LOW-FLOW ANESTHESIA EMPOWERING THE CAREGIVER

Anesthesia Patient Safety Foundation Technology Education Initiative
In Collaboration with the American Society of Anesthesiologists

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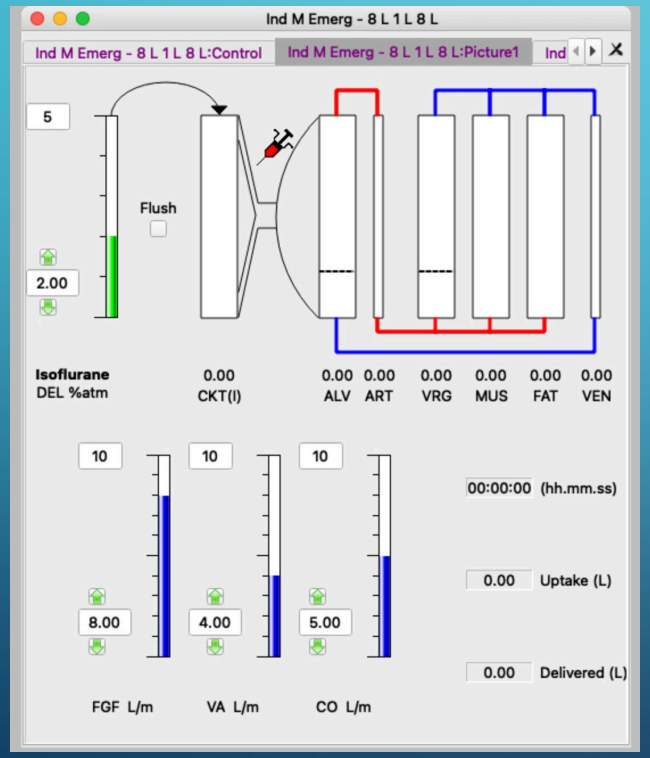
MPOG & "GREENING" PRACTICE

- Inhalation anesthesia is a good place to start
  - Desflurane and Nitrous Oxide have the greatest negative impact
    - Is the clinical benefit sufficient to warrant the environmental impact?
  - Minimize the environmental impact of the inhalation agents while achieving clinical goals
- SUS Metrics – Maintenance of Anesthesia
- Proposed SUS-06 Pedes: Induction Metric

LOW-FLOW ANESTHESIA BEYOND MAINTENANCE

Efficiency of Anesthetic Delivery

Anesthetic Uptake / **Anesthetic Delivered**



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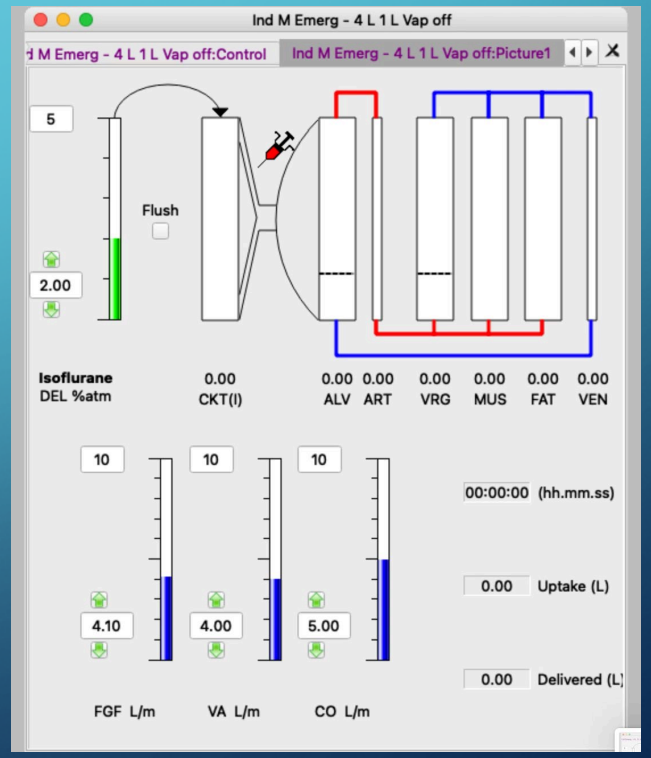

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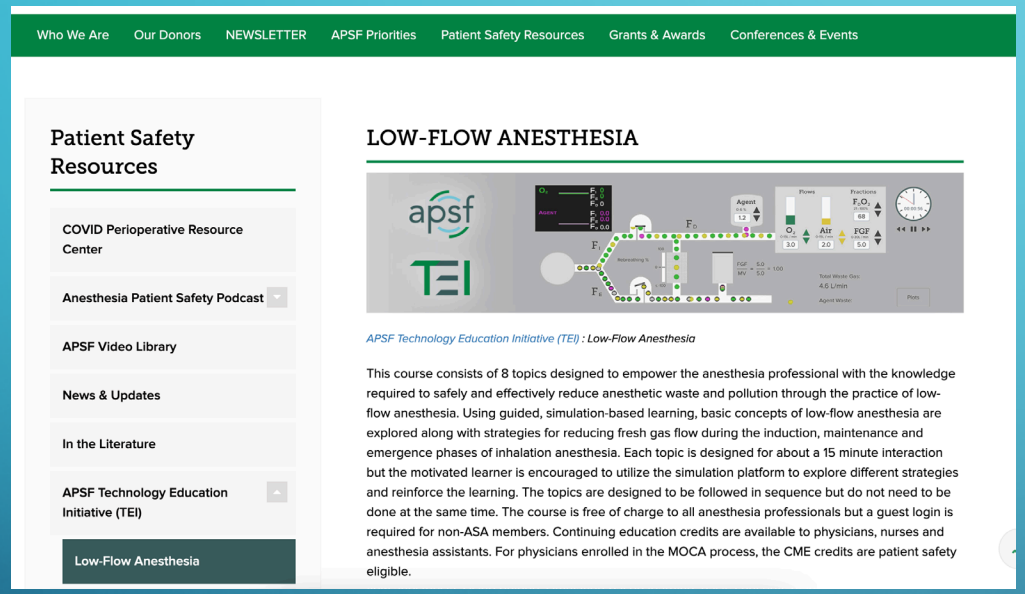
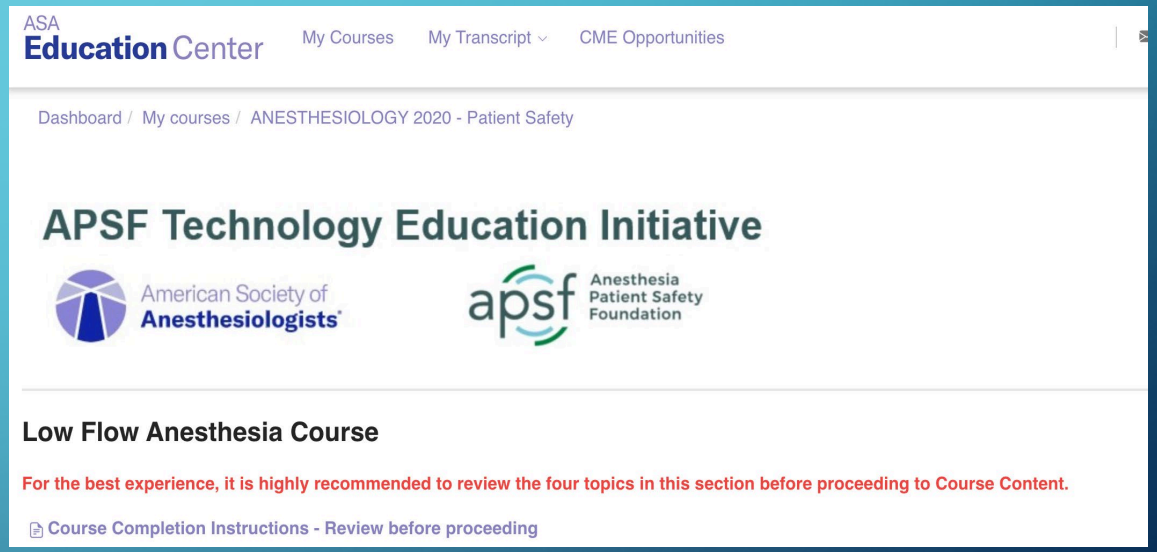
BARRIERS TO PRACTICING LOW-FLOW ANESTHESIA

- Sufficient oxygen delivery
- Adequate anesthetic depth
- Rate of change of circuit concentrations
- Sevoflurane Package Insert (medically obsolete)
  - Not less than 1 L/min FGF up to 2 MAC-Hrs
  - Not less then 2 L/min FGF for longer
- ECONOMICS ARE NOT A BARRIER TO WASTE!

APSF/ASA COURSE ON LOW-FLOW ANESTHESIA



https://www.apsf.org/apsf-technology-education-initiative/low-flow-anesthesia/



https://education.asahq.org/course/view.php?id=4353

LOW-FLOW ANESTHESIA

DEFINITION: The practice of reducing fresh gas flow below minute ventilation to the lowest level consistent with equipment capabilities and provider comfort, while ensuring safe and effective care for the patient.

GOAL: Empower the anesthesia professional with the knowledge required to comfortably begin to reduce FGF.

LEARNING OBJECTIVES

- Understand why the gas mixture and anesthetic concentration set on the anesthesia machine are not what the patient actually inspires during low flow anesthesia
- Understand how to minimize anesthetic waste and environmental pollution during induction, maintenance and emergence.
- Understand how to manage total fresh gas flow, FGF composition and vaporizer settings during induction, maintenance and emergence to achieve desired inspired oxygen and end-expired anesthetic concentrations

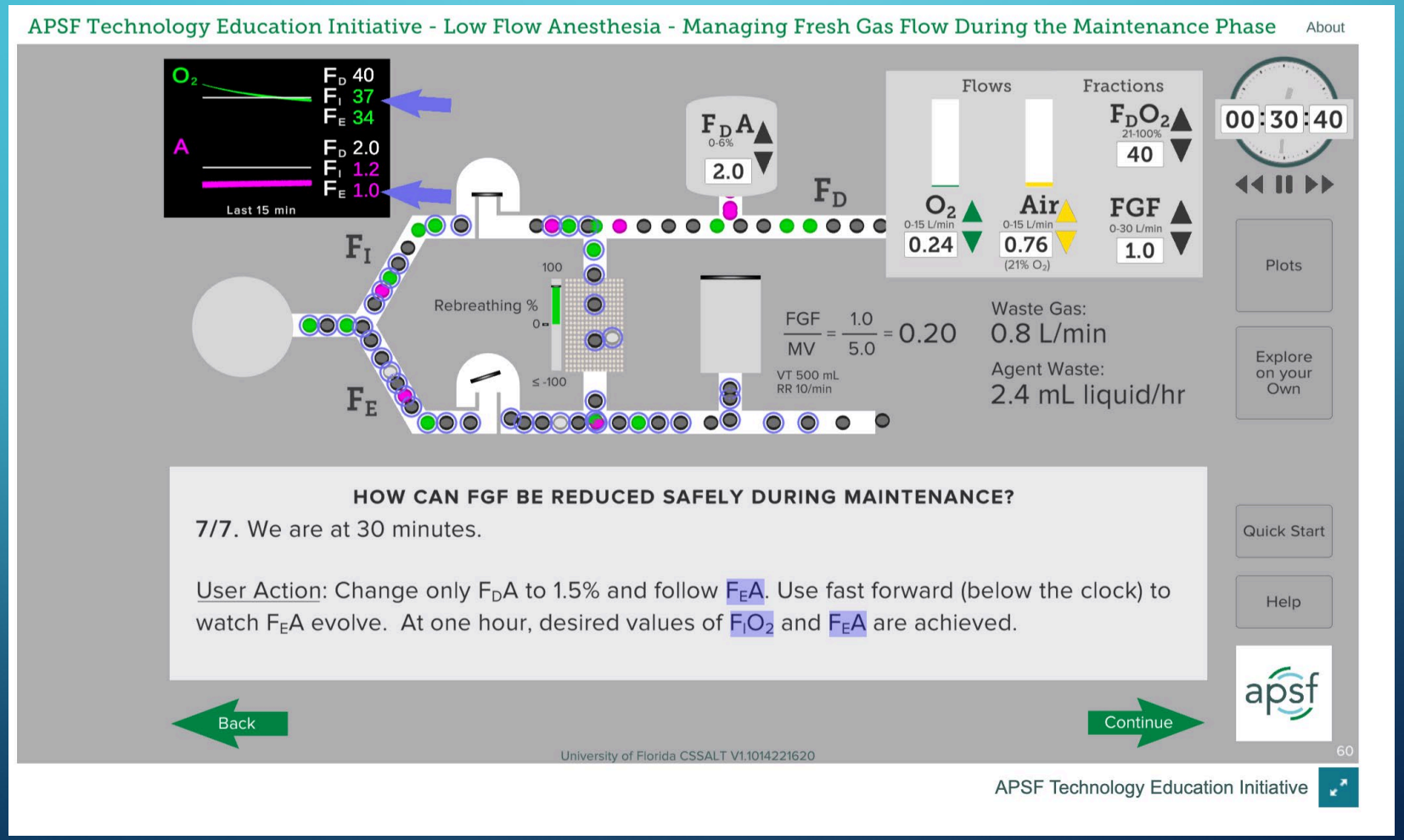
COURSE TOPICS

Course Content

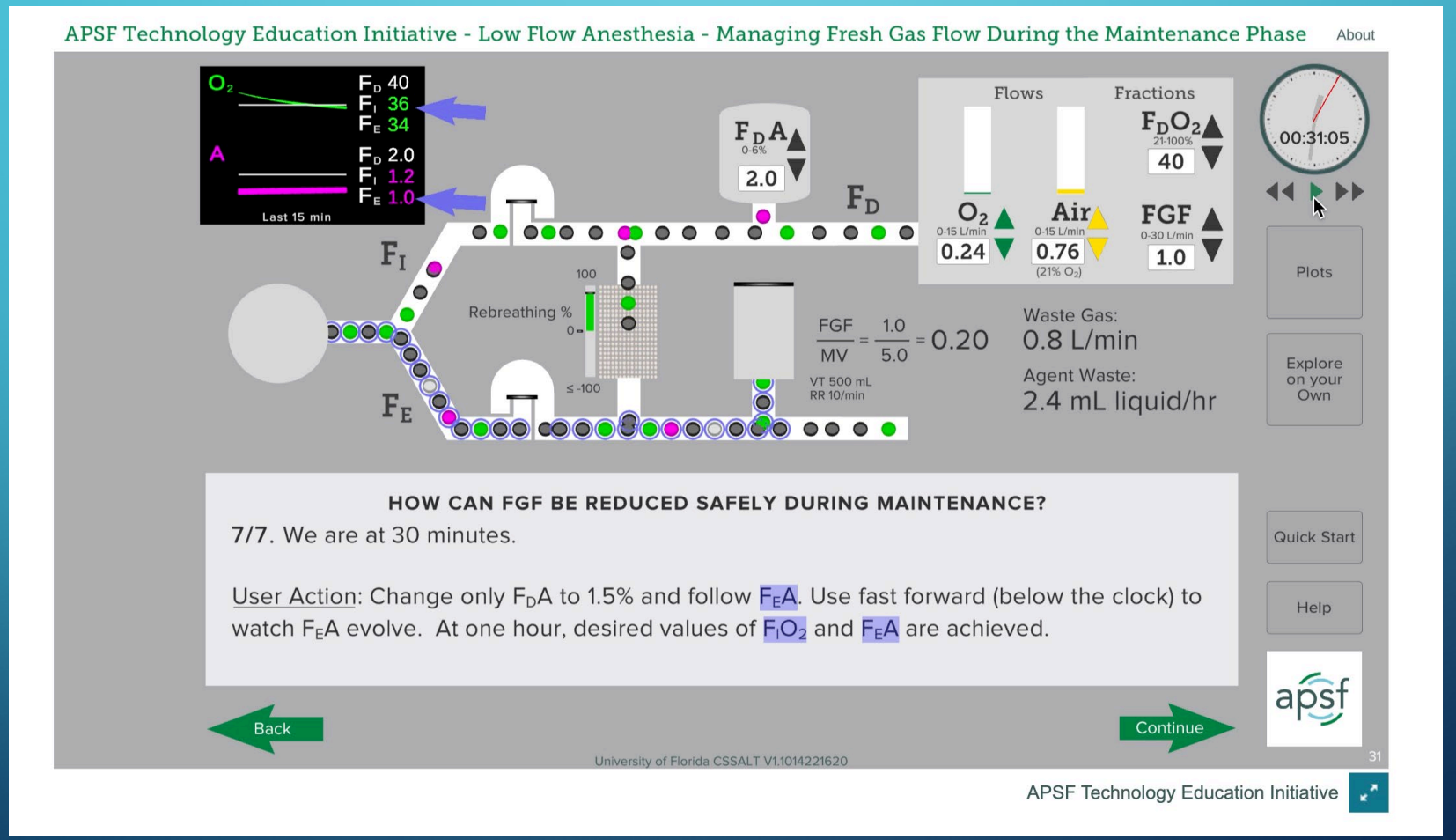
We recommend that the course is completed in the order listed.

- Introduction to Low-Flow Anesthesia
- Using the Circle System to Control Rebreathing of Exhaled Gases
- Safe Oxygen Delivery during Low-Flow Anesthesia
- Effective Anesthetic Delivery during Low-Flow Anesthesia
- Managing Fresh Gas Flow during the Maintenance Phase of Anesthesia
- Managing Fresh Gas Flow after Intravenous Induction
- Managing Fresh Gas Flow during the Emergence Phase of Anesthesia
- Carbon Dioxide Absorbents and Low-Flow Anesthesia

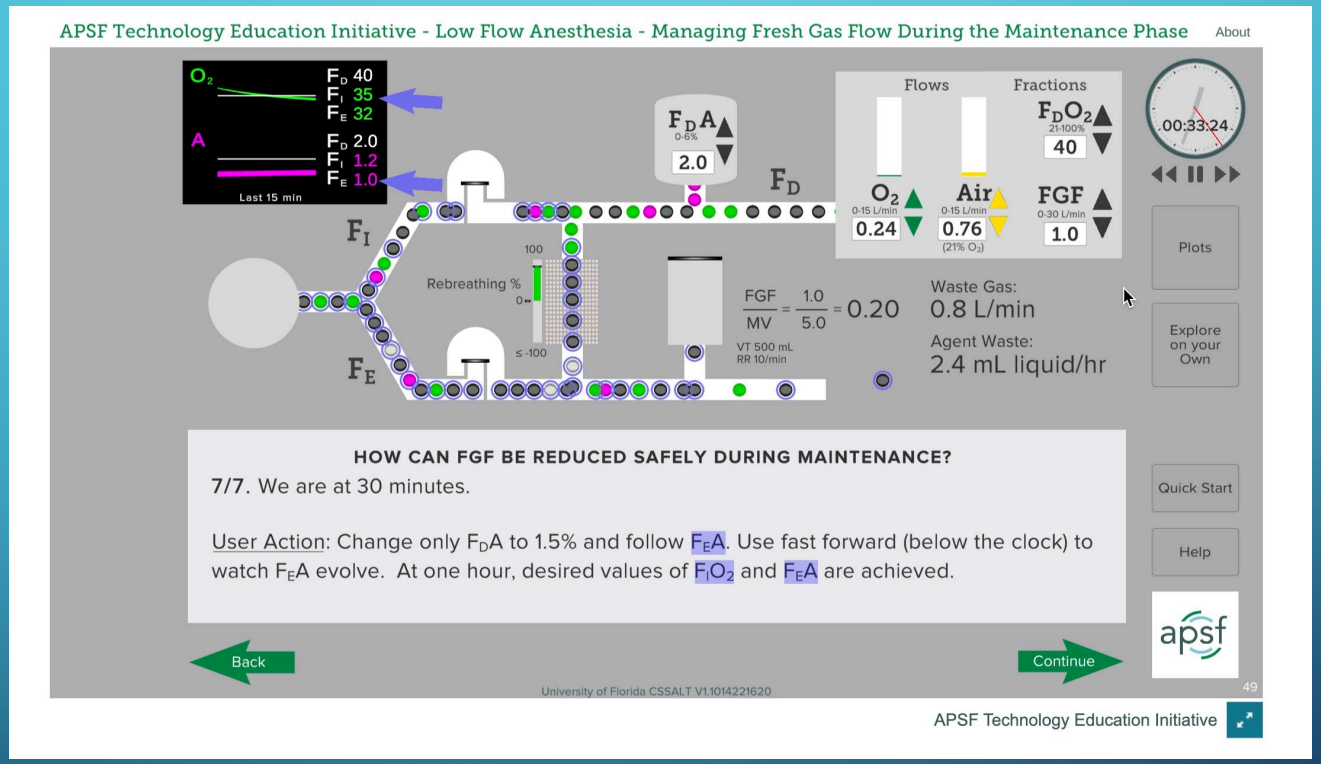
GUIDED SIMULATION



GUIDED MACHINE SIMULATION



PLOTTING FUNCTION



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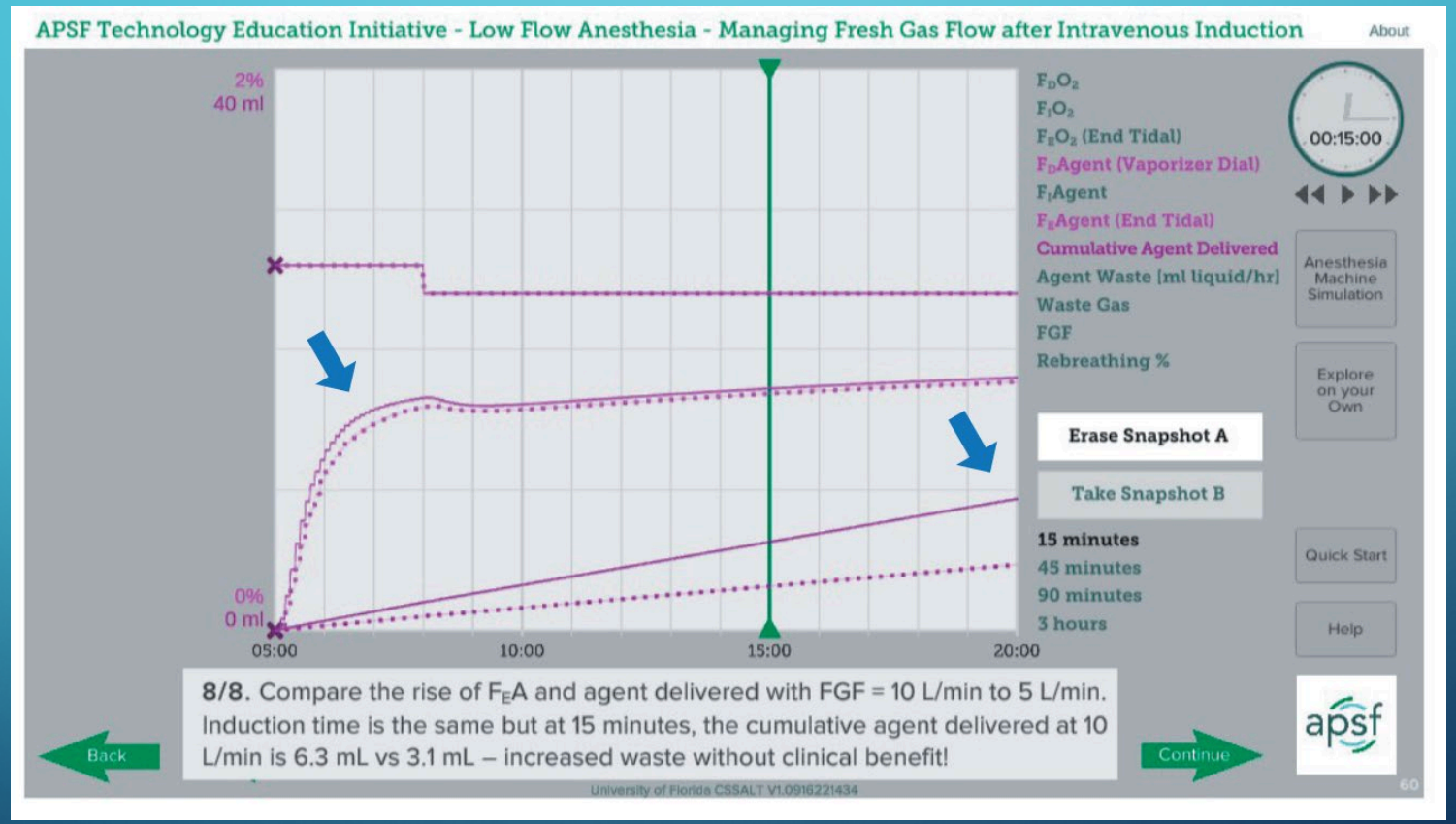

CONCLUSIONS

- Appreciation to the Low-Flow Course Development Team
- Links to the course:
  - Technology Education Initiative
    - Apsf.org/TEI
  - Low-Flow Course and Information
    - https://www.apsf.org/apsf-technology-education-initiative/low-flow-anesthesia/
  - ASA Education Center
    - https://education.asahq.org/course/view.php?id=4353
- Assessing the impact of the course – Role for MPOG?

APSF Technology Education Initiative
APSF Committee on Technology
Low-Flow Anesthesia Course Development Team

COURSE TITLE: Low-Flow Anesthesia

SPONSORSHIP: Anesthesia Patient Safety Foundation in collaboration with the American Society of Anesthesiologists and the University of Florida Center for Safety, Simulation and Advanced Learning Technologies (CSSALT)

COURSE DEVELOPMENT TEAM
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