



PennState Hershey First 4 Minutes BLS Drill: A Novel Introduction to Team Communication and Resuscitation Skills

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FIRST 4 MINUTES

Introduction:

Poor communication and teamwork contribute to adverse patient events, even for experienced healthcare providers¹. Emergency resuscitation behaviors are often ineffective due to skills deficits as well as communication and teamwork failures. First 4 Minutes (FFM) incorporates experiential learning using simulated emergencies that require individuals to work collaboratively for success. Unlike traditional Crisis Resource Management, FFM can be run by facilitators with minimal debriefing experience. Participants are thrust into a familiar time-critical situation, and measurable outcomes such as time to intervention are reported back.

Methods:

This FFM drill focused on basic life support skills. Sessions were held in the Simulation Center or *in situ* with groups of 4-6 individuals. Participants were presented with a patient simulator (Laerdal ALS manikin with skills reporting software) in ventricular fibrillation. Feedback was based on recorded measures: time from compressions to first shock, pauses for shocks, and quality of CPR per 2005 AHA guidelines². Results from each case were tabulated and posted following successive resuscitations.

Between 3 repeated sessions, participants collaborated on clinical and teamwork strategies, and refined them according to their group results. Questions related to equipment or procedures were answered, but formal debriefing on teamwork was not planned, although facilitators often asked provocative questions of the group. Facilitators were instructed to record team communications during sessions and participants completed an anonymous activity evaluation.

Set-up

- 1) Laerdal manikin in ventricular fibrillation attached to computer via USB for real-time skills reporting feedback; remote available
- 2) Code cart nearby with defibrillator, hands-free patches, backboard, and adult bag/valve/mask (BVM)
- 3) White board with grids for skills feedback for recording best times of previous session and three drills of present session, easel, marker, & eraser
- 4) Clip board with FFM Sign-in sheet, pen, simulation evaluations, teamwork survey, and certificates of attendance
- 5) Facilitator in attendance for each group of five participants. Some exceptions were made to allow staff to stay and participate in larger groups

Bringing CPR & Team Communication Practice to the Units & Simulation Center

Sessions were available *in situ* or in the Simulation Center facilitated by specially trained multidisciplinary, multispecialty staff.

How many compressions are effective?

Skills Reporting Software Provides Real-Time Feedback...



1. Time from onset of compressions to 1st shock
2. Time compressions paused for 1st shock
3. Time compressions paused for 2nd shock
4. % Effective chest compressions
5. Average rate of chest compressions
6. Correct Compression/Ventilation Ratio

Results:

The organizational goal was to train 40% of the nurses and residents in specific clinical areas. Over a ten month period (Sep 2009-June 2010) 918 staff participated in FFM drills including 61% of targeted nurses and 55% of targeted residents. To provide this new training program for this large number of participants required rapid development of 63 new facilitators, many previously unfamiliar with formal debriefing techniques. 85% of participants evaluated the session as highly valuable. All groups improved their time to first defibrillation as well as their percentage of effective compressions. Although many participants did not identify specific teamwork lessons, facilitators noted improved teamwork communication in most groups.

Staff Participation in FFM Drills For Organizational Goal (Target 40% participation for each group)

RNs & LPNs in Clinical Units	Total Staff	# Participated	% of Group
Surgical Intensive Care Unit/Surgical Intermediate Care Unit (SICU/SIMCU)	70	41	59%
Medical Intensive Care Unit/Medical Intermediate Care Unit (MICU/MIMCU)	76	58	76%
Neuroscience Integrated Care (NIS): Neuroscience Intensive Care Unit/Neuroscience Intermediate Care Unit (NSICU/NSIMCU)	75	31	41%
Heart & Vascular Institute (HVI): Heart & Vascular Intensive Care Unit/Heart & Vascular Intermediate Care Unit (HVICU/HVIMCU)	90	86	95%
Emergency Department	87	39	45%
Women's Health/Labor & Delivery	66	28	42%
Resident Groups			
Surgery	50	22	44%
Anesthesia	63	47	75%
Medicine	82	33	40%
Emergency Medicine	24	14	58%
Women's Health	20	15	75%

% Staff in Each Nursing Unit or Resident Group

A Patient Care Story

"I just wanted to let you know how great it is to be working with such a great group of nurses. I encountered my first code on my own patient tonight, the monitor alarmed V-tach at 1956.44, within 40 seconds we had started CPR 1957.20, we delivered our first shock at 1958.29-that's 1 minute 9 secs after the start of CPR (AWESOME!!) we resumed CPR at 1958.35-that's within 6 seconds and had a pulse and rhythm by 1959.18. These statistics are just as good if not even better than our 1st 4 Minute drills. Anyway the code was calm, we did the appropriate interventions, and the patient SURVIVED! "

-e-mail from a new ICU nurse

Follow-Up

1250 multidisciplinary staff have participated in a FFM drill

- FFM drills are part of orientation and competencies now for resident and nursing groups
- FFM drills are available in the Simulation Center & 'in situ'
- FFM challenges were developed for clinical areas by nurses & medical/nursing student groups
- FFM drills are part of medical and nursing student rotations
- FFM drills are being incorporated into American Heart programs