



Review

Interprofessional communication in healthcare: An integrative review

Cynthia Foronda ^{a,*}, Brent MacWilliams ^b, Erin McArthur ^c^a Nursing, Johns Hopkins University, 525 N. Wolfe St., Baltimore, MD 21205, USA^b University of Wisconsin- Oshkosh, College of Nursing, 800 Algoma Blvd., Oshkosh, WI 54901, USA^c University of Wisconsin Oshkosh, 800 Algoma Blvd., Oshkosh, WI 54901, USA

ARTICLE INFO

Article history:

Received 23 April 2015

Received in revised form

4 February 2016

Accepted 28 April 2016

Keywords:

Interprofessional education

Simulation

Communication

Cultural humility

Patient safety

ABSTRACT

The link between miscommunication and poor patient outcomes has been well documented. To understand the current state of knowledge regarding interprofessional communication, an integrative review was performed. The review suggested that nurses and physicians are trained differently and they exhibit differences in communication styles. The distinct frustrations that nurses and physicians expressed with each other were discussed. Egos, lack of confidence, lack of organization and structural hierarchies hindered relationships and communications. Research suggested that training programs with the use of standardized tools and simulation are effective in improving interprofessional communication skills. Recommendations include education beyond communication techniques to address the broader related constructs of patient safety, valuing diversity, team science, and cultural humility. Future directions in education are to add courses in patient safety to the curriculum, use handover tools that are interprofessional in nature, practice in simulation hospitals for training, and use virtual simulation to unite the professions.

© 2016 Elsevier Ltd. All rights reserved.

Contents

1. Background	36
2. Methods	37
3. Results	37
3.1. Interprofessional communication amongst healthcare professionals	37
3.2. Interprofessional communication amongst health professions students	38
3.3. Synthesis	39
4. Discussion	39
4.1. Limitations and gaps	39
4.2. Recommendations	39
4.3. Future directions	39
5. Conclusion	40
References	40

1. Background

The link between miscommunication and poor patient outcomes has been well documented (The Joint Commission, 2015).

Ineffective communication in healthcare results in delayed treatment, misdiagnosis, medication errors, patient injury, or death. Improving the effectiveness of communication in healthcare is a global priority (ACSQHC, 2012; IPEC, 2011).

Literature has highlighted the importance of interprofessional training and educational reform (CAIPE, 2002; IPEC, 2011). Schools of medicine, nursing, pharmacy, and other disciplines have taken on the challenge of increasing interprofessional education

* Corresponding author.

E-mail addresses: cforond1@jhu.edu (C. Foronda), macwillb@uwosh.edu (B. MacWilliams), mcarthue@uwosh.edu (E. McArthur).

experiences. Interprofessional workshops, online modules, and offering interprofessional simulations are expanding. However, patient safety training has not kept pace with advances in the science of patient safety (WHO, 2016), and best practices in communication training in the educational institutions that prepare health professionals are lagging behind.

With the advent of the interprofessional educational revolution, healthcare professionals are becoming increasingly comfortable openly acknowledging interprofessional differences such as diversity in training, education, language and roles. Despite this progress, the literature continues to reflect challenges between the professions in terms of communication. Barriers to effective communication have included lack of confidence, lack of experience, complexity of healthcare, the distracting nature of healthcare settings, and lack of structure and standardization (Boaro et al., 2010; Liaw et al., 2014; Nadzam, 2009; Pfaff et al., 2014; Rice et al., 2010). The purpose of this integrative review is to shed light onto what is known regarding interprofessional communication in healthcare to identify recommendations for moving the science forward.

2. Methods

With the aim to obtain the current state of knowledge regarding interprofessional communication, Whittemore and Knafl (2005)'s integrative review method was applied. The literature search included searching relevant databases (PubMed, Medline, CINAHL, and Google Scholar), mining reference lists of selected articles, and reviewing recommendations from experts. Databases were searched using the terms *interprofessional communication*, *SBAR*, *nursing*, and *simulation*, in the context of both professional staff members and students. As we were seeking to understand and describe various approaches to interprofessional communication in a variety of contexts, inclusion criteria were deliberately non-restrictive. English language articles with publication dates spanning 2005 and 2014 were included, allowing for the combination of diverse methodologies and greater breadth (Whittemore and Knafl, 2005). Abstracts were read for relevance and 51 articles were read for consideration. A total of 28 articles were included in the review.

3. Results

The review comprised of 18 research studies, six short papers, three literature reviews, and one theoretical framework paper. The categories emerged of interprofessional communication amongst healthcare professionals and interprofessional communication amongst students. Differences in communication styles as well as select frustrations surfaced. The research suggested that interprofessional communication skills can be significantly improved with training, including use of simulation and standardized communication tools.

3.1. Interprofessional communication amongst healthcare professionals

Interprofessional communication happens in synchronous and asynchronous means. Synchronous genres refer to communications happening in real time such as a meeting, ward round, handoff, or impromptu conversation (Conn et al., 2009). Communications also happen asynchronously such as on white boards, through medication orders, or written progress notes (Conn et al., 2009). Communication is not only verbal and written, it includes body language, attitude and tone (Nadzam, 2009).

The literature suggests that physicians and nurses are trained differently in terms of communication styles and these differences lead to frustrations (Table 1). Nurses are trained to be highly descriptive and physicians are trained to be succinct (Rodgers, 2007). "Members from different professions use their telling of the patient's story, framed in the narrative structure of their own discipline, as a way to pass on information to their colleagues" (Clark, 2014, p. 37). "The embracing of true multivocality by a team is the key to its achieving the kind of integrated communication required for effective collaboration" (Clark, 2014, p. 37). Physicians have noted frustration with nurse communications for "disorganization of information, illogical flow of content, lack of preparation to answer questions, inclusion of extraneous or irrelevant information, and delay in getting to the point" (Dixon et al., 2006, p. 377). Nurses indicated concerns with physician communications due to "perceived inattentiveness especially during night hours, unwillingness to discuss goals of care, and feeling that a list of signs and symptoms had to be provided instead of just stating what the nurse thought the clinical problem was" (Dixon et al., 2006, p. 377).

Research in the intensive care unit (ICU) has revealed challenges resulting from interprofessional communication. In a study performed with 272 nurses from 17 ICU's, Gurses and Carayon (2007) found nurse-physician communication was identified as a performance obstacle by ICU nurses. Twenty one of participants noted delays in seeing new medical orders and 18% of participants felt there was inadequate information provided from physicians. In the context of home health, Markley and Winbery (2008) stated that it only takes a few seconds of listening to a clinician's report of a patient's condition for the physician to determine if he or she trusts their opinion. They purported that nurses can earn the trust of physicians by skillfully communicating the facts, making targeted recommendations with confidence (Markley and Winbery, 2008). Perron et al. (2014) performed a Delphi study to identify the themes and skills most needed to be taught during interprofessional programs. The top theme obtained was healthcare provider communication with the patient and his entourage.

Pfaff et al. (2014) explored new graduate nurse confidence in interprofessional collaboration using mixed methods. After surveying 514 new graduate nurses regarding perceived confidence

Table 1
Physicians' and nurses' expressed frustrations related to communication.

Physicians frustrations with nurse communications	Nurses frustrations with physician communications
Nurses' disorganization with information	Physicians seemed inattentive
Nurses' illogical flow of content	Physicians seemed unwilling to discuss goals of care
Nurses' lack of preparation to answer questions	Nurses felt they could only discuss a list of signs and symptoms instead of stating the problem
Nurses' inclusion of extraneous or irrelevant information	Nurses wanted to give a recommendation but lacked authority
Nurses' delay in getting to the point	Nurses felt a hierarchy or difference in power
Physicians wanted know the nurse's overall impression	Nurses were unsure how much or how little detail to provide
Nurses had different communication styles	Nurses lacked confidence and experience
Nurses did not see new orders	Nurses lacked a structure and standardization
Physicians wanted to hear relevant data	Nurses feared being incorrect or humiliated

in interprofessional collaboration, they identified several factors having a positive relationship with confidence: availability of manager, availability of educator, number of disciplines worked with daily, number of team strategies, and satisfaction with the team. Qualitative findings revealed facilitators including experience, knowledge, respect, supportive relationships, and opportunities to collaborate. “Challenges included lack of experience, lack of knowledge, balancing practice expectations, and communication challenges” (p. 1).

Rice et al. (2010) found that interprofessional hierarchies had considerable negative effects on communication and collaboration with healthcare providers on a general internal medicine unit. Physicians stated they were used to having their orders carried out without discussion or negotiation. “The fast paced, interruptive environment reduced opportunities or incentive to enhance restrictive interprofessional relationships” (p. 350). Interprofessional communication was “rare and impersonal” (p. 350). Similarly, Woodhall et al. (2008) found that physicians had reservations about nurses giving recommendations prior to the physician’s examination of the patient. The authors described using an SBAR intervention to improve communication in a tertiary care center resulting in dramatic improvements (p. 316). Staff stated they liked the template to streamline information. “An experienced nurse shared, ‘In the emergency room, the SBAR tool has eliminated errors due to assumptions. Now the physician and nurse are on the same page from the very beginning’” (p. 316). Heinrichs et al. (2012) additionally promoted using SBAR to “flatten the hierarchy” among caregivers.

There are various approaches to teaching interprofessional communication including workshops, online modules, and case studies. It is argued that sharing a common clinical experience such as simulation is a more effective approach compared to sitting together side-by-side in lecture halls (Barnsteiner et al., 2007). Roberts et al. (2014) used a prospective, observational, longitudinal study with 57 medical hospital staff members including residents, emergency medicine technicians and nurses. One of the purposes of the project was to foster team communication in trauma care. Pre-intervention simulations were recorded. Team members provided an intervention using TeamSTEPPS™ (Team Strategies and Tools to Enhance Performance and Patient Safety) instruction. Participants performed in simulations again immediately after the intervention and three weeks post-intervention. Participants expressed high levels of satisfaction and changed behaviors on teamwork and communication on the posttest three weeks later. Sargeant, MacLeod, and Murray (2011) studied use of interprofessional simulation with professional actors to teach communication skills to 518 health professionals. In their study, the interventions lead to significant increases in self-reported communication skills ($p \leq 0.05$).

3.2. Interprofessional communication amongst health professions students

Jeffries (2005) developed a framework for designing, implementing, and evaluating simulations that is prevalent in nursing education. This framework supports active and collaborative learning with student-faculty interaction and feedback. When facilitated correctly, simulation results in knowledge, skill performance, learner satisfaction, critical thinking, and self-confidence. This framework supports the notion of using simulation to teach a skill such as interprofessional communication and also recognizes that simulation should be evaluated. Foronda, Liu, and Bauman (2013b) also posited that student learning outcomes resulting from simulation must be evaluated to guide student and faculty efforts. After reviewing the existing

literature regarding evaluation of simulation in undergraduate nurse education, Foronda et al. (2013b) revealed the following outcomes resulting from simulation: “confidence/self-efficacy, satisfaction, anxiety/stress, skills/knowledge, and interdisciplinary experiences” (p. e1). They suggested that educators use “evaluation instruments dually as grading rubrics for student assessment and mechanisms for curriculum evaluation” (p. e5). Several studies have documented the difficulty nursing students have exhibited in performing interprofessional communications in simulation (Aebersold et al., 2013; Foronda et al., 2013a; Thomas et al., 2009).

Meyer et al. (2011) evaluated the effect of simulation on clinical performance with nursing students. With a convenience sample of 116 junior nursing students, faculty rated students with patient simulation experience higher than those who had not yet attended simulation ($p = 0.02$). They suggested simulation was a “valuable addition to augment the apprenticeship model” (p. 269). Wagner, Liston, and Miller (2011) performed a pilot study with ten nursing students and medical students to develop interprofessional communication skills. The student feedback regarding the simulation was positive. The authors described barriers to interprofessional simulation including scheduling, facilities, professional attitudes, and preconceptions. Tofil et al. (2014) performed four, 1-h simulations with 72 medical and 30 nursing students. They found self-efficacy communication scores improved for both groups (medicine 18.9 ± 3.3 pretest vs 23.7 ± 3.7 post-test; nursing, 19.6 ± 2.7 pretest vs 24.5 ± 2.5 post-test).

Aebersold et al. (2013) performed a pilot project using Crew Resource Management to teach communication skills to nursing students. They taught nursing students to list the 3 W’s (“What I see, What I am concerned about, What I want”) as well as a Four-Step Assertive Tool followed by the chain of command. After this education day, 28 students participated in simulations to practice communication. Respondents agreed the CRM concepts could be applied to nursing care to reduce harm to patients ($M = 4.7$, $SD = 0.46$). They found that 97% of students agreed that this training should be offered to other clinicians.

Bays et al. (2014) used standardized patients to teach interprofessional communication to physicians and nurse practitioners using Codetalk. Students’ participation in the communication skills intervention was the only predictor of improvement in performance over time ($p < 0.001$). Brock et al. (2013) used simulation-based interprofessional TeamSTEPPS to train 306 medical, nursing, pharmacy, and physician assistant students. Pre and post assessments related to attitudes toward team communication and communicating in interprofessional teams shifted significantly ($p < 0.001$) after the intervention.

Marshall et al. (2008) used simulation with an ISBAR tool to teach final year medical students a structured method of communication. One group of students received training on ISBAR and the control group did not. Both groups participated in a simulation and were required to make a phone call to a senior colleague. The intervention group demonstrated significantly higher scores in communication content ($p < 0.001$) as well as clarity ($p < 0.001$).

Liaw et al. (2014) evaluated a simulation-based interprofessional educational program for medical and nursing students’ communication skills. One hundred twenty seven medical and nursing students performed in small group simulations with a simulated patient (SP) who was deteriorating. Pre and post-tests were conducted to assess the students’ self confidence in interprofessional communication and perception in interprofessional learning. Medical and nursing students demonstrated significant improvement for self-confidence ($p < 0.0001$) and perception ($p < 0.0001$) with no between group differences. Students expressed high levels of satisfaction with the simulated experience.

3.3. Synthesis

After synthesizing the current literature related to interprofessional communication, the following conclusions were determined: 1) Differences in communication training, styles and expectations exist between nurses and physicians, 2) Simulation and the use of standardized tools such as SBAR have demonstrated success in improving communication skills or healthcare professionals and students.

4. Discussion

This review contributes to the literature by bringing awareness to differences in communication styles as well as expressed frustrations of nurses and physicians with each other. By having this awareness, educators and providers can work to tailor curricula to address this diversity to alleviate this dissonance. The research suggested that education and training efforts have demonstrated success, providing evidence to warrant continued support for interprofessional education efforts. Although many schools currently offer interprofessional experiences, they seem to be offered in bolus doses as mass-gatherings rather than threaded throughout the curriculum.

Nurses have historically served in a subservient role to physicians which is disempowering and can lead to a lack of confidence. Nurses also view the patient from a holistic perspective which is complex, systems-oriented and steeped in emotional intelligence. Nurses struggle with best practices in communication due to the hierarchical structure, egos, fear of humiliation, and feeling like their opinion is not valued. Physicians are trained to value an objective/cognitive approach to patient care which is structured, objective and succinct. The nature of the narrative from each discipline is philosophically different; thus, setting up a likelihood of failure in communications. Yet, these different approaches provide diversity, depth and breadth in perspectives that may compliment each other to provide safe, efficacious and patient-centered care. The obstacles presented in the healthcare environment such as the fast pace, frequent interruptions, and stress certainly play a part in poor communication. Standardized communications, such as the SBAR tool, provide a method to provide structured, organized and integrated communication that better reflects the care provider's true narrative and creates a shared mental model for mutual understanding.

Simulation has been supported a successful pedagogy for building interprofessional communication skills. Nurses, physicians, and students have expressed appreciation and value for training in the area. The propensity of evidence regarding the pedagogy of simulation has suggested it is a highly effective way to teach interprofessional communication skills and may warrant consideration as the gold standard for communication training.

While using standardized forms of communication is important to bridge the divide, effective communication additionally involves constructs of teamwork, collaboration, and understanding each other's roles (IPEC, 2011). It is important that educators recognize that teaching sound communication skills must be inclusive of a multi-faceted approach that accounts for the many variables at play including diversity and human factors.

4.1. Limitations and gaps

This review had limitations. It lacked a systematic approach which would have enhanced rigor; however, this approach allowed for information beyond primary studies to be included which increased the breadth. This review only captured a small amount of studies considering the vast work in interprofessional education

that exists. There was an intentional focus on SBAR, nursing, and simulation as the purpose behind the review was to gather information to improve education efforts in a school of nursing. This approach limited the search. A strength of the review was the inclusion of literature regarding both the health professions as well as students. As the need for communication training exists with both groups and the educational pipeline extends from the school to the practice setting, it is helpful to examine the techniques used, successes as well as struggles from both populations. Additionally, the literature was scant in acknowledging the select interprofessional differences that are noted; perhaps, because the goal is to unite the professions rather than separate them. However, this knowledge of diversity and preference is important to announce so awareness can take place followed by efforts of creating shared mental models.

4.2. Recommendations

As a large percentage of sentinel events continue to occur due to miscommunication (TJC, 2015), this area remains a serious problem. The following are a set of recommendations for faculty members as well as staff educators to assist with efforts to improve interprofessional communication training:

1. While offering online modules and large lectures to deliver interprofessional training are a good step forward, schools and healthcare institutions should aim to enhance trainings with simulations. Medical schools, schools of nursing, and other professions should regularly incorporate interprofessional simulations throughout the curriculum.
2. Evaluate learner's communication performance in simulation with valid and reliable instruments.
3. Training programs on cultural humility, team-science, patient safety, and conflict resolution are warranted in addition to communication skills training due to the complex, multi-faceted nature of communication.
4. Simulation training should begin in the academic setting and extend to staff development to promote retention of this knowledge.
5. Use diversified yet aligned objectives in simulation to address overarching objectives of communication and teamwork yet attend to the key patient management skills specific to each discipline.

Although health professionals and students both warrant continuing education in communication, opportunity to correct this problem lies within early education efforts. In addition to standardizing communications, educators should emphasize the value of diversity and unite the professions as care partners in a team. All will benefit from recognizing that diversity is inherent within units/wards, the professions, as well as individually. If educators increase communication and diversity training efforts early within the curriculum, the effects are likely to have a pipeline effect and eventually reach the practice environment to strengthen the workforce.

4.3. Future directions

Education in the health sciences arena is rapidly shifting to more closely replicate the practice environment. As the interprofessional curriculum progresses, future directions include use of interprofessional handover tools (i.e. emergency team to intensive care team) instead of discipline specific tools (i.e. nurse to nurse). Future nursing and medical curricula may require courses in the science of patient safety within the pre-licensure curriculum. Further, the use of simulation hospitals for interprofessional training would be ideal

to most closely simulate the patient care setting. As online education is expanding, increased use of virtual simulation may be expected as one way of uniting the disciplines for training purposes.

5. Conclusion

This is an exciting time in nursing education as educators strive to transform traditional pedagogy to better incorporate interprofessional engagement to improve learning outcomes. The need for improved interprofessional communication training in the healthcare setting and academic setting is clear. The varied training, styles, and expectations of the interprofessional cultures contributes to this problem and warrants awareness so that education can be tailored to address the problem. Simulation and use of standardized tools have demonstrated effectiveness in improving interprofessional communication skills with healthcare professionals and students. By embracing differences and improving communication amongst the disciplines, the healthcare workforce will advance.

References

- Aebersold, M., Tschannen, D., Sculli, G., 2013. Improving nursing students' communication skills using crew resource management strategies. *J. Nurs. Educ.* 52 (3), 125–130. <http://dx.doi.org/10.3928/01484834-20130205-01>.
- Australian Commission on Safety and Quality in Health Care, 2012. *Safety and Quality Improvement Guide Standard 6: Clinical Handover* (Sydney, Australia: Author).
- Barnsteiner, J.H., Disch, J.M., Hall, L., Mayer, D., Moore, S.M., 2007. Promoting interprofessional education. *Nurs. Outlook* 55 (3), 144–150. <http://dx.doi.org/10.1016/j.outlook.2007.03.003>.
- Bays, A.M., Engelberg, R.A., Back, A.L., Ford, D.W., Downey, L., Shannon, S.E., et al., 2014. Interprofessional communication skills training for serious illness: evaluation of a small-group, simulated patient intervention. *J. Palliat. Med.* 17 (2), 159–166. <http://dx.doi.org/10.1089/jipm.2013.0318>.
- Boaro, N., Fancott, C., Baker, R., Velji, K., Andreoli, A., 2010. Using SBAR to improve communication in interprofessional rehabilitation teams. *J. Interprofessional Care* 24 (1), 111–114. <http://dx.doi.org/10.3109/13561820902881601>.
- Brock, D., Abu-Rish, E., Chiu, C.R., Hammer, D., Wilson, S., Vorvick, L., et al., 2013. Interprofessional education in team communication: working together to improve patient safety. *BMJ Qual. Saf.* 22 (5), 414–423. <http://dx.doi.org/10.1136/bmjqs-2012-000952>.
- Centre for the Advancement of Interprofessional Education, 2002. *Defining IPE*. Retrieved from: <http://caipe.org.uk/resources/defining-ipe/>.
- Clark, P.G., 2014. Narrative in interprofessional education and practice: implications for professional identity, provider–patient communication and teamwork. *J. Interprofessional Care* 28 (1), 34–39. <http://dx.doi.org/10.3109/13561820.2013853652>.
- Conn, L.G., Lingard, L., Reeves, S., Miller, K., Russell, A., Zwarenstein, M., 2009. Communication channels in general internal medicine: a description of baseline patterns for improved interprofessional communication. *Qual. Health Res.* 19 (7), 943–953. <http://dx.doi.org/10.1177/1049732309338282>.
- Dixon, J.F., Larison, K., Zabari, M., 2006. Skilled communication: making it real. *AACN Adv. Crit. Care* 17 (4), 376–382. <http://dx.doi.org/10.1097/01256961-200610000-00004>.
- Foronda, C., Gattamorta, K., Snowden, K., Bauman, E., 2013a. Use of virtual clinical simulation to improve communication skills of baccalaureate nursing students: a pilot study. *Nurse Educ. Today*. <http://dx.doi.org/10.1016/j.nedt.2013.10.007>.
- Foronda, C., Liu, S., Bauman, E., 2013b. Evaluation of simulation in undergraduate nurse education: an integrative review. *Clin. Simul. Nurs.* 9 (10), e409–e416. <http://dx.doi.org/10.1016/j.ecns.2012.11.003>.
- Gurses, A.P., Carayon, P., 2007. Performance obstacles of intensive care nurses. *Nurs. Res.* 56 (3), 185–194. <http://dx.doi.org/10.1097/01.NNR.0000270028.75112.00>.
- Heinrichs, W.M., Bauman, E., Dev, P., 2012. SBAR 'flattens the hierarchy' among caregivers. *Stud. Health Technol. Inf.* 173, 175–182. Retrieved from: <http://www.iospress.nl/>.
- Interprofessional Education Collaborative Expert Panel (IPEC), 2011. *Core Competencies for Interprofessional Collaborative Practice: Report of an Expert Panel*. Interprofessional Education Collaborative, Washington, D.C.
- Jeffries, P., 2005. A framework for designing, implementing, and evaluating simulations used as teaching strategies in nursing. *Nurs. Educ. Perspect.* 26 (2), 96–103. Retrieved from: <http://www.nln.org/nlnjournal/>.
- Liaw, S.Y., Zhou, W.T., Lau, T.C., Siau, C., Chan, S.W., 2014. An interprofessional communication training using simulation to enhance safe care for a deteriorating patient. *Nurse Educ. Today* 34 (2), 259–264. <http://dx.doi.org/10.1016/j.nedt.2013.02.019>.
- Markley, J., Winbery, S., 2008. Communicating with physicians: how agencies can be heard. *Home Health Care Manag. Pract.* 20 (2), 161–168. <http://dx.doi.org/10.1177/1084822307306632>.
- Marshall, S., Harrison, J., Flanagan, B., 2008. The teaching of a structured tool improves the clarity and content of interprofessional clinical communication. *Qual. Saf. Health Care* 26 (7), 1–5. <http://dx.doi.org/10.1136/qshc.2007.025247>.
- Meyer, M., Connors, H., Hou, Q., Gajewski, B., 2011. The effect of simulation on clinical performance: a junior nursing student clinical comparison study. *Simul. Healthc.* 6 (5), 269–277. <http://dx.doi.org/10.1097/SIH.0b013e318223a048>.
- Nadzam, D.M., 2009. Nurses' role in communication and patient safety. *J. Nurs. Care Qual.* 24 (3), 184–188. <http://dx.doi.org/10.1097/01.NCQ.0000356905.87452.62>.
- Perron, N.J., Cerutti, B., Picchiottino, P., Empeyta, S., Cinter, F., van Gessel, E., 2014. Needs assessment for training in interprofessional skills in Swiss primary care: a Delphi study. *J. Interprofessional Care*. <http://dx.doi.org/10.3109/13561820.2013.878321>. Advance online publication.
- Pfaff, K.A., Baxter, P.E., Jack, S.M., Ploeg, J., 2014. Exploring new graduate nurse confidence in interprofessional collaboration: a mixed methods study. *Int. J. Nurs. Stud.* <http://dx.doi.org/10.1016/j.ijnurstu.2014.01.001>. Advance online publication.
- Rice, K., Zwarenstein, M., Conn, L.G., Kenaszchuk, C., Russell, A., Reeves, S., 2010. An intervention to improve interprofessional collaboration and communications: a comparative qualitative study. *J. Interprofessional Care* 24 (4), 350–361. <http://dx.doi.org/10.3109/13561820903550713>.
- Roberts, N.K., Williams, R.G., Schwind, C.J., Sutyak, J.A., McDowell, C., Griffen, D., et al., 2014. The impact of brief team communication, leadership and team behavior training on ad hoc team performance in trauma care settings. *Am. J. Surg.* 207 (2), 170–178. <http://dx.doi.org/10.1016/j.amjsurg.2013.06.016>.
- Rodgers, K.L., 2007. Using the SBAR Communication Technique to Improve Nurse-physician Phone Communication: a Pilot Study. AACN Viewpoint, March/April 2007, 7–9. Retrieved from: <http://www.aacn.org/viewpoint>.
- Sargeant, J., MacLeod, T., Murray, A., 2011. An interprofessional approach to teaching communication skills. *J. Continuing Educ. Health Prof.* 31 (4), 265–267. <http://dx.doi.org/10.1002/chp.20139>.
- The Joint Commission, 2015. Sentinel event Data. Root causes by event type: 2004–2014. Retrieved from: http://www.jointcommission.org/assets/1/18/Root_Causes_by_Event_Type_2004-2014.pdf.
- Thomas, C.M., Bertrum, E., Johnson, D., 2009. The SBAR communication technique: teaching nursing students professional communication skills. *Nurse Educ.* 34 (4), 176–180. <http://dx.doi.org/10.1097/NNE.0b013e3181aaba54>.
- Tofil, N.M., Morris, J.L., Peterson, D.T., Watts, P., Epps, C., Harrington, K.F., et al., 2014. Interprofessional simulation training improves knowledge and teamwork in nursing and medical students during internal medicine clerkship. *J. Hosp. Med.* 9 (3), 189–192. <http://dx.doi.org/10.1002/jhm.2126>.
- Wagner, J., Liston, B., Miller, J., 2011. Developing interprofessional communication skills. *Teach. Learn. Nurs.* 6 (3), 97–101. <http://dx.doi.org/10.1016/j.teln.2010.12.003>.
- Whittemore, R., Knaf, K., 2005. The integrative review: updated methodology. *J. Adv. Nurs.* 52 (5), 546–553. <http://dx.doi.org/10.1111/j.1365-2648.2005.03621.x>.
- Woodhall, L., Vertacnik, L., McLaughlin, M., 2008. Implementation of the SBAR communication technique in a tertiary center. *J. Emerg. Nurs.* 34 (4), 314–317. <http://dx.doi.org/10.1016/j.jen.2007.07.007>.
- World Health Organization, 2016. WHO Patient Safety Curriculum Guide. Retrieved February 3, 2016 from: <http://www.who.int/patientsafety/education/curriculum/en/>.