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Evaluation of the Management of Donated Medical Equipment Supply Processes at the Ministry of Health in the Gaza Strip

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Dedication

This thesis is affectionately dedicated:

*To the soul of my beloved **Mother**, **Father** and **Aunt** for their prayers, motivation, and support,*

*To my dearest **wife** for her inspiration, and enormous support,*

*To my sweet and lovely kids; **Ameera, Abed AL-Rahman, Yousef, Salma, and Lama,***

*To my **brothers, sisters** and their **families** for their encouragement and incredible support,*

To my relatives, friends, colleagues,

To health team in my humanitarian organization that I am proud of, the International Committee of the Red Cross,

To all MoH staff and key informants who participated in this study, and I hope that my study will contribute to improving the effectiveness and efficiency of donation process management at the MoH,

To everyone who supported me to complete my study successfully.

Declaration

I certify that this thesis submitted for the degree of Master, is the result of my own research, except where otherwise acknowledged, and that this thesis (or any part of the same) has not been submitted for a higher degree to any other university or institution.

Signed:

Akram Abed Al-Salam Al Kahlout

Date 20/04/2021

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Abstract

Like many developing countries, Palestine greatly depends on donor aids to satisfy medical equipment needs for its healthcare system. Supply processes of donated medical equipment are managed as per different regulatory policies and guidelines. This creates some practical challenges, as the ministry of health and donors' processes to precure and supply equipment are different. Keeping these issues at the center of attention, the current study aims to evaluate the management of donated medical equipment supply processes at the ministry of health in the Gaza Strip to propose recommendations that could enhance the management of equipment donation processes.

A descriptive, cross-sectional mixed-method study design was used. For the quantitative data; questionnaires were completed by census enrolled 60 ministry of health staff involved in the medical equipment donation. The qualitative data were collected through in-depth interviews enrolled seven from ministry of health and five donor's key informants, A pilot study was carried out with about 10% of the study population, official approval to conduct the study was obtained from School of Public Health at Al-Quds University and the Helsinki Committee. The quantitative data were analyzed using SPSS software and the qualitative data were analyzed using open coding thematic technique.

The study revealed that there are policies that regulate the donation processes as stated by 80% of the participants, while 39.6% of them think that these policies are communicated to the donors. The study showed that less than two-thirds of the participants confirmed the regular planning process of their needs by ministry of health. Furthermore, participants' satisfaction with their involvement in the donor's planning was 59.4%. The participants' perception of the planning process affected by their profession as difference between doctors and other professions means scores was statistically significant (p=0.002).

The result showed that ministry of health effective inventory and custody system is available as indicated by 98.3% of the participants. Moreover, 96.7% of the participants confirmed that there are committees for technical specifications setting. The study revealed that 86.7% of the participants said that there is a clear ministry of health purchase and awarding process.

The findings showed that delivery of equipment to the ministry of health warehouse is centralized as stated by 88.43% of the participants. Positive participants' perception towards the information sharing by donors was reflected by 72.2%. The participants' satisfaction with the donation processes management was affected by their working place as the difference between hospitals and other places means scores was statistically significant (p=0.048).

Findings from the in-depth interviews were consistent with quantitative data. It provided clear explanations and feasible suggestions to bridge the gaps in processes management. Diverse themes were identified to deliver valuable overview like communication gaps, limited participation of staff and shortage of information on donations. Various stakeholder's perceptions were shared as one key informant stated "Despite difficulties we face in processing our donations, but we can see that there are improvements over the past years, and we hope to overcome existing gaps in the future".

The study concluded that despite the stakeholder's good performance in processing equipment donation, some gaps in the management of these processes were identified, such as ineffective communication among the ministry of health structures, and between the ministry of health and donors, poor participation of the ministry of health during donor's planning and identification ministry of health needs. Lastly, lack of sufficient information from the donors on the donation.

The study recommends readjusting and re-introducing the ministry of health policies to the donors through active communications. The donors to strongly follow the donation policies and ensure ministry of health participation in the planning process. Lastly, donors to ensure information sharing with ministry of health on the donations.

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List of Abbreviations

BME	Bio-Medical Engineer.
CED	Central Engineering Department.
CLS	Central Logistics Store
CT	Computed Tomography.
GHA	General Hospitals Administration.
GS	Gaza Strip.
ICD	International Cooperation Department.
ICRC	International Committee of the Red Cross.
IR–UK	Islamic Relief – United Kingdom
MAP–UK	Medical Aid for Palestinians – United Kingdom
ME	Medical Equipment.
MoH	Ministry of Health.
MRI	Magnetic Resonance Imaging.
NGO	Non-Governmental Organization.
PCBS	Palestinian Central Bureau of Statistics.
PD	Procurement Department
PHC	Primary Health Care.
PNA	Palestinian National Authority.
PNGO	Palestinian Network of Non-Governmental Organizations.
QRCS	Qatari Red Crescent Society
SD	Standard Deviation.
SPSS	Statistical Package for Social Science.
UNRWA	United Nations Relief and Works Agency for Refugees of Palestine in the Near East.
USAID	United States Agency for International Development.
WB	West Bank.
WHO	World Health Organization.

Chapter One

Introduction

1.1 Background

Like many other developing countries, Palestine receives foreign aids and international assistance aiming to improve the Palestinian economy growth as well as achieving sustainable development goals including health. Palestine is a country with a fast-growing population and the demand for different public services like health is increasing, and as a result, the reliance on aids is increasing to meet the population's healthcare needs.

During the last decade, the healthcare system in the Gaza Strip is one of the most reliant sectors on foreign aids. The Palestinian National Authority (PNA) expenditures on health have become increasingly dependent on donor assistance – recent estimations indicate that up to 50% of the Palestinian Ministry of Health (MoH) recurrent expenditures are covered by donors (WHO, 2008).

Spending on health is very expensive world-widely as the cost of medications and medical devices extremely high including vary range of medical equipment starting from the basic to the sophisticated ones.

Medical equipment (ME) is a considerably vital and essential element of any modern functioning healthcare system as It provides an effective and efficient contribution in the prevention, diagnosis, treatment as well as rehabilitation stages (WHO, 2011b). Medical equipment supply management is a very important discipline, which requires assessment, strategic planning, evaluation, acquisition, utilization, maintenance, asset control, replacement planning, and quality assurance (Dyro, 2004).

WHO estimates that 80% of the medical equipment at the governmental healthcare facilities in many developing countries is funded by international donors or from foreign government donations aiming to help in improving the efficiency of those facilities in providing quality healthcare services to the population (WHO, 2011a).

To achieve the optimal outcome of the donations, the need for best practices and management of the medical equipment donation process becomes crucial and emphasizing developing articulated management guidelines for donation (WHO, 2011a). In a study performed in Gaza about perceptions of the MoH medical staff on the donated equipment, 32% of study respondents were not satisfied with the donated medical equipment, as it does not meet their needs (Murad, 2010).

Recognizing this important role of health technologies, the World Health Assembly adopted a resolution that covers issues arising from the inappropriate deployment and use of health technologies, and the need to establish priorities in the selection and management of health technologies, specifically medical devices (WHO, 2011a).

Despite valued efforts exerted by all stakeholders to better manage the medical equipment donation through a process, however, challenges remain critical during this process resulting in huge gaps including mismatch of the receipt needs, donation unwanted equipment models, and equipment of poor quality…etc.

1.2 Research problem

The governmental healthcare system in the Gaza Strip (GS) relies on foreign aids to a significant extent to improve its capacity towards adequate, sustainable, and quality healthcare services provided to the population. The aid providers are contributing with the donations through various activities, programs, and projects to enable the medical facilities to deliver quality and timely health services to the population. The vast majority of aids come in the form of medications, medical disposables, training, infrastructure projects, and medical equipment that are valued at billions of Dollars.

Although, this aid comes with the donors' good intentions, however, there are growing concerns that the objectives of the donations will not be positive as aimed for if the process management of the medical equipment donation is not well planned and coordinated (WHO, 2011a).

WHO strongly believes that appropriate supply processes management leads to a good donation practice and ensures achieving intended objectives of the donation. Moreover, good process management guarantees to eradicate a large fraction of associated with donation problems (WHO, 2000). Realizing that improvement of the process management is crucial, this can be achieved through enhancing the existing coordination and supply process between the receipt and donors (WHO, 2000).

Although, this aspect has been brought to the attention by WHO and other researchers world-widely, however, yet there is a critical need for addressing the gaps associated with donations supply to all stakeholders in the GS which include communication and coordination gaps, lack of information on the donations and lack of adequate knowledge on the supply processes carried out by different stockholders.

1.3 Research justification

Scarcity of resources and funds allocated for donations including medical equipment becoming an issue for the healthcare system in the GS and placing more burden on the struggling existing health sector and stressing urgently to apply efficient and effective aid supply management.

The donations' supply process management is an important aspect that needs to be considered when processing the donation to ensure maximum beneficial donations of equipment and avoid creating gaps associated with the medical equipment donation process, which include receiving inappropriate equipment, a different model from existing ones, lack of spare parts and other problems encountered during the overall donation process. Despite that, the donation is helping the health system to deliver quality care; however, the good donation process management will increase the effectiveness, efficiency of the system to deliver healthcare services to the patients with the support of donated equipment.

Up to the researcher's knowledge and his work in the field of equipment donation at the International Committee of the Red Cross (ICRC), there are gaps in the donation supply processes at the MoH which still challenging the donors in making effective and efficient donations.

On the other hand, based on the reviewed literature, Murad (2010), conducted a study in the GS context focusing in general on the evaluation of medical equipment management. Nevertheless, there is a need for a focusing study of the donation supply process management in governmental health and zoom-in on the gaps resulting from the mismanagement of the donation process.

Enhancing the management of the supply processes of donated equipment will benefit all stakeholders including donors and will promote trust and enlarge the investment in the medical equipment donations to the healthcare system in the GS.

1.4 Research objectives

1.4.1 General objective

Evaluate the management of donated medical equipment supply processes at the MoH in the GS to suggest improvement strategies that enhance the management of the supply process.

1.4.2 Specific objectives

1. To assess the management of donation supply processes of Medical Equipment at the MoH in the Gaza Strip.
2. To appraise the strengths and the weaknesses of the current donation supply practices.
3. To ascertain stakeholders' perspectives about the existing supply process
4. To explore variations in the supply processes across donors and recipients.
5. To suggest recommendations for decision makers in the MoH to adopt better practices in the process management based on the results of the study.

1.5 Research questions

1. What are the existing donation supply processes of medical equipment that MoH practices concerning donors?
2. What are the strengths of the current donation supply practices?
3. What are the weaknesses of the current donation supply practices?
4. What are the stakeholders' perspectives about the existing supply process?

5. Are there any variations in the donation supply process across the MoH and the donors and to what extent they vary?
6. Do the MoH levels participate in the entire donation supply process?
7. To what extent are the donated equipment meet MoH's preferences and requirements?
8. What should be done to make medical equipment donation supply processes more effective?

1.6 Context of the study

In this paragraph, the researcher provides a comprehensive overview of the Palestinian context in general and on the Gaza strip, in particular, to give a good overview and better understanding of the context and its history.

1.6.1 Socio-demography context

Palestine is a Middle Eastern nation-state covering approx. 27000 km^2 of land across the Gaza Strip and the West Bank and occupied by Israel land; historical Palestine shares borders with Jordan, Egypt, Lebanon, and Syria. The capital city is Jerusalem, with government administration being temporarily based in Ramallah following the Oslo accord. The government is a mixed presidential and parliamentary system. The accepted currencies in Palestine are Israeli shekels, Jordanian dinars, and US dollars (Annex 1).

The population of the State of Palestine is estimated at 5,038,918 people are living in the West Bank and Gaza that are under the National Palestinian Authority's control, with an average population density of 835 people per km2. The most populous city is the GS is Gaza City, with approx. 680,000 residents according to recent estimates (PCBS, 2020).

In the State of Palestine, the population is divided into two geographically separated regions of occupied territory, 3.1 million Palestinians live in the West Bank (59.8%) and 2.1 million Palestinians live in Gaza Strip (40.2%) at the end of 2020 (PCBS, 2020).

The GS is home to more than 2 million people; it has one of the highest population densities in the world. On average, some 5,533 people live on every square kilometer in the GS also has one of the world's youngest populations, with more than 41.2% younger than 15 years old (PCBS, 2020).

In the Occupied Territories, Gaza governorate has the second-highest population with 13.6% of the total population, which comes after Hebron with 15 % of the total population (PCBS, 2020). The GS is 41km (25 miles) long and 10km wide, resulting in 365 Sq. Km. enclave bounded by the Mediterranean Sea, Israel, and Egypt (Annex 2). Gross Domestic Product per Capita in 2018 was 1458 (USD), while Unemployment Rate for Population has reached 45.1%. (PCBS, 2020).

The GS comprises five governorates, which are geographically distributed from the north to the south of GS as Northern governorate (17% of GS area), Gaza governorate (20.3% of GS area), Middle area governorate (15% of GS area), Khan-Younis governorate (30.5% of GS area) and Rafah governorate (16.2% of GS area).

1.6.2 Healthcare system in Palestine

The Palestinian health system consists of four main sectors: the government health sector (the Palestinian Ministry of Health and Military Medical Services), the United Nations Relief and Works Agency, non-governmental organizations, and the private sector. These different sectors are involved in providing health care services to citizens in all levels: primary health care, secondary and tertiary health care. The Palestinian Ministry of Health

attaches great importance to maintaining the continuity of the Palestinian health system and providing comprehensive health services of high quality to all citizens (MoH, 2020).

1.6.2.1 Primary Health Care

Since 1994, the MoH is the official governmental responsible body for the management, regulation, and delivery of healthcare services. Primary Health Care (PHC) is comprehensive physical, psychological and social aspects, the essence of which is to provide care as a whole and the health needs of the citizen throughout his life, and not limited to a set of specific diseases. Primary health care ensures that people receive comprehensive health care, ranging from counselling and prevention to treatment (MoH,2020)

The number of primary healthcare centers (PHC) in Palestine reached 749 in 2019 out of which the MoH centers are 475 constituting 63.4% of the total while the number of primary health care centers managed by the NGOs is 192, constituting 25.6%. The number of UNRWA centers reached 65, constituting 8.7%. and the Military Medical centers reached 17 centers which constitutes 2.3% (MoH, 2020).

1.6.2.2 Secondary Health Care (Hospitals)

The MoH is considered the main provider of secondary health care services (hospitals) in Palestine. In 2019, the total number of hospitals in Palestine was 84 hospitals, 52 of them in West Bank, including East Jerusalem, which formed 61.9% of the total number of hospitals in Palestine. The total number of hospital beds in Palestine (including psychiatric and neurological hospitals) is 6,435, with rate of 12.9 beds for each 100,000 of populations (MoH, 2020).

The number of hospitals in the MoH is 28 hospitals, with a capacity of 3,531 beds, which is 54.9% of the total number of beds in Palestine. There are 4 rehabilitation centers, all of which are non-governmental, with a capacity of 135 beds, which is 2.1% of the total hospital beds in Palestine. There are 15 MoH hospitals in West Bank, with a capacity of 1,749 beds, equivalent to 49.5% of the total hospital beds of MOH, while there are 13 MoH hospitals in Gaza Strip 1,782 beds or 50.5% of the total MoH hospital beds in Palestine (MoH, 2020).

In Palestine, NGOs have 38 hospitals and the private sector has 16 hospitals. UNRWA has one hospital in Qalqiliya. Military medical services have two hospitals in the Gaza Strip. The hospital beds of the MoH cover almost all specialties, including general surgery services and subspecialties, internal medicine, pediatrics, psychiatric and other specialties (MoH, 2020).

1.6.2.3 Health Indicators

In 2019, the reported crude birth rate in Palestine was 28.5 births per 1000 population. In West Bank, 27.5 births per 1000 population were recorded and 33.4 births per 1000 population in Gaza Strip. The reported crude mortality rate in Palestine was 3.7 cases per 1,000 populations, 3.9 cases per 1,000 populations in West Bank and 3.4 cases per 1,000 populations in Gaza Strip (PCBS, 2020).

In 2019, the reported maternal mortality rate (MMR) in Palestine was 19.5 per 100,000 live births; 11.5 per 100,000 live births in West Bank and 30.8 per 100,000 live births in Gaza Strip (MoH, 2020).

The leading cause of death among Palestinians was cardiovascular disease, accounting for 29.9% of deaths recorded in 2019, while Cancer is the second leading cause with 15.5% of deaths (MoH, 2020).

1.6.2.4 Procurement and Maintenance of Medical Equipment in Palestine

The MoH has two central departments for procurement and maintenance in the Gaza Strip and the West Bank with full-time staff, in addition to several affiliated operational procurement functions, and maintenance services including hospital and PHC-based units.

Tenders and procurement processes for the acquisition of medical equipment are centralized, and the MoH has a tender committee representing relevant departments that makes the recommended choice of supplier, followed by notification and purchase orders.

The two departments of engineering and maintenance are currently managing the maintenance of medical facilities equipment, but these departments operate as separate entities and, so far, there has been no effective communication between them. Procumbent departments in the GS and the WB are operating separately with no communication and cooperation.

1.6.2.5 Importance of Medical equipment

In Palestine MoH medical equipment constitute a major part of the investment in health care facilities. The MoH and donors spend millions of dollars annually to equip, replace, or maintain their medical technology. In 2004, MoH expenditure on medical equipment procurement was about 1.7 million dollars, from (2005-2006) was 1.6 million dollars, while in 2007 the MoH expenditure was about 3.5 million dollars (MoH, 2008). The MoH in Gaza received donations including medical equipment. As per the MoH reports, in 2013,

the total fund was 20 million dollars, in 2014, it was 53 million, 2015 was 36 million, in 2016, 2017, and 2018 it was 31 million, 17 million, and 36 million respectively (MoH, 2018).

Medical equipment is critically needed for diagnosis and treatment of illness and disease as well as patients' rehabilitation and demand for it is increasing. Medical equipment plays a vital role in early diagnosis, intervention, and prolonging and improving the quality of life (WHO, 2011b).

1.6.2.6 Management of supply processes of donated Medical Equipment

Health facilities of many developing countries rely significantly on donations of medical equipment. Although these donations are generally made with good intentions, the outcomes are not always positive if the donations supply processes are not properly managed, planned, and coordinated (WHO, 2011b).

1.6.2.7 Consequences of the Long Siege on Health Services on Gaza Strip

As a result of the long siege imposed by the Israeli occupation on the Gaza strip since 2006, and three wars which were in 2008, 2012, and 2014, the situation for 1.9 million population became worse now than it has ever been since the start of the Israeli military occupation in 1967. The consequences of the wars and the siege had manifested themselves in thousands of casualties, demolition of thousands of houses, destruction of health facilities and civil institutions. Additionally, health facilities greatly experienced a shortage of essential items, such as drugs, medical equipment, essential supplies, medical consumables, spare parts, and fuel supply for power generators. Moreover, maintenance services were severely disrupted, ordinary work systems were widely disturbed, access to health services inside and outside Gaza had remarkably diminished, developmental related

activities had been all frozen, and the capacity building related activities were suspended. All the previously planned constructions, extensions, and developmental plans were not implemented (PNGO, 2009).

1.7 Definitions of key terms

Biomedical Engineer: A member of the health care team along with physicians, nurses, and other hospital staff. Clinical engineers are responsible for developing and maintaining computer databases of medical instrumentation and equipment records and for the purchase and use of sophisticated medical instruments (Magjarevic, 2014).

Effectiveness: doing the right things, that will help the organization reach its goals (Drucker, 2012**).**

Efficiency: doing things right, that is, getting the most from the allocated resources (Drucker, 2012**).**

Equipment Maintenance: is a process used to restore the physical integrity, safety and/or performance of a device after a failure (Dyro, 2004).

Medical equipment: Medical devices requiring calibration, maintenance, repair, user training, and decommissioning – activities usually managed by clinical engineers. Medical equipment is used for the specific purposes of diagnosis and treatment of disease or rehabilitation following disease or injury; it can be used either alone or in combination with any accessory, consumable, or another piece of medical equipment. Medical equipment excludes implantable, disposable, or single-use medical devices. (WHO, 2011a).

Medical Equipment Management: is described as strategic planning, evaluation, procurement, asset management, management systems, maintenance, sources of service and service management, and replacement planning (Dyro, 2004).

Procurement: The process of medical equipment procurement includes identification of equipment needs, selecting the equipment specifications and vendor, demonstrating the equipment to the users, purchasing the equipment, preparing it for use, staff training, and installation (Smith, 2004).

Supply chain management encompasses the planning and management of all activities involved in sourcing and procurement, conversion, and all logistics management activities. Importantly, it also includes coordination and collaboration with channel partners, which can be suppliers, intermediaries, third party service providers, and customers (CSCMP 2011).

Technical Inspection: is an activity designed to test the operating status of a medical device. Tests compare the performance of the device to technical specifications established by the manufacturer in their maintenance or service manual (Dyro, 2004).

Chapter Two

Conceptual framework & Literature review

2.1 Introduction

This chapter provides an overview of previous research on the management of medical equipment's donation supply process and findings related to this issue. It introduces the conceptual framework for the study that comprises the main concepts of the subject in question described in this study.

Generally, these concepts in the study were tackled as important subjects in healthcare and biomedical engineering fields. Within the past few years, reports and guidelines were published, and conferences have been hosted which primarily discuss issues and challenges related to the medical equipment donation practices and their management in developing countries and low-resource setting.

Furthermore, this chapter will focus on the conceptual framework that integrates the main concepts related to the medical equipment donation process. Each phase and activity will be defined and followed by a brief overview of the past studies and findings on most of the phases.

2.2 Conceptual framework

The conceptual framework is a representation of related phases that are designed in a chart to illustrate what is relevant and crucial regarding the issue of interest and interrelation between these phases. Therefore, the Conceptual framework includes phases; activities through which the medical equipment donation supply practices are implemented.

The conceptual framework in this study provides an overview of the main activities of each phase in the overall medical equipment supply process and an understanding of specific issues in each one.

In this study, the researcher has developed the conceptual framework based on three elements; the first one is the WHO guideline (WHO, 2011a), the second is the previous studies, literature, and lastly, the researcher's experience in the biomedical engineer.

The researcher demonstrates the main phases that are mapping the donation supply process of medical equipment. Each phase has different activities, constituting a group of factors affecting the management of the donation supply process of medical equipment in the MoH health facilities. In this study, phases will be illustrated as the following:

1. Requisition of donation of medical equipment.

- Communication for solicitation or desire for medical equipment donation
- Planning

2. Acquisition of medical equipment

- Needs definition and technical specification
- Procurement of identified equipment

3. Deployment of donated medical equipment

- Delivery of medical equipment to the recipient
- Incoming inspection.

4. Utilization of donated equipment

- Installation and operational approval for use.
- Training and use of donated equipment

5. Participation of MoH and donor in the process

- Involvement of the donor and recipients' concerned staff at all levels.

6. Outcomes of effective and efficient process management of donated equipment

All the mentioned domains presented in series of logical sequence of inter-related activities which map the overall donation supply processes and influenced by each other.

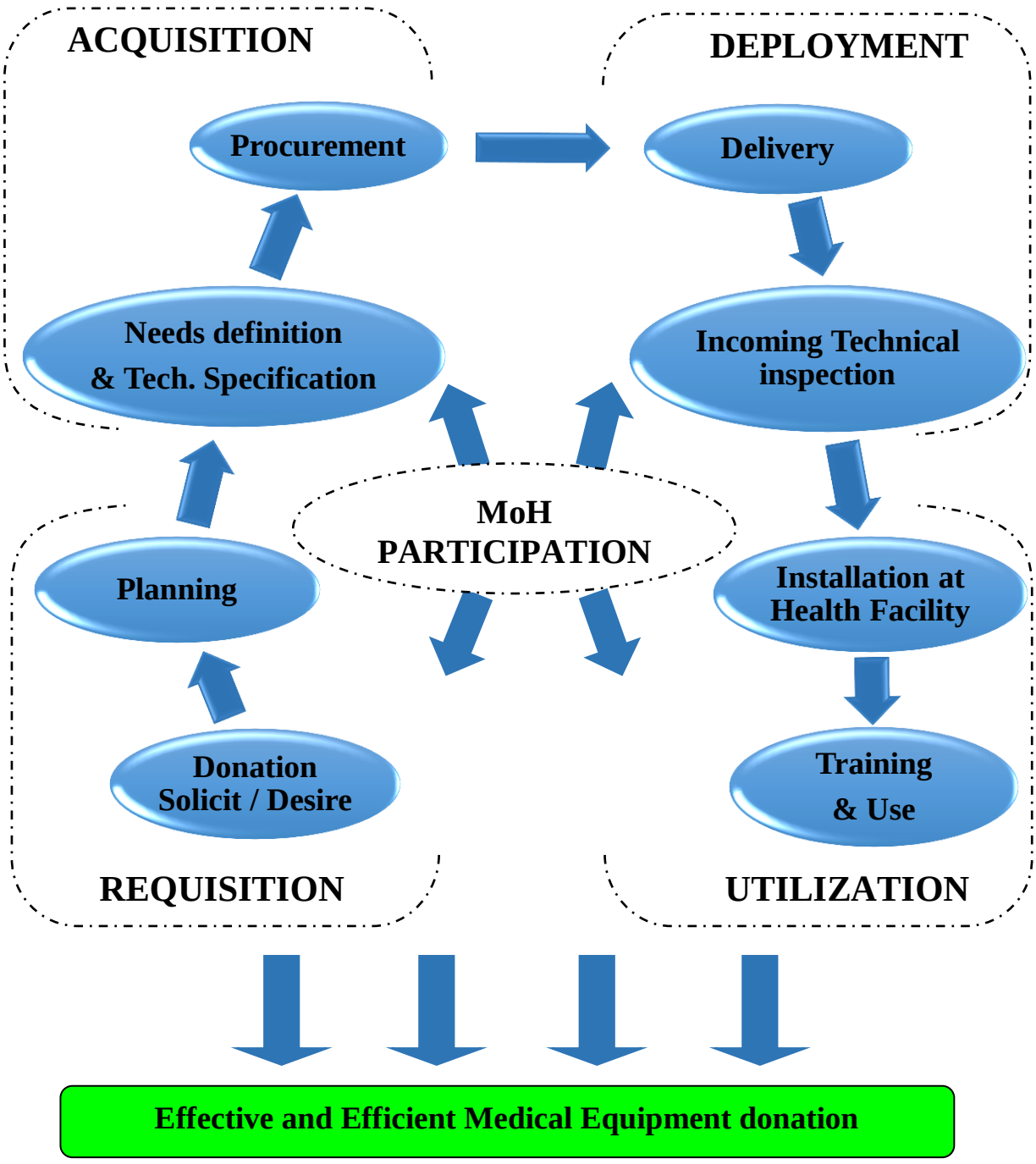

Figure (2.1): Conceptual framework- Self-Constructed

2.3 Literature Review

Reviewing various literature, the researcher could conclude that each domain of the donation supply process is influenced by various factors that have be well considered by the donors and recipient to ensure effective and efficient management of donated medical equipment. The factors are interrelated and have a direct impact on each other as the supply processes of equipment should be well structured and actioned to address and respond to the right needs of the users.

The domains of the supply processes have been grouped and classified as the following description and elaborations:

2.3.1 Requisition of medical equipment donation

The donor or the recipient, who request donation or allocating funding for medical equipment supply, can initiate the donation process. The financial donation, which the MoH can use to purchase the needed equipment, is preferable in the context of Gaza as it enables the MoH to ensure that equipment is of high quality and has local maintenance support, spare parts and consumables, and after-sale service. Further, the MoH can also ensure the availability of training on the proper use of equipment and harmonization and sustainability of existing equipment.

2.3.1.1 Communication for solicitation or provision of medical equipment donation

Coordination and communication between donors and the MoH have to be established before any donation intended by the donor or solicited by the MoH. This consists of all phases at different levels. These phases start from the solicitation or donation announcement until the donated equipment is in use at the intended place.

Continuous communication by donors and donation solicitors throughout the donation process is a very important factor through which the success of the donation can be determined (WHO, 2011a).

Effective donation needs to start two-way communication between the donor and recipient to solicit the need for medical equipment or intention to budget such a need from the donor's side (Howie, et al., 2008).

Inadequate medical equipment donations are often due to a combination of the donor's lack of awareness of the challenges and needs of the end-users, and poor communication between donors and recipients about these challenges and needs. Donors and recipients often do not communicate as equal partners in the pursuit of a common goal; recipients have difficulty articulating to the donor how best they can be helped, and the recipient's circumstances may lead them to believe that anything is better than nothing (WHO, 2011a).

This communication provides a good opportunity for both sides to state their position and clarify the need for donation of medical equipment as well as explain the rationale behind this donation, how this will positively contribute to the development of the service provision and its quality (Perry and Malkin, 2011).

In the context of medical equipment donation, the WHO has published 'Guidelines for Health Care Equipment Donations, which establish four principles of good donation and a 'Donation Action Plan' for both donors and recipients, outlining clear responsibilities for both partners in this process. It stresses that for an effective donation of equipment there should be effective communication between the donor and the recipient, with all donations made according to a plan formulated by both parties. (WHO, 2001)

Although most donations are made with good intentions, the outcomes are not always positive if the donations are not properly planned and coordinated (WHO, 2011a).

Hill, et al. (2008) suggested that donations of medical equipment can be appropriate and beneficial to health facilities, but it crucial that recipients and donors actively manage donations to ensure that the donations are helpful. It requires planning, technical and clinical expertise, and local participation.

Any donation initiative should be part of an on-going partnership consisting of core elements including coordination and communication for the consultation on the proposed donation (Bradley, 2016).

The lack of coordination and communication between the donors and the recipient in the provision of medical equipment donation often leads to a duplication of equipment supply to a single health facility. Some of this equipment is quite expensive, resulting in a waste of the limited funds available for equipment (Dyro, 2004).

Effective and direct coordination and communication between donors and recipients should encourage best practices of donation supply processes through developed donation regulations or guidelines.

United States Agency for International Development (USAID) suggested that an established coordination and communication dialogue for solicitation and provision of medical equipment leads to an official agreement on the donation, which ultimately minimizes duplication of efforts to provide solicited medical equipment and reduce wasting the limited resources (USAID, 2011).

Lack of direct communication in the process leads to some challenges. In a study conducted in Tanzania, about 10% of respondents identified poor communication between recipients and donors as one of the major challenges created in the donation supply process (Zomboko, et al., 2012).

2.3.1.2 Planning

Planning and users' needs assessment to define the proper requirements of medical equipment is a crucial and fundamental phase to ensure well-prepared quantification based on institutional experience or data collected from the health facilities (Adjabu, et al., 2012).

A WHO guideline indicates in the process of solicitation and donation of equipment that the health facility must be consulted for further details on the required equipment and expected capacity of wanted equipment as well as other infrastructure or environmental requirements that need to be considered (WHO, 2011a).

When donations are well planned and coordinated, and when they are based on a real need, they can have a positive impact on service provision in the recipient health facilities. Unfortunately, WHO estimates that many do not meet these criteria constituting only 10-30% of donated medical equipment put into service in the recipient's institution (WHO, 2010).

Comprehensive medical equipment needs assessments are a significant activity used to prioritize new equipment needs based on existing equipment, facilities, and services (Mullally, 2013).

Mullally, (2013) supposed that needs assessments, specifications, and selection are typically done by trained biomedical engineering personnel and involve many different

stakeholders within a facility and wider health system. The prioritized new equipment can then be used to plan procurement and evaluate proposed donations.

In a study conducted in Ghana, the recipient from different health facilities were asked to describe what they thought could be done to improve the effectiveness of the medical equipment donations to Ghana. One of the main findings was that thorough needs assessments of beneficiary facilities should be done with consultation of equipment users, as equipment donated must meet their clinical needs (Adjabu, et al., 2014).

According to Zomboko, et al. (2012), a study conducted in Tanzania revealed that 12% of study respondents pointed that lack of proper planning being the major issue in the donation process.

2.3.2 Acquisition of medical equipment

The Healthcare industry is known for its continued innovation and production of new devices and techniques intended to improve the delivery and outcome of patient care. The financial limitation is considered the master key to evaluating the incorporation of new technology into healthcare services. Thus, more attention should be given to the acquisition process keeping in mind both healthcare delivery outcomes and funding availability. The acquisition stage incorporates two main processes (Saleh et al., 2014).

Willson, (2013) defined the acquisition process of medical equipment as a technological assessment of the needs after which procurement and logistics awarding come to purchase needed equipment based on set of specifications and requirements identified by biomedical technical expert and medical personal.

2.3.2.1 Needs identification and Technical specification

Medical equipment can be obtained either from local manufacturers or from the international market. The poor definition and justification of equipment requirements are widely regarded as a potential source for equipment failure (Willson, 2013).

Bloom, (1989) referred that, appropriate equipment should be defined for each level of care, and a detailed list should be prepared including technical specifications, bearing in mind user preferences, relevance to priority health problems, ease of use and maintenance, safety, and cost.

Previous studies suggest that, in developing country situations, proper procedures for requirement identification and needs technical specifications are often not in place, or at least they are not being implemented (Remmelzwaal, 1997).

McKie, (1987) in this respect, suggested that health workers, planners, clinical and technical experts should be given more attention to this aspect and emphasizes the importance of national policies related to needs definition. He proceeds by saying that equipment should be provided to meet the needs of health care.

Remmelzwaal, (1997) indicated that for medical institutions in the United Kingdom it is recommended that Health Authorities and Hospital Management Units should establish clearly documented procedures for the specification of equipment requirements.

Appropriate specifications are critical to ensuring that the supplier understands the end user's requirements, and that transparent procedure is enforced, and legal obligations stated, on the other hand, a good specification or product description will ensure the end-user gets the correct commodity to perform a test. Specifications are also important when it

is necessary to procure generic, that is, non-branded, items. Some tests require branded items and these commodities have been listed where necessary (WHO, 2015).

Revision of medical equipment specifications is often necessary for the procurement process that may include identification of the preferred models, specific options, accessories, features, training, or service (Harding, et al., 2004).

Technical specifications should include general requirements such as the warranty, technical services, technical documents, and any other requirements for equipment operation (Saleh et al., 2014).

Bailey, (1994) believed that to obtain the right product or service, a generic description within a clear specification is required.

Saleh et al. (2014) recommended that technical specifications should include general requirements such as the warranty, technical services, technical documents, and any other requirements for equipment operation.

Figures show that one of the most common barriers to procurement of innovative technologies in low-resource settings was the lack of information on these technologies regarding their effectiveness, safety, and even their technical specifications (WHO, 2012).

In a study conducted in Tanzania aiming to evaluate the procurement and use of donated medical equipment, 25% of study respondents highlighted inadequate specification of equipment is among the major problems during the procurement process (Zomboko, et al., 2012).

Murad (2010) in his study found out that, 75.3% of respondents reported that the donated equipment within the departments was not unified and they did not have the same general

specifications, while 12% of them reported that the equipment was unified and meeting the same general specifications.

2.3.2.2 Procurement and Selection of identified equipment

Procurement and selection are vital elements of equitable access to health care. It can be defined as “the acquisition of property, plant and/ or equipment, goods, works or services through purchase, hire, lease, rental or exchange” and it includes sourcing and solicitation of offers, evaluation of offers, review, and award of contracts (WHO, 2011d).

Bailey, (1994) suggested that the basic theory of public procurement is described as the “five rights”: the right product or service of the right quality and right price, and the right quantity, at the right place and time. It involves questions of accountability, integrity, and value, with effects far beyond the actual buyer and seller transactions at its center.

Effective medical equipment procurement practice leads to safe, equitable, and quality health care. It makes involved stakeholders benefit as procurement staff carrying out clear and accountable work according to accepted standards; donors can have confidence in the right goods being procured at the right price; health service professionals gain quality materials and tools; and ultimately the most important, patients can receive appropriate and effective care (WHO, 2011c).

Saleh et al. (2014) assumed that procurement and selection activities include, tendering process, evaluation for selection, awarding, and contracting.

The tendering process takes place to purchase medical equipment based on the required specifications where, all vendors are allowed to bid under a competitive and fair

evaluation, based on clearly described specifications and other requirements to ensure effective equipment operation (Saleh et al., 2014).

In the evaluation process, the purchased medical equipment should be evaluated from three different angles: technical, clinical, and financial. The purpose of technical and financial evaluations is to check the proposed equipment and to ensure the performance of the devices meets the desired outcomes. On the other hand, financial evaluation considers only the costs of the proposed technology. Both technical and clinical evaluations are carried out using either scoring or accept/reject approaches, whereas financial evaluation regards the lowest price among accepted vendors (Saleh et al., 2014)

According to Harding and Epstein, the process of final evaluation and selection should include all affected stakeholders. A group of experienced staff from clinical, engineering, and planning are involved in the specification and information revision from the vendors to make the final decision on the selected equipment.

Once all clinical and technical inputs have been compiled, the cost evaluation should capture a myriad of factors, including, but not limited to, the initial cost of the product purchase, the cost of accessories and options, spare parts and consumables as well as staff training to be identified and provided. Armed with the results of the various evaluations, a final decision can be made. The decision and the rationale for the decision should be provided to all affected parties after which the awarding and contracting shall be made (Harding, and Epstein, 2004)

Keller, (2004) estimates that various factors make the procurement and selection process so complex, the wide variety of equipment purchased and used in hospitals, the various

applications where equipment are used, various consumables are used to run this equipment and the many different types of users of the equipment.

Saleh et al. (2014) assumed that awarding and contracting process is the last in the procurement phase after making an evaluation-based selection. An award must be issued to acquire the device according to a purchase contract document that is prepared by the purchasing department and it must cover all terms and conditions that have been agreed upon by the vendor and the hospital.

The contract is the outcome of the bidding process; it is the document that legally binds the purchaser and supplier to an agreed-upon set of equipment specifications, delivery requirements, and other obligations. A variety of contract types are commonly used, but local procurement policies may dictate the ones that should be used (USAID, 2011).

2.3.3 Deployment of acquired medical equipment.

Deployment of medical equipment is a vital and core phase of the supply process; it is an activity that comprises delivery of ordered equipment from the supplier to the recipient warehouse where initial incoming inspection of these equipment takes place by the clinical and technical teams to ensure various aspects of delivery and inspection phase (Willson, 2013).

2.3.3.1 Delivery of donated medical equipment

Following selection, awarding, and contracting, and the necessary logistical procedures made by the supplier, resulting in the arrival of the goods at the location of the recipient, a formal initial inventory procedure must be in place. The inventory procedure is needed to

ensure that the entry of all equipment into service is properly controlled and documented (WHO, 2011c).

Inventory management: storage and distribution. After an item has been received by the health system or program, it must be transported to the service delivery level where the client will receive the products. During this process, the products must be stored until they are sent to the next lower level or until the customer needs them (USAID, 2011).

The most common in-country distribution system is a system where equipment distribution flow from central stores to districts and health facilities; and, ultimately, to service delivery points.

Inventory and storage of healthcare equipment, distribution play an essential role in the health logistics system. The distribution consists of moving equipment down from the national central warehouse until it is delivered to the final beneficiary.

From the experience of the researcher, it happens that health facilities that requested the donation are not informed on the arrival of medical equipment. Often these are donations, agreed upon by a certain doctor or administrator or the central government deciding equipment should go to this place. Many hospitals in developing countries have lack awareness of the arrival of earmarked medical equipment donations. If the hospital is not notified, then the expensive medical equipment remains in the store with no benefit or it goes to another place where it might be unwanted (Dyro, 2004).

2.3.3.2 Incoming Inspection

Willson, (2013) described the inspection and incorporation of the equipment into the equipment inventory and the equipment management system as an acceptance procedure.

The initial inspection ensures that the equipment arrives with all the necessary accessories and manuals, undamaged and in good working condition.

Saleh et al. (2014) stressed that the clinical engineering department ensures an incoming inspection on equipment includes verification of accessories, manuals, and electrical safety and operation by all applicable policies. Incoming equipment should be carefully checked for possible shipment damage and compliance with specifications in the purchase order.

Zomboko, et al. (2012), proposed that procurement of donated items is often not dealt with the same level of seriousness as the other routine procurement items. Perhaps this is the reason why post-donation inspection and certification of quality is not insisted. Therefore, it would be desirable that an expert inspection team certifies the quality of items and conformity to desired specifications. Equipment not conforming to the specifications should be rejected and the inspection report could be linked to the release of payments if any.

2.3.4 Utilization of donated equipment

The utilization of donated medical equipment is the final phase where it brings together two activities that are considered one of the most critical activities to ensure proper installation and final inspection for use and finally the training for the users. In this phase, technical experts provide health care professionals with the needed assurance of safety, reliability, and efficiency in using new equipment, as well as identified poor quality and ineffective equipment. These activities, in turn, led to a faster, more appropriate utilization of new medical equipment. Appropriate installation and training can ensure the establishment of safer conditions, as well as facilitate the best utilization of modern medical technology to make patient care more efficient and effective (WHO, 2011).

2.3.4.1 Installation and operational approval for use.

Willson, (2013) defined installation of medical devices as a process of simply putting the hardware in place speedily and efficiently for the proper use and ensuring that each health facility operates to the desired standards and makes the best use of the resources available.

Technical staff can perform installation and final approval to operate donated equipment if they are familiar with a given item of equipment. If the installation and operation are needed from the suppliers, local technical staff should monitor this process. In general, the installation process should be compatible with standard policies for medical equipment installation (Dyro, 2004).

WHO, (2011b), proposed that when considering a donation of sophisticated equipment, careful attention is required due to complex matters such as specialized training, professional installation, and the need for specialized maintenance support in the field.

According to Bloom (1989), incorrect installation of medical devices is a potential cause for equipment ineffectiveness. Manufacturers of medical equipment usually provide recommended installation procedures, which should be taken seriously. Except for the simple and robust items of equipment, most medical equipment requires planned installation procedures.

The proper installation procedure can be negotiated at the time of equipment and supplier selection. Thus, it becomes part of the acquisition process. The output of this stage of the management process is medical equipment, properly installed and ready to deliver its intended services (Willson, 2013).

Observational studies in Africa and Asia showed that in many developing countries, the electrical current has a lot of fluctuations in voltage, which can easily damage the equipment, and in several hospitals there, most of the sensitive electrical equipment is not connected through voltage stabilizers to protect against voltage fluctuations (Mavalankar, et al., 2004).

2.3.4.2 Training and use of donated equipment

For equipment to produce its nominal output or to deliver its intended services, personnel operating the equipment must be adequately trained in using the devices confidently while observing appropriate safety procedures.

Dyro, (2004) presented that provision of training for the user of the medical equipment must be established in the purchasing agreement. It is preferable to begin training during installation for large equipment that has a long installation period.

Dyro et al, (2004) recommended that the responsibility of the user to ensure that equipment is properly calibrated and functioning correctly when in use and should be done based on the user instruction manual, supplied by the manufacturer.

Training of staff who will operate and maintain the equipment is an important aspect of the preparation that should be considered before medical equipment provision either through purchasing procedures or through donation, therefore if their difficulty in organizing training for operators and maintenance team the donor should suggest alternatives (WHO, 2000).

McKie, (1987) advised that equipment servicing by the user should be restricted to some specific tasks like, functional, calibration, safety checks as well as cleaning of the equipment if needed.

During the purchase of new equipment, suppliers can be requested to train in-house technicians in maintenance; this condition should be included in the tender or purchase order to ensure that equipment suppliers are obliged to provide comprehensive warranty and maintenance services (WHO, 2009).

Murad, (2010) found in his study performed in Gaza that, 49.7% of study respondents thought that damage to medical equipment usually happens due to lack of knowledge and taring.

2.3.5 Participation of MoH and donor in the process

Often the intended recipients of equipment donations are neither consulted nor do they take an active role during some or all the stages of the donation process, even though they are primary stakeholders in the process. WHO (2011a), emphasized that donation solicitors are encouraged to be actively involved during all stages of any equipment donation.

The level of active involvement might include; preparing lists of prioritized equipment needs, indicating desired specifications, model preferences, needed training requirements; evaluating offers from donors and suppliers, preparing and following policies and procedures concerning equipment donations and other requirements.

2.3.5.1 Involvement of the donor and recipients' concerned staff.

Appropriate donations of medical equipment can be of benefit to hospitals in resource-poor settings, but recipients and donors need to actively manage the donation process to ensure

that the donations are beneficial. This requires planning, technical expertise, and local participation (Hill, et al., 2008).

Howie, et al. (2008) suggested that in addition to technical expertise and a proactive approach, successful interventions would require local ownership and participation, and often partners with relevant skills and resources. While donors are crucial participants in the process, so are policymakers and end-users such as clinicians, nurses and maintenance staff, and others.

Murad, (2010) revealed in his study in the Gaza Strip that, 52.7% of the study participants do not always participate in preparing the specification of the newly ordered medical equipment, while about 61.4% of the study participants reported that they are not involved in the procurement committee activities to select the suitable medical equipment. Also, about 67.5% of the participants share in identifying the needs of their department.

2.3.6 Outcomes of effective and efficient management of donated medical equipment

The quality of medical equipment directly affects the quality of healthcare services at different stages from diagnosis to cure and post-cure. The resource challenge often forces the developing world to depend on the medical equipment donated from the developing agencies. Although, the donation of equipment significantly helps the developing countries in improving the healthcare services, sometimes, the quality issues can adversely affect the spirit of the process. Assurance of quality, safety, and appropriateness of donated medical equipment is linked to the effectiveness and efficiency of the donation process management.

Medical equipment donated to the public health sector that is affordable and cost-effective can be achieved by having in place an effective donation process management. The

donation process guarantees the availability of appropriate, good quality, and safety equipment that can be easily utilized for the provision of quality healthcare service and treatment.

To summarize, the available literature which the author searched widely include previous studies focusing on the management of donation processes in similar context, guidelines, articles and handbook have been well reviewed to better describe the underlying principles of effective donation processes management and address the gaps that were observed in other countries. The literature review generated a strong believe and confidence that same gaps potentially could be observed and tackled in the current study.

Review of the published literature revealed examples of ineffective donation due to lack or poor communication and participation of the beneficiaries in all processes.

A study of 43 low-income and middle-income countries revealed that up to a third of all donations occurred with no prior consultation and partnership while adequate communication between recipients and donors during all stages was commonly discussed as an important attribute for donation success.

Chapter Three

Materials and methods

This chapter illustrates the study material and methods through which the study was conducted. It includes information on the study design, study population, sample size, study period, and setting as well as the ethical considered procedures in the study. Moreover, it provides details on the tools for data collection and analysis, tools reliability and validity, and lastly, the limitations of the study.

3.1 Study design

The design of this study was, descriptive cross-sectional one using a triangulated method that involves quantitative and qualitative parts. This method allows collecting valuable data for reliable findings and provides comprehensive explanations on the study topics. Therefore, the method would decrease the weaknesses of each separated form of data, thus, it provides understanding of the research problem than either method alone (Creswell, 2013).

3.2 Study settings

3.2.1 Quantitative part:

The study was conducted at MoH health facilities, particularly those that receive medical equipment donations. This includes MoH hospitals, PHC, central and public health laboratories as well as a central engineering department.

3.2.2 Qualitative part:

The in-depth interviews with MoH were performed at the MoH facilities, while some interviews with donor's representatives were conducted through meetings at their offices and some through remote communications.

3.3 Study period

The study was performed over the last 15 months; as the study started in September 2019 and was completed by December 2020.

3.4 Study population

The study population was diverse which includes three sub-population in two main parts:

3.4.1 Quantitative part:

The population of the quantitative part of the study is MoH staff including health facilities managers, physicians, nurses, health technicians, lab technicians, and biomedical engineers who were involved in the donation supply processes that include, requesting medical equipment, purchase, and reception of equipment and its inspection and operation.

3.4.2 Qualitative part:

The population of this part includes:

- MoH key informants who were directly involved in the medical equipment donation processes.
- Representatives of donating organizations who were directly involved in the medical equipment donation processes.

3.5 Population size and selection process

3.5.1 Quantitative data:

Following the recent years' records of donation supply processes at the MoH general hospitals administration, procurement department, central warehouse, and international cooperation department, several MoH staff who were eligible for the study were identified and have been estimated at 60 persons working at the MoH health facilities. All the study population was included as census from MoH facilities (hospitals, PHC, central laboratories, and central engineering department).

3.5.2 Qualitative data:

The purposive selection was made to perform twelve in-depth interviews with key informants from the MoH structure and main donors of medical equipment. Interviews were conducted with seven participants from MoH and five from donors. Seven MoH key informants; namely from International Cooperation Department (ICD), the General Hospitals Administration (GHA), the Central Engineering Department (CED), Central Logistics Store (CLS), and Procurement Department (PD). The other group of five key informants enrolled the identified main donors in the Gaza including, Islamic Relief (IR-UK), International Committee for the Red Cross (ICRC), Medical Aid for Palestinians (MAP-UK), Qatari Red Crescent Society (QRCS), World Health Organization (WHO).

3.6 Eligibility criteria

3.6.1 Inclusion criteria

3.6.1.1 Quantitative data:

MoH staff including managers, physicians, nurses, health technicians, and BMEs who have direct involvement in the medical equipment donation processes and should have at least three years of experience in the study topics.

3.6.1.2 Qualitative data:

- Key MoH person who has direct involvement in the medical equipment donation processes and should have at least three years of experience in the study topics.
- Key representative of a donor who has direct involvement in the medical equipment donation processes and should have at least three years of experience in the study topics.

3.6.2 Exclusion criteria

3.6.2.1 Quantitative data:

- MoH staff including managers, physicians, nurses, health technicians, and BMEs who were indirectly involved and have less than three years of experience in medical equipment donation.

3.6.2.2 Qualitative data:

- Key MoH person who has indirect involvement in the medical equipment donation processes and has less than three years of experience in the study topics.
- Key representative of a donor who has indirect involvement in the medical equipment donation processes and has less than three years of experience in the study topics.

3.7 Study instruments

To collect data for this study that was needed to achieve the study objectives, two instruments were developed and used by the researcher; a well-structured self-administered questionnaire, and guiding questions for in-depth interviews with key informants.

3.7.1 Quantitative part:

The structured questionnaire developed by the researcher was utilized to collect data from MoH staff at their health facilities. The items of the questionnaire were established to reflect on the processes and practices of medical equipment donations from the participants' perception and based on their knowledge and experience (see Annex 3 & Annex 4).

3.7.2 Qualitative part:

Guiding questions for interviews were used. The guiding questions covered areas of general understanding and perceptions on the donation process of medical equipment and its management at the MoH. Availability of policies, availability of well-identified processes, and the practices through which MoH and donors perform donations, and lastly, challenges facing MoH, donors, and donations received during the donation processes (see Annex 5 & Annex 6).

3.8 Pilot study

A pilot study was carried out with 7 eligible participants about 10% of the study population from MoH to explore appropriateness, validity, and reliability of the study instruments and possible need modification was accordingly. One key informant was interviewed for a pilot study after which adjustment on the guiding questions was made. The pilot study was

conducted at Shifa hospital and Rimal PHC. No exclusion was made from the study population.

3.9 Data collection procedure

3.9.1 Quantitative part:

The researcher collected the data through direct communication with selected participants and reached them out at their facilities to hand the questionnaires and explain the study objectives if needed. All distributed questionnaires were collected and reviewed carefully for missing data. The data collection was done in three weeks. The confidentiality and privacy of the participants were taken into consideration and assured.

3.9.2 Qualitative part:

The second component of the data collection was the qualitative data; This part was done after the completion and analysis of the quantitative part. The Researcher performed the in-depth interviews himself. The key informants were called to get approval for participation and assign time and place for the meeting accordingly. They were informed about their right to not answer any question. The interviews and discussions were recorded, and notes were taken, after taking a written approval from all participants. All materials of discussions were kept in a safe place and be accessible only for the researcher.

3.10 Response rate

3.10.1 Quantitative part:

All participants' names were listed and were called for on the telephone for voluntary participation based on informed consent from each one of them before filling the questionnaire. The response rate was 100% (60 responded out of 60).

3.10.2 Qualitative part:

Twelve in-depth interviews were accrued out and all interviewees who were invited to participate in the discussions accepted the invitation. The MoH key informants were seven persons, while interviews with representatives of donating organizations were five.

3.11Data entry and statistical analysis

3.11.1 Quantitative part

The Researcher used the Statistical Package of Social Science (SPSS) program version 25 for data entry and analysis. Data entry and data cleaning were done straight after tools collection. After that, descriptive analysis including figures, frequency tables that show participants' characteristics, and plot differences between participants' characteristics variables was obtained. Furthermore, cross-tabulation for main findings and advanced statistical tests such as the Chi-square test to compare categorical variables, and One-way ANOVA test to compare means of numeric variables were done when required to analyze questionnaire data.

3.11.2 Qualitative part

Following the quantitative data analysis, In-depth interviews with MoH and donor’s key informants started using guiding questions developed by the researcher.

The open coding thematic analysis method was used to analyze the collected data and to systematically identify and extract main categories, themes and subthemes from the data.

The main steps of qualitative content analysis initiated firstly by the data familiarization step followed by creating codes for the transcript lines and statements that were repeatedly read by the researcher; secondly creating categories for sorted groups after which the key

themes and subthemes were finally established and named in connection to conceptual framework and questionnaires.

Lastly, comparison, and integration of related ideas between the quantitative and the qualitative findings was done to enrich discussions and validate findings.

3.12 Scientific rigor

3.12.1 Quantitative part (questionnaire)

3.12.1.1 Validity

The questionnaire was developed by the researcher and revised by ten experts including public health, researchers, statisticians, and BME (see Annex 7) to ensure the face validity, appropriateness, and relevance of the questions to achieve the study objectives. All comments and feedback of the experts were considered in the finalization of the questionnaire. The pilot study was conducted before the beginning of actual data collection, to examine respondent's responses to the questionnaire and how they understand it. The modification was done based on the pilot study**.**

3.12.1.2 Reliability

The researcher used Cronbach`s alpha to assess the reliability and consistency of the questionnaire items and domains, where applicable. Data entry was done on the same day of data collection which led to easily check the data quality.

3.13Ethical and administrative considerations

An official letter of administration approval to conduct the study was obtained from the School of Public Health at Al-Quds University and the Helsinki Committee in the GS (see Annex 8). An administration approval was obtained from the MoH (Annex 9) to collect

data. To guarantee participants` rights, a cover letter was drafted to indicate that the participation is voluntary (informed consent), and confidentiality was obtained for all the participants who were selected from the MoH (Annex 10). All the study participants were asked for their approval to participate in the study. Transparency, honesty, and truth respect were maintained. Neither personal data nor identities were revealed by the researcher.

3.14Limitations of the study

The researcher faced some limitations during the study execution include the following:

1. Retirement of some senior MoH staff who would increase the population size and add a valuable contribution to the findings.
2. Limited scientific resources and few pieces of literature on medical equipment donation processes management in a context like Gaza. The researcher faced some challenges during the literature review writing and search.
3. COVID-19 outbreak in the GS resulted in the delay in the data collection and interviews as the majority of participants were involved in their work at the facilities.

Chapter Four

Results and Discussion

4.1 Introduction

This chapter presents the main findings of the collected and analyzed quantitative and qualitative data aiming to achieve the study objectives. Primary, the quantitative data has been statistically analyzed to illustrate the results in descriptive and inferential formats. The analysis presents the socio-demographic characteristics of the study participants as well as their responses to the questions developed by the researcher to achieve study objectives on the management of medical equipment donation processes at the MoH. The researcher used inferential statistical analysis tests to examine the relationship between some variables where possible.

To supplement the results and to fill the gaps left in the questionnaire, the qualitative approach through in-depth interviews with key informants from MoH and donors was used to explore and reveal more information on the management of equipment donation processes and practices that would clarify and support, the quantitative findings.

The main themes and subthemes were identified to evaluate the effectiveness of donation process management including donation mechanisms, communication between stakeholders, the participation of the beneficiaries, and information on the purchased equipment.

The findings from the qualitative data are based on the participants' expressed views and perceptions and presented to achieve the objective of this study. Quotations from participants are included throughout this part; those quotations are presented in italic style.

4.2 Descriptive statistics

4.2.1 Socio-demographic characteristics of the study participants:

A total of 60 self-administered questionnaires developed by the researcher were distributed and filled by the study participants who were purposively selected. The completed questionnaires were computed, and results were used to interpret the findings.

The study participants have diverse socio-demographic characteristics. As illustrated in Table (4.1), the larger part of the participants in the study are male constituting 97%; while 3% of participants are female. This result is somehow consistent with the workforce involvement level, as 7 males out of 10 are participated in the labor force, compared with 2 out of 10 of females as reported by PCBS (2018). Moreover, qualitative findings revealed that the male staff involvement in the medical equipment donation processes is much more than the female staff due to the structure of the hierarchy of the MoH constituted mostly from the male.

As seen in Table (4.1), the mean age of the study participants was 44.4 years. The breakdown shows that 25% of participants fall within less than 40 years age, while 36.7% have their ages ranged between 40 years old and 45 years old, and participants in age between 46 years old to 50 years old were 18.3%, and finally, the remaining 20% constituted from the participants with ages above 50 years old as illustrated in the Figure (4.1). The findings to a remarkable extent are consistent with the results of Murad (2010) where the mean of the participant's age was 42 years old. Moreover, the results indicated that more than 50% of the participants are in the age between 40 years to 50 years old which from the researcher's point of view considered good participation of experienced and active MoH staff in the management of medical equipment donation processes.

Table (4.1): Distribution of the study participants by socio-demographic characteristics.

Items	**No.**	**%**
Gender		
Male	58	97
Female	2	3
Total	**60**	**100.0**
Age		
Less than 40 years	15	25.0
40 to 45 years	22	36.7
46 to 50 years	11	18.3
Above 50 years	12	20.0
Total	**60**	**100.0**
Mean = 44.4, SD= 7.05		
Workplace		
Hospital	36	60.0
Engineering dep.	19	31.7
Other (PHC, Central Lab, and Public Health Lab)	5	8.3
Total	**60**	**100.0**
Qualification		
Bachelor	31	51.7
Master	23	38.3
PhD	6	10
Total	**60**	**100.0**
Profession		
Doctor	7	11.7
Nurse	11	18.3
Engineer	28	46.7
Lab Technician	7	11.7
Others (Maintenance Techn., Radiology Techn, & Administration)	7	11.7
Total	**60**	**100.0**
Experience in requesting medical equipment		
From 5 to 10 years	30	50
From 11 to 15 Years	7	12
More than 15 Years	23	38
Total	**60**	**100.0**
Mean = 11.7, MD=12.3, SD = 6.2		

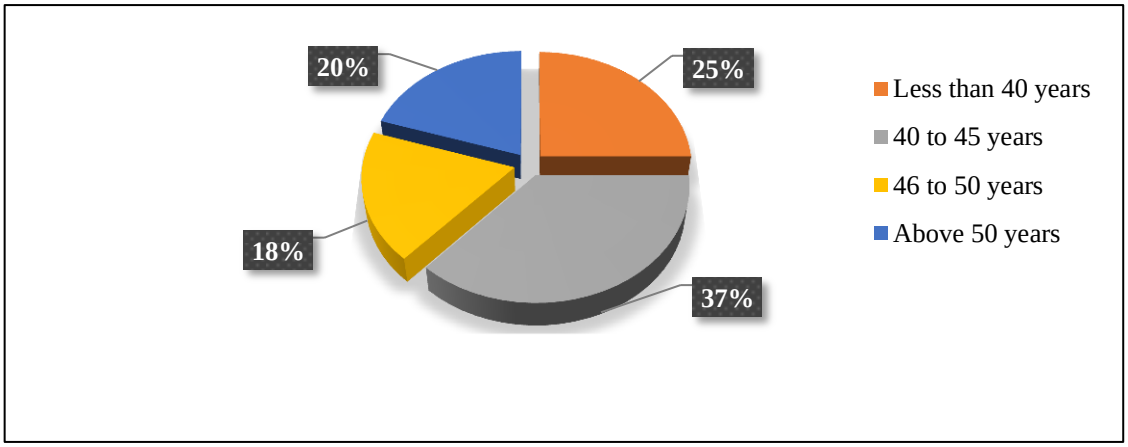

Figure (4.1): Distribution of the study participants by age group

Figure (4.2) shows that participants working places are different. The largest portion of the participants is working at the hospitals constituting 60.0%, while 31.7% are from engineering departments. The remaining 8.3% are from PHC facilities including central and public health laboratories.

The results are congruent with the previous study which indicated that 87.8% of participants are managing medical equipment at the MoH were from hospitals (Murad, 2010).

From the researcher's experience, the remarkable difference goes with the size and natures of work in the hospitals which provide a wide range of health services with more medical equipment utilization than in the PHC that provide basic healthcare. Moreover, the participants who is managing the medical equipment at the hospitals provide support the PHCs with their valuable experience in requisition and acquisition of medical equipment.

The results indicate that 52% of the participants had a bachelor-degree qualification, and 38% had a master-degree, while 10% of participants had a doctorate as seen in Table (4.1).

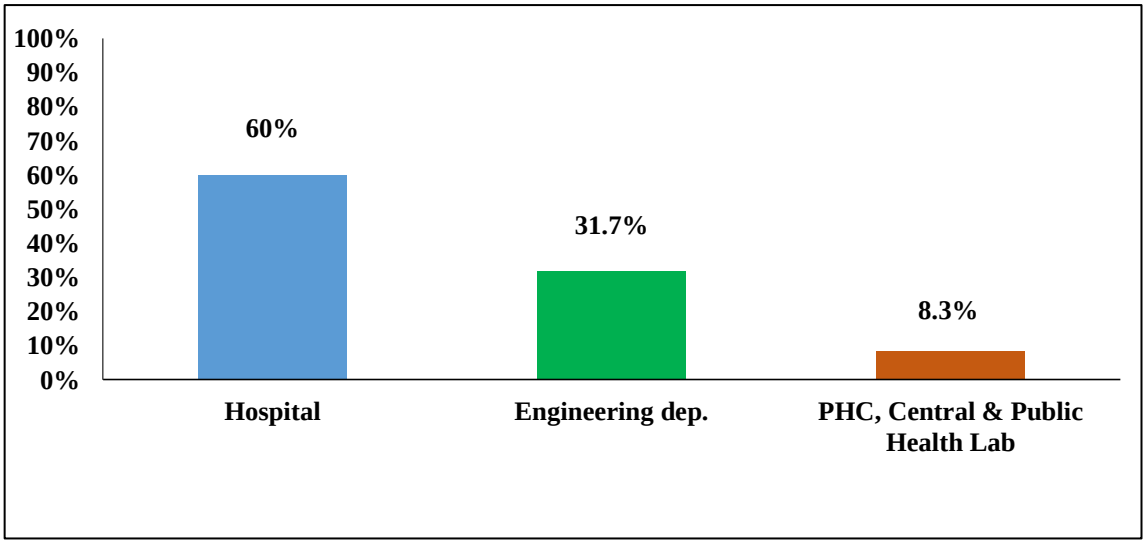

Figure (4.2): Distribution of the study participants by work place

Figure (4.3) shows the distribution of participants by profession. The researcher noticed that the highest portion formed from Engineers constituting 46.7%, 18.3% are nurses, doctors are 11.7%, while 11.7% of the participants are laboratory technicians, and the administration, maintenance technician & radiology technicians formed the remaining 11.7%. This reflects the participation of the diverse professions forming the team that manages the donation process with the highest contribution from engineers.

The findings are in line with observations obtained by Mullaly, (2013) which indicates that needs assessments, specifications, and selection are typically done by trained biomedical engineering personnel and involve many different stakeholders within a facility and wider health system including medical personnel. Similarly, the in-depth interviews with key informants from MoH and donors confirmed that the participation in the process is made mainly by the biomedical engineers, medical practitioners, nurses, laboratory technicians, and others who are handling the request, use, and maintenance of equipment.

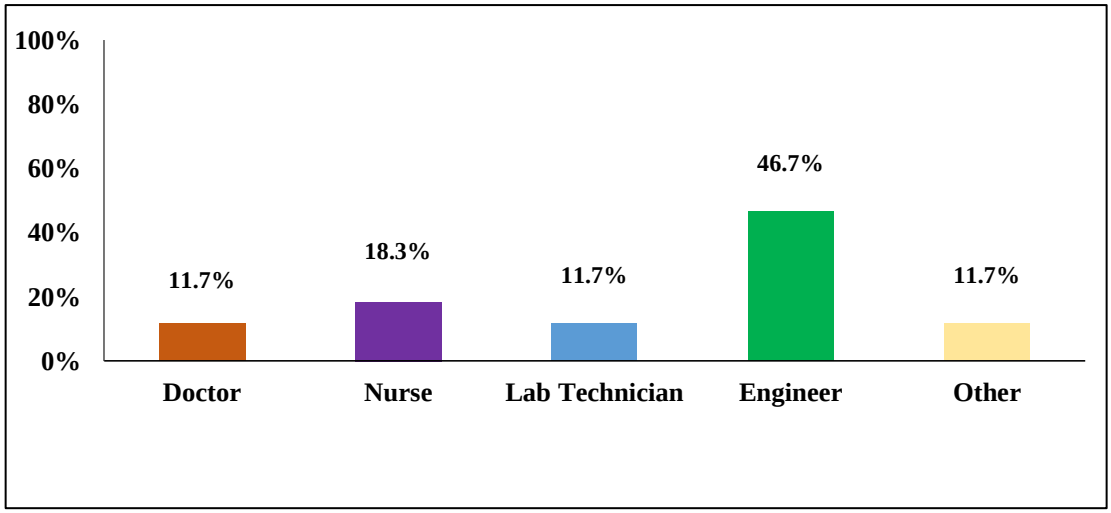

Figure (4.3): Distribution of the study participants by profession

Table (4.1) indicates that about 50% of the participants have experience of requesting medical equipment for health facilities ranges from 5 to 10 years, 12% of the participants have experience from 11 to 15 years, while 38% are experts in the field of the study for more than 15 years. As shown in Table (4.1), the mean of the participant's years of experience was 11.7 years. From the researcher's point of view, the experience of 5 years and more is good enough for the staff to get well familiar with the policies, practices and participate effectively in the processes management in a context like Gaza that receives medical equipment donations frequently.

4.2.2 Information on the policies for donating medical equipment.

Table (4.2) demonstrates the distribution of the study participants according to their response on the availability of policies regulating the mechanisms of equipment donation.

Table (4.2) Distribution of the study participants according to their response on the availability of policies for medical equipment donation.

Items	**Number**	**%**
Availibity of MoH policies that regulate the mechanisms and processes of donated medical equipment to the MoH.		
Yes	48	80.0
No	7	11.7
Don't Know	5	8.3
Total	**60**	**100.0**
If yes, availibity of MoH policies in writing. (n=48)		
Yes	15	31.3
No, never seen it	33	68.7
Total	**48**	**100.0**
Availibity of donor's policies that regulates the donation processes of equipment for MoH.		
Yes	40	67
No	3	5.0
Don't Know	17	28
Total	**60**	**100.0**

Figure (4.4) shows that 80% of the participants certain that MoH policies are regulating the mechanisms and processes of donated medical equipment, and 11.7% of the participants reported that there are no policies, while 8.3% of the participants stated that they don't know.

To a large extent, these findings are aligned with results of interviews with MoH and donors key informants revealing that policies for medical supplies and equipment donation have existed that were developed in 2009 after the 1st war on Gaza as senior MoH officer said *" During and after the first war on Gaza in 2008-2009, a huge quantity of medical*

equipment was donated out of which a significant proportion is unwanted because it does not meet MoH standards, too old models or malfunction, while some of the donated equipment has been useful". The key informant attributed this to the reason that many donors, organizations, and individuals didn't communicate with the MoH, while few donors consulted the Ministry of Health to find out what medical equipment was needed.

The findings from the discussion with the key informants revealed that medical equipment donations occur in many different scenarios and through various approaches as well as, the beneficiaries range from individual health care facilities to entire health systems. Donors could be implementers, whose programs and activities are performed by their designated teams or could be organizations who help healthcare providers to respond to the needs through financial funds granted to afford resources needed for service provision.

All the key informants agreed that there should be some basic rules for an appropriate donation that apply to all donors available in form of policies or guidelines aiming to describe the core elements of effective donation practice.

Despite that, most, if not all stakeholders, have their policies and mechanisms through which the donation is made. From the findings, the MoH key informants did not argue with the fact that donors are different from international organizations with great presentations worldwide, which means that each organization has its independent procedures for donation. As one of the MoH informants said *" Our partners are international organizations, we have a distinguished relationship as they support Palestinians and we respect that they have their regulations for donations and procedures that they follow, but we encourage that we cooperate and implement the donations in accordance to agreed mechanisms to optimize the donations and ensure that each party achieve its objectives ultimately"*

Despite the different findings on the availability of MoH and donor's policies and the diversity in the participants' perception, the greatest part of the key informants believe that there is a bad need for updating the policies and ensure that donors are aware of it through dissemination workshops and follow up meetings.

The most important element of the discussion was highlighted by all key informants that, the ICD in the MoH is identified as the main and official body through which the implemented activities and provided support is communicated, coordinated, and facilitated with other structures of the MoH. As one of the donors said, *" We implement our programs and provide donations through a good cooperation and communication with ICD who is working to facilitate our missions, coordinate for its implementation and ensure all information are shared with other departments"*.

The findings on the policies and mechanisms are all in line with WHO, (2000) emphasizing the importance of the special care should be taken that the donated health care equipment responds to an expressed need, comply with the national or organizational policy, and agree with national guidelines in the recipient country if they exist. The donated health care equipment should be treated with the same attention to an administrative procedure as if it were procured.

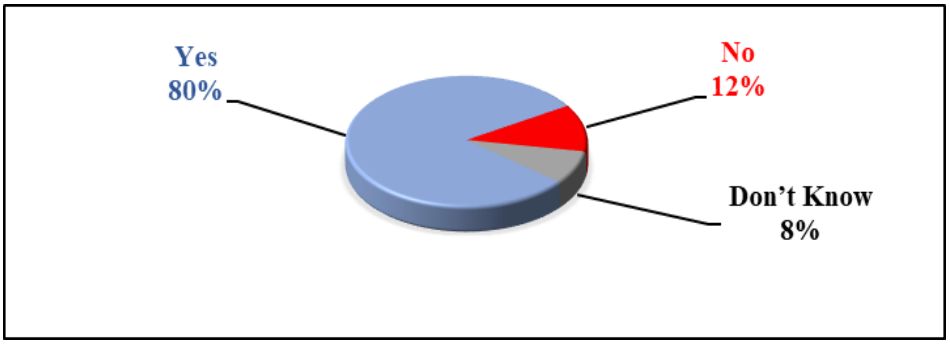

Figure (4.4) Participants' response on availability of MoH policies for medical equipment donation

Concerning the unawareness of 20% of the participants on the policies' existence, the interviewed MoH key informants attributed this potentially to the reason that these participants got involved in the donation processes in the recent few years and became familiar with it through repetitive practices with no knowledge on the policies.

Concerning the availability of MoH policies in writing, out of the participants who confirmed that there are policies (n=48), 68.7% of the participants reported that they have never seen the policies in writing, while the remaining 31.3% have seen it as indicated in the Table (4.2).

From the discussion with the key informants, the researcher found out that interviewees expressed the need for reviewing and updating the policies and work towards disseminating them among the MoH staff and donors as the original one was drafted for 10 years.

Most of the key informants stated that updating the policies is required through a comprehensive review process based on the lessons learned from unsuccessful donations. Moreover, a follow up for the implantation of these policies and taking corrective measures accordingly is strongly suggested by the interviewees.

As shown in Table (4.2), and Figure (4.5), two-thirds of the study participants (67%) are confident that each donor has own policy regulating the donation mechanisms, and 5% stated no policies, while 28% don’t know on the availability of donor’s policy.

The findings are consistent with the in-depth interviews with MoH and donor’s key informants who assured that the donors are varied and have different mechanisms for medical equipment donation. Therefore, each donor performs under policy and capacity which might be aligned to MoH policy or different to a certain extent.

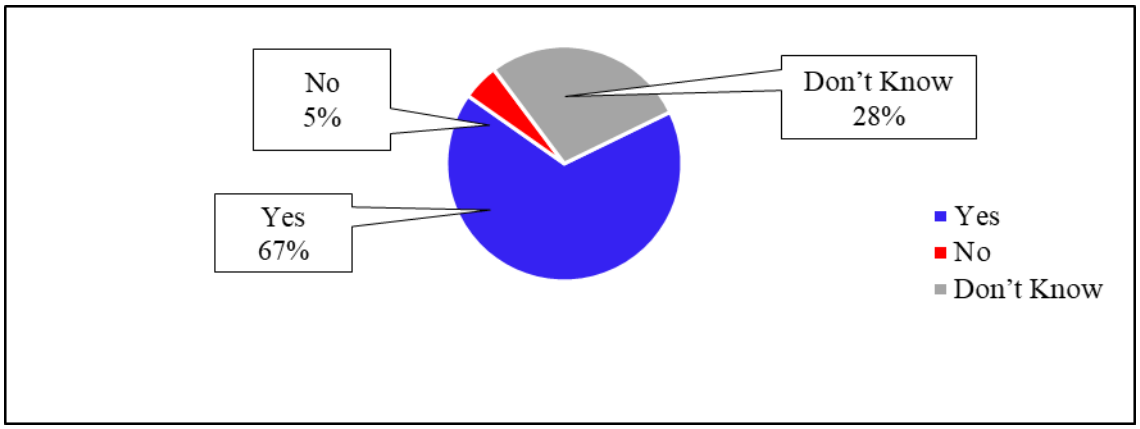

Figure (4.5) Participants' response on availability of donor's policy for medical equipment donation.

Table (4.3) Distribution of the study participants according to their response on the policies circulation, (n=48)

Items	**Number**	**%**
Circulation of MoH policies to donors through the communication channels.		
Yes	19	39.6
No	6	12.5
Don't Know	23	47.9
Total	**48**	**100.0**
Circulation of MoH policies to the relevant individuals/departments of the MoH.		
Yes	26	54.2
No	11	22.9
Don't Know	11	22.9
Total	**48**	**100.0**

Concerning the circulation of policies to donors, as Table (4.3) highlights that among the 48 participants who confirmed the availability of policies, 39.6% of them reported that policies are circulated to donors, 12.5% stated No, while 47.9% don't know whether policies are circulated or not.

This result somehow incompatible with the findings obtained from the in-depth interviews where the majority of key informants stated that policies are circulated through regular communication as many said *"The ICD is the main gate of the MoH for communication*

with the donors and facilitation their information sharing, donation activities, visits and meetings with other MoH bodies. The ICD is the focal point for policies circulation to donors through its regular meetings and communication channels".

On the contrary, the role of the ICD in the donation process might not be clear to a significant number of MoH staff as the percentage of participants who has no idea about the policies circulation to donors through ICD is significantly high constituting 47.9%.

Despite the partial incompatibility between the participant's answers and the results obtained from the interviews, the key informant comments are compatible with literature findings presented by (Howie, et al., 2008) and (WHO, 2011) on the importance of the circulation of the MoH policies and needs among the donors through the two-way communication.

The discussions with donors revealed that they learn about the donation policies and mechanisms and act accordingly through their regular communication with ICD. In this regard, the author of the current study has the same point of view as he is managing the medical equipment donation file at the International Committee of the Red Cross (ICRC).

Lastly, in Table (4.3), results showed that 54.2% of the participants believe that MoH policies are circulated to concerned MoH individuals/departments, 22.9% stated that policies are not circulated, while the same percentage 22.9% reported that they don't know. The difference in the findings invites us to think deeply on a plan of action to ensure proper and wide circulation of the policies among the concerned MoH individuals/departments and better understand the mechanisms for medical equipment donation.

4.2.3 Evaluation of Donation and Supply processes.

In this paragraph, the researcher presents the results from the participants' responses on the overall evaluation of the donation and supply process management.

Table (4.4) Distribution of the study participants according to their response on the communication with donors for support.

Items	**Number**	**%**
Request of medical equipment for the medical facility through direct contact with donors.		
Yes	12	20.0
No	48	80.0
Total	**60**	**100.0**
Notification of MoH staff on the earmarked funds through the MoH official communication channels.		
Yes	42	70.0
No	13	21.7
Don't know	5	8.3
Total	**60**	**100.0**

As demonstrated in Table (4.4) and Figure (4.6), the researcher noticed that 80% of the participants don't request their equipment through direct communication with donors, while 20% have direct contact with donors to request medical equipment. The author found out that the results to a great extent are aligned with the MoH policies which are instructing the MoH staff working at the medical facilities to avoid requesting medical equipment through direct contact and communication with donors as explained by the MoH key informants as one of them said in his assertive words *"MoH staff working in the medical facilities are not entitled to deal with donors to request and identify the needs of medical equipment with no permission and coordination with the MoH hierarchy including ICD and General Hospitals Administration (GHA) as the official bodies who share with the donors the MoH needs and priorities".*

The results agree with the study performed by Murad (2010) revealing that 63.7% of the participants reported that the donors don't communicate with them before supplying any needed equipment.

Regarding the 20% of the participants who request medical equipment through direct contact, the key MoH informants think that it could be attributed to the fact that they are heads of units who are identified and authorized by the MoH to communicate with donors to determine the equipment needs for healthcare services development within the MoH medical facility.

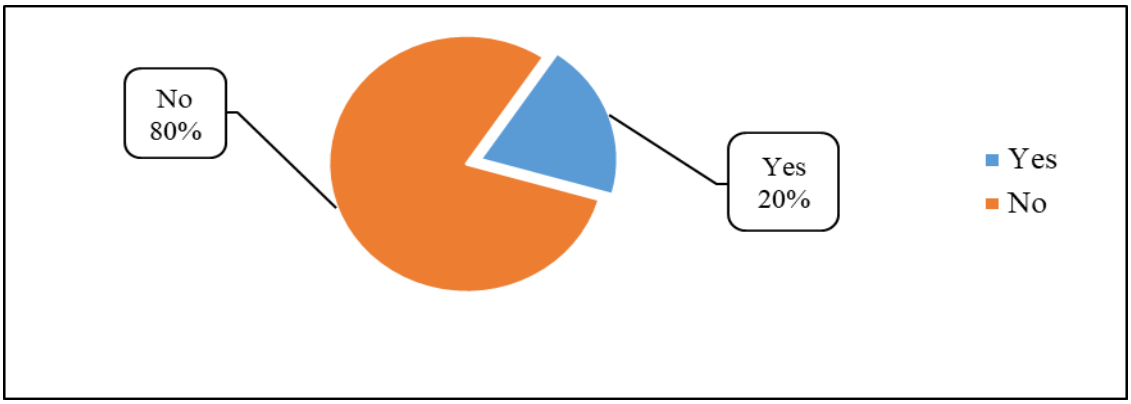

Figure (4.6) Distribution of participants according to their response on requesting medical equipment through contact with donors.

From the discussions with the donor key informants, the researcher found out that, there are direct communications between senior MoH staff and donors for requesting medical equipment for the development of specific service. In this issue, supportive examples raised by the MoH and donor's key informants as one donor said *"As we sign an agreement with MoH to provide support in developing surgical services, we establish direct contact with the medical staff and biomedical engineers who are in charge to work closely with us to identify the needs to develop this service. All this happens with constant communication and coordination with the MoH hierarchy and we are so satisfied with this partnership".*

This emerging statement mentioned by the donor key informant appeared to be consistent with the literature findings indicating the importance of communication between partners which provides a good opportunity for both sides to state their position and clarify the need for donation of medical equipment as well as explain the rationale behind this donation, how this will positively contribute to the development of the service provision and its quality (Perry and Malkin, 2011).

Additionally, in his findings, Bradley (2016) stressed the fact that any donation initiative should be part of an on-going partnership consisting of core elements including coordination and communication for the consultation on the proposed donation.

The findings of the in-depth interviews revealed that medical equipment needs are provided by the ICD through its regular meetings and communications with partners which give good opportunities to better understand the rationale behind, and how this donation will impact service provision. This helps the donors to fully understand how their support will contribute to ensuring MoH strategic plan implantation which ultimately facilitates fund allocation to respond to the MoH appeals or needs. As ICD key informant said, *" We are part of the projects committee and we know what kind of priorities MoH has. This gives a strong base for presentation our needs according to our strategies. Therefore, we think that the needs of the MoH have to be picked up through communication with us and nobody else who has no idea about it. We make sure that all provided information is reliable and from the right MoH departments including quantities and specifications of equipment, receiving facilities, and other related information"*.

Yet, the MoH key informant from ICD believes that the cooperation and communication with ICD have to be enhanced since there are some donors establish informal connections with other departments and medical facilities to get information that could not reflect the reality on the MoH needs and priorities, particularly, the service providers at the medical

facilities. As he said, *" We learn that some donors visit the medical facilities with no coordination with concerned departments at the MoH including ICD and GHA. They get information about the needs of the departments, but this is not always correct as it reflects the need of these departments only and it might not align with our strategies and priorities"*

Regarding notification of the participants on the allocation of earmarked funding through MoH official communication channels for supplying medical equipment, more than two-thirds (70%) of the participants are notified, while 21.7% are not notified by the MoH channels and 8.3% said don't know as illustrated in Table (4.4).

From the researcher's perspective, this finding reflects on the internal communication among the MoH layers to exchange updates on the upcoming funds for donations. Yet, this finding is incompatible with some findings from the donor key informant interviews who expressed the concern on the flow of information to the field hierarchy at the medical facilities as one said *"When we go to the field to discuss the needs of medical equipment, we get surprised that people in charge are not aware on the funds allocated to them. Anyway, we explain the issue to make them updated on our support".*

Regarding the direct donor's communication with MoH departments, medical facilities, and staff, the MoH key informants seemed to be dissatisfied with this attitude. Most of them encouraged the MoH staff and donors to refrain from having uncoordinated visits and connections and follow the MoH policies for proper communications through official channels.

On the other side, a clear majority of the donors expressed their satisfaction with the communication through ICD, however, the communication with MoH departments through the ICD and vice-versa experience some delays which could slow the donation process and

delay the donor's response, especially in an emergency. As one gave an example saying *" Sometimes, it takes a bit long time to get the specifications of equipment intended to be donated, which definitely will delay our purchase process. Additionally, it happens that, when it comes to the delivery, we find out that central logistics store is not aware of this donation and they ask details which already was shared with ICD".*

The results are compatible with literature which highlighted that continuous communication by donors and donation solicitors throughout the donation process is a very important factor through which the success of the donation can be determined (WHO, 2011a).

Table (4.5) Distribution of the study participants according to their response on the availability of inventory and warehouse system.

Items	**Number**	**%**
Availibity of inventory and custody system in the MoH medical facilities.		
Yes	59	98.3
No	1	1.7
Total	**60**	**100.0**
Effectiveness of the MoH inventory and custody system to tack equipment within the departments. (n=59)		
Yes	56	94.9
No	3	5.1
Total	**59**	**100.0**
Availibity of warehouse system that facilitates the process of verifying the MoH needs.		
Yes	50	83.3
No	10	16.7
Total	**60**	**100.0**
Verification of the needs at the MoH warehouse before requesting donor's support. (n=50)		
Yes	41	82
No	9	18
Total	**50**	**100.0**

Table (4.5) illustrates the distribution of study participants according to their response on the availability of inventory and warehouse systems at the MoH. It shows that 98.3% of the participants believe that there is an inventory and custody system, while only a slight percentage (1.7%) think that there is no system in place. The great majority of agreeing on participants on system availability (94.9%) reported that it's possible to track equipment within the departments. Only 5.1% think that tracking of medical equipment cannot be performed through the existing inventory system as seen in Table (4.5).

As seen in Table (4.5), in their responses on the presence of a warehouse system through which it's possible to verify the availability of medical equipment needs before requesting donor's support, 83.3% of the participants had agreed that the existing warehouse system enables to do the check before raising a request to donors, while 16.7% stated that there is no system in place.

In the previous study performed by Murad (2010) in Gaza, the results indicated that 75.3% of the participants confirmed that there is an inventory system.

The results confirming the availability of an effective inventory and warehouse systems by a large portion of the participants in the current study and Murad's (2010) are aligned with Dayro (2004) who stressed the importance of the inventory system to provide full information to support informed decision making on requesting equipment as well as helps in different aspects of medical equipment management considering standardization, accessories, spare parts, and operating and service manuals.

Comparing the findings indicated in the quantitative analysis and the ones obtained from the in-depth interviews, the researcher concluded that the observations are promising, and perceptions are intra-harmonized between the study population.

Commenting on the effectiveness of the MoH inventory and warehouse systems, predominant findings of the in-depth interviews with MoH assured that the systems have

been developed and improved system to respond to the crucial need of the MoH for needs determination and prioritization accordingly.

The obtained results on the effectiveness of the inventory and warehouse systems are harmonized with WHO (2011), stating that the equipment inventory can be used to assist in forecasting a variety of budgets. By considering current equipment values (based on local standard depreciation rates), performing a needs assessment, identifying equipment that needs to be replaced, and determining the expected lifetime of equipment, capital budgets can be forecast for the coming years for the purchase of new equipment.

Finally, from the researcher's previous observation, the verification process of the needs before requesting medical equipment by the operators needs to be improved as it happened previously that the medical staff requested equipment donation while needed equipment was available in the main warehouse. This could be attributed to the reason that the internal ordering mechanism to supply equipment was not followed properly.

Table (4.6) Distribution of the study participants according to their response on the needs determination and planning to benefit from the donation grant.

Items	**Number**	**%**
Periodical update of the medical equipment needs of the MoH medical facilities.		
Yes	37	61.7
No	14	23.3
Don’t Know	9	15.0
Total	**60**	**100.0**
Participation of the MoH staff in the MoH needs update process. (n=37)		
Yes	35	94.6
No	2	5.4
Total	**37**	**100.0**
Participation of the MoH staff in donor’s fund planning and needs determining process.		
Yes	23	38.3
No	37	61.7
Total	**60**	**100.0**

Concerning the periodical update of the needs, 61.7% of the participants pointed that needs are updated regularly, and 23.3% don't think that needs are updated, while 15% don't know. The findings showed that 94.6% of the participants assured on the updating the needs are participating in the process, where only 5.4% are not participating as seen in Table (4.6).

The results on the determination of the needs have been marked by the researcher as a serious issue. The findings obtained from the participants' response are different from the in-depth interview results where a periodical update on the needs of each facility is made by the MoH.

Following the discussion to better understand the variation in the point of view, the researcher found out that the needs are determined at the top hierarchy based on the strategic plan of the MoH which tells the needs of equipment for service provisions. In other words, the MoH management levels are looking at the prioritization of the needs from a holistic approach and comprehensive service provider perspectives.

The researcher believes that the incompatibility in the findings is normal as the MoH staff in the medical facilities reflect on their specific needs, while the decision is made centrally with larger planning and a wider focus on the overall needs of MoH facilities. This is like what was found in the literature emphasizing that **c**omprehensive medical equipment needs assessments and planning are a significant activity used to priorities new equipment needs based on existing equipment, facilities, and services (Mullally, 2013).

In the donors planning for funds and needs for medical facilities, 61.7% of the participants don't participate in the process, while 38.3% of the participants stated that they participate as indicated in Table (4.6).

This finding was significantly matching the ones obtained from the majority of MoH key informants who stated that many donors do their planning and fundraising with limited consultations with MoH resulting in duplication of activities, programs, and donations. One MoH key informant expressed moderate level of satisfaction on this saying *"They are not donors, they are partners in the health sector, our relations and cooperation are established on a partnership basis. Thus, planning and fund allocation should be made through prior and close consultation with MoH as we know our needs and we prioritize them according to our strategic plan".* Furthermore, he said *"Surprising that, when the donors come to present their programs and activities to support us, we realized that it was made according to their agenda rather than to meet our needs and priorities as we plan".*

It's worth mentioning that results from the discussion with MoH key informants indicated that some donors perform needs assessment in the field with no prior coordination and consultation with MoH structure who is not aware of it as he said *"Donors go to the medical facilities to do their needs assessment with no notification on that, after which they come to share it with us. Sometimes, it does not respond to our real needs and even the technical specifications are given by the teams in the facility are not correct. Through our dialogue and communication, we stress the importance of proper communication and connection with the right people when doing the needs assessment".*

Literature found out that, often the intended recipients of equipment donations are neither consulted nor they take an active role during some or all the stages of the donation process, even though they are primary stakeholders in the process. WHO (2011a), emphasized that donation solicitors are encouraged to be actively involved in all stages of any equipment donation action.

The results are aligned with a study conducted in Ghana, where recipients from different health facilities were asked to describe what they thought could be done to improve the effectiveness of the medical equipment donations to Ghana. One of the main findings was that thorough needs assessments of beneficiary facilities should be done with consultation of equipment users, as equipment donated must meet clinical needs (Adjabu, et al., 2014).

Table (4.7) Distribution of the study participants according to their response on setting the technical specifications of the required equipment

Items	**Number**	**%**
Availibity of the MoH committees dedicated to setting technical specifications.		
Yes	58	96.7
No	2	3.3
Total	**60**	**100.0**
Participation of the MoH staff in the process of setting technical specifications. (n=58)		
Yes	44	75.8
No	14	24.2
Total	**58**	**100.0**
Availibity of the MoH standardized manual for technical specifications.		
Yes	35	58.3
No	13	21.7
Don't Know	12	20.0
Total	**60**	**100.0**
Need for regular update of the MoH technical specifications manual. (n=35)		
Yes	34	97.1
No	1	2.9
Total	**35**	**100.0**

As illustrated in Table (4.7), the researcher found out that 96.7% of the study participants constituting the greatest majority indicated that there are committees at the MoH dedicated for technical specifications setting, while only 3.3% of the participants pointed that there are no committees.

Its shown in Table (4.7) that three-quarters of the participants 75.8% contribute to the technical specifications setting, and about one-quarter of the study participants 24.2%

don’t participate in the process. In contrast, Murad (2010) in his study indicated that 52.7% of the study participants do not always participate in preparing the specification of the newly ordered medical equipment, while 40.5% of them participate.

To better understand, the researcher tested the results with the findings from the in-depth interviews with both, the key informants from the MoH and donors. It’s found that the compatibility between responses is significantly high. From the researcher's experience in the donation process, the MoH has a strong capacity in terms of technical specifications and requirements set by a group of biomedical engineers and medical staff.

The results are extremely congruent with the literature indicating the vital need for qualified expertise in setting the specifications as it's considered the core element for beneficial and effective donation. In this regard, Bailey, (1994) believed that to obtain the right product or service, a generic description within a clear specification is required.

Revision of medical equipment specifications is often necessary for the procurement process that may include identification of the preferred models, specific options, accessories, features, training, or service (Harding, et al., 2004).

Technical specifications should include general requirements such as warranty, technical services and documents, and other requirements for equipment operation (Saleh et al., 2014).

Extensive results appeared from the in-depth interviews with MoH stressing the failure of medical equipment donation or provision of ineffective and inefficient medical equipment resulted from lack of proper consultation of the MoH through the right communication channels. One example was provided out of tens as said *"Occasionally, laboratory equipment and hemodialysis machines were delivered to the MoH warehouse as a*

donation, which seemed MoH was not consulted before its purchase. Tracking the donation with the donor, we concluded that the specifications were taken from the internet website which is different from the models used at the MoH facilities, and, surely, it has a different reagent and consumables which do not exist in our standard list of items. In the end, this donation was rejected totally".

In the present study, it was found that 58.3% of the study participants assured that a pre-approved manual for technical specifications is available, 21.7% of the participants informed that there is no manual, while 20% don't know whether pre-approved manual of technical specifications is existing or not.

The finding in Table (4.7) revealed that 97.1% of those participants who indicated that a pre-approved manual for technical specifications is available agreed on the need of updating this manual. The result is urging for periodical updates of the technical specification sine previous result obtained by Murad (2010) indicating that more than 53.1% of the study participants reported that the specifications of medical equipment are not usually updated by the technical committee, while 27.4% of the participants reported that the specification is usually updated.

To understand more on the participants' response to the pre-approved manual for technical specifications, the in-depth interviews with MoH revealed different results indicating that manual is not existed as such rather it's a set of individual specification for each machine that can be provided by the biomedical engineers upon the consultation with the requester or the operator who will use the machine. This was argued by the key informants stating that this cannot be fixed and permanent since medical technology undergoes constant upgrading.

The results from the discussion with donors have a different perspective, considering obtaining technical specifications for purchase is a complex part of the donation process as it takes a long time to obtain through the official communication channels as well as the consistent change made by the operator.

From the researcher observations who experienced delays in obtaining technical specifications to prepare for tendering documents to respond to the MoH appeals for support. This delay is most probably due to the slow communication at the MoH level with engineers who is could be reached through multilayer communication channels.

From the results obtained from the in-depth interviews, the researcher concluded that the technical specifications for the intended donations are obtained from the MoH Central Engineering Department through communication with ICD. All the interviewed donors stated that they get it clear and ready for tendering as they said *"We should follow the technical requirement of the MoH users and operators who will utilize the equipment. They have good biomedical engineering experience and we rely on them to provide specifications".* Although, it appeared to the researcher that in this process no major concerns, yet, the lengthy time spent to share the technical specifications seemed concerning the donors. One of the donors said that this delay could be attributed to the workload of the MoH staff who suffer from human resources shortage in different areas.

The researcher could potentially interpret the reason for donors to occasionally bypass the official communication channels by approaching biomedical engineers to obtain specifications attempting to avoid delays. The researcher believes that despite the delay in the process of obtaining the specifications, bypassing the formal communication with MoH ICD by donors would result in severe damage in the process and lead to get incorrect specifications and end up by ineffective or unwanted donations. Furthermore, such

behaviour contradicts the recommendations of WHO (2011) encouraged the donors to respect the proper communication established by the solicitor of donations.

The findings in Table (4.8) shows that more than three-quarters of study participants (86.7%) confirmed that there is a clear MoH procedure for awarding and purchase through which donated equipment are processed by the MoH procurement structure, while 13.3% of them reported that there is no clear procedure.

Despite that results obtained through the participants' responses and the discussion with the MoH key informants, indicates that the MoH procurement system is considered highly effective and efficient that acting in accordance to a clear, well understood and transparent processes, nevertheless, results obtained by Murad (2010) in his study, indicating that more than 73% of the respondents reported that the procedures of purchasing medical equipment is reasonably slow and is not practical, while 13.4% of the participants said that it was fast and practical. Regarding the general procurement laws and conditions, about 43.5% of the participants reported that it doesn't help in selecting the latest medical equipment, while 32.8% reported that it helps.

This is congruent with the fact that the procurement process in MoH is a lengthy one and engages different stakeholders to complete the purchase of needed equipment which in turn causes delays of funds expenditure.

Mavalankar et al. (2004) reported that more than one country in Africa and Asia centralized purchases can delay procurement by several months and the supply of equipment from a central level can lead to duplication and wastage. Also, WHO (2008) report showed that procurement being delayed by years in a large externally aided project in an Asian country, and also seen a delay in procurement due to donor agencies centralized procurement system.

Table (4.8) Distribution of the study participants according to their response about technical awarding and purchase.

Items	Number	%
Availability of MoH procedure through which the awarding and purchase processes take place.		
Yes	52	86.7
No	8	13.3
Total	**60**	**100.0**
Regular participation of MoH staff in the awarding and purchasing process of equipment according to the MoH procedure.		
Yes	34	56.7
No	26	43.3
Total	**60**	**100.0**
Regular participation of MoH staff in the awarding and purchasing process equipment according to the donor's purchase procedure.		
Yes	35	58.3
No	25	41.7
Total	**60**	**100.0**
Coordination with MoH staff during awarding and purchase of medical equipment.		
Yes	42	70.0
No	15	25.0
Don't Know	3	5.0
Total	**60**	**100.0**

Regarding the purchase and awarding process, the researcher learned from the in-depth interviews with donors that the donors who do the purchase through its procurement process with the engagement of the MoH in the process are considered faster and experienced shorter delivery time which is potentially attributed to a short validation and contracting processes in comparison to the MoH purchase procedures.

The study found that more than half of the participants (56.7%) do participate regularly in the awarding and purchasing according to MoH procedure, and 43.3% don't participate in the process. In the researcher comparison with the previous study (Murad, 2010) the results indicated that about 61.4% of the study participants reported that they are not involved in the procurement committee activities to select the suitable medical equipment, while only 28.6% of them reported that they are involved in the committee activity.

The study results revealed that 58.3% of the participants contributed in the awarding and purchasing according to donor's procedure, while 41.7% have not participated in the process following donor's procedure as shown in Table (4.8).

In the discussions with MoH and donor's key informants, it was interpreted that not all MoH staff are taking part in the awarding and purchasing according to donor's procedure, since there is some MoH staff nominated to participate and show up frequently. The researcher believes that results are reasonable as most of the equipment purchased is the basic and common ones which mean that group of experts from BMEs and medical staff participate more than others who are expert in medical equipment specialized in certain service like MRI, CT and other.

Regarding the purchase of equipment without coordination with the participants, results in Table (4.8) showed that more than two-thirds of the study participants (70%) stated it happened that coordination was not done during the purchase process of medical equipment, and 25% of them informed that it never experienced purchase without being coordinated, while only 5% don't know if this happened or not. This finding can be interpreted same as the previous explanation that during the purchase process, various teams could perform the task as per the MoH nomination, which means in other words that participation of some staff could be more than others.

According to the key informants, the participation of the MoH committees in the technical awarding and purchase processes has positively impacted the donation outcomes. This was demonstrated in the findings of the in-depth interviews when stating that the MoH role is crucial to make sure that technical requirements are met in the offered equipment and the features are satisfying that users and operators. As one donor said, *"We call upon the MoH to nominate technical members from BME and users to look and review offers received from the vendors. They have the good biomedical capacity to choose the compatible offers and we raise the orders to the suppliers based on the final agreement reached by all members of the committee".*

On the other side, one concerning finding revealed from the discussion with MoH key informants stating that there are some cases where donors do not consult the MoH for unknown reason ended by incompatible donation to our standardized models. One example was provided as he said, *″Complete Blood Cells Count machine was delivered to the MoH warehouse as a donation, which seemed MoH was not consulted before its purchase. Through the communication with the donating side, we found out that the machine was selected by inexpert people who did not consider properly the reagent type as per MoH essential standard list Moreover, that machine is different from the models used at the MoH laboratories. Unfortunately, this donation was rejected totally″.*

Table (4.9) Distribution of the study participants according to their response on the equipment delivery to the warehouse.

Items	**Number**	**%**
Delivery of donated equipment to the MoH central warehouse.		
Yes	53	88.3
No	3	5.0
Don't Know	4	6.7
Total	**60**	**100.0**
Notification on the delivery of of donated equipment.		(n=53)
Yes	50	94.3
No	3	5.7
Total	**53**	**100.0**
Regular participation in the reception process at the MoH central warehouse		
Yes	48	80.0
No	12	20.0
Total	**60**	**100.0**
Direct supply of medical equipment to the medical facility by the donors in the past three years.		
Yes	34	56.7
No	17	28.3
Don't Know	9	15.0
Total	**60**	**100.0**

The findings in Table (4.9) shows that delivery of the donated medical equipment is being done to the MoH central warehouse according to 88.3% of the study participants, and 5% of them don't think that donated equipment is being delivered to MoH central warehouse at

the MoH, while 6.7% of the participants don't know on the delivery of equipment to a central warehouse.

The findings are congruent with the literature indicating the necessity of the inventory system to **e**nsure that the entry of all equipment into service is properly controlled and documented (WHO, 2011). Moreover, its matching the recommendation of USAID (2011) stating that the most common in-country distribution system is a system where equipment distribution flow from central stores to districts and health facilities; and, ultimately, to service delivery points.

To a large extent, the findings are compatible with the statements of the MoH and donor's key informants assuring that the delivery of equipment is centralized following the MoH regulatory procedure for donation. From the researcher's point of view, the results indicate the strength of the MoH system in terms of delivery to a central warehouse from where distribution for utilization by end-users is made.

Table (4.9) indicates that, among those participants who confirmed the delivery to a central warehouse, 94.3% of the participants are notified and coordination is made with them to receive donated equipment from the MoH central warehouse, and only 5.7% of the participants are not notified on donations delivery to a central warehouse.

The present results are far from findings obtained by Dyro (2004) stating that there are many hospitals in developing countries have lack awareness of the arrival of earmarked medical equipment donation. Moreover, he stressed, if the hospital is not notified, then the expensive medical equipment remains in the store with no benefit or it goes to another place where it might be unwanted (Dyro, 2004).

The researcher interprets that notification of the medical facility on the arrival of the earmarked donation would enhance the trust between MoH and donors and proofs the will of the MoH to achieve its strategic goals through effective donations. Furthermore, this would support the MoH to benefit from other investments in the medical donations and fill the gaps resulted from medical equipment shortage.

The results in Table (4.9) reveal that 80% of the study participants contribute in the equipment reception process regularly at the MoH warehouse, while 20% of them don't participate regularly.

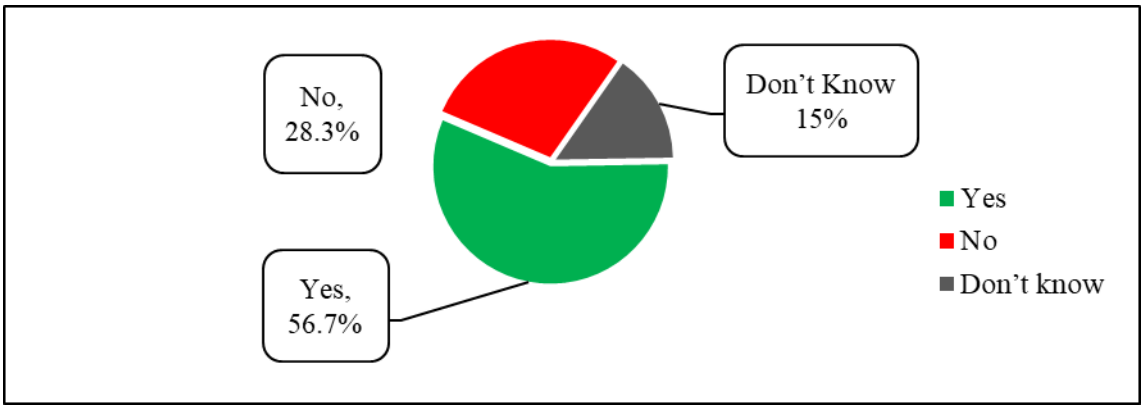

Figure (4.7) Distribution of the participants according to their response on delivery of equipment by donors to medical facilities

As indicated by the result in Table (4.9) and Figure (4.7) that 56.7% of the participants experienced direct supply of equipment to their medical facilities by the donors during the last three years, and 28.3% of them stated no direct supply took place since 2017, while 15% don't know on the direct supply by donors.

The results seem to be contrary to some findings of the current study, indicating that the delivery of equipment is made centrally. To understand more on the contradiction, the results from the in-depth interviews with MoH and donors, explained is as there are exceptions to do the delivery directly to the receiving medical facility instead of central

delivery as the nature of the donated equipment stresses to do a direct delivery, as one of them said *"In many occasions, we accept to receive the donations directly from the suppliers at the medical facility as it's in large size like CT, MRI, laboratory equipment, hemodialysis machines and others where installation, operation, and training are crucial criteria to issue an approval for payment".*

Table (4.10) Distribution of the study participants according to their response on the technical inspection and availability of technical committees at the warehouse.

Items	**Number**	**%**
Availability of MoH committees dedicated for technical inspection upon delivery of equipment to the MoH central warehouse.		
Yes	56	93.3
No	1	1.7
Don't Know	3	5.0
Total	**60**	**100.0**
Involvement of MoH staff in the technical inspection committees. (n=56)		
Yes	44	78.6
No	12	21.4
Total	**56**	**100.0**

As shown in Table (4.10), 93.3% of the study participants assured that there are technical committees dedicated for inspection upon equipment delivery to the MoH central warehouse, and 1.7% of the participants said there are no committees, while 5% of them don't know whether there are committees or not.

The results are extremely consistent with literature stressing the necessity of dedicated committees whose important function to verify medical equipment on delivery to determine compliance to specifications (WHO, 2011d).

Regarding the involvement of the participants in the technical committees, 78.6% participate in the working committees at the delivery of equipment to medical facilities from the warehouse, and 21.4% don't participate in the technical committees' work as seen in Table (4.10).

The present finding is in line with the recommendation made by Saleh et al. (2014) stressed that the clinical engineering department ensures an incoming inspection on equipment includes verification of accessories, manuals, and electrical safety and operation by all applicable policies. Incoming equipment should be carefully checked for possible shipment damage and compliance with specifications in the purchase order.

The findings are congruent with the previous study performed by Zomboko, et al. (2012), emphasizing the importance of the inspection procedure, proposed that equipment not conforming to the specifications should be rejected and inspection report could be linked to the release of payments if any.

From the researcher's experience, this process takes place at MoH warehouses upon the arrival of donation with full confidence that the process brings benefits to the MoH and donors as they make sure the delivered equipment is compatible with ordered ones as well provide a good chance for technical personnel to ensure safety and appropriateness of the delivered items, particularly for accessories inclusion.

The discussion with MoH key informants revealed that the technical inspection is a vital process for MoH to determine the extent to which the donations are matching what was ordered by the donors with all agreed requirements and to ensure that equipment is operational and ready for use. The senior storekeeper of the MoH said *"We should organize a committee to perform the technical inspection to ensure that equipment is the same model as the one was ordered, and accessories are attached. Moreover, the process is needed to make sure that the machine is not damaged during the transportation and is in the status of full functionality before signing for payment release by the donors".*

Providing relevant information related to purchasing of equipment is considered a crucial part of the process at different stages. This includes supplier information, equipment cost, installation date, warranty expiration date, purchase date, etc.

The MoH key informants identified lack of information from the donors as one of the critical gap resulting in many problems, including the difference in the equipment delivered from the ones were ordered by the donors, lack of accessories that should be included with the machines, and other issues that are important for the MoH to know.

From the discussion with the donor's key informants, the researcher noted that the donors are providing the information needed through the MoH ICD to be shared with MoH relevant departments including the central logistics store before the delivery of equipment. Despite that, some donors confirmed that information related to the cost of the machines cannot be sharing with MoH as an institutional policy.

From the MoH side, providing all information on the upcoming donations helps the MoH to effectively and efficiently manage the donation process with a guarantee that all paperwork is done accordingly including payment release confirmation for the supplier. One key informed said in his words *" How come donors are providing valuable and expensive machines through contracts with suppliers without sharing this with us, to ensure appropriate donation process with the suppliers who supposed to deliver equipment according to the signed contract and conditions, that we are don't have full information about it. This is not good for the cooperation and partnership we agreed on. We should get all information on the donation from the donors not from the suppliers".*

Table (4.11) Distribution of the study participants according to their response on the installation and operation process at the medical facility.

Items	**Number**	**%**
Inclusion of the installation/operation process during the purchase and supply process.		
Yes	59	98.3
No	1	1.7
Total	**60**	**100.0**
Coordination with MoH staff to carry out the installation and operation process.		
Yes	58	96.7
No	2	3.3
Total	**60**	**100.0**
Engagement of the MoH staff in the installation and operation process to share point of view. (n=58)		
Yes	57	98.3
No	1	1.7
Total	**58**	**100.0**
Installation and operation process by competent technicians.		
Yes	58	96.6
No	1	1.7
Don't Know	1	1.7
Total	**60**	**100.0**
Delivery of all accessories, operation, and maintenance manuals after the installation and operation process.		
Yes	57	95.0
No	2	3.3
Don't Know	1	1.7
Total	**60**	**100.0**

As seen in Table (4.11), 98.3% of the study participants confirmed that medical equipment installation and operation at the medical facility are conditioned during the purchase process, and 1.7% of them stated that this is not conditioned.

Regarding the pre-installation coordination with the participants, 96.7% of the participants assured that coordination is being made with them before the installation, while 3.3% of the participants informed that pre-installation coordination is not being done as indicated in Table (4.11).

Table (4.11) shows that, among the participants who confirmed the availability of the coordination, 98.3% of the participants had engaged in the installation process and given the chance to share their views. Also, 96.6% of the participants believe that the installation is performed by competent technicians, and 1.7% of the participants informed that technicians are not competent to do installation and operation, while 1.7% of the participants don't know.

Regarding the delivery of the accessories and other standard elements, the study result revealed that 95% of the participants confirmed the delivery of the accessories as seen in Table (4.11).

The results obtained in the chapter of installation and operation requirements are promising as it indicates that installation and operation at the facilities are well considered in the purchase process. Moreover, the installation and training are coordinated with the requesters and performed well by competent technical personnel.

The results are well harmonized with Willson (2013) proposing that proper installation procedure can be negotiated at the time of equipment and supplier selection. Thus, it becomes part of the acquisition process. The output of this stage of the management process is medical equipment, properly installed and ready to deliver its intended services.

In other literature, WHO, (2011b), proposed that when considering the donation of sophisticated equipment, careful attention is required due to complex matters such as specialized training, professional installation, and the need for specialized maintenance support in the field.

The results are in line with findings of the study performed by Bloom (1989) stating that incorrect installation of medical devices is a potential cause for equipment ineffectiveness.

Manufacturers of medical equipment usually provide recommended installation procedures, which should be taken seriously. Except for the simple and robust items of equipment, most medical equipment requires planned installation procedures.

In the discussion with key informants, the researcher found out that this aspect is well considered in the donation process, particularly during the purchase and delivery parts, making sure that the suppliers perform according to the awarding contract for installation and operation requirements.

Table (4.12) Distribution of the study participants according to their response on the training to operate donated medical equipment at the medical facility.

Items	**Number**	**%**
Inclusion of the training process in the purchase process according to MoH policy.		
Yes	56	93.3
No	3	5.0
Don't Know	1	1.7
Total	**60**	**100.0**
Inclusion of the training process in the purchase process according to donor's policy.		
Yes	43	71.7
No	10	16.7
Don't Know	7	11.7
Total	**60**	**100.0**
Training of the MoH staff on the installation and operation.		
Yes	52	86.7
No	6	10.0
Don't Know	2	3.3
Total	**60**	**100.0**
Coordination with MoH staff for the training and use process.		
Yes	52	86.7
No	7	11.7
Don't Know	1	1.7
Total	**60**	**100.0**
Training process by competent technicians.		
Yes	46	76.7
No	6	10.0
Don't Know	8	13.3
Total	**60**	**100.0**

Table (4.12) showed that 93.3% of the study participants confirmed that training on the use of medical equipment at the medical facility is conditioned during the purchase process, and 5% of them stated that this is not conditioned, while 1.7% of the participants don't know if the training is being conditioned or not.

The results reflect the necessity of training on the use of equipment before its use which is compatible with the guideline issued by WHO (2009) assuring that during the purchase of new equipment, suppliers can be requested to train in-house technicians in maintenance; this condition should be included in the tender or purchase order to ensure that equipment suppliers are obliged to provide comprehensive warranty and maintenance services.

Concerning stipulation of training on the use of medical equipment during the purchase in accordance to donor's policy, Table (4.12) revealed that more than two-thirds of the participants (71.7%) reported that training is stipulated during the purchase process, and 16.7% of them don't believe that this is being considered, while 11.7% don't know.

Regarding the training of the MoH staff on the installation and operation of the donated equipment, 86.7% of the participants were sure that training of the MoH staff had been made on medical donated, while 10% don't think that taring had been conducted on the installation and operation, and only 3.3% deemed don't know as shown in Table (4.12)

Lastly, regarding the coordination with the participants before the training, 86.7% of the participants stated that coordination is made with the medical facility before the training, while 11.7% of the participants informed that pre-training coordination is not done as indicated in Table (4.12).

These results are congruent with the study results performed by Murad, (2010) found in his study performed in Gaza that, 49.7% of study participants thought that damage of medical equipment usually happens due to lack of knowledge and taring.

Also, this study result is consistent with the recommendation made by Dyro, (2004) presented that provision of training for the user of the medical equipment must be established in the purchasing agreement. From the researcher's experience in the BME field, it is preferable to begin training during installation, operation, and use of equipment that require good knowledge in troubleshooting management.

From the results of the in-depth interviews, the researcher found out that the majority of donors include the training in their tendering documents and coordinate between the MoH and suppliers to ensure delivery of training according to the awarding orders. The author interprets that the results obtained reflect greatly the compliance of the donors to the policies, logistical conditions, and recommendations as per many pieces of literature.

4.2.4 Participants perceptions: agreement and satisfaction with practices in the management of donation processes.

To analyze the participants' perceptions towards main practices performed in the management of the donation process, the author arranged the statements describing these practices in several domains as per Table (4.13).

The effectiveness of donation supply processes management is reflected by the satisfaction of the study participants and their rating on the practices done by the stakeholders involved in the processes. As shown in Table (4.13), the results indicate that donation practices and processes management are at a good satisfactory level, this is indicated by the weighted mean of participants' perception toward all domains included in this study (77.62%).

As seen from the results, the satisfaction rating started from the installation and training, awarding & purchase process, delivery process, donation policies, satisfaction on the donation management, specification setting, and planning process.

Table (4.13) Distribution of the study participants according to their perceived satisfaction with donation practices and processes management.

No.	Domain	Weighted Mean %	SD
1.	Donation Policies	78.0%	11.54
2.	Planning Process	67.2%	10.20
3.	Technical Specification Setting Process	71.7%	10.40
4.	Awarding & Purchase Process	87.0%	12.63
5.	Delivery Process	78.1%	10.67
6.	Installation & Training Process	87.2%	12.07
7.	Satisfaction on the Donation Processes Management	73.7%	10.30
	Overall	**77.6%**	**11.11**

There is a similarity in the highest participants' perceptions toward the installation & training process and awarding & purchase process (mean = 87.24) and (mean = 87.00) respectively. This reflects the good performance in terms of operation and purchase of equipment.

The participants' perception of the delivery process, donation policies were the same with a weighted mean (78.10). followed by satisfaction on the donation management, specification setting with means (mean = 73.70) and (mean = 71.70) respectively. And lastly, the planning process which had the lowest means score (67.20), which means that the perception is that the planning process does not meet their expectations and happens with less involvement of the participants.

Table (4.14) Distribution of the study participants according to their perceived satisfaction with donation policies.

Items	Yes, definitely	Yes, to some extent	No	Weighted Mean %
	No. (%)	No. (%)	No. (%)	
The Ministry's policies apply to all donations of medical equipment.	27 (45)	32 (53)	1 (1.7)	**81.1**
The Ministry of Health obligates all donors to act and donate by its policies.	23 (38)	34 (57)	3 (5.0)	**77.8**
The donors comply with the Ministry's policies in the medical equipment donation process.	24 (40)	34 (57)	2 (3.3)	**78.9**
The Ministry's policies for medical equipment donation are effective which enables you to obtain your needs of the equipment.	19 (32)	36 (60)	5 (8.3)	**74.4**
Weighted Mean = 78%, SD= 11.54				

As shown in Table (4.14), most of the study participants expressed their agreement with the statements about the donation policies, practices related to policy implementation, and compliance of donors. It was reflected by the weighted mean percentage of 78% with (SD =11.54); as 81.1% of participants agreed that MoH policies applied to all medical equipment donations. The donors' compliance with MoH policies was good as the staff rating (79%).

Regarding the statement that indicated the MoH obligates the donors to act and donate under its policies, the participants' rank was 77.8%. To conclude, about three-quarters of the participants (74.4%) indicated that the MoH policies are effective enabling the participants to obtain their needs of medical equipment. Generally, going through the scores, the results show good ratings and satisfaction towards the MoH policies available

to regulate the donation process and the donor's compliance with it. Yet, improvement is needed in this aspect through communications with donors and close follow up for better implementation by all stakeholders.

Table (4.15) Distribution of the study participants according to their perceived satisfaction with the planning process.

Items	Yes, definitely	Yes, to some extent	No	Weighted Mean %
	No. (%)	No. (%)	No. (%)	
You get sufficient information from donors or the MoH during the planning process on the funds.	15 (25)	31 (52)	14 (23)	**67.2**
The MoH warehouse system is effective that enables you to determine equipment needs and deficiencies before requesting donor support.	24 (40)	23 (38)	13 (22)	**72.8**
The response to your needs of equipment is made according to the agreed planning process.	16 (27)	33 (55)	11 (18)	**69.4**
During the donor's internal planning process for donation, the donor involves you in the process.	11 (18)	25 (42)	24 (40)	**59.4**
Weighted Mean = 67.2%, SD = 10.2				

As shown in Table (4.15), the scores for the statements related to the planning process and information on the needs were varied. The overall mean percentage was 67.2%, with (SD 10.2). 72.8% of participants expressed positively concerning the MoH warehouse system considering it effective one that enables them to determine the availability of needed equipment before requesting donor’s support. 69.4% of the participants indicated that response to their needs is made according to agreed planning. Regarding the information provided to the participants from MoH or donors on the granted budget, 67.2% of the participants expressed positively receiving sufficient information. Finally, the lowest

weighted mean percentage (59.4%) was reported by the participants' rating on their involvement in the planning process of the donor.

Regarding the planning process, the researcher noticed that the mean scores are worrying as they did not reach high satisfaction level. As seen that the domain weighted mean reduced by the participants' response towards the statement ″ During the donor's internal planning process for donation, the donor involves you in the process ″. Moreover, the weighted mean of this domain is reduced by participants' agreement with the statement ″ You get sufficient information from donors or the MoH during the planning process on the granted budgets ″. The researcher interprets the results as an indication of the low satisfaction of the MoH staff on their participation in the donor planning process and the process of receiving sufficient information on the granted funds for donation. From the researcher's experience and in-depth interview results, some donors tend to do their planning process with limited MoH participation and limited information sharing on the allocated budget.

The findings indicate that the planning process is critically in need for much work and efforts from all stakeholders to improve the planning practices as this process is considered the most important phase to identify the needs of the MoH and respond according to these needs.

From the discussions with MoH key informants, to improve the satisfaction on the planning process, the proposed actions focused mainly on active participation of the MoH structures with donors at early stage which could reflect on the real needs of the MoH and be considered by the donors in the fund allocation phase. Moreover, the researcher believes that notifications on any changes or adjustments made after any agreements by stakeholders have to be well considered and circulated among all involved people to ensure mutual benefits.

Table (4.16) Distribution of the study participants according to their perceived satisfaction on technical specification setting process.

Items	Yes, definitely	Yes, to some extent	No	Weighted Mean %
	No. (%)	No. (%)	No. (%)	
The donor participates with the Ministry of Health during the technical specifications setting in the donation process.	15 (25)	30 (50)	15 (25)	**66.7**
During the purchase process, technical specifications set by you are considered and according to your need.	37 (62)	19 (32)	4 (6.7)	**85**
During the specifications setting, specific technical specifications are imposed that are different from your needs.	17 (28)	20 (33)	23 (38)	**63.3**
Weighted Mean = 71.7%, SD= 10.4				

As shown in Table (4.16), more than two-thirds of the participants expressed their perception of the questions related to the technical specifications setting. The weighted mean percentage was 71.7%, (SD 10.4). The highest weighted mean (85%) was reported under the agreement of the participants on the statement that during the purchase process, technical specifications set by the participants are considered and according to their needs. Concerning the participation of donors with the MoH in the technical specifications seating, the participants scored with a weighted mean of 66.7%. The lowest agreement rate with a mean (63.3%) was given by the participants to the statement indicating that specific technical specifications are imposed during the specifications setting which is different from the participants' needs.

The researcher noted that the domain weighted means affected by the responses towards two statements, the first is imposing specific technical specifications during the specifications setting, which are different from the requester needs. This was explained by

the key informants that the specifications have to be broad and not exact to some specific models to ensure transparency in the process and allow for fair competition. The second statement sounds to be matching to the in-depth interviews saying that the donors are not participating in the specifications setting with MoH as the Biomedical Engineers and medical staff from the MoH are entitled to provide it with limited donors participation, especially that not all donors have the human resource with biomedical expertise. The author noticed that, the mean score on the statement ″During the purchase process, technical specifications set by you are considered and according to your need″ was good reflecting the real situation as per the in-depth interviews which revealed that, in the awarding process, the needs of the requester are met as possible.

Table (4.17) Distribution of the study participants according to their perceived satisfaction on awarding & purchase process.

Items	Yes, definitely	Yes, to some extent	No	Weighted Mean %
	No. (%)	No. (%)	No. (%)	
Your technical opinion and your needs are considered during the awarding and purchase.	38 (63)	20 (33)	2 (3.3)	**86.7**
The awarding and purchase processes are done with clarity and integrity.	39 (65)	19 (32)	2 (3.3)	**87.2**
Awarded medical equipment comply with the specified specifications.	39 (65)	20 (33)	1 (1.7)	**88.0**
Your priorities are made according to your vision if the budget allocated to you is not sufficient.	32 (53)	26 (43)	2 (3.3)	**83.3**
There are conditions imposed by donors that adversely affect the procurement and awarding process.	8 (13)	27 (45)	25 (42)	**57.2**
The donors provide details of the equipment purchased through the donor's procurement system.	18 (30)	34 (57)	8 (13)	**72.2**
All suppliers are abided by the agreed guarantee through the donor’s purchase process, according to the terms of awarding and purchase.	33 (55)	25 (42)	2 (3.3)	**84.0**
Weighted Mean = 80.0%, SD= 11.2				

As shown in Table (4.17), more than three-quarters of the participants expressed positively on the perceived awarding and purchase process during the donation process. It was reflected by the weighted mean percentage of 80.0 % (SD=11.2); as 88.0% of participants expressed positive agreement with compliance of the awarded medical equipment with specified specifications set by the participants. Regarding the clarity and integrity in the awarding process, the participants agreed with the weighted mean percentage of 87.2%. In the awarding process, the technical opinion of the participants was considered with a mean of 86.7%. The participants showed a good agreement with the abidance of the suppliers by the agreed guarantee through the donor's purchase process with a mean of 84.0%. The participants' priorities were taking into consideration in the awarding as positively indicated with a mean (83.3%). More than two-thirds of the participants with a weighted mean percentage (72.2%) showed their positive satisfaction with the shared details of equipment purchased through the donor's procurement system. Lastly, 57.2% of the participants were moderately positive on the imposed conditions by the donors that affect adversely on the awarding process.

The purchase and awarding process is a vital part as it includes the suppliers as an additional stakeholder who must comply with the awarding documents and commitments. Although, the perceived satisfaction in this domain is remarkably high with a weighted mean of 80.0%, however, the score has been affected mainly by the participants' response to the statement regarding the conditions imposed by the donors that adversely affect the procurement and awarding process. From the researcher's observation, the donors have conditions that could potentially affect the process. Given example could be accepting models of equipment are manufactured in countries like China and Taiwan, while the MoH standards are different which instruct to exclude some brands made in these countries.

Other examples could be the standardization of equipment brands and models that donors are not familiar with and unlikely to consider.

The researcher noticed that the other states affected the domains weighted mean is ″ The donors provide details of the equipment purchased through the donor's procurement system″. The results from the in-depth interviews tackled this point where it was concluded that sharing information by the donors on the donated equipment still concerning the MoH and work on that is needed to improve the communication aspect from the donor's side.

Table (4.18) Distribution of the study participants according to their perceived satisfaction on delivery process.

Items	Yes, definitely	Yes, to some extent	No	Weighted Mean %
	No. (%)	No. (%)	No. (%)	
Coordination takes place with you in the event of a difference between the equipment that has been awarded and the ones that are delivered.	26 (43)	29 (48)	5 (8.3)	**78.3**
The equipment is delivered according to what was awarded and purchased and according to the specified quantities.	36 (60)	23 (38)	1 (1.7)	**86.1**
The medical equipment supplied by donors is identical to what has been awarded and purchased.	40 (67)	20 (33)	0 (0)	**88.9**
The supplied equipment contains the accessories that were agreed upon awarding and purchase.	37 (62)	22 (37)	1 (1.7)	**86.7**
The receiving committee is not influenced to accept equipment that does not conform to what was agreed upon awarding and purchase.	44 (73)	14 (23)	2 (3.3)	**90.2**
Medical equipment that does not match what was agreed upon awarding and purchase is rejected.	45 (75)	14 (23)	1 (1.7)	**91.1**
Weighted Mean = 87%, SD= 12.6				

As shown in Table (4.18), the participants expressed a positive perception towards the delivery process of donated equipment as indicated by the weighted mean percentage of 87% (SD=12.6). The highest weighted mean percentage 91.1% was reported under the agreement of the participants on the rejection of incompatible delivered equipment with awarded ones. With a mean (90.2%) the participants pointed positively that the receiving committee is not influenced to accept equipment that does not conform to the awarded and purchased. In the same line, 88.9% of the participants indicated that medical equipment delivered to the MoH warehouse by the donors is identical to what has been awarded during the purchase. Medical equipment was delivered with all needed accessories as shown by the weighted mean of 88.9%. The participants' perception of the quantities of medical equipment by awarded specified quantities was positive as the mean showed 86.1%. More than three-quarters of the participant 78.3% rated positively on the coordination with them in the event of a difference between awarded and delivered equipment.

The findings under the domain of delivery process indicate that the stakeholders pay strong attention to this part of the processes management as the weighted mean scored is the highest among the other means 87.0%. The highest scores were given to the statements toward influence made to accept incompatible delivered equipment and rejection of it accordingly. This to great extent shows the strength of the MoH committees dedicated to technical inspection.

The researcher noticed that the overall weighted mean reduced by the response on the statement ″Coordination takes place with you in the event of a difference between the equipment that have been awarded and the ones are delivered″, which reflects the necessity for the stakeholders to continuously work to improve the coordination and communication along the process to maximize its effectiveness.

Concerning the conditions and commitments presented in the contract between the donor and the supplier such as installation guarantee conditions, accessories, and maintenance guarantee, and other items of the contract, the interviews with MoH key informants revealed that they don't get a copy of this contact to be able to follow up with suppliers in case of equipment failure or guarantee duration and other related issues. From the MoH perspectives, lack of such information could be harmful to the donation process management and creates post-donation related problems like maintenance obligations and under warranty spare parts provision.

Senior MoH logistics officer stated that *"We don't get a copy of the contract signed by the donors and the suppliers; therefore, it becomes so difficult for us to obligate the suppliers to perform in accordance to the conditions of the contract including maintenance and guarantee period".*

Table (4.19) Distribution of the study participants according to their perceived satisfaction on installation & training process.

Items	Yes, definitely	Yes, to some extent	No	Weighted Mean %
	No. (%)	No. (%)	No. (%)	
Prior coordination with you is considered to prepare for the installation and operation processes.	39 (65)	20 (33)	1 (1.7)	**87.8**
The process of installation and operation of medical equipment is considered by the suppliers under the terms of awarding and purchase.	40 (67)	20 (33)	0 (0)	**88.9**
All suppliers comply with the requirement for training on the installation and use.	26 (43)	29 (48)	5 (8.3)	**78.3**
Fair and neutral external and internal training opportunities are available to users of medical equipment.	13 (22)	26 (43)	21 (35)	**62.2**
Training processes on use are useful.	20 (33)	32 (53)	8 (13)	**73.3**
Weighted Mean = 78.1%, SD= 10.7				

The results in Table (4.19) showed a positive participants' perception of the installation and training on the use of donated equipment as indicated by the overall weighted mean percentage of 78.1% (SD=10.7). The highest weighted mean percentage of 88.9% was recorded under participants' agreement on the obligation of the suppliers to perform installation and training under awarding terms. Also, 87.8% of the participants showed satisfaction with the coordination with them to prepare for installation and use of equipment.

Around three-quarters of the participants perceived the usefulness of the training process positively with a mean of 73.3%. On fair and neutral training opportunities externally and internally, participants' perception was moderately positive with a mean of 62.2%.

Although, the results appear to be good under the installation and training domain, however, the low scores were given to the usefulness of the training and the fair opportunities indicate that further investment needs to be done in this aspect to ensure that training is made by competent personnel to satisfy the users and make sure that training meets their expectations and need. Moreover, training opportunities need to be made available to all potential users and operators as possible.

It's worth mentioning that the results from the in-depth interviews with MoH reveal that the strategy of the MoH in terms of training opportunities to maximize the benefit through training competent staff who will be training the other colleagues to ensure continuous training activities targeting all concerned staff.

Table (4.20) Distribution of the study participants according to their perceived satisfaction with the management of donated medical equipment supply processes.

Items	Yes, definitely	Yes, to some extent	No	Weighted Mean %
	No. (%)	No. (%)	No. (%)	
The donor's implementation of the policies for equipment donation satisfies you.	24 (40)	33 (55)	3 (5)	**78.5**
The donor's response to your needs satisfies you.	18 (30)	37 (62)	5 (8.3)	**73.9**
These donations meet your qualitative need in response to a donation appeal.	21 (35)	39 (65)	0 (0)	**78.3**
These donations meet your quantitative need in response to a donation appeal.	11 (18)	43 (72)	6 (10)	**70.1**
The donor's mechanisms for the medical equipment donation planning process satisfy you.	10 (17)	48 (80)	2 (3.3)	**71.1**
The donor's mechanisms for the awarding and purchase of medical equipment satisfy you.	13 (22)	44 (73)	3 (5)	**72.2**
The donor's mechanisms for the delivery of medical equipment satisfy you.	13 (22)	45 (75)	2 (3.3)	**72.8**
Weighted Mean = 73.7%, SD= 10.3				

As indicated in Table (4.20), results showed a good level of participants' satisfaction on the management of donated medical equipment supply processes with an overall weighted mean percentage of 73.7% (SD=10.3). The highest score of satisfaction with a mean of 78.5% was given under the donor's implementation of the policies for medical equipment donation. More than three-quarters of the participants with a mean of 78.3% were satisfied with the response to donation appeal that met the qualitative need of the participants. The score on the participants' satisfaction on overall donor's response to their needs of equipment was good with a mean of 73.9%. The weighted mean percentage of 70.1% indicated a good participants' satisfaction on the response to donation appeal that met the quantitative need of the MoH. The donor's mechanisms for medical equipment delivery satisfied the participants with a mean of 72.8% followed by the satisfaction of the participants on the donor's mechanisms for the awarding and purchase with a mean of

72.2%, and lastly, 71.1% of the participants expressed their satisfaction on the donor's mechanisms for the medical equipment donation planning process.

The results indicate the satisfaction of the participants toward the implantation of donation policies as well as the satisfaction with the quality of donations received from donors. This to a large extent is meeting the results obtained from the in-depth interviews performed with MoH informants who expressed positively their pleasure to the management of donation processes.

The findings showed that the donor's planning, awarding and equipment delivery processes have similar satisfaction scores so far which reflect the good performance of the donors at different phases. Yet, improvement is needed to increase the effectiveness and efficiency of donations.

The researcher noticed that despite that, donor's donations are satisfying the participants in terms of quantities, nevertheless, the participants' score reflects that donors are encouraged to intensification their donations to adequately respond to the increasing needs of the healthcare system in the Gaza strip.

The findings of in-depth interviews the knowledgeable key informant revealed that despite the difference in the donation policies and mechanisms, and the gaps resulted from donation malpractice by stakeholders, the promising results obtained on the effectiveness of donations and its impact on the quality service provision reflect that there are good opportunities for optimizing the value of donations more and minimizing waste.

One donor's key informant stated *" Despite difficulties we face in processing our donations, but we can see that there are improvements over the past years, and we hope to overcome existing gaps in the future".*

MoH key informant stated that *"We managed to develop distinguished relationships with our partners to do things more organized and improve the performance to get the best outcome of their support and donations. I can tell you that we are satisfied with the achievements we gained and will do our best to maximize them".*

4.2.5 The difference in mean scores on participants' perceptions about practices during donation processes management according to their sociodemographic variables.

ANOVA test was applied to examine whether there was a statistically significant difference between mean scores of the participants' perceptions towards the donation processes management domains according to the workplace and profession.

Table (4.21) Differences in mean scores of participants' perceptions on the donation processes management domains by participants' workplace.

Domain	Workplace	No.	Mean	Std	F	Sig.
Donation Policies	Hospital	36	74.3	4.2	1.500	0.232
	Engineering dep.	19	69.7	15.8		
	Others	5	70.0	11.2		
Planning Process	Hospital	36	77.1	31.8	1.684	0.195
	Engineering dep.	19	64.5	32.6		
	Others	5	90.0	22.4		
Technical Specification Setting Process	Hospital	36	78.7	24.1	1.188	0.312
	Engineering dep.	19	70.2	27.0		
	Others	5	86.7	18.3		
Awarding & Purchase Process	Hospital	36	91.7	9.3	1.224	0.302
	Engineering dep.	19	87.2	11.6		
	Others	5	88.6	12.0		
Delivery Process	Hospital	36	73.1	15.1	0.158	0.854
	Engineering dep.	19	72.8	11.4		
	Others	5	76.7	14.9		
Installation & Training Process	Hospital	36	89.4	17.6	0.263	0.769
	Engineering dep.	19	87.4	16.6		
	Others	5	84.0	16.7		
Satisfaction on the Donation Processes Management	Hospital	36	96.4	7.9	3.193	0.048*
	Engineering dep.	19	95.5	8.3		
	Others	5	82.9	31.0		
Total Perception	Hospital	36	84.6	7.8	1.719	0.188
	Engineering dep.	19	80.6	7.0		
	Others	5	82.8	9.1		

(* signifies significance <0.05)

A one-way ANOVA test was conducted to examine whether there were statistically significant differences between the participants' working place about donation processes management domains, while LSD post hoc test was performed to specify more the differences between the group means.

Table (4.27) shows that among seven domains of the study, the mean scores in the satisfaction on the donation processes management reached a statistical significance level (F= 3.193, P-value = 0.048) with a mean of 96.4 for the hospital, 95.5 for the engineering department and 82.9 for other workplaces. According to the results, the difference between the mean scores of the other six domains of the study with regards to workplace didn't reach the statistical significance level. LSD post hoc test revealed that there was a statistically significant difference in the total satisfaction on the donation process management between the study participants' working at other facilities and hospitals & engineering department (Annex 11).

This difference from the researcher's point of view could be explained by the fact that other facilities including PHCs, central laboratory and public health laboratory receive less medical equipment which are specific by nature and limited by quantities making the staff working in these facilities less satisfied. On the other side, hospitals have more medical equipment with different models and applications than other places. This difference goes to the staff working in the hospitals who receive the greatest portion of donations. Moreover, this was confirmed from the in-depth interview with MoH key informants who said that *"Many donors support the hospitals as they have their programs and activities particularly the ones related to emergency and surgical services and other services".*

From the results, the researcher concluded that number of biomedical engineers working at the central engineering department is significantly high whereas they are attending and participating frequently in the process of the medical equipment donated to the hospitals.

Table (4.22) Differences in mean scores of participants' perceptions on the donation processes management domains by participants' profession.

Domain	Profession	No.	Mean	Std	F	Sig.
Donation Policies	Doctor	7	71.4	9.4	0.387	0.817
	Nurse	11	75.0	0.0		
	Lab Techn.	7	71.4	9.4		
	Engineer	28	71.4	13.1		
	Others	7	75.0	0.0		
Planning Process	Doctor	7	32.1	34.5	4.818	0.002*
	Nurse	11	81.8	25.2		
	Lab Techn.	7	89.3	19.7		
	Engineer	28	75.0	31.2		
	Others	7	85.7	19.7		
Technical Specification Setting Process	Doctor	7	76.2	25.2	0.523	0.719
	Nurse	11	81.8	22.9		
	Lab Techn.	7	85.7	17.8		
	Engineer	28	72.6	24.1		
	Others	7	76.2	37.1		
Awarding & Purchase Process	Doctor	7	89.8	13.6	0.790	0.537
	Nurse	11	94.8	7.2		
	Lab Techn.	7	87.8	9.9		
	Engineer	28	89.3	10.7		
	Others	7	87.8	9.9		
Delivery Process	Doctor	7	71.4	20.9	2.701	0.040*
	Nurse	11	84.8	15.7		
	Lab Techn.	7	69.0	15.0		
	Engineer	28	71.4	10.0		
	Others	7	69.0	6.3		
Installation & Training Process	Doctor	7	77.1	26.9	0.963	0.435
	Nurse	11	87.3	16.2		
	Lab Techn.	7	91.4	15.7		
	Engineer	28	90.7	14.9		
	Others	7	88.6	15.7		
Satisfaction on the Donation Processes Management	Doctor	7	89.8	13.6	1.990	0.109
	Nurse	11	97.4	5.8		
	Lab Techn.	7	85.7	26.1		
	Engineer	28	96.9	7.1		
	Others	7	98.0	5.4		
Total Perception	Doctor	7	75.3	10.6	3.244	0.018*
	Nurse	11	87.9	4.7		
	Lab Techn.	7	83.0	7.4		
	Engineer	28	83.4	6.9		
	Others	7	84.1	7.6		

(* signifies significance <0.05)

ANOVA test was conducted to examine if there were statistically significant differences between the participants' profession concerning donation processes management domains, while LSD post hoc test was performed to specify more the differences between the group means.

As demonstrated in Table (4.28), the study found out that the differences in mean scores of participants' perceptions toward the seven domains of donation processes management by their profession reached the statistically significant level in three domains, the planning process domain, the delivery process domain and the total perception of all domains. The differences in the mean scores of the other five domains did not reach a statistically significant level as seen in Table (4.28).

Regarding the satisfaction of the participants on the planning process, ANOVA test revealed that the difference is significant among the participants with regards to their profession with (F= 4.818, P-value = 0.002). LSD post hoc test was performed to specify the differences between different group means. The test shows that doctors have the lowest mean score in this domain mean 32.1, followed by Engineers 75.0, and Nurses 81.8, others with a score of 85.7, and lastly, the highest was recorded by lab technicians 89.3 (Annex 12).

This difference can be attributed to the fact that the doctors are less consulted and involved in the planning for medical equipment while others have much participation and consultation in planning their needs.

From the researcher expertise, the nurses and other staff are dealing with medical equipment and managing them more while doctors are less involved in the medical equipment handling and management. Lab equipment, radiology and basic equipment are

common and considered good examples of equipment that requested and managed by nurses mainly and medical technicians. All the mentioned reasons could contribute to the fact that doctors are less satisfied with the planning of equipment which include requesting new medical equipment.

Concerning the difference in the mean scores noted in the delivery domain, the ANOVA test showed a statistically significant difference with the mean (F= 2.701, P-value = 0.040). The ANOVA test revealed that lab technicians and others have the same mean which is the lowest among other professions 69.0. Doctors and Engineers scored similar means 71.4, and the highest was scored by Nurses 84.8 (Annex 13).

LSD post hoc test was performed to specify the differences between different group means. The test shows that the difference goes to the nurses with the highest score followed by Biomedical engineers and doctors. This difference could be explained by the reason that nurses are requesting and dealing with medical equipment more frequent and attending delivery of equipment. Moreover, its worth mentioning that nurses are the most who is holding responsible for medical equipment reception, storage and care. From the in-depth interview with MoH key informants and the researcher experience, nurses appear and participate in the awarding and reception of donated equipment more than other professions.

From the ANOVA test performed for the total perception of all domains, the researcher noted that the difference in mean scores was statistically significant (F= 3.244, P-value = 0.018).

The nurses scored the highest mean 87.9 which indicates their remarkable positive perceptions toward donations processes and their management. LSD post hoc test revealed

that there was a statistically significant difference goes to the nurses as they request, manage and use equipment more than doctors and others (Annex 14).

The researcher would conclude that from data analysis and experience in the biomedical field, nurses are more satisfied with the management of donations with deep involvement and frequent participation in the processes.

Chapter Five

Conclusion and Recommendations

5.1 Introduction

In this chapter, conclusions are drawn based on the study objectives and recommendations are made from the empirical investigations in Chapter 4. Furthermore, limitations of the study are discussed, and certain recommendations are made.

5.2 Conclusion

Quality of medical equipment with no doubt affects the provision of healthcare services at different stages from diagnosis to cure and post-cure. The resource scarcity often forces the developing countries to depend on medical equipment donations from local and international donors.

Appropriate donations of medical equipment through effective processes can greatly assist medical facilities in providing quality healthcare, but recipients and donors need to actively and effectively manage the donation process to ensure that the donations are beneficial. Successful and optimal donation processes require effective management that includes proper communications to ensure compliance with local donation policies and appropriate planning, technical specifications setting, effective purchase and awarding process, and lastly, the delivery of equipment with information sharing on the donations.

This study was performed to evaluate the management of donated medical equipment supply processes at the Ministry of Health in the Gaza Strip, and appraise the strengths and the weaknesses of the current practices, and eventually propose improvement strategies that enhance the management of the supply process.

The study examined the main four interacted and interdependent parts that ultimately affect the quality of donations.

The first part includes the communication to ensure compliance with policies and guidelines and appropriately plan for equipment donations. The study results indicate that 80% of the study participants from diverse MoH professionals confirmed the availability of policies at the MoH to regulate the donation processes. Unfortunately, only 39,6% of the participants stated that the MoH policies are communicated to the donors through the official channels, Also, among the 48 participants who confirmed the availability of MoH policies, only 54.2% of the participants informed that policies are circulated to MoH individuals and departments.

On the planning of the needs, the study found out that, less than two-thirds of the participants 61.7% stated that the process of planning and needs determination for medical facilities to take place regularly. Moreover, MoH participation in the donor planning process was at a low satisfaction level with a weighted mean percentage of 59.4%. The relationship between the participants' perception of the planning and their profession was tested, the result revealed that there is a statistically significant difference in the mean scores ($F=4.818$, $p=0.002$).

In the same line, the results showed that an effective inventory and custody system is available as indicated by 98.3% of the participants. Moreover, 83.3% found that the MoH warehouse system is effective as it enables the MoH to verify the needs of equipment before requesting donors' support.

To conclude, this part of the study revealed that one of the gaps identified in the donation processes management is ineffective communication among the MoH structures, and

between the MoH and donors to ensure policy dissemination and proper planning of the needs with full participation and consultation with MoH. The moderate compliance of the donors with MoH policies as indicated by the weighted mean score of 78.8%. The results go far from the WHO underlined four principles of good donation practice which emphasized that there should be effective communication between the donors and the recipient, and donors should respect the national guidelines for medical equipment donations and respond to the priority needs indicated by the recipient and formulated by both parties.

The second part includes the technical specifications set for the procurement process, the study revealed that 96.7% of the participants confirmed that there are committees for technical specifications setting with good and diverse participation of the MoH staff. In contrast, only 58.3% of the participants reported that there is a pre-approved manual for technical specifications. The in-depth interviews with donors examined the effectiveness of technical specifications provision by MoH committees to donors to initiate the purchase process. In this manner, the results found out that significant delay in obtaining specifications was observed. From the researcher's observation, this delay is attributed to an internal communication gap between MoH directorates as specifications are not always available and updated. Consequently, efforts should be made at the MoH levels in this regard to better organize the process as the findings contradict the literature which indicates that provision of needed equipment specification should be fast as possible to commence the procurement process and should be accurate since the quality of equipment depends on the confirmation to the specifications and adequate specification forms the base for inspection and quality control.

The third part of the study assessed the purchase and awarding process. The findings showed that 86.7% of the participants said that there are a clear MoH purchase and awarding process. Participation of the MoH staff in the MoH procurement process was stated by only 56.7%, while 58.3% stated that they participate in the donor's purchase process. Moreover, 70% stated that donation of equipment for their medical facility occurs sometimes without coordination during the awarding and purchase.

The recipient and donors would benefit from collaborative improvements to ensure the wide participation of the relevant stockholders. The current results inconsistent with what was suggested by previous studies that successful donations would require local ownership and participation of end-users such as clinicians, nurses, and maintenance staff, and others.

The fourth part of the study examined the delivery of equipment and information on the donations. The findings showed that delivery of equipment is centralized at the main MoH warehouse as indicated by 88.43% of the participants with significant participation of the MoH staff in technical inspection. Despite the good adherence of the donors to the delivery guideline of the MoH, one of the gaps identified in this part was observed by the MoH informants on the lack of information on the donated equipment that should be provided by the donors, which in turn affects the technical inspection and quality certification process. This gap was reflected by participants' perception of the information sharing by donors with the weighted mean of 72.2%. Furthermore, the relationship between the participants' perception of the delivery and their profession was tested, the result revealed that there is a statistically significant difference in the mean scores ($F=2.701$, $p=0.040$).

Regarding the relationship between participants' satisfaction with the donation processes management and their working place, the difference in the means reached a statistically

significant level (F=3.193, p-value=0.048) as reflected by the mean scores for hospitals, engineering department, and other places 96.4%, 95.5%, and 82.9%, respectively.

Finally, the study results showed that the overall perception and satisfaction of the participants on the donation domains affected by their profession and the mean difference reached a statistically significant level (F=3.244, p-value=0.018) as reflected by the mean scores for doctors, nurses, lab technicians, engineers and other professions 75.3%, 87.9%, 83.0%, 83.4%, and 84.1%, respectively.

This to conclude, in the present study, some illustrated gaps are in line with the problems indicated by WHO which encounter in the donation processes. Despite some intra-MoH work was done over the last years such as a change in the setup and communication development, and externally with donors to improve communication for better policy implementation, the author believes that slight improvements have been obtained so far. Thus, integration of the study recommendations in future improvement initiatives will result in a significant enhancement of the current donation processes management.

5.3 Recommendations

The current study presents valuable findings that necessitate high consideration and immediate response by the decision-makers at MoH and Donor Agencies. The researcher strongly recommends that consideration should be given to utilize the study in future improvement initiatives. Based on the study results, analysis, and conclusions, the researcher suggests the following recommendations for concerned healthcare policymakers and future research studies towards effective management of donated medical equipment at the MoH in the Gaza Strip.

5.3.1 Recommendations for policymakers at the MoH and Donor Agencies

1. Although the MoH and Donors follow regulatory policies for equipment donations, some policy adjustment seems to be necessary for effective donation process management. Updating and re-introduction of the MoH dedicated policies to the donors would help to eliminate encountered problems.
2. To achieve beneficially and quality donations, donors are strongly encouraged to actively follow the national donation policies, as the policies and guidelines provide clear regulations and descriptions on the equipment donation processes.
3. Despite that the policies are established; the awareness of the mechanisms and procedures appears to be minimal among the concerned MoH staff and donors. Therefore, it is crucial to implement dissemination activities to ensure sufficient knowledge of the processes.
4. Certainly, the communications between the MoH structures and donors are maintained at different levels, nevertheless, centralization of the donor's coordination and communication with the MoH International Cooperation Department would guarantee

effective donation processing and reliable information sharing between involved parties.

5. Establishment of a consolidated mechanism for regular monitoring, communication, and close follow up on the donation processing at various stages to ensure adherence to policies and regulations.
6. Aiming to achieve the mutual benefit of both, donors and recipients, collective planning should be implemented to respond to the MoH's actual need for medical equipment and make sure that priorities are met according to the MoH strategies.
7. Inclusion of MoH relevant professionals from different departments such as engineering, procurement, and logistics when processing the donations according to the donor’s procedures, which will benefit the donors from diverse expertise and full participation of concerned directorates.
8. It is necessary to form dedicated specialized technical committees whose responsibilities to smoothly and timely provide the donors with specifications and other requirements to initiate the purchase process.
9. Despite the good performance of the MoH professionals in terms of technical specifications provision, it is apparent that the development of a standard specification's manual is required to speed up the pre-purchase processes and guarantee the standardization of equipment at the MoH facilities.
10. The donors should provide the MoH with all required information on the donations including detailed specifications of donated equipment before its delivery, purchase contract, and related supplier’s commitments.
11. Strengthening the current communication mechanism within the MoH directorates through which the relevant departments are informed about the donations and receive consistent information.

5.3.2 Recommendations for future research studies

1. Perform a similar study to evaluate the management of donated medical equipment supply processes at the MoH in the West Bank.
2. Carry out a study to evaluate the MoH internal acquisition and supply system of medical equipment to the health facilities.
3. Study the medical equipment management approach of MoH in the Gaza Strip in COVID-19 pandemic: Challenges and Opportunities.

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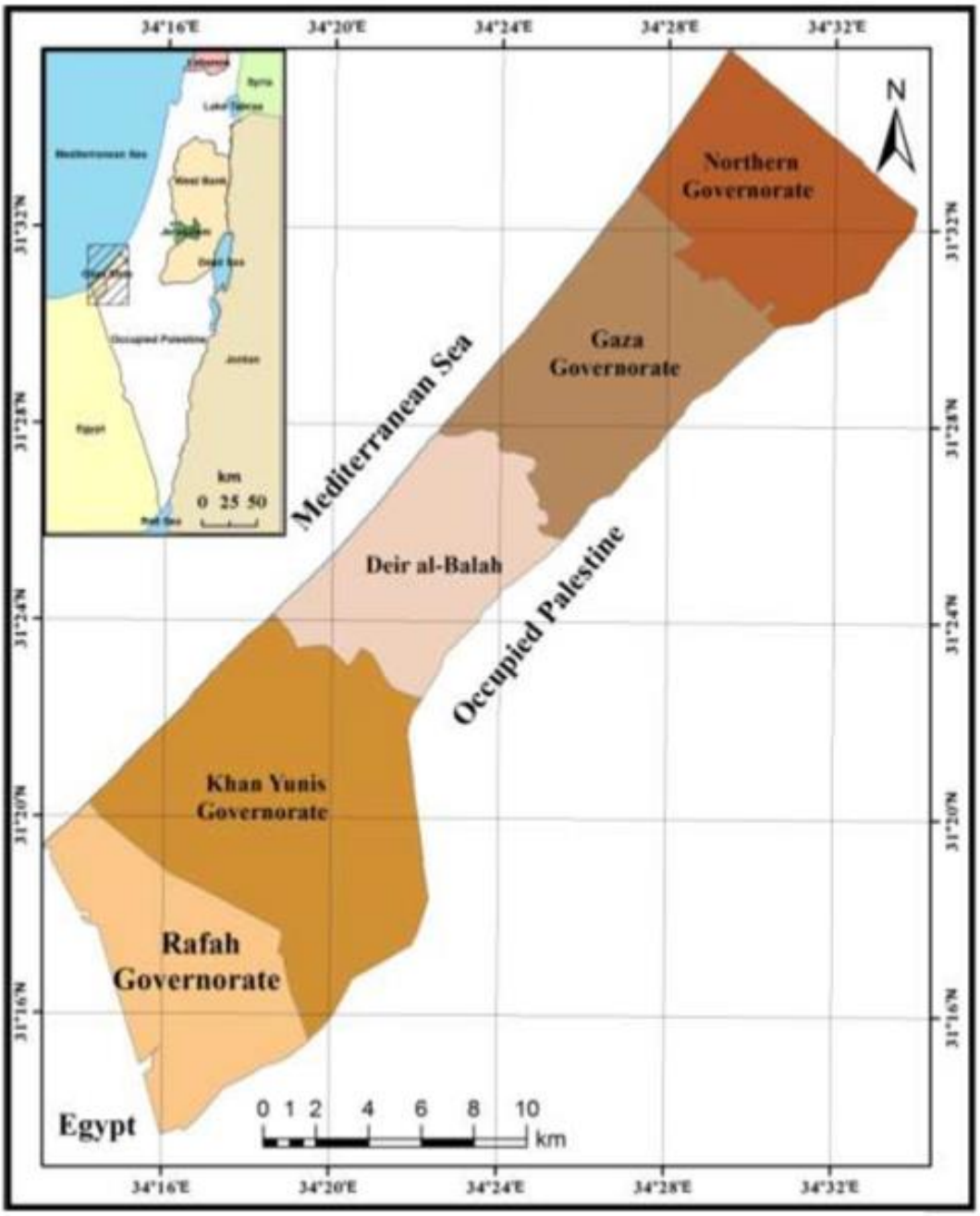
Annexes

Annex (1): Map of Palestine

Source: Palestinian Central Bureau of Statistics (PCBS, 2018)

Annex (2): Map of Gaza Strip



Gaza Strip governorates
(Faleet, 2016)

Annex (3): Questionnaire in ENGLISH

School of Public Health

Questionnaire about

" Evaluation of the management of donated Medical Equipment supply processes at the Ministry of Health in the Gaza Strip"

Questionnaire No. ( )

Part One - General Information					**Check whichever suits you**
1. Gender	**2. Age**	**3. Working place**	**4. Qualification**	**5. Job**	**6. Experience requesting medical equipment**
□ Male □ Female		□ Hospital □ Primary health centre □ Central Lab □ Public health Lab □ Engineering dep.	□ Diploma □ Bachelor □ Master □ PhD	□ Doctor □ Nurse □ Lab technician □ Radiology Techn. □ Physiotherapy □ Engineer □ Maintenance Tech □ Administration	

Part Two - Information on the policies for donating medical equipment		**Check whichever suits you**
1.	**Are there policies in the Ministry of Health that regulate the mechanisms and processes of donation medical equipment to the MoH by the donors in the Gaza Strip?**	□ Yes □ No □ Don't know
2.	If there are policies in the MoH, have you seen these policies in writing?	□ Yes □ No, never seen it
3.	**Are MoH policies circulated to donors through the communication channels with donors?**	□ Yes □ No □ Don't know
4.	**Are MoH policies circulated to the relevant individuals / departments of the Ministry of Health?**	□ Yes □ No □ Don't know
5.	**Do you think that each donor has won policy that regulates the mechanisms of equipment donations to MoH?**	□ Yes □ No □ Don't know

Part Three - Evaluation of Donation and Supply processes		
Appeal to donors for support		**Check whichever suits you**
6.	**Is there an inventory and custody system in the MoH medical facilities**	☐ Yes ☐ No
7.	**If there is an inventory and custody system, is it possible through this system to track equipment within the departments**	☐ Yes ☐ No
8.	**Is there a warehouse system that facilitates the process of verifying your needs from medical equipment in the ministry's warehouses?**	☐ Yes ☐ No
9.	**If there is a warehouse system, do you verify if needed equipment are available at the warehouse before requesting donor's support?**	☐ Yes ☐ No
10.	**Do you request medical equipment for medical facility through direct contact with donors?**	☐ Yes ☐ No
11.	**Are you notified through the official communication channels at the Ministry if earmarked funding is available for your medical facility?**	☐ Yes ☐ No
Planning to benefit from the donation grant		**Check whichever suits you**
12.	**Are the needs of the medical facility updated periodically?**	☐ Yes ☐ No ☐ Don't know
13.	**If yes, do you participate in the needs update process?**	☐ Yes ☐ No
14.	**Do you participate with donors during their fund planning and needs determining process?**	☐ Yes ☐ No
Determine the technical specifications of the required equipment		**Check whichever suits you**
15.	**Are there committees in the ministry of health dedicated for setting technical specifications?**	☐ Yes ☐ No
16.	**Do you participate in the process of setting technical specifications for the required equipment before the purchase?**	☐ Yes ☐ No
17.	**Is there pre-approved manual for technical specifications in the Ministry of Health?**	☐ Yes ☐ No ☐ Don't know
18.	**Do you think this manual needs periodic update?**	☐ Yes ☐ No
Technical Awarding and Purchase		**Check whichever suits you**
19.	**Do you participate regularly in the process of awarding and purchasing of equipment according to the MoH** procedure?	☐ Yes ☐ No
20.	**have you participated in the purchase process of donated equipment according to the donor's purchase procedure?**	☐ Yes ☐ No
21.	**Is there a clear MoH procedures through which the awarding and purchase processes take place?**	☐ Yes ☐ No
22.	**Have ever been purchase of medical equipment for your medical facility without coordination with you during the awarding and purchase?**	☐ Yes ☐ No ☐ Don't know

23.	**Is the installation / operation being conditioned during the purchase and supply process?**	☐ Yes ☐ No ☐ Don't know
24.	**Is the training and maintenance being conditioned during the purchase and supply process**?	☐ Yes ☐ No ☐ Don't know
Delivery to the warehouse		**Check whichever suits you**
25.	**Are donated equipment being delivered to the MoH central warehouse?**	☐ Yes ☐ No ☐ Don't know
26.	**If yes, are you notified, and coordination are being done with you to receive the donated equipment?**	☐ Yes ☐ No
27.	**Has it occurred that equipment has been supplied directly by donors to your medical facility since 2017?**	☐ Yes ☐ No ☐ Don't know
28.	**Do you participate regularly in the reception process at the MoH central warehouse?**	☐ Yes ☐ No
Technical inspection at the warehouse		**Check whichever suits you**
29.	**Are there technical committees dedicated for technical inspection upon delivery to the MoH central warehouse?**	☐ Yes ☐ No ☐ Don't know
30.	**If there are technical committees, are you involved in these committees prior to equipment donation to your medical facility?**	☐ Yes ☐ No
Installation and operation at medical facility		**Check whichever suits you**
31.	**Is there prior coordination with you when performing the installation and operation process?**	☐ Yes ☐ No
32.	**If there is a prior coordination, are you being engaged in the installation and operation process to share your views?**	☐ Yes ☐ No
33.	**Do you think that the installation and operation process are performed by competent technicians?**	☐ Yes ☐ No ☐ Don't know
34.	**Are all accessories, operation and maintenance manuals delivered after the installation and operation process is complete?**	☐ Yes ☐ No ☐ Don't know
Training and use of donated equipment		**Check whichever suits you**
35.	Is the training of **the Ministry's staff** being conditioned during purchasing equipment **according to the Ministry's policy?**	☐ Yes ☐ No ☐ Don't know
36.	**Is Ministry's staff being trained on the installation and operation?**	☐ Yes ☐ No ☐ Don't know
37.	**Is there prior coordination with you when performing the operation and training process?**	☐ Yes ☐ No ☐ Don't know
38.	**Do you think that the training process is performed by competent technicians?**	☐ Yes ☐ No ☐ Don't know

How do you rate the following practices? Please select the degree of occurrence for the statement.

No.	Practices that occur during donations of medical equipment	Select the degree of occurrence for each statement
1.	The Ministry's policies apply to all donations of medical equipment.	☐ Yes, definitely ☐ Yes, to some extent ☐ No
2.	The Ministry of Health obligates all donors to act and donate in accordance to its policies.	☐ Yes, definitely ☐ Yes, to some extent ☐ No
3.	The donors comply with the Ministry's policies in the medical equipment donation process.	☐ Yes, definitely ☐ Yes, to some extent ☐ No
4.	The Ministry's policies for medical equipment donation are effective which enables you to obtain your needs of equipment.	☐ Yes, definitely ☐ Yes, to some extent ☐ No
5.	You get sufficient information from donors or the Ministry of Health during the planning process on the granted budgets.	☐ Yes, definitely ☐ Yes, to some extent ☐ No
6.	The MoH warehouse system an effective one which enables you to determine your needs of equipment and identify deficiencies before requesting donor support.	☐ Yes, definitely ☐ Yes, to some extent ☐ No
7.	The response to your needs of equipment is made according to the agreed planning process.	☐ Yes, definitely ☐ Yes, to some extent ☐ No
8.	During the donor's internal planning process for donation, the donor involves you in process.	☐ Yes, definitely ☐ Yes, to some extent ☐ No
9.	The donor participates with the Ministry of Health during the technical specifications setting in the donation process.	☐ Yes, definitely ☐ Yes, to some extent ☐ No
10.	During the purchase process, technical specifications set by you are considered and according to your need.	☐ Yes, definitely ☐ Yes, to some extent ☐ No
11.	During the specifications setting, specific technical specifications are imposed that are different from your needs.	☐ Yes, definitely ☐ Yes, to some extent ☐ No
12.	Your technical opinion and your needs are considered during the awarding and purchase.	☐ Yes, definitely ☐ Yes, to some extent ☐ No
13.	The awarding and purchase processes are done with clarity and integrity.	☐ Yes, definitely ☐ Yes, to some extent ☐ No
14.	Awarded medical equipment comply with the specified specifications.	☐ Yes, definitely ☐ Yes, to some extent ☐ No
15.	Your priorities are made according to your vision, if the budget allocated to you is not sufficient.	☐ Yes, definitely ☐ Yes, to some extent ☐ No

16.	There are conditions imposed by donors that adversely affect the procurement and awarding process.	☐ Yes, definitely ☐ Yes, to some extent ☐ No
17.	Coordination takes place with you in the event of a difference between the equipment that have been awarded and the ones are delivered.	☐ Yes, definitely ☐ Yes, to some extent ☐ No
18.	The equipment is delivered according to what was awarded and purchased and according to the specified quantities.	☐ Yes, definitely ☐ Yes, to some extent ☐ No
19.	The medical equipment supplied by donors are identical to what has been awarded and purchased.	☐ Yes, definitely ☐ Yes, to some extent ☐ No
20.	The supplied equipment contains the accessories that were agreed upon awarding and purchase.	☐ Yes, definitely ☐ Yes, to some extent ☐ No
21.	The receiving committee is not influenced to accept equipment that do not conform to what was agreed upon awarding and purchase.	☐ Yes, definitely ☐ Yes, to some extent ☐ No
22.	Medical equipment that do not match what was agreed upon awarding and purchase are rejected.	☐ Yes, definitely ☐ Yes, to some extent ☐ No
23.	The donors provide details of the equipment purchased through the donor's procurement system.	☐ Yes, definitely ☐ Yes, to some extent ☐ No
24.	Prior coordination with you is considered to prepare for the installation and operation processes.	☐ Yes, definitely ☐ Yes, to some extent ☐ No
25.	The process of installation and operation of medical equipment is considered by the suppliers in accordance to the terms of awarding and purchase.	☐ Yes, definitely ☐ Yes, to some extent ☐ No
26.	All suppliers comply with the requirement for training on the installation and use.	☐ Yes, definitely ☐ Yes, to some extent ☐ No
27.	Fair and neutral external and internal training opportunities are available to users of medical equipment.	☐ Yes, definitely ☐ Yes, to some extent ☐ No
28.	Training processes on the use are useful and clear.	☐ Yes, definitely ☐ Yes, to some extent ☐ No
29.	All suppliers are abided by the agreed guarantee through the donor’s purchase process, according to the terms of awarding and purchase.	☐ Yes, definitely ☐ Yes, to some extent ☐ No
30.	The donor's implementation of the policies for medical equipment donation satisfies you.	☐ Yes, definitely ☐ Yes, to some extent ☐ No
31.	The donor's response to your needs satisfies you.	☐ Yes, definitely ☐ Yes, to some extent ☐ No
32.	These donations meet your qualitative need in response to a donation appeal.	☐ Yes, definitely ☐ Yes, to some extent ☐ No

33.	These donations meet your quantitative need in response to a donation appeal.	☐ Yes, definitely ☐ Yes, to some extent ☐ No
34.	The donor's mechanisms for the medical equipment donation planning process satisfy you.	☐ Yes, definitely ☐ Yes, to some extent ☐ No
35.	The donor's mechanisms for the awarding and purchase of medical equipment satisfy you.	☐ Yes, definitely ☐ Yes, to some extent ☐ No
36.	The donor's mechanisms for the delivery of medical equipment satisfy you.	☐ Yes, definitely ☐ Yes, to some extent ☐ No

Please add any other suggestions that reflect the state of donations of medical equipment as it deems appropriate for the subject of the study

_____

_____

_____

Thank you so much for cooperation

Researcher / Akram Abdel Salam Al-Kahlout

Annex (4): Questionnaire in ARABIC

جامعة القدس - كلية الصحة العامة

استبانة حول موضوع

"تقييم إدارة عمليات توريد الأجهزة الطبية المتبرع بها في وزارة الصحة في قطاع غزة"

رقم الاستبانة ( )

الجزء الأول - معلومات عامة					**ضع √ أمام ما يناسبك**
1. الجنس	**2. العمر**	**3. مكان العمل**	**4. المؤهل علمي**	**5. المهنة**	**6. عدد سنوات الخبرة في طلب الأجهزة الطبية**
□ ذكر □ انثى		□ مستشفى □ مركز رعاية أولية □ المختبر المركزي □ مختبرالصحة العامة □ الهندسة و الصيانة	□ دبلوم □ بكالوريوس □ ماجستير □ دكتوراة	□ طبيب □ ممرض □ فني مختبر □ فني أشعة □ علاج طبيعي □ مهندس □ فني صيانة □ اداري	

الجزء الثاني - معلومات حول سياسات عمليات التبرع بالاجهزة الطبية		**ضع √ أمام ما يناسبك**
.1	هل يوجد سياسات بوزارة الصحة تنظم أليات وعمليات التبرع بالأجهزة الطبية للوزارة التي تتبرع بها الجهات المانحة ؟	□ نعم □ لا □ لا أعلم
.2	ان كان هناك سياسات بوزارة الصحة، هل شاهدت هذه السياسات مكتوبة ؟	□ نعم □ لا، لم اشاهدها
.3	هل يتم تعميم هذه السياسات على الجهات المانحة عبر وسائل التواصل مع الجهات المانحة ؟	□ نعم □ لا □ لا أعلم
.4	هل يتم تعميم هذه السياسات على افراد / اقسام وزارة الصحة ذات العلاقة ؟	□ نعم □ لا □ لا أعلم
.5	هل تعتقد انه يوجد لدى كل جهة مانحة سياسة خاصة تنظم اليات وعمليات التبرع بالأجهزة الطبية للوزارة ؟	□ نعم □ لا □ لا أعلم

الجزء الثالث - تقييم شامل لعمليات التبرع والإمداد		
مناشدة الجهات المانحة لتقديم الدعم		**ضع √ أمام ما يناسبك**
.6	هل يوجد نظام للجرد و العهدة في المراكزالطبية بالوزارة ؟	□ نعم □ لا
.7	ان كان هناك نظام جرد وعهدة ، هل يمكن من خلال هذا النظام تتبع الاجهزة داخل الاقسام؟	□ نعم □ لا
.8	هل يوجد في الوزارة نظام مخزني يسهل عملية التأكد من وجود احتياجكم من الاجهزة داخل مخازن الوزارة؟	□ نعم □ لا
.9	ان كان هناك نظام مخزني ، هل يتم التأكد من وجود احتياجكم من الاجهزة قبل طلب دعم الجهات المانحة ؟	□ نعم □ لا
.10	هل تطلب الأجهزة الطبية لمركزكم الطبي عبر تواصلكم المباشرمع الجهات المانحة؟	□ نعم □ لا
.11	هل يتم ابلاغكم عبر الطرق الرسمية بالوزارة حال توفر تمويل خاص لمركزكم الطبي ؟	□ نعم □ لا
التخطيط للاستفادة من منحة التبرع		**ضع √ أمام ما يناسبك**
.12	هل يتم تحديث احتياجات المركز الطبي لديكم بشكل دوري ؟	□ نعم □ لا □ لا أعلم
.13	اذا كان نعم ، هل تشارك في عملية تحديث قائمة الاحتياجات ؟	□ نعم □ لا
.14	هل تشارك مع الجهات المانحة اثناء عملية التخطيط و تحديد الاحتياج الخاصة بها؟	□ نعم □ لا
تحديد المواصفات الفنية للاجهزة المطلوبة		**ضع √ أمام ما يناسبك**
.15	يوجد في الوزارة لجان متخصصة بوضع المواصفات الفنية ؟	□ نعم □ لا
.16	هل تشارك في عملية وضع المواصفات الفنية للاجهزة المطلوبة قبل البدء في الشراء؟	□ نعم □ لا
.17	هل يوجد كتيب/دليل معتمد للمواصفات الفنية في وزارة الصحة ؟	□ نعم □ لا □ لا أعلم
.18	ان كان نعم ، هل تعتقد ان هذا الدليل بحاجة الى تحديث دوري ؟	□ نعم □ لا
الترسية الفنية و الشراء		**ضع √ أمام ما يناسبك**
.19	هل تشارك بشكل دوري في عملية ترسية و شراء الأجهزة حسب نظام الوزارة ؟	□ نعم □ لا
.20	هل شاركت في عملية شراء أجهزة ممولة لمركزكم تبعا النظام الخاص بالجهات المانحة ؟	□ نعم □ لا
.21	هل هناك اجراءات واضحة في الوزارة و التي تتم من خلالها عمليات الترسية والشراء ؟	□ نعم □ لا
.22	هل سبق وان تم شراء أجهزة طبية لمركزكم الطبي دون التنسيق معكم اثناء الترسية و الشراء؟	□ نعم □ لا □ لا أعلم

.23	هل يشترط اثناء عملية الشراء والتوريد ضمان التركيب والتشغيل؟	□ نعم □ لا □ لا أعلم
.24	هل يشترط اثناء عملية الشراء والتوريد ضمان التدريب والصيانة ؟	□ نعم □ لا □ لا أعلم
	التوريد للمخازن	**ضع √ أمام ما يناسبك**
.25	هل يتم توريد الأجهزة المتبرع بها الى مخازن مركزية بالوزارة ؟	□ نعم □ لا □ لا أعلم
.26	اذا كان نعم ، هل يتم التنسيق معكم وابلاغكم لاستلام الأجهزة المتبرع بها ؟	□ نعم □ لا
.27	هل حدث وان تم توريد أجهزة مباشرة عبر الجهات المانحة لمركزكم منذ عام 2017؟	□ نعم □ لا □ لا أعلم
.28	هل تشارك بشكل دوري في عملية الاستلام من المخازن المركزية ؟	□ نعم □ لا
	الفحص الفني عند التوريد الى المخازن	**ضع √ أمام ما يناسبك**
.29	هل يوجد لجان فنية مختصة بالفحص الفني عند التوريد ؟	□ نعم □ لا □ لا أعلم
.30	ان كان هناك لجان فنية، هل تشارك في هذه اللجان قبل توريد أجهزة طبية لمركزكم الطبي ؟	□ نعم □ لا
	التركيب الميداني و التشغيل في المراكز الطبية	**ضع √ أمام ما يناسبك**
.31	هل يتم التنسيق معكم مسبقا للقيام بعملية التركيب والتشغيل ؟	□ نعم □ لا
.32	ان كان هناك تنسيق مسبق ، هل يتم اشراككم عند عملية التركيب والتشغيل للاخذ بآرائكم ؟	□ نعم □ لا
.33	هل تعتقد ان عملية التركيب والتشغيل تتم بواسطة فنيين مختصين ؟	□ نعم □ لا □ لا أعلم
.34	هل يتم تسليم جميع المواد الملحقة وكتيبات التشغيل والصيانة بعد إتمام عملية التركيب والتشغيل ؟	□ نعم □ لا □ لا أعلم
	التدريب واستخدام الاجهزة المتبرع بها	**ضع √ أمام ما يناسبك**
.35	هل يشترط تدريب طواقم وزارة الصحة عند شراء الأجهزة حسب نظام الخاص بالجهة المانحة ؟	□ نعم □ لا □ لا أعلم
.36	هل يتم تدريب طواقم الوزارة على التركيب و التشغيل؟	□ نعم □ لا □ لا أعلم
.37	هل يتم التنسيق معكم مسبقا للقيام بعملية االتشغيل والتدريب ؟	□ نعم □ لا □ لا أعلم
.38	هل تعتقد ان عملية التدريب تتم بواسطة فنيين مختصين ؟	□ نعم □ لا □ لا أعلم

ما مدى موافقتك على الممارسات التالية ؟ يرجى وضع علامة √ أمام درجة الموافقة التي تناسبك إجابتك.

م	الممارسات التي تتم اثناء عمليات التبرع بالاجهزة الطبية	درجة الموافقة على الممارسات
.1	تطبق سياسات الوزارة على جميع عمليات التبرع بالأجهزة الطبية.	□ نعم بالتأكيد □ نعم الى حد ما □ لا
.2	تقوم وزارة الصحة بإلزام جميع الجهات المانحة بالعمل والتبرع وفقا لسياساتها.	□ نعم بالتأكيد □ نعم الى حد ما □ لا
.3	تلتزم الجهات المانحة بتنفيذ سياسات الوزارة خلال عمليات التبرع بالأجهزة الطبية.	□ نعم بالتأكيد □ نعم الى حد ما □ لا
.4	تعتبرسياسات الوزارة لعمليات التبرع بالاجهزة الطبية فاعلة وتمكنكم من الحصول على احتياجكم من الاجهزة .	□ نعم بالتأكيد □ نعم الى حد ما □ لا
.5	تتوفر لديكم معلومات كافية من الجهات المانحة او وزارة الصحة اثناء عملية التخطيط حول المنحة المقدمة.	□ نعم بالتأكيد □ نعم الى حد ما □ لا
.6	يعتبر نظام المخازن فاعل يمكنكم من تحديد احتياجكم من الاجهزة و تحديد النواقص قبل طلب دعم الجهات المانحة.	□ نعم بالتأكيد □ نعم الى حد ما □ لا
.7	تتم الاستجابة بتوفيراحتياجاتكم طبقا لعملية التخطيط المتفق عليها.	□ نعم الى حد ما □ لا
.8	تشرككم الجهات المانحة في عمليات التخطيط الداخلية لديها للتبرع بالأجهزة الطبية.	□ نعم بالتأكيد □ نعم الى حد ما □ لا
.9	تشارك الجهة المانحة مع وزارة الصحة في عملية وضع المواصفات الفنية اثناء عملية التبرع.	□ نعم بالتأكيد □ نعم الى حد ما □ لا
.10	يتم مراعاة المواصفات الفنية المحددة من طرفكم و حسب احتياجكم اثناء عملية الشراء.	□ نعم بالتأكيد □ نعم الى حد ما □ لا
.11	تفرض مواصفات فنية معينة اثناء عملية تحديد المواصفات لعملية الشراء مختلفة عن احتياجاتكم .	□ نعم بالتأكيد □ نعم الى حد ما □ لا
.12	يتم مراعاة رأيكم الفني واحتياجاتكم اثناء عملية الترسية والشراء.	□ نعم بالتأكيد □ نعم الى حد ما □ لا
.13	تتم علمية الترسية والشراء بكل وضوح ونزاهة.	□ نعم بالتأكيد □ نعم الى حد ما □ لا
.14	تكون الأجهزة الطبية المرسية مطابقة للمواصفات المحددة.	□ نعم بالتأكيد □ نعم الى حد ما □ لا
.15	تتم مراعاة اولوياتكم حسب رؤيتكم حال كان التمويل المقدم لكم غير كاف.	□ نعم بالتأكيد □ نعم الى حد ما □ لا

.16	يتم وضع شروط بواسطة الجهات المانحة تؤثر سلبا على عملية الشراء والترسية.	☐ نعم بالتأكيد ☐ نعم الى حد ما ☐ لا
.17	يتم التنسيق معكم في حال وجود اختلاف بين الأجهزة التى تم ترسيتها والمراد توريدها.	☐ نعم بالتأكيد ☐ نعم الى حد ما ☐ لا
.18	يتم تسليم الأجهزة طبقا لما تم ترسيته وشراؤه وحسب الكميات المحددة.	☐ نعم بالتأكيد ☐ نعم الى حد ما ☐ لا
.19	تكون الأجهزة الطبية الموردة من الجهات المانحة مطابقة لما تم ترسيته وشراؤه.	☐ نعم بالتأكيد ☐ نعم الى حد ما ☐ لا
.20	تحتوي الأجهزة الموردة على المرفقات التي تم الاتفاق عليها عند الترسية والشراء.	☐ نعم بالتأكيد ☐ نعم الى حد ما ☐ لا
.21	لا يتم التأثيرعلى لجان الاستلام لقبول أجهزة غيرمطابقة لما تم الاتفاق عليه عند الترسية والشراء.	☐ نعم بالتأكيد ☐ نعم الى حد ما ☐ لا
.22	يتم قبول أجهزة طبية غير مطابقة لما تم الاتفاق عليه عند الترسية والشراء.	☐ نعم بالتأكيد ☐ نعم الى حد ما ☐ لا
.23	توفر الجهات المانحة تفاصيل الأجهزة التي تم شراؤها عبر نظام الشراء الخاص بالجهات المانحة.	☐ نعم بالتأكيد ☐ نعم الى حد ما ☐ لا
.24	يتم التنسيق معكم مسبقا للتجهيز لعملية التركيب والتشغيل.	☐ نعم بالتأكيد ☐ نعم الى حد ما ☐ لا
.25	تتم مراعاة عملية التركيب والتشغيل لجميع الأجهزة الطبية حسب شروط الترسية والشراء بواسطة الشركات الموردة.	☐ نعم بالتأكيد ☐ نعم الى حد ما ☐ لا
.26	يلتزم الموردين بشرط التدريب عند التشغيل والاستخدام.	☐ نعم بالتأكيد ☐ نعم الى حد ما ☐ لا
.27	تتوفر فرص تدريب خارجية وداخلية بشكل عادل ونزيه لمستخدمي الاجهزة الطبية.	☐ نعم بالتأكيد ☐ نعم الى حد ما ☐ لا
.28	تكون عمليات التدريب والاستخدام مفيدة وواضحة.	☐ نعم بالتأكيد ☐ نعم الى حد ما ☐ لا
.29	يلتزم الموردين بالضمانة المتفق عليها عبر الجهات المانحة حسب شروط الترسية والشراء.	☐ نعم بالتأكيد ☐ نعم الى حد ما ☐ لا
.30	التزام الجهات المانحة بسياسات وأليات التبرع بالأجهزة الطبية ينال رضاكم.	☐ نعم بالتأكيد ☐ نعم الى حد ما ☐ لا
.31	استجابة الجهات المانحة لاحتياجاتكم تنال رضاكم.	☐ نعم بالتأكيد ☐ نعم الى حد ما ☐ لا
.32	تلبي هذه التبرعات احتياجكم النوعي في حال الاستجابة بالتبرع.	☐ نعم بالتأكيد ☐ نعم الى حد ما ☐ لا

.33	تلبي هذه التبرعات احتياجكم الكمي في حال الاستجابة بالتبرع.	□ نعم بالتأكيد □ نعم الى حد ما □ لا
.34	أليات التخطيط للتبرع بالأجهزة الطبية الخاصة بالجهات المانحة تنال رضاكم.	□ نعم بالتأكيد □ نعم الى حد ما □ لا
.35	أليات ترسية وشراء الأجهزة الطبية الخاصة بالجهات المانحة تنال رضاكم.	□ نعم بالتأكيد □ نعم الى حد ما □ لا
.36	أليات توريد الأجهزة الطبية الخاصة بالجهات المانحة تنال رضاكم.	□ نعم بالتأكيد □ نعم الى حد ما □ لا

الرجاء اضافة اي مقترحات اخرى تعكس حال عمليات التبرع بالاجهزة الطبية تراها مناسبة لموضوع الدراسة

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شكرا جزيلا لتعاونكم

الباحث / اكرم عبد السلام الكحلوت

Annex (5): The guiding questions of the Key informant interview discussion with MoH

The guiding questions of the MoH Key informant interview discussion

أسئلة ارشادية لمقابلات مع شخصية من وزراة الصحة

1. **من وجهة نظرك كيف تقيم ادارة عملية التبرع بالاجهزة الطبية بما يشمل الشراء و التوريد؟ ما هي الجوانب الايجابية و السلبية في ادارة عملية التبرع ؟**

2. **في ظل تأكيد وجود سياسات (حسب نتائج الاستبيان)**

- من وجهة نظرك، الى أي مدى تراعي وتوازن سياسات الوزارة في الشراء والتوريد للأجهزة الطبية بين التوصيات الدولية" مثل توصيات منظمة الصحة العالمية" وبين الواقع المحلي في غزة ؟
- ما هو تقديرك بمعرفة المانحين بها والقيام بالتبرع وفقها ؟
- لماذا لا تبدو هذه السياسات معرفة و معممة علي الجهات المانحة عبر طرق التواصل معهم و على افراد وزارة الصحة ؟
- الى اي مدى يتم الالتزام بهذه السياسات و تطبيقها و ضمان العمل وفقها من جهة الوزارة ومن جهة الجهات المانحة؟
- حسب تقديركم ما هي الأسباب المحتملة و المعيقات وراء عدم تطبيق هذه السياسات والالتزام بها ؟
- ما هي الطرق التي من خلالها يمكن تعزيز هذه السياسات و ضمان الالتزام بها من قبل الجميع ؟

3. **في ظل وجود بعض السلبيات في التواصل و التنسيق (حسب نتائج الاستبيان)**

- لماذا لا يتم التواصل والتنسيق بين الوزارة و الجهات الماتحة بشكل كامل في جميع المراحل مثل التخطيط و تحديد الاحتياجات و الشراء و التوريد وغيرها
- برايك كيف يؤثر التواصل المباشرمع الميدان في مخالفة هذه السياسات و عدم الالتزام بها ؟
- ما الاسباب التى تدفع الجهات المانحة الى مخالفة التواصل التسلسلي حسب هيكلية الوزارة لضمان عملية تبرع فاعلة؟
- بإعتقادك لماذا لا تتوفر معلومات كافية حول عملية التمويل وعملية الشراء من قبل الجهات المانحة للافراد المشاركين في عملية الشراء والترسية؟ وهل تعتقد أنه من الضروري معرفة الافراد المشاركين بمعلومات عن عملية التمويل أم يكفي معرفتهم الفنية بقواعد واساسيات وشروط الشراء والترسية والتوريد؟

4. **في ظل غياب التنسيق و الشراكة للتخطيط و التمويل (حسب نتائج الاستبيان)**

- بإعتقادك الى اي مدى يتم التخطيط و تحديد الاحتياجات بواسطة الجهات المانحة دون اشراك وزارة الصحة ؟
- كيف ممكن ان يؤثر هذا سلبا على عملية التبرع؟
- برأيك ما هي الاسباب لعدم اشراك الوزارة؟
- كيف للوزارة لعب دور افضل لتحسين ذلك و ما هو المطلوب من الجميع ؟

5. **في ظل اختلاف في الاراء حول وجود كتيب مواصفات فنية معتمد (حسب نتائج الاستبيان)**

- لماذا لا يوجد كتيب مواصفات فنية معتمد (50% حسب الاستبيان) وما هو المطلوب لأصداركتيب مواصفات فنية معتمد تحديثه دوري ليكون مرجعية اثناء عمليات الشراء و الترسية؟ و ما هو المطلوب فعله في هذا السياق؟
- كيف يساهم اشراك اللجان الفنية في تحديد المواصفات اللازمة و ما هي اضرار غياب دورهم ؟ وما هو المطلوب لتحسين دور و أداء اللجان الفنية؟
- هل تستطيع ان تحدثنا عن تجربة حقيقية نتج عنها توريد أجهزة طبية مخالفة للمواصفات الفنية أو تتعارض مع أنظمة الوزارة داخل المرافق الصحية؟ وكيف تم التعامل مع هذا الموقف وما هي الإجراءات التي أُستخدمت لمنع تكرار ذلك؟
- لماذا يتم فرض مواصفات مختلفة بواسطة الجهات المانحة و ما طرق تحسين هذا الامر ؟

6. **في ظل وجود نظام مخزني و جرد فاعلين (حسب نتائج الاستبيان)**

- كيف يساهم عدم التحقق من وجود احتياجات المراكز الطبية في خلق تبرعات غير مجدية /مفيدة وما هي طرق تحسينها ؟
- باعتقادك لمذا لا توفر الجهات المانحة المعلومات الكافية حول الاجهزة التي يتم شراؤها عبر المانحين و كيف ممكن معالجة الامر لتحسينه؟

7. **تحدث عمليات التوريد المباشر الى المراكز الطبية (حسب نتائج الاستبيان)**

- حسب تقديركم ما السبب وراء التوريد المباشر للمراكز الطبية دون الالتزام باليات التوريد؟ وما هو تأثير ذلك؟
- كيف للوزارة تحسين ذلك و ما هو المطلوب من الجميع ؟

8. **في ظل وجود نظام مشتريات فاعل في الوزارة (حسب نتائج الاستبيان)**

- لماذا لا يتم اشراك جميع افراد الوزارة اصحاب العلاقة في عملية الشراء و الترسية بشكل دوري؟
- ما هي الاسس التي يتم بناءا عليها اشراك افراد الوزارة في عمليات الترسية و الشراء ؟
- حسب نتائج الأستبيان فان هناك دور سلبي للمانحين في عملية الترسية . ما السبب وما هو المطلوب لضبط هذا الامر؟
- لماذا لا تشارك وزارة الصحة دائما في عمليات الشراء و الترسية حال كانت عملية الشراء حسب نظام الشراء الخاص بالمانح؟ وهل سبق أن نتج عن ذلك توريد أجهزة طبية مخالفة للمواصفات؟ وهل تعتقد أن نظام المشتريات الخاص بالمانحين هو أفضل وأصدق وأكثر فاعلية من النظام الخاص بوزارة الصحة؟
- كيف يمكن الزام الجهات المانحة بسياسات الوزارة حال تم الشراء حسب نظام المشتريات الخاص بالمانح ؟

جوانب التطوير

- ما هي الجوانب التي بحاجة تحسين و تطوير من وجهة نظركم في عمليات شراء وتوريد وتسليم والتبرع بالأجهزة الطبية التي تتم بالشراكة مع الجهات المانحة؟

Annex (6): The guiding questions of the Key informant interview discussion with Donors

The guiding questions for the Key informant interview with donors

أسئلة ارشادية لمقابلات مع شخصية من الجهات المانحة

1. **من وجهة نظرك كيف تقيم ادارة عملية التبرع بالاجهزة الطبية بما يشمل الشراء و التوريد بوزارة الصحة؟ ما هي الجوانب الايجابية و السلبية في ادارة عملية التبرع ؟**

2. **في ظل تأكيد وجود سياسات (حسب نتائج الاستبيان)**

- هل لديكم سياسات خاصة تنظم عملية التبرع بالاجهزة الطبية؟
- هل لديكم معرفة حول وجود سياسات خاصة بالوزارة تنظم عملية التبرع بالاجهزة الطبية؟
- من وجهة نظرك، الى أي مدى تتوافق سياسات وزارة مع سياسات الجهات المانحة وهل هناك اي تعارض ؟
- الى اي مدى يتم الالتزام بهذه السياسات و تطبيقها و ضمان العمل وفقها من جهة الوزارة ومن جهة الجهات المانحة؟

3. **في ظل وجود بعض السلبيات في التواصل و التنسيق (حسب نتائج الاستبيان)**

- لماذا لا يتم التواصل والتنسيق بين الوزارة و الجهات الماتحة بشكل كامل في جميع المراحل مثل التخطيط و تحديد الاحتياجات و الشراء و التوريد وغيرها
- برايك كيف يؤثر التواصل المباشرمع المراكز الطبية في مخالفة هذه السياسات و عدم الالتزام بها ؟
- ما الاسباب التى تدفع الجهات المانحة الى مخالفة التواصل التسلسلي حسب هيكلية الوزارة لضمان عملية تبرع فاعلة؟
- بإعتقادك لماذا لا يوفر المانحين معلومات كافية لوزارة الصحة حول عملية التمويل وعملية الشراء ؟

4. **في ظل غياب التنسيق و الشراكة للتخطيط و التمويل (حسب نتائج الاستبيان)**

- بإعتقادك الى اي مدى يتم التخطيط و تحديد الاحتياجات بواسطة الجهات المانحة دون اشراك وزارة الصحة ؟
- برأيك ما هي الاسباب لعدم اشراك الوزارة و الاعتماد على المعلومات المتوفرة بالوزارة؟
- ما هو المطلوب من الجميع للعب دور افضل لتحسين ذلك ؟

5. **في ظل اختلاف في الاراء حول وجود كتيب مواصفات فنية معتمد (حسب نتائج الاستبيان)**

- ما مدى معرفتكم بوجود كتيب مواصفات فنية معتمد؟
- ما هو المطلوب لأصداركتيب مواصفات فنية معتمد او تحديثه دورياليكون مرجعية اثناء عمليات الشراء و الترسية؟
- كيف يساهم اشراك اللجان الفنية في تحديد المواصفات اللازمة لتسهيل عملية التبرع ما هو المطلوب لتحسين دور و أداء اللجان الفنية؟
- هل تستطيع ان تحدثنا عن تجربة حقيقية نتج عنها توريد أجهزة طبية مخالفة بسبب مشكلة في التوصيف الفني ؟ وكيف تم التعامل مع هذا الموقف وما هي الإجراءات التي أُستخدمت لمنع تكرار ذلك؟
- هل يتم فرض مواصفات مختلفة بواسطة الجهات المانحة و ما طرق تحسين هذا الامر ؟

6. **في ظل وجود نظام مخزني و جرد فاعلين (حسب نتائج الاستبيان)**

- كيف يساهم عدم التحقق من وجود احتياجات المراكز الطبية في خلق تبرعات غير مجدية /مفيدة وما هي طرق تحسينها ؟
- باعتقادك لماذا لا توفر الجهات المانحة المعلومات الكافية حول الاجهزة التي يتم شراؤها عبر المانحين و كيف ممكن معالجة الامر لتحسينه؟

7. **تحدث عمليات التوريد المباشر الى المراكز الطبية (حسب نتائج الاستبيان)**

- حسب تقديركم ما السبب وراء التوريد المباشر للمراكز الطبية دون الالتزام باليات التوريد؟ وما هو تأثير ذلك؟
- كيف للوزارة و الجهات المانحة تحسين ذلك ؟

8. **في ظل وجود نظام مشتريات فاعل في الوزارة (حسب نتائج الاستبيان)**

- هل تشرك الجهات المانحة وزارة الصحة دائما في عمليات الشراء و الترسية حال كانت عملية الشراء حسب نظام الشراء الخاص بالمانح؟

جوانب التطوير

- ما هي الجوانب التي بحاجة تحسين و تطوير من وجهة نظركم في عمليات شراء وتوريد وتسليم والتبرع بالأجهزة الطبية التي تتم بالشراكة مع الجهات المانحة؟

Annex (7): list of arbitrators

The study tool (interviewed questionnaire) was reviewed and evaluated by the following exerts:

- Dr. Bassam Abu Hamad, Al Quds University
- Dr. Yehia Abed, Al Quds University
- Dr. Yousef Aljeesh, Islamic University
- Dr. Mahmoud Radwan, Ministry of Health
- Mrs. Huda Anan, WHO
- Eng. Abed Al-Rahman Murad, Ministry of Health
- Eng. Lowai AlAtrash, Ministry of Health
- Mr. Mohamed Abu Alwafa, Ministry of Health
- Dr. Kamal Jaber, Shifa hospital
- Mr. Osama Al-Khalili, Public Health Laboratory
- Mr. Jehad Okasha, Ministry of Health

Annex (8): Helsinki approval

المجلس الفلسطيني للبحث الصحي
Palestinian Health Research Council
تعزيز النظام الصحي الفلسطيني من خلال مأسسة استخدام المعلومات البحثية في صنع القرار
Developing the Palestinian health system through institutionalizing the use of information in decision making

Helsinki Committee
For Ethical Approval

Date: 2019/06/17 **Number:** PHRC/HC/583/19

Name: Akram Abed Salam Al Kahlout **الاسم:**

We would like to inform you that the committee had discussed the proposal of your study about:

نفيدكم علماً بأن اللجنة قد ناقشت مقترح دراستكم حول:

Evaluation of the management of donated Medical Equipment supply processes at the Ministry of Health in the Gaza Strip

The committee has decided to approve the above mentioned research. Approval number PHRC/HC/583/19 in its meeting on 2019/06/17

و قد قررت الموافقة على البحث المذكور عاليه بالرقم والتاريخ المذكوران عاليه

Signature

Member **Member**

Chairman

Dr. Asseel 6 2019

Genral Conditions:-

1. Valid for 2 years from the date of approval.
2. It is necessary to notify the committee of any change in the approved study protocol.
3. The committee appreciates receiving a copy of your final research when completed.

Specific Conditions:-

E-Mail:pal.phrc@gmail.com
Gaza - Palestine غزة - فلسطين
شارع النصر - مفترق العيون

Al-Quds University
Jerusalem
School of Public Health

جامعة القدس
القدس
كلية الصحة العامة

التاريخ: 2020/2/8

حضرة الدكتور/ رامي العبادلة المحترم
مدير عام تنمية القوى البشرية–وزارة الصحة

تحية طيبة وبعد،،،

الموضوع: مساعدة الطالب أكرم الكحلوت

نشكر لكم دعمكم الدائم لمسيرة العلم والتعليم وخصوصاً دعم كلية الصحة العامة وطلابها، ونود أعلامكم بأن الطالب المذكورة أعلاه يقوم بعمل بحث كمتطلب للحصول على درجة الماجستير في الصحة العامة–مسار إدارة صحية بعنوان:

"Evaluation of the Management of Donated Medical Equipment Supply Processes at the Ministry of Health in the Gaza Strip"

وعليه نرجو من سيادتكم التكرم بالموافقة على تسهيل مهمة الطالب في إنجاز هذا البحث حيث أن الفئه المستهدفة هم ذوي العلاقة بعمليات طلب و توريد الاجهزة الطبية المتبرع بها في وزارة الصحة سواء العاملين بالمستشفيات أو مراكز الرعاية الأولية أو مختبر الصحة العامة أو العاملين في المخازن ودائرة الهندسة والصيانة المركزية والفرعية في المستشفيات الحكومية.

و اقبلوا فائق التحية و الاحترام،،،

د. بسام أبو حمد
منسق عام برامج الصحة العامة
فرع غزة

نسخة:
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Annex (9): MoH approval for data collection

State of Palestine
Ministry of health

دولة فلسطين:
وزارة الصحة

التاريخ:13/02/2020
رقم المراسلة 439577

السيد : رامي عيد سليمان العبادله المحترم

مدير عام بالوزارة /الإدارة العامة لتنمية القوى البشرية – /وزارة الصحة

السلام عليكم ,,,

الموضوع/ تسهيل مهمة الباحث// أكرم الكحلوت

التفاصيل //
بخصوص الموضوع أعلاه، يرجي تسهيل مهمة الباحث/ أكرم عبدالسلام الكحلوت
الملتحق ببرنامج ماجستير الصحة العامة – مسار الإدارة الصحية – جامعة القدس أبوديس في إجراء بحث بعنوان:-
"Evaluation of the management of donated medical equipment supply processes at the Ministry of Health in the Gaza Strip"
حيث الباحث بحاجة لتعبئة استبانة من عدد من موظفي وزارة الصحة (ممن لديهم علاقة بطلب وتوريد واستلام وتشغيل الأجهزة الطبية) إضافة لمقابلات معمقة مع عدد من أصحاب القرار بالخصوص، بما لا يتعارض مع مصلحة العمل وضمن أخلاقيات البحث العلمي، ودون تحمل الوزارة أي أعباء أو مسئولية.
وتفضلوا بقبول التحية والتقدير،،،
ملاحظة / تسهيل المهمة الخاص بالدراسة أعلاه صالح لمدة 3 أشهر من تاريخه.

محمد ابراهيم محمد السرساوي
مدير دائرة/الإدارة العامة لتنمية القوى البشرية –

التحويلات

■ محمد ابراهيم محمد السرساوي(مدير دائرة)	← رامي عيد سليمان العبادله(مدير عام بالوزارة)	إجراءاتكم بالخصوص(13/02/2020)
■ رامي عيد سليمان العبادله(مدير عام بالوزارة)	← مدحت عباس خضر حسن(مدير عام بالوزارة)	إجراءاتكم بالخصوص(13/02/2020)
■ رامي عيد سليمان العبادله(مدير عام بالوزارة)	← محمود عبد المجيد توفيق حماد(مدير عام بالوزارة)	إجراءاتكم بالخصوص(13/02/2020)
■ رامي عيد سليمان العبادله(مدير عام بالوزارة)	← بسام علي خالد الحمادين(مدير عام بالوزارة)	إجراءاتكم بالخصوص(13/02/2020)
■ رامي عيد سليمان العبادله(مدير عام بالوزارة)	← أيمن عبد الرحيم طه الحلبي(مدير عام بالوزارة)	إجراءاتكم بالخصوص(13/02/2020)
■ رامي عيد سليمان العبادله(مدير عام بالوزارة)	← حسام جمال نصيف الدحدوح(مدير عام بالوزارة)	إجراءاتكم بالخصوص(13/02/2020)
■ رامي عيد سليمان العبادله(مدير عام بالوزارة)	← عبد السلام محمد عبد صباح(مدير عام بالوزارة)	إجراءاتكم بالخصوص(13/02/2020)

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Annex (10): Consent form

"تقييم إدارة عمليات توريد الاجهزة الطبية المتبرع بها في وزارة الصحة في قطاع غزة"

باستخدام طريقتي البحث الكمي و الكيفي

استبيان المشاركين في عمليات طلب الاجهزة الطبية: تعبئة بواسطة المشاركين

طلب الموافقة على المشاركة في عينة البحث

الأخوات و الأخوة الأعزاء.

أنا الباحث م./ اكرم عبد السلام الكحلوت , طالب ماجستيرفي برنامج الصحة العامة تخصص ادارة صحية في جامعة القدس و اقوم بعمل دراسة بعنوان :

تقييم إدارة عمليات توريد الاجهزة الطبية المتبرع بها في وزارة الصحة في قطاع غزة"

كمتطلب للحصول على درجة الماجستير , حيث اقوم بجمع المعلومات لهذه الدراسة التي تركز على إدارة عمليات توريد الاجهزة الطبية المتبرع بها ، وتتناول الدراسة عدة محاور تهدف إلى تقييم إدارة عمليات توريد الاجهزة الطبية من أجل اقتراح استراتيجيات تحسين تعزز إدارة عمليات التوريد.

لمعرفة اكثر حول إدارة عمليات توريد الاجهزة الطبية المتبرع بها و استكشاف مواطن القوة والضعف و معرفة مدى معرفتك بهذه العمليات ورضاك عنها كمستفيد و كمشارك بها. وقد تم اختيارك من خلال التواصل مع وزارة الصحة بشكل رسمي حيث ينطبق عليك معايير الدراسة و الغرض من هذا الاستبيان هو جمع المعلومات التي تساعدني كباحث على التعرف طبيعة و فهم إدارة عمليات توريد الاجهزة الطبية المتبرع بها و مدى تطبيقها وفقا للسياسات المحددة و ابراز نقاط القوة والضعف في هذه العمليات من وجهة نظرك.

وعلى الرغم من أن المشاركة في هذه الدراسة طوعية يمكنك عدم الاجابة على بعض او جميع الاسئلة، الى أنني سأقدر كثيرا مشاركتك حيث أنها مهمة بالنسبة لنا.

المشاركة في هذه الدراسة ينطوي على ملئ الاستبيان الذي سيتطلب حوالي 20 دقيقة من وقتك. مهما كانت المعلومات التي سوف تقدمها سيتم الاحتفاظ بها بسرية تامة وسوف يطلع عليها فريق البحث فقط، حيث لن يتم مشاركتها مع أي جهات اخرى.

يبقى أن أوضح أن مشاركتك في تعبئة هذا الاستبيان لن ينتج عنها أي مقابل مالي وأن المعلومات التي تم الحصول عليها عنك في هذه الدراسة لن تؤثر عليك من قبل أي جهة.

هل أنت موافق على المشاركة ؟	موافق	غير موافق

شاكرلكم حسن تعاونكم

الباحث / أكرم عبد السلام الكحلوت

Annex (11): LSD post hoc test for the difference in the mean scores of participants' perception on the donation processes management by participants' workplace.

Multiple Comparisons						
Dependent Variable: Satisfaction & work place						
LSD						
					95% Confidence Interval	
(I) Work Place	(J) Work Place	Mean Difference (I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
Hospital	Engineering Dep.	.93985	3.20391	.770	-5.4759	7.3556
	Other	13.57143*	5.39240	.015	2.7733	24.3695
Engineering Dep.	Hospital	-.93985	3.20391	.770	-7.3556	5.4759
	Other	12.63158*	5.67898	.030	1.2596	24.0035
Other	Hospital	-13.57143*	5.39240	.015	-24.3695	-2.7733
	Engineering Dep.	-12.63158*	5.67898	.030	-24.0035	-1.2596
*. The mean difference is significant at the 0.05 level.						

Annex (12): LSD post hoc test for the difference in the mean scores of participants' perception on the planning process by participants' profession.

Multiple Comparisons						
Dependent Variable: Planning & Profession						
LSD						
					95% Confidence Interval	
(I) Profession	(J) Profession	Mean Difference (I-J)	Std. Error	Sig.	Lower Bound	Upper Bound
Doctor	Nurse	-49.67532*	13.73719	.001	-77.2053	-22.1454
	Lab	-57.14286*	15.18703	.000	-87.5784	-26.7074
	Engineer	-42.85714*	12.00640	.001	-66.9185	-18.7958
	Other	-53.57143*	15.18703	.001	-84.0069	-23.1359
Nurse	Doctor	49.67532*	13.73719	.001	22.1454	77.2053
	Lab	-7.46753	13.73719	.589	-34.9975	20.0624
	Engineer	6.81818	10.11030	.503	-13.4433	27.0797
	Other	-3.89610	13.73719	.778	-31.4260	23.6338
Lab	Doctor	57.14286*	15.18703	.000	26.7074	87.5784
	Nurse	7.46753	13.73719	.589	-20.0624	34.9975
	Engineer	14.28571	12.00640	.239	-9.7757	38.3471
	Other	3.57143	15.18703	.815	-26.8641	34.0069
Engineer	Doctor	42.85714*	12.00640	.001	18.7958	66.9185
	Nurse	-6.81818	10.11030	.503	-27.0797	13.4433
	Lab	-14.28571	12.00640	.239	-38.3471	9.7757
	Other	-10.71429	12.00640	.376	-34.7757	13.3471
Other	Doctor	53.57143*	15.18703	.001	23.1359	84.0069
	Nurse	3.89610	13.73719	.778	-23.6338	31.4260
	Lab	-3.57143	15.18703	.815	-34.0069	26.8641
	Engineer	10.71429	12.00640	.376	-13.3471	34.7757
*. The mean difference is significant at the 0.05 level.						

Annex (13): LSD post hoc test for the difference in the mean scores of participants' perception on the delivery process by participants' profession.

Multiple Comparisons

Dependent Variable: Delivery & Profession.

LSD

(I) Profession.	(J) Profession.	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Doctor	Nurse	-13.41991*	6.31393	.038	-26.0733	-.7665
	Lab	2.38095	6.98031	.734	-11.6079	16.3698
	Engineer	.00000	5.51842	1.000	-11.0592	11.0592
	Other	2.38095	6.98031	.734	-11.6079	16.3698
Nurse	Doctor	13.41991*	6.31393	.038	.7665	26.0733
	Lab	15.80087*	6.31393	.015	3.1475	28.4543
	Engineer	13.41991*	4.64692	.006	4.1073	22.7326
	Other	15.80087*	6.31393	.015	3.1475	28.4543
Lab	Doctor	-2.38095	6.98031	.734	-16.3698	11.6079
	Nurse	-15.80087*	6.31393	.015	-28.4543	-3.1475
	Engineer	-2.38095	5.51842	.668	-13.4401	8.6782
	Other	.00000	6.98031	1.000	-13.9889	13.9889
Engineer	Doctor	.00000	5.51842	1.000	-11.0592	11.0592
	Nurse	-13.41991*	4.64692	.006	-22.7326	-4.1073
	Lab	2.38095	5.51842	.668	-8.6782	13.4401
	Other	2.38095	5.51842	.668	-8.6782	13.4401
Other	Doctor	-2.38095	6.98031	.734	-16.3698	11.6079
	Nurse	-15.80087*	6.31393	.015	-28.4543	-3.1475
	Lab	.00000	6.98031	1.00	-13.9889	13.9889
	Engineer	-2.38095	5.51842	.668	-13.4401	8.6782

*. The mean difference is significant at the 0.05 level.

Annex (14): LSD post hoc test for the difference in the mean scores of participants' perception on the total perception of all domains by participants' profession.

Multiple Comparisons						
Dependent Variable: Total Satisfaction & Profession						
LSD						
(I) Profession	(J) Profession	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Doctor	Nurse	-12.67111*	3.52344	.001	-19.7323	-5.6100
	Lab	-7.72201	3.89531	.052	-15.5284	.0844
	Engineer	-8.10811*	3.07952	.011	-14.2796	-1.9366
	Other	-9.26641*	3.89531	.021	-17.0728	-1.4600
Nurse	Doctor	12.67111*	3.52344	.001	5.6100	19.7323
	Lab	4.94910	3.52344	.166	-2.1120	12.0102
	Engineer	4.56300	2.59318	.084	-.6339	9.7599
	Other	3.40470	3.52344	.338	-3.6564	10.4658
Lab	Doctor	7.72201	3.89531	.052	-.0844	15.5284
	Nurse	-4.94910	3.52344	.166	-12.0102	2.1120
	Engineer	-.38610	3.07952	.901	-6.5576	5.7854
	Other	-1.54440	3.89531	.693	-9.3508	6.2620
Engineer	Doctor	8.10811*	3.07952	.011	1.9366	14.2796
	Nurse	-4.56300	2.59318	.084	-9.7599	.6339
	Lab	.38610	3.07952	.901	-5.7854	6.5576
	Other	-1.15830	3.07952	.708	-7.3298	5.0132
Other	Doctor	9.26641*	3.89531	.021	1.4600	17.0728
	Nurse	-3.40470	3.52344	.338	-10.4658	3.6564
	Lab	1.54440	3.89531	.693	-6.2620	9.3508
	Engineer	1.15830	3.07952	.708	-5.0132	7.3298
*. The mean difference is significant at the 0.05 level.						

عنوان الدراسة: تقييم إدارة عمليات توريد الأجهزة الطبية المتبرع بها بوزارة الصحة في قطاع غزة.

إعداد: أكرم عبدالسلام يونس الكحلوت

إشراف: د. ياسر صالح العجرمي

ملخص الدراسة:

الهدف و منهجية الدراسة:

مثل العديد من البلدان النامية ، تعتمد فلسطين بشكل كبير على مساعدات المانحين لتلبية إحتياجات نظامها الصحي من الأجهزة الطبية. تتم إدارة عمليات توريد الأجهزة الطبية المتبرع بها وفقًا لمختلف السياسات والإرشادات المنظمة لعمليات التبرع. وهذا يخلق بعض التحديات العملية ، حيث أن عمليات وزارة الصحة والجهات المانحة فيما يتعلق بشراء و تزويد الأجهزة المتبرع بها مختلفا. مع إبقاء هذه القضايا في مركز الاهتمام ، تهدف الدراسة الحالية إلى تقييم إدارة عمليات توريد الأجهزة الطبية المتبرع بها في وزارة الصحة في قطاع غزة من أجل الوصول لاقتراحات وتوصيات من شأنها تعزيز إدارة عمليات التبرع بالأجهزة الطبية.

في الدراسة تم استخدام تصميم دراسة وصفية مقطعية مدمجة. فيما يتعلق بالبيانات الكمية ، تم تعبئة الاستبيانات من قبل 60 من موظفي وزارة الصحة كعينة تم اختيارهم عن قصد تحديدا أولئك الذين يشاركوا في عمليات التبرع بالأجهزة الطبية. البيانات النوعية تم جمعها من خلال مقابلات فردية متعمقة مع 7 شخصيات من وزارة الصحة و 5 شخصيات تمثل مختلف الجهات المانحة. أجريت دراسة تجريبية لحوالي 10٪ من عينة الدراسة ، بخطاب رسمي من كلية الصحة العامة بجامعة القدس تم الحصول على موافقة ادارية من لجنة هلسنكي لإجراء الدراسة .تم تحليل البيانات الكمية باستخدام برنامج الاحصاء SPSS وتم تحليل البيانات النوعية باستخدام تقنية الترميز المفتوح الموضوعي.

أهم النتائج:

بينت الدراسة أن هناك سياسات بوزارة الصحة لتنظيم عمليات وآليات التبرع كما اشار لذلك 80٪ من المشاركين ، بينما أكد 39.6٪ منهم أن سياسات وزارة الصحة يتم تعميمها على الجهات المانحة. وأظهرت الدراسة أن أقل من ثلثي المشاركين أكدوا وجود عملية تخطيط منتظمة لتحديد احتياجاتهم من قبل إدارات وزارة الصحة. علاوة على ذلك ، بلغ رضا المشاركين عن مشاركتهم في عملية التخطيط الخاصة بالجهات المانحة 59.4٪. لقد تأثر منظور المشاركين لعملية التخطيط بمهنتهم حيث ظهرت في متوسط نتائج الأطباء و المهن الاخرى فروق ذات دلالة إحصائية على مستوى ($\alpha = 0.002$).

كما وأظهرت الدراسة أن هناك نظام جرد وعهدة فعال بوزارة الصحة حسب ما أشار 98.3٪ من المشاركين. وأكد 96.7٪ من المشاركين أن هناك لجانًا لوضع المواصفات الفنية. كما وكشفت الدراسة أن 86.7٪ من المشاركين اعتبروا أن عملية الشراء والترسية الخاصة بوزراة الصحة واضحة بشكل جيد.

أظهرت النتائج أن توريد الأجهزة الطبية إلى مخازن وزارة الصحة يتم بشكل مركزي كما ذكر 88.43٪ من المشاركين. و شكل رضا المشاركين حول تقديم الجهات المانحة لمعلومات متعلقة بالأجهزة الطبية المشتراه ما نسبته 72.2٪. كما و تأثر رضا المشاركين عن إدارة عمليات التبرع بمكان عملهم حيث ظهرت في متوسط نتائج المستشفيات و الاماكن الاخرى فروق ذات دلالة إحصائية على مستوى ($\alpha = 0.048$).

كانت نتائج المقابلات المتعمقة متوافقة مع البيانات الكمية .وقدمت تفسيرات واضحة ومقترحات مجدية لسد الثغرات في إدارة العمليات .تم تحديد موضوعات متنوعة لتقديم نظرة عامة قيمة مثل فجوات في التواصل والمشاركة المحدودة للموظفين ونقص المعلومات عن التبرعات .تمت مشاركة تصورات أصحاب المصلحة المختلفة كما ذكر أحد المتحاورين الرئيسيين "على الرغم من الصعوبات التي نواجهها في ادارة تبرعاتنا ، ولكن يمكننا أن نرى أن هناك تحسينات على مدى السنوات الماضية ، ونأمل في التغلب على الفجوات الحالية في المستقبل"

التوصيات:

خلصت الدراسة الى انه على الرغم من الأداء الجيد للجهات ذات العلاقة في إدارة التبرعات المتعلقة بالأجهزة الطبية ، حددت الدراسة بعض الفجوات في إدارة عمليات التبرع مثل التواصل غير الفعال بين إدارات وزارة الصحة ، وبين وزارة الصحة والجهات المانحة، ضعف مشاركة وزارة الصحة مع الجهات المانحة أثناء عملية التخطيط وتحديد احتياجات وزارة الصحة. وأخيرًا ، عدم تقديم معلومات كافية من الجهات المانحة حول التبرعات.

توصي الدراسة بتحديث وإعادة تقديم سياسات وزارة الصحة للتبرع بالأجهزة الطبية للمانحين من خلال الاتصالات النشطة. على المانحين إتباع سياسات التبرع وضمان إشراك وزارة الصحة بشكل فعال في عملية التخطيط الخاصة بالجهات المانحة للتبرع بالأجهزة الطبية. وأخيرًا ، على الجهات المانحة ضمان تبادل معلومات حول التبرعات مع وزارة الصحة.