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Collaboration in Health Care

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ABSTRACT

Health care involves the participation of patients, family, and a diverse team of often highly specialized health care professionals. Involvement of all these team members in a cooperative and coordinated way is essential to providing exceptional care. This article introduces key concepts relating to interprofessional collaborative teamwork. Approaches to measuring and studying collaboration and evidence demonstrating the benefits of collaboration are presented. The structural, psychological, and educational factors which may determine collaborative behaviour are described.

Learning Objectives:

By the end of this CME article, participants will be able to

1. Distinguish between multifunctional and interdisciplinary teams,
2. Define collaboration in a health care setting,
3. Describe the value of collaboration to patients, staff, and organizations,
4. Understand approaches to measuring collaboration, and
5. Identify factors that determine the ability of teams to collaborate.

This article is a CME article and provides the equivalent of 2 hours of continuing education that may be applied to your professional development credit system. A 20-question multiple choice quiz follows this reading, and answers can be found on page 216. Please note that no formalized credit (Category A) is available from CAMRT.

Keywords: Collaboration; teamwork; radiotherapy; multidisciplinary; interdisciplinary

Introduction

Modern organizations are often complex entities in which cross-disciplinary teams are increasingly called on to innovate, implement change, and improve work quality and efficiency. Current focus on reducing health care costs while improving quality of care in Canada puts additional pressure on public health institutions to find more efficient and effective ways to deliver quality services.

Exceptional health care is facilitated by a collaborative approach including many different professionals and their clients [1, 2]. The partnership between providers, patients, and their families in shared decision-making, coordination, and cooperation has been defined as interprofessional collaborative practice [3].

This CME article will examine the following:

1. Definitions
   a. Health care teams
   b. Collaboration
2. Potential benefits of collaboration
   a. Quality of care benefits
   b. Patient engagement benefits
   c. Patient safety benefits
   d. Staff and organization benefits
3. Measuring collaboration
4. Determinants of collaboration
   a. Structural
   b. Psychological
   c. Educational

Definitions

Health Care Teams

The members of a multifunctional team bring together a range of functional expertise to the task at hand, whether for a one-time project or ongoing operational work [4]. This functional expertise may be of a subtler form when members have different perspectives but similar skills and experience or may be more distinct when the team incorporates a diversity of knowledge, skills, and training. Patients, family members, and other stakeholders ideally participate

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in the delivery of health care as part of a multifunctional health care team.

Multifunctional teams can be more efficient, effective, innovative, and better at risk management compared with purely functional teams [4]. This is achieved by creating an opportunity for a broad range of ideas, considerations, and compromises to be worked out as early as possible to avoid costly errors, rework, and miscommunication [4, 5]. This is particularly important when the goals and values of different team members may be very different.

Multifunctional teamwork involves a series of largely distinct activities and handoffs that nonetheless benefit from input by different team members at every stage. In contrast, highly interconnected team processes may be thought of as a truly "interprofessional" [6]. The prefixes multi-, inter-, and trans-professional are used with sometimes varying definitions in the literature.

It may be useful to consider a spectrum of team integration. On one extreme resides a multifunctional team where functional units are disconnected physically and psychologically. Such a team may result in work passing from sub-unit to sub-unit with little opportunity for information sharing and innovation (Figure 1). On the other end of the spectrum resides an interdisciplinary team coherently bound by shared goals, trust, open, and collaborative interdependency [7]. Such a team may still divide work tasks among functional units, but features strong communication, a common understanding of the interconnected work process, and shared ownership of the inputs and outputs of the overall process (Figure 2). The latter team has a greater potential to fairly negotiate a set of collective goals and achieve the best results by agreed upon standards. In the long term, such a team may also have a greater capacity for organizational learning, process improvement, and capability generation [8, 9]. The key concept is that the whole is greater than the sum of its parts.

Defining Collaboration

When it comes to defining collaboration, "for a concept so widely used in everyday language, there is a surprising lack of a clear understanding of what it is to collaborate, and of how best to support and improve collaborative working. Definitions are often tailored to a particular environment" [10]. Some definitions in the literature indicate that collaboration

- Involves multiple people interacting to achieve a common goal [10],
- Consists of social inputs and task inputs [11],
- Is "an active and ongoing partnership between professionals and institutions with diverse backgrounds and mandates who work together to provide services" [12],
- "…Is a process that involves cooperation, communication, negotiation, trust, respect, and understanding to build a synergistic alliance that maximizes the contributions of each participant" [13],
- Involves constructing both a collective action to address complex patient needs and an interprofessional team relationship involving respect and trust [14],
- Is a process of working together, negotiating agreement and managing conflict, and both valuing and understanding one another [15],
- Involves working together, shared planning over time, functioning cooperatively as colleagues and equals with respect and a view to find solutions together [16],
- Is "a dynamic, transforming process of creating a power-sharing partnership … for purposeful attention to needs and problems (practice) to achieve likely successful outcomes" [17], and
- Is "an efficient, effective, and satisfying way to offer health care services … through a process by which interdependent professionals are structuring a collective action toward patient's care needs" [18].

Common themes among these definitions suggest that collaboration is an integration of activities and knowledge that requires a partnership of shared authority and responsibility. Four critical elements described by Sullivan [17] provide a useful breakdown of behaviours and attitudes that, together, constitute collaborative practice in health care:

1. Coordination (working to achieve shared goals)
2. Cooperation (contributing to the team, understanding and valuing the contributions of other team members)
3. Shared decision-making (relying on negotiation, communication, openness, trust, and a respectful power balance)
4. Partnerships (open, respectful relationships cultivated over time in which all members work equitably together)

A conceptual relationship between learning behaviour, collaborative behavior and their shared determinants is shown in Figure 3.

Potential Benefits of Collaborative Practice

Quality of Care Benefits

Demonstrating clear cause-and-effect relationships between collaborative team behaviour and particular outcomes is often difficult. Published research and case studies support the idea that collaboration leads to improved health outcomes and suggest that collaboration improves intermediary predictors of quality such as transfer of knowledge, sharing of information, and enhanced decision-making. Although many studies are observational or descriptive, some include objective measures of collaboration, outcomes, or both. An example from medical imaging in the author's institution would be collaboration among radiation technologists, radiologists, and various support staff to identify and implement best practices in diagnostic imaging order, triage, acquisition, review, and reporting processes to improve, streamline, and standardize practice.

Qualitatively, collaborative teams are reported to demonstrate improved sharing of evidence-based practices between professions [15], improved decision-making [19], and increased innovation [13]. Quantitatively, collaborative teamwork may lead to reduced length of hospital stay, improved

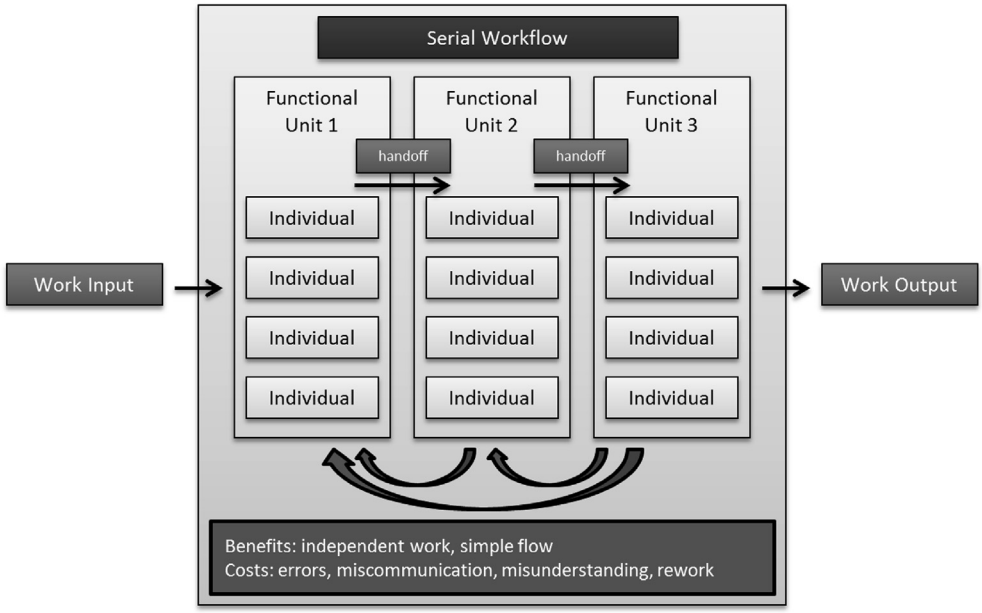

Figure 1. A multifunctional team.

compliance with standards of drug prescription, improved quality audit results [15], and improved symptom and psychosocial management [20].

The consensus among health care experts from a variety of professions and perspectives is that a collaboratively practicing workforce will be more responsive, efficient, and considerate of patient, family, and community roles, as well as providing improved care [21].

Patient Engagement Benefits

Collaboration among health care teams may improve patient education and patient engagement in their care, including behavioral changes such as information seeking and effective delivery of information, patient involvement in decision-making, and patient participation in self-care.

When communicating information to patients, approaches that are consistent, responsive, and ensure understanding

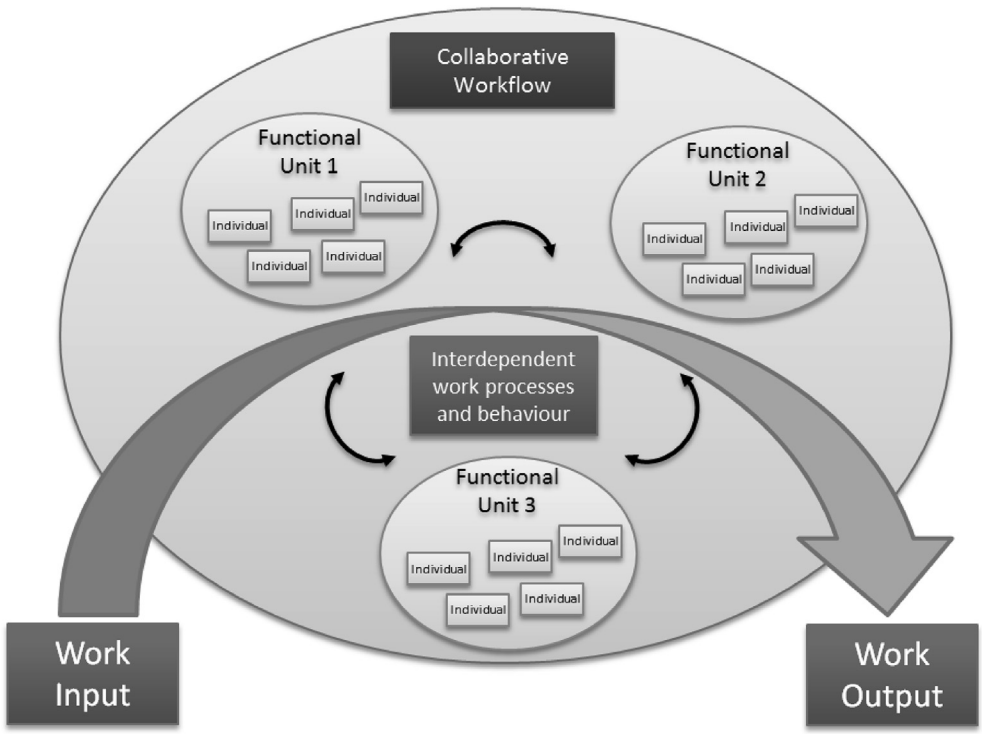

Figure 2. An interdisciplinary team.

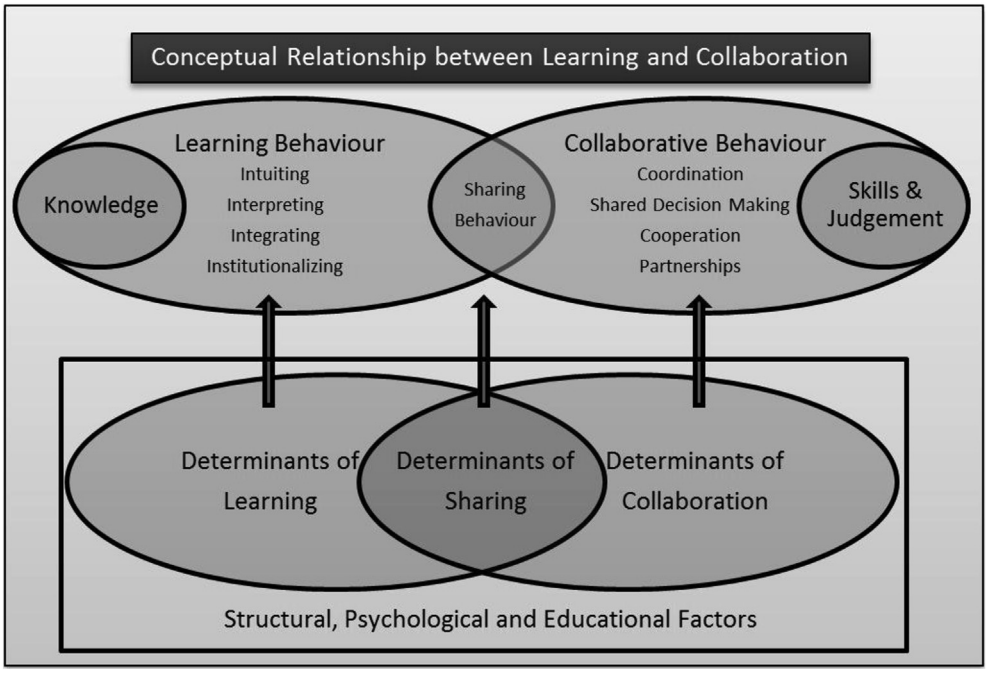

Figure 3. Learning and collaboration.

enable patients to participate in care decisions: "It is patients who should be the primary actors in medical decision-making, and health professionals should adopt a supportive role" [22]. Learning needs, desires, capacity, and style can vary greatly between patients [23, 24]. It is therefore necessary for the health care team to coordinate among its member's methods for educating and instructing patients in appropriate and consistent ways [25, 26]. These methods include when, how, and by who information is imparted and is therefore a collaborative task for the interdisciplinary team.

The role of the patient and patient-clinician interactions is therefore important, if not central, to the interprofessional team. These interactions are necessarily two way and involve establishing shared values, goals, and expectations as well as information. Furthermore, collaborative patient-clinician interactions generate trust and rapport which in turn lead to greater levels of openness, negotiation, successful adherence to medical care strategies, and reduced anxiety [27].

Patient Safety Benefits

The impact of collaboration on patient safety has been studied in various contexts. Several authors have identified reductions in rates of medical error when interprofessional collaboration is strong and teams are trained to work safely, cooperatively, and in a coordinated way to avoid gaps in quality assurance measures [28–30].

In Ontario, patient safety and quality of care are considered to be highly dependent on work environment factors including teamwork, culture, and learning and are the responsibility of all levels of health organizations including patients and their families [31]. In radiation medicine, quality assurance and safety are considered to be of paramount importance given the complexity of the technology and the potential impact of errors. A range of equipment safety procedures, quality control measures, and quality assurance activities need to be coordinated across a range of professional groups. The Radiation Therapy Committee of the American Association of Physicists in Medicine defines the quality assurance team to be an "interdisciplinary task group comprising dosimetrists, radiation oncologists, radiation therapy physicists, and radiation therapists" [32]. For example, safe radiation medicine practice relies on coordinating a large number of activities by several different individuals of different professions, often with each having interrelated tasks and a different focus on each. A radiation treatment plan requires

- Communication of a clear requisition indicating intent and rationale to the team (radiation oncologist)
- Patient immobilization and image acquisition (simulation radiation therapists)
- Generation of target and normal tissue contours (radiation oncologist, therapist, and others)
- Generation of a treatment plan (therapist/dosimetrist, oncologist, medical physicist)
- Quality control, testing, and data preparation of the treatment plan (therapists, oncologist, and physicist)
- Treatment delivery, potentially including image guidance, adaptive radiotherapy, and so on (therapists and others)
- All the above in consideration of shared clinical goals, including patient goals and patient-specific considerations
- All the above in consideration of individual team member roles, competencies, scope of authority, and so on
- All the above in consideration that the broader team includes various supportive staff (clinical and nonclinical) and potentially other interconnected teams such as medical and surgical oncology.

Staff and Organization Benefits

Fostering collaborative teams may also benefit staff and the organizations they work in. Staff satisfaction and retention is higher in health care organizations where staff members engage in a collaborative culture of quality and safety [31]. Other benefits to staff include greater perceptions of empowerment and recognition [33]. This may be because collaborative teams generally have a more horizontal rather than hierarchical power structures, more open and inclusive communication, and greater levels of role understanding, respect, and appreciation between members.

Highly collaborative, high performance teams may also drive value and process improvement [2], innovation, initiative, and performance [34], increase employee work engagement [35], and reduce staff absenteeism [36]. All these effects result in a more competitive and efficient organization. For example, M.D Anderson Cancer Center reported an effective and cost-efficient model for a Palliative Care Inpatient Service which integrated physicians, fellows, advanced practice nurses, psychiatric nurses, chaplains, and social workers. This interdisciplinary team met daily and coordinated activities with each other, patients, and families including a family meeting before discharge [20].

Measuring Collaboration

Instruments designed to quantitatively score collaboration often focus on specific professions (often nurse-physician), mono-disciplinary teams, or highly specific teams and work areas. Other tools focus on assessing quality of interprofessional education (IPE) rather than team behaviours. Few tools are both publically available and accompanied by psychometric testing to demonstrate validity. The following are the seven published tools with some psychometric analysis.

- Index of Interdisciplinary Collaboration [37],
- Multidisciplinary Collaboration instrument [38],
- Interprofessional Perceptions Scale [39],
- Role Perceptions Questionnaire generic form [40],
- University of Western England Interprofessional Questionnaire [41, 42],
- Modified Index of Interdisciplinary Collaboration [43],
- Assessment of Interprofessional Team Collaboration Scale (AITCS) [3].

The most recently published tool, AITCS, was first evaluated and revised in a mixed population of nurses, physiotherapists, social workers, occupational therapists, pharmacist, physicians, dietitians, and practice nurses [3]. The AITCS is founded on a review of the literature in a health care context and aligns with Sullivan's [17] framework of collaboration. The strengths of this approach include a focus on measuring behaviour (rather than preference), a team view (rather than individuals in a team), and inclusion of the patient as part of the team.

It is worth noting that none of the tools mentioned previously are direct measures of team behaviour or performance. These tools are questionnaires eliciting perceptions of collaborative behaviour. Direct measures of collaborative behaviour may be more difficult or time consuming to obtain, particularly because many behaviours would need to be directly observed and could be difficult to quantify accurately.

Determinants of Collaboration

Understanding that collaboration is important and valuable leads to a complex behavioural and management science question: how does one create and support collaborative teams?

> "Even though changes to organizational structures are increasingly focused on the collaboration between professionals practicing in health care teams, the managers and political decision-makers implementing such reorganizations have very little empirical evidence identifying the characteristics of organizations that effectively encourage the development of collaborative relationships within interprofessional teams" [18].

The determinants (or "drivers") of collaborative practice can be thought of as encompassing the content, processes, and behaviours of the team [44]. Content includes team vision and strategies that help the team find clarity and direction as a cohesive group that values the diversity among its members. Processes are the organizational structures in which the team operates, including tools, procedures, policies, and management influences. Such processes can make team interactions more transparent, objective, and inclusive, while at the same time less personal and emotional [44]. Finally, behaviours are the internally driven actions and interactions of the team members. A motivated and successful team will have members that trust and are accountable to one another, accept their interdependency and differences, and feel safe to behave in open and transparent ways [45]. Content, processes and behaviours taken together can promote team function that is both socially cohesive and operates in an integrated and innovative way [46, 47].

Barriers to Collaboration

Management literature identifies many potential challenges in promoting collaborative practice. There may be systemic determinants which can shape whether and to what degree collaborative practice is possible [15], such as compensation schemes, professional practice regulation, institutional policies, and the physical environment—factors which may be beyond the control of the team.

Within the team, and therefore potentially in control of the team, members may have different interests, goals, expectations, styles, and experiences which can complicate communication and generate conflict [4, 46, 48]. Team leaders should manage these diverse interests and capitalize on the strengths of the team composition. Interprofessional teams may also include members with varying levels of authority, prestige, salary, and other factors that add a further challenge of managing and negotiation power arrangements [8]. A team

leader may be able to facilitate the negotiation of authority and responsibility, issues which are rooted in the complex interactions of the team [47]. All these challenges apply to health care where the professional disciplines involved have varying education, roles, responsibilities, authority, prestige, pay, and supporting organizational structures. Key determinants of collaboration can be thought of as including the opportunity, ability, and willingness of team members to work with the team in a collaborative way (Table 1). These three elements are described in more detail in the following.

Structural Determinants (Opportunity)

The physical and organizational environment in which an interdisciplinary team operates can impact the degree and nature of collaborative interactions. Environment can be taken to include physical spaces, temporal arrangements, schedules, processes, organized activities, and communication tools that may either encourage or discourage effective team collaboration [18]. Organizational structure can include the architectural considerations (physical structure, functionality, and aesthetics) and management considerations (defined relationships between team members and between teams) and has both formal and informal parts [49].

Examples from nursing indicate that collaboration can be facilitated by designing ''immersive work spaces'' that create a sense of team cohesion, support the physical activities undertaken by the team, and improve the time and space considerations in promoting interactions between staff [50].

Distant, virtual, and asynchronous are examples of team types which may have reduced ability to collaborate. Even health care teams within a single building may be separated by space (work areas) and time (schedules); they may be asynchronous and virtual because of the prevalence of electronic communication (e-mail and other systems).

Psychological Determinants (Willingness)

Given that human interactions are a key component of collaboration, the determinants of collaboration include a host of psychological factors. The term ''psychological environment'' is used to include culture in a broad sense (attitudes and behaviours) and at all levels (organizational, professional, team, and individual) [18]. These ''interactional determinants'' include team member:

Table 1
Determinants of Collaboration

Subcategory	Specific Determinant
Opportunity	Time
	Space
	Tools
	Procedures
Ability	Interprofessional collaborative skills
	Patient-centred care skills
	Shared language
Willingness	Safety
	Collegiality
	Role valuing

- Willingness to collaborate (affected by group cohesion, constancy of the group, professional education, previous experience, and personal maturity);
- Mutual trust and respect (developed over time and affected by perceived experience, education, and competence both of one's self and others in the team);
- And communication (affected by the ability to communicate one's role, communicate efficiently and constructively, and communicate in a way that develops other determinants of collaboration such as respect and trust) [18].

A human factors engineering project examining considerations in designing software for collaborative work identified that a culture focused more on group tasks rather than individual roles would promote collaboration through shared goals, experience, knowledge, and shared power relationships. The research also suggests that professionals with greater skill and experience with collaboration, greater understanding and alignment with team goals, and higher levels of psychological safety may be more apt to engage in collaborative practices [10].

Two dominant themes arise in the literature involving the psychology of health care teams. First, professional groups have distinct cultures because of their specialized training, professional identity, and positions and roles within the health care system. Interprofessional role boundaries, power differences, and conflicts between the priorities of professional and team membership can result [14, 18, 51]. A second theme is the potential for lack of respect, trust, and poor communication [51–54] in which conflict and psychological safety may play a role [45, 52]. These two themes are well stated by one author: ''one of the key features of hospitals as complex organizational environments is the highly professionalized and segmented nature of the workforce and the continuing influence of the medical profession in policy, politics, and practice'' [55]. The widely reported issue of medical dominance over nursing may affect allied health professions in similar ways [55].

Educational Determinants (Ability)

Collaborative practice may also be promoted through education and skills training. Interviews with nurses and allied health professionals in Alberta revealed that the development of two key competencies was important to collaboration. The first competency involves understanding role boundaries and expectations within the team and learning how to balance the needs of professional identity and team identity. An approach that de-emphasizes individual professional needs and roles in favour of team goals and collaboration may actually promote a more patient-centred model of care [56].

The second competency is the ability to engage in effective formal and informal communication, including negotiation and conflict resolution skills, ability to use a language of respect and dignity, and knowing what terminology and communication approaches to use with different professions

and different individuals [56]. Language plays an important role of language in collaborative communication particularly that inclusive language may reflect underlying notions of connectedness with the team [57]. Knowledge and use of appropriate technical terminology may also be important for clear communication and for generating mutual respect and confidence, particularly in highly technical and specialized environments.

IPE is the education of professionals from multiple disciplines together with a goal of improving their ability to work with one another collaboratively. IPE is a "key component of various Canadian health strategies" [5]. The literature supports the idea that collaborative practice is both encouraged and enabled through education and communication-related skill training [5, 36, 58, 59]. IPE imparts both collaborative skills and a sense of collective responsibility among the professions involved.

Conclusion

A collaborative, interprofessional team supports high quality and safe care, patient and staff satisfaction and engagement, and organizational efficiency and innovation. Studying this complicated sub-topic of organizational behaviour may be both challenging and rewarding. The literature suggests that providing physical and structural opportunities, a psychologically supportive environment, and appropriate education and training are all important to promoting collaborative practice.

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Multiple choice questions

1. A multi-functional healthcare team includes:
   (a) Several staff, each filling a different function in the team
   (b) Multiple professionals providing specialized care
   (c) A partnership of healthcare providers, patients, family members and others
   (d) Physicians and patients, supported by other healthcare providers
2. Members of a multi-disciplinary healthcare team are most likely to have:
   (a) Different experiences and perspectives
   (b) Similar training and experience
   (c) Shared goals and expectations
   (d) Equal levels of authority and status
3. Members of a collaborative team will:
   (a) Delegate tasks to one another
   (b) Be confident in working independently
   (c) Depend and rely on one another
   (d) Treat each other as equals in every way
4. Collaborative teams including several different professions will:
   (a) Acknowledge and adhere to traditional professional boundaries
   (b) Establish a clear hierarchy of professional relationships
   (c) Be led by professionals on the team with the highest position in the organization
   (d) Understand, value and respect each other's professional roles
5. When professionals work independent of one another as a multi-functional team:
   (a) Work must be checked carefully at each handoff
   (b) Efficiency can be reduced due to rework
   (c) A clear division of labor helps the process run smoothly
   (d) Innovation can thrive due to the independent environment
6. An integrated, collaborative 'interdisciplinary' team requires:
   (a) Rotation of staff between functional areas on a regular basis
   (b) Input of every team member at every stage of the process
   (c) Cross-training of staff to build complementary skillsets
   (d) Opportunities to communicate and work together integrated into the workflow
7. Definitions of collaboration:
   (a) Vary, and are often specific to a particular industry or work environment
   (b) Always include patients as members of a collaborative healthcare team
   (c) Outline what behaviours are required for a team to be considered collaborative
   (d) Describe the attitudes and knowledge that a collaborative team will have
8. Sullivan's 4 critical elements of collaboration are:
   (a) Working together, negotiating agreement, managing conflict, valuing one another
   (b) Coordination, cooperation, shared decision making, partnerships
   (c) Intuiting, interpreting, integrating, institutionalizing
   (d) Behaviours, attitudes, knowledge, culture
9. Collaboration in healthcare can benefit:
   (a) Quality of care, safety
   (b) Quality of care, safety, patient engagement
   (c) Quality of care, safety, patient engagement, staff engagement
   (d) Quality of care, safety, patient engagement, staff and organizations
10. Improved quality of care can arise from collaborative working due to:
    (a) Better information sharing and decision making
    (b) More team audits to drive performance
    (c) Transfer of authority from healthcare providers to the patient
    (d) Sharing responsibility between team members equally
11. Patient adherence to a medical plan (i.e. medications, treatment) may be improved by:
    (a) Improving two-way communication about the plan as it is developed
    (b) Ensuring patient needs, desires and ability are considered
    (c) Developing trust and openness between patients and healthcare team members
    (d) All of the above
12. Collaboration in a multidisciplinary healthcare team can improve patient safety by:
    (a) Defining who is professionally responsible for quality activities
    (b) Increasing the need for communication between team members
    (c) Reducing gaps in quality assurance by building teamwork into quality processes
    (d) Reducing the need for information sharing
13. Engaging patients in their care is similar to engaging staff in their team because both situations require:
    (a) Establishing shared goals and expectations
    (b) Negotiating hierarchical power arrangements
    (c) Developing a shared language to improve communication
    (d) Building collegiality and a sense of team professionalism
14. Collaboration is most commonly measured using:
    (a) Observation of behaviours
    (b) Questionnaires quantifying perceived behaviour
    (c) Focus group discussions about teamwork
    (d) A combination of interviews and observations

15. Things that lead to or support collaborative practice, satisfaction, engagement or similar goals are called:
    (a) Antecedents
    (b) Benefits
    (c) Co-factors
    (d) Determinants
16. The drivers of collaborative practice can be grouped in several ways. Which of the following does NOT describe the drivers of collaborative practice?
    (a) Content, processes and behaviours of the team
    (b) Learning, sharing and collaborative determinants
    (c) Structural, psychological and educational factors
    (d) Opportunity, ability and willingness
17. Team members are more likely to collaborate when:
    (a) They work asynchronously
    (b) They have different professional backgrounds
    (c) They are co-located
    (d) The team is multicultural
18. Leaders are most likely to support collaborative communication by:
    (a) Aligning schedules, workflow, and communication tools to the needs of the team
    (b) Managing performance with attention to communication standards
    (c) Designing clear communication pathways for the team
    (d) Demonstrating trust and respect towards members of the team
19. Psychological drivers of collaborative practice include:
    (a) Culture (individual, team, professional and organizational)
    (b) Respect, trust, and role differences
    (c) Professional, collegial and open behaviours
    (d) Teamwork skills, opportunities and willingness
20. The opportunity, ability and willingness to collaborate describe:
    (a) Three distinct types of collaboration determinants
    (b) Three types of a collaboration
    (c) Three overlapping sub-types of collaboration
    (d) Three overlapping sub-types of collaboration determinants

Multiple choice answers

1. C
2. A
3. C
4. D
5. B
6. D
7. A
8. B
9. D
10. A
11. D
12. C
13. A
14. B
15. D
16. B
17. C
18. A
19. A
20. D