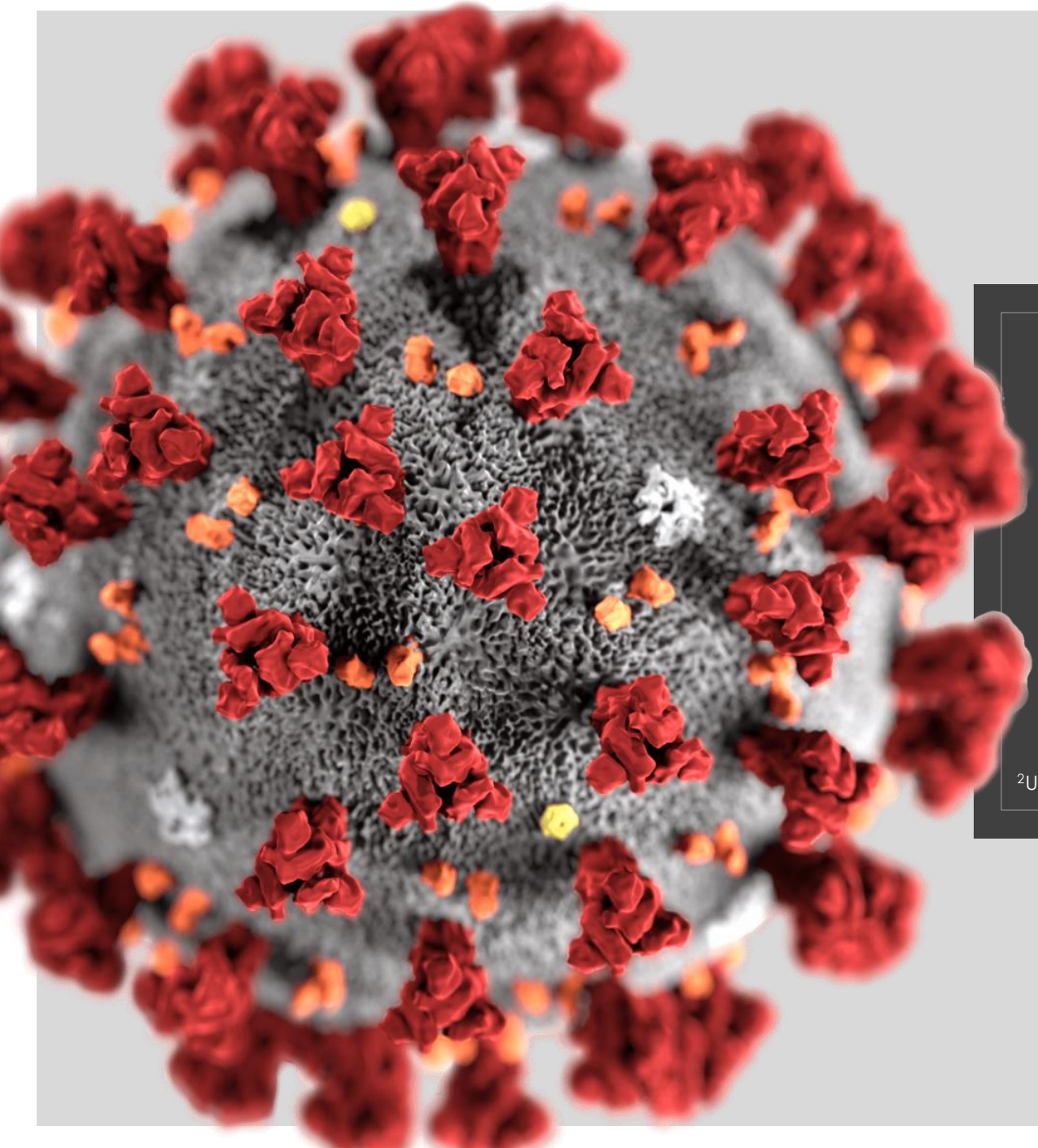

PIVOTING TO VIRTUAL LEARNING: COVID-19 STRENGTHENS INTERFACILITY PARTNERSHIP

Ronda Winans-Mitrik[1], Rebecca Ruffing[1], Kimberly Eichhorn[1], Geoffrey Fredericks[1-2], Laura Appelbaum[1], Erin Lundbloom[2]

[1]VA Pittsburgh Healthcare System
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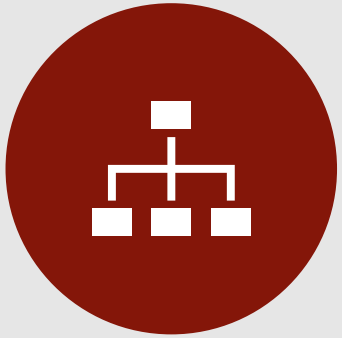
Learning Objectives



Describe current frameworks for speech pathology simulated learning in the peer-reviewed literature

Describe the VA Pittsburgh Healthcare System and University of Pittsburgh's collaborative model for authentic case-based simulated learning

Identify student-reported satisfaction and benefits of simulated learning

BACKGROUND INFORMATION

Simulated Learning

Brief History of Simulated Learning

1960
Resucsci-Anne
Sim-One

1980
Simulated
Learning
Experiences

Late 20th Century
Medical
Education
Reform

Bradley, 2006

Types of Simulated Learning – General Medical

- Simulated Patients
- Simulated Environments
- Computer-based Simulation
- Part-Task Trainers
- Integrated Simulators

Carter, 2018; Hewat et al., 2020

Types of Simulated Learning – SLP

- Standardized Patients
- Simulated Environment
- Computer-based Simulation
- Paper-based Case Studies
- Video-based Simulation

Carter, 2018; Hewat et al., 2020

Support for SLEs in Speech Pathology

2015

Dysphagia Management

Miles et al.

2016

Conversational Practice

Quail et al.

2019

AAC Communication, Assessment, and Management

Howell et al.

2020

Application of Theoretical Knowledge of Disease Processes & Dysphagia

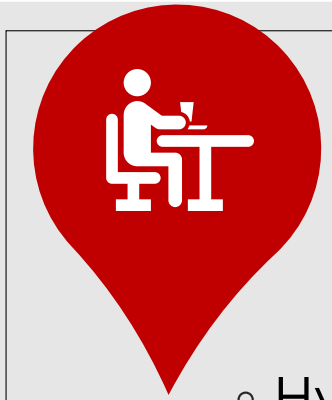
Miles et al.

Patient Interviews

Robinson et al.

Interprofessional Practice Workshop

Mills et al.



Miles et al, 2015

- Hybrid SLE combining standardized patients and a simulated environment
- 19 students enrolled in a "training day" as part of their dysphagia course
  - 7 skill stations (repeated intensive practice of each skill) – introducing self, reviewing clinical documentation, cranial nerve exam, etc.
  - 3 standardized patient or simulated patient scenarios within simulated environments
- Outcomes
  - Questionnaire and focus groups immediately after "training day" (n = 19)
  - Early hospital placement feedback focus group (n = 7)
  - Delayed placement feedback focus group (n = 4)

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Quail et al, 2016

- Comparison of modes of conversational skill training
- 62 undergraduates SLP students
- 3 conversational conditions
  - Nursing home resident
  - Standardized patient
  - Virtual patient (computer-based simulation)
- Outcomes grossly consistent across conditions
- Student evaluations emphasized importance of clinician educator support via feedback and debriefing

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Robinson et al.

Interprofessional Practice Workshop

Mills et al.

Howell et al, 2019

- 1-day standardized patient experience conducted via videoconferencing
- 52 first year SLP Master's students participated
- Students received topical instruction prior to the SLE
  - Problem-based learning case
  - Lecture
  - Clinical skill tutorial
- Standardized patient portrayal of an adult seeking AAC due to motor neuron disease
  - Provided pre-simulation briefing
  - Students were grouped, administering assessment or treatment with student observers
  - Clinical instructor led debriefing

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2020

Application of Theoretical Knowledge of Disease Processes & Dysphagia

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Patient Interviews

Robinson et al.

Interprofessional Practice Workshop

Mills et al.

2020 Developments

- Miles et al – evaluated the effectiveness of computer-based simulations for refining clinical interviews
- Robinson et al – extension of 2016 Quail et al work
  - Reinforced benefit of SLE opportunity for repeated practice
  - Demonstrated the value of virtual patients on students' self-reported skills acquisition and clinical educator ratings of student competence
- Mills et al - investigated simulated learning as a means of interprofessional education
  - 3 hour workshop administered to teams of 8-9 SLP, OT, and dietetic students
  - Presentation of a paper-based case
  - Evolution of video-based simulation scenarios

Benefits of Simulated Learning

Simulated learning allows:

- Learners at all skill levels to practice skills
- Learners to work on skills without risk to themselves or a patient
- Specific tasks/scenarios to be created (rare or severe)
- Skills to be practiced multiple times
- Skills to be practiced in realistic environments or situations
- Learners to improve their ability to transition from classroom into real-life
- An instructor or mentor to customize learner's experience
  - Rate of learning
  - Type of learner

Simulation has become central thread in medical education and use is expanding in allied health education

Bradley, 2006

Benefits for SLP students

- Virtual learning opportunities for SLP students may be successful to increase student:
  - ***Comfort*** and ***preparedness*** for hospital clinical placements
  - ***Knowledge***, ***confidence***, ***communication***, and ***clinical skills***
  - ***Confidence*** and ***attitude*** toward ***interprofessional practice***

- Many students were receptive to virtual learning opportunities

Miles et al, 2015, Quail et al., 2016 Howell et al., 2019 Miles et al., 2020, Mills et al., 2020

PARTNERSHIP

VA Pittsburgh Healthcare System & the University of Pittsburgh

Pitt & VA Partnership: Background

- VA Pittsburgh Healthcare
  - 7 full-time speech-language pathologists
  - Offers >25 annual clinical education opportunities for Master's level students

- University of Pittsburgh
  - Renowned graduate level Communication Sciences & Disorders program
  - Enrolls 30-35 Speech-Language Pathology graduate students per year

Pitt & VA Partnership: The 2020 Pivot

March

All face-to-face clinical instruction halted

April

Computer-based clinical learning

May

VA SLP led virtual clinical learning

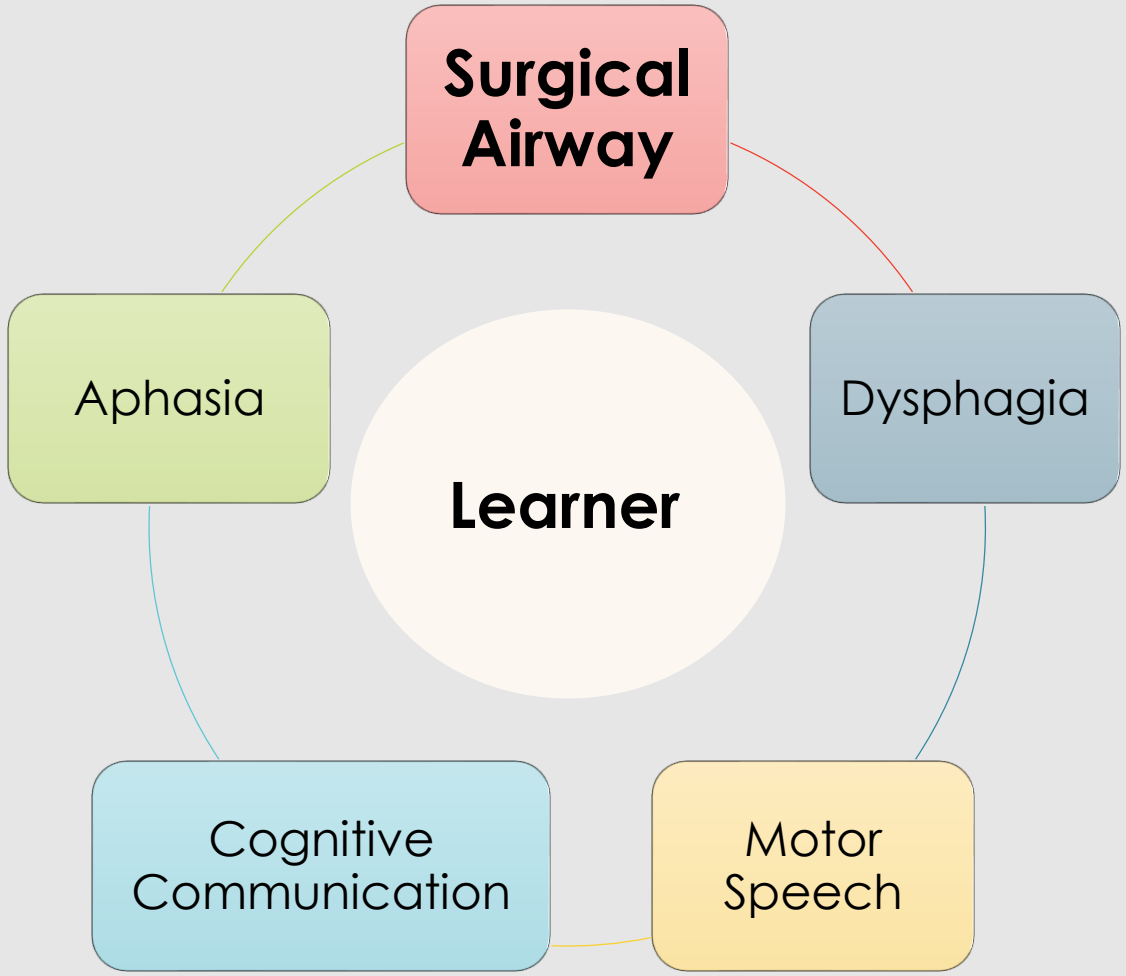
METHODS
Actual Implementation

Pitt & VA Partnership: Student Learning Schedule

- 34 total students, 5-6 students per group
- 4-week rotations, 3 total rotations per student
  - Each instructor used the same clinical case across 3 rotations
- Case Evolution
  - Week 1: Case History & Review of Topic/Diagnosis
  - Weeks 2-4: Clinical Updates
  - Week 4: Case Wrap-up & Student Learning Self-Reflections
- Hybrid SLE
  - Simulated learning (simulated patients, paper-based simulation, and video-based simulation)
  - Scaffolded instruction

Medical Speech Pathology Based Themes

- Comprehensive case-based learning with a core focus on:
  - Aphasia
  - Dysphagia
  - Cognitive-Communication (RHD)
  - Motor Speech
  - Surgical Airways

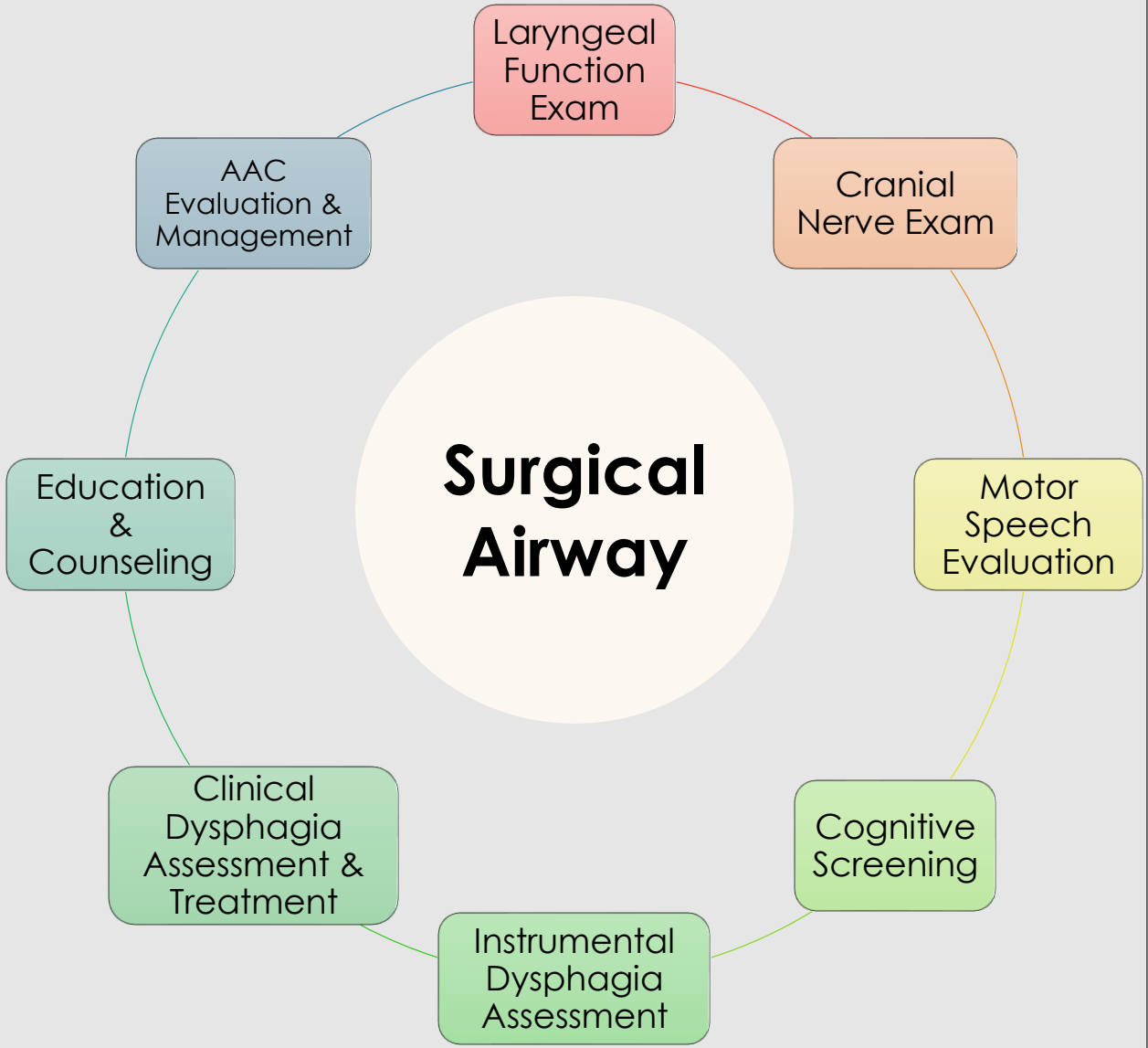


Case Development

- **Standard Student Learning Objectives**
  - Review and summarize case history
  - Develop clinical hypothesis
  - Develop assessment plan(s)
  - Identify modifications to evaluation procedures as needed
  - Analyze formal and informal assessments
  - Determine differential diagnoses
  - Define recommendations
  - Establish baseline data collection and monitor progress during treatment
  - Write clinical reports
- **Clear Expectations**
- **Online Learning Sessions, 90-120 minutes/session**
  - Didactic Content
  - Clinical Tasks
  - Knowledge & Skills Assessments
- **Weekly Assignments**
  - Webinars
  - Peer-reviewed literature reviews & summaries
  - Standardized and Non-standardized assessment scoring and interpretation
  - Written assignments (evaluation session, treatment session, diagnostic impressions, etc.)

Clinical Skills

- Integration of didactic and clinical knowledge and skills within cases ***and across sessions***
- Use of dynamic conversational exchanges of information via Socratic methodology
- Development and refinement of students' clinical decision-making processes
- Evidence-based practice
- Provision of online and off-line feedback



EXAMPLE OF CASE EVOLUTION

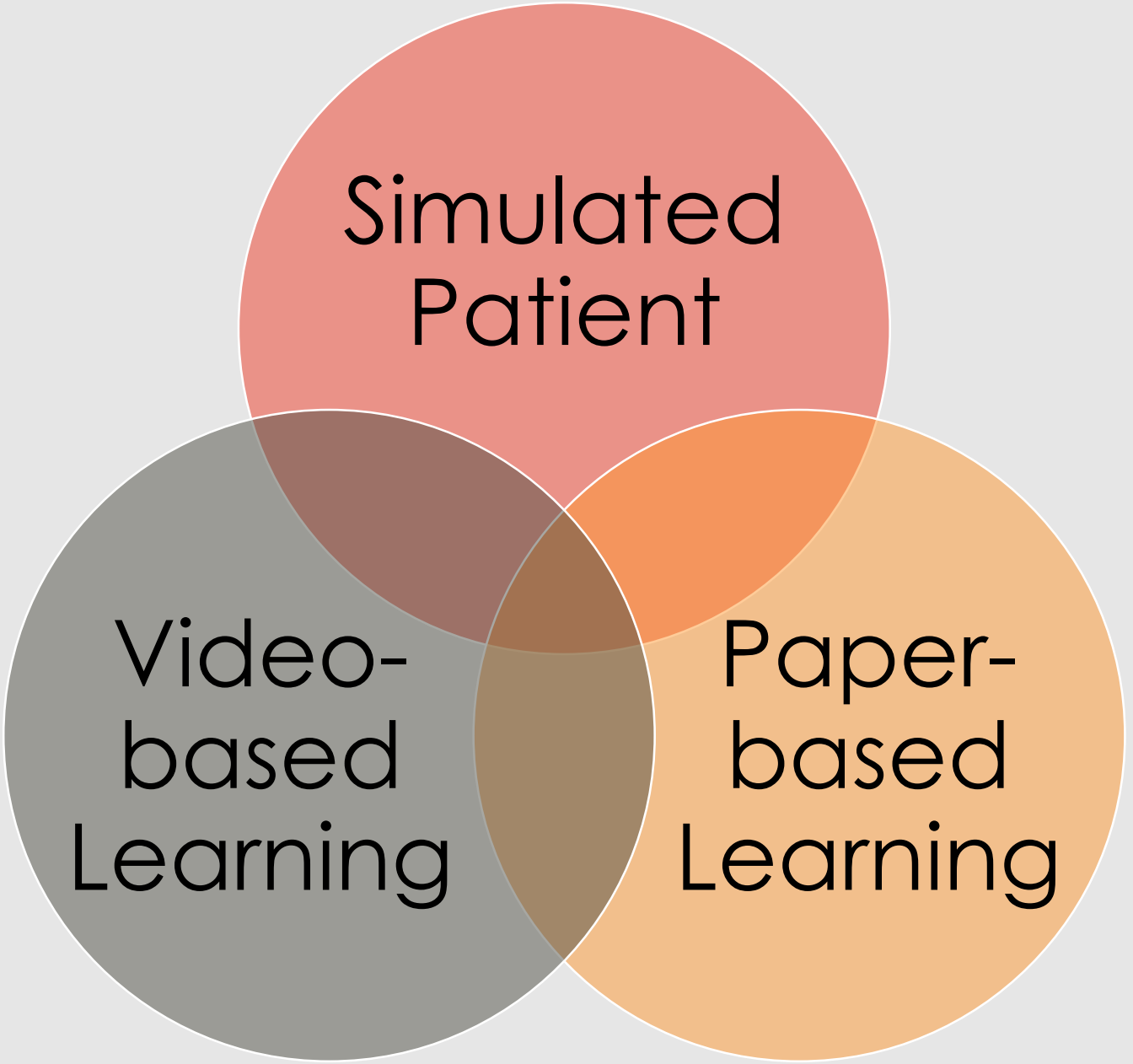
WEEK 1:

Mr. Ima Taucker is a 63 y.o. patient s/p orthotopic liver transplant (OLTX) who required prolonged mechanical ventilation necessitating tracheostomy on POD#15. He is now s/p tracheostomy and POD#18 s/p OLTX. He has a Shiley #6 CUFFED trach. He is on 30% O2 via trach mask. He has a right naris duo-tube and is currently tolerating tube-feedings (TFs). Today, he started to consume ice chips for QoL. Speech Pathology was consulted for a speaking valve.

WEEK 2 UPDATE:

Mr. Ima Taucker tolerated the one-way speaking valve for 45 minutes, but you notice that his voice is moderate-severely hoarse. He is still receiving TFs (Jevity @ goal of 65ml/hr), but the medical team is asking if he can eat…

Case Specific Simulated Learning Opportunities



OUTCOMES

The Learner Perspective

Outcomes

- Virtual learning experience feedback was elicited from students via a questionnaire administered at conclusion of Spring 2020 and Summer 2020 terms

- Spring 2020 (n = 16)
  - Students experienced face-to-face clinical placements for 2/3 of term; pivoting to traditional virtual simulation (e.g. Simucase) for the remainder of term
- Summer 2020 (n = 34)
  - Students experienced both traditional virtual simulation (e.g. Simucase) and complex case virtual simulations as described

Outcomes

- Students were asked to complete self-reflections at the conclusion of each case-based learning experience
- 61 Written Self-Reflections were analyzed for themes
- Written self-reflection prompts were provided as follows:
  - Describe the event
  - Share your feelings/reactions
  - Evaluate the experience
  - Analyze and explain your performance
  - Summarize what you learned and the goals you achieved

Example Self-Reflection

"At the beginning, my knowledge of surgical airways was very minimal. I really enjoyed being able to learn about this topic in detail in the comfortable, group based setting of virtual clinic. Without the high speed environment of in-person clinic, I was able to focus more on the material and learned a lot of detailed information. Group based discussions were also extremely beneficial, due to the fact that other classmates had unique ideas and perspectives on this case. Also, our clinical instructor really focused on self-discovery and allowed us time to think through things, which helped me grow my knowledge and independence in clinical decision making. The written assignments for this rotation were functional and helpful, and allowed me to feel more comfortable with my clinical writing skills…..Overall, this clinical placement has allowed me to learn unique information in a comfortable environment, while integrating this knowledge with clinical decision making necessary for speech and swallowing evaluation and treatment."

Student Thoughts & Perceptions

Start of Rotation

- Nervous
- Unprepared
- Intimidated
- Overwhelmed
- Limited experience and knowledge

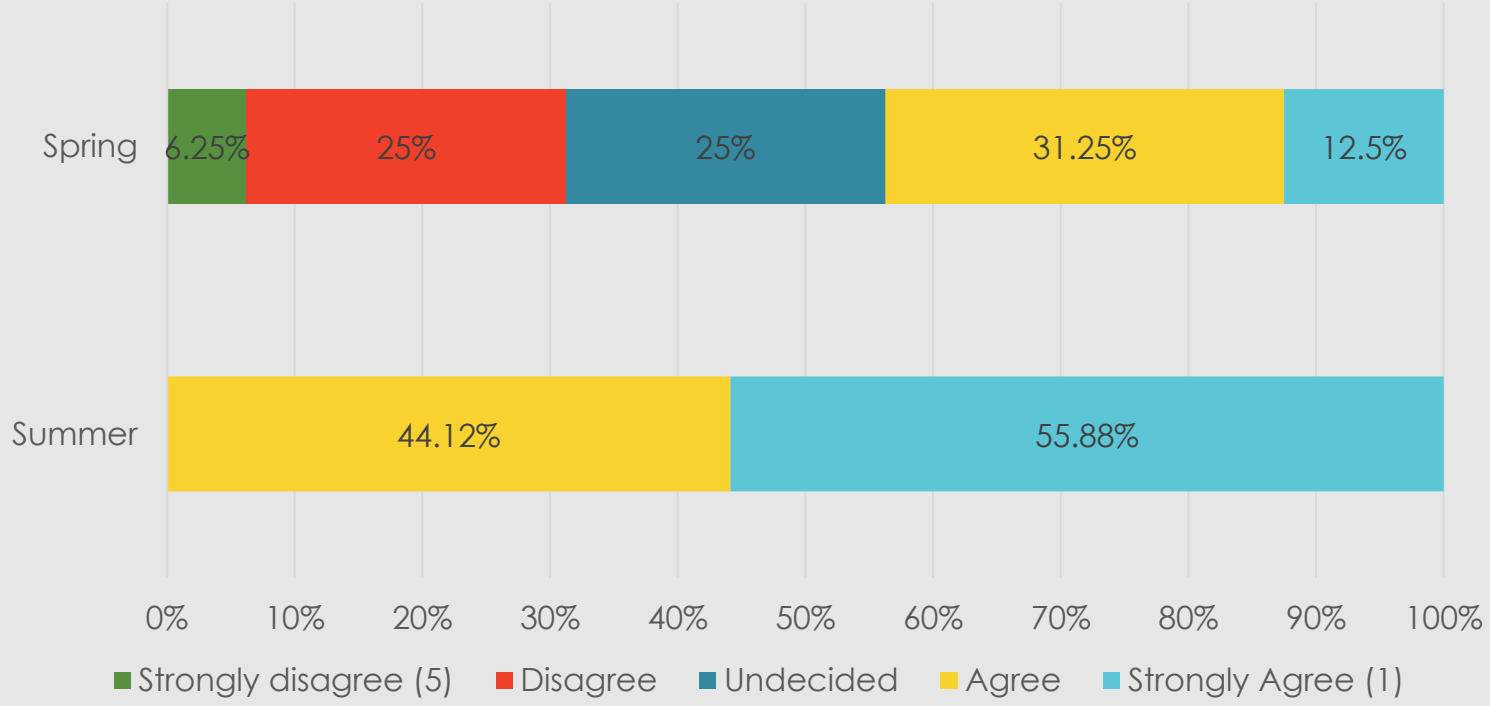
End of Rotation

- Increased confidence
- Comfortable, engaging environment
- Challenged to think critically

Student Endorsed Skill Development

- Across all cases student self-reflections noted development of core clinical skills:
  - Provision of care across continuum from diagnosis to treatment
  - Patient interview
  - Value and method of gathering clinical history
  - Clinical documentation including goal writing
  - Patient education
  - How to select/prioritize treatment methods
- Population specific knowledge and skills development were also endorsed

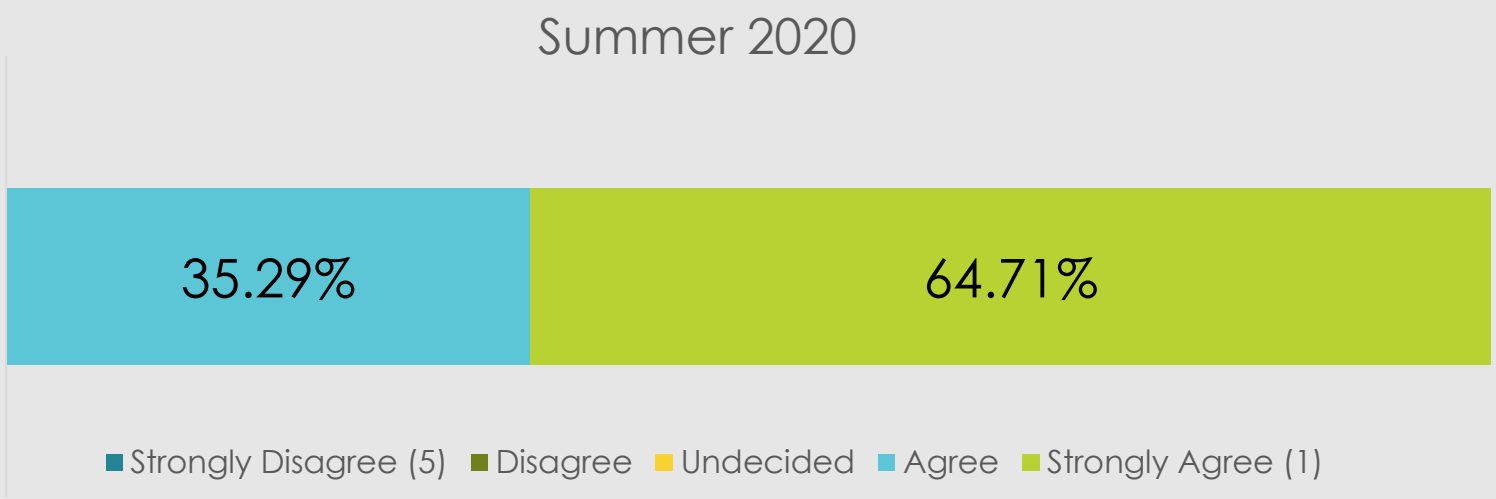
Q1 – The simulations helped me to apply knowledge to clinical application within a learner-centered experience



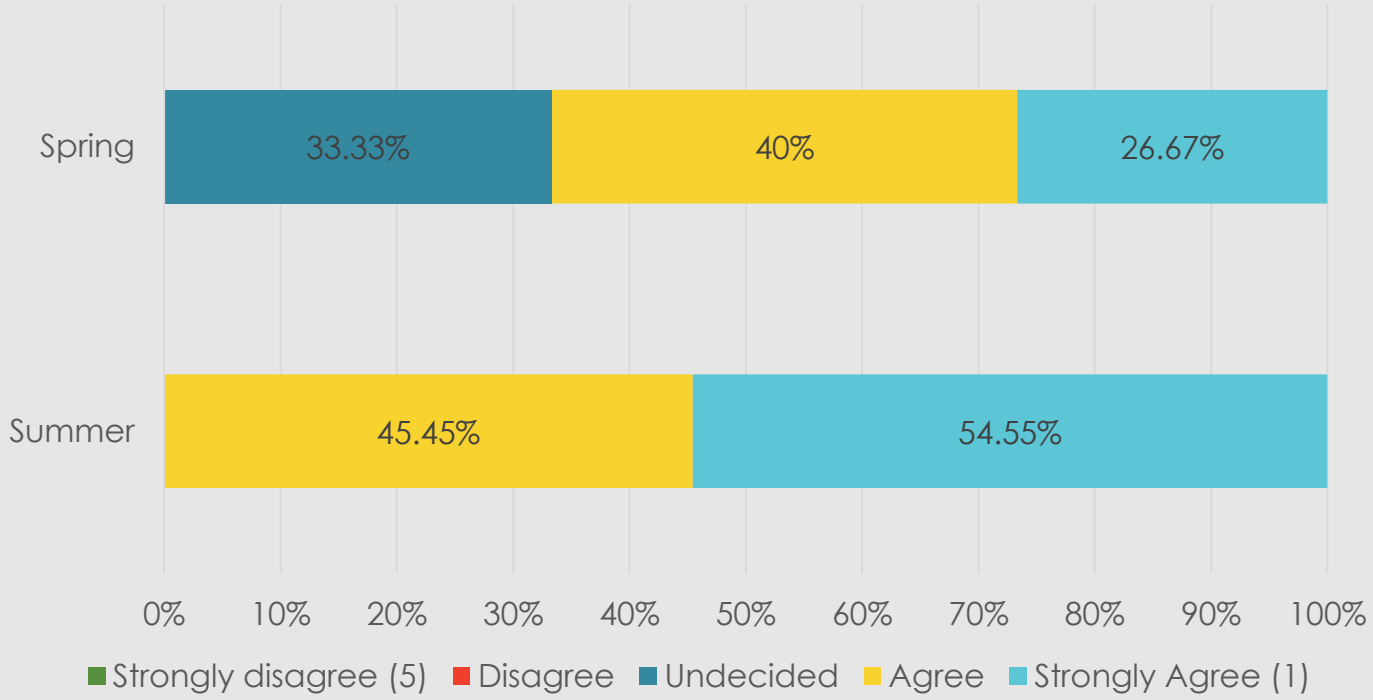
"These cases helped me to apply knowledge from classes and practice clinical decision-making skills, as well as being able to provide a rationale for my statements."

Q2 – I was able to practice my clinical communication (i.e. verbal or written) skills in the simulation experiences

"I thought that writing diagnostic reports or treatment plans and then receiving individualized feedback was extremely helpful. I learned a great deal from talking through these cases with the instructors and my fellow classmates."

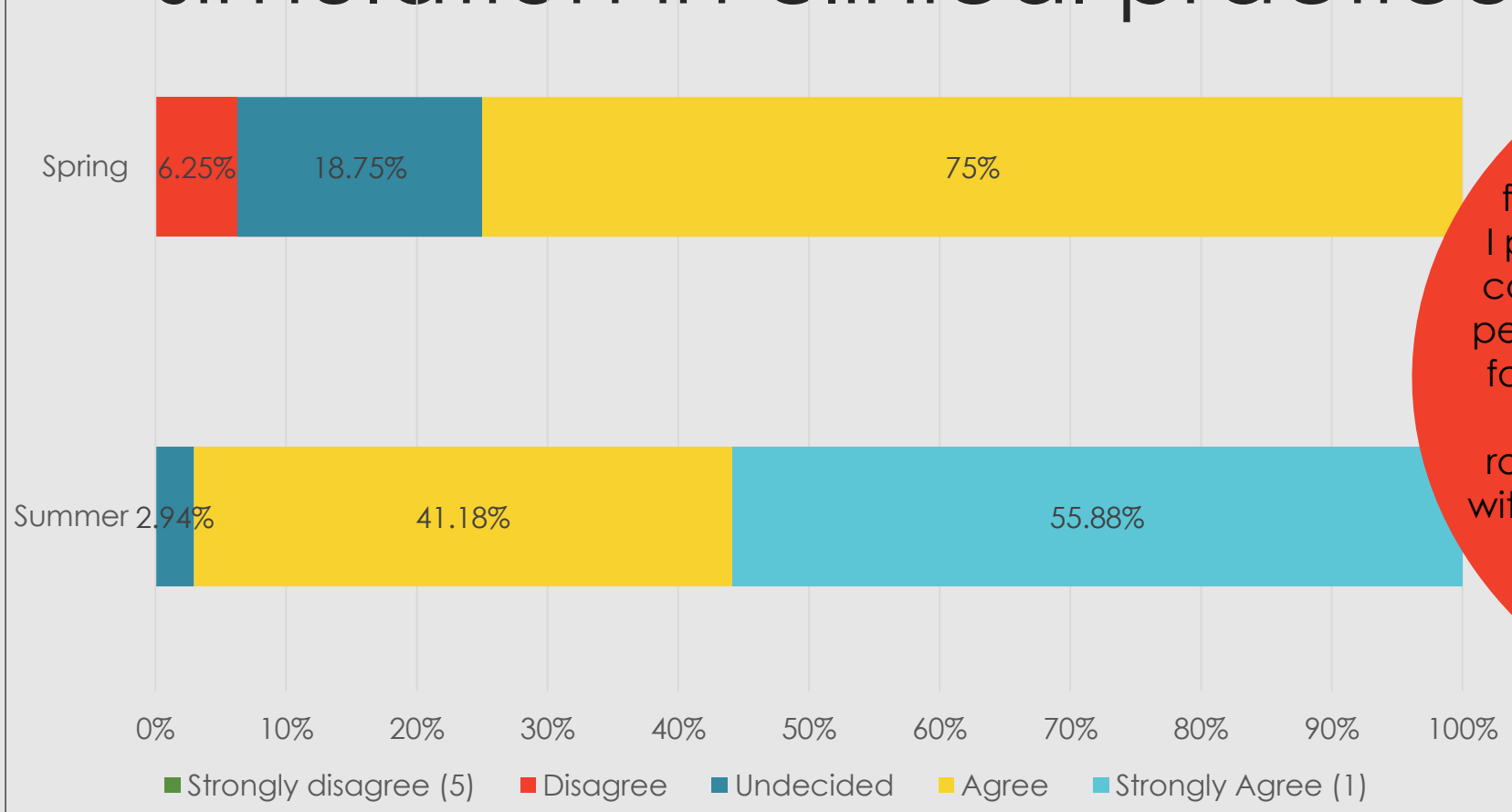


Q3– The debrief/clinical instruction session helped me to critically reflect on my performance and the case*



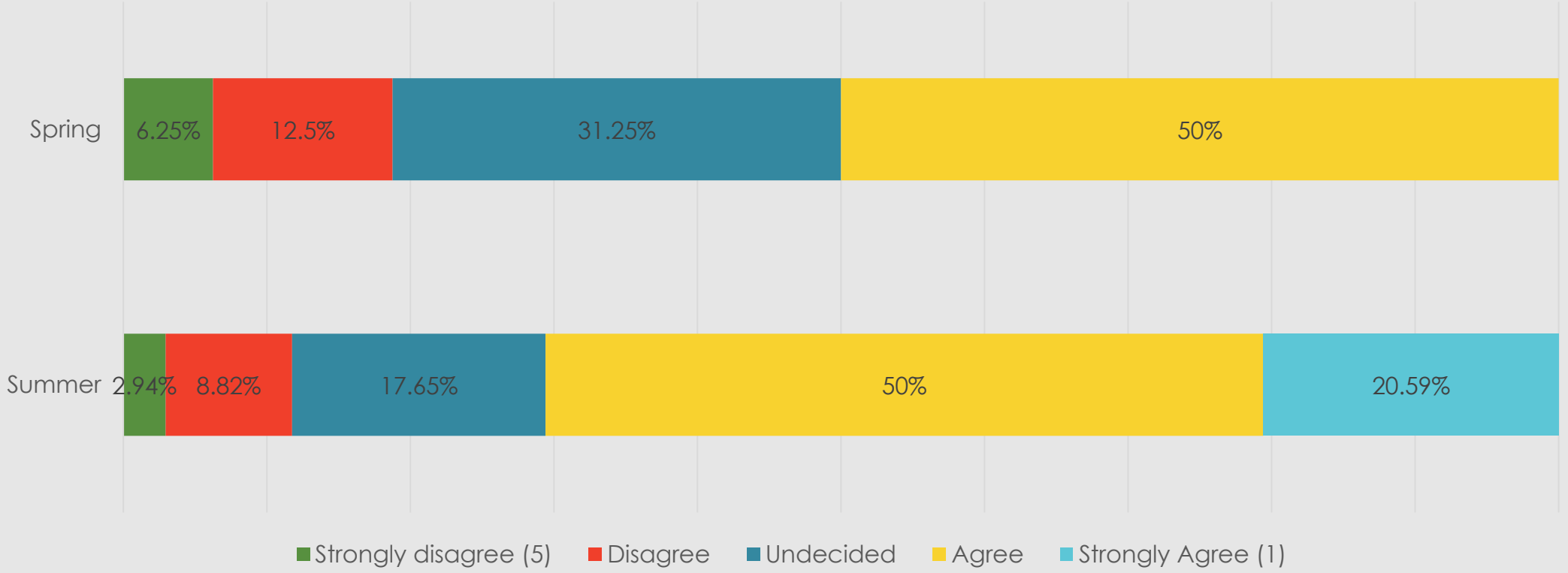
"I LOVED this. I was so pleasantly surprised with how much I have grown as a student just in the past 2 months. I was forced to really explain my rationale and think critically about different concepts."

Q4 – I can use what I learned from the simulation in clinical practice.



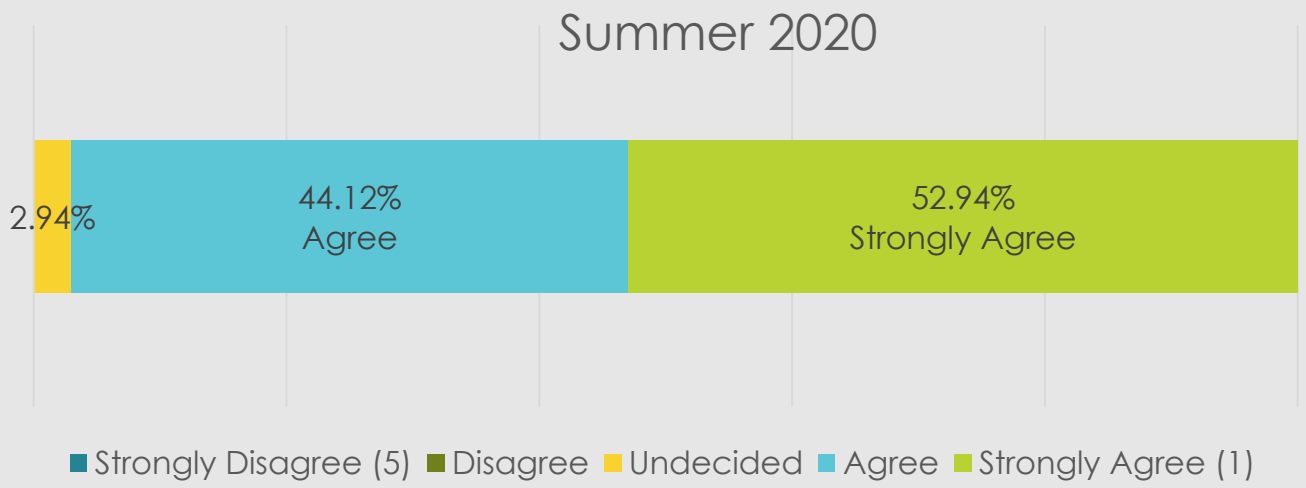
"I am at UPMC Presbyterian for my adult outplacement and saw my first real live patient with a trach today! I placed the PMV and everything! We, of course, made sure the cuff was deflated, performed digital occlusion, and checked for back pressure. It was honestly perfect that I just finished having your clinical rotation, and I think my CI was impressed with my understanding of PMV placement! So, I just wanted to say thank you so much. This is a topic I never thought I was interested in before, and I am totally loving it!..."

Q5 – Computer-based simulations (i.e. Simucase) are a valuable tool to enable me to safely develop clinical decision-making skills.



Q6 – Virtual patient cases are a valuable tool to enable me to safely develop clinical decision-making skills

"I gained a considerable amount of knowledge for diagnostic and treatment decisions. These cases made me feel more comfortable in my ability to assess, diagnose, and treat these disorders."



Student Feedbck

"I think I learned a great deal more from virtual patient cases created by our instructors than I did completing Simucase."

"I believe that I learned the most from the virtual patient case compared to the computer simulation experiences. Virtual patients were more realistic about what would be seen in a clinical site. If anything, moving away from computer simulations will push us to use more critical thinking as well as clinical judgment."

"The rotations that I think I learned the most in were focused on one singular case and focused on assessment and treatment. I understand the use of Simucase, however, I think the singular cases based on real patients helped me gain a better understanding about how the entire assessment and treatment process occurs. I also think the clinical documentations (e.g. MBS report or diagnostic reports) were helpful because I was able to gain specific feedback that will be helpful moving forward."

Student Reflections: Moving Forward

Positive Attributes	Growth Opportunities
• Knowledge and skills checks • Opportunity for role-play • Assignments were conducive to learning • Guided discussion • Written individualized feedback • Comfortable small group learning environment	• Incorporating more client videos • Providing multiple cases within the same clinical population • Increased specificity of instructions

In Conclusion

- The partnership between VA Pittsburgh and University of Pittsburgh resulted in an effective virtual learning paradigm rooted in the peer-review literature

- Training curriculum may serve as a model for supplemental virtual clinical training of graduate SLP students

Thank You!

Q&A
Saturday April 10
11:35 AM – 12:35 PM EST

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