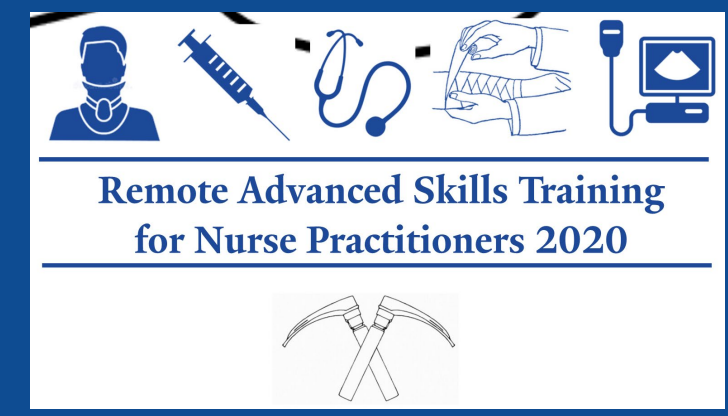# From Bedside to Mountainside: Preparing nurse practitioners for advanced clinical skills in remote settings using a novel training program
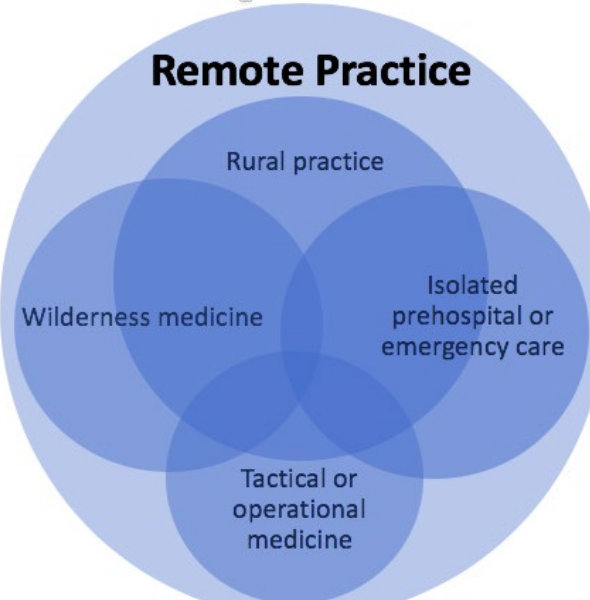
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Remote Advanced Skills Training for Nurse Practitioners 2020

INTRODUCTION

- The NP's confidence in performing advanced clinical skills and procedures (ACSPs) in remote settings, is critical for safe and effective care, and such skills can be imparted via additional training and practice.
- NPs in resource limited setting are likely to perform ASCPs that were not taught in their academic programs[1,2]
- NPs often teach themselves, but may not feel prepared to perform life-saving skills[3,4]
- Remote residents have higher morbidity and mortality than urban patients[5,6]
- NPs are going into remote practice locales at greater rates than physicians[7]

To date, no pre or post-graduate programs have been established to prepare new NPs for the complex and sometimes higher acuity needs of remote residents. Specifically, no NP-specific curriculum has been developed to provide further training in advanced clinical skills and procedures (ACSPs).

Remote Practice

Rural practice

Wilderness medicine

Isolated prehospital or emergency care

Tactical or operational medicine

OBJECTIVES

The purpose of this doctoral project was to develop and pilot an expert-panel validated training program specifically for NPs in remote settings, and to evaluate how new remote NPs rate their self-efficacy in performing specific ACSPs before and after completing this program.

Aim 1 - Develop a list of advanced clinical skills and procedures, to prepare new NPs for remote practice, based on the findings from the literature review and field interviews.

Aim 2 - Conduct content validation of this curriculum based on evaluations by an expert panel of educators, clinicians, and public health professionals.

Aim 3 - Create the training curricula based on input from the expert panel and simulation expert

Aim 4 -Pilot this training (RAST-NP) with a group of new nurse practitioner practicing in, or bound for work in a remote setting

Aim 5 - Evaluate the confidence of the new nurse practitioners before and after completion of the RAST-NP training

METHODS

- Aim 1 - Develop a list of advanced clinical skills and procedures
  - Thorough review of literature and evidence gaps
  - Interviewing key stakeholders
  - Review of existing curricula and competency checklists for NPs in civilian and military models

- Aim 2 - Conduct content validation based on evaluations by an expert panel
  - Formal selection of experts
  - Orientation to pilot model
  - Administration of survey of skills
  - Data analysis
  - Virtual meeting to achieve consensus
  - Final approval of rank-ordered skills list

- Aim 3 - Create the training curricula
  - Create Literature and curricula review of multimedia video modules that meet International Nursing Association for Clinical Simulation & Learning standards from reputable sources and obtain appropriate permissions
  - A hybridized online module in Canvas for "flipped classroom" with lectures and resource materials, including videos from reputed sources
  - Obtain IRB exemption
- Aim 4 -Pilot this training (RAST-NP)
  - Recruit FNP and AGNP students from YSN, final year, with interest in remote practice
  - Prepare students for course (reminder emails, obtaining facility permissions, Informed consent)
  - Conduct 1 day, online course with 8 modules, personal and guest lecturers and Q&As
  - Conduct 2nd day, on-site simulation with psychomotor stations and proctoring

- Aim 5 - Evaluate the confidence of the new nurse practitioners
  - Administer pre- and post participation survey of self-efficacy (Modified CSES) (Oetker-Black et al, 2014)[8]
  - Compare pre and post self-efficacy, by skill, via paired t-test.

RESULTS & DISCUSSION

Expert Panel Results

Skill	Mean	Frequency (percent listing)			
		Very Important	Important	Somewhat important	Not important at all
Splinting Techniques for fractures	4	100%	0%	0%	0%
Tourniquet application	4	100%	0%	0%	0%
Spinal Immobilization	3.75	88%	0%	13%	0%
E-FAST, Point of care ultrasound	3.75	75%	25%	0%	0%
Needle Thoracostomy	3.75	75%	25%	0%	0%
Airway Management (basic-endotracheal intubation)	3.63	75%	13%	13%	0%
Chest X-ray Interpretation	3.5	75%	0%	25%	0%
Abscess Incision & drainage	3.63	63%	38%	0%	0%
Treating ocular emergencies	3.63	63%	38%	0%	0%
Electrocardiogram interpretation	3.5	63%	25%	13%	0%
Psychiatric crisis management	3.5	50%	50%	0%	0%
X-ray interpretation for fractures	3.25	50%	25%	25%	0%
Suture Closure of wounds	3.25	50%	25%	25%	0%
Dental emergencies. dental anesthesia	3.38	38%	63%	0%	0%

- Expert panel was diverse for practice and gender, need more URMs
- Consensus: "life-savings skills must be prioritized"
- Lower acuity skills will be more easily practiced
- All skills were noted to be important or at least "somewhat important," none were noted to be irrelevant. Could be included in later trainings, or longer course.

RAST-NP Pilot Results

- Class size was ideal, but no larger
  - Keep it small, but collaborative
- Flipped Classroom well-received
- Hands-on worked best…didactic dominant does not
- Increased confidence = insight into competence
- Time matters: Don't rush hands-on practice
- Repetition matters
- Mann-Whitney results were consistent with paired T-test

Skill	T[†] Statistic	P value	Difference in means (pre - post)	Confidence Interval
CXR	6.2	<0.001	2.4	1.5, 3.2
E-FAST POCUS	8.938	<0.001	4.1	3.1, 5.1
Needle Thoracostomy	20.771	<0.001	6.1	5.5, 6.8
EKG Interpretation	3.605	<0.01	1	0.4, 1.6
Airway Management	15.301	<0.001	5.3	4.5, 6.1
Splinting	5.112	<0.001	3.2	1.8, 4.6
Tourniquets	4.220	<0.001	3	1.5, 4.7
C-Spine	3.741	<0.01	2.5	1.0, 4.1

† Degrees of freedom were 11 for C-spine, and 12 for each other skill.

- Our data shows:
  - Dramatic increases in reports of self-efficacy after completion of the RAST-NP pilot.
  - Strong corresponding increases in self-efficacy with time spent in psychomotor practice, as compared to didactic-dominant trainings.
  - Hybrid or "flipped" classroom works to deliver material to increase student's self-efficacy

E-FAST POCUS (Q2)

Airway Management (Q5)

CXR (Q1)
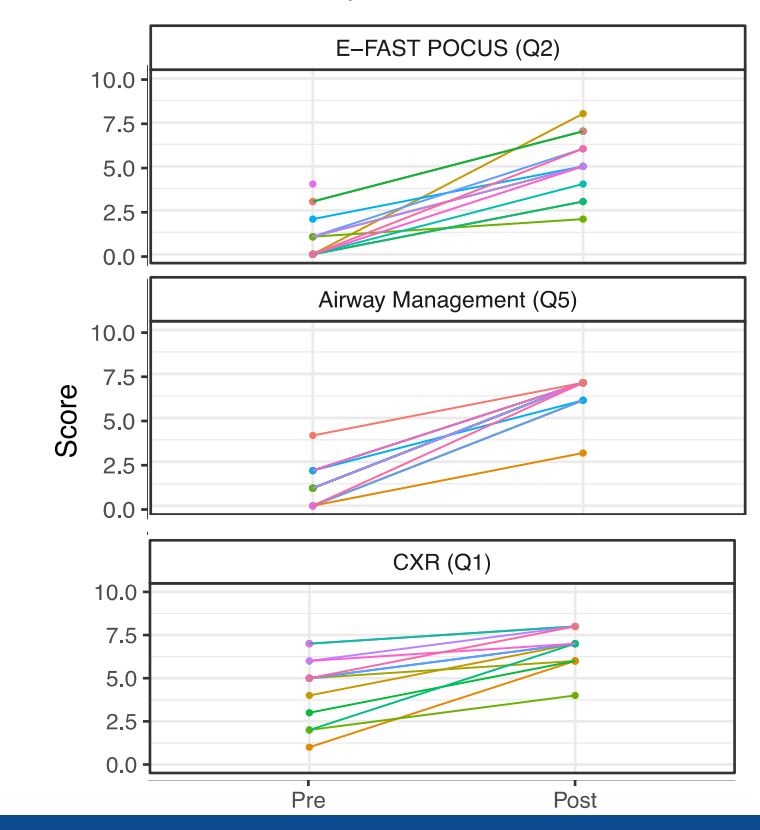
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