4 The Nurse's View: Stakeholders, Challenges, and Innovation During COVID-19 Pandemic

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Learning Objectives

- Who are the stakeholders?
- What is the traditional role of nurses?
- What are challenges, opportunities, and innovations identified by stakeholders?
- Who are the new stakeholders?
- In consideration of the new challenges posed by COVID-19 pandemic, what are opportunities for collaboration?

Key Terms

- Health IT
- 360° Perspective
- Stakeholder
- Nurse as patient advocate
- Direct and indirect patient care
- Emerging new roles and new stakeholders
- Telemedicine and telemonitoring
- Crisis as a chance
- Innovation
- Change

Introduction

Healthcare has always been a critical component in daily life. However, the Coronavirus-19 (COVID-19) pandemic has forced nursing to re-evaluate its 360° view of healthcare. Additionally, the pandemic has rocked the many things that consumers take for granted: working, traveling, shopping, and performing daily activities. Local, statewide, national, and international impacts have occurred related to this healthcare issue. With this in mind, this chapter will address re-evaluating the 360° perspective of informatics.

Definition and Role of Nurses in Healthcare

Traditional Perspective

Nursing has long been considered the premier bedside advocate and patient advocate in all healthcare settings. Perhaps due to the nature of patient advocacy, the first certification of informatics was created for nurses in 1992, and American Nurses Association soon provided certification for this specialty [1]. As a trusted profession, nursing has long advocated for the protection, provided direct care, and ensured well-being of patients. Nurses are primary stakeholders of the care of the patient. For the purpose of this chapter, a stakeholder is anyone who contributes to the well-being of the patient or healthcare consumer. There are many stakeholders that provide either direct or indirect care to patients or healthcare consumers (Please see Fig. 4.1) [2]. This chapter will expand the concept of

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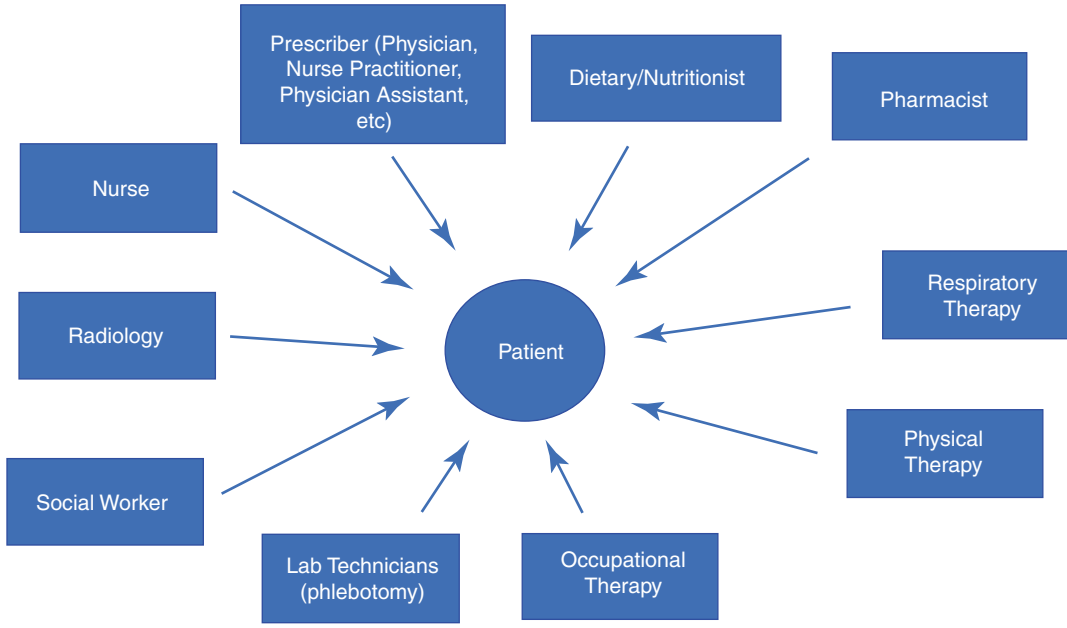

Fig. 4.1 Traditional stakeholders

stakeholders from the traditional professions (like nurses and physicians) that directly affect patient care to consider other roles that also impact patient well-being.

What Is the 360° Perspective?

The 360° perspective is a perspective from all angles or viewpoints from many stakeholders. Singular perspective would involve the view from the role of the nurse, as the patient advocate. Nursing has long enjoyed the reputation as a respected profession [3], and in fact, the World Health Assemble declared 2020 "The Year of the Nurse and the Nurse Midwife" [4]. But this chapter is devoted to re-evaluating the 360° perspective. In reviewing this perspective, this chapter may create more questions than answers. The interprofessional care team (in an acute care facility—hospital) has traditionally resembled Fig. 4.1. This team can be further divided into direct and indirect care. Direct care is being defined as where the individual must enter a patient room and interview, interact, or physically assess a patient and their significant others. Indirect care may be defined as professions that provide a direct service (e.g., pharmacists) but may not directly enter the patient room and interact with the patient in a face-to-face manner. Interaction obviously changes per setting. For instance, once a patient moves to a home setting, the pharmacist provides face-to-face interaction, counsels patients, and makes recommendations.

Instead, this chapter will identify challenges and some innovations identified by healthcare stakeholders while facing the COVID-19 pandemic. This pandemic highlights the need to redefine and reassess the emerging perspectives of many stakeholders in healthcare.

Challenges of All Professions in State-of-the-Art Care Delivery: COVID-19 Pandemic

The Coronavirus-19 (COVID-19) pandemic posed many unique challenges to the world. This pandemic is caused by a highly contagious virus; it is generally transmitted by airborne droplets via the infected person and causes severe acute respiratory syndrome. This disease has many similarities to severe acute respiratory syndrome (SARS) and Middle East respiratory syndrome (MERS) [5–8]. Additionally, if the infected person coughs, the droplets may also land on a sur-

face creating fomites [8]. An uninfected individual can touch the contaminated surface and transmit the virus by touching his/her face, eyes, nose, or mouth [5, 8]. Infected persons with COVID-19 can have either mild symptoms, such as cough, fever chills, sore throat, fatigue, headache, or runny nose, or they can present with more severe symptoms, such as shortness of breath or chest pain [9]. This virus poses a unique issue for the healthcare system in that more severe cases require extensive supportive care (respirators and/or intensive care beds) for a considerable amount of time. This extended supportive care utilizes multiple specialty intensive care beds, hence leaving scarce beds for emergent or elective care. Populations most vulnerable to COVID-19 include those with pre-existing diseases (e.g., diabetes, obesity) and those with an immunocompromised state (e.g., elderly) [9].

The COVID-19 pandemic has caused a variety of issues other than increasing the burden on the healthcare industry. As of January 2021, as per the Johns Hopkins Coronavirus Tracking Center, there are over 423,000 American deaths attributed to COVID-19 virus and over 2,149,000 deaths internationally [10]. The pandemic has crippled the American economy—with many Americans out of work. Compared to the Great Recession where unemployment spiked at 10% in October 2009, the COVID-19 pandemic caused 14.8% unemployment in April 2020 [11]. The hardest hit portion of the American economy is in leisure and hospitality where the unemployment rates marked 39.3% in April 2020 [11]. Besides fostering critical economic stability, this pandemic has changed every aspect of daily life. In sum, individuals have to reconsider, reimagine, and re-engineer how to work, play, celebrate, and interact.

Health Informatics Priorities from the Perspective of Nurses: Traditional Stakeholders' Challenges and Need for Innovations

Nurses are a primary stakeholder in an acute care facility. Even prior to the epidemic, challenges were numerous. The COVID-19 pandemic changed the nursing landscape dramatically. Due to the extensive amount of PPE (personal protective equipment) necessary, the main goal is to "group tasks" and minimize contact with the infected COVID-19 patient—minimizing exposure to the virus. Gone are the days where a nurse pops in and "rounds" on their patients due to infectious nature of this disease. Instead, some propose [12] the use of telemedicine (via robotic carts) within hospital units and within acute care units to monitor patients. This technology will allow the nurses to remotely peer into rooms without donning equipment. Education is necessary to optimize this new telemonitoring technology. Other enabling technologies that provide remote monitoring include the use of smart watches, rings, bracelets, or monitors [13, 14]. Cleaning of these devices is key—ultraviolet sterilization has been successfully used [15]. Additionally, if devices, like robots, travel from one room to another, cleaning is also necessary before entering other patient rooms [15]. One large challenge is the human factor. Many nurses express the grief in not being able to allow family to stay with patients [16]. Nurses have bridged this gap via the use of mobile devices to communicate with loved ones (e.g., iPad) [16]. Another challenge is the lack of therapeutic touch or recognition. Patients have difficulty in identifying healthcare members due to the amount of PPE worn. Hoods, caps, N95 masks obstruct the faces of caregivers. Patients are fearful and often confused as to who is entering their room. One simple innovation is the use of a plastic wrapped smiling picture of the caregiver [16]. As one nurse mentioned, "A smile is universal."

Physicians too struggle with the challenge of COVID-19 patients. These infectious patients consume many critical care beds—making bed availability a challenge for most facilities. In smaller facilities where intensivists are not present, the use of telecritical care is an option [17, 18]. This innovation prevents hospital transfer and decreases exposure to others. In the early portion of the pandemic, some facilities ran out of critical care beds, hence non-critical care units were hosting critical patients until beds were available. This required oversight by intensivists

and training of floor nurses who have never managed a critical ventilated patient for an extended period of time. Some literature [19] also suggests a "tiered telemonitoring system" where an experienced critical care physician monitors and consults multiple non-ICU physicians and non-ICU nurses. Additionally, Scott [19] also suggests a low-contact, communication and isolation model. Here, physicians use a "paired tablet" approach. Any patient with COVID-19 or any patient "under investigation" for COVID-19 is given a tablet in a dedicated room and then the other tablet is in the provider room. As always, clinicians must learn how to use enabling technologies while conveying a caring disposition while interacting with a scared individual.

Respiratory therapists face a daunting challenge with COVID-19. These healthcare professionals are focused on the respiratory status of patients. Principally, the most critical patients with COVID-19 infection display acute respiratory distress related to the virus and require respiratory therapist care. Consequently, the demand for respiratory therapists is skyrocketing [20]. Additionally, the workload of the respiratory therapist has also doubled during this pandemic [20]. Specifically, respiratory therapists ensure the proper utilization of ventilators and other respiratory devices or treatments. Since these patients require long-term ventilator use related to complications of COVID-19, ventilators are in short supply. To combat this, an interprofessional team of physicians and respiratory therapists have incorporated a few new strategies at University of Pennsylvania. First, they began using a CPAP helmet, which is used extensively in Europe to prevent intubation [21]. The helmet encloses the head which also helps to contain the virus. Second, they incorporated the use of E-Lert [21]. The E-Lert system uses high-quality cameras in each patient room and is manned by certified respiratory therapists. This system remotely monitors all acutely ill patients, minimizes exposure to patients, and quickly identifies patient issues (like disconnected oxygen) [21].

Many traditional stakeholders that only have to interview clients (i.e., dieticians, pharmacists, social workers) can also use the "paired tablet approach" to minimize the use of PPE and minimize contact with the patient [19]. Challenges do apply, with COVID-19; many patients who are in the acute care facility may be short of breath. This could minimize the ability to communicate via the paired tablet approach. Additionally, patients if unable to speak will need to be able to type responses. Last, this also requires that patients know how to use mobile devices (literacy). In sum, these "paired interactions" may necessitate the mediation or operation by a nurse or a nursing assistant—negating the use of the innovation.

Health Informatics Priorities in Collaboration with Other Professions: The New Stakeholders

In looking at a 360° view, let us consider new stakeholders (in green) due to this COVID-19 pandemic, their challenges and potential innovations (See Fig. 4.2). By no means is this list conclusive, but in consideration of this pandemic, these emerging stakeholders have taken an increasing role in contributing to improved patient outcomes.

Veterinarians have not traditionally been a stakeholder in the health of consumers. However, the last few coronavirus outbreaks (e.g., severe acute respiratory syndrome [SARS] and Middle East respiratory syndrome [MERS]) are zoonotic viruses that have been identified in animals. These viruses have acquired the ability to transmit from person to person [22–24]. Due to this connection and the ability for these treacherous viruses to travel from animals or pets to humans, veterinarians have become a new stakeholder in combatting new diseases. Their input into disease transmission is critical to halting epidemics—like COVID-19.

Chaplains are another stakeholder that has emerged during the COVID-19 pandemic. This disease, by nature, is very isolating. This stakeholder can offer the "emotional connection" that many isolated COVID-19 patients require. Chaplains can offer emotional or spiritual support via in-person visits or via virtual telehealth visits. Some chaplains are able to also connect, provide support groups or gaming via zoom or other means like through Calm™ or Vennly™ [25]. Moreover, the chaplains can further support

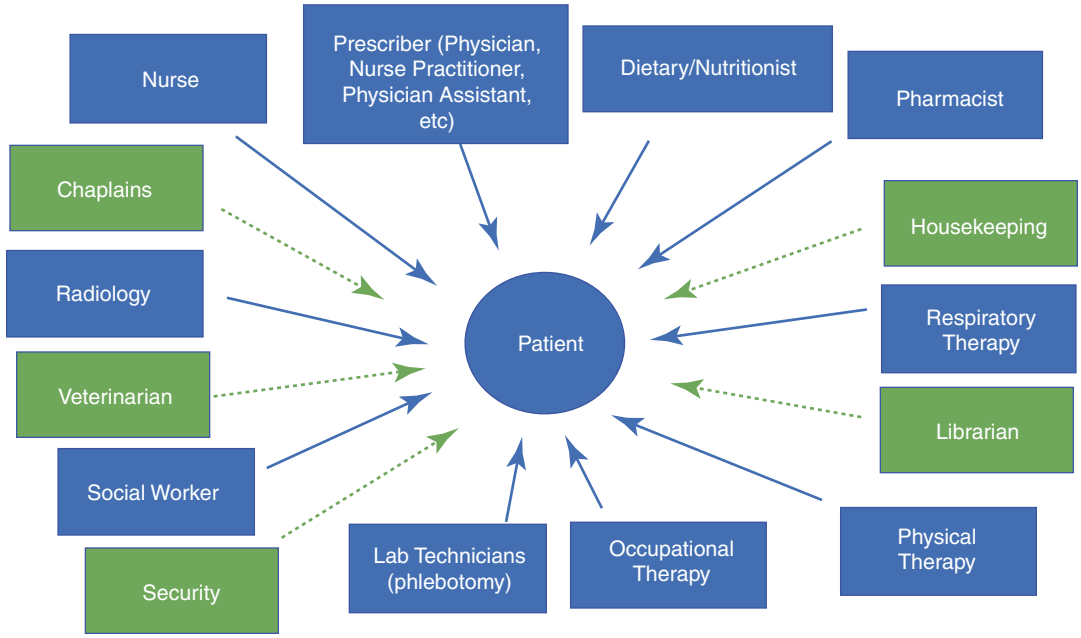

Fig. 4.2 New stakeholders

the staff caring for such sick populations. Healthcare providers have long expressed a burnout related to the COVID-19 crisis and need the psychological support [26].

Housekeepers have long since supported direct patient care. The main goal of the housekeeper is to maintain and improve the environment of the patient and healthcare providers. In lieu of the COVID-19 pandemic, this profession has been key in providing a safe space. As mentioned prior, the use of UV light has been very successful in sterilizing equipment [15]. Robots, like LightStrike™ equipped with UV light technology, can also be deployed to disinfect an unoccupied operating room in 12 minutes, compared to 90 minutes via a human counterpart [27, 28]. Human assistance is necessary in that the partnered housekeeper can flip furniture mattresses, etc., to allow for cleaning of surfaces not previously reached. Although this technology is quick, the price is steep, and they must operate in an unoccupied space. Additionally, the machines are not easily suited to clean all areas, often getting stuck [27]. Last, the human factor is also an issue. Housekeepers provide an element of normalcy and human connection. Since these stakeholders routinely visit each room, this interaction is valued by patients [29].

Security is another stakeholder not previously mentioned. As the COVID-19 pandemic evolves, there is a need to contain the virus. A necessary stakeholder in any acute care facility is the physical gatekeeper or hospital security. These professionals help squelch the influx of anxious visitors and must be able to turn away individuals. At the most basic level, they are protecting outsiders from contamination and virus spread. Some apps, like Prodensity™, have been deployed to also ensure the health safety of individuals as well. Individuals who work in the healthcare facility must log into their app daily, answer specific health-check, and Prodensity™ can provide a green pass—which is shown to security as they enter the building [30]. Downside of this app is that data is self-reported. Individuals with COVID-19 are infectious up to two days prior to being symptomatic [31]; hence, self-reporting will not identify those who may already be infectious. A newer app, to help identify post exposure is MD COVID Alert ™, which uses Bluetooth technology to notify individuals if they have exposure to those identified as having COVID-19 for 15 minutes or more [32].

The healthcare librarian or informatist is an under-represented stakeholder in the COVID-19

pandemic. This stakeholder can be key in finding new tools in fighting new outbreaks and sharing the information in a contextual manner. The thirst for knowledge and success was very evident in the COVID-19 pandemic. New therapies and trends were brought to light like the possible role of vitamin D [33], preventative effects of aspirin in preventing coagulopathy [34], guidelines for multisystem inflammatory syndrome in children [35], and the challenges of proning with COVID-19 patients [36]. Informaticists need to be brought into the frontlines to find new therapies and discourage detrimental therapy and disseminate to the healthcare team.

Summary

In summary, the healthcare landscape is changing as realized by the current COVID-19 pandemic. As identified by the challenges and innovations above, each stakeholder has reconfigured its workplace and its perspective based on this pandemic. This needs to continue. It is only via collaboration and open communication with other stakeholders that we can tackle the mounting healthcare needs of the future.

Conclusions and Outlook

After reflection of the traditional and new stakeholders in the COVID-19 pandemic, there are a few common themes when operating. First, the main goal is to provide optimal care while minimizing the spread of the virus. Stakeholders need the latest information to optimize care guidelines and improve outcomes. Every member of the healthcare system plays a vital role in optimizing care. Second, COVID-19 is highly contagious, and it is hard to communicate with empathy and caring when in extensive PPE. Patients are isolated and terrified. When in isolation, the only human interaction is via healthcare stakeholders. The use of technological innovation must allow for empathy and caring. Third, many of the innovations/guidelines require interprofessional discovery and operationalization, stakeholders can no longer work in silos. Considering that there is a national shortage of critical care beds (and professionals to operate them), there is a call for future development of a National Emergency Telecritical Care Network utilizing the mobile and remote monitoring technologies in a private/public partnership [19].

Useful Resources

1. Remote Telehealth Policy: https://www.cchpca.org/resources/search-telehealth-resources#
2. Center for Care Innovation: https://www.careinnovations.org/resources/
3. COVID-19 Resource Wiki: https://wiki.careinnovations.org/Main_Page
4. Chaplain Innovation Lab: https://chaplaincyinnovation.org/

Review Questions

1. How would you define a stakeholder?
2. After review of this chapter, please identify and defend which stakeholder should have increased input in healthcare delivery?
3. Name some practical considerations of using remote technology. MARK ALL THAT APPLY.
   (a) Sterilizing the remote technology
   (b) Validating data of remote technology
   (c) Providing education of remote technology
   (d) Offering alternate manners of collecting data
4. Thanks to the COVID-19 pandemic, what are some scarce resources identified? MARK ALL THAT APPLY.
   (a) Patients
   (b) ICU nurses
   (c) Intensivists
   (d) ICU beds
   (e) Groceries
   (f) PPE
5. What is the practical consideration when using mobile technology to communicate with patients? MARK ALL THAT APPLY.
   (a) Literacy of the patient
   (b) Technological literacy of the patient
   (c) Physical ability to operate the mobile device
   (d) The Wi-Fi stability of the environment

Appendix: Answers to Review Questions

1. How would you define a stakeholder?

A stakeholder is a role where the individual has a vested interest in the positive outcome of a patient. This could be a nurse, pharmacist, prescriber, etc.

2. After review of this chapter, please identify and defend which stakeholder should have increased input in healthcare delivery?

A new stakeholder is someone that is not a traditional stakeholder. This person could be a chaplain, a veterinarian, a housekeeper, a unit secretary, a dentist. These new stakeholders must be sought out in healthcare or in the health of the consumer. In lieu of the COVID-19 pandemic, COVID patients living at home need the grocery delivery or pharmaceutical delivery. These non-traditional roles must be explored and incorporated into collaboration to optimize consumer health.

3. Name some practical considerations of using remote technology. MARK ALL THAT APPLY.
   - **(a) Sterilizing the remote technology**
   - **(b) Validating data of remote technology**
   - **(c) Providing education of remote technology**
   - **(d) Offering alternate manners of collecting data**

4. Thanks to the COVID-19 pandemic, what are some scarce resources identified? MARK ALL THAT APPLY.
   - (a) Patients
   - **(b) ICU nurses**
   - **(c) Intensivists**
   - **(d) ICU beds**
   - (e) Groceries
   - **(f) PPE**

5. What is the practical consideration when using mobile technology to communicate with patients? MARK ALL THAT APPLY.
   - **(a) Literacy of the patient**
   - **(b) Technological literacy of the patient**
   - **(c) Physical ability to operate the mobile device**
   - **(d) The Wi-Fi stability of the environment**

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