Addis Ababa University School of Commerce
Department of Project Management

Assessment of Risk Management Practices of Ethiopian Public Health Institute

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A research Project Submitted in Partial Fulfillment of the Requirements for the Award of the Degree of Masters in Project Management

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Assessment of Risk Management Practices of Ethiopian Public Health Institute

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Project Management Department

Approved by Board of Examiners

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DECLARATION

I, hereby declared that this project work entitled — Assessment of risk management practice of Ethiopian Public Health Institute- is done by myself or it is my own work and that has not been submitted before anywhere either at masters level or undergraduate for any award. Any information used from other works has been acknowledged.

By: Bisrat Nigusse

Signature: ----------

Date: ----------

Acknowledgement

First of all I would like to give my all hearted praise to the almighty God who gives me a blessing and wisdom to do things right. My gratitude also extended to Addis Ababa University School of commerce for give me this opportunity to conduct this project work.

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Acronyms & abbreviations

AAU: Addis Ababa University

AIDS: Acquired Immune Deficiency Syndrome

Dr. Doctor

EFMOH: Ethiopian Federal Ministry of Health

EPHI: Ethiopian Public Health Institute

GHSA: Global Health Security Agenda

GTP: Growth Transformation Plan

HIV: Human Immune Deficiency Virus

HSDP: Health Sector Development Program

HSTP: Health Sector Transformation Plan

PHEM: Public Health Emergency Management

PI: Principal Investigator

PMBOK: Project management body of knowledge

PMI: Project management Institute

PRM: Project Risk management

TB: Tuberculosis

Abstract

Project management is used as a significant skill in many industries. For this reason, the knowledge of projects and their management are of high importance. Project risk management is the process of identifying, analyzing and then responding to any risk that arises over the life cycle of a project to help the project remain on track and meet its goal. Poor risk management as a whole is one of the major aspects causing projects to collapse, and this has become an obstacle to each and every project that is being developed nowadays. The healthcare industry faces many of the same challenges as other industries, with some very particular stress points. Ethiopian Public Health Institute have completed and now also implementing various health care projects with different constraints including scope, time, cost, quality and risk in order to improve quality of health care and enhance the capacity of the health sector at all levels of the system. The main objective of this study was to assess the risk management practices in health care projects under Ethiopian Public Health Institute. Descriptive research design was used to answer the extent of risk management practice in health care projects and to see the associated factors affecting the risk management practice. The target population for this study was all members of the project and other related officers in Ethiopian Public Health Institute from which the sample population was drawn by using purposive sampling technique. This study used both primary and secondary data source and quantitative method to address the objective of the study by using self administered questionnaires as a data collection tool. The collected data was analyzed using SPSS version.20 software, which entails calculating frequency, percentage, mean, standard deviation and variability.

As the finding of this study, the risk management practice in various projects in Ethiopian public health institute mainly the risk planning, identification, analysis, response & monitoring was moderately implemented with the average mean score of 3.20 and SD of 1.23. However, the utilization of risk management tools and techniques to manage the project risk were very low with a mean score and standard deviation 2.58 & 0.93 respectively. Regarding policy and strategies most of the respondents disagree and uncertain on the presence of policy or guideline that recommend how to manage unexpected uncertainties and standard risk management practices in these project organization. Thus this study recommends that standard risk management practice should be backed with strategies and guidelines and implemented at every stage of the project by integrating with the project plan and with the involvement of all project team members and stakeholders.

Key words: Project, Project management, Risk, Risk management, Healthcare

Chapter One: Introduction

1.1. Background of the study

Nowadays, project management is used as a significant skill in many industries. For this reason, the knowledge of projects and their management are of high importance. The term ‘‘project’’ designates a temporary effort with a starting point and a unique product or a service as an ending point. Projects are mainly characterized by uniqueness and temporary. According to the Project Management Body of Knowledge, there are different constraints in projects including time, cost, scope, quality, resources and risks. In each project, one of these constraints can be superior compared with another constraint. Project manager’s ability should include balancing the constraints in a way that all the project objectives are fulfilled (Project Management Institute, 2013).

Everything that is done in project contains some measure of risk. No matter what the activity, there is an element of risk that must be analyzed and weighed against the potential rewards. The best organizations are those who can choose the right risks to take on, and the ones to avoid. Dealing with too little risk often means that the organization is being too conservative and is limiting their potential for growth and the company is likely to crash and burn at some point along the way.

As projects are a regular part of business, it only stands to reason that they incur a certain level of risk. Managing project risk deals with the activities involved in identifying potential risks, assessing and analyzing them, finally monitoring them throughout the life of a project. Every project will have a unique set of risks based on the specific details of the work being done. It is often up to the project manager to outline these risks ahead of time and include them as part of the overall plan of the project, and its occurrence and effect is described in the figure below (Paul, 2016).

Project risk management is the process of identifying, analyzing and then responding to any risk that arises over the life cycle of a project to help the project remain on track and meet its goal. Managing risk isn’t reactive only, it should be part of the planning process to figure out risk that might happen in the project and how to control that risk if it in fact occurs. A risk is anything that could potentially impact your project’s timeline, performance or budget. Risks are potentialities, and in a project management context, if they become realities, they then become classified as “issues” that must be addressed. So risk management, then, is the process of identifying, categorizing, prioritizing and planning for risks before they become issues.

Risk management can mean different things on different types of projects. On large-scale projects, risk management strategies might include extensive detailed planning for each risk to ensure mitigation strategies are in place if issues arise. For smaller projects, risk management might mean a simple, prioritized list of high, medium and low priority risks (Peter, 2016).

The current economic climate is continuing to force healthcare organizations to evaluate operational efficiencies. Maximizing profits, or at least not operating at a loss, has long been at the forefront of business objectives. Very few organizations can survive in the long run without meeting their expenditures (Sharon, 2010). Health care may well be the largest service industry in the world, and it is one in which project management is playing a larger part. While advances in biomedical technology are accelerating costs, managed care has the potential of reducing cost. (Sapienza, 1997).

Ethiopian Federal Ministry of Health/ Ethiopian Public Health Institute have implemented successive Health Sector Development program (HSDPs) since 1997 in four phases. During this period, by implementing effective program management and reducing obstacles, this sector has made huge strides in improving access to health services and improvements in health outcomes. Ethiopia's health indicators have been remarkably improved from one of the worst in Sub-Saharan Africa to amongst the stand out performers in just two decades. The lives of millions of children have been saved; millions of new infections and death from communicable diseases such as HIV, malaria, and tuberculosis have been averted. All this was done while building a health system that can sustain the gains over the long term (Kesetebirhan, 2015).

Ethiopian Federal Ministry of Health (EFMOH)/ EPHI are now implementing various major projects (2015/16-2019/20) in order to achieve its program goals to improve equity, coverage and utilization of essential health services, improve quality of health care, and enhance the implementation capacity of the health sector at all levels of the system. Therefore, this study tried to address the extent of risk management practice, techniques and tools in the major projects and its associated factors (HSTP, 2015).

1.2.Statement of the problem

Projects are one-off business ventures that are significant and complex and often involve large sums of money and innovative technology. By their nature these types of project are inextricably linked to people and organizations are full of uncertainty and involve profound risks. In order to maximize the substantial profits and opportunities arising from the successful completion of projects these risks need to be identified, understood and managed. Organizations often find it difficult to reach agreement over what constitutes project failure because of the very many different viewpoints involved in such complex undertakings; the relevance and appropriateness of the original objectives and because many projects yield profits in spite of failing to meet their objectives (White, 1995).

As integral part of project management, effective risk management is a critical success factor for delivering projects in predefined cost, time, and quality. Project risk management provides benefits when it is implemented according to good practice, principles and with organizational commitment to taking the decisions and performing actions in an open and unbiased manner. Starting with the definition, risks are uncertain events which when occur have negative effect on at least one project goal (time, costs, contents or quality).Contrasting, the positive variability is desired and is called opportunity (Benta.D, Podean.I.M, Mircean.C, Siemens.A.G, 2011)

In the era of globalization, there is no way not to talk about the risk, which has become an indispensable part of everyday life. Effective risk management does not apply to the resignation of the risk, which is seemingly the cheapest option activity. The basic problem of this option, however, is its senselessness economically, because what is potentially profitable, it is by definition risky and something that does not pose a risk, it is interesting from an economic point of view, and thus, does not bring tangible benefits. Therefore, the effective risk management will be to find a "golden mean" in its management, in relation to the implemented project. On the one hand it will involve protection against the risk of negative side, by means of detailed identification and classification of risk, resulted in a comprehensive analysis. On the other hand, the management should be based on checking the maximum benefits of these decisions, using all the tools of mathematical and analytical (Pawel, 2017).

Risk Analysis and Management is a key project management practice to ensure that the least number of surprises occur while your project is underway. While we can never predict the future with certainty, we can apply a simple and streamlined risk management process to predict the uncertainties in the projects and minimize the occurrence or impact of these uncertainties. This improves the chance of successful project completion and reduces the consequences of those risks (Lavanya & Malarvizhi, 2008).

Poor risk management as a whole is one of the major aspects causing projects to collapse, and this has become an obstacle to each and every project that is being developed nowadays. Ignoring chances of risks in a project can bring about a lot of costs to the project sponsor hence spoiling the relationship between an organization and the client/customer to which the project is being developed for. Due to drastic development of technology, managing risks in a project needs accurate intelligence in order to bit the challenges faced by project managers. Poor risk management is capable of producing another risks to the existing ones therefore you can tell a risk is something that needs to be handled more like a glass, it needs care so same thing applies to projects if we don't handle them with maximum care then the whole thing will be spoiled (Mobey & Parker, 2002).

According to Linh (2016) the healthcare industry faces many of the same challenges as other industries, with some very particular stress points. Efficient processes are vital, not just to decrease costs and increase revenues and gain a competitive edge, but to offer the highest quality care. They also face much more scrutiny from various stakeholders, such as government and private agencies, health insurance companies, and of course, patients. These demands mean that healthcare organizations need to make an effort to run more efficiently to be able to manage the increasing patient numbers - and their increasing demands.

Why do we care about risk management in health care projects?

Healthcare projects are unique and you won’t find a lot of these types of projects in any other industry, e.g. projects to implement new approval processes for helicopter landing or a project to reduce errors in the operating room. More so than in other industries, the success or failure of healthcare projects can mean the difference between life and death. This is why applying project management to healthcare processes and structures is so important, because it enable the sector to run more efficiently and as a direct result offer more affordable and higher quality care to patients and ensures safety in the hospital (Linh, 2016).

Healthcare providers face ongoing challenges to combat rising costs while delivering on the promises of advances in medical science and technology. Creative thinking about project risk management and governance strategies can deliver dramatic cost savings and stretch healthcare revenue further while managing risk. One innovative approach to governance and project management is to tailor the type and level of management to the risk assessed for each project, avoiding the costs of treating all projects as though they carried a high level of risk. Healthcare project management is an overhead cost that does not directly contribute to patient care, so the more we can effectively control and reduce healthcare project management costs, the more of our limited budgets can be directly spent on patient care needs. Without effective project management, dramatic cost overruns or even project failure are constant threats (Tim, 2016).

In health care, risk management and quality care are at the forefront of ensuring organizational longevity and financial stability. With health care expected to grow rapidly, the potential risks to health care organizations will also grow. In order to be prepared when facing these risks, it's important for organizations to identify possible risks that may compromise the organization or the qualities of patient care (Amber, 2018).

The Ethiopian health sector transformation plan (HSTP, 2015/16-2019/20), in line with our country's second growth and transformation plan (GTPII), has implemented and set ambitious goals to improve equity, coverage and utilization of essential health services, improve quality of health care, and enhance the implementation capacity of the health sector at all levels of the system, however, there are various threats and opportunities in our environment which are constraining and enabling factors that need proper management and control in order to be champion & improve the outcome of this program (Keseteberhan, 2015).

Thus, this study tried to evaluate the practice of risk management in the implementation of the health care projects in Ethiopian public health institute with a view to identify shortcomings in the risk management practice and ultimately suggest ways and means of improving the project outcome.

1.3.Basic Research Questions

The study sought to answer to the following research question

General research question:

- To what extent does risk management practices, tools and techniques applied to the health care projects?

Specific research questions:

- What actions are taken to plan, identify and assess risks?
- What actions are taken to reduce the likelihood of this risk and to manage risks?
- What is the contingency plan or preventive measures?
- What are the associated factors for affecting risk management practice in health care project?

1.4. Objectives

General Objective:

- The general objective of this study was to assess risk management practices in health care projects in EPHI/FMOH

Specific Objective: The specific objectives were,

- To assess risk planning, identification and analysis practice
- To identify risk response practice
- To identify risk monitoring practice and preventive measures
- To assess the associated factors for effective risk management practice

1.5.Significance of the study

This study emphasized on the practice of risk management and how these practices were influenced by various associated factors. The findings of this study are of great importance for projects in this sector to improve the efficiency and effectiveness of the project outcome through the proper implementation of risk management practice since risk management is the most important project management tool that a project team can use to increase the likelihood of project success. The existing gap in risk management practice also highlighted and communicated to help the project manager and policy makers to understand the benefit of risk management in the project success. This study also

initiates other researchers to conduct further and detail studies focusing mainly on the impact of project risk management on project success.

1.6.Delimitation/scope of the study

This study mainly focused on the extent of risk management practices i.e. planning, identification, analysis, response and monitoring of risk on healthcare projects in Ethiopian Public Health Institute/ Federal Ministry of Health. Due to time and financial constraints this study only focused on describing the risk management practices but its impact on the project success was not addressed. The findings, conclusion and recommendations are only limited to healthcare projects of the organization. This study used quantitative research method to describe and explore the risk management practice in the project.

1.7.Limitation of the study

The scope of this study was limited only on healthcare projects due to time and financial constraints. Health care projects are directly related to human health system which is different from other sector projects that make the finding of the study difficult to generalize. This study was also unable to address the impact of risk management practice since the impact of intervention/projects in the health system is difficult to measure due to validation challenge/ attribution gap.

1.8.Organization of the study

This study consists of five chapters. The first chapter will contain the introduction part comprising of background, statement of the problem, the general and specific objectives of the study, research questions & significance of the study, delimitation and limitations of study. Chapter two focus on review of related literature regarding project management, risk and uncertainty, risk management system, health care projects. Chapter three is about research method and methodologies vis-à-vis study design, study population, sampling technique, data collection method, data analysis and interpretation and communication of the findings. Chapter four covers the result or study findings and discussion. Chapter five contains Conclusions drawn from the study findings and its recommendation. The other miscellaneous part includes reference, questionnaires and Consent form (English & Amharic).

Chapter Two: Literature Review

2.1. Risk and uncertainty

The Oxford Dictionary definition of the word "risk" is "exposure to the chance of danger ". There are two key words in this statement: *"*chance*" and "*danger". "Chance" in the context of projects means significant uncertainty and "danger" is negative – i.e. some form of negative impact, which brings us to another key distinction. Opportunities should never be described as 'positive risk', as the PMI's PMBoK also declared in its 2013 update. Risk is negative (danger) and opportunity is positive. Mixing them together in the same discussion confuses people – a great deal. The term 'positive risk' is a non-sense. Risk management is a poorly understood subject and introducing confusing terms only makes things worse.

Risk is part of every human endeavor. From the moment we get up in the morning, drive or take public transportation to get to school or to work until we get back into our beds (and perhaps even afterwards), we are exposed to risks of different degrees. In 1921, Frank Knight summarized the difference between risk and uncertainty thus: uncertainty must be taken in a sense radically distinct from the familiar notion of Risk, from which it has never been properly separated. The essential fact is that **"risk"** means in some cases a quantity susceptible of measurement, while at other times it is something distinctly not of this character; and there are far-reaching and crucial differences in the bearings of the phenomena depending on which of the two is really present and operating. It will appear that a measurable uncertainty, or "risk" proper, as we shall use the term, is so far different from an un-measurable one that it is not in effect an uncertainty at all" (Knight, 1921).

Risk is defined according to classical theory as the probability of occurrence of certain deviation on the course of achieving a goal. This deviation is determined by the interacting factors and the risk is the probability that a failure or disharmony may occur and prevent the system from moving on. The occurrence of an event that causes a certain change that needs redefining the way of going on is part of the risk phenomenon. Classical methods of measuring risk refer to calculating probabilities of occurrence of certain risks in order to avoid them or minimize the consequence (Bolos and Florina, 2010).

2.2. Project risk

Risk is when an uncertain event or condition occur and have an effect on the project outcome, that effect can be positive or negative. Risk is inherent in everything we do. Project managers, more than most, know how to mitigate risk, and use it as a core strategy in project management. To understand where risk can come into a project, always start with the lens of the triple constraint. When you're documenting risks, note where impacts to time, cost and quality are likely to occur. Once you've identified risks, you'll want to work with your team to develop strategies for addressing them, should they arise. You'll also want to bring in stakeholders who can identify other risks that they may be aware of, such as market conditions or other constraints not yet communicated (Jennifer, 2014).

There are different source of risk:

- **Cost risk**, typically escalation of project costs due to poor cost estimating accuracy and scope creep.
- **Schedule risk**, the risk that activities will take longer than expected. Slippages in schedule typically increase costs and, also, delay the receipt of project benefits, with a possible loss of competitive advantage.
- **Performance risk**, the risk that the project will fail to produce results consistent with project specifications (PMBOK, 2013).

Project risks include both internal risks associated with successfully completing each stage of the project, plus risks that are beyond the control of the project team. These latter types include external risks that arise from outside the organization but affect the ultimate value to be derived from the project. In all cases, the seriousness of the risk depends on the nature and magnitude of the possible end consequences and their probabilities. He also described the status of risks in each stage of the project phase as shown below:

- **INITIATION PHASE:** Risk is associated with things that are unknown. More things are unknown at the beginning of a project, but risk must be considered in the initiation phase and weighed against the potential benefit of the project's success in order to decide if the project should be chosen.

- **PLANNING PHASE:** Once the project is approved and it moves into the planning stage, risks are identified with each major group of activities. A risk breakdown structure (RBS) can be used to identify increasing levels of detailed risk analysis.
- **EXECUTION PHASE:** As the project progresses and more information become available to the project team, the total risk on the project typically reduces, as activities are performed without loss. The risk plan needs to be updated with new information and risks checked off that are related to activities that have been performed.
- **CLOSEOUT PHASE:** During the closeout phase, agreements for risk sharing and risk transfer need to be concluded and the risk breakdown structure examined to be sure all the risk events have been avoided or mitigated. The final estimate of loss due to risk can be made and recorded as part of the project documentation (David, 2011)

2.3. Project Management

Project Management Institute (2004) —defines a project as "a temporary endeavor undertaken to create a unique product or service. A project is *temporary*. A project's duration might be just one week or it might go on for years, but every project has an end date. You might not know that end date when the project begins, but it's out there somewhere in the future. Projects are not the same as ongoing operations, although the two have a great deal in common. **Ongoing operations**, as the name suggests, go on indefinitely; you don't establish an end date. Next, a project is an *endeavor*. **Resources**, such as people and equipment, need to do work. The endeavor is undertaken by a team or an organization, and therefore projects have a sense of being intentional, planned events. Successful projects do not happen spontaneously; some amount of preparation and planning happens first. Finally, every project creates a *unique product* or *service*. This is the **deliverable** for the project and the reason that the project was undertaken.

Project management is a strategic competency that enables entities to link project success to business goals (PMI, 2014). Kerzner (2003) observed that project management is designed to control company resources in a given activity within the constraints of time, cost, acceptable level of performance and good customer relations. Project management follows a specific sequence of phases which define the work to be done, the person to do the job, the milestones, and the person to approve and review the milestones as well as the control and monitoring of the milestones (PMI, 2013).

In the quest to survive and remain competitive, organizations have been forced to continuously adapt to changing business environment. Project Management has been identified as a part of a competitive strategy for organizations. It is viewed as a strategic competency for organizations that links project success to business goals (Project Management Institute, 2014).

2.3.1. Knowledge Areas of Project Management

The knowledge areas of project management describe project management practices and knowledge in term of its inherent processes. According to Project management body of knowledge (PMBOK, 2013), these processes have been grouped into **10 knowledge areas**:

a) **Project Integration Management:** It describes the processes required to ensure that the various elements of the project are properly coordinated.

b) **Project Scope Management:** It describes the processes involved in defining and controlling what is or is not included in the project.

c) **Project Time Management:** It describes the processes required to ensure timely completion of project. It is considered to be a core knowledge area, and is closely bind with cost and scope of project.

d) **Project Cost Management:** It describes the processes required to ensure that the project is completed within the approved budget.

e) **Project Quality Management:** It describes the processes required to ensure that the project will satisfy the needs for which it was undertaken.

f) **Project Human Resource Management:** It describes the processes required to make the most use of people involved with the project.

g) **Project Communication Management:** It describes the processes required to ensure timely and appropriate generation, collection, storage, distribution and ultimate disposition of project information.

h) **Project Risk Management:** It describes the processes concerned with identifying, analyzing and responding to project risks throughout the life of project to meet project objectives. Risk management is all about minimizing the chances of failure. It is a continuous process of identifying and managing uncertain events that can be negative or positive. On the bases of nature and occurrence, risk can be known-unknown and unknown-unknown, and on the bases of sources of occurrence, risk can be internal and external to the project. There are 6 processes of project risk management including plan risk management, identify risk, perform qualitative risk analysis, and perform quantitative risk analysis, plan risk responses and control risks.

i) **Project Procurement Management:** It describes the processes required for acquiring or purchasing the goods, services, material and equipment from outside the performing organization to perform the project work.

j) **Project Stakeholder Management:** It describes the processes involved in managing the expectations of who have some interest in project and that could affect or be affected by project deliverable.

2.4. Project risk management

Risk management has been one of the major concerns of executives and professionals involved with projects today, especially after the financial crisis that shook the world in 2008. The results of ex-post assessment of project or even verification of lost business opportunities for companies are clear signal that this evidence has become more intense (Roque, 2013).

Project risk management is an essential and determinant step towards successful projects. All real risks that can affect one or more objectives of the project must be identified and managed. A detailed analysis and a precise definition of risk can lead to successful achievement of objectives. Risk management helps project organizations to achieve performance and profitability and at the same time prevents loss of resources. It provides a positive potential return on investment for organizational management, project stakeholders, project management, and team members and helps an entity get to where it wants to go and avoid pitfalls and surprises along the way (PRM- 2010). Changes in the project management plan that result from the Project Risk Management process may require decisions at the appropriate level of management to reassign personnel, establish or modify budgets, make

commitments to others outside the project, interact with regulators, and comply with the rules of accounting and law. Project Risk Management should be conducted in compliance with these internal and external requirements. Project risk management should be conducted in a manner consistent with existing organizational practices and policies. It is a valuable component for any project management step and it adds value to all project management processes and provides benefits when it is implemented according to good practice principles and with organizational commitment to taking the decisions and performing actions in an open and unbiased manner (BENTA, D. et al, 2011).

According to Pawel (2017), each project is associated with risk-taking. Enterprises and institutions should be prepared for the occurrence of possible risks. Very often companies have a strong tendency to take risk at the beginning of their activity and therefore many of them become bankrupt in the first two years from their foundation. However, many organizations have very poor appetite for risk. As part of portfolio they choose to implement those projects whose variance (uncertainty) is acceptable. Therefore, before the implementation each project should undergo risk analysis performed along with the identification of possible risks. Identification of risks in projects is based primarily on determining what types of risks may affect the project, identifying their characteristic parameters and estimating the probability of their occurrence in the project. The need for risk identification stems from the decision making conditions under which an investor is at the moment.

BENTA et al, (2011) stated that risk management shall be proactive. This is one of the key preliminaries to cope with the challenges of complex projects. An overarching and consistent view on project risks and uncertainties is necessary to follow a holistic approach in project risk management. Uncertainty is inevitable since projects are unique and temporary undertakings based on assumptions and constraints, delivering project results to multiple stakeholders with different requirements. Project management can be seen as an attempt to control this uncertain environment, through the use of structured and disciplined techniques such as estimating, planning, cost control, task allocation, earned value analysis, monitoring, and review meetings. Each of these elements of project management has a role in defining or controlling inherent variability in projects. Project risk management provides approaches by which uncertainty can be understood, assessed, and managed within projects.

2.5. Project Risk Analysis Process

According to Jason (2018) the risk analysis process is essentially a quality problem solving process. Quality and assessment tools are used to determine and prioritize risks for assessment and resolution. The risk analysis process is as follows:

Identify the Risk: This step is brainstorming. Reviewing the lists of possible risk sources as well as the project team's experiences and knowledge, all potential risks are identified. Using an assessment instrument, risks are then categorized and prioritized. The number of risks identified usually exceeds the time capacity of the project team to analyze and develop contingencies. The process of prioritization helps them to manage those risks that have both a high impact and a high probability of occurrence.

Assess the Risk: Traditional problem solving often moves from problem identification to problem solution. However, before trying to determine how best to manage risks, the project team must identify the root causes of the identified risks.
The project team asks questions including:

- What would cause this risk?
- How will this risk impact the project?

Develop Responses to the Risk: Now the project team is ready to begin the process of assessing possible remedies to manage the risk or possibly, prevent the risk from occurring. Questions the team will ask include:

- What can be done to reduce the likelihood of this risk?
- What can be done to manage the risk, should it occur?

Develop a Contingency Plan or Preventative Measures for the Risk: The project team will convert into tasks, those ideas that were identified to reduce or eliminate risk likelihood. Those tasks identified to manage the risk, should it occur, are developed into short contingency plans that can be put aside. Should the risk occur, they can be brought forward and quickly put into action, thereby reducing the need to manage the risk by crisis (Jason, 2018).

2.6. Project risk management practice

A guide to the project management body of knowledge (PMBOK, 2000), describes as risk management is the systematic process of identifying, analyzing, and responding to project risk. It includes maximizing the probability and consequences of positive events and minimizing the probability and consequences of adverse events to project objectives. PMBOK (2000) also provides an overview of the following major processes in risk management:

- Risk Management Planning—deciding how to approach and plan the risk management activities for a project.
- Risk Identification—determining which risks might affect the project and documenting their characteristics.
- Qualitative Risk Analysis—performing a qualitative analysis of risks and conditions to prioritize their effects on project objectives.
- Quantitative Risk Analysis—measuring the probability and consequences of risks and estimating their implications for project objectives.
- Risk Response Planning—developing procedures and techniques to enhance opportunities and reduce threats to the project's objectives.
- Risk Monitoring and Control—monitoring residual risks, identifying new risks, executing risk reduction plans, and evaluating their effectiveness throughout the project life cycle.

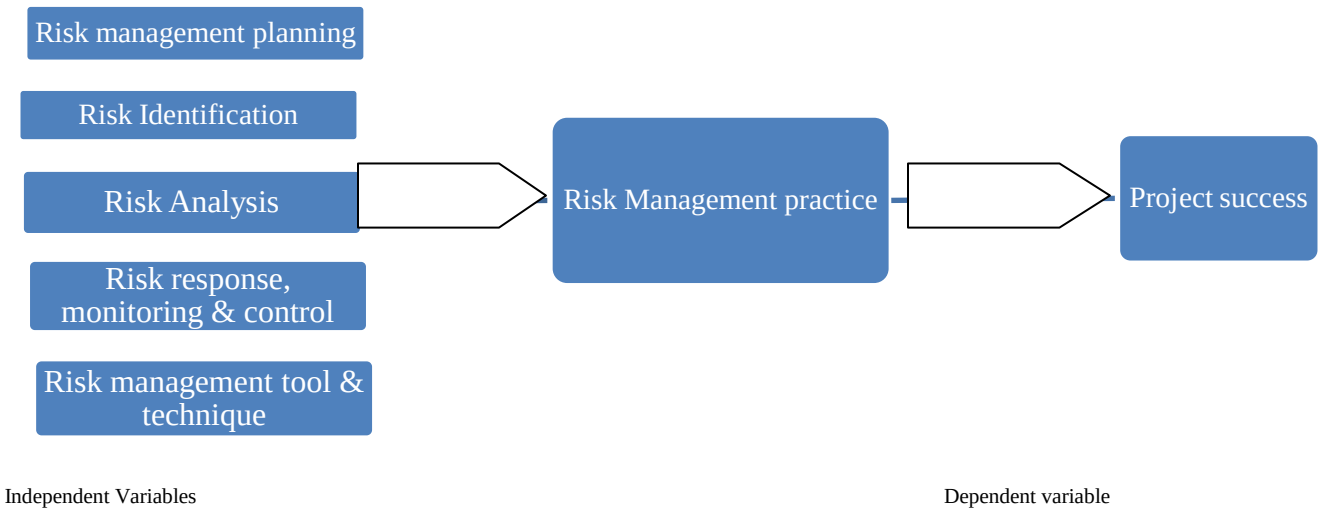
These processes interact with each other and with the processes in the other knowledge areas. Each process generally occurs at least once in every project. Although processes are presented here as discrete elements with well-defined interfaces, in practice they may overlap and interact in ways not detailed here.

A study by Yongjian (2012) indicates that the use of risk management was inadequate; qualitative risk analysis methods were preferred to quantitative and semi-quantitative methods; risk management usage in the execution was found to be much higher than in the planning, conceptual or termination stage; interviewees were unfamiliar with most of the risk identification and assessment tools. All above could be partly due to the project nature, but more fundamentally due to the local industrial culture. The absence of risk management culture was found to be the dominant factor which limited the implementation of risk management in practice (Yongjian, 2012).

The purpose of risk management is to prepare for project risk and to take measures to deal with the occurrence of unexpected and undesired events. While most of the project implementation team members agree that risk management is a good idea it seems that risk management practices have not been widely applied to projects. From the findings, risk management practices have been widely applied in major projects which were considered to be complex as these projects attracted a lot of public attention because of substantial impact on communities, economy, environment and budget. The rate of application of these risk management practices in the major projects recorded a mean score of 4.401 of the maximum mean score of 5. This implied that risk management practices were widely and extensively applied in the major projects. The minor projects which constituted 71% recorded a mean score of 2.704 implying that risk management practices were not widely applied (Musyoka, 2010).

A study by Frezewud (2016) on project risk management practice in Batu and Dukem town water supply project revealed that there is no policy or guideline that is stated for the projects which proposes how to handle uncertainties that the projects may encounter. Based on the result of the analysis, through the life cycle of the projects, risk management is not performed as a continuous process and is usually applied at the implementation stage. The findings of the result also showed that a standard and defined risk management process does not exist within the projects and that there isn‘t any person or department specifically assigned to manage uncertainties within the projects (Frezewud, 2016).

Fig 2.1. Conceptual Framework



Chapter Three: Research Methods and Methodologies

3.1. Research Design

This study used descriptive research design. Descriptive studies may be characterized as simply the attempt to determine, describe or identify what is, explanatory research attempts to establish why it is that way or how it came to be" (Wiley, 2004). This study was descriptive as it tries to answer the extent of risk management practice in health care projects and the associated factors affecting the risk management practice. This study used a quantitative method to describe the risk management practice and its associated factors.

3.2. Target Population

The Ethiopian Public Health Institute (EPHI) is an autonomous federal government institute having its own legal personality as the main government body in charge of three main tasks like research, Surveillance and diagnostic service. The main objectives are to contribute to the development of health science and technology, provide referral medical laboratory services relating to the causes, prevention and diagnosis of major diseases of public health importance and establish & support National Laboratory Quality Assurance Programs & system.

The target population of this study was all members of the project and other related officers in Ethiopian Public Health Institute. Therefore, the target population comprised of the program managers, the project team members, Monitoring & evaluation officers and higher officials.

3.3. Sampling Design and Technique

Purposive Sampling technique which is a non- probability sampling technique was used i.e. the investigator choose the sample unit**,** by his own judgment, that met the specific purpose of the study. Unlike probability sampling method, non-probability sampling technique uses non-randomized methods to draw the sample. Non-probability sampling method mostly involves judgment. Instead of randomization, participants are selected because they are easy to access (Doherty, 1994). There were 40 respondents from 52 project team members were included from HIV/AIDS, TB, GHSA, PHEM and laboratory capacity building proportionally and project team members of less than one year of experience in this project were excluded.

3.4. Data source and Data Collection Instruments

This study used primary data source to address the objective of the study. Primary data is an original and unique data, which is directly collected by the researcher through observations, surveys, questionnaires, case studies and interviews according to his requirements. As opposed to secondary data which is easily accessible but are not pure as they have undergone through many statistical treatments. Sources of secondary data are government publications, websites, books, journal articles, internal records (Oluwatosin, 2017). In this study structured questionnaire was administered to the project manager and other project team members in order to address the risk management practices like planning, identification, analysis, response & monitoring of risks and factors associated with the risk management practice. A questionnaire was also used for selected organizational officials in order to assess the enabling and constraining organizational factors for risk management practice. To supplement the primary data, secondary data like project plan, risk register and any related documents was reviewed to see the project risk management practices.

3.5. Validity and reliability

Reliability estimates evaluate the stability of measures, internal consistency of measurement instruments, and reliability of instrument scores. Validity is the extent to which the interpretations of the results of a test are warranted, which depends on the particular use the test is intended to serve (Bannigan.K, 2004). In this study validity and reliability of the data collection instrument was assured through pilot testing in a similar setting and consultations with other related researchers and advisors. The reliability was also assured by analyzing Cronbach's Alpha and the finding is shown below:

Table 3.5. Reliability statistics:

Item	General risk management practice	Risk management planning	Risk identification	Risk analysis	Risk response & monitoring	Risk management tool & technique	Miscellaneous	Total
No. of questions	4	6	3	4	6	3	7	33
Cronbach's alpha value	.886	.868	.822	.906	.934	.912	.619	.900

Cronbach's alpha value of 0.6 is acceptable & 0.80 or greater is preferred (Cortina, 1993)

3.6. Data Analysis

The principal investigator examined the completed questionnaire to check whether it is properly filled or not and its completeness. Thereafter the questionnaire was organized and arranged by providing unique codes. Then data was analyzed using descriptive statistics by SPSS version 20 software, which entails calculating frequency, percentage, means and standard deviation. The analyzed data is presented here using tables, graphs and charts.

3.7. Ethical Consideration

The researcher gave respondents opportunity to fill the questionnaire without coercion. The researcher also provided requisite explanation to respondents where necessary and assured them of confidentiality as a regards the information provided. Furthermore, the researcher orients/ trained data collectors and also conducted pilot test for data collection instruments and procedures. The respondents consent was required by the researcher and they assured of confidentiality & anonymity regards the whole research process.

Chapter four: Study findings and Discussion

4.1. Introduction

This section presents the finding of the study on risk management practice in health care projects, mainly the practice of risk management planning, risk identification, risk analysis, risk response and risk monitoring and control and discussion on the findings comparing with other related literatures. On the other hand the study also assesses the method they used to manage & handle project risks and factor associated with the risk management practice. This study mainly conduct descriptive analysis on the project risk management practice and tried to explore the main bottle necks to implement this standard practice which have a direct impact on the outcome or success of the project.

4.2. Response rate

A total of forty respondents participated in the study and the questionnaire possess 38 questions concerning of demographic characteristic, risk management practice i.e. planning, identification, analysis, response, monitoring & control of risks and factors associated with this practice. In the process of collecting the data 40 questionnaire were administered to the respondents or the project team members of HIV/AIDS, Tuberculosis, Global health security agenda, Public health emergency management project and Laboratory capacity building projects under Ethiopian public health institute/ Federal ministry of health. There were forty questionnaires administered to the respondents and all of them were completed and returned to the principal investigator and translating to return rate of 100%.

4.3. Demographic/ General information

The general information of the respondents were analyzed in reference to Age, Educational status, Project department involved, year of overall work experience and also year of experience involved in this specific project. This information was important to understand the real risk management practice, their involvement & experience in this practice as a project team. The analyzed result is now presented in the table below, table 4.3.:

Table 4.3: Demographic/ General information

S.n	Demographic/general information	Frequency (#)	Percentage (%)
1.	**Age in year**		
	20-29	3	7.5
	30-39	31	77.5
	40-49	5	12.5
	Above 49	1	2.5
	Total	**40**	**100**
2.	**Educational status**		
	Diploma	0	0
	Degree	2	5
	Post graduate	38	95
	Other	0	0
	Total	**40**	**100**
3.	**Project department**		
	HIV/AIDS	11	27.5
	Tuberculosis	11	27.5
	Laboratory capacity building	6	15
	Public health emergency management	10	25
	Global health security agenda	2	5
	Other	0	0
	Total	**40**	**100**
4.	**Over all work experience**		
	Below 2 years	4	10
	2-5 years	7	17.5
	6-10 years	17	42.5
	11-15 years	10	25
	Above 15 years	2	5
	Total	**40**	**100**
5.	**Project experience**		
	Below 1 year	7	17.5
	1-3 years	13	32.5
	3-5 years	10	25
	Above 5 years	10	25
	Total	**40**	**100**

Table 4.1.: Demographic information of the respondents

The data presented above shows that out of 40 respondents who participated in the study, 3 (7.5%) were in the age range of 20-29, the majority 31 (77.5%) were in the age range of 30-39, 5 (12.5%) were in the age range of 40-49 and only 1 (2.5%) were above 49 years of age. As this study shows that the majority of the project team members' in health care projects fell in the age range of 30-39 years old which looks as they are senior enough and capable of improving the health sector and implementing the standard practices in various projects. On the level of education, out of 40 respondents who participated in the study, 2 (5%) of the respondents had an undergraduate degree while the rest 38 (95%) had post graduate degree in different field of study which highly influence the project management practices positively and in adopting new principles and technologies which has a remarkable impact in managing and implementing projects in the health sector.

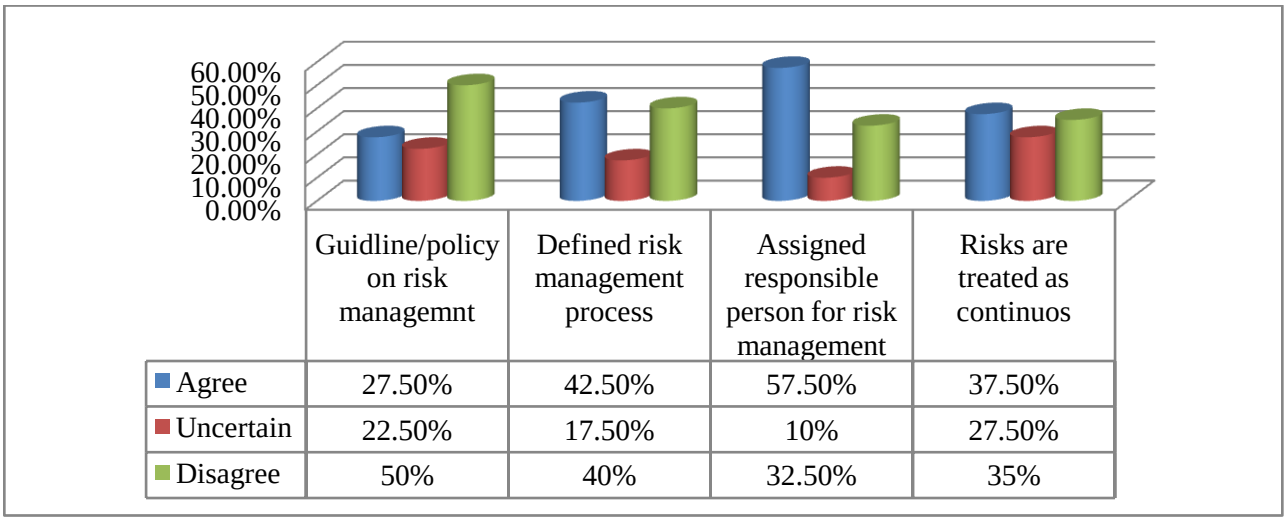
The respondents who participated in this study were included from different departments, as shown in the table 1 above: 11 (27.5%) were from HIV/AIDS project department, 11 (27.5%) were from Tuberculosis project department, 6 (15%) were from laboratory capacity building project department and 10 (25%) & 2 (5%) were from public health emergency management and Global health security agenda projects respectively. As shown from this figure, this study tried to touch most of the major projects implemented by Ethiopian Public Health Institute and shows the real project and risk management practice of the organization.

This study also tried to see the respondent's project experience and involvement as a project team member and found that 7 (17.5%) had a project experience of below 1 year, 13 (32.5%) had 1-3 years, 10 (25%) had 3-5 years and the rest 10 (25%) had a project experience of above 5 years. Majority of the project team members i.e. 33 (82.5%) had working experience of more than 1 year in the project environment that have a positive impact in their process of implementing these projects properly.

4.4. Respondents' perception towards general risk management

The general risk management practice was assessed with regard to the presence of risk management guideline or policy, its process and responsibility on managing risk as shown below and the mean value interpretation used in this paper was adopted from the recommendation of (Decker, 2018) as he suggested "Strong Agreement" is usually assigned a value of five and "Strong Disagreement" a value of one, so any average resulting in a number greater than three – the midpoint of the scale, and its neutral value – could be construed as overall approval, while a value below three would indicate disapproval.

Fig.4.4: Respondents' perception towards general risk management



	Guidline/policy on risk managemnt	Defined risk management process	Assigned responsible person for risk management	Risks are treated as continuos
Agree	27.50%	42.50%	57.50%	37.50%
Uncertain	22.50%	17.50%	10%	27.50%
Disagree	50%	40%	32.50%	35%

As shown from the above figure, 11 (27.5%) of the respondents agreed on the existence of policy or guideline that recommends how to manage unexpected risks while 9 (22.5%) and 20 (50%) were uncertain and disagree on these respectively. On the other hand 17 (42.5%) of the respondents agreed that the project has a defined or standard risk management process which was not supported by 57.5% of the respondents as 7 (17.5%) were uncertain and 16 (40%) disagreed about it. Concerning the responsible person or department assignment to handle risks when it occur, 23 (57.5%) acknowledged the presence of responsible body while the rest 4 (10%) and 13 (32.5%) were uncertain and disagree on it respectively. Finally in this section the study tried to see the sustainability and continuity of risk management practice and the result finding shows that 15 (37.5%) of the respondents agreed that risk management is treated as a continuous practice, 11 (27.5%) were uncertain and 14 (32.5%) disagree that it was not treated as a continuous way and this low finding is almost similar with other finding (Yongjian, 2012).

4.5. Respondents' perception towards risk management planning

There is nothing worth than risk management planning in risk management process which tells us how we're going to handle risk in our project. It documents how we'll assess risk, who is responsible for doing it, and how often we'll do risk planning (Parker & Mobey, 2004). Thus this study tried to reveal the risk management planning practice from the perspective of the project teams. The views of the respondents regarding aspects of risk management planning were assessed and the results are presented in table 4.5: using the likert scale of 1-5 where; SD-Strongly Disagree, D-Disagree, U-Uncertain, A-Agree, SA-Strongly Agree.

Table 4.5: Respondents' perception towards risk management planning

S.n	Practice		SD	D	U	A	SA	Mean	St.dv
1.	There is systematic approach or careful planning done to perform risk management in the project	Freq.	3	11	10	11	5	3.1	1.172
		%	7.5	27.5	25	27.5	12.5		
2.	Relevant stakeholders are involved in the planning and performing of managing risk	Freq.	2	9	11	15	3	3.2	1.043
		%	5	22.5	27.5	37.5	7.5		
3.	An expert judgment or meetings are considered while planning for risks that might occur in the project	Freq.	3	6	12	15	4	3.28	1.086
		%	7.5	15	30	37.5	10		
4.	Environmental factors are included as an input to plan for uncertainties	Freq.	3	7	12	11	7	3.30	1.181
		%	7.5	17.5	30	27.5	17.5		
5.	Team members within the project receive training or have enough knowledge about risk management	Freq.	5	9	8	14	4	3.08	1.228
		%	12.5	22.5	20	35	10		
6.	Risk management plan is incorporated with the project plan	Freq.	4	11	10	11	4	3.00	1.177
		%	10	27.5	25.0	27.5	10		

From the result shown in the above table, some of the project team members 14 (35%) were of the view that there is no systematic approach or careful planning done to perform risk management in the project. However, on the other hand 16 (40%) agreed that their team follows a systematic approach for risk management planning (where; mean = 3.1 & St.dv = 1.172) while 11 (27.5) were uncertain about the practice. As indicated by this finding risk management planning were practiced either in some areas/departments only or it might not involve all team members during planning which strictly affect the outcome of the project negatively and it made the project team members to made non-informed decisions.

With regard to stakeholder involvement (some of the possible stakeholders in health care projects are Client/patient, project sponsors/donors, medical equipment suppliers, Health professionals, Construction companies, consultants etc) during planning of risk management, 11 (27.5%) of the respondents were of the view that relevant stakeholders were not involved in the planning and performing of managing risk although 18 (45%) agreed on the involvement of stakeholders during planning process (where, mean= 3.2 & St.dv = 1.043) and the other 11 (27.5%) were not sure about it. As we understand from this finding the organization or the project department not fully engaged stakeholders during the planning of risk management even if stakeholder involvement have huge impact on the management of risk since risk can arise from anywhere, inside and outside the project environment.

Concerning the method used by the project implementer during risk management planning, the majority of the respondents 19 (47.5) agreed that an expert judgment or meetings were used while planning for risks that might occur in the project (mean = 3.28, St.dv = 1.043) even if 9 (22.5%) of them disagreed on the application of the above methods during planning while 12 (30%) of them not sure of it. This finding indicated that although there were meetings or judgment of expert used during planning, they were not adequate according to the views of the project teams that these methods were not applied throughout the planning process.

These finding also show that, environmental factors that may have direct or indirect impact on the project success where not included as input to plan for uncertainties as indicated by 10 (25%) of the respondents while 18 (45%) expressed their practice on considering environmental factors during risk management planning (mean = 3.30 & St.dv = 1.181) and 12 (30%) were not sure. Based on this finding, it is thus environmental factors were not considered and analyzed widely in this organization during planning process which indicate that they mainly focus on internal factors that might made difficult in controlling and responding to uncertainties by ignoring some of the external factors.

This section also tried to assess the competency of the project team members on handling project risks and uncertainties so as the finding from the respondents shows that 14 (35%) of the team members were not receive adequate trainings and not sure that whether they possess adequate knowledge or not vis a vis project risk management, 18 (45%) were perceived that they possess adequate knowledge on how to manage risks (mean = 3.08 & 1.228) and 8 (20%) were not sure that whether they possess adequate knowledge to practice risk management in real project or not. From the result team members

indicated that training was not given for all members & there were limited knowledge share and transfer with regard to risk management. Since trainings were not given to all team members as it should be, managing uncertainties in the project becomes difficult which directly & indirectly affect project outcomes.

Finally, we have seen the integration of risk management plan with project plan from the perspective of the respondents and the finding shows that, 15 (37.5%) of respondents not agreed that risk management plan is incorporated with the project plan during project planning process, and on the contrary 15 (37.5%) agreed on the integration of risk management & project plan (mean = 3 & st.dv = 1.177) and the rest 10 (25%) uncertain about the integration. These results indicate that, in some circumstance risk management plan were integrated with project plan. The integration of risk management plan with project plan is critical in ensuring the management of uncertainties that may affect project outcome negatively and help the project team members to be alert to respond to these threats which is almost similar to the finding of Frezewud, 2016.

4.6. Respondents' perception towards risk identification

In this section the view of the respondents on risk identification process were analyzed and the results are presented in table 4.6 using the likert scale of 1-5 where; SD-Strongly Disagree, D-Disagree, U-Uncertain, A-Agree, SA-Strongly Agree.

Table 4.6: Respondents' perception towards risk identification

S.n	Practice		SD	D	U	A	SA	Mean	St.dv
1.	Risk identification process is carried out at the inception stage of the project to identify both internal and external factors affecting the project	Freq.	3	5	11	14	7	3.43	1.152
		%	7.5	12.5	27.5	35	17.5		
2.	Tools and techniques used to identify these risks, included; review of documentation, brainstorming, interviews, and expert judgment	Freq.	3	6	14	10	4	3.30	1.159
		%	7.5	15	35	25	17.5		
3.	All team members with in the project play a role in identifying risk	Freq.	2	11	13	9	5	3.10	1.105
		%	5	27.5	32.5	22.5	12.5		

The result in the above table indicates that 8 (20%) of the respondents disagreed that risk identification process is carried out at the inception of the project to identify both internal and external factors affecting the project and 21 (52.5%) however agreed that it carried out at the inception stage of the project (Mean = 3.43 & St.dv = 1.152) while the rest 11 (27.5%) not sure. The finding shows that some activities was there to indentify and define possible risks internally and externally but there is a need to carry out risk identification in the inception stage of all project departments by involving all team members and a different result is seen in a study conducted in Rwanda (Lawrence,2015).

Regarding tool and techniques used to identify project risks, there is different methods used like document review, brainstorming, interview and expert judgment and as the respondent point of view 9 (22.5%) disagreed on the use of the above listed techniques in the risk identification process while 17 (42.5%) agreed on the application of these tools (Mean = 3.30 & St.dv = 1.159) and 14 (35%) not sure. This finding implies that risk identification process using different and appropriate methods were not implemented well in these project areas and almost half of project team members were uncertain and don't have enough information about the application of the above risk identification tools.

Participating all team members in indentifying the project risks is vital for risk management process, despite this only 14 (35%) of the respondents agreed that project team members played a significant role in identifying projects risks (mean = 3.1 & St.dv = 1.105) and the others 13 (32.5%) holding the view that team members were not played fundamental role in risk identification while the rest 13 (32.5%) uncertain of the role they played in risk identification process. This result revealed that the risk identification process was not as such participatory or inclusive of the team members involved in the project and even some of them didn't know their role in this process and these findings are different from the finding of Jennifer, 2014.

4.7. Respondents' perception towards risk analysis

The view of the project team members regarding the risk analysis practice were addressed here in order to understand the real and existing practice in this organization and the results are presented in table 4.7: using the likert scale of 1-5 where; SD-Strongly Disagree, D-Disagree, U-Uncertain, A-Agree, SA-Strongly Agree.

Table 4.7: Respondents' perception towards risk analysis

S.n	Practice		SD	D	U	A	SA	Mean	St.dv
1.	There is a measurement system to analyze the risk	Freq.	2	9	14	10	5	3.18	1.083
		%	5	22.5	35	25	12.5		
2.	Characteristics of the risk are considered before analyzing the identified risk	Freq.	2	6	13	14	5	3.35	1.051
		%	5	15	32.5	35	12.5		
3.	For all the risks identified the likelihood and impact of the risk is assessed	Freq.	3	7	12	11	7	3.30	1.181
		%	7.5	17.5	30	27.5	17.5		
4.	The risk identified are ranked depending on their significance to the project	Freq.	3	5	11	17	4	3.35	1.075
		%	7.5	12.5	27.5	42.5	10		

According to the finding shows in the above table, 11 (27.5%) highlighted that there were no strong measurement system to analyze identified risks but 15 (37.5%) ensure the application of standard measurement system to analyze risks and the others 14 (35%) not sure of it. This also means that the risk analysis or measurement system were not communicated to all team members because majority of the respondents (cumulatively) involved in project implementation were not agreed and not even know about the presence of risk identification system in the organization.

risk analysis the characteristics of the identified risks should be analyzed in order to respond promptly and accurately, from this study finding 8 (20%) disagreed on their practice of considering characteristics of identified risk during analysis although 19 (47.5%) had the view that the characteristics of the risks were taken in to consideration (mean = 3.35 & St.dv = 1.051) and 13 (32.5%) were uncertain. As we understand from this result there were a significant practice in

considering the characteristics of the risks during analysis but the effort should need to improve and make participatory since a considerable number of the project team members were not sure about the practice.

Regarding whether the probability and impact of the identified risk were assessed 10 (25%) of the respondents disagreed that the likelihood and impact of the risk were assessed, however, 18 (43%) agreed on the presence of these action (mean = 3.30 & St.dv = 1.075), while 12 (30%) of the respondent not sure if the probability and impact were assessed. This could be attributed to inadequate practice on the assessment of the probability and impact of the risks which have a remarkable role in decision making on the response of the identified risks.

In addition, the data from this table shows that 8 (20%) of the respondents disagreed on their practice in ranking of the identified risks based on their significance to the project, on contrary the majority of them 21 (52.5%) reveals the existence of this practice during risk analysis while the rest 11 (27.5) uncertain about risk ranking. As the result shows there were risk ranking process during analysis of the identified risk but it should be done for all possible risks based on their probability of occurrence and its impact on the project outcome which is almost similar with a study conducted in Batu water project (Frezewud, 2016).

4.8. Respondents' perception towards risk response and monitoring

The view of the project team members regarding the risk response and monitoring practice were addressed here in order to understand the real and existing practice in this organization and the results presented in table 4.8: using the likert scale of 1-5 where; SD-Strongly Disagree, D-Disagree, U-Uncertain, A-Agree, SA-Strongly Agree.

Table 4.8: Respondents' perception towards risk response and monitoring

S.n	Practice		SD	D	U	A	SA	Mean	St.dv
1.	Strategies are developed to manage the risks identified	Freq.	2	10	10	12	6	3.25	1.149
		%	5	25	25	30	15		
2.	The risk management plan developed is communicated to all stakeholders	Freq.	3	10	11	11	5	3.13	1.159
		%	7.5	25	27.5	27.5	12.5		
3.	Risk management is always part of the agenda in the project's progress meeting.	Freq.	3	14	14	3	6	2.88	1.159
		%	7.5	35	35	7.5	15		
4.	A risk matrix is developed for the project Strategies are developed to manage the risks identified	Freq.	4	14	13	5	4	2.78	1.121
		%	10	35	32.5	12.5	10		
5.	Based on the current result of the project are risks monitored and controlled	Freq.	4	12	13	6	5	2.90	1.172
		%	10	30	32.5	15	12.5		
6.	Factors such as budget, schedule and resources are considered while responding to risk	Freq.	2	7	11	13	7	3.40	1.128
		%	5	17.5	27.5	32.5	17.5		

From the table shown above, 12 (30%) of the respondents felt that strategies were not developed to manage the identified risks while 18 (45%) agreed on the presence of defined strategies to handle project risks (mean = 3.25 & St.dv = 1.149) and 10 (25%) of the project team members were not sure. There is an indication for the presence of risk management strategy in the organization, however, only less than half of the respondents knows about it which means the strategies were not well communicated and used by the whole project team members.

Regarding whether risk management plan developed is communicated to all stakeholders 13 (32.5%) of the respondents disagreed and 16 (40%) of the respondents however agreed (Mean = 3.13 & St.dv =1.159) while 11 (27.5) of the respondents not sure. Giving that the majority of the respondents were in disagreement & uncertain that means the risk management plan was not communicated adequately as to involve all concerned bodies.

As the above table also shows majority of the respondents 17 (42.5%) were of the view that risk management was not always part of the agenda in the project progress meeting (Mean = 2.88 and

St.dv = 1.159) although 9 (22.5%) of respondents were on the opinion that the agenda was raised in progress meetings implying that it was not taken as the main concern and 14 (35%) were not sure. Based on this finding issue of risk management is not mentioned regularly as the main agenda in project progress meetings which implies that risk management was not taken as a priority agenda in project management practice.

From the result, respondents 18 (45%) were also indicate that risk matrix was not developed for the project (Mean = 2.78 & St.dv = 1.121) however only 9 (22.5%) agreed that risk matrix was developed while 13 (32.5%) were uncertain. This is a clear indication that risk matrix was not exercised or used regularly in the organization project management practice as indicated by majority of the project team members.

Relating to risk monitoring and control 16 (40%) of the respondents disagreed that risk was monitored and controlled based on the risk management process (Mean = 2.90 & Sd.dv = 1.172) and 11 (27.5%) agreed on the presence of risk monitoring and control system based on the current result of the project while 13 (32.5%) were uncertain. This view of the respondents indicate that strong risk monitoring and control system was not established in order to detects and take corrective action for the project threats without delay and to improve the risk management system of the organization.

Concerning the factors considered while responding to project risks, majority of the respondents 20 (50%) agreed that budget, schedule and resources were taken as the main factors and always considered during responding to threats (Mean = 3.40 & St.dv = 1.128) however 9 (22.5%) disagreed on the factors considered during risk response while 11 (27.5%) were not sure. This finding implies that important factors were considered during responding to risks but this practice were not known and understand by some of the project team members, thus the organization should involve all the team members in this kind of practices in order to have uniform and effective management and which is slightly lower than the findings conducted in Kenya (Musyoka, 2010).

4.9. Respondents' perception towards risk management tools and techniques

The view of the project team members regarding risk management tools and techniques used were analyzed here in order to understand whether they used the appropriate tools and techniques to manage risks properly and these results are presented in table 4.9: using the likert scale of 1-5 where; SD-Strongly Disagree, D-Disagree, U-Uncertain, A-Agree, SA-Strongly Agree.

Table 4.9: Respondents' perception towards risk management tools and techniques

S.n	Practice		SD	D	U	A	SA	Mean	St.dv
1.	A risk register/matrix was developed incorporating the risks identified, controls, response and residual.	Freq.	4	13	15	4	4	2.78	1.097
		%	10	32.5	37.5	10	10		
2.	A project risk manager was appointed to advice and/or manages the risks in the project	Freq.	4	13	12	7	4	2.85	1.145
		%	10	32.5	30	17.5	10		
3.	The risk register/matrix was continuously reviewed by the project team/project manager	Freq.	5	13	12	6	4	2.78	1.165
		%	12.5	32.5	30	15	10		

From the data above, the respondents 17 (42.5%) indicated that a risk register/ matrix was not developed to incorporate the risk identified, controls, response and residuals (Mean = 2.78 & St.dv =1.097) while 8 (20%) agreed that there was risk register/ matrix to document the above issues and 15 (37.5%) were not sure. It can be seen that the extent of the development and application of risk register/matrix in order to document the identified risks, control, response and residuals was very low and unknown for these projects as indicated by the majority of respondents.

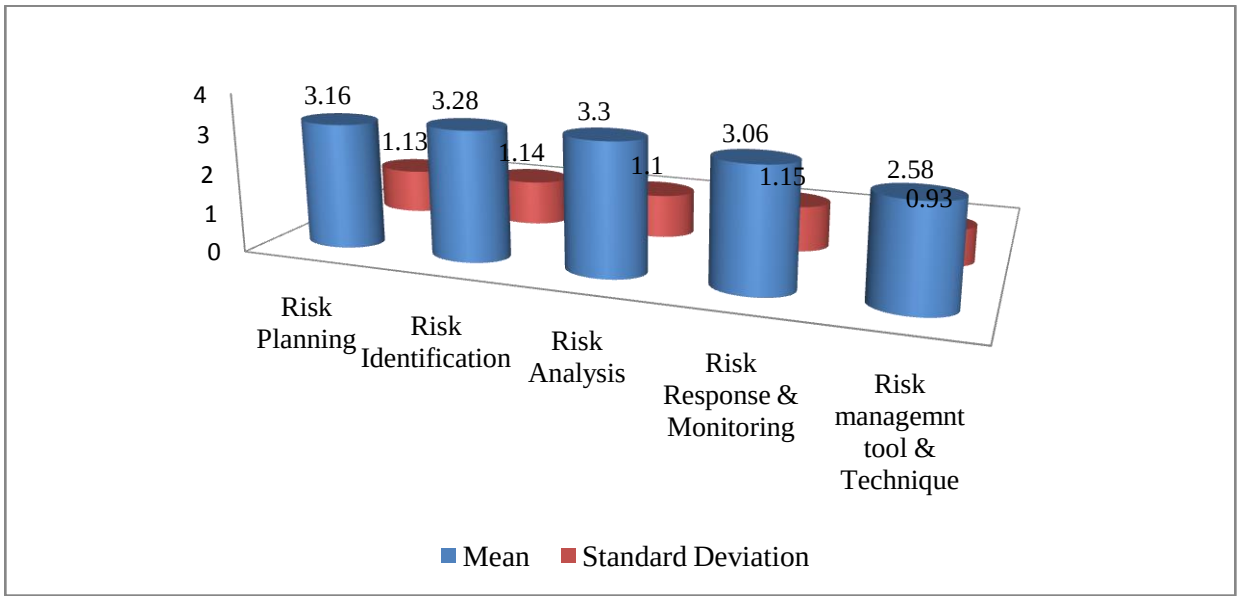
Majority of the respondents 17 (42.5%) were of the view that a project risk manager was not appointed to advice and/or manages the risks in the project (Mean = 2.85 & St.dv = 1.145) and 11 (27.5%) agreed that the project manager was assigned while the other 12 (30%) were not sure. These result indicated that responsible project risk manager was not assigned for all project areas. The assignment of project risk manager is very critical in ensuring the proper implementation of risk management practice.

Besides, majority of the respondents 18 (45%) revealed that risk register/matrix was not continuously reviewed by the project team/project manager (Mean = 2.78 & St.dv = 1.165) but 10 (25%) agreed on the continuous monitoring of the risk matrix by the project manager while 12 (30%) were not sure. This means that responsibility was not well defined to monitor the risk matrix in most area of the project and lack of routine monitoring practice is one of the underlying reasons for such perception and this finding also concordant with the study conducted in china (Yongjian, 2012).

4.10. Perception of the respondents' towards the extent of overall risk management practice

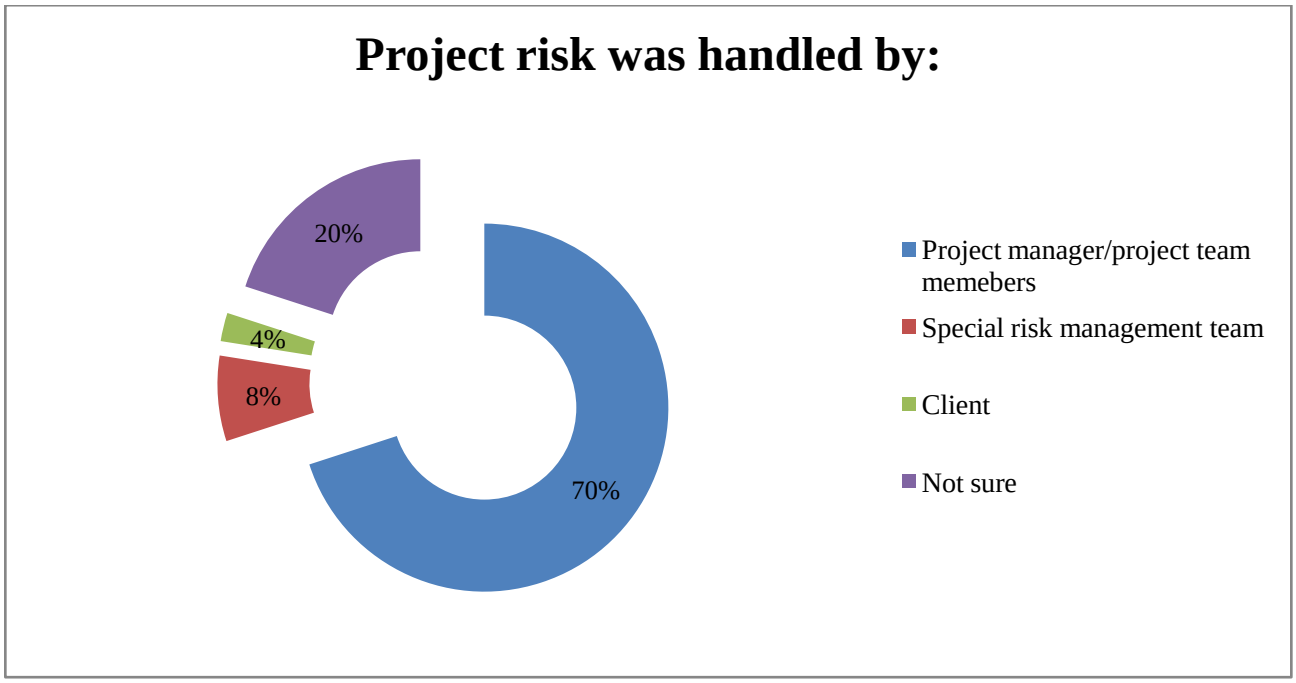
In a likert scale of 1-5, the respondents indicate the extent of application of project risk management practices to their projects including planning, identification, analysis, response & monitoring and utilization of risk management tool and techniques for project risks. A level of 1 indicated that the risk management practice was not well practiced while a level of 5 indicated that the risk management practice was extensively used in the project. This analysis also tried to reveal which risk management practice was most implemented by the project team members.

Fig.4.10a: Perception of the respondents' towards the extent of overall risk management practice



As we have seen from the above figure, the risk management practice in HIV/AIDS, Tuberculosis, Laboratory capacity building, Global health security agenda and Public health emergency management projects mainly the risk planning, identification, analysis, response & monitoring was implemented with the average mean score of 3.20 and SD of 1.23, however, the utilization of risk management tools and techniques to manage the project risk were very low with a mean score and standard deviation 2.58 & 0.93 respectively which is similar to the finding of Musyoka,2010.

Fig 4.10b: Perception of the respondents' towards responsibility of handling project risks



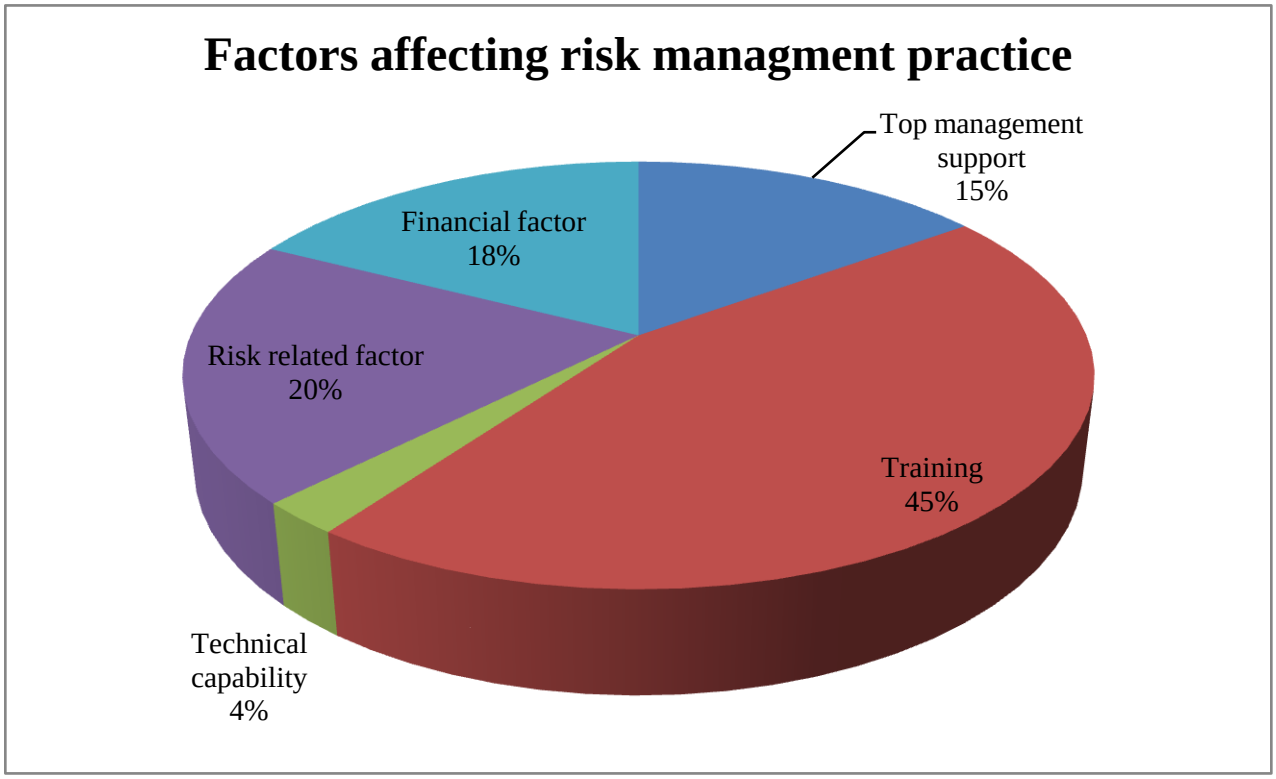
Based on the analyzed data concerning the responsible person who mostly handled the risk in the project, majority of the respondents 28 (70%) agreed that project manager & other project team members were more responsible than a special risk management team and clients which accounts for 3 (7.5%) & 1 (2.5%) respectively while other were not sure on its applicability. In addition, the view of the respondents on the source of risk that the projects usually encountered indicated that technical risk taken the major part as agreed by 19 (47.5%) of the respondents followed by financial risks 14 (35%) and Human risk 1 (2.5%) respectively while the others were uncertain which is slightly similar with other researcher (Lawrence,2015).

However, this findings regarding sharing of responsibility in managing risks was also supported by some of the respondents as expressed on the opinion section of the questionnaire, where some of believed that issues related to risks were managed and handled by the project manager & project team members only but it should include all members of the project other than technical project team memebers i.e. from the top manager to the lower project implementers and it must be also participatory & inclusive.

4.11. Perception of the respondents towards factors affecting risk management practices

The main bottle necks that affect the proper risk management practices in the above listed projects from the respondent point of view were analyzed and presented as shown below:

Fig.4.11: Perception of the respondents towards factors affecting risk management practices



Based on the above figure, from the perspective of the respondents, training was the most common reason for not practicing risk management in these projects which accounts for 45% followed by risk related factors, financial factors, top management support and technical capabilities respectively. This finding was also supported by the opinion of some of the respondents in the open ended questions as they believed that most of the risk management practice was implemented by traditional method only, which is not supported by standard trainings so capacity building is required for those project team members who work on planning & implementation of projects to enable them assess and mange project risks.

Chapter five: Summary of findings, Conclusion and Recommendation

5.1. Introduction

This chapter presents the summary of findings, conclusion, recommendations and suggestions for areas for further studies that could not be addressed by this research. The summary of findings is outlined in line with the general and specific objective of the research.

5.2. Summary findings

The summary of the finding is presented in line with different variables that the research used to assess the risk management practice of the projects like: Risk planning, Identification, Analysis, Response & monitoring, Tools & technique and the main factors that affect risk management processes.

- This study was conducted in Ethiopian public health institute where various health care projects are being implemented & some of the majors are HIV/AIDS prevention & control, Tuberculosis control, Laboratory strengthening and capacity building, Global health security and Public health emergency management project. The main objective of this study was to describe the project risk management practice of these projects and factors affecting the standard practices; and to assess this practice a total of 40 respondents including the project manager and team members were involved & primary data were collected from the respondent and quantitative analysis was performed.
- The risk management practice is started by defining policy and preparing guideline while most of the respondents disagree and uncertain on the presence of policy or guideline that recommend how to manage unexpected uncertainties and standard risk management practices in these projects. The finding also shows that risks were not treated widely or as a continuous practice by assigning a responsible person & department in the organization.
- Planning is a critical step in risk management and the finding from this study shows that risk management planning were practiced in some areas/departments only and the planning activity didn't involve all team members which strictly affect the outcome of the project negatively. As we have seen from this finding the project department were not fully engaged stakeholders during the planning of risk management even if stakeholder involvement have huge impact on the management of risk. From the result team members indicated that training

was not given for all members & there were limited knowledge share and transfer with regard to risk management. The integration of risk management plan with the project plan was also limited (Mean = 3.16 & St.dv = 1.13).

- With regard to the identification and analysis of the project risk, this finding clearly shows that risk identification process was not performed as a routine action in all stage of the projects by using various method of identification and by involving the entire team member (Mean = 3.28 & St.dv = 1.14). Similarly the risk measurement and ranking system in order to characterized risks based on their probability of occurrence and their impact was moderately analyzed (mean = 3.3 & St.dv = 1.1)
- Concerning risk response and monitoring practice, the view of the respondents indicate that strong risk monitoring and control system was not established in order to detects and taking corrective action for the project threats and most of them still didn't understand the risk management strategy since the strategy and risk plan was not communicated to the team members adequately. Project risk management were not also taken as the main agenda in their regular meetings (Mean = 3.06 & St.dv = 1.15).
- The finding on the development and utilization of the risk management tools and techniques in the risk management practice from the respondent's point of view shows that risk register/ matrix was not regularly used to incorporate the risk identified, controls, response and residuals. Majority of them agreed that the organization didn't appoint a project risk manager and no single person and department were responsible for the practice. (Mean = 2.58 & St.dv =0.93).

5.3. Conclusion

The main objective of this study was to describe the existing risk management practice mainly on health care projects in Ethiopian Public Health Institute. Based on the finding of the study, effective policy and strategies was not developed to direct and monitor standard risk management process of the organization and risk also not treated as a continuous practice by assigning a responsible person or department.

Risk management practice should be started from the planning phase of the project but here the practice was more focused in the implementation stage of the project. The risk management plan also was not well integrated with the project plan and not involves all potential stakeholders. There was also issues that need special attention i.e. team members not have enough information and understanding regarding risks and its management system, this is an indication that team members need training and updating regarding risk management and the finding also indicated that risk management practice in these projects was not participatory and inclusive.

In the context of this study, the project departments tried to apply a risk management practice but regarding the risk identification process and methods, most of the project team members didn't well understand how to identify the potential risks and mainly focused on review of documents from similar project in order to identify possible risks but other methods like expert judgment, brainstorming, interview etc were not applied. The identification process was not started in the inception stage of the project and also it was not participatory or inclusive of the team members involved in the project and even some of them didn't know their role in this process.

The extent of the overall risk management practice in this project departments regarding risk planning & integration of risk plan with project plan, identification of the potential risks that may affect the outcome of the project, characterization and analyzing the likelihood of occurrence and impact of these risks, defining the appropriate response measure and monitoring the effectiveness of the action taken against the risks & controlling them by developing & utilizing of risk management tools & techniques were moderately implemented and applied.

As the finding revealed that the project departments in this organization were moderately implemented risk management practice. The main factor that affect this practice from the respondents point of view were training/ awareness which possess the larger part (45%) and followed by risk related factors, financial factors, top management support and technical capability respectively.

5.4. Recommendation

- This research identified that risk management practice was not well organized and implemented in this area, thus it is recommended that standard risk management practice should be backed with strategies and guidelines and implemented at every stage of the project by integrating with the project plan and with the involvement of all project team members and stakeholders.
- The organization management should review the plan regularly, and make adjustments as needed. Organizations' environments are changing rapidly, and the kinds and levels of risk will change at the same rate. Every internal change may be a reason for a revision in that part of the overall risk management plan.
- This study also recommends that awareness creation program and continuous professionals' trainings regarding risk and its management system especially for project team members should be provided and independent project risk manager / department should be assigned to monitor and evaluate the risk management practice and the engagement of all the team members.
- Issues related to risk and its management should be included in the main agenda of the project progress meeting and should be treated in a continuous manner. The organization should also define the risk measurement system and its mitigation strategy in order to have a uniform practice and same understanding among project team members. Project teams at every level should take responsibility for implementing defined actions/tactics that will aggregated into a risk mitigation strategy. Further, they should define and collect relevant performance data to demonstrate that their actions are connected with desirable outcomes, or not.
- Failing to implement systematic risk management practice exposes to very dangerous threats whose costs can be catastrophic, so effective contingency plan and preventive measure should be prepared & implemented, and budget and resource should also be allocated to support this important activity.
- Finally, this study has a number of limitations (due to time and financial constraints) which affect the sample size and the variables to be considered, thus this study recommend future researches to address this gaps in order to produce a more reliable information by focusing on the impact of risk management practice in the project outcome and trying to include other health care projects in different settings.

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Questionnaire
Introduction letter

First of all I would like to thank you for your willingness to respond to my questions. My name is Bisrat Nigusse, I am MA graduate student in Project Management at Addis Ababa University School of Commerce. As part of my MA thesis work, I am studying the project risk management practice in real projects and I have taken the case of health care projects in Ethiopian Public Health Institute for my study. This interview is made so as to have more in depth on the matter under study. Thus, I kindly request you to fill the attached questionnaire to the best of your knowledge. The information will be used purely for academic purposes and will be treated with strict confidence and there is no need to write your name.

- The questionnaire consists of three main parts, these are:
  - Part I is about demographic information of the respondent,
  - Part II includes close-ended questions about risk management practice,
  - Part III is about your opinion regarding project risk management practices in your organization

Part I: General Information

1.	Age	A. 20-29 years B. 30-39 years C. 40-49 years D. above 49years
2.	Educational status	A. Diploma B. Degree C. Post graduate D. Other, please specify----------
•	Project department now you are part of	A. HIV/AIDS B. TB C. Laboratory Quality D. PHEM E. GHSA F. Other, please specify----------
•	Years of work experience	A . Below 2 years B. 2-5years C. 6-10Years D. 11-15 Years B . above15 Years
•	How long have you been involved in project implementation?	A. Below1year B. 1-3 years C. 3-5 years D. Above 5 years

Part II: Please indicate your opinion by marking a circle on the appropriate number for the five point scale questions and circle the letter of your choice for the multiple choice questions that best describes how you perceive the project applies project risk management,

Where: Strongly Disagree= 1, Disagree= 2, Uncertain = 3, Agree= 4 and Strongly Agree= 5.

A. GENERAL QUSTIONS ABOUT PROJECT RISK MANAGEMENT

S/No.	Questions	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
1.	There is a policy or guideline that recommends how to manage unexpected uncertainties.	1	2	3	4	5
2.	The project has a defined or standard risk management process.	1	2	3	4	5
3.	Responsible person or department is assigned to handle risk when it occurs.	1	2	3	4	5
4.	Risk management is treated as a continuous.	1	2	3	4	5

B. RISK PLANNING

S/No.	Question	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
1.	There is systematic approach or careful planning done to perform risk management in the project.	1	2	3	4	5
2.	Relevant stakeholders are involved in the planning and performing of managing risk.	1	2	3	4	5
3.	An expert judgment or meetings are considered while planning for risks that might occur in the project.	1	2	3	4	5
4.	Environmental factors are included as an input to plan for uncertainties.	1	2	3	4	5
5.	Team members within the project receive training or have enough knowledge about risk management	1	2	3	4	5
6.	Risk management plan is incorporated with the project plan.	1	2	3	4	5

C. RISK IDENTIFICATION

S/No.	Questions	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agre
1.	Risk identification process is carried out at the inception of the project to identify both internal and external factors affecting the project.	1	2	3	4	5
2.	Tools and techniques used to identify these risks, included; review of documentation, brainstorming, interviews, and expert judgment.	1	2	3	4	5
3.	All team members with in the project play a role in identifying risk.	1	2	3	4	5

D. RISK ANALYSIS

S/No.	Questions	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
1.	There is a measurement system to analyze the risk	1	2	3	4	5
2.	Characteristics of the risk are considered before analyzing the identified risk.	1	2	3	4	5
3.	For all the risks identified the likelihood and impact of the risk is assessed	1	2	3	4	5
4.	The risk identified are ranked depending on their significance to the project	1	2	3	4	5

E. Risk response and monitor

S/No	Questions	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree
1	Strategies are developed to manage the risks identified	1	2	3	4	5
2	The risk management plan developed is communicated to all stakeholders	1	2	3	4	5
3	Risk management is always part of the agenda in the project's progress meeting	1	2	3	4	5
4	A risk matrix is developed for the project	1	2	3	4	5
5	Based on the current result of the project are risks monitored and controlled well.	1	2	3	4	5
6	Factors such as budget, schedule and resources are considered while responding to risk.	1	2	3	4	5

F. Risk management tools and techniques

S/N	Questions	Strongly Disagre	Disagree	Uncertain	Agree	Strongly Agree
1	A risk register/matrix was developed incorporating the risks identified, controls, response and residual.	1	2	3	4	5
2	A project risk manager was appointed to advice and/or manages the risks in the project	1	2	3	4	5
3	The risk register/matrix was continuously reviewed by the project team/project manager	1	2	3	4	5

G. Section: Please choose from the list by considering real risk management practice of your organization

1. Risk that occur within the project are mostly handled by:
    a. The project manager
    b. The consultant
    c. The client
    d. A specialized risk management team
    e. All teams participating in the project f. N/A
2. Risk management is implemented at the
    a. Conceptual stage of the project
    b. Planning stage of the project
    c. Implementation stage of the project
    d. Closure stage of the project e. N/A
3. The following method is primarily used to identify risks within the project:
    a. Expert Judgment
    b. Checklist
    c. Document review
    d. Information gathering
    e. Assumption analysis f. N/A
4. Sources of risk that the project usually encounters:
    a. Technical
    b. Financial
    c. Human d. N/A
5. The risk mitigation strategy that is usually used in the project:
    a. Control/reduction
    b. Avoidance
    c. Transfer
    d. Acceptance e. N/A
6. Which of the following techniques are used to assess the probability of risk occurrence in the project?
    a. Quantitative assessments/Numerical analysis
    b. Subjective probability assessments based on expert judgment
    c. Ranking the importance of risks based on past experience
    d. Qualitative assessment based on historical data e. N/A

7. **what are the factors that affect the standard risk management practice in your project**

a. Top management support
b. Training
c. Technology capability
d. Risk related factors
e. Project context f. Financial factors

8. In your opinion, what measures would you consider important for improving project risk management practices in order to enhance the success of the project and also what are the constraining factors for proper project risk management practice in your organization?

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9. What recommendations would you make that will improve project risk management in your organization?

(Source: Frezewud. A, 2016 and Bernard S.Musyoka, 2010)