



# “Nightmares-FM” course is an effective way to teach acute care skills to Family Medicine residents

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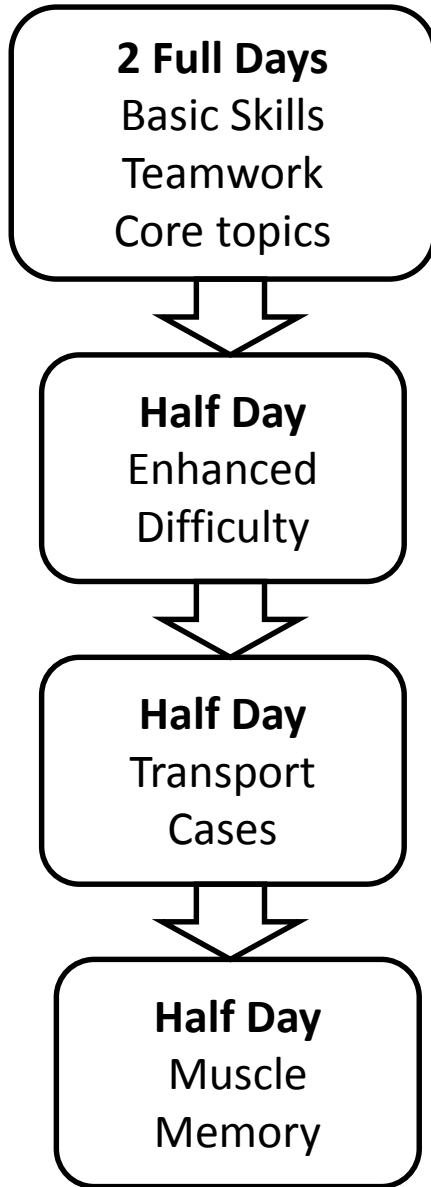
# Acute Care is difficult to teach

- Acute care is cognitively complex, performed under stress and without regular opportunities to practice
- High fidelity simulation offers a solution to most of these problems

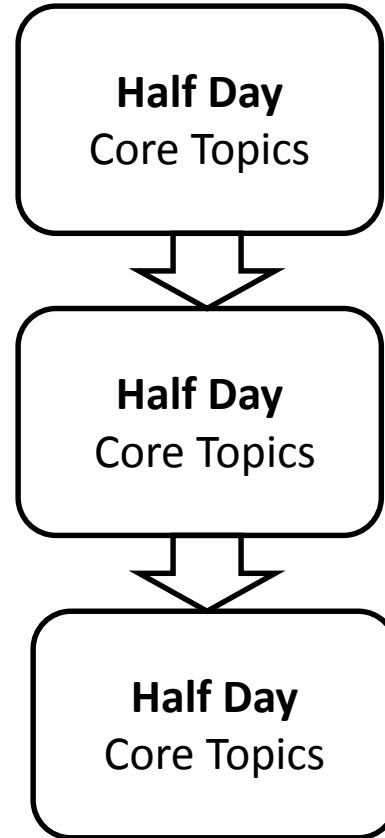
# Simulation is an effective teaching tool

- High fidelity simulation has demonstrated its utility in the fields of surgery, anesthesia, obstetrics and emergency medicine
- So far, no one has looked in detail at benefits for Family Medicine residents

## Nightmares (NM) Course



## Acute Care Rounds



NM manual available  
to both groups

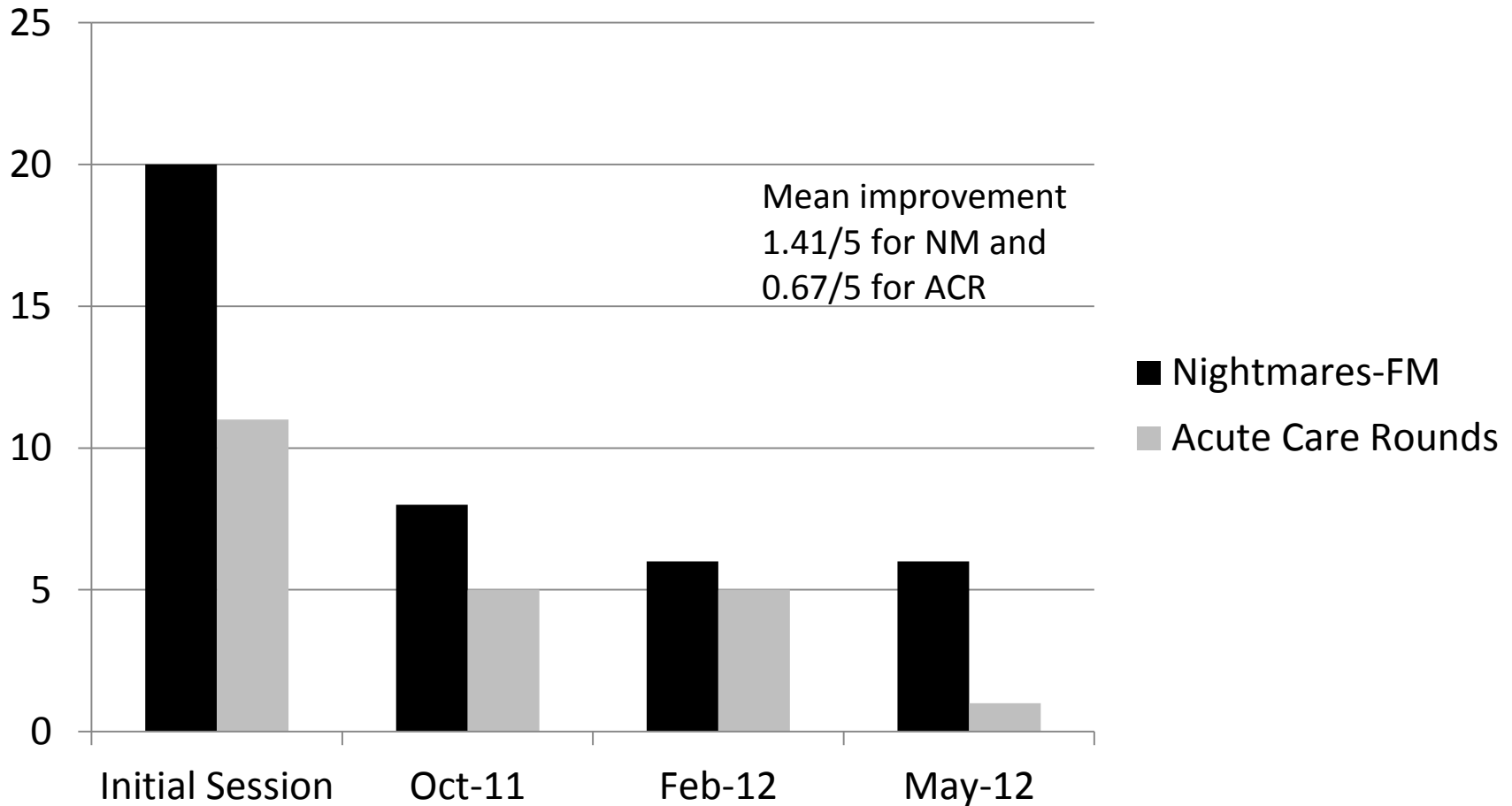
# Comparison groups

- 12 PGY-1 residents randomly chosen to participate in the NM pilot project
- Rest of PGY-1 residents (N= 37) went through ACR

# Method

- 20 item Lickert scale questionnaire administered to residents before and after each NM session as well as to residents attending time-matched ACR sessions
- Assesses self-rated comfort and knowledge of various aspects of acute care (eg: pressors, NIPPV, BVM, high flow O2, etc)
- Pre-post differences compared using Wilcoxon non-parametric test

# Number of items (out of 20) significantly improved after each session



# Additional analyses

- Additional questionnaire at the end of the PGY-1 year
- Means were significantly higher for 13/20 items in NM than in the ACR group ( $p < 0.01$ )



# PGY 2 year Fitness to practice OSCE

Figure 2: OSCE scoring scale. Adapted from Hall et al 2012

## NM-FM Simulation-Based Assessment

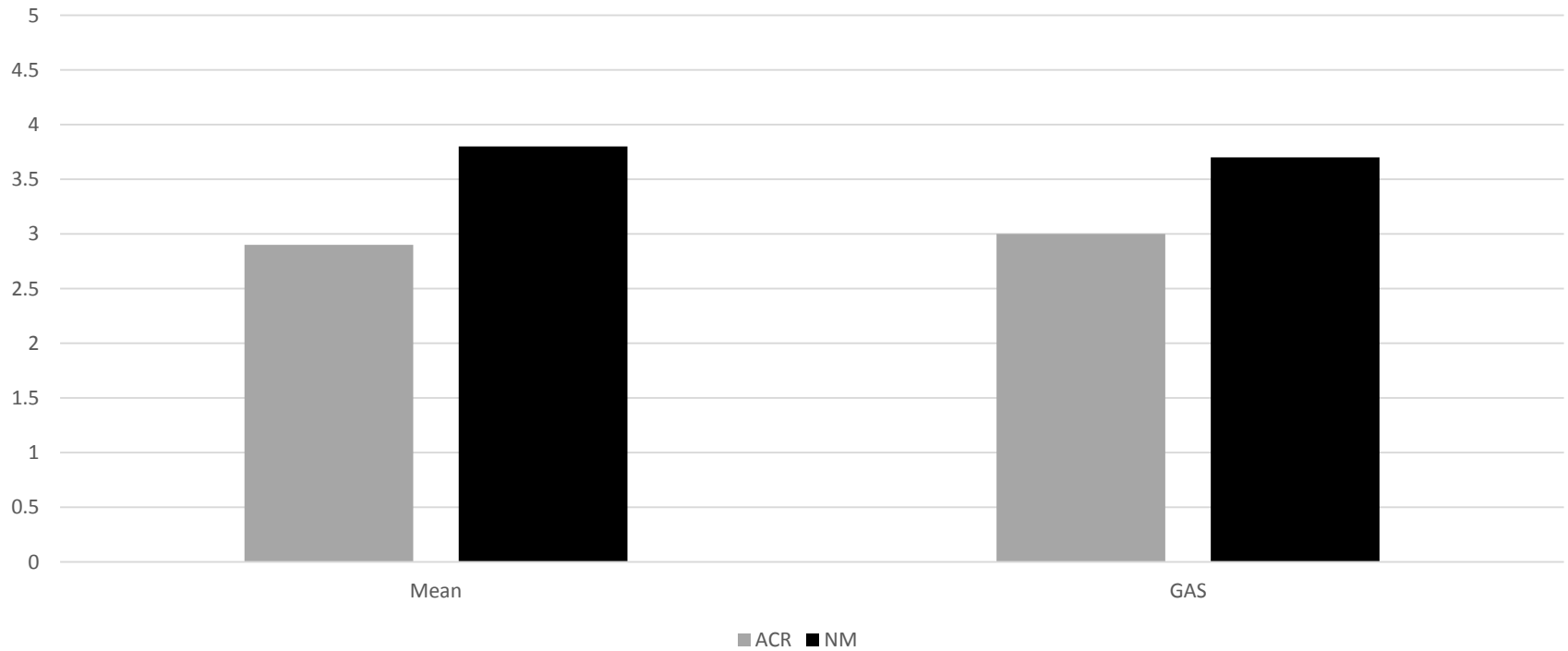
### COPD exacerbation with pneumonia and septic shock

Examinee Identification: \_\_\_\_\_ Date of Assessment: \_\_\_\_\_

Assessed by: \_\_\_\_\_

Primary Assessment and ongoing re-assessment					
VITAL signs (HR/BP/O2sat/RR/Temp) Cardiac MONITORS IV access (2 large bore IVs)			Airway LOC (AVPU, pupils, glucose) Reassess status when appropriate		
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	
<b>INFERIOR</b> Delayed or incomplete performance of all criteria	<b>NOVICE</b> Delayed or incomplete performance of many criteria	<b>COMPETENT</b> Delayed or incomplete performance of some criteria	<b>ADVANCED</b> Competent performance of most criteria	<b>SUPERIOR</b> Efficient and rapid performance of all criteria	
Diagnostic Workup					
History (from nurses), PMHX, Meds, Allergies Physical Exam ECG (interpretation)			Blood gas interpretation CXR interpretation		
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	
<b>INFERIOR</b> Delayed or incomplete performance of all criteria	<b>NOVICE</b> Delayed or incomplete performance of many criteria	<b>COMPETENT</b> Delayed or incomplete performance of some criteria	<b>ADVANCED</b> Competent performance of most criteria	<b>SUPERIOR</b> Efficient and rapid performance of all criteria	
Therapeutic Actions					
Non-rebreather mask for O2 Nebulizer medications Initiates BiPAP/CPAP			Gives repeated fluid boluses and antibiotics Initiates and monitors pressor medications (Dopamine, Norepinephrine, Phenylephrine)		
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	
<b>INFERIOR</b> Delayed or incomplete performance of all criteria	<b>NOVICE</b> Delayed or incomplete performance of many criteria	<b>COMPETENT</b> Delayed or incomplete performance of some criteria	<b>ADVANCED</b> Competent performance of most criteria	<b>SUPERIOR</b> Efficient and rapid performance of all criteria	
Communication					
Clear and concise orders and direction Insists on closed loop communication			Prioritizes tasks and anticipates further steps Demonstrates leadership in managing crisis		
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	
<b>INFERIOR</b> Delayed or incomplete performance of all criteria	<b>NOVICE</b> Delayed or incomplete performance of many criteria	<b>COMPETENT</b> Delayed or incomplete performance of some criteria	<b>ADVANCED</b> Competent performance of most criteria	<b>SUPERIOR</b> Efficient and rapid performance of all criteria	
OVERALL PERFORMANCE					
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	
<b>INFERIOR</b> All skills require significant improvement	<b>NOVICE</b> Most skills require moderate or significant improvement	<b>COMPETENT</b> Some skills require moderate improvement	<b>ADVANCED</b> Some skills require minor improvement	<b>SUPERIOR</b> Few, if any skills require only minor improvement	

# OSCE Performance NM cohort (N=12) vs random selection of ACR (N=12)

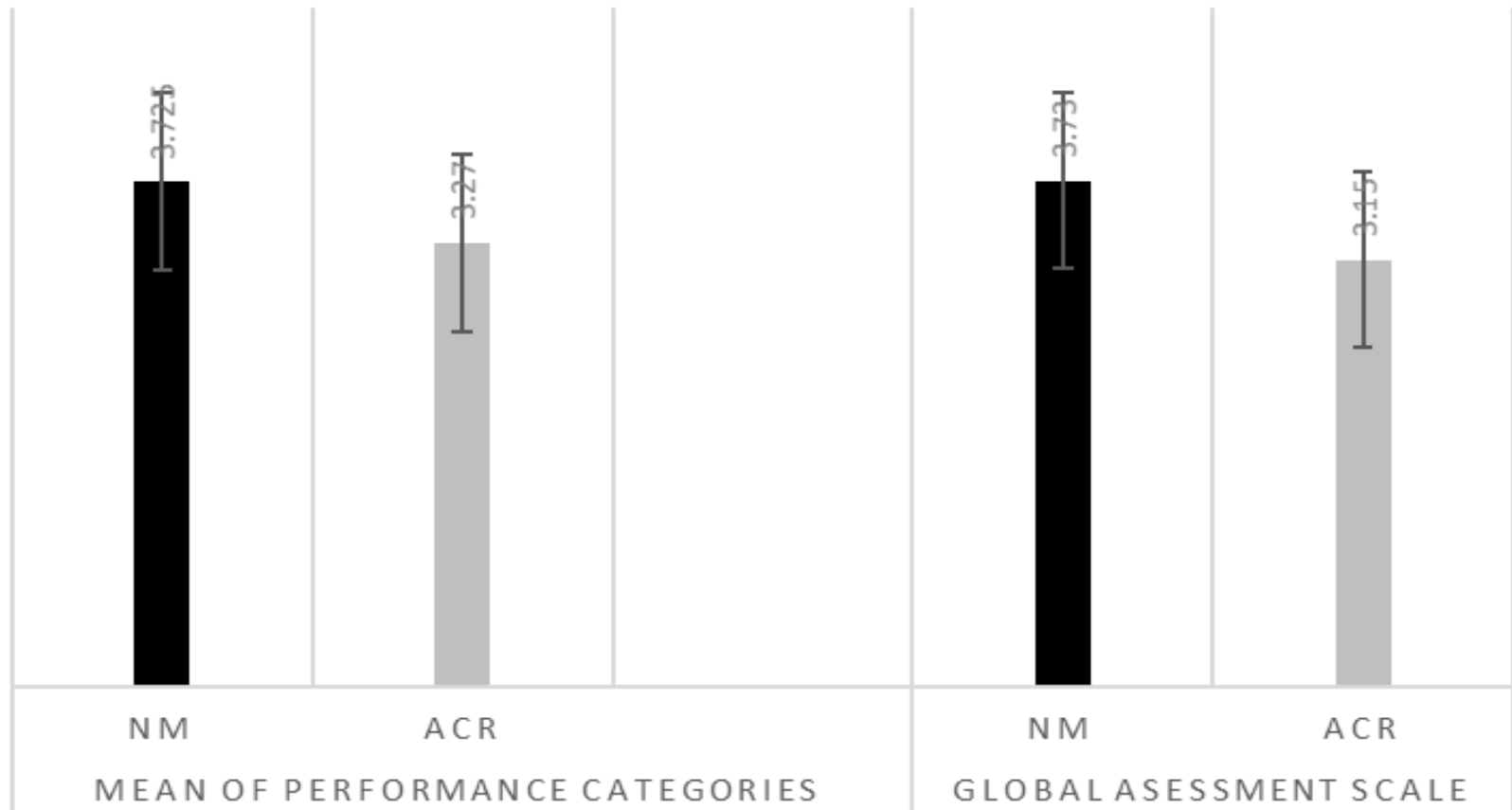


# Evolution

Afterwards, all residents underwent NM (N= 30)

We compared results to historical ACR performance

# NM 2014 (N=30) vs ACR 2012 (N=37)



## Proportion of residents who got a failing or a superior GAS grade on the acute care OSCE

	Failing (Score 1 or 2)	Advanced/Superior (Score 4 or 5)
NM	1/30 (3.3%)	14/30 (46.7%)
ACR	8/37 (21.6%)	12/37 (31.4%)
Chi square (p, 2 sided, *-significant at p<0.05)	<b>4.77 (p&lt;0.03*)</b>	1.42 (p<0.23)

# Causes of failure for the ACR and NM residents who failed the OSCE

Cause of Failure (Frequency) ACR	Cause of Failure (Frequency) NM
Overall fails (8)	Overall fails (1)
Primary Assessment and Ongoing Re-assessment Incomplete/late vitals (2)	Primary Assessment and Ongoing Re-assessment
Diagnostic Workup ECG misinterpreted (2)	Diagnostic Workup
Therapeutic Actions Late or absent O2 administration (2) Late or absent bronchodilator treatment (3) Late or absent positive pressure ventilation (6) Late or absent fluid boluses (5) Late or absent use of vasopressive medications (7) Late or absent administration of antibiotics (5) Wrong medication administration Epinephrine 1mg IV to a live patient (2) Adenosine IV as a vasopressor (2)	Therapeutic Actions Late or absent use of positive pressure ventilation (1) Late or absent use of vasopressive medications (1)
Communications Overall poor communication/leadership (5) Fixation on ECG interpretation to exclusion of everything else (1)	Communications Overall poor communication/leadership (1)

# Conclusions

- NM is a more effective way to teach acute care skills to Fam Med residents than our previous training methods
- Fam Med residents can be trained to a high level of proficiency in highly complex acute care using simulation

# Strengths

- Longitudinal follow up through PGY-1 and 2 years
- Self-assessment and objective performance assessment were used



# Weaknesses

- Is NM better because of its structure or simply because it offers more days of training?
- Multiple OSCE scenarios would allow for more reliable assessment
- Historical group comparison

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# Questions?

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