

# Paramedic – Evidence Based Medicine (P-EBP) Program

## Paramedic CAT (Critically Appraised Topic) Worksheet

**Title:** Efficacy of Online Learning of Procedural Skills

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**2<sup>nd</sup> Party Appraiser:**

### Clinical Scenario:

Paramedic students use lab along with online learning resources to master procedural skills. The new methods of instruction depend on distance education, online resources; and accommodation for students to be able to learn while maintaining current lifestyle and work arrangements. Will procedural skill learning translate well into online environments or is the traditional method of didactic and in-person lab time the most appropriate and ethical way to learn procedural skills?

### PICO (Population – Intervention – Comparison – Outcome) Question:

*“Can paramedic students use online procedural skills education instead of traditional lab-based procedural skills education and still have the same skills ability to retain them?”*

**Search Strategy:** (procedural skills) AND (online learning) OR (distance education) OR (nursing students) OR (paramedics)

**Search Outcome:** 447 results

### Relevant Papers:

| AUTHOR, DATE            | POPULATION: SAMPLE CHARACTERISTICS | DESIGN (LOE)                                  | OUTCOMES            | RESULTS             | STRENGTHS/ WEAKNESSES                                                                                                                                                                                      |
|-------------------------|------------------------------------|-----------------------------------------------|---------------------|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Bouchoucha et al (2012) | Nursing students                   | Cross-sectional qualitative study<br>LOE: III | Could not ascertain | Could not ascertain | -Limited sample size<br><br>-Focus is on OSCE opinions rather than actual measurement of the skill being taught<br><br>-Evidence reached from opinions and surveys of participants<br><br>-Did not seem to |

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|                      |                  |                                         |                                      |                                 |                                                                                                   |
|----------------------|------------------|-----------------------------------------|--------------------------------------|---------------------------------|---------------------------------------------------------------------------------------------------|
|                      |                  |                                         |                                      |                                 | answer the question asked – focus ended up on peer evaluations                                    |
| Ballard et al (2012) | Nursing Students | Prospective Cohort study<br><br>LOE: II | Increased time in simulated learning | More accurate measurement of BP | -Nursing students were only subjects in study<br><br>+Acknowledges more research in area required |

**Comments:**

More time spent learning skills in person seems to be the preferred way to gain confidence and mastery over procedural skills.

More targeted research is required to form a recommendation on the most effective and ethical way of teaching procedural skills.

Only research seems to be on nursing and veterinary students rather than allied health professionals as well.

**Consider:** *Why would you NOT change practice, based on this article?*

As stated above, there is not enough research to concretely base a new way of teaching procedural skills. With nursing students being the only subjects of human studies, it stands to reason more evidence is required to form a change in current practice.

Therefore, it would be remiss of educators to experiment with new ways of teaching procedural skills with online resources until more research is conducted.

**Clinical Bottom Line:**

More exposure and practice with skills improve confidence as well as competence. Time spent in simulated settings is invaluable and produces better clinicians which, (in theory), improves patient care.

More research is required in evaluating the efficacy of online tutorials and study materials for procedural skills; however the evidence certainly points toward more traditional methods of “practicing on plastic” and

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developing the muscle memory for the skill rather than the “see one, do one” attitudes.

## References:

Bouchoucha, S. et al., Assessment of simulated clinical skills and distance students: Can we do it better?, Nurse Education Today (2012), <http://dx.doi.org/10.1016/j.nedt.2012.11.008>

Ballard, G. et al., Effect of simulated learning on blood pressure measurement skills. Nursing Standard (2012). 27, 8, (43-47).