Current Challenges of Surgical Care and the Transdisciplinary Model

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Take-Home Pearls

- The delivery of comprehensive surgical care is becoming more challenging owing to developments in surgical options, information available, patient, and social factors.
- Management of surgical patients requires well-coordinated subspecialty and allied healthcare.
- Multidisciplinary care is insufficient in delivering the level of care required.
- Transdisciplinary care seeks to build upon and improve on the existing model of multidisciplinary care.
- Implementation of transdisciplinary care requires changes on an administrative, organisational, and individual standpoint.

1.1 Introduction

The delivery of surgical care has become increasingly complex especially in recent years. There have been massive developments in surgical options all with more complex decision-making processes, and thus there is a need for healthcare individuals to delve deeper into their areas of expertise resulting in subspecialisation. There is also an increasing dependence on other subspecialists with other domain expertise in the care of a single patient. Yet there is an overwhelming need for every patient to be considered as a "whole" and not just in terms of organ systems or

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specific pathologies. There is now a discrepancy between the comprehensive care that every patient wants and the ability of a single healthcare professional to deliver that comprehensive care.

Globally, we are seeing the rise of what has been termed the "silver tsunami". This is where an increasingly ageing population poses issues not only in terms of workforce economics but also on healthcare demands. This change in the population means that the patient population that the surgical team manages will become even more challenging. There are many other factors that have to be considered if one aspires to deliver comprehensive care. As such, it is essential for hospitals and healthcare professionals to relook the way we manage surgical patients, with a special emphasis on the complexities of their socioeconomic, functional, and health status. In this chapter, we will explore the factors challenging the delivery of comprehensive surgical care and discuss how we can reorganise to deliver more comprehensive care.

1.2 The Complexities of Current Surgical Management

1.2.1 The Abundance of Information Available

There is increasing research on the management of individual diseases and the development of new technologies and techniques. For instance, there are now minimally invasive options for colonic resections (e.g., "traditional" laparoscopy, robotic-assisted surgery, single-incision laparoscopy), each touted to be beneficial in one way or another. The amount of literature available online is vastly increasing. A quick search on PubMed for "colorectal cancer" churns out more than 160,000 articles. New evidence and trials for chemotherapeutic and targeted therapies are ever emerging – each more promising than the last. Critical appraisal of this ever-increasing information is important. Many of these studies are on different patient cohorts and the outcome measures and definitions of complications may be very variable. Even attempts at systematic reviews and meta-analyses may result in biased conclusions due to methodological flaws. Even implementation of practices based on randomised controlled trials needs to be considered with care based on local conditions and expertise. Thus interpretation of the information may be complex. This gives rise to a dazzling, and often confusing, load of information that even clinicians struggle to digest.

All these mean that the art and science of decision making is not so straightforward anymore. When deciding on which options to offer patients, very often the focus is on providing "evidence-based" treatment. This could mean the most radical surgery to reduce tumour burden or the newest targeted therapy. With each specialty and allied care professional having well-meaning "best-evidence" opinions, the individual patient as a whole can get overwhelmed. There is an added danger that "evidence-based" treatment options are not individualised to each particular patient and the big picture is missed.

1.2.2 The Changing Profile of Patients

Physically, people are living longer, often with other chronic medical problems in tow. Treatment of a disease, while taken on by a particular specialist, will necessarily have bearing on the treatment of other comorbidities. Polypharmacy remains a valid concern for many of these patients, some of which are clueless about their medical conditions. Elderly patients' predisposition to the "geriatric giants" of falls, cognitive impairment, incontinence, immobility adds to the increased demands of care. This makes the medical management of elderly patients much more challenging.

Patients and their families' mind-sets, too, have changed with the times. With information (erroneous or not) easily available online and in books, many would have their own perceived ideas of what treatment they expect or the type of recovery they will experience. In addition to that, there is a huge array of religious/traditional/homoeopathic remedies that seem equally, if not more, attractive than modern medicine.

No longer are physicians seen as the sole or main decision maker pertaining to treatment, but now the preferences of patients and their family members have to be taken into account. We have to recognise that patients themselves are important stakeholders in their treatment. As such there is an important need for patients to be able to analyse their own situations and be part of the decision-making process. On the other hand, family dynamics play an important part as well in certain cultures. There may be situations where different members of the family and/or the patient have differing views trying to stake a claim in the decision-making process, thus leading to more confusion.

1.2.3 The Changing Profile of Society

In many societies, there will also be strains to the social framework as it struggles to support the sick and elderly. Families are more compact with less offspring and less reliance on extended families and relatives. The so-called Sandwich Generation are tasked with raising their families while looking after their elderly parents as well. This is taxing not just financially, but also in terms of time and effort.

What this means is that pre-hospitalisation and post-discharge care is not a given. Part and parcel of ensuring good outcomes for the sick is optimisation of health and function preoperatively and dedicated rehabilitation after the acute phase of illness/surgery. Hence, holistic care of surgical patients is not limited to just the duration which they spend in hospital, but extends to their care in the community and at home. There is a need to integrate care not only horizontally across the different disciplines taking care of the patient during the hospital stay but also vertically taking into consideration the needs at the level of primary care and home care.

1.2.4 The Complexities of Healthcare Infrastructure

With the constraints within households as described, hospitals and society as a whole have to take on a larger burden of care. Rehabilitative hospitals are often oversubscribed with long waiting times; applications for voluntary nursing homes and hospices can be a long and tedious affair. The transient nature of the care provided for in hospitals predisposes to a breakdown in continuity of care between home/hospital/step-down facilities. Physicians and surgeons keen to discharge patients to free up much-needed hospital beds may overlook other issues such as caregiver training and home modification.

1.3 The Problem with Multidisciplinary Care

Currently, the introduction of multidisciplinary teams in oncological as well as chronic disease models has also increased in many developed countries (e.g., the United Kingdom, Europe, the United States, Australia). This has developed in part as recognition that disease management is a complex process that involves separate subspecialties and professional groups. As highlighted by Taylor et al., however, much of available evidence still focuses more on individual decision-making process rather than overall organisational decisions (Taylor et al. 2010).

1.3.1 The Pitfalls of Multidisciplinary Care

The need for highly specialised knowledge and skill can become a problem when it is not paralleled by the knowledge and skills on how to work effectively together. The intention of bringing together different specialists and allied health professionals in a multidisciplinary model, while good, has several potential pitfalls. These pitfalls are a result of a lack of collaboration and coordination between the different groups involved and can be analogous to an architect (the surgeon or primary physician) tasked to build a house for a client (the patient). The client may have a desired outcome that needs to be communicated to the architect, which in turn sets off a chain of duties that need to be done by various other groups of people or "specialists" (e.g., contractors, electricians, bricklayers, etc.). The process of house building may be set back for various reasons, resulting in an undesirable outcome for the client.

1.3.1.1 Pitfall #1: Failure in Shared Vision and Goal

Firstly, there should be a shared vision and goal. When building a house, what the client has in mind may be different from what the architect perceives. Unless the vision is communicated clearly and in terms that both sides can understand, there is a risk that the final result will reflect the architect's rather than the client's desires. There needs to be an exchange of ideas such that any unrealistic expectations brought forth by the client can be addressed swiftly and tampered accordingly. It is also the responsibility of the architect to ensure this vision is then understood by the other groups of "specialists" such that there is seamless execution of the plan.

In the establishment of the surgical plan for major colorectal surgery, the possibility of the patient and surgical team not having a common goal and vision is real. An elderly patient may be willing to undergo major surgery because he/she may want to preserve his/her autonomy and independence from the complications of the pathology and he/she may not be very particular about long-term survival. A surgeon on the other hand may be obsessed with performing the most radical cancer operation so as to ensure the best long-term survival; in doing so certain risks may be taken. When the goal of the patient and the surgeon differs, surgical decision making suffers.

This problem is further confounded by team members also not identifying a common goal set. The anaesthetist may share the same goal with the surgeon and be convinced to push the limits of anaesthetic care to accommodate this radical operation. The cardiologist then suggests that this same elderly patient undergo heart surgery just so that he/she can subsequently withstand this radical cancer operation and more events spiral into place. All this time, the medical social worker understood that this was not what the patient asked for but did not think that there was an alternative.

Another patient may be adamant that he/she does not wish to have a stoma, insisting on a riskier operation despite his/her multiple poorly controlled comorbidities and frailty. He/she does not understand the complexities of a low rectal anastomosis and its accompanying poorer bowel function. The surgeon insists on a stoma and performs it. He/she then instructs the nurse to take care of the stoma on this same patient who is unable to accept the stoma and refuses to learn how to manage it. The goal of making the patient understand the situation and come to terms with accepting the stoma is completely missed.

1.3.1.2 Pitfall #2: Failure in Planning and Coordination

Secondly, despite a common vision and goal, there may be a failure in planning and coordination. Timing is essential in house building. Each preceding step needs to be in place before progression can take place. Foundations need to be laid before the building is erected, if not the house is bound to fail. Prior to laying bricks, the window and door frames need to be ready to ensure a good fit and to prevent revision of work.

Similarly, before embarking on major surgery for elderly patients with diminished reserves and limited resources, a good "foundation" would entail preoperative planning to optimise their functional status and build up their nutrition. Counselling and preparing them to use postoperative tools would ensure a better "fit" into the rehabilitative plan once surgery has taken place.

1.3.1.3 Pitfall #3: Failure of Members of the Team to Communicate Effectively

Prior to casting the floor slab, it is imperative that the plumber lays the pipes in the ground as sewer is discharged, usually, via gravity flow. Similarly, floor traps, openings in floors, etc., must be coordinated and installed. At this stage there are no walls to guide the tradesmen. Hence, the precise locations of fixtures and walls have to be communicated to the plumber very clearly. Any error will result in hacking and

abortive works. Depending on the construction and finish of the walls, the laying of cables must be coordinated in advance. Positions of power points on walls or floors must be planned and communicated effectively to the electrician in advance so that the cables are installed within the cavity of the brick walls and can be pulled out at the precise location of the power outlet.

In a fast-paced multidisciplinary approach, individuals may still easily be working in silos only concentrating on their area of expertise. Different members of the team may visit the patient at different times and note their inputs in the case notes. Without proper communication lines laid, some of these inputs may inadvertently be missed or misinterpreted. A geriatric physician may have seen a patient and noted that there may be early signs of cognitive impairment; however, this subtle finding was not clearly communicated to the surgeon and anaesthetist. As such the latter two doctors involved in the care then failed to recognise the increase risk of postoperative cognitive dysfunction and delirium. The nurse in charge then did not institute any measures to reduce the risk of delirium and this resulted in the patient sustaining a fall in the early postoperative period.

Good communication is thus crucial in determining a holistic care plan for the patient.

1.3.1.4 Pitfall #4: Failure of Members of the Team to Understand What the Other Is Doing

The role of the painter needs to be understood. Should painting commence too early, some remaining works (e.g., power points) may not be completed and "touching up" may then be required. This is not prudent as the paint may not match even after a week and is conspicuous. If the painter comes on too late, the carpet or polished timber floor may need protection and any spills or stains may damage the floor finish.

A surgeon is convinced of the benefits of incentive spirometry during the perioperative period and insists that this is the standard of care for all the patients. The physiotherapists however have other ideas. Some patients are just not suitable for incentive spirometry; they are unable to learn the proper use of the incentive spirometer and thus do not derive the benefits of the device. The physiotherapists also have other innovative methods of encouraging adequate lung expansion in the perioperative period. In this situation, if the surgeon had understood the processes of pulmonary rehabilitation that the physiotherapists undertake, he/she may have become more acceptable of other methods.

1.3.1.5 Pitfall #5: Failure in Completion and Follow-Through

Lastly, there may be a failure in completion and follow-through. Specific individuals may have embarked on the project of house building, only to see different groups drop out at different times. For example, the contractor may run into financial issues leading to the hiring of a new contractor midway through the project. This may lead not only to delays but also weaken the shared vision formed from the beginning.

Similarly, patients may be seen by an anaesthetist preoperatively and counselled on epidural analgesia, but intra-operatively another team takes over and decides on another modality. A third anaesthetist may see the patient

postoperatively to adjust the pain medications required. Although each modality is a justifiable means of analgesia, but from the patient standpoint, it can be confusing and undesirable.

1.4 Transdisciplinary Care: What Is It?

Given the limitations of multidisciplinary care as illustrated earlier, transdisciplinary care seeks to build on the benefits of multidisciplinary care and essentially take it to the next level of collaboration.

The concept of transdisciplinary care has been previously described in several settings such as in early childhood intervention, as well as in the context of a local colorectal geriatric surgical service by Tan and Tan (2013).

1.4.1 The Difference Between Interdisciplinary, Multidisciplinary, and Transdisciplinary Care

While the multidisciplinary model involves brief communication with each member contributing an assessment after applying a discipline-specific skill set, there is little discussion between team members at any point in the process except to share conclusions (see Fig. 1.1).

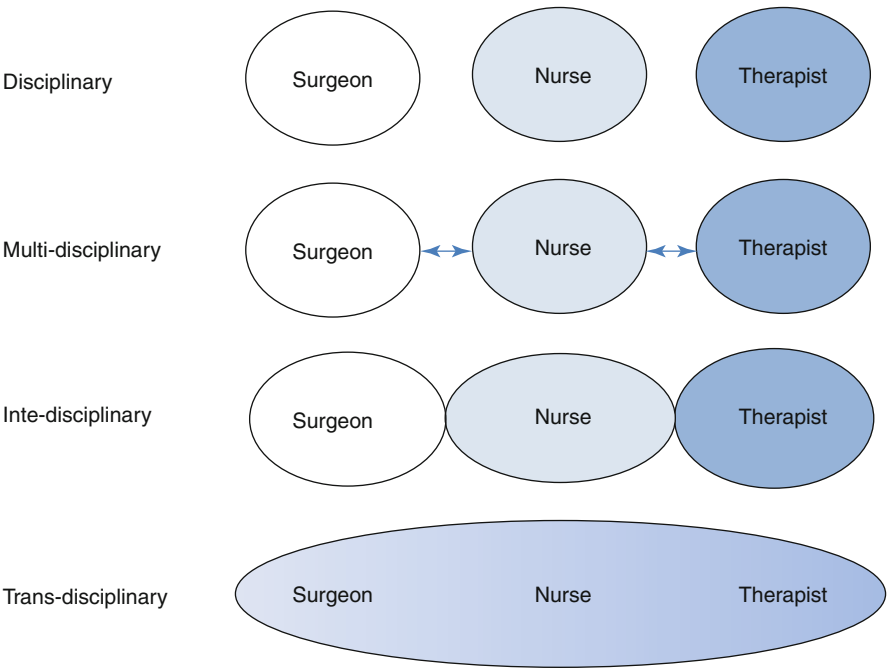

Fig. 1.1 The evolution from disciplinary to transdisciplinary (Adapted from Colón et al. (2008))

The interdisciplinary model acknowledges the overlap in knowledge of the different team members and facilitates horizontal communication at many points in the process of evaluating and treating a patient.

The transdisciplinary model of care takes collaboration to a higher level, incorporating ongoing cross-disciplinary education and regulated overlapping roles (Nandiwada and Dang-Vu 2010). This model also includes the patient/family members as part of the team (Ruddy and Rhee 2005). By institutionalising frequent communication and by regulating team members' overlapping roles, this collaboration prevents fragmentation and duplication of services along disciplinary lines.

Transdisciplinary healthcare involves reaching into the spaces between the disciplines to create positive health outcomes through collaboration. This is likened to a multiplayer sports team where each has their own role and responsibilities, and implicit trust is required, together with practice, to get the best outcome. In this case, the outcome is improved health and quality of life for patients with multiple comorbidities and extenuating social circumstances.

Rather than having each specialty work only within its realm of expertise with communication limited to brief meetings or short notes in patient progress notes, transdisciplinary care seeks to be integrative. As described by King et al. (2009), transdisciplinary care seeks to share roles across discipline boundaries to encourage increased communication and collaboration within the team. Implementation of a shared care plan is the goal, with the patient at the centre of it.

The traditional barriers of hierarchy and protocol-based red tape are dispensed with and free exchange of communication is encouraged.

As highlighted by Andre Vyt, interprofessional teamwork exists when not only appropriate referrals are made but when there is a joint contribution in setting up care and treatment plans (Vyt 2008). In a transdisciplinary approach, the knowledge of each other's working methods and competencies has reached such a high level and the shared care planning runs so smoothly that it is difficult for outsiders to identify immediately which team member has which profession. However transdisciplinary does not simply refer to a confusion of dissolution of professional identities; rather, it points out the intensity of shared goal setting, the commonality of a shared reference framework, and the swift interplay between the team members.

1.4.2 The Fundamentals of Transdisciplinary Care

Reilly (2001) put forth the following premises as fundamental in transdisciplinary care, and this is further illustrated by Tan and Tan (2013) (Fig. 1.2):

Role extension – Involves the need for constant improvement within one's own specialty such that one has security in one's own role and responsibility. This helps to resolve turf issues and boundaries.

Role enrichment – Seeks to increase one's knowledge outside of one's discipline and thus acquire the knowledge from other disciplines within the team. This is

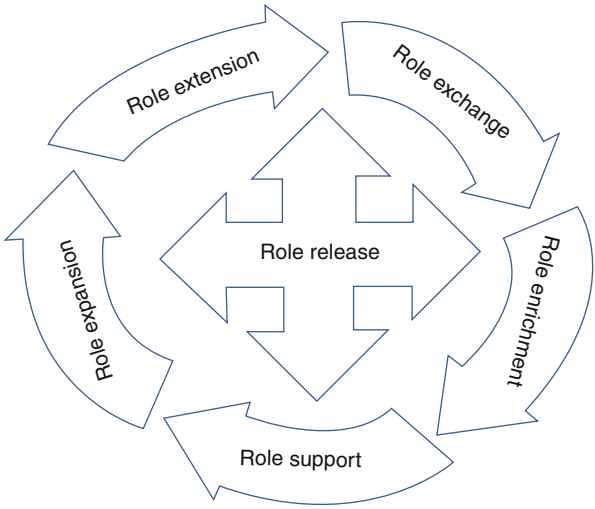

Fig. 1.2 The interactions between the different aspects of transdisciplinary care are a continuous interlinking one as illustrated by Fig 1.2 (Adapted from King 2009)

achieved by a commitment to collaborative work and excellent communication between team members.

Role expansion – Via intensive, ongoing interaction and learning between team members, role expansion is achieved whereby each member of the team begins to pick up the skills and knowledge of the other disciplines.

Role release – Possibly the most crucial element of transdisciplinary care is the concept of role release. This involves members of the team being willing to give up and release their own unique interventions and being willing to allow other team members to be able to take up their role.

Role support – This allows a blurring of the boundaries of the traditional multidisciplinary roles and requires the ongoing willingness of each team member both to trust each other and to support each other (Fig. 1.2).

1.4.3 Implementation of Transdisciplinary Care

To achieve effective interprofessional collaboration, there are some necessary ingredients:

- Interprofessional competencies
- Management and administration that promotes interdisciplinary consultation
- A shared goal
- Efficient communication and information management

Interprofessional competency refers to the blanket skill set needed for effective collaboration with other members – it includes the harmonisation of one's own ideas with that of others, cooperation in care planning, analysis of problems, and

communication with other professionals. There needs to be an understanding of each team member's competencies and working methods, the structure of healthcare facilities, system processes, and goals. They also need to be able to analyse complex situations and formulate an opinion and defend it in a group setting.

Effective leadership that promotes a culture of openness and communication needs to be coupled with team members that complement each other's expertise. There should be mutual respect and understanding of the competencies, roles, and contributions of the other professionals without any prejudice or stereotypes. They should search for a common goal and agree upon clear end points.

Healthcare professionals are rarely at the same place at the same time. Organising meetings involving all the team members is difficult and costly and often does not take place in a timely manner for each individual patient.

In this aspect, modern technology and communication tools are helpful. Smart phones, emails, and even online group circles can facilitate rapid exchange of information. Data sheets and progress charts may be uploaded for members to access. Great care however has to be taken in ensuring patient confidentiality during this process. Furthermore, there is no substitute for a good and convivial working relationship between team members that only personal contact can bring about.

Formal meetings should be well prepared with availability of documents and key persons, clear direction from the leader regarding problems, and analysis of an intervention strategy. A system of documentation and proper follow-up after meetings is essential as well.

Conclusion

It has become clear that the traditional model of multidisciplinary care is insufficient in providing optimal, comprehensive healthcare for patients with complex needs, including elderly patients. Transdisciplinary care should herald a new standard of care that would not only improve clinical outcomes but further develop our existing healthcare as a cohesive team. The assets of a well-functioning interprofessional collaboration have been shown to both improve the care effectiveness for persons with chronic diseases and also lead to a higher degree of work satisfaction in healthcare workers.

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