

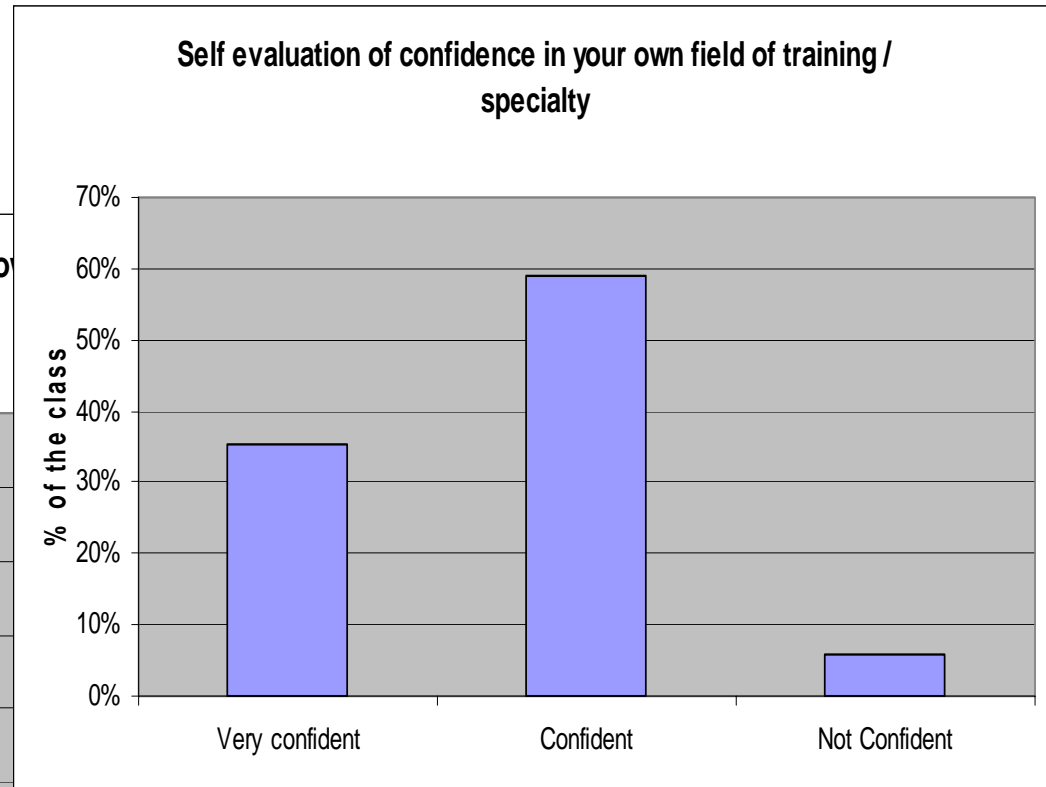
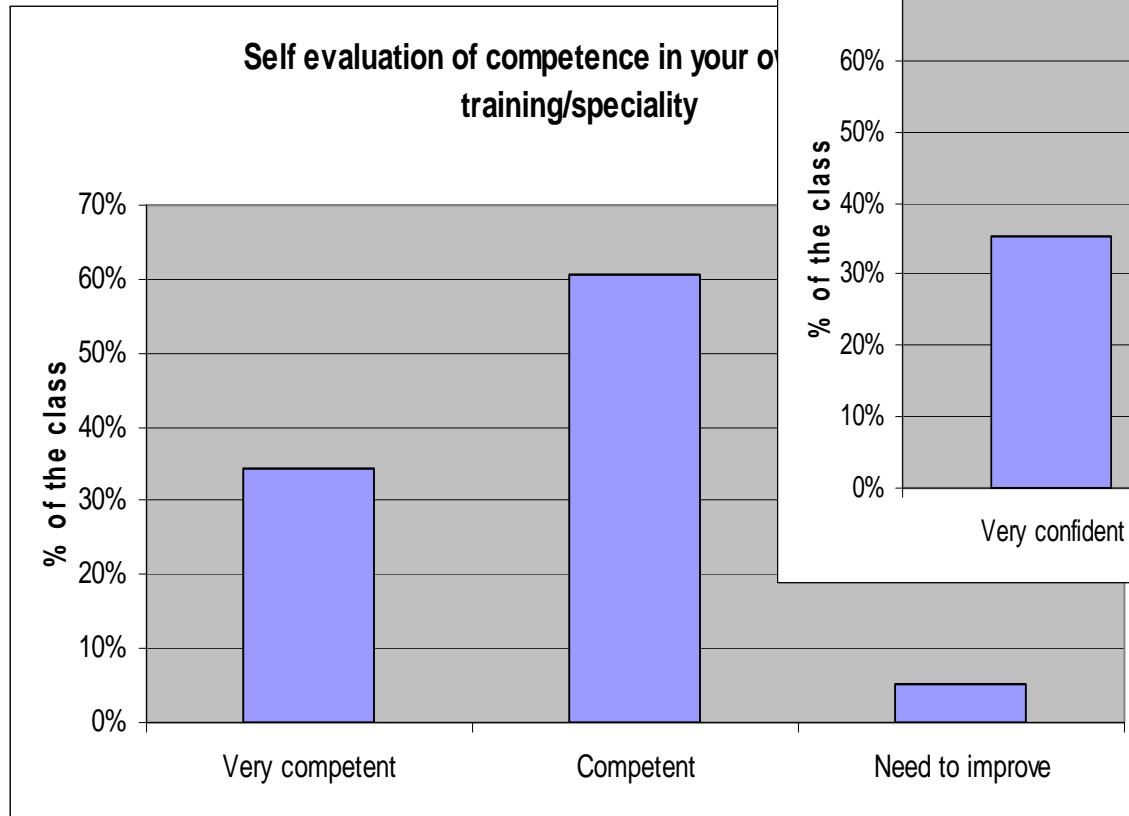
Simulation Training and Rapids Response Systems: Optimizing Team Performance

2nd International
Conference on Rapid
Response Systems
Michael A. DeVita,
M.D.

Infrastructure Challenges

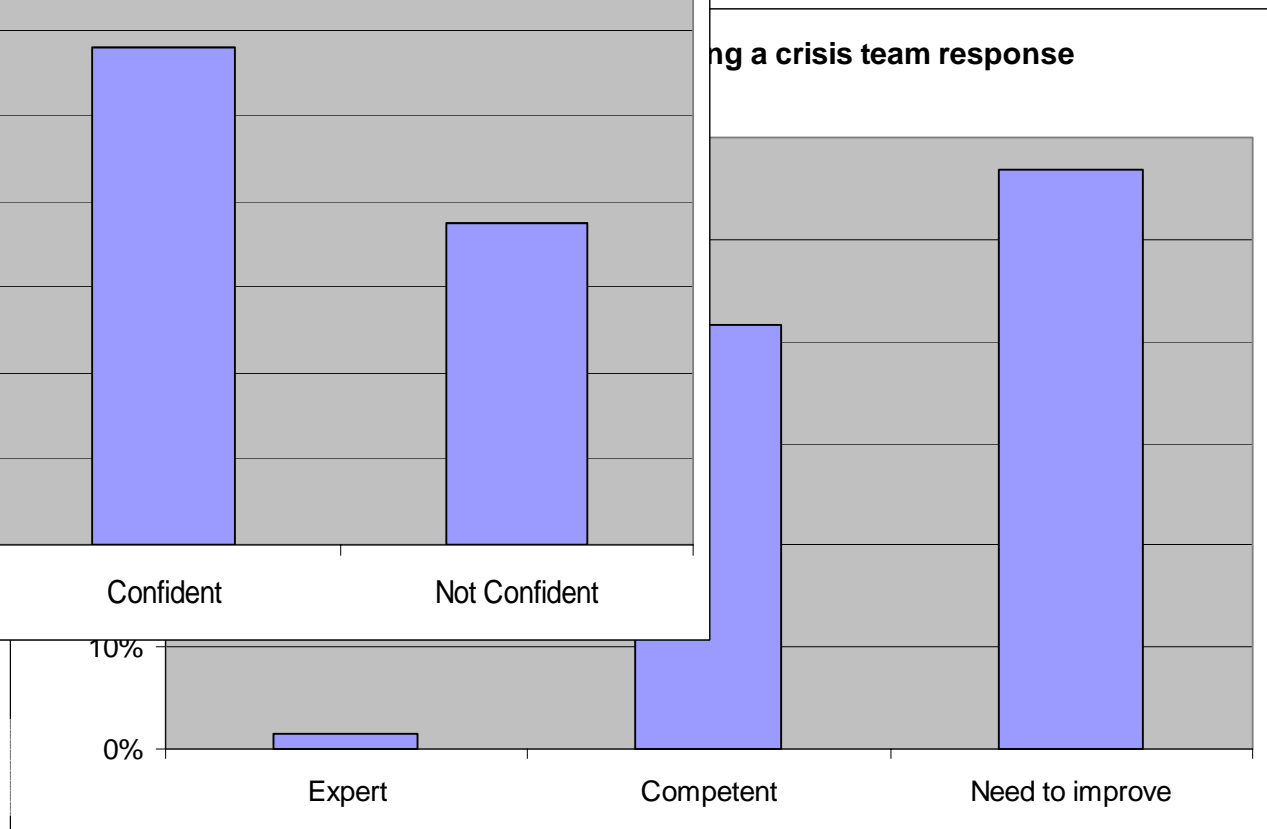
- Teamwork
 - Complex and difficult tasks usually require teamwork
 - Medical professionals view themselves as a resource, but not as a team member
 - Team goals need to be identified, tasks divided equitably, practiced
 - Little precedent for this

Competence/Confidence in Field of Training



N = 210

Competence/Confidence in Crisis Response



N = 210

The need for Crisis TEAM training

- Why can NASCAR teams manage a crisis in 14.8 seconds, and hospitals, with the best and the brightest, cannot reliably defibrillate VF in 3 minutes?

Hospital personnel are not trained to function as teams. They are individually taught what to do and the rationale.

Current ACLS fails clinically: explanation is insufficient.

Can anyone shoot the ball like Beckham after Beckham explains what to do and why?

Effective Crisis Response: *A Sequence of Tasks*

Ventricular Tachycardia:

1. Recognize crisis
2. Call for help
3. Bring equipment, personnel
4. Connect defibrillator: Pads/paddles/electrodes?
5. Turn on defibrillator
6. Choose lead: Pads/paddles/electrodes?
7. View rhythm
7. Recognize rhythm
8. Make decision to shock
9. Set energy
10. Charge
11. Clear
12. Shock

Effective Crisis Response

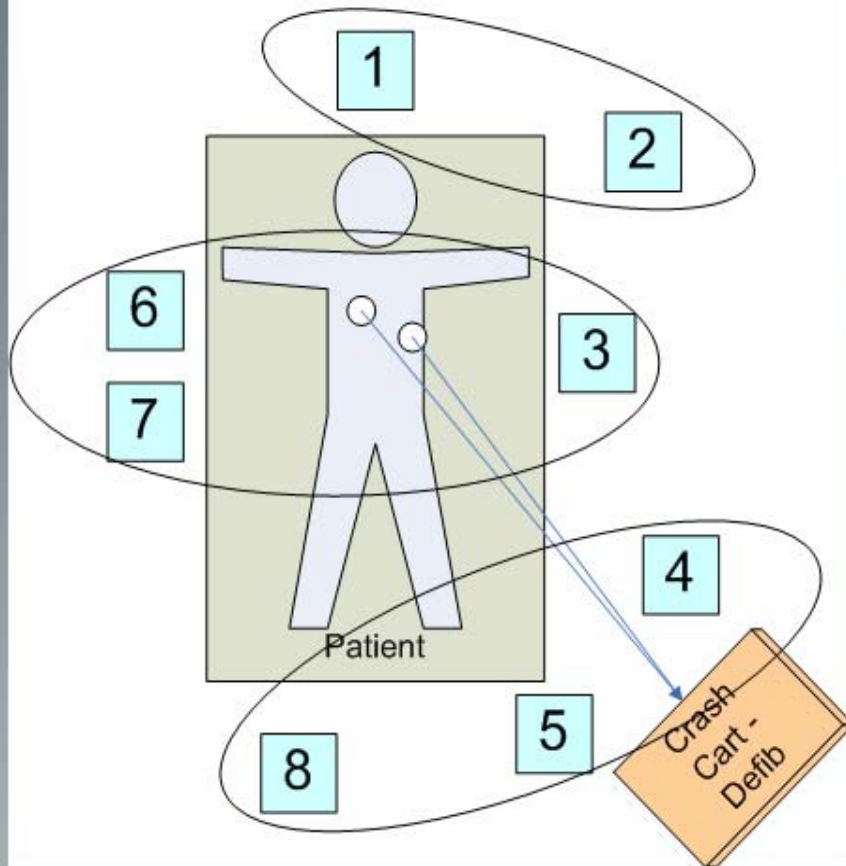
- Standardize equipment
- Preset equipment to extent possible
- Standardize responders
- Identify/prioritize tasks
- Delegate tasks efficiently
- *Beta* test and modify
- Teach

Defibrillation:

Choreographing a response

- WHO DOES WHAT?????
 - 2 ICU Nurses
 - 2 Critical Care Physicians
 - 2 Respiratory therapists
 - Floor nurses
 - Kibitzers/wanderers/good Samaritans

Team Roles and Goals



"Circles" denote "mini-teams" that must cooperate closely on similar goals.

Roles	Responsibility
1. Airway Manager	Assess, assist ventilation, intubate
2. Airway Assistant	Assist airway manager, oxygen and suction setup, suction as needed
3. Bedside Assistant (usually Floor RN)	Assess enough patent IV's, push meds, and check pulse.
4. Crash Cart Mgr (ICURN)	Deploy equipment, prepare meds, run defibrillator BBPP
5. Treatment Leader	Assess team, responsibilities, data, direct treatment, set priorities, triage patient.
6. Circulation	Check Pulse, place defib pads, perform chest compressions*
7. Procedure MD	Perform procedures iv, chest tubes, ABGs
8. Data Manager (ICURN)	AMPLE, results, chart, record interventions, role tags

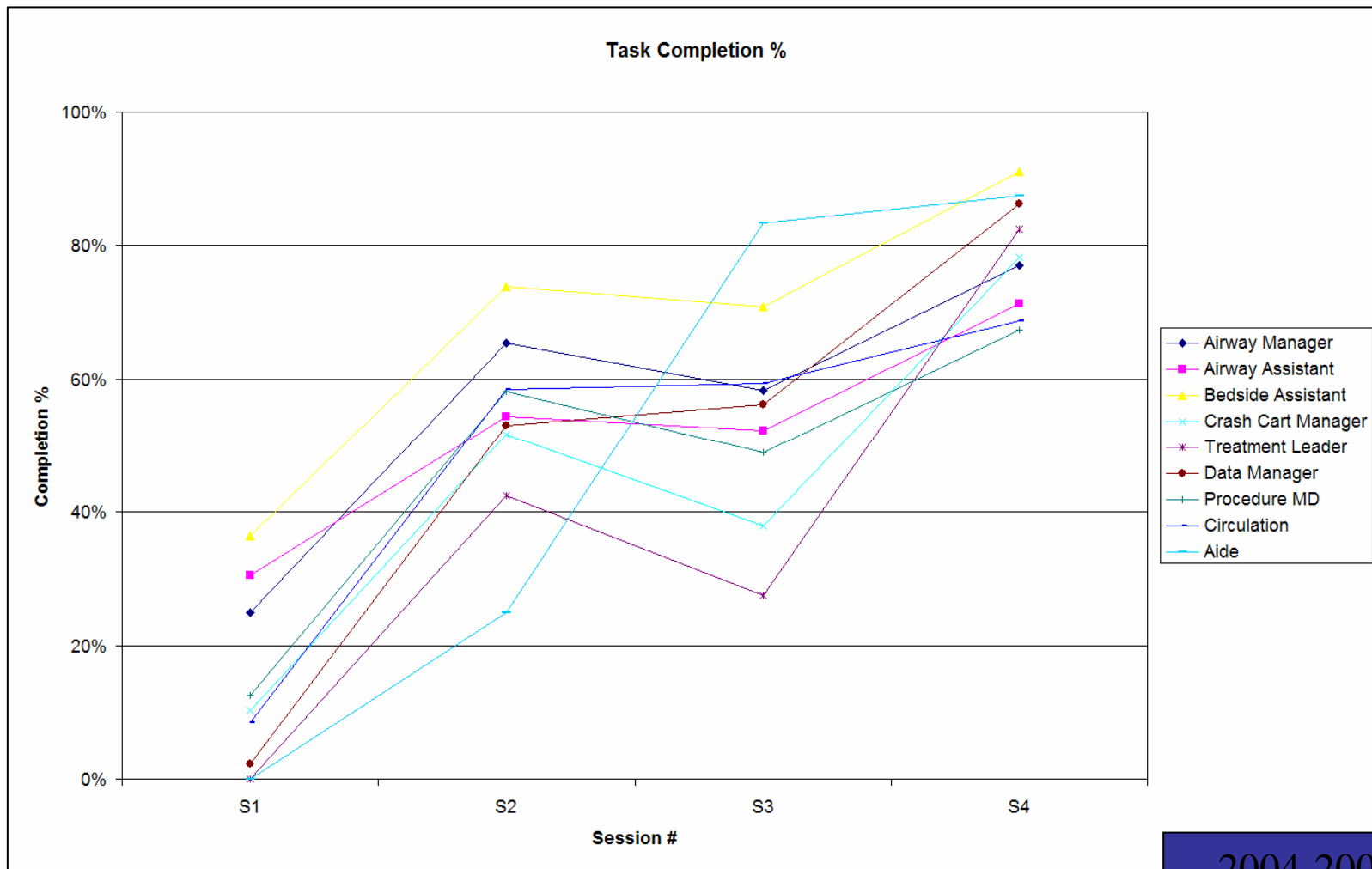
Task/Team Assessment: 60 seconds

60 seconds (1)						
Station	Team Member	Items	CT	TD	CAO	
Airway	White, Michael	Identify self	N			
		Check Airway	N			Save
		Open airway < 60 seconds	N			Save
		Check Breathing	N			Save
		Assist ventilation < 60 seconds	N			
Airway Assistant	Davis, Ed	Identify self	N			
		Set up oxygen	N			Save
		Set up oxygen bag	N			Save
		Set up mask	Y			Save
Floor RN	Kennedy, Kristy	Identify self	Y			
		Check pulse < 30 seconds	Y			Save
		Place defib pads < 60 seconds	N			Save
		Check IV Access < 60 seconds	Y			
ICU RN	Fisher, Marilyn	Identify self	N			
Team Leader	Kumar, Rani	Identify self	N			
		Assign Roles	N			
Recorder ICU RN	Wagener, Melinda	Identify self	N			
		Hand ID stickers to responders	N			
Procedure MD	Jackson, Joyce	Identify self	Y			
		Check Pulse	Y			
		Assist CPR	N			
Chest Compressions	Williams, Jack	Identify self	N			
		Initiate chest compressions	N			
		Assess adequacy of compressions	N/A			
		Assess pulse as requested	Y			
Aide	Allen, Gideon	Identify self	N			
		60 second ct positives:	7			
		60 second total spots	25			
			28%			

Team Performance 60seconds: Post training

60 seconds (3)						
Station	Team Member	Items	CT	TD	CAO	
Airway	Turley, Mark	Identify self	Y			
		Check Airway	Y			Save
		Open airway < 60 seconds	Y			Save
		Check Breathing	Y			Save
		Assist ventilation < 60 seconds	Y			
Airway Assistant	Davis, Ed	Identify self	Y			
		Set up oxygen	Y			Save
		Set up oxygen bag	Y			Save
		Set up mask	Y			Save
Floor RN	Allen, Gideon	Identify self	Y			
		Check pulse < 30 seconds	Y			Save
		Place defib pads < 60 seconds	Y			Save
		Check IV Access < 60 seconds	Y			
ICU RN	Kennedy, Kristy	Identify self	Y			
Team Leader	schuchert, rani	Identify self	Y			
		Assign Roles	Y			
Recorder ICU RN	Lane, Margi	Identify self	Y			
		Hand ID stickers to responders	N/A			
Procedure MD	Williams, Jack	Identify self	Y			
		Check Pulse	Y			
		Assist CPR	N/A			
Chest Compressions	Fisher, Marilyn	Identify self	Y			
		Initiate chest compressions	N/A			
		Assess adequacy of compressions	N/A			
		Assess pulse as requested	Y			
Aide	Jackson, Joyce	Identify self	Y			
		60 second ct positives:	22			
		60 second total spots	22			
			100%			

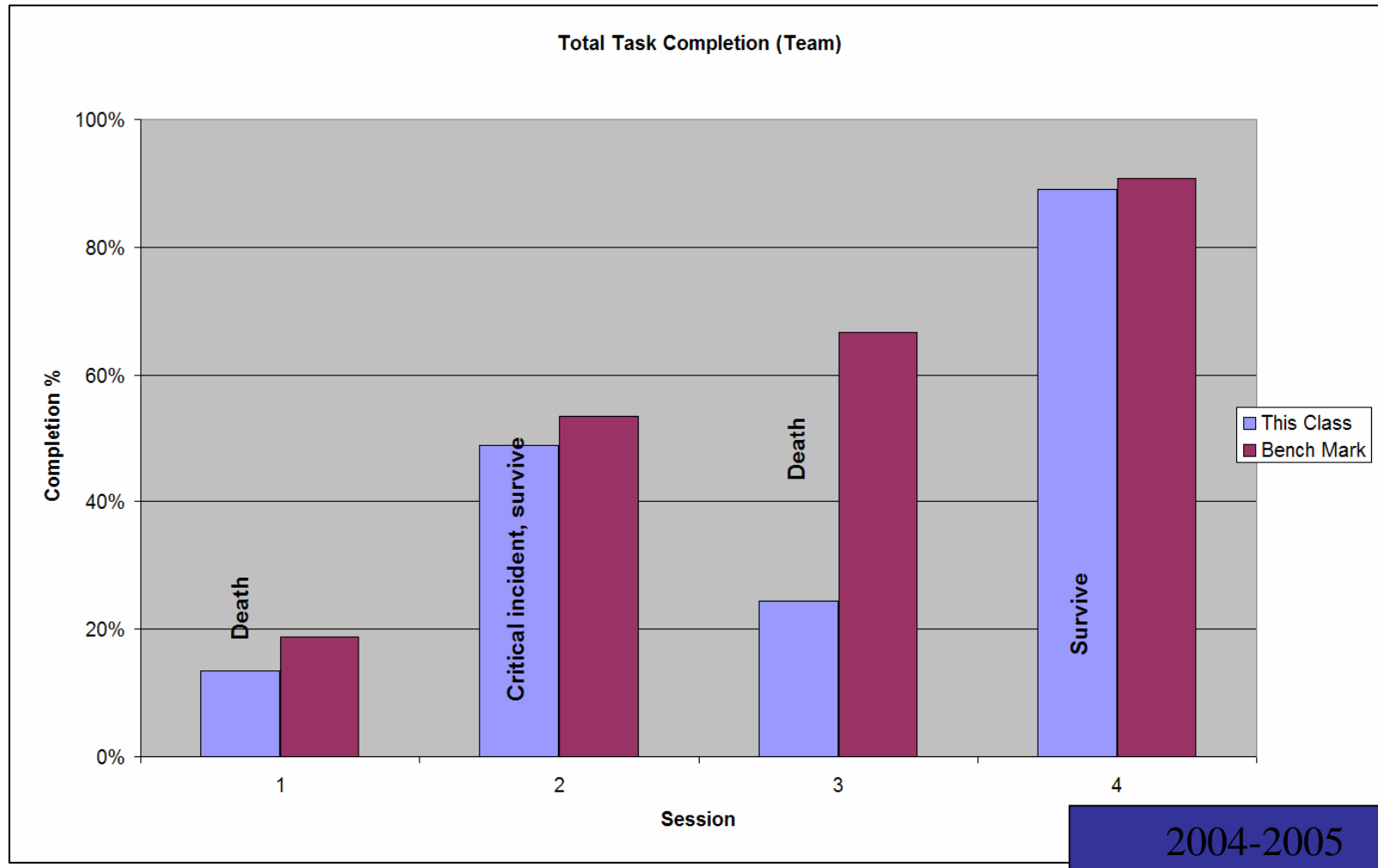
Task completion rate (role)



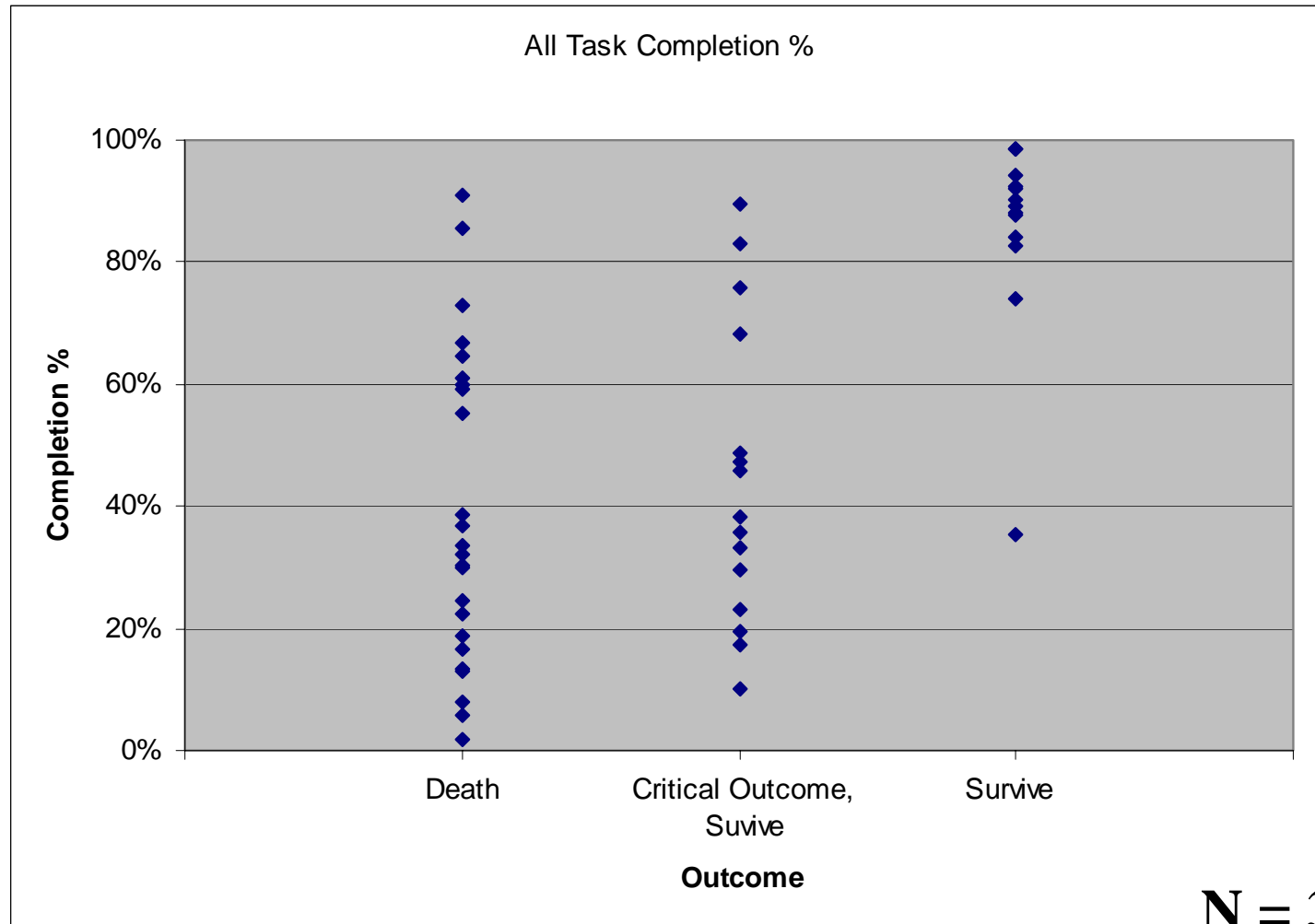
2004-2005

Benchmarking Improvement

Efficiency=Effectiveness



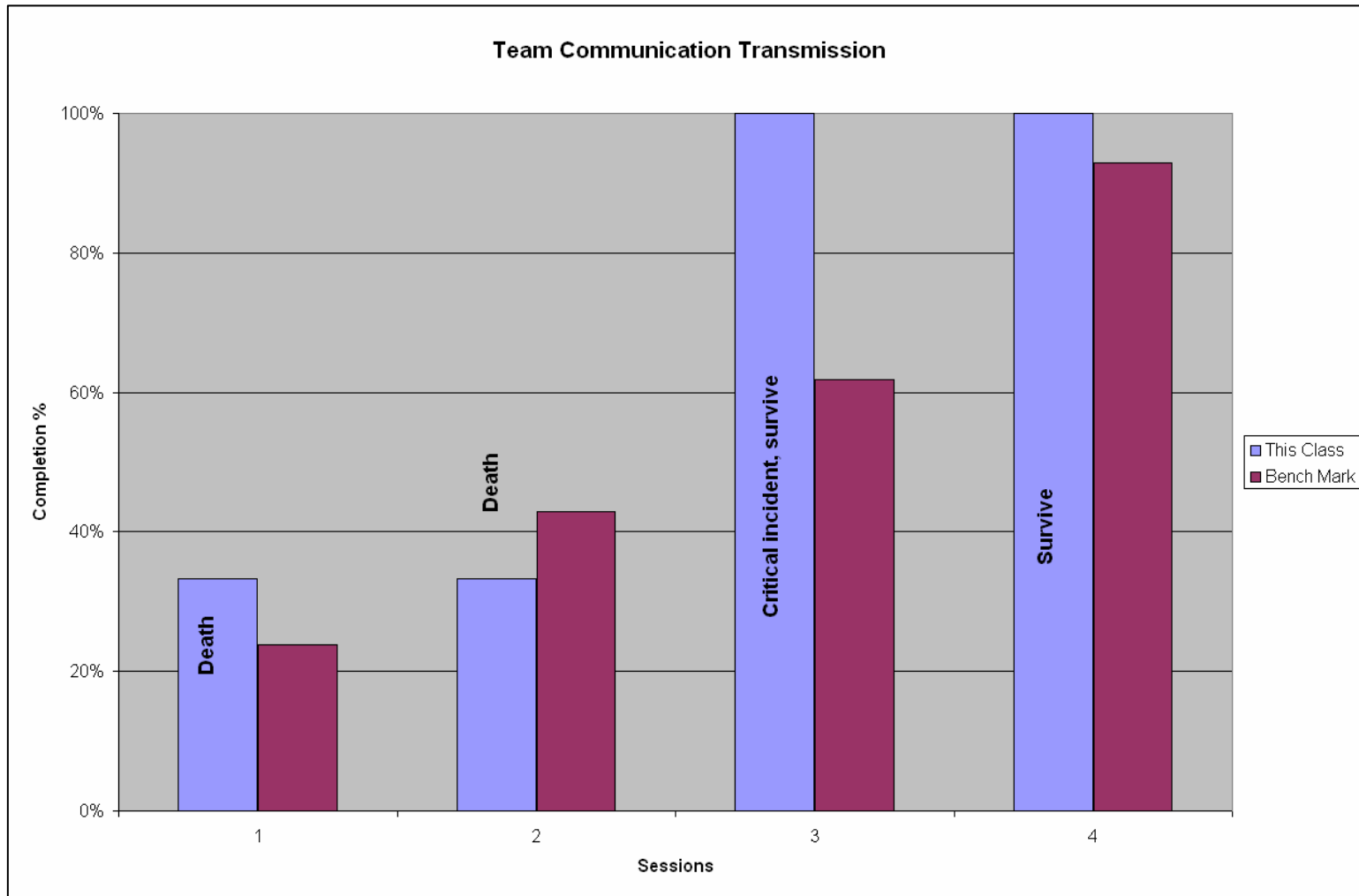
Task Completion Rate and Probability of Success



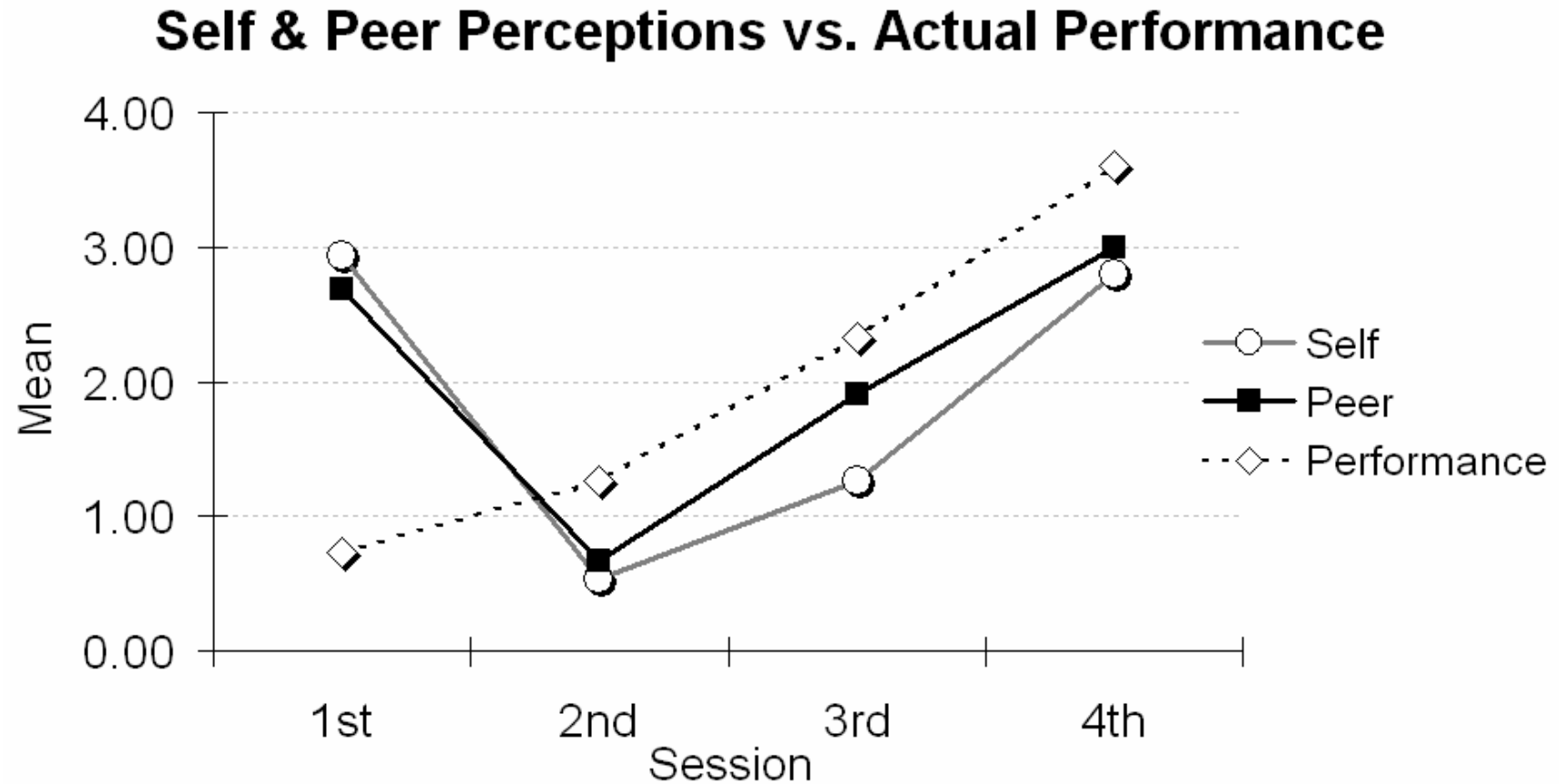
Objective Communication Measures

Full Name	Intervention	Data Probe 1
1. Acute MI	Chest Pain Team	EKG
2. V-Tach	Cardiovert	complaint of racing heart
3. Morphine O.D.	Narcan	history of opioid administration
4. Atrial Fibrillation	Stroke Team	history of subarachnoid hemorrhage and unclipped cerebral aneurysm
5. V-Fib	Defibrillate	absent circulation
6. Null	Assess	diphenhydramine administration
7. Retroperitoneal hemorrhage	Fluid resuscitation and blood	Low BP
8. Tension pneumothorax	Chest tube	history of IJ line insertion

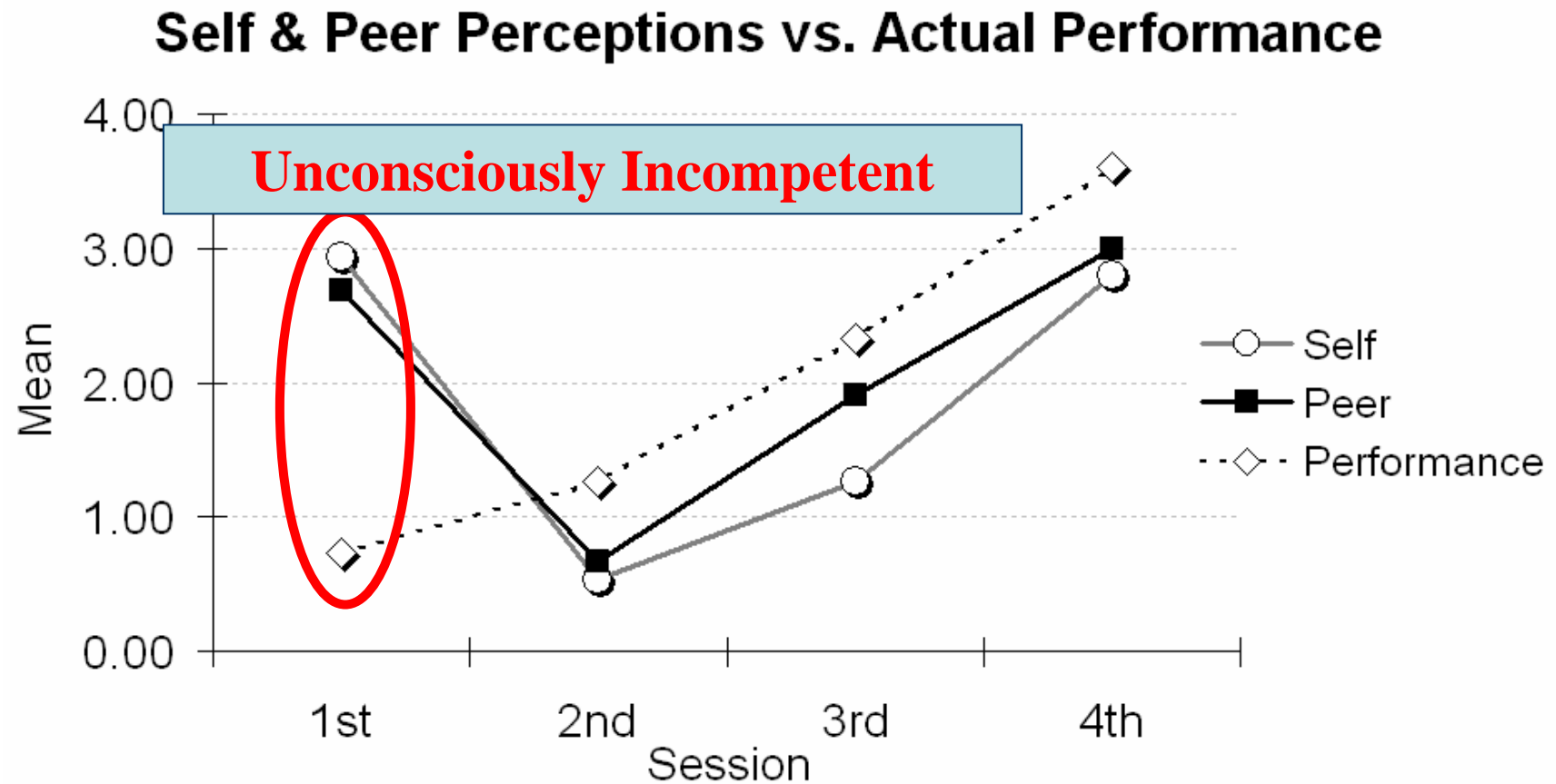
Benchmarking communication & impact



Perception of Team Performance

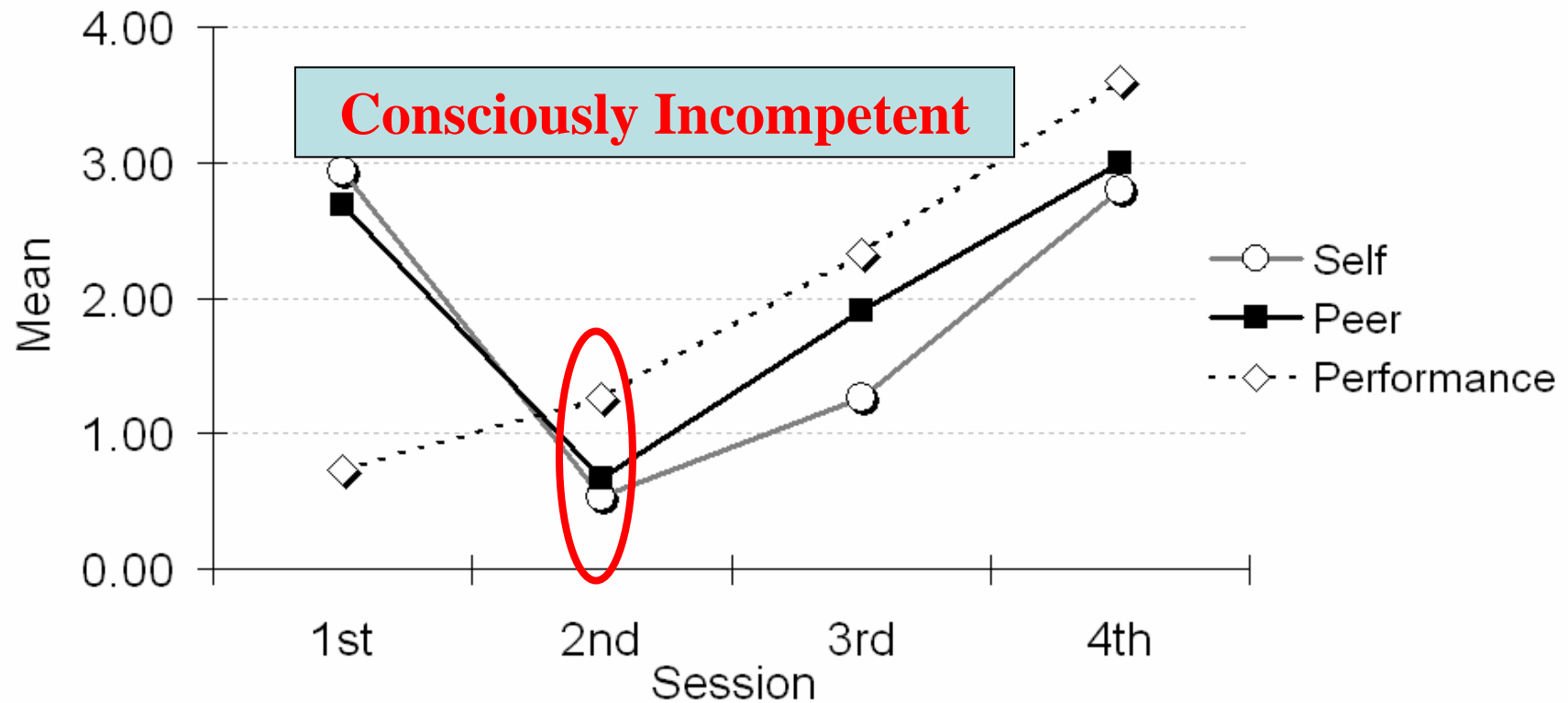


Perception of Teamwork and learning

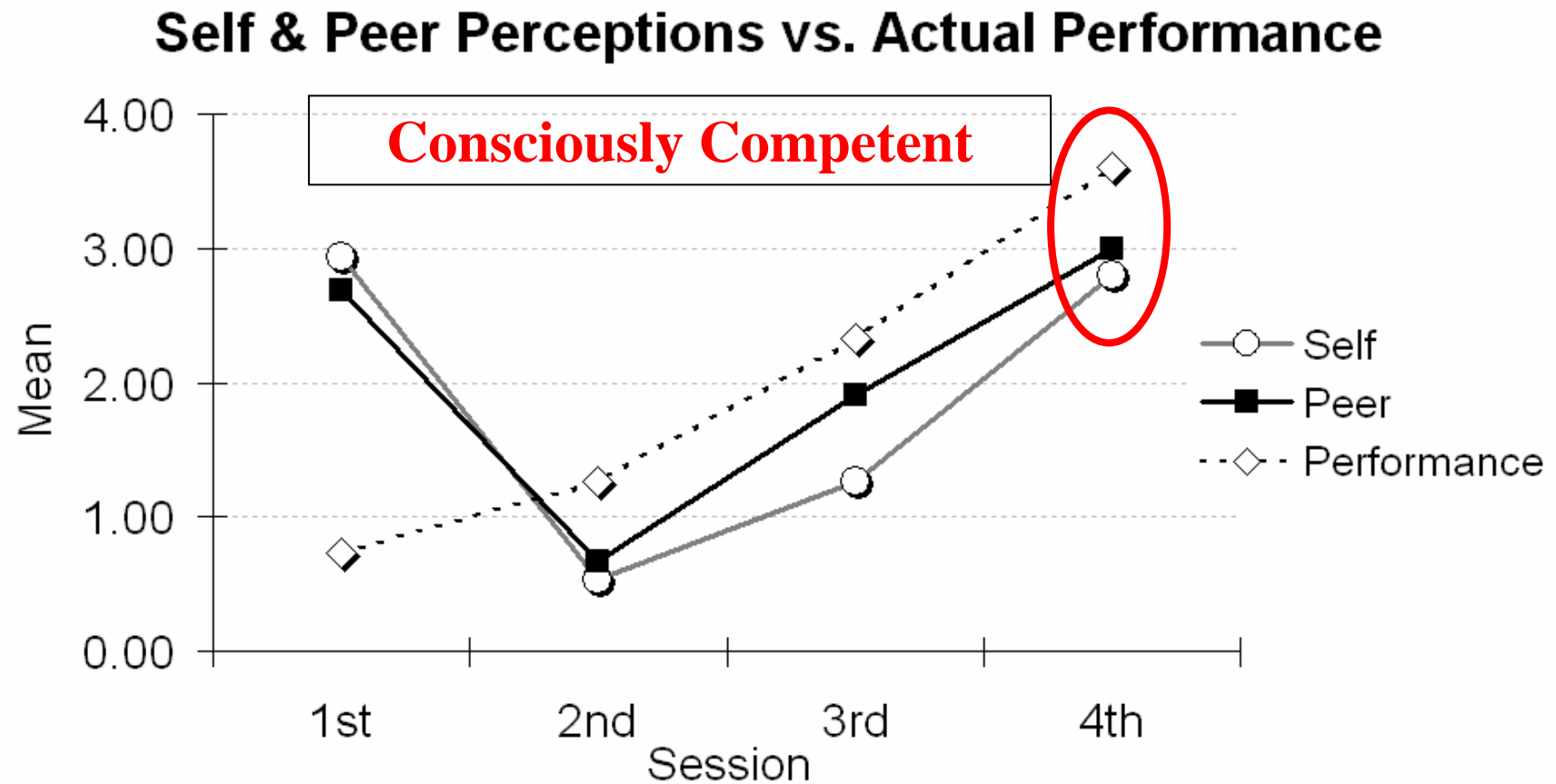


Perception of Teamwork and learning

Self & Peer Perceptions vs. Actual Performance



Perception of Teamwork and learning



Limits of Full Scale Simulation Training

- Cost: Trainee, facilitator time
- Scheduling
- Volume
- Training facilitators

Gaming for Crisis Team Training



Conclusion

- Safe hospitals require personnel to respond efficiently/effectively to crisis
- Gap in skills exists!
- Simulation has potential to correct
- Gaming technology makes it fun and promotes mass training