

# Digitally Transforming Hospitals

In light of Covid-19

By IT2101 Group 3:

Ashlee Tan (211362G)

Xu Yong Lin (212033J)

Clara Ng Khai Ehn (212093S)

Ruri Flora Newman (210189G)

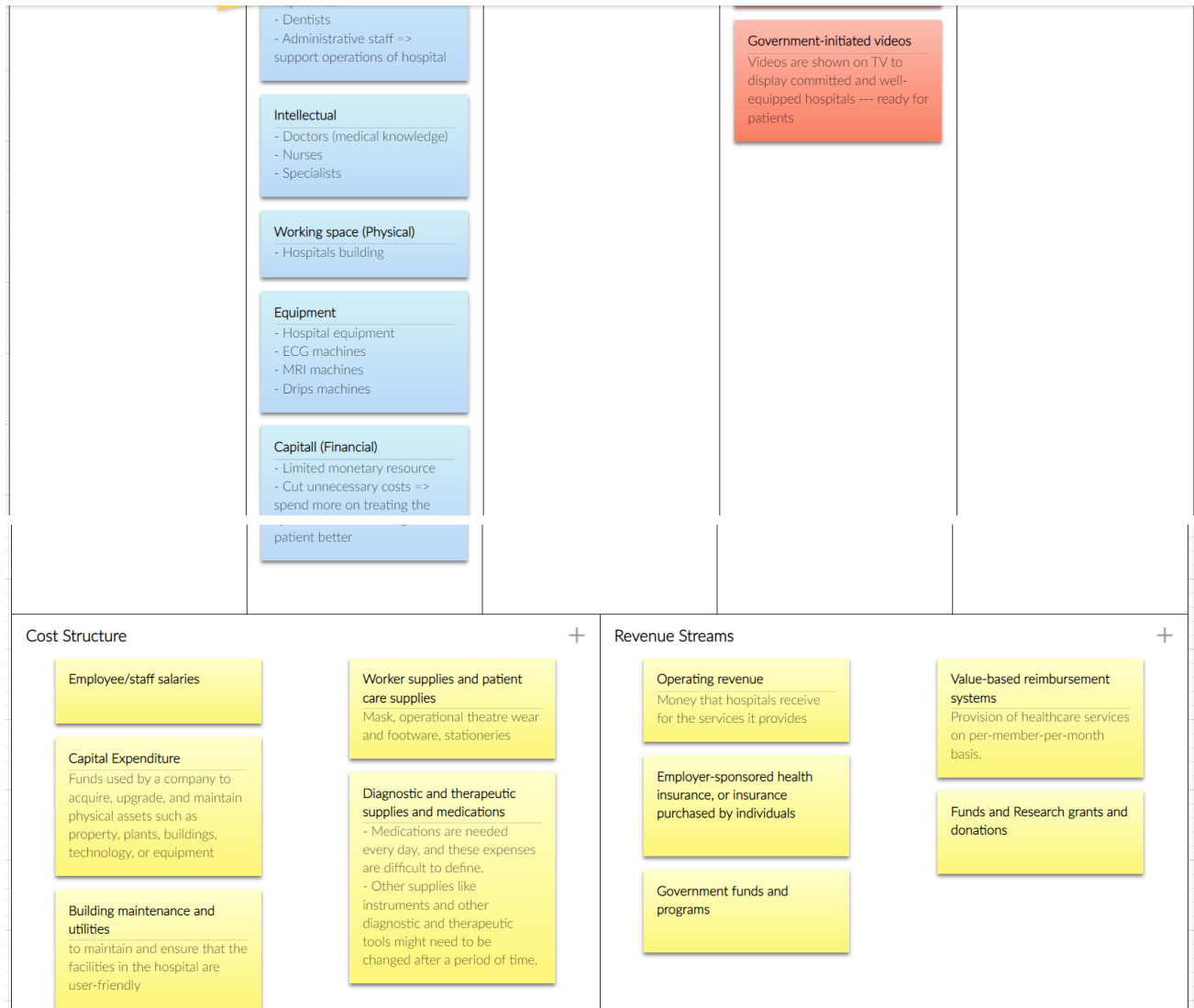
Business model components:

- i. Key Resources and Value Propositions - Ashlee Tan
- ii. Key Activities and Customer Segments - Clara Ng
- iii. Channels and Key Partners - Ruri Newman
- iv. Customer Relationship, Revenue Stream and Cost structure - Ong Yong Lin

## AS-IS Business Model Canvas:

Link: <https://next.canvanizer.com/canvas/inghCo52eqcr6>





<b>Key Activities</b>	<ul style="list-style-type: none"> <li>● <b>Patient care</b> <ul style="list-style-type: none"> <li>- Accessibility, availability, Ancillary Services and communication</li> <li>-Minimize waiting times</li> <li>-Ensure personnel well trained</li> </ul> </li> <li>● <b>Diagnosis and treatment of disease</b> <ul style="list-style-type: none"> <li>-Emergencies Services</li> <li>-Intensive care unit (ICU) Service</li> <li>-Inpatient services</li> <li>-Diagnosis services.</li> </ul> </li> </ul>
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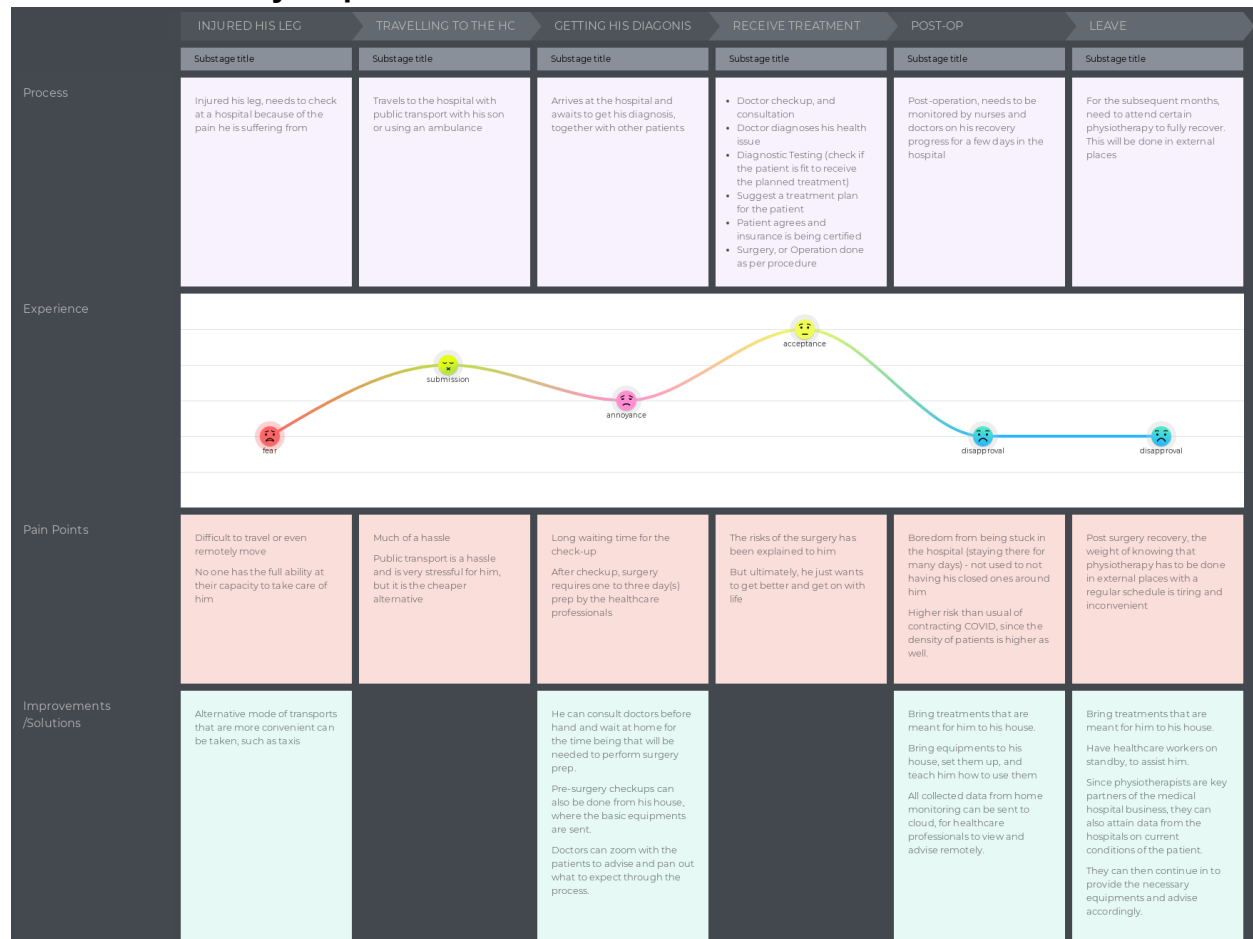
	<ul style="list-style-type: none"> <li>• <b>Outpatient services</b> <ul style="list-style-type: none"> <li>-Pharmacy dispenses medicines.</li> <li>-Provide medical records</li> </ul> </li> <li>• <b>Medical education and training</b> <ul style="list-style-type: none"> <li>-Nursing administration Services.</li> </ul> </li> <li>• <b>Medical and nursing research</b> <ul style="list-style-type: none"> <li>-Pathology/ Laboratory Services</li> </ul> </li> </ul>
<b>Customer Segments</b>	<ul style="list-style-type: none"> <li>• <b>Inpatients</b> <ul style="list-style-type: none"> <li>- Overnight stay patients-requires monitoring, equipment etc.</li> </ul> </li> <li>• <b>Outpatients</b> <ul style="list-style-type: none"> <li>-Not hospitalized, maybe mildly sick, going back for follow-up etc.</li> </ul> </li> <li>• <b>Pharmacy's customers</b> <ul style="list-style-type: none"> <li>-Purchase equipment ( wheelchair, hand-sticks etc. )</li> <li>-To buy medicine from the hospital</li> </ul> </li> <li>• <b>Insurance</b> <ul style="list-style-type: none"> <li>-File a claim with private insurance companies to claim compensation</li> </ul> </li> <li>• <b>Pharmacy/F&amp;Bs services</b> <ul style="list-style-type: none"> <li>-Rental pay</li> </ul> </li> </ul>
<b>Customer Relationship</b>	<p><u><b>When patients are receiving treatment in hospitals:</b></u></p> <ul style="list-style-type: none"> <li>• <b>Maintain eye contact</b></li> <li>• <b>Show empathy</b></li> <li>• <b>Practice active listening</b></li> <li>• <b>Do not Over-promise/ keep your words</b></li> </ul> <p><u><b>After-care / after patients reach home from the hospitals/treatment from home:</b></u></p> <ul style="list-style-type: none"> <li>• <b>Provide a hotline call at all times.</b></li> <li>• <b>Regular post-discharge checkups.</b></li> </ul>
<b>Revenue Streams</b>	<ul style="list-style-type: none"> <li>• <b>Operating Revenue</b> <ul style="list-style-type: none"> <li>○ money that hospitals receive for the services it provides</li> </ul> </li> <li>• <b>Government funds and programs</b></li> <li>• <b>Funds and research grants and donations</b></li> </ul>

	<ul style="list-style-type: none"> <li>• <b>Employer-sponsored health insurance, or insurance purchased by individuals</b></li> <li>• <b>Value-based reimbursement systems</b> <ul style="list-style-type: none"> <li>○ Provision of healthcare services on per-member-per-month basis.</li> </ul> </li> </ul>
<b>Cost Structure</b>	<ul style="list-style-type: none"> <li>• <b>Capital Expenditure</b> <ul style="list-style-type: none"> <li>○ Funds used by a company to acquire, upgrade, and maintain physical assets such as property, plants, buildings, technology, or equipment</li> </ul> </li> <li>• <b>Employee or Staff salaries</b></li> <li>• <b>Building maintenance and utilities</b> <ul style="list-style-type: none"> <li>○ to maintain and ensure that the facilities in the hospital are user-friendly</li> </ul> </li> <li>• <b>Worker supplies and patient care supplies</b> <ul style="list-style-type: none"> <li>○ Mask, operational theatre wear and footwear, stationeries</li> </ul> </li> <li>• <b>Diagnostic and therapeutic supplies and medications</b> <ul style="list-style-type: none"> <li>○ Medications are needed every day, and these expenses are difficult to define.</li> <li>○ Other supplies like instruments and other diagnostic and therapeutic tools might need to be changed after a period of time.</li> </ul> </li> </ul>
<b>Channels</b>	<p><b>Mainstream social media</b></p> <ul style="list-style-type: none"> <li>• Facebook, Instagram, Google Adwords</li> </ul> <p><b>Government-initiated videos</b></p> <ul style="list-style-type: none"> <li>• Videos that are shown on TV to display committed and well-equipped hospitals — ready for patients</li> </ul>
<b>Key Partners</b>	<p><b>Other hospitals:</b></p> <ul style="list-style-type: none"> <li>• Various medical hospitals work together for specific situations</li> </ul> <p><b>Nursing and residential care organizations</b></p> <ul style="list-style-type: none"> <li>• Residential care combined with other nursing, supervisory, or other forms of care</li> </ul> <p><b>Ambulatory health care services:</b></p> <ul style="list-style-type: none"> <li>• Healthcare professionals in outpatient settings</li> </ul> <p><b>Pharmacies</b></p> <ul style="list-style-type: none"> <li>• Develops, produces, and markets licensed for use as medications</li> </ul>


	<b>Medical Practitioners &amp; Healthcare Professionals</b> <ul style="list-style-type: none"> <li>• A variety of medical practitioners help to assist in specific patient cases</li> </ul>
<b>Key Resources</b>	<p><b><u>Manpower (Human)</u></b></p> <ul style="list-style-type: none"> <li>• Nurses</li> <li>• Doctors</li> <li>• Specialists</li> <li>• Dentists</li> <li>• Administrative staff =&gt; support operations of a hospital</li> <li>• Cleaners</li> </ul> <p><b><u>Intellectual</u></b></p> <ul style="list-style-type: none"> <li>- Doctors (medical knowledge)</li> <li>- Nurses (patient care knowledge)</li> <li>- Therapists</li> <li>- Dentists (dental knowledge)</li> <li>- Specialists</li> </ul> <p><b><u>Working space (Physical)</u></b></p> <ul style="list-style-type: none"> <li>- Hospital building</li> <li>- Facilities</li> </ul> <p><b><u>Equipment</u></b></p> <ul style="list-style-type: none"> <li>- Hospital equipment</li> <li>- ECG machines</li> <li>- MRI machines</li> <li>- Drips machines</li> <li>- Other medical equipment</li> </ul> <p><b><u>Capital (Financial)</u></b></p> <ul style="list-style-type: none"> <li>- Limited monetary resource</li> <li>- Cut unnecessary costs =&gt; spend more on treating the patient better</li> </ul>
<b>Value Propositions</b>	<ul style="list-style-type: none"> <li>• <b>Ensure good health</b> <ul style="list-style-type: none"> <li>○ Regular checkups and consultations</li> <li>○ Treatment for existing conditions</li> <li>○ Vaccinations</li> </ul> </li> <li>• <b>Personalized care for recovery</b> <ul style="list-style-type: none"> <li>○ Monitoring of medical measurements</li> <li>○ Customized therapy programmes</li> <li>○ Personalized advice</li> </ul> </li> <li>• <b>Recovery goes smoothly, without discomfort or unexpected hiccups</b></li> </ul>

	<ul style="list-style-type: none"> <li>● <b>Prescribed, quality-assured and supplied medications</b> <ul style="list-style-type: none"> <li>○ Ensure that the medication is safe, effective and not contaminated.</li> </ul> </li> <li>● <b>Timely healthcare access</b> <ul style="list-style-type: none"> <li>○ Emergencies</li> <li>○ Increase quality of life</li> </ul> </li> <li>● <b>Speedy recovery</b></li> <li>● <b>Quality of recovery</b></li> </ul>
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## Customer Journey Map:



## Persona:

NAME	
Mr. Gabriel Adrian Choo	
	<b>Background</b> <ul style="list-style-type: none"><li>Has diabetes and is soon to undergo knee surgery after slipping in the bathroom at home<ul style="list-style-type: none"><li>Consistently goes for kidney dialysis at the hospital</li><li>The family lives far away from him and thus, can't attend to him 24/7</li><li>Difficult for him to travel to the hospital</li></ul></li></ul>
<b>Demographics</b> <ul style="list-style-type: none"><li>A 71-year-old male with health conditions</li><li>Chinese</li><li>Retired</li><li>Married with 2 grown-up children</li></ul>	<b>Goals</b> <ul style="list-style-type: none"><li>Hassle-free treatments for his medical conditions</li><li>Wants to recover from the planned knee surgery quickly without too much stress.</li><li>Minimize traveling to and from the hospital for constant updates from the healthcare professionals</li><li>Minimize cost as much as possible</li></ul>
<b>Expectations</b> <ul style="list-style-type: none"><li>He wants to recover as soon as possible</li><li>His family wants him to be fully recovered, with no prolonged pain or complications</li><li>Consistent monitoring at his convenience</li></ul>	<b>Quote</b> <p>“ • “In light of Covid-19, I don't feel comfortable staying in the hospital for a prolonged period of time” • “I prefer having someone that I know near me during post-op” • “In my frequent visits to the hospital, the food catered to me did not fit my liking - I lean more towards home-cooked meals while trying to gain back strength post-surgery” ”</p>
<b>Needs</b> <p>When visiting the hospital:</p> <ul style="list-style-type: none"><li>Not waiting around too long for his turn before treatment (minimize time spent in the hospital)</li><li>Given the right diagnosis and treatments which can be done at his most comfortable area</li><li>Having a good environment for recovery</li></ul>	<b>Motivations</b> <ul style="list-style-type: none"><li>Want to hang out with friends</li><li>Gamble on weekends</li><li>Able to have un-restrained mobility in his day to day life, despite his age</li><li>See and play his grandchildren</li></ul> <b>Frustrations</b> <ul style="list-style-type: none"><li>The constant need to visit the hospital</li><li>Increasing public transport fares</li><li>Staying @ the hospital after surgery even though he's well - for monitoring</li><li>Potential exposure to other diseases like Covid</li></ul>



## **Background Information:**

The city-state's hospitals are facing an increasing risk of being overwhelmed as more resources are diverted to caring for covid-19 patients. As the number of covid-19 cases rises, they also face staffing constraints, limiting their ability to increase the number of ICU beds. After a rise in resignations in the healthcare sector, this year left the current workforce stretched to its limits.

The surge in Covid-19 cases has placed significant pressure and strain on public hospitals where 60 percent of 219 intensive care unit (ICU) beds reserved for covid-19 patients are preoccupied. Furthermore, the COVID-19 patients took up 89 percent of the 1650 isolation beds and 67 percent of intensive care unit (ICU) beds. Some are intubated and require a mechanical ventilator to breathe, and all require close monitoring and treatment by ICU-trained healthcare workers to prevent further deterioration. Besides covid-19 patients, non-covid-19 patients with life-threatening medical conditions require intensive care, which adds to the sustained load that the hospital has to bear. These patients stay for an average of 11 to 15 days, but some may stay up to a month.

The need to increase the capacity of our healthcare system is a heavy burden carried by the healthcare workers. Furthermore, in preparation for a potential rise in severe cases, the country will increase the number of ICU beds for covid-19 patients from 219 to 280. If needed, this number can be further increased.

The most important limit is the manpower required to staff ICU beds. Patients in the ICU need trained staff, who must be able to provide individualized care, including round-the-clock monitoring and continuous care. Hence, any increase in ICU bed capacity requires an increase in manpower. Previously-trained ICU staff have been deployed to help with patient care, while non-ICU staff has also been roped in. They have to undergo training to operate the specialized equipment in the ICU

Right now, patients who have been regular hospital visitors since pre-pandemic - by reason being either weekly kidney dialysis, quarterly health checkups, or follow-up surgeries - will still have to go for their treatments despite the virus that is affecting thousands all over the world. The exposure COVID-19 virus to such patients increases due to the fact that hospitals now accommodate those affected by the virus, aside from their regular patients. Hospitals now become a "danger zone" when being visited, because of the close proximity you share between someone infected, and yourself.

Aside from high potential exposure levels, as mentioned above, the number of beds and space required to take in everyone who needs to be treated, covid positive or not, still remains a hard battle to combat. Fitting all in-patients' needs, wants, and requirements based on their conditions was hard as it is pre-pandemic.

This is thus, a challenge that hospitals are trying to solve and curate solutions for.

<https://www.straitstimes.com/singapore/politics/about-60-of-singapores-219-covid-19-icu-beds-occupied-janil-puthucheary>  
<https://www.channelnewsasia.com/singapore/resignation-rates-among-healthcare-workers-singapore-year-moh-increase-icu-capacity-2282766>  
[https://www.scmp.com/news/asia/australasia/article/3153567/coronavirus-singapore-uses-fake-news-law-against-anti-vaxxers?module=perpetual\\_scroll&pgtype=article&campaign=3153567](https://www.scmp.com/news/asia/australasia/article/3153567/coronavirus-singapore-uses-fake-news-law-against-anti-vaxxers?module=perpetual_scroll&pgtype=article&campaign=3153567)  
<https://www.straitstimes.com/singapore/health/singapore-hospitals-under-significant-pressure-two-thirds-of-covid-19-icu-beds>  
<https://www.straitstimes.com/singapore/health/still-risk-of-healthcare-system-reaching-tipping-point-0>

## **CLARA (Key activities):**

### **Patient care**

- The **accessibility and availability** of both the hospital and the physician should be assured to all those who require health care.
- Ensure **waiting times** for all services should be **minimized**. Because of the enormous demand for services, this is frequently a major issue. As a result, they are efficiently addressed by continuously reviewing patient responses and other data and using this feedback to make the appropriate system improvements. They ensure that patient information and instruction about all medical and administrative procedures should be made very clear.
- **Train patient counselors to act as a liaison between the patient and the medical personnel**, improving the patient's experience and making the doctors' job more manageable.
- They also **maintain Check and check-out procedures** and ensure they are **'patient friendly'**. For example, for inpatients, they've implemented a system of discharging patients in their rooms, removing the need for the patient or their family to travel to another office or counter in the hospital and wait in line for an extended period of time. Patients have also responded positively to this.
- **Communicating** with the patient and family about potential delays is an important component that can help to alleviate a lot of frustration and anxiety. The establishment of a dedicated 'Patient Care Department,' with a full-time Administrator, has greatly aided the institution and improved its interactions with patients and families.
- **Ancillary Services**. Services that are provided in addition to the main services. Other services, such as communication, food, and so on, should be available to both patients and their caregivers.
- **Ensures personnel are well trained**. It is vital to have a well-trained 'Eye Care Team' in order to provide high-quality care with positive outcomes. Lack of adequate personnel and inadequate training facilities for the available personnel is a major issue. The temptation to hire people who are untrained or undertrained should be avoided. The number of training programs should be increased, and the quality of those that are already in place should be improved. Standardization should be aided by making a standard basic curriculum available to all training institutions/programs.

### **Diagnosis and treatment of disease**

- **Emergency Services**. This is a crucial area of a hospital that deals with life-threatening conditions that require quick medical attention. Trauma, burns, trauma surgery, and urgent care.
- **Intensive care unit (ICU) Service**. They assist severely ill patients with life support devices who have been admitted, ensuring that they are being properly monitored by professionally trained staff nurses and doctors who closely monitor their vital signs. There are three types of ICUs in this department: pediatric, neonatal, and cardiovascular.
- **Inpatient Services**. There are numerous specialized departments that provide various services. (For example, the cardiology department. Patients with heart

problems who require continual monitoring and observation due to variations and anomalies in blood circulation and cardiac function are admitted to this ward.)

- **Diagnosis services.** There are numerous specialized sections for various diagnoses. (Imaging tests are performed in radiology, for example.) The diagnostic procedures include X-rays, CT scans, MRIs, and ultrasounds, to name a few.

### Outpatient services

- Behavioral health, dental services, dermatology (skin disorders), physical therapy, internal medicine, rehabilitative medicine, and psychiatry/psychology are among the several outpatient clinics and treatment facilities.
- **Pharmacy dispenses medicines.** In the pharmacy, you can buy any drug that has been prescribed for you to take in or out of the hospital. Licensed pharmacists are in charge of the distribution, dispensing, use, and supply of medications within the entire hospital facility. Most of the time, patients must go down to the pharmacy themselves to pick up their drugs.
- **Provide Medical records.** Patients can obtain a medical summary of their hospital hospitalization for legal or occupational grounds at this location. Only a proper request can acquire documentation of a patient's stay, lab test results, and the doctor's charting.

### Medical education and training

- **Nursing administration Services.** Provides for the **needs** and **discipline** of the hospital's staff nurses. This is the headquarters for all of the hospital's nursing directors and managers. They are usually overlooked by patients, mainly because their function is not necessarily for their welfare.

### Medical and nursing research

- **Pathology/ Laboratory Services.** They are in charge of **diagnostic tests** involving a patient's secretions and bodily fluids in order to ascertain a diagnosis or the cause of an illness. Blood tests, urine examinations, stool examinations, sputum examinations, biopsies, and other medical laboratories are used to confirm sickness or the presence of bacteria in the body.

### CLARA (Customer segment):

#### Patients

- **Outpatients** - Patients that are not hospitalized and do not require surgery. They can be mildly sick and thus consult a doctor or it could be long-term patients who need to go back to the hospitals for therapy/treatment/follow-up and are able to head back home after that.
- **Inpatients** - Patients who stay overnight as they require monitoring, equipment, and intense care.
- **Pharmacy's customers** - Patients who purchase their medication from the hospital's pharmacy including people who purchase equipment such as a wheelchair and handstick etc.

### Insurance

- Filing a claim with private insurance companies to claim compensation

### Pharmacy/F&Bs services

- Rental pay - Paying for rental since they occupy spaces in the hospitals.

<https://www.gilberter.com/2019/11/07/departments-in-a-hospital/>

<https://www.moh.gov.sg/home/our-healthcare-system/healthcare-services-and-facilities/hospital-services>

<https://patientcareinformatics.wordpress.com/2016/05/>

## **XU YONG LIN (Customer Relationship):**

Customer relations in the healthcare field are maintained by how the healthcare workers communicate with the patients. In order to build a close and harmonious relationship between workers and patients, it would involve 2 sections – when patients are receiving treatment in hospitals and after-care when patients reach home from the hospitals.

### **When patients are receiving treatment in hospitals:**

Firstly, a good relationship is maintained by having mutual respect between both parties. Healthcare workers should maintain eye contact with the patients when patients are describing their conditions or when they are telling patients things to take note of for their medication.

- **Practice active listening:**

Healthcare workers should also practice active listening. The majority of patients and their family members are often worried about their well-being. Hence, miscommunication might occur due to mixed emotions due to poor health conditions for themselves (patients) or their loved ones. Active listening is a non-intrusive way of sharing a patient's thoughts and feelings. The goal of active listening is to reflect the emotion or intent behind the patient's words.

- **Keep their words / Never over-promise**

Healthcare workers should always keep their words and never over-promise patients. If one tells them that they would do it, they should do it. If the healthcare worker is unable to do so, they should communicate with the patient.

- **Show empathy**

To maintain a harmonious environment in the hospital, healthcare workers should also show empathy. In most cases, they are required to treat the patients individually based on their health condition, family conditions and thus give patients the most suitable medication. This allows doctors to deliver more personalized patient care.

### **After-care/after patients reach home from the hospitals:**

Despite having the majority of the treatment process in the hospital, it is also mandatory to provide after-care to the general public. During the COVID-19 pandemic, where there is a restriction to the amount of visitors to the hospitals, it makes after-care even more crucial.

- **Hotline call available at all times (24/7)**

Firstly, the hospital should **have a hotline call at all times**. Due to the limited number of hospital beds, not all patients can stay in the hospital, they still need care and help from the professionals as they are not fully recovered. Most elderlies take specialized medication at home. Hence they might need to reach out to the hospital hotline while they take medication. Standing in the shoes of a vaccinated COVID-19 patient, they are told to remain at home while seeking treatment from healthcare experts. Calls are given

to the patients to check up on their status, and patients can contact the hospital to ask questions about their situation.

- **Regular post-discharge checkups:**

Next, regular post-discharge checkups are required to build trust between the patients and the doctors. If one experiences any abnormalities in the midst of recovering, the doctor should be updated. Post-discharge checkups also ensure that patients are fully aware of their recovering process and what they should take note in order to recover quickly.

<https://www.nursechoice.com/blog/profiles-and-features/how-to-build-rapport-with-patients-7-effective-tips-for-rns/>  
<https://www.callcentrehelper.com/27-effective-ways-to-build-customer-rapport-42018.htm#:~:text=Rapport%20can%20be%20built%20by,to%20check%20how%20they%20are.>

## **XU YONG LIN: (Revenue Streams):**

The hospital operates on a non-profit basis. However, the hospital will use the margins to cover the different areas, such as human resources and the cost of maintaining the equipment. The different types of revenue come from operating income, subsidies from the government, research grants and donations, health insurance, and value-based reimbursement systems.

### **Operational revenue:**

Firstly, the hospital generates operational revenue. It refers to the money that hospitals receive for the services it provides. This includes the selling of medicinal drugs and consultation fees.

### **Government funds and programs:**

Hospitals also generate revenue from both private and public sources, thereby efficiently delivering healthcare services to communities. The majority of revenues for the provision of medical services comes from various government programs, such as subsidies using MediShield, MediSave, MediFund, and CHAS cards.

### **Funds and research grants and donations:**

Hospitals are closely tied with research. Hence they will also obtain a portion of funds from research grants and donations.

### **Employer-sponsored health insurance, or insurance purchased by individuals:**

Another source of revenue comes from private clients such as health insurance paid by employers, or individually purchased insurance, and direct payments. The private healthcare coverage model allows paying only a share of medical costs, sharing them with other people who are not currently beneficiaries of their plans.

### **Value-based reimbursement systems:**

The steep rise in healthcare delivery costs has led to the creation of value-based

reimbursement systems. The value-based reimbursement systems for the healthcare delivery cost add to the revenue stream of the hospital. They allow the provision of healthcare services on a per-member-per-month basis. Other reimbursement models were built around pay case rates that enable charging different prices for pre-specified conditions or treatments.

<https://studycorgi.com/hospitals-revenue-sources-and-management/>

<https://medium.com/the-slalom-daily-dose/traditional-revenue-sources-cant-sustain-today-s-hospitals-it-s-time-to-think-outside-the-box-fe2aac169596>

<https://tigerconnect.com/about/fags/healthcare-revenue-cycle/>

<https://www.commonwealthfund.org/international-health-policy-center/countries/singapore>

## **XU YONG LIN: (Cost Structure)**

The hospital operates on a non-profit basis. However, where margins are applied, the revenue will be used to cover staff salaries, operation and maintenance of the environment, building maintenance and utilities, ensuring enough worker supplies and patient care supplies, and maintaining diagnostic and therapeutic supplies and medications.

### **Capital expenditure:**

Firstly, capital expenditure. It is the funds used by a company to acquire, upgrade, and maintain physical assets such as property, plants, buildings, technology, or equipment. This includes the initial investment for constructing the hospital building, buying machinery and equipment. This process is expensive. However, it is considered a one-time expense. Although most hospitals in Singapore are fully-funded by the government, they would fund the cost of building the hospital. Money is also required to maintain healthcare equipment, such as machines. This ensures that they are in good condition so that the next patient can use them.

### **Healthcare workers/employees salaries:**

Money is also required to pay the healthcare workers and the employees working in the hospital. This recurring expense adds to the major cost of running a hospital. Payments have to be made from administration staff to the peon. The employees' salaries will vary depending on their position, and the hospital should also give the staff regular bonuses and increments.

### **Building maintenance and utilities:**

Building maintenance and utilities also contribute to the cost of running a hospital. This cost includes the monthly or yearly premium that the hospital must pay for the insurance taken for the hospital. To successfully run a hospital, it is vital that the infrastructure is patient-friendly, modern, and up to the mark. Hence, the hospital should conduct regular renovation and maintenance to ensure that the facilities are functioning well. Utilities such as laundry, electricity, water supply, phone call services, and computers significantly affect the cost structure. As hospitals may require some publicity channels, the huge cost of marketing and publicizing can add to maintaining a hospital. In some



hospitals, money is reserved and used for free camps, services for the poor, and discount consultation fees for staff, consultants, and relatives.

**Worker supplies and patient supplies:**

Next, ensuring that there are enough worker supplies and patient supplies. These supplies include staff and patient uniforms, operation theatre outfits, footwear and stationery, and bedsheets and blankets. These are variable depending on the inflow of patients and the use of the provisions. Most of these need replacement over some time, and hence, these costs are inconsistent. In the midst of the COVID-19 pandemic, there is a high demand for oxygen tanks and Personal Protective Equipment (PPE), masks, and sanitizer. This adds to the cost due to the increase in the use of such supplies.

When the borders open, more costs are needed to conduct more COVID-19 antigen testing. The price to obtain sufficient equipment to perform testing will rise when the borders reopen, as more people travel to and away from Singapore.

**Maintain diagnostic and therapeutic supplies and mediations**

Lastly, money is required to maintain diagnostic and therapeutic supplies and medications. Medications are needed every day, and these expenses are difficult to define. Other supplies like instruments and other diagnostic and therapeutic tools are utilized daily and need not be replaced. Such tools may need to be changed after some time, and newer ones need to be bought.

<https://doctors.practo.com/costs-running-hospital-india/>

<http://www.transbluefm.com/capital-expenditure/>

<https://theindependent.sg/public-hospitals-are-nonprofits-but-make-25m-per-year/>

## **Ruri Flora Newman: (Channels)**

Marketing is important for hospitals to adopt because advocating their healthcare practice provides an **open line of communication** to the patient audiences by building trust and piquing interest. Healthcare marketing allows increased patient connections and room to nurture those relationships to form long-term, loyal patients.

As healthcare is a necessity - marketing channels are not advocated in the regular way as other products are. Instead, it is casting the different facilities that the hospitals are able to provide for various people, regardless of their health conditions.

Hospitals are categorized under the industry of healthcare. Healthcare marketers, in retrospect, can showcase physician expertise using videos, social media, TV, radio, content marketing, web, and other channels to connect with their potential patients, as well as encourage patients to visit their social pages for a look at what makes their practice different.

Because there's no way for a patient considering a practice to know what will happen at an appointment before they walk through the door, with the power of social media, online communities, and videos, it's easier than ever for practices to show potential patients what a visit to their office looks and feels like.

The first marketing channel that is prevalent for hospitals is social media - which comprises applications such as:

### **Google AdWords**

Hospitals can use Google Adwords to **display ads** on Google search results and its advertising network. Campaigns can also be created to promote their content - for example, someone searches - "symptoms of hand foot and mouth disease." - Adwords can target this keyword and show a hospital's content from their website that matches it immediately. This channel will effectively drive new patients, as it expresses to the audience that the hospital has knowledgeable understandings of their health concerns.

### **Facebook**

Facebook allows hospitals to interact with new readers via the comment section on sponsored posts. For instance, a promoted post for an article about flu vaccinations. Someone comments and asks, "I'm pregnant. Is it safe for me to get a flu shot?"

It's simple and effective to reply with a link to an article on flu shots and pregnancy. From there, a link could be included to schedule an appointment. Not only were you able to answer their question, but they now have the ability to easily set up an online appointment, increasing patient flow. Plus, that information will remain there on the post, continuing to inform future users, who will trust your hospital for advice and check-ups.

## **Instagram**

Instagram allows hospitals to promote content, products, and services by telling their audience to go to the link in their bio. This allows quick redirection to the hospital's main webpage, for easy access to information and booking systems.

Instagram's photo sharing and easy collaging user interface allow the audience viewers to see a variety of features and amenities the hospital is able to provide, giving patients a reason to visit the hospital which gives patients the reassurance of the hospital's technologies and capabilities.

## **Ruri Flora Newman: Key Partners**

A hospital business normally partners with other hospitals and external parties which provides resources and intelligence for them to function. This includes:

### **Nursing and residential care facilities**

Residential care combined with either nursing, supervisory, or other types of care as needed, the residential care facilities include:

1. Home health care services,
2. Nursing Care Facilities,
3. Urgent Care Centers,
4. Mental health and residential developmental handicap facilities,
5. In-Home Senior Care,
6. Community care facilities for the elderly

### **Medical Practitioners & Healthcare Professionals**

Medical practitioners diagnose physical and mental illnesses, disorders and injuries, and prescribe medications and treatment to promote or restore good health. They work in the direct line of advising patients and providing treatments by performing surgeries

This category includes:

1. Medical Practitioners
2. Chiropractors
3. Homeopaths
4. Psychologists, Social Workers & Marriage Counselors
5. Dermatologists
6. Nutritionists & Dietitians
7. Optometrists
8. Physical Therapists
9. Alternative Healthcare Providers

### **Ambulatory health care services:**

Ambulatory care is care provided by health care professionals in outpatient settings.

These settings include medical offices and clinics, ambulatory surgery centers, hospital outpatient departments, and dialysis centers. Players provide direct and indirect health

care services to ambulatory patients. This category includes:

1. Outpatient care centers
2. Medical and diagnostic laboratories
3. Ambulance Services
4. Other ambulatory health care services

### **Pharmaceuticals & Related Segments:**

The pharmaceutical industry develops, produces, and markets drugs or pharmaceuticals licensed for use as medications. Medications are supplied to patients when needed. Pharmacies hold knowledge of medications, and are thus, licensed to provide necessary drugs to patients. Pharmaceuticals eliminate the need for inpatient and invasive care services. They are subject to a variety of laws and regulations regarding the patenting, testing, and ensuring the safety and efficacy, and marketing of drugs.

This sector further consists of many players including:

1. Over-the-counter (OTC) drugs & Drug Stores
2. Prescription drugs
3. Biopharmaceutical drugs
4. Generic drugs
5. Pharmaceuticals Packing & Labeling Services
6. Dietary Fiber Supplement Manufacturing
7. Vitamin & Supplement Manufacturing
8. Cough & Cold Medicine Manufacturing
9. Health Stores
10. Eye Glasses & Contact Lens Stores

<https://casualastronaut.com/4-distribution-channels-you-should-consider>

<https://www.technofunc.com/index.php/domain-knowledge/healthcare-industry/item/sectors-of-healthcare-industry>

## **ASHLEE: (Key Resources):**

### **Manpower (Human)**

Right now, manpower is expended in the form of employees.

Hospitals employ various different workers, including but not limited to nurses, doctors, specialists, dentists, administrative staff, cleaners and more.

This manpower is essential for getting the job done - treating patients well.

For general and administration manpower, it is essential to support the operations of the hospital, ensuring that it will continue to run from day to day, supporting the job of the front-end workers such as doctors and nurses and specialists. Jobs such as cleaners ensure a clean and appropriate environment for other medical procedures to occur, such as surgery in operating theatres.

### **Intellectual**

Doctors, nurses and other specialists such as dentists present their intellectual knowledge and prowess to treat patients, supporting them in their recovery directly.

Up-to-date knowledge is required for the doctors and nurses to provide the best treatment for their patients. In Singapore, medical guides expire after five years, and it is hence paramount that hospital employees are kept up to date with the latest medical knowledge to provide a competitive care environment.

### **Working space (Physical)**

Hospitals require space for the actual building itself, which in turn is required for patient treatment, inpatient stays and more.

In a country such as Singapore, space is a very expensive resource.

The more patients there are, the more space is required.

### **Equipment**

Hospital equipment used for treatment purposes, including but not limited to ECG machines, MRI machines, drips machines, and many others cost money for the hospital to purchase, and can be very expensive, running into the millions. Such equipment must also be regularly inspected and calibrated to ensure proper running, which only adds to the cost.

Periodically, not all the equipment will be utilized at one time, and at times there may be more used of one type of machine than another.

### **Capital (Financial)**

Monetary resource of a hospital is limited.

In Singapore, financial support from the government is available for public hospitals, and it ranks fifth in priority for public funds. <sup>[1]</sup>

Thus, any means possible to cut unnecessary costs can then be diverted to providing better and more widespread patient care and coverage.

[1]: Bai, Y., Shi, C., Li, X., & Liu, F. (n.d.). *ACTU Singapore - Columbia University School of ... Healthcare System in Singapore*. Retrieved November 10, 2021, from <http://assets.ce.columbia.edu/pdf/actu/actu-singapore.pdf>

## **Ashlee: (Value propositions)**

Value propositions of a hospital include helping **bring patients back to good health** and also ensuring that their **recovery goes smoothly, without discomfort or unexpected hiccups**.

### **Patient Treatment**

One key value proposition is **medical treatment** for patients to aid in their recovery. Some examples of treatments include, but are not limited to surgical, rehabilitation therapy, dental work such as teeth polishing, and more.

The hospital offers both short-term and long-term treatment, in addition to consultations with specialists, which should be provided **regularly and consistently** where appropriate (for example, monitoring the blood pressure of someone with hypertension and keeping it in check.)

In addition to treatment for known existing conditions, it is also paramount that a hospital ensure that its patients remain in good health. This can be done in the form of regular checkups and vaccinations, and the provision of doctor/specialist advice on how to stay healthy, including but not limited to suggested dietary modifications for conditions such as diabetes, hypertension and more.

### **Quality of Treatment**

The hospital provides a better environment for speedy recovery through **personalized care** by dedicated nurses and doctors.

Personalized services such as monitoring of medical measurements and therapy in various forms, such as physiotherapy, are also provided.

**Medication** that is **prescribed, quality-assured and supplied** by the hospital, aims to help patients **recover and feel better**.

Patients can thus feel at ease upon being treated for their conditions, ensuring that their medicine is not contaminated or otherwise ineffective.

The hospital is to be **well-equipped** to serve patients better.

By being equipped with the **latest technologies** from the healthcare field to ensure the **best and most suitable treatment** for the patient based on their conditions, patients can ensure a higher rate of success of medical treatment, and better post-recovery outcomes and in turn quality of life.

Modern improvements in medical care also mean that adopting the latest technologies is something to be done to result in a better outcome for the patient, and in turn increase patient satisfaction.

As a place for recovery and therapy, a well-equipped hospital means that patients can be in greater **comfort** whilst they undergo treatment. Some examples include beds with advanced electronic movement control, allowing bed-ridden patients to change their posture as required effortlessly.

### **Healthcare Access**

**Timely** access to and delivery of healthcare and professional patient care, even more so for **emergencies**.

This means that patients have to be treated quickly, to ensure that any other new patients can also be treated, avoiding a backlog of patients.

This is because some medical conditions are time-sensitive; not having fast and highly-available access to healthcare can result in bad outcomes, especially so in traumatic situations.

Other conditions, whilst possibly not time-sensitive, can degrade the quality of life of the patient, so it is important that healthcare access be readily available in any case.