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## ELECTRONIC SUPPLEMENTARY MATERIAL

### **ffrench-O'Carroll R, Sunderani Z, *et al.*: Enhancing knowledge, skills and comfort in providing anesthesia assistance during obstetric general anesthesia for operating room nurses: a prospective observational study**

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**eTable 1** Knowledge, skills and comfort levels adjusted for baseline and covariates

Variables being adjusted for	Knowledge scores, mean (95% CI)*	P value	Skills scores, mean (95% CI)	P value
Years practising as a nurse <ul style="list-style-type: none"> <li>• Baseline</li> <li>• Immediately post STP</li> <li>• 6 weeks post STP</li> <li>• 6 months post STP</li> </ul>	8.94 (8.46–9.42) 11.88 (11.40–12.36) 11.88 (11.40–12.36) 11.97 (11.49–12.45)	ref < 0.001 < 0.001 < 0.001	5.53 (4.93–6.13) 10.32 (9.72–10.93) 9.74 (9.13–10.34) 8.26 (7.66–8.87)	ref < 0.001 < 0.001 < 0.001
Years of experience working in the OR <ul style="list-style-type: none"> <li>• Baseline</li> <li>• Immediately post STP</li> <li>• 6 weeks post STP</li> <li>• 6 months post STP</li> </ul>	8.94 (8.46–9.42) 11.88 (11.40–12.36) 11.88 (11.40–12.36) 11.97 (11.49–12.45)	ref < 0.001 < 0.001 < 0.001	5.53 (4.92–6.14) 10.32 (9.72–10.93) 9.74 (9.13–10.34) 8.26 (7.66–8.87)	ref < 0.001 < 0.001 < 0.001
Average number of clinical shifts per week <ul style="list-style-type: none"> <li>• Baseline</li> <li>• Immediately post STP</li> <li>• 6 weeks post STP</li> <li>• 6 months post STP</li> </ul>	8.94 (8.46–9.42) 11.88 (11.41–12.36) 11.88 (11.41–12.36) 11.97 (11.49–12.45)	ref < 0.001 < 0.001 < 0.001	5.53 (4.92–6.14) 10.32 (9.71–10.94) 9.74 (9.12–10.35) 8.26 (7.65–8.88)	ref < 0.001 < 0.001 < 0.001
Recent completion of airway course <ul style="list-style-type: none"> <li>• Baseline</li> <li>• Immediately post STP</li> <li>• 6 weeks post STP</li> <li>• 6 months post STP</li> </ul>	8.94 (8.47–9.42) 11.88 (11.41–12.36) 11.88 (11.41–12.36) 11.97 (11.50–12.45)	ref < 0.001 < 0.001 < 0.001	5.53 (4.93–6.12) 10.32 (9.73–10.92) 9.74 (9.14–10.33) 8.26 (7.67–8.86)	ref < 0.001 < 0.001 < 0.001
Number of GAs observed or been part of <ul style="list-style-type: none"> <li>• Baseline</li> <li>• Immediately post STP</li> <li>• 6 weeks post STP</li> <li>• 6 months post STP</li> </ul>	8.94 (8.47–9.42) 11.88 (11.41–12.36) 11.88 (11.41–12.36) 11.97 (11.49–12.45)	ref < 0.001 < 0.001 < 0.001	5.53 (4.94–6.12) 10.32 (9.73–10.91) 9.74 (9.15–10.32) 8.26 (7.68–8.85)	ref < 0.001 < 0.001 < 0.001

STP = structured training program; Ref = reference group; OR = operating room; GA – general anaesthesia

**eTable 2** Comfort scores adjusted for baseline and covariates

Variables being adjusted for		Comfort scores in assisting GAs with <b>EMERGENCY</b> C/S mean (95% CI)	<i>P</i> value	Comfort scores in assisting Gas with <b>ELECTIVE</b> C/S mean (95% CI)	<i>P</i> value
Years practising as a nurse <ul style="list-style-type: none"> <li>• Baseline</li> <li>• 6 weeks post STP</li> <li>• 6 months post STP</li> </ul>		3.09 (2.74–3.43) 3.53 (3.18–3.87) 3.61 (3.27–3.96)	ref < 0.001 < 0.001	3.56 (3.23–3.88) 4.03 (3.70–4.36) 4.13 (3.80–4.46)	ref 0.0028 < 0.001
Years of experience working in the OR <ul style="list-style-type: none"> <li>• Baseline</li> <li>• 6 weeks post STP</li> <li>• 6 months post STP</li> </ul>		3.09 (2.75–3.42) 3.53 (3.19–3.87) 3.61 (3.28–3.95)	ref < 0.001 < 0.001	3.56 (3.23–3.88) 4.03 (3.70–4.35) 4.13 (3.80–4.45)	ref 0.0028 < 0.001
Average number of clinical shifts per week <ul style="list-style-type: none"> <li>• Baseline</li> <li>• 6 weeks post STP</li> <li>• 6 months post STP</li> </ul>		3.09 (2.71–3.47) 3.53 (3.15–3.91) 3.62 (3.24–4.0)	ref < 0.001 < 0.001	3.56 (3.21–3.91) 4.03 (3.68–4.38) 4.13 (3.78–4.48)	ref 0.003 < 0.001
Recent completion of airway course <ul style="list-style-type: none"> <li>• Baseline</li> <li>• 6 weeks post STP</li> <li>• 6 months post STP</li> </ul>		3.09 (2.72–3.46) 3.53 (3.16–3.90) 3.62 (3.24–3.99)	ref < 0.001 < 0.001	3.56 (3.21–3.90) 4.03 (3.68–4.37) 4.13 (3.78–4.48)	ref 0.0028 < 0.001
Number of GAs observed or been part of <ul style="list-style-type: none"> <li>• Baseline</li> <li>• 6 weeks post STP</li> <li>• 6 months post STP</li> </ul>		3.10 (2.83–3.36) 3.54 (3.27–3.80) 3.62 (3.36–3.89)	ref < 0.001 < 0.001	3.57 (3.31–3.83) 4.04 (3.77–4.30) 4.13 (3.86–4.39)	ref 0.0029 < 0.001

STP = structured training program; Ref = reference group; OR = operating room; GA – general anesthesia

## eAppendix 1

## MCQ and Skills Assessments

### Demographics

- 1) What is your educational background and designation (circle all that apply)?
  - a. BSN (Bachelor of Science in Nursing)
  - b. MSN (Master's Degree in Nursing)
  - c. RN (Registered Nurse)
  - d. LPN (Licensed Practical Nurse)
  - e. CNL (Clinical Nurse Leader)
  - f. Other; please specify: \_\_\_\_\_
  
- 2) How many years have you been practicing as a nurse?
  - a. < 5 years
  - b. 5–10 years
  - c. 10–15 years
  - d. 15–20 years
  - e. > 20 years
  
- 3) How many years of experience do you have working in the operating room?
  - a. < 5 years
  - b. 5–10 years
  - c. 10–15 years
  - d. 15–20 years
  - e. > 20 years
  
- 4) On average, how many clinical shifts do you work per week?
  - a. ≤1 shift
  - b. 2 shifts
  - c. 3 shifts
  - d. 4 shifts
  - e. ≥ 5 shifts
  
- 5) Other than this course, have you completed any recent airway teaching?
  - a. No
  - b. Yes; please specify: \_\_\_\_\_
  
- 6) Approximately, how many general anesthetics have you observed or been a part of?
  - a. < 5
  - b. 5–10
  - c. 10–15
  - d. 15–20
  - e. > 20
  
- 7) I feel comfortable assisting anesthesia during a general anesthetic for a **STAT** c-section:
  - a) Strongly agree
  - b) Agree
  - c) Neutral
  - d) Disagree
  - e) Strongly disagree

8) I feel comfortable assisting anesthesia during a general anesthetic for elective c-sections:

- a) Strongly agree
- b) Agree
- c) Neutral
- d) Disagree
- e) Strongly disagree

9) Since the last time you completed this assessment, how many general anesthetics have you observed or been a part of? (Question not applicable at baseline or immediately post)

- a. < 5
- b. 5–10
- c. 10–15
- d. 15–20
- e. > 20

### **Knowledge Assessment**

1) In a STAT GA section, which of the following **MUST BE COMPLETED** before the patient goes to sleep? (Please choose the top 5)

- a. Fetal heart rate monitoring
- b. Place patient supine with left uterine displacement
- c. Patient pre-oxygenation
- d. Secure intravenous access
- e. Give antibiotic prophylaxis
- f. Give antacid and anti-emetic prophylaxis
- g. Apply pulse oximeter, blood pressure, and ECG leads
- h. Insert Foley catheter

Correct answer: b, c, d, g, h (1 point for each correct answer)

2) In addition to giving the oxygen saturation, what additional information can one get from a pulse oximeter?

- a. Difficulty with ventilation
- b. ECG rhythm
- c. Heart rate
- d. Carbon dioxide saturation

Correct answer: c

3) Which is the correct priority of vital sign monitors that need to be placed on a patient prior to a general anesthetic (1 = first priority, 2 = second priority, 3 = third priority)?

- a. 1) ECG, 2) pulse oximeter, 3) blood pressure
- b. 1) Pulse oximeter, 2) ECG, 3) blood pressure
- c. 1) Blood pressure, 2) pulse oximeter, 3) Foley catheter

- d. 1) Pulse oximeter, 2) blood pressure, 3) ECG

Correct answer: d

4) Airway management is harder in the obstetrical patient for all of the following reasons

**EXCEPT:**

- a. Smaller trachea
- b. Rapid oxygen desaturation in comparison to non-obstetrical patients
- c. Increased tongue and breast size
- d. Increased risk of aspiration

Correct answer: a

5) What is the optimal patient position for pre-oxygenation and intubation prior to a general anesthetic?

- a. Align the patient's ear to the sternal notch
- b. 10-degree head elevated position
- c. Place patient in the Trendelenburg position
- d. Align the patient's mouth to the scapula

Correct answer: a

6) During pre-oxygenation for a general anesthetic, what is the recommended end-tidal oxygenation target for a pregnant patient?

- a.  $\geq 60\%$
- b.  $\geq 70\%$
- c.  $\geq 80\%$
- d.  $\geq 90\%$

Correct answer: d

7) What is the most common endotracheal tube size used for a pregnant patient?

- a. 5.0
- b. 6.0
- c. 7.0
- d. 8.0

Correct answer: c

8) What is true about an LMA?

- a. Cannot be used safely in a pregnant patient
- b. Cannot ventilate a patient
- c. Cannot oxygenate a patient
- d. Cannot protect against gastric aspiration

Correct answer: d

9) Which of the following describes the primary reason for cricoid pressure?

- a. Helps with endotracheal intubation
- b. Allows for adequate pre-oxygenation prior to intubation

- c. Prevents against regurgitation of gastric contents
- d. Allows for insufflation of air into the stomach

Correct answer: c

10) Why is a rapid sequence induction performed in a pregnant patient undergoing a c-section?

- a. To protect the fetus from hypoxia
- b. To help facilitate optimal surgical conditions
- c. To secure the airway and prevent aspiration
- d. To reduce risk of airway obstruction

Correct answer: c

**eAppendix 2**

**Skills Checklist**

<b>Weight</b>	<b>Skill</b>	<b>Criteria for Success</b>	<b>Score (0,1)</b>
1	Blood pressure measurement	Did the participant select the appropriate sized blood pressure cuff for the mannequin?	
1	ECG lead placement	Is the white lead on the right shoulder, the black lead on the left shoulder, and the red lead on the left lower rib cage (around anterior axillary line)?	
1	Patient position	Is there an approximate 20-30 degree head elevated position of the bed and is the ear aligned with the sternal notch?	
1	Pre-oxygenate with a facemask	When the facemask is placed, is there an uninterrupted end-tidal CO2 waveform?	
1		Did the participant lift the facemask off the mannequin's face at any point in time (20 second trial period)?	
1	Recognition of airway equipment	Did the participant correctly identify and retrieve an oral airway	
1		Did the participant correctly identify and retrieve an LMA	
1		Did the participant correctly identify and retrieve a bougie	
1		Did the participant correctly identify and retrieve an endotracheal tube	
1	Airway equipment set-up	Did the participant retrieve and assemble the glidescope appropriately (turning on the glidescope and connecting the blade)?	
1	Anatomically landmark the cricoid cartilage	Did the participant correctly identify the anatomical location of the cricoid cartilage?	
1	Suction	Did the participant correctly assemble a yankauer suction and ensure that there is suction available?	

\*Each correct performance of a skill will be given 1 point and each incorrect action or non-attempt of a skill will be given 0