Supplemental Digital Table 1

Full Description of All Coded Articles Included in a Review of Publication about Team Training in Health Care, 2009

Citation	Training Needs Analysis	Participants	Site	Learning Objectives	Content	Instructional Methods	Practice & Feedback	Facilitator(s)	Evaluation
Ammen torpet al., 2007	NS	19 Physicians 11 Nurses NS if trained in teams	NS	NS	Taskwork and teamwork	Lecture with 4 weeks of practice	*Practice*: Rehearsed over 4 weeks *Feedback*: Incorporated video recordings	Senior pediatrician trained as a teacher	*Learning-Affective:* Communication self-efficacy Pre, post, +3, +6
Awad et al., 2005	Survey	"Entire surgical service" NS if trained in teams	NS	NS	Taskwork and teamwork	Didactic instruction, , role-play, training films, clinical vignettes	*Practice:* interactive instruction, role-play and clinical vignettes *Feedback*: NS	Veteran's Affairs National Center for Patient Safety	*Behavior:* Briefings, perceptions of communication *Patient:* Prophylaxis (antibiotics, DVT) +1, +2, +4
Berkens tadt et al., 2008	Risk analysis of recent event	25 Nurses Trained in teams of 4	1 hospital, step-down unit	Handoff procedures	Teamwork focused	Simulation based training and communication workshop	*Practice*: 4 simulated scenarios *Feedback*: Face-to-face, behavior based, provided immediately; video recording facilitated discussion	Debriefing sessions facilitated by study authors	*Behavior:* Nursing handoffs Pre, +6-8weeks
Blum et al., 2005	NS	Anesthesiologists from four hospitals Trained in teams of 3-5	Sim center	NS	Teamwork focused	In-class lecture & mannequin sim scenarios	*Practice*: 3 or 4 scenarios *Feedback*: face-to-face, behavior based guided debriefing with instructor feedback	Staff from the medical school's simulation center where the study was conducted	*Reactions:* Course evaluation survey *Learning-Knowledge:* Self report questionnaire *Behavior:* Self reported success Post, +1year
Cashman et al., 2004	NS	Primary care team: 1 MD, 1 NP, 1 PA, 1 RN, 1 health assistant, & 1 outreach Trained as team of 6	NS	NS	Teamwork focused	Team workshops and simulation exercises.	*Practice*: workshops (5) began with a simulation exercise *Feedback*: NS for simulation exercises; SYMLOG results discussed with teams	NS	*Behavior:* SYMLOG survey Pre, +14months, +2years

Cole et al., 1986	NS	6 occupational therapy/ geriatric graduates Trained in teams, team size not specified	At Sepulveda (California) VA Medical Center	To provide knowledge, attitudes, and clinical competencies to asses and to treat the array of biophsycosocial problems of older veterans in team settings	Taskwork and teamwork	Information with lecture/workshop/symposia, forming own practice team, 3-month hands-on rotation.	*Practice*: Practice forming interdisciplinary treatment team and discussing a simulated geriatric case *Feedback*: Videotaped feedback	Members of the Sepulveda (CA) VA Medical Center Inter-disciplinary Team Training in Geriatrics program	*Reactions:* Course evaluation survey Post
Cooley, 1994	NS	25 staff members Trained in teams, team size not specified	Day to day meetings conducted at inter-disciplinary rehabilitation center	NS	Teamwork focused	Presentation, modeling, and observational training using examples from their own videotaped meetings, written practice and role playing.	*Practice*: Yes (details NS) *Feedback*: NS	NS	*Behavior:* Observational ratings, participation Index Post
DeVita, Schaefer, Lutz et al., 2005	NS	N = 138 Critical care nurses, resp. therapists, fellows, residents, attendings Trained in teams, team size NS	Large center for human simulation training at a university affiliated tertiary care hospital	NS	Taskwork and teamwork	Information (ppt presentation) and practice (5 potential simulator scenarios).	*Practice*: 3 simulation scenarios during single 3hr training session*Feedback*: Facilitator moderated debriefings	Staff at the Winter Institute for Simulation Education and Research (WISER)	*Behavior:* Percentage of tasks completed *Patient:* Mannequin survival Post
Dunn, Mills, Neily et al., 2007	NS	43 VAMCs with over 4,000 professionals trained NS if training occurred in teams	Training program offered to VA Medical Centers (VAMC)	1) To improve face-to-face communication, specifically briefing/debriefing skills and SBAR for patient handoffs/sign-out. 2) To improve patient care through fatigue management.	Teamwork focused	Teaching films of clinical vignettes were shown and debriefed throughout the session.	*Practice*: NS (indicates interactive exercises) *Feedback*: NS	Clinical faculty from each VAMC. Faculty team comprised of one physician, one nurse, and one or two program specialists.	*Reactions:* Employment Education survey *Behaviors:* Briefings/debriefings, SBAR hand-offs, inter-disciplinary rounds, Fatigue Management Plan *Patient & Clinician:* Varied by clinical unit/service Varied by site: Pre, +3, +6, +9, +12

Flanagan, Nestel, Joseph et al., 2004	NS	N = 299 Trained in teams, team size not specified	NS	1)Medical mgmt of critical events 2) Metacognition, situation awareness, and the avoidance of fixation error 3) Resource management--leadership, communication, teamwork, workload management, monitoring, & cross-checking	Teamwork focused	Didactic session concerning human performance, watching videos, simulations sessions, practice as part of the primary clinical team, and debrief of videotaped scenarios.	*Practice*: One 30 minute simulation session *Feedback*: Video-assisted facilitated debrief session	NS	*Reactions:* Course evaluation survey, interviews Post
Flin, Yule, Paterson-Brfow et al., 2007	NS	N = 21 Surgeons Trained as individuals	NS	(1) Demonstrate an understanding of the relevance of non-technical skills to safe surgical practice (2) Illustrate how non-technical failures can lead to poor clinical outcomes (3) Discuss key non-technical skills within a surgical context (4) Identify and rate examples of good and poor OR behaviors	Teamwork focused	Information with lectures, facilitated discussion, demonstration by a video clip review, and practice exercises.	*Practice*: NS (indicates interactive exercises) *Feedback*: NS	3 consultant surgeons (general, orthopedic, & pediatric), a consultant anesthesiologist, and 2 industrial psychologists specializing in safety research.	*Reactions:* Course evaluation survey, intentions to change behavior Post
France, Stiles, Gaffney et al., 2005	NS	N = 182 Physicians, Nurses, others such as technologists & administrators Trained as individuals	Training conducted at the Vanderbilt University Medical Center (VUMC), a level one trauma center	NS	Teamwork focused	Lecture and role-playing in simulated crisis scenarios.	*Practice*: Role-play (quantity and duration were NS) *Feedback*: NS	Vendor representatives	*Reactions:* Course evaluation survey *Learning-Attitudes:* Human factors attitude survey Pre, Post
Gaba, Howard, Flanagan et al., 1998 *Holzman, Cooper, Gaba et al., 1995	NS	N = 72 Didactic sessions included 8 participants, however, simulation sessions were conducted in teams of 4	Simulators were located in an OR within the New England Deaconess Hospital	Processes of dynamic decision making & critical event response, practice coordinated integration of all available OR resources, evaluate inter-organizational validity of training	Taskwork and teamwork	Information with a CRM lecture, demonstration with videos, and practice with simulated session.	*Practice*: 6 simulation session (2-4 hours each including debrief) *Feedback*: Facilitated debrief (approximately 2 hours)	12 Harvard faculty on staff at hospital	*Reactions:* Course evaluation survey *Behavior:* Self ratings, observer ratings Post

Gibson, 2001	Detailed interviews	N = 187 nurses Trained in teams of 4-6	One day training conducted in a conference room	NS	Taskwork and teamwork	Information (material was presented and discussed). Nurses participated in goal setting at the individual and team levels.	*Practice*: Developing value goal statements and goals *Feedback*: During final session, received feedback reports of individual and team level quality assessments.	NS	*Learning-Affect:* Self-efficacy, collective efficacy *Behavior:* Individual and team effectiveness Pre, +2weeks
Grogan, Stiles, France et al., 2004	NS	N = 489 clinical team members from trauma, ED, operative services, cardiac cath, lab, and administration Trained in teams, team size NS	Held at a training facility adjacent to the Vanderbilt University Medical Center (VUMC) campus	1) Managing fatigue 2) Creating and managing a team 3) Recognizing adverse situations 4) Cross-checking and communication techniques 5) Developing and applying shared mental models for decision making 6) Giving and receiving performance feedback	Teamwork focused	Lectures of CRM concepts and principles and case studies involving role playing in simulated scenarios.	*Practice*: Participated in case studies involving role play in simulated scenarios (additional information NS) *Feedback*: NS	A commercial vendor of CRM that is contracted by VUMC, including military and commercial airline pilots proficient in human factors engineering, physiology, and CRM development and training	*Reactions:* Course evaluation survey *Learning-Attitudes:* Human factors attitude survey Pre, Post
Haller, Garneri n, Morales et al., 2008	NS	N = 239, nurses, physicians, midwives, technicians, managersTrain ing sessions included 12 individuals	Hospital training center, located outside the main hospital building at the women's hospital of the Geneva University Hospitals, Switzerland	1) Foster Interprofessional communication 2) Improving participants' understanding and theoretical knowledge of patient safety, team coordination, and communication.3) Highlighting Interprofessional expectations and misunderstandings.4) Identifying team improvement strategies.	Teamwork focused	Interactive lectures, film presentation, series of workshops, role playing, interactive course on inter-professional collaboration and team resolution on crisis scenarios, and soliciting team improvement strategies to be implemented into daily practice.	*Practice*: NS, series of workshops and role plays *Feedback*: NS	The training sessions were chaired by two of the hospital staff's peers.	*Reactions:* Course evaluation survey*Learning-Attitudes:* Declarative knowledge questionnaireSafet y attitude questionnairePre, Post, +1year

Haycock-Stuart, Houston, 2005	Educational needs assessment	N = 116 providers or staff NS if training occurred in teams	Each team was trained at their own locality of seven general practices in Central Scotland	NS	Taskwork and teamwork	Workshop with time allotted for practicing independently at the end of the session	*Practice*: Workshops indicated to incorporate an element of practice *Feedback*: NS	Steering group identified facilitators through professional contacts, however, specific training facilitators were not noted	*Reactions:* Course evaluation survey, interviews *Learning-Attitudes:* Teamwork attitude survey Pre, Post
i Gardi et al., 2001	NS	N = 32 nurse anesthesia teams Trained in teams of 2	NS	NS	Taskwork and teamwork	Practice using simulation and information, not specified how the ACRM course was run however).	*Practice*: 1 simulation scenario (25-30 minutes) *Feedback*: Video-assisted facilitated debrief session	NS	*Behavior:* Observational ratings Post
Jacobsen, Lindekaer, Osterga ard et al., 2001	NS	N = 42 anesthetists Trained in teams of 2	NS	NS	Taskwork and teamwork	Practice only. All simulation, no indication that there was any classroom based or self-paced introduction to the ACRM principles. Article only states that "all trainees were introduced to the simulator features and environment before simulations."	*Practice*: 1 simulation scenario *Feedback*: Video-assisted facilitated debrief session	NS	*Behavior:* Observational ratings *Patient:* Correct diagnosis NS
Le Blanc,Hox,Schaufeli et al., 2007	National survey	N = 664 staff members of 29 oncology wards from 18 general hospitals Trained as team, team size NS	Study was conducted in 29 different hospital wards	Increase knowledge of: mechanisms of stress, emergence and preservation of unwanted collective behavior, communication & feedback, social support networks, balancing job-related investments & outcomes, foster collaborative problem solving	Taskwork and teamwork	Educational component (core content taught by facilitators) and an action component (teams formulated their own action plans to cope with most imp stressors in the workplace).	*Practice*: Problem-solving collectively designed, implemented, evaluated, and reformulated plans of action to cope with the most important stressors in their workplace (additional details NS) *Feedback*: NS	Team counselors from an independent consultancy firm unrelated to members of the research team	*Reactions:* Course evaluation form *Clinician:* Burnout, perceptions of social support, perceptions of job control, perceived job demands Pre, +6, +12

Marshall, Manus, 2007	NS	N = 688 individuals received training across 5 sites NS if training occurred in teams	Located at 5 different healthcare facilities	NS	Teamwork focused	Classroom and workshop simulations, which included individual and team-based activities designed to correct, evaluate, and measure communication behavior and technical skills.	*Practice*: Workshops incorporated individual and team role-play activities *Feedback*: Face-to-face feedback	Safer Healthcare, an organization that implements high-reliability programming and training programs for high risk organizations.	*Clinician:* Patient safety culture survey Varied among sites
Moorthy, Munz, Forrest et al., 2006	NS	N = 20 surgeons Trained in teams of approximately 6	In a simulated operating theater	NS	Taskwork and teamwork	Practice only with participants taking part in the simulation.	*Practice*: A standardized crisis scenario, with a standardized theater team as teammates*Feedback*: Technical feedback provided by research fellow, a human factors researcher provided nontechnical feedback either soon after the simulation or within 2 weeks	Technical feedback was provided by research fellow and non technical feedback was provided by a human factors researcher	*Reactions:* Course evaluation survey *Behavior:* Observational ratings, time to inform team members *Patient:* Time to: (1) diagnose bleeding (2) achieve control, (3) close laceration, overall blood lossPost
Morey, Simon, Jay et al., 2002	NS	N = 684 physicians, nurses, and technicians Trained in teams, team size NS	Nine teaching and community hospital EDs	NS	Taskwork and teamwork	Classroom instruction and workplace practicum.	*Practice*: 4-hour workplace practicum *Feedback*: During practicum, teamwork behaviors were critiqued by instructors; coaching and mentoring provided to all staff during normal shifts for 6 months	Instructors included physician-nurse pairs at the respective EDs who were participating in the expert panels	*Reactions:* Course evaluation survey *Learning-Attitudes:* Teamwork attitudes survey *Behavior:* Observer ratings *Clinician:* Subjective workload, perceptions of support *Patient*: Observed errors, admission evaluations, patient satisfaction Pre, +5, +8

Murray, Jankouskas, Chasko-Bush, 2006	NS	N=42, Ped nurses , med residents, and anesthesia residents Trained in teams of 6	NS	NS	Taskwork and teamwork	Information (didactic presentation of CRM concepts); Practice (1 medical sim, videotaped, used for feedback)	*Practice*: 2 scenarios *Feedback*: Following each scenario, a debriefing session was held in which CRM team behaviors and skills were discussed; video recording of scenario were utilized in feedback	NS	*Behavior:* Observational ratings NS
Nielsen, Goldman, Mann et al., 2007	NS	N = 1307 labor and delivery personnel at 15 US hospitalsNS if training occurred in teams	Train the trainer = off-site 3 day training session Staff training = 15 different hospitals across the U.S., varied	NS	Teamwork focused	Didactic lessons, video scenarios, and interactive training	*Practice*: Included 'interactive training'; details NS*Feedback*: NS	Trainers (employees of the chosen hospitals) attended a 3-day train the trainer session with 4 hrs of didactic lesions, video scenarios, and interactive training.	*Behavior:* Time from decision to incision *Patient:* Adverse outcome index Pre, +5
O'Donnell, Fletcher, Dixon et al., 1998	NS	N = 34 students Trained in teams of 3	On-site hospital simulation center	Introduction to ACRM principles, hands-on experience in rare event mgmt., expose trainees to scenarios in smaller hospitals with fewer support services & different groupings with increased responsibility.	Teamwork focused	Information with presentation of ACRM principles, and practice using simulation scenarios.	*Practice*: 5 simulation scenarios*Feedback*: Facilitated debrief session	Hospital faculty	*Reactions:* Course evaluation survey Post
Ostergard, Ostergard, Lippert, 2004	Audit of perinatal deaths, focus group	n = 66, Cardiac rhesus team members, n = 168 Trained in teams, 10-12 per team	NS	Increase knowledge of clinical care algorithms (e.g. resuscitation guidelines), improve working knowledge and skills in communication, teamwork, & leadership	Taskwork and teamwork	Information with classroom lecture and discussion, and practice simulation.	*Practice*: All 3 courses included simulator scenarios (additional details NS) *Feedback*: Video-assisted facilitated debrief session	NS	*Reactions:* Course evaluation survey *Learning-Knowledge:* "Theoretical test" *Behavior:* Self rating of communication, cooperation, & leadership NS
Paige, Kozmenko, Yang et	Completed as part of broader research	All surgical OR personnel, Anesthesiologists, general	Simulators and local equipment with the	Facilitate development of: shared mental models, role clarity,	Teamwork focused	Practice with simulation and information given by briefing and	*Practice*: 2 high-fidelity training scenarios *Feedback*: Facilitated	NS	*Reactions:* Course evaluation survey *Learning-Affect:* Self-efficacy

al., 2009	imitative.	surgical residents, CNs, CRNAs, STs Trained in teams of at least 4 members	actual OR of the participating 157-bed academic-affiliated hospital	open communication, resource management, situational awareness, anticipatory response, cross-monitoring, mental rehearsal, & flattened hierarchy. To use SAFETY Prep pre-operative briefing protocol.		debriefing	debrief session		Pre, Post
Paull, Mazzia, Izu et al., 2009	NS	N = 64 VA facilities NS if training conducted in teams	NS	NS	Teamwork focused	NA	*Practice*: NS ('interactive learning session') *Feedback*: NS	Physician educator, nurse educator, & program mgr.	*Behavior:* Global ratings based upon quarterly interviews Varied by site
Pratt, Mann, Salisbury et al., 2007	NS	Entire obstetrical staff Training sessions included 15-20 participants	NS	To anticipate potential complications and identify mistakes early so that they do not result in bad outcomes	Teamwork focused	Implementation of tools, running an information campaign to keep staff aware of CRM implementation, and feedback	*Practice*: All teamwork behaviors, skills, and tools were practiced; additional details NS *Feedback*: Feedback provided via coaches assigned to each shift	Pairs of hospital based physicians and nurses were trained as instructors and coaches for the participating institutions	*Learning-Attitudes:* Safety attitudes *Patient:* Adverse outcome index, weighted adverse outcome score, number of lawsuits, claims, and observation cases Pre, Post
Reznek, Smith-Coggins, Howard et al., 2003	NS	N = 13 EM residents; Trained as team, 2 trainees per team (physician, first responder) plus 2 nurses	NS	Anticipation/ planning, communication, leadership/ assertiveness, situational awareness/ utilization of all available resources, workload, triage/ prioritization, mgmt of multiple patients, handling disruption	Teamwork focused	Information (lecture), demonstration (several videos), and practice (simulation with debrief).	*Practice*: Simulated emergency department crisis scenarios, 20-30 minutes*Feedback*:, 30-40 minute facilitated debriefing	NS	*Reactions:* Course evaluation survey Post

Robertson, Schumacher, Gosman et al., 2009	NS	N = 22 perinatal healthcare professionals Trained as team, team size not specified	First part of training involved participants reviewing online material, then simulation training was conducted in a vacant operating suite at a hospital	NS	Taskwork and teamwork	PowerPoint presentation, then practice on simulation.	*Practice*: 4 standardized simulated obstetric crisis scenarios (approx. 5 minutes each) *Feedback*: 30-min, structured video-assisted facilitated debrief session	NS	*Reactions:* Course evaluation survey *Learning-Knowledge:* *K*nowledge test, self-rated competence *Learning-Attitudes & Affect:* Attitude (SBT, teamwork, RRTs), role comfort, confidence *Behavior:* Observer ratings, self-ratings Pre, Post
Sax, Browne, Mayewski et al., 2009	NS	N = 857 participants, OR Nurses, OR Ancillary personnel, physicians NS if trained in teams	NS	NS	Teamwork focused	The course was multidisciplinary and highly interactive, using videos, teambuilding exercises, open forums, and demonstration.	*Practice*: NS *Feedback*: NS	NS	*Learning-Attitudes:* Attitudes toward safety *Behavior:* Preoperative checklist usage *Patient:* *S*elf-reported incidents Pre, Post, +2, +12

Sehgal, Fox, Vidyarthi et al., 2008	NS	N=225 individuals working on medical units in the hospital Trained in teams, team size NS	NS	Define patient safety culture & teams; understand teamwork & communication in patient safety, assess factors contributing to medical errors, describe how effective com/ teamwork mitigate patient harm, define chart errors, illustrate ways to translate these skills into daily practice, practice constructing an SBAR; integrate communication skills, how com styles impact care	Teamwork focused	Information with video and didactic lecture. Practice with small group discussions in which team members were prompted by facilitators to use teamwork skills (e.g. SBAR)	*Practice*: Two 45-minute facilitator guided scenarios within which discussions are prompted by facilitator and specific teamwork skills are then practiced (e.g., SBAR) *Feedback*: NS	Multi-disciplinary team: Recognized leader (Chief of medicine or institutional PS officer), prominent unit-based physician, aviation consultant (some sessions were lead by physician or nurse instead of consultant)	*Reactions:* Course evaluation survey Post
Shapiro, Morey, Small et al., 2004	NS	N = 20Trained in 4 teams (1 attending, 1 resident, 3 nurses)	Study intervention performed at the Center for Medical Simulation (CMS)	NS	Teamwork focused	Information/demonstration (video of CRM), and practice (3 scenarios)	*Practice*: Table top exercises; either 3 simulation scenarios (approx. 30 minutes each) or worked as a team in ED for one 8 hour shift*Feedback*: NS for table top exercises, but following each simulation there was a video-assisted facilitated debrief session	Unable to determine. The feedback/debriefs were given by "simulation and teamwork experts."	*Reactions:*Course evaluation survey*Behavior:*Observational ratings Pre, +2weeks
Sica, Barron, Blum et al., 1999	NS	N = 24 radiology residents and fellows Trained in teams of 2	CT scanner radiology suite	NS	Taskwork and teamwork	Information (interactive lecture), demonstration (video of the initial scenario) and practice (2 simulation sessions, 1 group completed prior to the lecture/discussion and 1 group completed it after the lecture/discussion).	*Practice*: 2 sim sessions *Feedback*: Participants and observers reviewed and critiqued post simulation; specifics of feedback NS	NS	*Reactions:* Course evaluation survey *Behavior:* Observational ratings Post, +1
Stroller, Rose, Lee et al., 2004	NS	7 teams of medical residents Trained in teams of 4-5	Off-campus retreat	To develop leadership and teamwork skills based upon Kouzes and Posner's "the	Teamwork focused	Information (member of staff gave examples of leadership in the intro for the day) and	*Practice*: Simulated team building survival exercise and Pictionary *Feedback:* Facilitator led debriefing; post-	NS	*Reactions:* Course evaluation survey *Learning-Knowledge:*

				Leadership Challenge"		practice (survival exercise and the Pictionary task).	Pictionary, instructors compared team behaviors to highly effective teams during debrief d		Effective leadership traits *Behavior:* Observations conducted during the simulated scenario to guide debriefings, however, not discussed as evaluation criteria, team & individual performance Post
Taylor, Hepworth, Buerhaus et al., 2007	Teamwork competencies determined by clinic personnel and external CRM consultant	Advanced Practice Nurses, support staff, administrators NS if trained in teams or as individuals	On-site during non-clinic days	Training goals included standardization of the diabetes care process and improved communication of diabetes-related patient information.	Combination of taskwork and teamwork	Emphasis of teamwork strategies, and development of a work step checklist by participants.	*Practice*: NS *Feedback*: NS	Not specified; Clinical director or manager lead structured briefings each morning following training during the study.	*Behavior:* Observational ratings *Patient:* Quarterly blood sugar, quarterly blood pressure, annual low-density lipoprotein, annual urine micoalbumin; annual lower extremity amputation prevention Pre, Post
Wallin, Meurling, Hedman et al., 2007	NS	N = 15 students Trained in teams of 5, including 3 active participants and 2 observers	In hospital where students were doing clinical rounds	NS	Teamwork focused	Information with lectures on day 1 about emergency care, and practice using simulations.	*Practice*: 1 pre-practice, 5 practice scenarios , 1 post practice *Feedback*: In-scenario and post-scenario feedback in debrief; observers and participants also involved in debrief (specific feedback content NS)	Study authors	*Reactions:* Course evaluation survey*Learning-Attitudes:* Attitudes toward resource management competencies *Behavior:* Observational ratings Pre, Post, +4

Youngblood, Harter, Srivastava et al., 2008	NS	N = 30 EM graduates, medical students Trained in teams of 4	NS	To enhance ECRM competencies, however, specifics are not listed	Combination of taskwork and teamwork:	Information in pre-training materials and briefing, and practice with simulation	*Practice*: 1 pretest trauma case, 4 learning cases, 1 posttest case. *Feedback*: Video-assisted facilitated debrief session	NS	*Reactions:* Course eval survey *Learning-Affect:* Confidence in leadership skills *Behavior:* Observational ratings Pre, Post

*NS = Not specified, **Comm = Communication