AMERICAN UNIVERSITY OF BEIRUT MEDICAL CENTER: PATIENT TRANSPORT

Lina Daouk-Öyry, Dania Baba, Line Reda and Neil Yorke-Smith wrote this case solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

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In January 2013, on a quiet Monday afternoon, Arwa Bou Ali, clinical and patient affairs coordinator at the American University of Beirut Medical Center (AUBMC), was in her office when a knock at the door interrupted her work. An enraged man stormed in, threatening to sue the hospital for malpractice. Attempting to calm the man down, Bou Ali reassured him that she would do everything in her power to solve his problem. Visibly angry, the man explained that his wife — who was in urgent need of a computerized tomography (CT) scan — had been waiting for more than an hour to be transported to the radiology department of the medical center. Bou Ali immediately called the floor nurse manager to investigate the issue.

The manager explained that she had personally put the transport request through and followed up on it with several reminders to the transport team in order to emphasize the urgency of the situation, only to be told that the porters were unavailable due to multiple urgent requests received at the same time.

"How could there be no porters to accommodate all the requests when we have five patient transport teams spread around the medical center?" Bou Ali wondered. "How busy could they be to need one hour to reach a patient in a 350-bed medical center?" Was it a matter of a lack of resources or a simple case of mismanagement? The transport team, and its mishandling of the situation, angered Bou Ali. She went to the main transport team's base in person and made sure that a porter was sent immediately to take the patient to her CT scan. Bou Ali was determined to ensure that this situation never happened again and to create an exemplary patient transport team at AUBMC.

THE HEALTHCARE SECTOR: A CONTINOUS RISE IN DEMAND

According to research from global industry analysts, healthcare expenditures were forecasted to increase rapidly towards the end of the 2010s. Spending on health care in North America was expected to grow to an average of 4.9 per cent from 2014 to 2018. The most rapid growth rate was expected to occur in the Middle East, which was expected to see a growth of 8.7 per cent annually from 2014 to 2018, nearly double that of North America.

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The availability of new drugs, higher health insurance premiums and advanced technology services led to increased spending and higher investments by the healthcare industry. Due to the world's aging population, the demand for healthcare services and medical professionals was expected to continue to rise.[1]

Lebanon was internationally renowned for its hospitals and medical care.[2] Its healthcare sector experienced the pressures of increased demand, and the sector enjoyed the availability of highly competent physicians and qualified hospital staff, as well as a number of well equipped and well managed private healthcare institutions like AUBMC.

Lebanon was known to be a "regional leader in healthcare. The standard of healthcare in Lebanon [was] world-class. It [had] one of the better quality healthcare sectors in the [Middle East], [enjoyed] a growing health tourism and cosmetic surgery sector, and [spent] a noteworthy percentage of gross domestic product on health care, the highest rate in the Middle East and North African region."[3] According to the Agency for Investment and Development in Lebanon, the health tourism sector grew by approximately 30 per cent in 2011.[4] World Bank data indicated that Lebanon's healthcare system was amongst the best performing in developing and emerging economies in 2013. Furthermore, it was the first Middle Eastern country to boast the availability of 3.5 physicians per 1,000 individuals. Worldwide, Lebanon was ranked 26th out of 181 countries surveyed. This positioned the country as an increasingly attractive destination for healthcare services and procedures.[5]

According to data published in 2012, Lebanon's 177 private hospitals reported a ratio of four beds per 1,000 people.[6] Official numbers published by Byblos Bank Group[7] indicated that by the end of 2011, the number of beds in public hospitals in Lebanon was 2,550. However, according to Sleiman Haroun, president of the Lebanese Association of Private Hospitals, this number was inflated — he indicated that the number of public hospital beds was actually closer to 1,400.[8]

The number of private beds per person was considered high compared to other countries in the Middle East, but the beds were not equally or adequately assigned. A higher concentration of hospitals were focused in the capital, Beirut, and the surrounding area. Bed management and superior medical care were considered important in order to ensure efficient patient turnover and meet the continuous rise in demand for health services in the country.

According to AUBMC administration, the average in-patient occupancy rate of the medical center was around 72 per cent in 2014. This number was relatively acceptable when compared to an average occupancy of 67.8 per cent in U.S. hospitals[9] and 75.5 per cent in European hospitals in 2009.[10]

As part of service quality improvements at a national level, the Lebanese Ministry of Public Health (MoPH) developed a process for evaluating the quality of patient care in public and private hospitals. This was done through a policy known as hospital accreditation. Under this policy, launched in 2002, the MoPH became the main regulator of the sector, whereby private institutions had to receive accreditation every two years.[11] MoPH accreditation involved establishing a framework and foundation for consistent quality practice. This was also associated with the introduction of outcome indicators that reflected directly on the quality of hospital care delivery at each hospital assessed.[12]

Building on a Legacy with a New Vision

AUBMC (formerly known as American University Hospital) was a 350-bed medical center that had provided healthcare services to patients across Lebanon and the region since 1902.[13] It was the teaching medical center affiliated with the American University of Beirut, established in 1867, and had trained

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generations of physicians who practiced in hospitals around the world. AUBMC's class size was 63 residents and fellows in 2010.

As mentioned in the AUBMC 2020 vision report:

> In 2014, AUBMC was the only medical institution in the Middle East to have earned the three international accreditations of the Joint Commission International (JCI), Magnet and the College of American Pathologists (CAP), attesting to its superior standards in patient-centered care.[14]

With such a legacy came tremendous responsibility for the leaders at AUBMC. They wanted to continue to provide the highest standard of patient-centered care, education and research.

Soon after his appointment in 2009, the dean of medicine and vice president of medical affairs at the American University of Beirut, Dr. Mohamed Sayegh, drafted a document for AUBMC called "2020 Vision."[15] This vision aimed to enhance the delivery of health care in the region for the next 100 years. As stated in the 2020 vision report, the aim was to do this by maintaining a "strong commitment to remain[ing] the leading provider of healthcare, medical education, and innovative research both locally and in the region."[16] Sayegh, a graduate of Harvard Medical School, stated: "Our AUBMC 2020 Vision is to be the leading academic medical center in Lebanon and the region by delivering excellence in patient-centered care, outstanding education and innovative research."[17]

An integral part of the plan was the expansion of AUBMC into a 600-bed medical complex with specialized centers for high-profile areas of practice such as oncology, neuroscience and cardiovascular disease.[18] The plan also aimed to recruit high-caliber, highly specialized and accomplished faculty that would be composed of professionals from medicine and allied health fields. By 2012, AUBMC had managed to attract more than 80 Lebanese physicians and biomedical scientists, an unprecedented reversal of the emigration of educated professionals that had plagued the country.[19]

Quality Improvements: A Focus on Patient Satisfaction

In line with the 2020 Vision, a large-scale quality improvement project was launched by Dr. Adnan Tahir, the medical center director and chief medical officer at AUBMC, in 2010, in order to enhance operations and service provisions at the medical center.[20]

A greater focus on the changing needs of patients and the delivery of patient-centered care was perceived as a crucial component of the new 2020 Vision. This focus included setting new standards for service delivery and continuously updating and changing systems based on patient needs. As a result, Tahir planned for the establishment of the Patient Affairs Office in 2010, to ensure that the needs and satisfaction of patients were at the core of the institution and its operations. As highlighted by Tahir, "Patients come to us in a time of need; they entrust us with their lives. It is our duty and obligation to meet and exceed their expectations by delivering high-quality care that is safe, effective and timely. We will aim [to] [deliver] care that will attain the highest level of patient satisfaction and comfort."

Directed by Dr. Maher Soubra, the Patient Affairs Office offered a wide range of services (see Exhibit 1). As noted by Bou Ali,

> We are looking to become one of the best medical centers in the region by providing patients with the best level of medical care and patient services [to] ensure high satisfaction. Our unit was created

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to serve patients in accordance with the new AUBMC 2020 vision that places patients at the core of all [of] the medical center's operations.

The mission of the Patient Affairs Office was "to promote and ensure patient satisfaction at all times, and guarantee that the patient's stay at AUBMC is the very best compared to the level of service provided by other hospitals in the region. [We will do this] by following a patient-centered care approach while maintaining service excellence."

PATIENT TRANSPORT

Like many other businesses, hospitals were becoming more interested in improving their patients' satisfaction and achieving high levels of service quality and excellence. AUBMC's Patient Affairs Office was an example of this trend towards greater patient service.

Patient transport played an important role in patients' perceptions of the hospital services because it was a point of contact for most in-patients — and thus an opportunity to make a lasting impression upon them. In fact, "patient transport issues [were] unique in that they [tended] to involve most units and departments, affect most patient-related processes and have a direct impact on patient satisfaction."[21]

Patient transport was critical for the core operation of the hospital, as safe and on-time delivery of patients to clinical appointments, their rooms and other locations was essential for the efficient functioning of all departments. As Bou Ali explained: "the management of patient transportation and patient flow was so crucial to hospitals that it was even mandated as part of JCI's accreditation requirements."

Dysfunctional patient transport in hospitals led to delays in procedures and patient and family dissatisfaction, as well as staff frustration and decreased productivity.[22] All of the negative outcomes were viewed as avoidable, provided that those in charge of operations at the hospital created an efficient and structured patient transportation program.

An efficient patient transport structure provided many benefits:

- Increased productivity for nurses, clinical department personnel and transportation staff.
- Improved coordination between nursing units and departments.
- Improved patient safety.
- Increased patient satisfaction.
- Increased bed availability.[23]

The matter of patient transport had financial implications for medical institutions because it directly impacted bed availability. Effective bed management required effective coordination between staff members and other various units in the medical center. Efficient communication and proper management of the transport teams contributed to enhanced efficiency and an improvement in service levels.

Following a rise in the number of complaints related to transportation, the Office of Patient Affairs — in collaboration with the office of the medical center director — launched a quality-improvement project led by Bou Ali under the supervision of Soubra and Tahir. They wanted to decrease patient waiting times and were willing to revisit the management structure of the current transportation services.

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PATIENT TRANSPORT AT AUBMC

To begin the investigation of the challenges faced by the patient transport unit (PTU), Bou Ali went through all of the filed patient complaints and categorized them. The majority of complaints centered on the long wait times for patients to be transported to specific destinations in AUBMC. In addition to the patient complaints, hospital staff had also complained about a number of transport jobs that had gone unattended. Another issue that emerged during her research was that staff members were dissatisfied with "double bookings" — i.e., when the porter reached the destination only to find that the transport request had been attended to by someone else. Bou Ali's research revealed several points upon which she could make improvements for the medical center's patients and its staff.

Following this analysis, Bou Ali sent a survey to all managers responsible for patient transportation that requested information about the full function of the PTU. As a result, she developed a description of the PTU that would aid her in addressing the problems at hand.

The PTU at AUBMC was decentralized into five main teams: rescue, emergency department (ED), operating room (OR), radiology and courtesy department (see Exhibits 2 and 3). Each team functioned and was managed as an independent entity that had its own autonomous transportation staff. The teams consisted of porters, orderlies and nurse aides. Porters took patients from one location to another; they did not prepare patients, but simply transported them around the hospital. Orderlies mainly prepared the patients to be transported; they did not usually transport them except in case of a shortage in the available porters. The staff also included nurse aides, whose role on the team was primarily administrative.

Porters covered various areas within the medical center, starting with the two medical center buildings (phase I and phase II) consisting of 10 floors. Except for the first (street level) and second floors, phase I and phase II buildings were connected internally at every floor (see Exhibit 4). In addition, the transport teams also covered the basement. The basement connected both buildings and housed the radiology department and the OR, which generated a high concentration of transport requests. Finally, porters were also responsible for the auxiliary Building 56 (not seen in Exhibit 4, as the building was due to be replaced by 2020).

The general process of transporting patients started when a transport request was placed with one of the five teams, depending on the patient's location. A porter was then dispatched from the porters' base to the patient's location, where the porter would collect and transport the patient to a specific destination in the medical center. The process ended when the porter returned to the base. Porters used one of four available elevators at the medical center in order to reach patients' locations.

AUBMC operated on a three-shift system. Most departments, including physical therapy, operated their main services during the day shift, whereas the ED and its team operated 24 hours a day, seven days a week. This was a crucial factor when considering the performance of the transport teams. Bou Ali explained the approach used to determine the current waiting times: "I arranged for porters to be shadowed in order to collect data . . . . Over a period of 16 weeks, 550 [porters] were shadowed . . . . This allowed us to record all . . . time measures which . . . [enabled] us to conduct [a] proper analysis." The process of moving a patient from one point to another was actually quite complex (see Exhibit 5).

Some of the elements of this process differed from one team within the PTU to another; for instance, in the ED, the transport request was usually placed by patients or their companions upon arrival at the medical center, as opposed to being made by a staff member on their behalf. In the OR and outpatient support units, nurses quickly handed transport requests to orderlies who were responsible for transporting patients in that

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department. Orderlies were also responsible for positioning and lifting patients, cleaning accessories and assisting the clinical team whenever needed.

The transportation process varied slightly in the radiology unit, where the process started when the physician placed a request in the computer system. The receptionist called the orderlies' call center (i.e. the receptionist in charge of orderlies) to ask for patient transport based on site readiness. The orderly then transported the patient to the assigned radiology section and returned to the receptionist. Later, the radiographer or section receptionist called the orderlies' call center once the radiology exam was completed and asked for the patient to be transported again.

HOW TO IMPROVE PATIENT TRANSPORT?

Following her investigation, Bou Ali organized a meeting with Tahir and Soubra to discuss the data. Before suggesting any changes, they all agreed that they wanted to focus on the improvement of key performance indicators that stemmed from AUBMC's 2020 Vision and the goals outlined therein (see Exhibit 6).

The three hospital employees asked many important questions during their meeting. What kind of changes could be made to the patient transport process? What additional data was needed? What measures should be tracked? What action plan should AUBMC implement? Where might problems arise? The answers to these questions would provide the foundation of an action plan to solve the transportation problems and improve patient care, services levels and AUBMC's overall success.

This case was sponsored by the Evidence-based Healthcare Management Unit (EHMU) at the American University of Beirut.

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EXHIBIT 1: PATIENT AFFAIRS

Patient Advocacy	AUBMC patient advocates are available to manage patient concerns and assure that all of their expectations are met.
Complaint Management	Our goal is to ensure that our patients have the most pleasant stay possible. If you have any concerns while at AUBMC please do not hesitate to share it with us. All matters raised will be followed up in a strictly confidential manner.
International Patients' Service	The International Patients' Service at AUBMC aims to provide international patients and their families with excellent, accessible and comprehensive healthcare services, by promoting a positive, pleasant and comfortable experience before, during and after the patient's visit.
Patient Education	The Patient Education Program at AUBMC is dedicated to educating patients and their families about healthcare in every possible way. We ensure that our patients and their families are provided with the necessary knowledge and skills to participate in their care and improve their health.
Patient Satisfaction Survey	AUBMC conducts patient satisfaction surveys to assess and acquire the patient's perspective of the services provided at our medical center. Inpatient Satisfaction Surveys are being conducted on a quarterly basis. The interviews are performed with randomly selected patients discharged from AUBMC through telephone calls within 48 hours of discharge. Our Inpatient Satisfaction Survey is based on HCAHPS (Hospital Consumer Assessment of Healthcare Providers and Systems), JCI and Magnet requirements. Outpatient Satisfaction Surveys are also being conducted on a semi-annual basis for a randomly selected group of patients who visit our Private Clinics and Family Medicine Department.
Room Service	AUBMC is currently offering room service for our hospitalized patients.
Courtesy Service	Courtesy officers are the first point of contact with patients, families, and visitors. The role of the Courtesy Officer is to meet, greet, and direct or escort patients and visitors to the different areas of the medical center.
Volunteer and lend a helping hand	The Courtesy service at AUBMC welcomes volunteers from universities and schools.

Source: University of Beirut Medical Center, "Patient Affairs Office," www.aubmc.org.lb/patientcare/adm_ser/Pages/pao.aspx, accessed August 27, 2015.

EXHIBIT 2: PATIENT TRANSPORT TEAMS: OVERVIEW (ESTIMATES COMPUTED BASED ON MANAGERIAL ASSUMPTIONS)

Transport Team	Number of porters	Estimated Time dedicated to transport duties	Estimated workload distribution by shift
Rescue Team	• Day and Evening shifts • 2 to 3 porters in each shift	68.3%	• Day shift: 65% of requests • Evening shift: 35% of requests
ED	• Day shift: 3 porters (1 medical, 1 surgery, 1 standing outside) • Evening shift: 3 porters • Night shift: 2 porters	79.0%	• Day shift: 40% • Evening shift: 50% • Night shift: 10%
Radiology	• Day shift: 7 porters • Evening shift: 3 porters	61.3%	• Day shift: 60% • Evening shift: 40%
Courtesy	• Day shift: 1 porter	-	• Day shift100%

Source: Created by authors, based on a survey circulated to all transport units at AUBMC in 2012.

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EXHIBIT 3: PATIENT TRANSPORT TEAMS: DETAILS

	Employees	Resources	Location	Transports patient (To and from)
Rescue team	20 Employees: • Messengers (n=4: 2 nurse aides + two orderlies) • Transport (n=13: 3 NAs + 10 orderlies) • Floor clerks (n=3: to cover desk and enter data)	• Wheel chairs (n=2) + Department wheel chairs used in transportation • Stretchers from different nursing units • Desktop computer (n=1) • Telephone (n=1)	Phase II, 1st floor, Room 108	• Main lobby • Between the various nursing units • Procedural areas
Courtesy	*8 employees* • 5 Courtesy Officers (3 casual)	• Wheel chairs (n=3) • Pagers (n=4) • Desktop computers (n=2)	Entrances of Phase I, Phase II, and Building 56	• From any entrance to any requested service at AUBMC
ED	15 Employees: • Porters • Nurse aides	• Wheel chairs (n=8) • Stretchers (n=29) • Oxygen Tanks (n=4) • IV Stands (n=27) • Monitors (n=5) • Respirators (n=2) • IV Pumps (n=26) • Pager (n=1)	Emergency Department (level 1)	• Hospital Units • Radiology • Operating Room • Vascular Lab • Pulmonary Lab • Endoscopy • Private Clinics • Physiotherapy • Radiotherapy • Nephrology Unit • Morgue • Infirmary • Cardiac Lab
OR	1 employee: • One orderly handles most of the transportation • Help is provided by floor clerks and nurses	Stretchers (n=34)	Operating Room (basement)	Operating Room
Radiology	10 Employees • Orderlies (n=10) (6 casuals and 4 fixed contracts)	• Wheel chairs (n=9) • Stretchers (n=5) • Pager (n=1) • X-ray portable machine (n=2)	Radiology department lounge (basement)	• All floors (except from ED)

Source: Created by authors, based on a survey circulated to all transport units at AUBMC in 2012.

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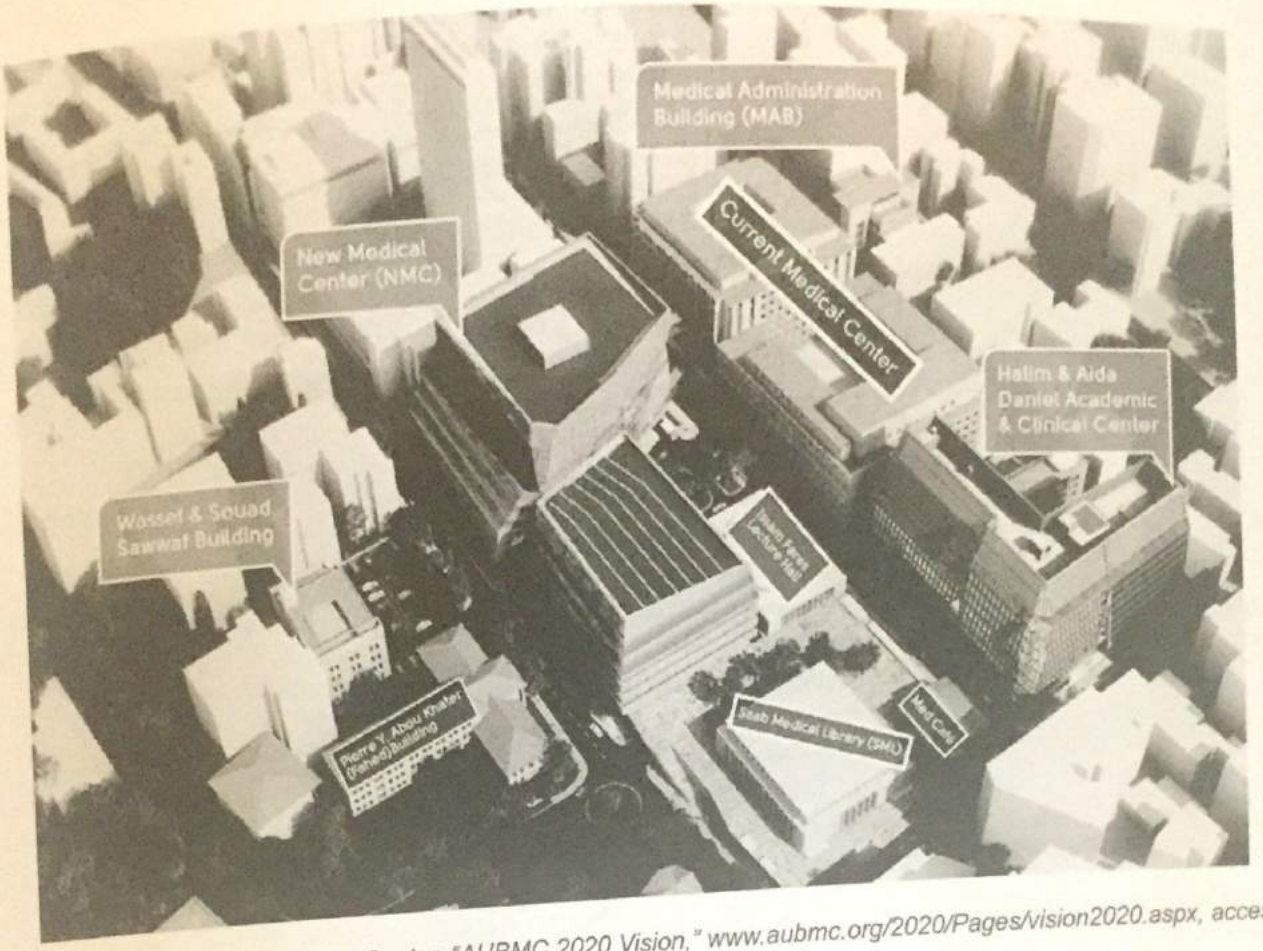
EXHIBIT 4: AUBMC GENERAL MAP



Source: University of Beirut Medical Center, "AUBMC 2020 Vision," www.aubmc.org/2020/Pages/vision2020.aspx, accessed August 28, 2015.

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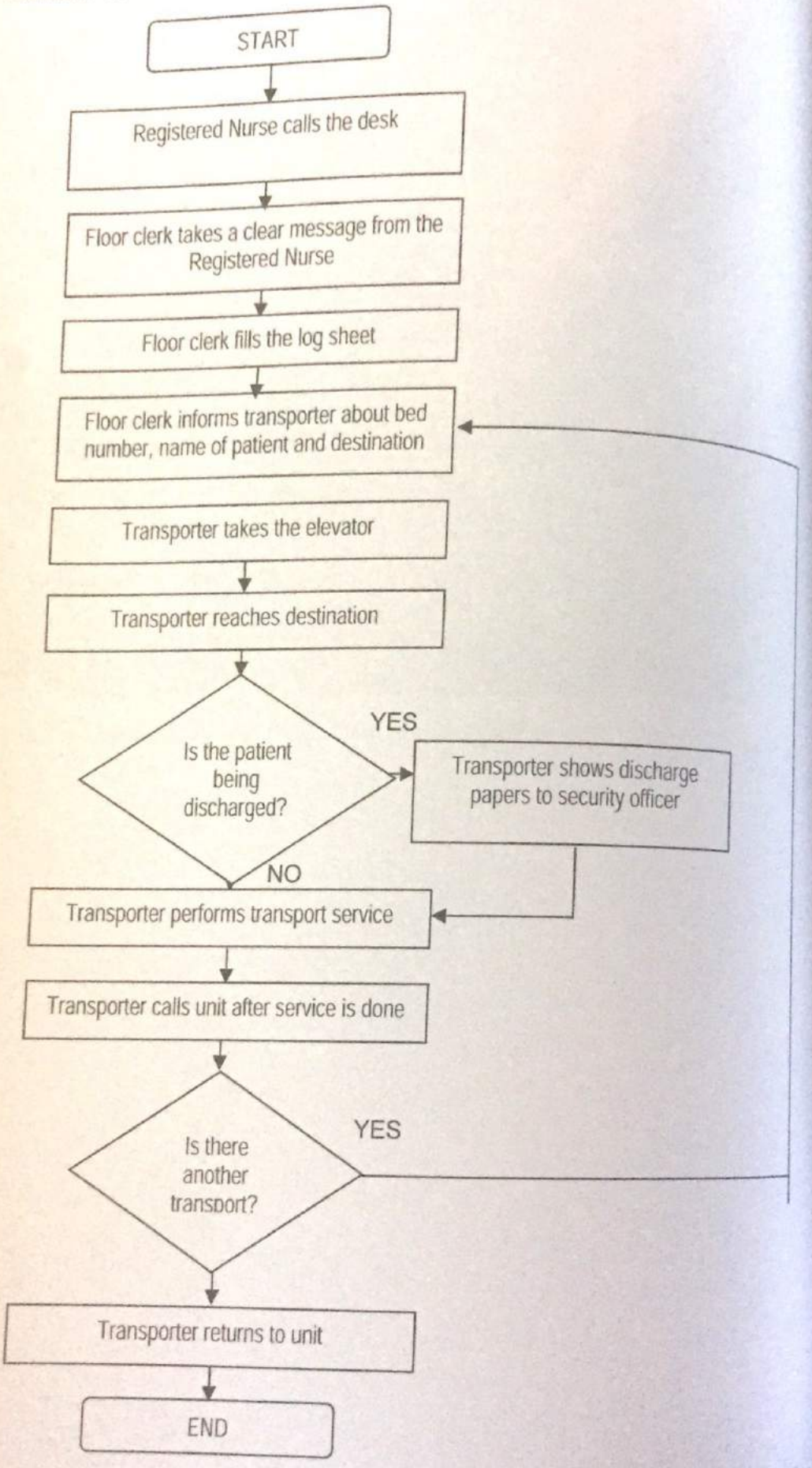
EXHIBIT 5: TRANSPORT PROCESS FLOW CHART



Source: Created by authors based on direct observations.

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EXHIBIT 6: AUBMC GOALS

AUBMC GOAL #1	Patient-Centered Care
AUBMC GOAL #2	Quality and Safety
AUBMC GOAL #3	Service Excellence
AUBMC GOAL #4	Operational Efficiency
AUBMC GOAL #5	Financial Performance to Support our Mission

urce: Created by authors based on the goals set by AUBMC administration.

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