Innovation on Batangas Medical Center's Outpatient Management System

Anne A. Mercado

Center of Urban Science and Progress, New York University

CUSP-GX 7053 A: Innovative City Governance

Dr. Hayes Wright

December 6, 2023

Background

Individual health and public health are both key components of an urban ecosystem. It is undeniable, therefore, that the provision of healthcare is essential to support its function and wellbeing. Healthcare is the maintenance or improvement of health via the prevention, diagnosis, treatment, amelioration, or cure of disease, illness, injury, and other physical and mental impairments in people. (Health & Human Services – Career and Professional Development | Emory University, n.d.) Just by the definition, the discussion of healthcare can go to different paths and directions. There are different fields in healthcare from primary care, emergency care, public and global health, dental care and so much more. For this specific research, we're zooming into primary care, specifically on the outpatient management.

Outpatient Care

Outpatient care refers to healthcare consultation, procedure, treatment, or other services that is administered without an overnight stay at the hospital or medical facility. (Definitive Healthcare, n.d.) Outpatient care can be done in different facilities such as primary care, specialty clinics, hospitals, laboratories such as X-rays, urgent cares, etc. According to Reis (2023), there is a projected growth in the US of 16.9% in the demand of outpatient services especially among individuals 55 and above by 2025. Healthcare providers can feel this growth in the whole outpatient market. New medical technologies and techniques contribute to this shift from inpatient to outpatient care as well as administrative aspects of it such as easier reimbursement process. In the Philippines, the revenue for outpatient care is forecasted to reach US$ 1.33 Billion in 2023. This revenue will exhibit an annual growth rate (CAGR 2023-2028) of 7.51%. (Statista, n.d.) With the projected continuous growth of outpatient market, where does the Philippine healthcare currently stand in managing this growth?

Vision

The goal of this study is to look in to the current outpatient management process and system specifically the waiting time in the triage process in one of the tertiary hospitals in the Philippines, Batangas Medical Center also known as BatMC. This aims to analyze and assess the processes and bring to light the strengths and weaknesses of the current approach. Lastly, to be able to recommend possible solutions based on the opportunities uncovered in the study.

Introduction

BatMC has evolved throughout the years becoming one of the premiere tertiary government hospitals in the whole Region IV-A. It serves as the main government hospital for five provinces namely Cavite, Laguna, Batangas, Rizal and Quezon. It was 2009 when it was converted from merely Batangas Regional Hospital to Batangas Medical Center and having the capability of increasing bed capacity to 500 beds. (Historical Background, n.d) It provides a wide range of outpatient services that includes Family Medicine, OB-Gyne, Opthalmology, Mental and Dental Clinic and diagnostics and laboratories. In 2022, BatMC served 87, 948 outpatients with 713 inpatients and outpatients per day. (Batangas Medical Center Statistics, 2023). With the amount of services provided by BatMC and number of people it caters daily, there is no question on the need of proper outpatient triaging and management to accommodate the stated demand.

Outpatient Waiting Time in the Philippines

Outpatient consultation waiting time is different by range 10-57 minutes in developing countries compared to patients' waiting time in developed countries. (Cenizal, 2019) In the Philippine General Hospital, the national university hospital and the premier referral center (Philippine General Hospital, n.d.), the average time spent by new patients in triage and registration prior to consultation is is 139.97 minutes (SD+/- 64.77) with the minimum 8 minutes and maximum time of 371 minutes. To go to specifics, the main contributors to this long duration of time spent by patients in waiting are the triage waiting time where they spent 41.99 minutes and clinic consultation waiting time where the average waiting time was at 69.53 minutes. As one of the major hospitals managed by the Philippine Department of Health, these numbers can approximately be representative of the current outpatient wait times in Philippine public hospitals.

Outpatient Waiting Time in the BatMC

Office or Division:	Department of Family and Community Medicine			
Classification:	Simple			
Type of Transaction:	G2C – Government to Citizen			
Who may avail:	Ambulatory Patients			
CHECKLIST OF REQUIREMENTS		**WHERE TO SECURE**		
OPD Medical Chart (1 Original Copy)		OPD Registration Room		
CLIENT STEPS	**AGENCY ACTION**	**FEES TO BE PAID**	**PROCESSING TIME**	**PERSON RESPONSIBLE**
1. OPD Registration at Room 1	1. Chart from registration room will be received by FM Nursing Attendant (NA)	None	15 minutes	Nurse III - OPD
2. Vital signs outside Rm. 14	2. FM NA will take the patient's vital sign (BP, height, weight, temperature, heart rate, respiratory rate)	None	5 minutes	Nurse III - OPD
3. Consultation with FM Resident on Duty	3. Resident on Duty (ROD) will conduct history and physical examination of the patient and will facilitate necessary diagnostic work up(s) if needed.	None	45 minutes	Medical Specialist IV – Family Medicine OPD Clinic
4. Diagnostic request given to patients	4. FM Nurse will instruct the patient to	None	5 minutes	Nurse III - OPD

	proceed to respective sections (laboratory, radiology, ECG)			
5. Interpretation of official result The procedure will end once the disposition was properly accomplished.	5. FM ROD will determine the disposition of the patient: If non-admissible, treat and send home with proper instructions of medications and follow-up visit If admissible, fill-up the referral form address to other department for further evaluation and co-management.	None	20 minutes	Nurse III - OPD
	TOTAL:	None	1 hour and 40 minutes	

Fig. 1 and 2 *Medical consultation at the Family Medicine clinic*
(Batangas Medical Center Citizen's Charter)

As seen in the images above, optimal time presented by BatMC for family medicine consultation is 1 hour and 40 minutes, giving 10 minutes for registration and acquiring of vital signs. If we take into account the actual wait times presented in the aforementioned study above in PGH with the ~110 minutes of waiting time combined for both the triage and medical consultation, this would confirm the approximate actual waiting time of 210 minutes or 3.5 hours. This data was also confirmed by Dr. Monica Maria Bejasa, a diplomate from BatMC, during an interview.

Existing Approach

According to Dr. Bejasa, the process in private government hospitals differ with regards to triaging outpatient doctor appointments. While in private hospitals, the patients can go directly to the doctor to set an appointment, government hospitals only have specific windows that they follow when receiving patients. For example, Mondays, the hospital can only receive OB-GYN and Pediatric patients. Government hospitals also triage through a main desk that help patients based on the patients identified needs.

Fig. 3 *OPD initial registration*
(Dr. Maria Monica Bejasa, 2023)

Upon registration they are categorized depending on the service needed, laboratory and diagnostics, doctor consultation or administrative. BatMC then uses a batch queuing approach where patients are called by batch depending on the number they were given upon their initial registration. This is the only aspect of the whole outpatient triage that is "digitized". After their numbers are called, there are no definitive directions available for the patients on what would be the next steps for them.

Two factors were highlighted by Dr. Bejasa that can account to the increased wait time for patients. First is the manual process of registration all though out the outpatient care. In 2023, all the registration is still done by pen and paper. Second factor highlighted is lack of directions for the patients once their number gets called. If the patient is unaware of the step-by-step process, which is usually the case, they are left to wander in the hospital adding time before they can receive their medical needs.

Deep Dive on the Problem

In the year 2023, it would have been safe to assume the presence of digital queuing management system in healthcare facilities, from urgent care facilities to hospitals. Even in 1996, there was

already a paper regarding the use of computer simulation in managing queues in out-patient departments. (Aharonson-Daniel et al., 1996) But in a developing country like the Philippines, this is currently not the case for majority of the healthcare facilities including major government hospitals. Now, let's break down the issue in terms of process, tools and technology.

Process

With regards to outpatient management process, the documentation of the step-by-step procedure and is available in BatMC's citizen's chapter. The citizen's chapter is a 500-page manual published on BatMC's website and it acts as a "bible" for all information needed. A sample content of this would that in figures 1 and 2. Despite the public availability, people have minimal to no awareness of its existence. Aside from the document, which was difficult to digest, there are no existing postings or trainings regarding the outpatient care processes that the public can revert to. As a result, public's tendency is to travel and go to the hospital personally to just ask for the process. Documentation of the process is one thing, execution is another. From my discussion with Dr. Bejasa, after their initial registration and triage, patients tend to be at a loss due to the lack of directions from the people managing the triage once their numbers are called. This has caused patients to be wandering around the hospital asking for the next steps or overcrowding an area in the hospital that they are not supposed to be in. Logistics then can be a factor that was not considered in the plotting of the process.

Tools and Technology

Paper-based process. That is the current state in which BatMC in in 2023. From initial registration, to filling out of forms, everything is manually done by patients. From a study done in the Philippine General Hospital (Cenizal, 2019), total time spent by patients registering in the whole outpatient process is 20 minutes. This is due to unconsolidated registration that may be overlapping and repetitive for the patients. With the registration being manual, the queuing system used is manual as well. As shared previously, BatMC, uses the batch queuing approach where patients are being called by batch which is beneficial in managing the density of people as well as the managing the internal resources that would handle the patients. The issue comes after the initial triage. Coming back to the lack of system, tools and process provided by BatMC to educate the public, the people

end up being confused and lost in the process. The current queuing system, in short, is just not sufficient for the whole outpatient care process.

**Proposed Innovation**

Process Reengineering

In business context, process reengineering is the radical redesign of business process to achieve dramatic improvements in productivity, cycle times, quality, and employee and customer satisfaction. (*Business Process Reengineering*, 2023) This is a well-known concept alongside process improvement being practiced by different industries where the processes are being reassessed quarterly, annually or depending on the timing set by the business to measure which steps in the process are working and not working. Once reevaluated, changes and improvements are then implemented to keep the processes put in place efficient which then results to increase in productivity and stakeholder satisfaction.

In the case of the outpatient management in BatMC, process reassessments can help in measuring if the processes in place are working for and against their all their stakeholders. This would not only consider if the steps are complete for each medical procedure necessary which may already be the current case but will also consider other factors such as logistics and material and human resources. They can look into the Lean Six Sigma approach that which is a popular approach that improves employee and company performance by eliminating the waste of resources and process/products defects. (Kenton, 2023) This may not be an obvious improvement that a hospital may look into but process improvements are necessary and can be applied no matter what industry it is.

Process Documentation

Documentation in general in a hospital or healthcare setting in not an uncommon concept. A standard operating procedure or a step-by-step documentation, in fact, is necessary as it tells who, what, where, when and how to operate or how a procedure in a designated area when a specific circumstance arise. Regardless of the medical field, following such procedures is part of the responsibility of the healthcare providers. (DigitalisAdmin, 2022)

This is the reason why the step-by-step procedure published in the citizen's charter of BatMC makes sense from a health provider perspective. But in order to address the issue or patient unawareness, such process and procedures should have a version that the public can easily digest. As the hospital is catering to different people with different intellect level as their audience, the process documentation and visualizations for each procedure should match that need. This redesign of process in the documentation may entail breaking down the steps to a level that the patients can easily understand and that they can easily follow. Including flow charts or process flow diagrams are common practice in visualizing a process in helping to better communicate what is needed between people involved within the same process in addition to developing better understanding of how the process is done. (ASQ, n.d.) This, of course, is also not an uncommon concept in the medical field. Sample flow chart below from the Clinical Excellence Commission. (Clinical Excellence Commission, n.d.)
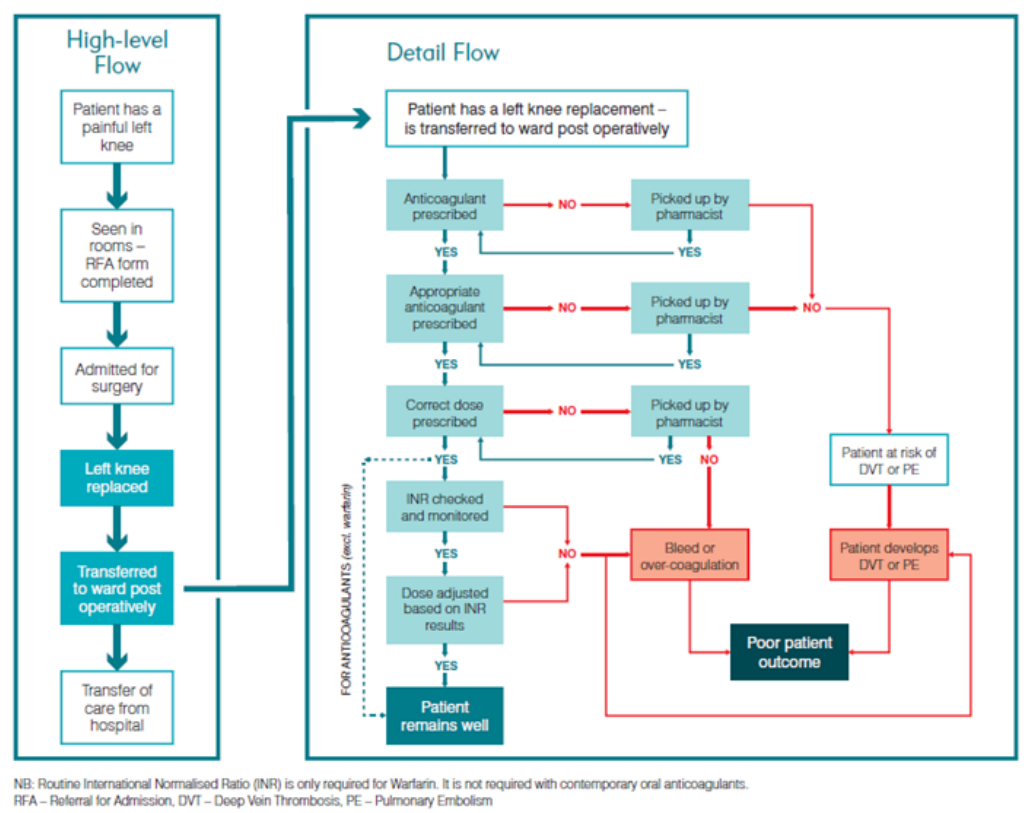
Figure 4. Flowchart of Patient Journey
(Clinical Excellence Commission)

Digitization of the Queuing Management System

In addition to the process itself, as uncovered in the research, has been manual and has been mainly paper-based. Introduction of digital registration, scheduling and queuing is already definitely a seen necessity. Locally, in the Philippines, this is already the practice for some of the biggest private hospitals such as Makati Medical Center (MMC). As seen in the figure 5, MMC has provided its clients an option to schedule their appointments online. This would provide them a specific time when they need to be in the hospital as compared to having to wait for a slot for several hours. In addition to this, patients can already provide their information including insurance aids in the efficiency of the process once they are in the hospital. Apart from the online scheduling, they also provided options for pay and get the patients results online which provides accessibility for people who cannot go to the hospital physically to make such transactions.
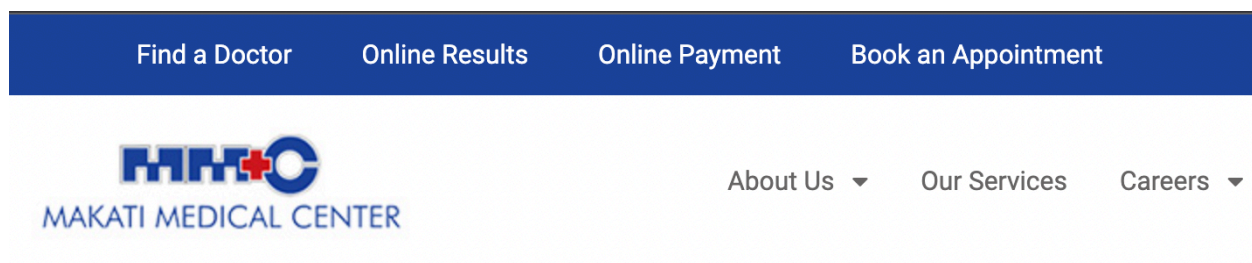

Figure 5. Makati Medical Center Online Patient Services

Onsite, digital queuing management systems is a much popular approach in managing density of customers and resources. Establishments like banks use kiosks where customers can enter their information and the needed service. Once completed, the kiosk will then provide them a number that will be called out once it's their turn. In addition to the registration desks, BatMC can incorporate such kioks in the initial registration to help manage the registration process not just managing the people but also being able to digitize the information which if they need to have a physical copy can just be printed out.

Feasibility of the Proposed Solutions

The idea of the implementation of the proposed solution is exciting but to think that said implementation would not have any constraint would be too ideal. In this section we'll look into the feasibility of the implementation of these said proposed solutions.

There are several factors that we need to investigate to assess the feasibility of these solutions. Here are a few:

1. *Required Human Resources*

   Before implementing changes especially in the process, the management needs to consider the human resources that would be managing any foreseen additional steps necessary to make the process more efficient. Even the process of reevaluating the processes to ensure its efficiency would take an extra load to all departments involved. Each department then in BatMC would need to allocate resources for this job. In addition to the reassessment done individually by each of the department, extra load would be required from the admin office of the hospital which can mean additional people that would help with the job.

2. *Process and Technology Training*

   Part of managing changes is the training. Especially in the implementation of new technology and improved process, changes need to be communicated to all the people involved or its stakeholders. Aside from the healthcare providers and hospital personnel, as this is one of the key issues defined, changes need to be communicated to the public. This is where the visualizations such as process flow diagrams would come in handy. Training regarding new tools and process would ensure the proper use of the implemented solutions.

3. *Cybersecurity*

   When it comes to digitization, cybersecurity is an automatic risk. This risk could range from data breaches, cyberattacks, which unfortunately has been a common occurrence in the Philippines recently, to privacy issues and unauthorized use of medical records. Because of these risks, BatMC need to also consider information technology resources that would be able to prevent such issues. Currently, according to Dr. Bejasa, the IT team of the hospital only tends to basic IT issues that the hospital is experiencing therefore the implementation of the propose would require BatMC to build a bigger information technology team to support the system.

4. *Funding*

Addressing the elephant in the room, the budget is the main factor that needs to be considered in the implementation of these improvements. According to Dr. Bejasa, it's not that government hospitals do not receive funding, it's that the priority of BatMC, specifically, is on the acquisitions of equipment that can cost millions of pesos. Even digitizing their medical charts, that doctors have requested, has not materialized because of this. This of course, falls under the priority setting of the management. Efficient patient management has for several years been traded off for better hospital equipment.

In a study during the pandemic, the PBMA or the Program Budget and Marginal Analysis was used as a formal approach to set priorities and allocate resources in a healthcare facility. (Mitton et al., 2021)
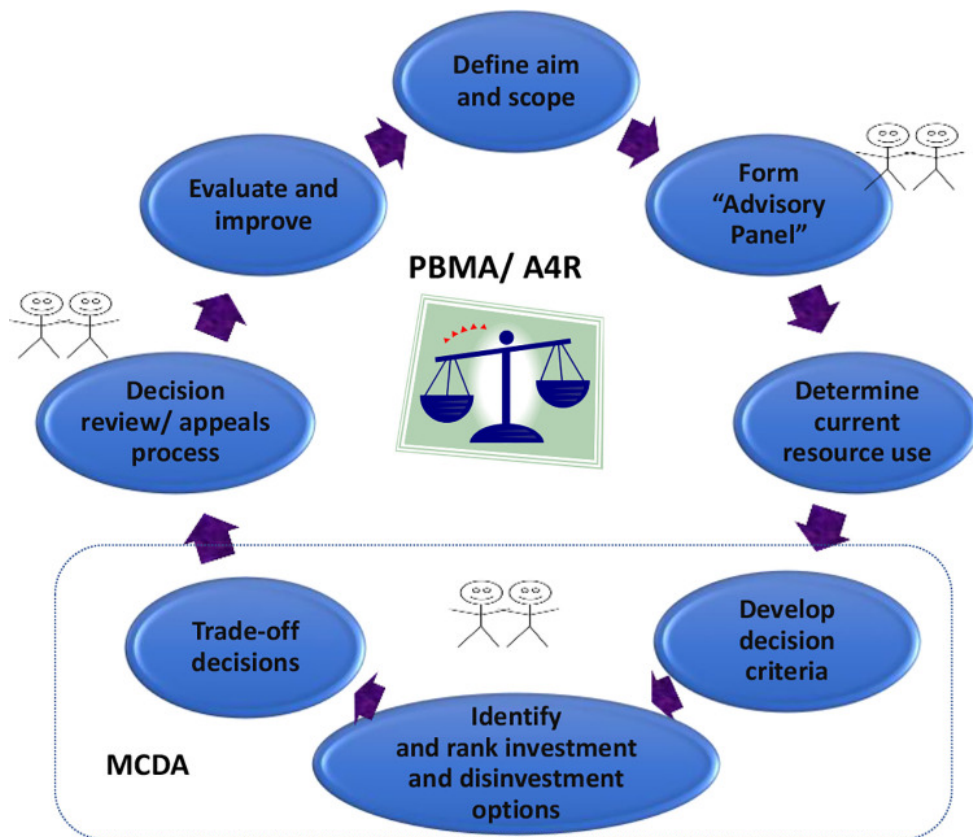

Figure 6. PBMA Process Approach

The PBMA eight step approach may be a helpful approach in assessing the urgency of need for the proposed solutions.

5. *Possible Partnerships*

Public-Private Partnerships involve collaboration between government agency and a private sector company that can be used to finance, build, and operate projects. This allows big-scale public projects to be completed with private resources. (Investopedia, 2022) BatMC can work with private companies like Novostorm Technologies Inc. who currently works in the healthcare space in patient flow tracking solutions. (Novostorm Tech, n.d.) Aside from private companies, BatMC can work with educational institutions such as Batangas State University or Lyceum of Batangas in providing analysis and assessment in their current processes.

Conclusion

According to Zendesk, customer service is the support you offer to its customer from the moment they first contact your business to the months and years afterward. Healthcare, in itself, is customer service, and it does not only refer to the moment the patient is being treated but the overall process once the patient made contact with the healthcare provider.

For BatMC to give priority to these solutions, they will be giving priority to their customers, the public. This would bring a holistic approach in providing care to its customers and be adding value to the overall health of the hospital. Aside from that with BatMC as the main tertiary hospitals in the region and one of the main ones in the Philippines, this would set an example of what other healthcare facilities can provide the public. BatMC can lead the innovation in health care not only for government and private hospitals in Batangas but also for the whole country.

References

Health & Human Services – Career and Professional Development | Emory University. (n.d.).

    Career and Professional Development | Emory University.

    https://cpd.emory.edu/channels/health/

Definitive Healthcare. (n.d.). *Definition of outpatient care*.

    https://www.definitivehc.com/resources/glossary/outpatient-care

Reis, M. (2023, August 24). *The growing impact of outpatient care*. Matthews[TM].

    https://www.matthews.com/thought-leadership-the-growing-impact-of-outpatient-

    care/#:~:text=Furthermore%2C%20there%20is%20a%20projected,that%20of%20the%2

    0general%20population.

Historical Background. (n.d.).

    https://batmc.doh.gov.ph/transparency-seal/historical-background

EFOI - Electronic Freedom of Information - request. (n.d.). eFOI - Electronic Freedom of

    Information.

    https://www.foi.gov.ph/requests/aglzfmVmb2ktcGhyHQsSB0NvbnRlbnQiEERPSC0yMj

    k0NDU0OTMxMjMM

Home. Registry. (n.d.).

    https://registry.healthresearch.ph/index.php/registry?view=research&layout=details&cid=

    2264

About us. (n.d.).

    https://www.pgh.gov.ph/about-us/

Business process reengineering. (2023, February 15). Bain.

    https://www.bain.com/insights/management-tools-business-process-

    reengineering/#:~:text=Business%20Process%20Reengineering%3F-

,Business%20Process%20Reengineering%20is%20the%20radical%20redesign%20of%2

0business%20processes,done%20to%20deliver%20customer%20value.

DigitalisAdmin. (2022, August 2). Standard Operating Procedures in Healthcare | Digitalis

Medical. *Digitalis Medical*. https://digitalismedical.com/blog/standard-operating-

procedures-in-

healthcare/#:~:text=An%20SOP%20tells%20who%2C%20what,is%20part%20of%20yo

ur%20responsibilities.

What is a flowchart? process flow diagrams & maps | ASQ. (n.d.).

https://asq.org/quality-resources/flowchart

Clinical Excellence Commission. (n.d.). *Flow Charts - Clinical Excellence Commission*.

https://www.cec.health.nsw.gov.au/CEC-Academy/quality-improvement-tools/flow-

charts

Makati Medical Center. (2023, September 4). *Home - Makati Medical Center*.

https://www.makatimed.net.ph/

Mitton, C., Donaldson, C., Dionne, F., & Peacock, S. (2021, September). *Addressing

prioritization in healthcare amidst a global pandemic*. Healthcare management forum.

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8392768/

Team, I. (2022, April 28). *Public-Private Partnerships (PPPs): definition, how they work, and

examples*. Investopedia. https://www.investopedia.com/terms/p/public-private-

partnerships.asp

Anania, T. (2023, September 14). *What is Customer Service?* Zendesk.

https://www.zendesk.com/blog/customer-service-

skills/#:~:text=Customer%20service%20definition-

,Customer%20service%20is%20the%20support%20you%20offer%20your%20customers%20from,informed%20decisions%20about%20your%20product.