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The role of "improv" in health professional learning: A scoping review

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ABSTRACT

Background: The use of improvizational theater ("improv") in health professional education ("medical improv") is an emerging field. However, optimal curricular design features and learning outcomes have not yet been systematically described. **Objective:** To synthesize evidence on learning outcomes and curricular design elements of improvizational theater training in health professions education.

Methods: A literature search with keywords "Improv" and "Improvisational Theatre" was undertaken in January 2016 in Ovid MEDLINE, CINHAL, EMBASE, SCOPUS, Web of Science, and ERIC, with an accompanying gray literature search. Four authors coded and achieved consensus on themes relating to curricular design elements and learning outcomes, which were mapped onto the CanMEDS framework.

Results: Seven articles met inclusion criteria. Key curricular design features included (i) facilitators with dual clinical and theater expertise; (ii) creating a low-stakes environment; and (iii) engaging in debrief to highlight clinical relevance. Improv curricula were found to impact most CanMEDS roles, including: Medical Expert (comfort with uncertainty); Leader (team management); Scholar (feedback, self-reflection); Communicator (empathy, active listening, non-verbal communication); Collaborator (culture of trust); and Professional (resiliency and confidence). Mechanisms by which improv may promote acquisition of these professional competencies, and the utility of improv in areas such as interprofessional team development, leadership, and wellness and resiliency are discussed.

Introduction

Background: Improv

Improvisational theater ("improv") is a form of collaborative storytelling. It is a type of theater—sometimes comedy—in which actions of the performers are unscripted and created spontaneously in a reciprocal and collaborative manner. Improv differs from role-play in that there is no pre-prepared script for a scenario or pre-determined agenda; in an improv curriculum, participants learn skills to facilitate spontaneous collaborative storytelling through purposefully designed exercises coupled with the process of debrief.

Improv was originally developed in the 1940s and 50s as an educational method consisting of games and exercises to teach drama to children (Spolin 1963). Subsequently, it was adapted as a performance art (Johnstone 1979). This is the most popularized form of improv, as seen in television shows such as "Whose Line Is It Anyway?" However, Spolin and Johnstone also highlighted improv's broad applicability, seeing improv theater as an "informal classroom where life experiences can be fleshed out collaboratively" (Dudeck 2013, p. 1).

Over time, the educational potential of improv was rediscovered by business organizations for use in corporate development as "Applied Improv" (Applied Improvisation Network 2016–2017). A consensus study of practitioners defined applied improv as "the use of principles, tools, practices, skills and mindsets of improvisational theater in

Practice points

- Medical improv is a unique learning modality involving improvizational exercises adapted to health professional learning
- Medical improv can promote the acquisition of skills relevant to most CanMEDS roles
- Optimal instructional design features include having facilitators with dual expertise, creating lowstakes environments, and employing the process of debrief
- Potential applications in health professions education may include areas such as remediation, interand intra-professional team development, leadership training, and wellness and resiliency

non-theatrical settings that may result in personal development, team building, creativity, innovation, and/or meaning" (Tint and Froerer 2014, p. 2).

Most recently, applied improv is being adopted in health professions education and termed "medical improv", which embraces the use of "principles and training techniques of improvisational theater [...] to improve cognition, communication, and teamwork in the field of medicine" (Watson and Fu 2013–2016). Several health professional training institutions such as Northwestern University (Watson 2011) and Johns Hopkins University (Shochet et al. 2013) have begun exploring the utility of medical improv.

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However, optimal curricular design features and learning outcomes of medical improv programs have not yet been systematically described.

Rationale and research question

Medical improv is a developing field with several programs in various stages of implementation. The goal of this project was to conduct a scoping review of the existing literature on medical improv curricula in order to answer the research question: "What is known about the role and the implementation of improvizational theater training in health professional education?"

Methods

Search strategy

A search was conducted in January 2016 on the following databases: (1) Ovid MEDLINE 1946-Week 3, 2016; (2) EMBASE 19477—Week 3, 2016; (3) CINHAL 1981—Jan 2016, (4) PsycINFO 18067—Week 3, 2016; (5) SCOPUS Searched on Jan 30, 2016; (6) Web of Science 1900 to 2016, Searched on Jan 30 2016; and (7) ERIC, Searched on Jan 30, 2016. Keywords used included *Improv* and Improvisational Theat^{*}, in combination with Medical Student, Resident, Internship and Residency, Physician, Doctor, Medical Education, Continuing Medical Education, Faculty Development, Nursing, Nursing Education, Occupational Therapy, Physiotherapy, Pharmacy, Pharmacy Education, Continuing Pharmacy Education, and Social Work. All corresponding authors of the identified articles were subsequently contacted to share additional relevant gray literature. A Google search for gray literature using the same keywords was also conducted on January 30, 2016, and the top 100 results were manually inspected for relevance. Indices of the following medical journals were manually searched: Academic Medicine, Medical Education, Canadian Medical Education Journal, Clinical Teacher, BMC Medical Education, Medical Education Online, Perspectives on Medical Education, and Health Education Journal. All searches were limited to articles in English.

Two authors (LG and JR) independently reviewed the titles and abstracts of all identified articles and selected articles for inclusion, referencing the research question and inclusion criteria specified below. In case of disagreement, a third author (JP) was consulted and a decision was made by consensus. Where relevance was not apparent from the abstract, full-text articles were obtained for review.

Criteria for inclusion were (i) having a target audience for any improv intervention that included physicians or medical trainees, or other health professionals (e.g. nurses, pharmacists) or trainees; (ii) a provided description of the improv intervention, and (iii) measurement of at least one learning outcome (qualitative or quantitative assessment).

Criteria for exclusion were any studies in which (i) activities were exclusively pre-scripted (i.e. no spontaneous component) or (ii) improvizational techniques were used exclusively with patients or used in the context of patient care, for example in the form of support groups or psychotherapy.

Data extraction and analysis

The analytic process was informed by meta-ethnography, a method of synthesizing findings from qualitative studies looking at both primary (participant quotes) and secondary (author interpretation) data sources as artifacts for analysis (Britten et al. 2002).

Four authors (EK, LG, JP, and JR) participated in analysis, which was conducted reflexively in drawing from our interdisciplinary clinical backgrounds in Family Medicine (JR, JP) and Psychiatry (LG); experiences as medical improv facilitators (JR, LG), medical (JR) and interprofessional educators (JP); and trainees in undergraduate (EK) and postgraduate (LG) medicine. One author (JNY) provided methodological oversight and support.

Each of the four authors independently read the publications to code for general descriptive themes, using a common themes analysis approach (Sandelowski 2000). Authors then met to discuss and reconcile interpretations. A data extraction template was iteratively developed through discussion and consensus. Subsequently the themes were categorized by consensus into those relating to (a) program design and (b) learning outcomes; subsequent to that, learning outcome themes were mapped onto a common health professional education framework—CanMEDS (Frank et al. 2015), which outlines seven core professional competencies for physicians: medical expert, leader, communicator, collaborator, scholar, advocate, and professional.

Results

The initial search identified 95 abstracts, of which 51 met criteria for abstract review. Of these, 23 publications were excluded for interventions not involving health professional learners, 15 did not employ improv techniques (no unscripted, unplanned component), and 6 did not include some measure or description of a learning outcome. As a result, a total of seven articles were selected for inclusion in our analysis (Figure 1). The gray literature search identified resources such as the Applied Improvisation Network, which provided definitions and contextual information, but did not lead to further identification of health professional education curricula described with outcome measures.

Table 1 describes the articles included for review along with specific curricular characteristics. Most programs articulated objectives related to improving communication skills, with others targeting professionalism skills such as feedback, reflective capacity, confidence, and resilience. A majority of the programs were designed for health professional learners (Newcomb and Riddlesperger 2007; Hoffman et al. 2008; Boesen et al. 2009; Watson 2011; Shochet et al. 2013). Most programs targeted a single-profession audience (Newcomb and Riddlesperger 2007; Hoffman et al. 2008; Boesen et al. 2009; Watson 2011; Krusen 2012; Shochet et al. 2013) and one program described a mixed audience of interprofessional learners (Ballon et al. 2007). Class sizes ranged from 6 to 30. Course hours and instructional design were significantly variable, ranging from a stand-alone 90-minute sessions with optional follow up iterations (Ballon et al. 2007) to a 12-h curriculum embedded into an existing communications skills course (Boesen et al. 2009). Several programs



Figure 1. Article selection flow diagram.

Authors	Year published	Institution	Target population	Intervention	Outcome measures
Ballon et al.	2007	U of Toronto and U of Virginia	Medical students, resi- dents, allied health, members of public	1.5 h	Verbal feedback (recorded by facilitators); written feedback (questionnaire)
Boesen et al.	2009	U of Arizona	Pharmacy students (Year 1)	12 h	Standardized patient exam scores; student and instructor feed- back; student evaluations and journals
Hoffman et al.	2008	UCSF	Medical students (Year 1)	1h imes10	Course evaluations (5-point Likert scale)
Krusen	2012	Pacific U	Occupational therapists	"6 lessons"	Student verbal feedback
Newcomb et al.	2007	U of Texas	Nursing students	6 h	Faculty observation of student participation; writ- ten evaluation
Shochet et al.	2013	Johns Hopkins U	Medical students (Year 2)	4 sessions	Online, anonymous course eval survey
Watson	2011	Northwestern U	Medical students (Years 1–2)	$2 \text{ h} \times 5$	Quantitative and qualitative stu- dent evals; faculty observations

offered improv as elective or selective (rather than mandatory) curricula (Hoffman et al. 2008; Watson 2011; Shochet et al. 2013).

Quality assessment

The quality of identified studies was highly variable. Due to the limited number of articles identified and their methodological and contextual heterogeneity, study quality was not formally assessed in favor of retaining an inclusive overview of the field.

Improv program design

Ten core instructional design elements described by paper authors were identified and organized into three common best practice strategies: (i) utilizing facilitators with dual expertise in improv and health professions education; (ii) orienting participants to create a low stakes environment in which the experience of uncertainty is normalized, and (iii) utilizing debriefing and reflection to make explicit connections between the improv experience and clinical practice (Figure 2).

Co-facilitation or dual expertise

All but one identified curriculum was explicitly described as having been developed and co-delivered with the combined expertise of a health professional educator and a theater professional. For example, in Ballon et al. (2007), the program was co-developed by a professor of psychiatry and a professor of drama, and Shochet et al. (2013) co-led groups with clinical faculty and teachers from Baltimore



Figure 2. Best practices for improv program design.

Improv. In some cases, one facilitator held dual expertise for example the program described by Boesen et al. (2009) was run by a pharmacy faculty who was also experienced in improv.

Orientation to improv and creating a low stakes environment

Learner orientation to improv. Most programs began with an orientation session to introduce learners to the general concept of improv. This ranged from a 20-minute didactic lecture on the rationale for improv (Boesen et al. 2009) to a 2-h workshop session on the principles of improv (Shochet et al. 2013).

Culture of safety. Safety in the improv environment was a critical ingredient described by both instructors and participants in the identified programs. One student cited "being in an environment that promoted working in a team and being vulnerable" as their favorite part of the medical improv experience (Watson 2011, p. 1263). Key strategies to promoting a safe environment included allowing participants the freedom to stop or use "time-outs" at any point in the exercise (Ballon et al. 2007), normalizing uncertainty, and introducing exercises in a sequential manner-starting with those that created the least participant vulnerabilityand progressively challenging participants' comfort levels over time (Boesen et al. 2009). The facilitator's role was seen as one requiring care to "set up the learning climate, build trust, [and] create an atmosphere of sharing" (Ballon et al. 2007, p. 385).

Debriefing and facilitating reflection

Reflection through the process of frequent debriefs was described as an essential instructional design element to highlight relevance of learning (Ballon et al. 2007; Hoffman et al. 2008). For example, facilitators prompted learners for observations after each exercise and between sessions (Shochet et al. 2013). Participants were also encouraged to practice giving and receiving feedback to each other to deepen learning through interaction and experience (Krusen 2012).

At their core, debriefs focused on applying insights gained through the experience of improv to enhance participant's self-awareness, growth, and clinical intuition. For example, participants were encouraged to reflect on past challenging clinical encounters (Shochet et al. 2013) or to brainstorm strategies for future clinical scenarios (Watson 2011).

Learning outcomes

A variety of methods were utilized by programs to collect and assess learning outcomes, including facilitated verbal and/or written feedback (Ballon et al. 2007) end-of-course evaluations using short responses and Likert-scale questions (Hoffman et al. 2008; Watson 2011; Shochet et al. 2013), observations and reflections from facilitators (Boesen et al. 2009; Watson 2011), and comparisons with performances on preexisting examinations (e.g. Simulated patient interview score) (Boesen et al. 2009).

Learning outcomes were found to align closely with a majority of roles outlined in the CanMEDS framework, a Physician Competency Framework used by Canadian and many global undergraduate and postgraduate medical training programs (Frank et al. 2015). These included outcomes in roles pertaining to: medical expert, communicator, collaborator, leader, scholar, and professional. No described learning outcome mapped directly to the health advocate role.

Medical expert

Comfort with uncertainty and generalism (medical expert 1.6.). Through the medical improv experience, participants reported an improved ability to adapt quickly to, and enhanced comfort in, managing uncertain circumstances. Students reported changes in "thinking well in front of an audience" (Watson 2011, p. 1262), a "greater ability to accommodate and intuitively respond to the surprises that arise in patient physician dialogue" (Shochet et al. 2013, p. 123), and an "improved ability to deal with unexpected situations" (Boesen et al. 2009, p. 7).

Content mastery (medical expert 1.3). In two instances, improv principles were adapted to teach specific content: psychiatric illnesses (Ballon et al. 2007) and stem cell research (Newcomb and Riddlesperger 2007). In both cases, the exercises deepened the participants' understanding of content knowledge, as they "made the experience engaging and promoted discussion to allow more contextual understanding" (Ballon et al. 2007, p. 385).

Communicator

Empathy (communicator 1.1). Medical improv participants noted an improved ability to recognize and understand the emotions of others, including an appreciation for "the effect that emotion and relationship have on conversation" (Boesen et al. 2009, p. 6). This was also seen from improvements in the students' scores on a clinical interview exam; the biggest gains were seen in the students' ability to recognize patient cues and use reflective statements (Boesen et al. 2009).

Active listening (communicator 1.3). One learner reported learning through improv the "importance of being mindful in the moment" (Krusen 2012, p. 71). Another noted that "improv storytelling helped with active listening and appreciating other peoples' train of thought" (Hoffman et al. 2008, p. 538). This was contrasted with "being in one's head", as one student described: "I came to learn that I need to be a better listener and be more in the moment as opposed to being only in my head" (Watson 2011, p. 1262).

Non-verbal communication (communicator 1.4). Learners felt more attuned to others' body languages through improv training. One participant felt that improv brought "a new meaning to the importance of communication and listening, observation skills, and importance of body language" (Watson 2011, p. 1262). Additionally, improv was also seen by facilitators as helpful in cultivating "skills to help [students] quickly recognize nonverbal and verbal indications" (Boesen et al. 2009, p. 7).

Collaborator

Trust (collaborator 1.1, 2.1, 2.2). Improv exercises also helped participants experience an environment of trust. "Being in an environment that promoted working in a team and being vulnerable, instead of always competing" was the favorite aspect of improv for one student (Watson 2011, p. 1263). In a group of people from different professional backgrounds, improv exercises were seen as contributing to "reducing hierarchical issues" (Ballon et al. 2007, p. 385).

Leader

Team management (leader 1.2). Improv helped students develop skills for facilitating groups by recognizing "when they might have 'the focus' in a meeting and when they might not" (Boesen et al. 2009, p. 7). Repeated practice also promoted an "increased level of comfort in performing and speaking in front of groups" (Boesen et al. 2009, p. 7).

Scholar

Giving and receiving feedback (scholar 2.6). One student reported "an internal change in his reaction to feedback" through receiving feedback on his improv; he began to experience his "physical exam instructor's feedback as supportive and instructive rather than discouraging and judgmental", and became more open in his approach to learning (Watson 2011, p. 1263). Facilitators described that participants gained "a framework to assess their performance and to convey feedback to others in a constructive way" (Krusen 2012, p. 71).

Self-reflection (scholar 1.2, 1.3). Learners are encouraged to reflect on experiences during improv, which builds capacity for reflection in other professional spheres. In one program, participants were asked to compose a narrative on their learning from the improv course and described how the exercises "equipped them or heightened their awareness about mindful practice" (Shochet et al. 2013, p. 123).

Lifelong learning (scholar 1.1). One student described how improv served to "reframe learning as play rather than work ... [L]earning more about myself and challenging myself in new ways has encouraged me to continue doing that in the future" (Watson 2011, p. 1263).

Professional

Confidence/making mistakes (professional 4.2). Improv developed trainees' confidence about their knowledge and skills, as well as their willingness to take risks and possibly fail. Learners were described to experience "greater confidence in their roles as student-physicians" (Shochet et al. 2013, p. 123). One student commented, "I truly felt that I could be myself ... I also felt open to making mistakes for the first time in med school" (Watson 2011, p. 1262).

Resiliency (professional 4.1). Improv games were reported to be fun. In Medical Improv, "students also report experiencing benefits like stress relief, self-esteem building, and group bonding" (Watson 2011, p. 1263). "The ground rules for 'Improv', coupled with the camaraderie, laughter, and fun, allowed students to expose shared insecurities, adopt multiple perspectives, and respond free of judgement" (Shochet et al. 2013, p. 123). One author noted that "medical improv teaches students to focus on their 'internal auditor' (awareness of what's happening) instead of their 'internal editor' (judgment of what's happening)" (Watson 2011, p. 1262).

Adverse responses

In addition to described benefits on learning, some programs noted the potential for-or occurrence of—adverse experiences for some learners in medical improv curricula. One paper described that "some self-proclaimed introverts explained that initially they felt a little shy and intimidated" (Shochet et al. 2013, p. 122). Another report with mandatory course participation described how a small number of students "were uncomfortable and struggled with the exercises" (Boesen et al. 2009, p. 6), although ultimately instructors noted improvements in all students' communication skills exam scores regardless of comfort level (Boesen et al. 2009).

Discussion

The findings of this scoping review support the conclusion that improvizational theater as applied to health professions training is an innovative educational strategy that can foster the development of professional knowledge, skills and attitudes outlined in the CanMEDS 2015 (Frank et al. 2015) competency framework. Specifically, our findings support the utility of medical improv for facilitating the acquisition of expertise in at least six of seven CanMEDS roles—medical expert, communicator, collaborator, professional, leader, and scholar—and for enhancing curriculum development in these roles in undergraduate and postgraduate medical training programs. Although no described outcomes mapped directly to competency as a health advocate, learning was achieved in several related skillsets (such as effective communication, and increased confidence in speaking) that may indirectly enhance capacity in this professional role.

Medical improv offers participants the opportunity to deliberately enhance and develop their professional skill set by enforcing learning conditions that are vital in acquiring mastery in core competencies. Professional tennis players do not spend all their training time on court in practice matches; rather, skilled players also dedicate effort to isolating their quadriceps at the gym, drill their footwork, and rehearse their strategic flexibility in the video room. Similarly, medical improv can provide opportunities to help isolate and strengthen essential clinical "micro-skills"—such as attending to non-verbal cues, building trust and cultivating reciprocity—and provides a platform for practice toward mastery and competence.

One mechanism by which improv may promote such relevant learning is through the encouragement of reflection on experience, using surprise as a vehicle for discovery of self- and social awareness, in accordance with Schon's theory of reflective practice (Kaufman 2003; Schon 1983). Indeed, most health profession training models highlight the importance of reflection in the development of professionally relevant skills (Mann et al. 2009). Here, participants can build reflective capacity for learning "in action" (while improvising) or "on action" (during debrief), with the larger goal of performing clinically with improved reflexive practice within medical teams and with patients.

The generative impact of medical improv can also be explained through Sutton-Smith's Play Theory (Sutton-Smith 2008), which postulates regular playful activity as a learning experience that enables one to live more fully, refresh a sense of well-being, and deal more effectively with the mundane and the emotionally charged aspects of life including clinical care. A consistent theme that emerged in this review was the cultivation of wellness amongst participants through activities that promote stress relief, self-esteem building, and group bonding. In an era where burnout is estimated to affect between one- and two thirds of physicians and other health professionals (Shanafelt et al. 2003), an urgent need exists to develop effective interventions that enhance resiliency amongst health providers. Applied medical improv may help to address this gap through cultivating key protective experiences, described by Shanafelt et al. (2003) as including "opportunities to reflect on and share with colleagues about the emotional and existential aspects of being a physician" and "cultivating personal interests and selfawareness" (p. 516).

Purposeful play can also serve to enhance the development of social connectivity through the creation of ritual and the experience of giving and receiving of empathic acts of communication. The sense of community and belonging that can be cultivated through medical improv training may therefore have important implications for promoting effective intra- and inter-professional relationships and team functioning. Effective interprofessional collaboration has been shown to result in improved health care outcomes (Barrett et al. 2007) and is enacted in team environments that support open communication, practitioner autonomy, and equality of resources and opportunity for participation (Morrison 2007). Learning outcomes in medical improv as described in this review—such as creating a safe space and engendering group trust—may therefore underscore important learning toward optimizing effective team based care.

Limitations

A significant limitation of this review is the small number of available medical improv curricula described in the literature. This is not necessarily surprising for emerging and innovative curricular techniques, especially in arts-based medical education initiatives where projects may be exploratory in nature or may terminate early due to loss of faculty champions or lack of funding. Our search was also limited to articles containing qualitative or quantitative learning outcome measures, and it may be that potentially informative projects did not include this level of rigor in evaluation.

Due to the small number of studies identified for inclusion in this review and the heterogeneous nature of the data reported, a quality assessment of identified studies was not conducted. This may limit the generalizability and ability to draw firm recommendations around medical improv practice. Furthermore, the six of the seven programs identified targeted undergraduate or postgraduate learners as participants; although the authors (JR, LG, JP) have noted similar learning outcomes running medical improv sessions for faculty development, the potential impact on learning for professionals in practice requires further exploration.

Finally, most improv curricula reviewed for this study included voluntary participant selection. This self-selection bias may also limit the generalizability of the results (Watson 2011), as individuals who volunteer for improv programs may have different learning preferences or characteristics than the general health professions learner.

Future directions

Given the potential of improv to promote the acquisition of relevant competencies in health professional learners, further exploration and investigation of its utility in health professions education is warranted. Improv curricula, developed in accordance with best practice instructional design features identified in this review, may be adapted to meet a range of local program gaps and to target specific skillsets such as collaboration, wellness and leadership. In this review, no learning outcomes directly mapped on to the Advocate competency. This may be in part because Advocate competencies were not explicitly outlined as learning objectives of the identified curricula. Regardless, participants reported acquisition of related skills such as team management and confidence, and as such, it is plausible that an improv curriculum could be developed to enhance skills in this important professional role.

Improv may also work synergistically within existing curricula (e.g. clinical communication skills courses), and future studies should examine the integration of medical improv into formal coursework as compared to organizing medical improv as standalone, elective programs. It remains possible that the field may be a useful teaching intervention to address the learning needs of a previously unrecognized subgroup of learners. Further study is also required to elucidate the suitability of improv as mandatory curricula, and for different subpopulations of learners, including learners in difficulty, such as those requiring remediation in communication or professionalism, and professionals in practice.

The ability to identify outcomes of educational interventions is bounded by the evaluation tools employed by program developers; it may be that additional benefits of, or adverse outcomes in, improv will be identified through enhanced rigor in evaluation methods in this field. Furthermore, the long-term benefits of medical improv also need elucidation, as all included studies utilized measures of program outcome immediately following the intervention.

Finally, although this study elucidated key considerations in instructional design and best practice methods for implementation of medical improv curricula, other aspects, such as optimal curriculum hours, remain to be clarified.

Resources for developing medical improv curricula

One key element for successful implementation of an improv program identified in this review is the importance of including dual expertise in improvizational theater and health professions education to inform curriculum development and facilitation. For a health professions educator, this may require linking with local expertise in theater arts, or personally undertaking further training in the practice and instruction of improv.

Academic institutions with a drama or theater departments may have faculty who are experienced in improv and willing to collaborate on program design and implementation. Other resources for identifying experienced improvisers and instructors include institutions such as The Second City and Upright Citizens Brigade in large urban centers, or local improv theater groups in smaller cities and communities.

Additionally, improv institutions may provide classes for members of the public to develop their own skills in practicing and teaching improv. Practitioners have described changes in their clinical skills as an indirect result of such courses (Misch 2016). Participating in such classes may also be an effective way to foster connections to existing local experts. Northwestern University (led by Dr Watson and Dr Fu) currently offers an annual train-the-trainer workshop, which can be found here: http://www.medicalimprov.org/

Specific improv exercises are often passed down in an oral tradition from one instructor to the next, evolving over time. Many of the articles included for analysis in this review provide detailed description of the exercises used for ease of adaptation in other settings. Some online resources have begun to document commonly used exercises, for example at http://improvencyclopedia.org/ and http://improv.ca/training/exercises/

Conclusions

In summary, improv represents a unique and innovative opportunity to rediscover fun and play in health professions education, while simultaneously promoting experiential learning of many relevant CanMEDS competencies. Its application and implementation across the health professions training spectrum has shown impressive early utility, and merits further exploration.

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Disclosure statement

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the article.

Glossary

Medical Improv: Using the principles and training techniques of improvizational theater to improve cognition, communication, and teamwork in the field of medicine

Notes on contributors

Dr L. Gao is a resident in the Department of Psychiatry at the University of Toronto. He has an academic interest in the applications of improvizational theater for both medical education and psychotherapy.

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Dr J. Nyhof-Young is a social scientist with a PhD in curriculum teaching and learning, a medical educator, curriculum evaluation coordinator in undergraduate medical education and associate professor of family and community medicine, all in the University of Toronto. She engages in community-based participatory research to support local community health.

Ms E. Kapoor is a second-year medical student at the University of Toronto. Her academic/research interests lie in exploring the utility of the arts and humanities in medical education at various levels, including both undergraduate and postgraduate medical education.

Dr J. Rezmovitz is a family physician at Sunnybrook Health Science Centre. He is an assistant professor and education and innovation lead in the Quality and Innovation Program, in the Department of Family and Community Medicine at the University of Toronto. He is interested in developing and applying educational tools that promote engagement, reflection, and impact.

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