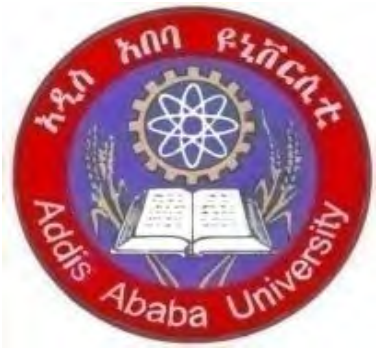

ADDIS ABABA UNIVERSITY COLLAGE OF HEALTH SCIENCE, SCHOOL OF PUBLIC HEALTH

IMPROVING OF ETHIOPIAN HOSPITAL REFORM IMPLEMENTATION GUIDELINE, INFECTION PREVENTION STANDARDS IN SUHUL HOSPITAL, NORTHERN ETHIOPIA

A CAPSTONE PROJECT DONE FOR THE PARTIAL FULFILLMENT OF DEGREE OF MASTERS IN HEALTHCARE AND HOSPITAL ADMINISTRATION

BY

YIBRAH ALEMAYEHU

ADVISERS

Dr. DEMEKE ASSEFA

Dr. REX WONG

November 25, 2013

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CAPSTONE PROJECT SUBMITTED TO ADDIS ABABA UNIVERSITY COLLAGE OF HEALTH SCIENCE, SCHOOL OF PUBLIC HEALTH IN PARTIAL FULFILLMENT OF DEGREE OF MASTERS IN HEALTH CARE AND HOSPITAL ADMINISTRATION

BY

YIBRAH ALEMAYEHU

Name and Signature of Members of the Examining Board

Name Signature Date

Dr. Wakgari Deressa _____

Chairperson, Dean of School of Public Health

Dr. Demeke Assefa _____

Advisor

Dr. Mesfin Addisie _____

Examiner

Dr. Maureen Canavan _____

Examiner

Declaration

I, the undersigned, declare that this capstone project is my original work and has not been presented for a degree in this or other University and all sources of materials have been fully acknowledged.

Name Yibrah Alemayehu Haile

Signature:_____

Place: Addis Ababa

Date of submission:_____

This capstone project work has been submitted for examination with our approval as University advisors.

Advisor's name	Signature	Date
_____	_____	_____
_____	_____	_____

Acknowledgement

Above all, I would like to thank my God for his kind help for me.

My thanks would also go to make a grateful acknowledgement to my advisors Dr. Demeke Assefa and Dr. Rex Wong. Again, it is my pleasure to thank Dr. Messele chanie, Ato Abrham Aregay and others in Suhul referral hospital that helped me in accomplishing my capstone project.

.Finally, I would like to acknowledge the Addis Ababa University School of Public Health for accepting my intention and providing me the necessary requirements.

Abbreviations

TB: Tuberculosis

MOH: Ministry Of Health

EHRIG: Ethiopian Hospital Reform Implementation Guideline

IP: Infection Prevention

SMT: Senior Management Team

CEO: Chief Executive Officer

CCO: Chief Clinical Officer

CNO: Chief Nursing Officer

TRHB: Tigray Regional Health Bureau

ART: Anti Retroviral Treatment

GP: General Practitioner

BSC: Bachelor of Science

CHAI: Clinton Health Access Initiative

MHA: Masters of Hospital and Healthcare Administration

IPD: Inpatient Department

HRM: Human Resources Management

PPE: Personal Protective Equipment

PEP: Post Exposure Prophylaxis

QIT: Quality Improvement Team

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Abstract

Problem statement: assessment of Ethiopian Hospitals Reform Implementation Guideline (EHRIG) Infection Prevention (IP) standards met were too low.

Objective: To increase the percentage of compliance Ethiopian Hospitals Reform Implementation Guideline (EHRIG) standards from 25% to 75% by the end of August 2013.

Methodology: Pre-post intervention study was used to evaluate the performance of IP standards. A pre-intervention baseline data were collected in May 2013. Based on the baseline, it was found out that the EHRIG, IP standards met were low scored (i.e. two out of the eight). in ordered to identify the root cause of the low compliance, fish bone analysis was made and decision matrix was used to have a comparative analysis of intervention strategies. Then developing organizational policy based on EHRIG and orientation for head nurses on the policy was done as an intervention. After, an intervention was conducted to improve the EHRIG, IP standards and a follow up data was collected in July 2005. The same indicator was used for the assessment of performance.

Result: Compliance with Ethiopian Hospitals Reform Implementation Guideline (EHRIG) standards for infection prevention increased from 2 (25%) to 6 (75%) out of 8.

Conclusion: developing organizational guideline and policies based on national standards and policies, resulted in improving IP standards.

Recommendation: Full implementation of the EHRIG, IP strategies should be made and it is better to give better attention and continuous follow up of the overall performance of standardized IP practices.

1. INTRODUCTION

1.1 The health facility

Suhul hospital is located in Shire, North West Zone of Tigray Regional State. The hospital was established in 1994 as a new building which was before located in the town by the name "Midregenet". The hospital was governed by a board of directors, it's Senior Management Team (SMT) that consists of Chief Executive Officer (CEO), Chief Clinical Officer (CCO), Chief Nursing Officer (CNO), Quality Head, Laboratory Head e.t.c. The SMT helps the chief clinical officer in developing strategic planning, annual planning, problem identifying and solving, monitoring and evaluation of hospital performance.

The mission of Suhul general hospital is: Providing continuous and comprehensive qualified service for clients and make them healthy and productive.

Suhul general hospital offers the following services.

- Pediatrics and Child Health
- Gynecology and Obstetrics unit
- Psychiatric clinic
- Minor Operation unit
- Dental Service unit
- Emergency unit
- TB/ART clinic
- Laboratory unit
- Pharmacy Unit
- Labour Ward
- Internal medicine ward
- Surgical ward
- Pediatrics ward and
- Obstetrics and Gynecology ward

Suhul general hospital is the only general hospital In North west Zone of Tigray and provides services to around 1 million people in the catchment area and 200,000 people out of

the catchment area. The Hospital was staffed with 3 senior specialists, 6 General Practitioners (GP), 87 Clinical Nurses and (BSC) Nurses, 14 Laboratory Technicians and Technologists, 13 Pharmacy Technicians and Pharmacist and other Health Professionals. The hospital has 129 operational beds; and the average length of stay is 4.57 days 82% bed occupancy rate.(start with 1)

EHRIG, IP standards are requirements which help health care facilities to follow the right IP practices in a standardized way so as to keep all hospital community safe. And to prevent, control and reduce Hospital Acquired Infections (HAIs), IP standards implementation is a very much helpful. In facilities with poor IP practices are expected to have a number of implications resulted due to the cause of poor practices. Poor IP practices can also produce financial and time loss for the people that acquire infections from health care facilities due to poor prevention practices. Whenever there are poor prevention practices in health care organizations, people or clients served in that organization will loss their money and time needed for treatment. So, the EHRIG, IP standards listed in the table below are very essential standards and every hospital in Ethiopia are expected to implement them.

Table1: Ethiopian hospital reform implementation guideline infection prevention standards.

No	Standards	met	Unmet
1	Hospital mgt to support improvement efforts in infection prevention by ensuring that operational and technical capacity financial and human resources required to adhere to IP guidelines are available		
2	Designated group and/or individual(s) are in place to implement and monitor infection prevention activities		
3	The hospital has an operational plan for the implementation of IP activities. The plan follows national guidelines and includes guidance on IP practice and procedures and materials.		
4	Standard practices that prevent, control and reduce risk of hospital acquired infection are in place.		
5	The hospital has an adequate plan to address transmission based precautions for staff, patient, caregivers and visitors.		
6	The hospital ensures that equipments, supplies, and facilities/infrastructure necessary for IP are available.		
7	All hospital staff are trained using standard IP training materials		
8	The hospital provides health education to patients, caregivers, and visitors as appropriate on IP practices.		
	Total infection prevention		

1.2. Problem statement

Infection prevention is one chapter of EHRIG. As stated earlier in table 1, IP has eight standards expected to be met by hospitals in order to minimize the spread of pathogenic microbes among patients, care givers and otherwise the professionals (2) .

Healthcare acquired infections are common in developed and developing countries even though there is a huge disparity. High prevalence of healthcare acquired infections were reported from many African countries like Mali, Tanzania and Algeria with the prevalence rate of 18.9%, 14.8% and 9.8% respectively (3).

A study in Ethiopia revealed that healthcare providers in hospitals to be at high risk of exposures to hazards like blood and body fluids. It also found suboptimal practices and behavior that put both patients and health workers at significant risk of acquiring occupational infections(3).

Effective management is essential to create an effective IP programs. An IP practice of two tire management: direct management of IP activities by a designated group (IP committee) and senior level management from CEO and the Governing Board.

An IP committee should be established in hospital to oversee day to day IP activities. The committee should also have a job description and each should allocate sufficient time in their work schedule to fulfill their IP duties. The composition of the committee should be multidisciplinary with no more than 5-8 members.

A successful IP program requires a national guideline based operational plan, that defines how the national guideline should be implemented at Hospital level. The operational plan has also to define IP policies of the hospital, how these policies will be implemented and by whom.

Standard precautions are a set of recommendations to minimize the spread of infections in health care facilities and consider every person , patients and staff as a potentially infectious or susceptible to infection. And transmission based precautions are a set of extra precautions that need to be employed with routes of transmission are not interrupted

through standard precautions alone. Each of these precautions should be used in conjunction with standard precautions.

In order to standardize the hospital's IP practices material need assessment should be conducted based on the national IP supplies requirement or based on the facility's need. To identify if there is any new material requirements a material need assessment should be done minimum of annually. After IP material gap is identified an action plan has to be developed by the IP committee.

Furthermore, IP training for all hospital staff must be provided. Prior the training IP committee is responsible to prepare the training need assessment and to provide the training in collaborating with the hospital and donors.

Generally EHRIG, IP standards are eight in number and a minimum requirements to be done in Ethiopian public hospitals in order to make IP practices standardized in health care facilities.

According to Federal Ministry of Health (FMOH) EHRIG all health facilities are expected to comply with all IP standards. However based on the result of base line assessment, Suhul hospital met only two out of eight standards of EHRIG related to infection prevention witnessing poor practices and activities of the issue. Little activities by the hospital were done to improve the area. These all concerns drew the attention of the principal investigator to move IP standards this indicates that there was compliance. It was also assessed that little attention was given by the hospital to improve the problem. These all concerns drew the attention of the principal investigator to conduct this capstone project.

1.3. Objective

1.3.1. General objective

- To increase the percentage of compliance of Ethiopian hospital reform implementation guideline, infection prevention standards.

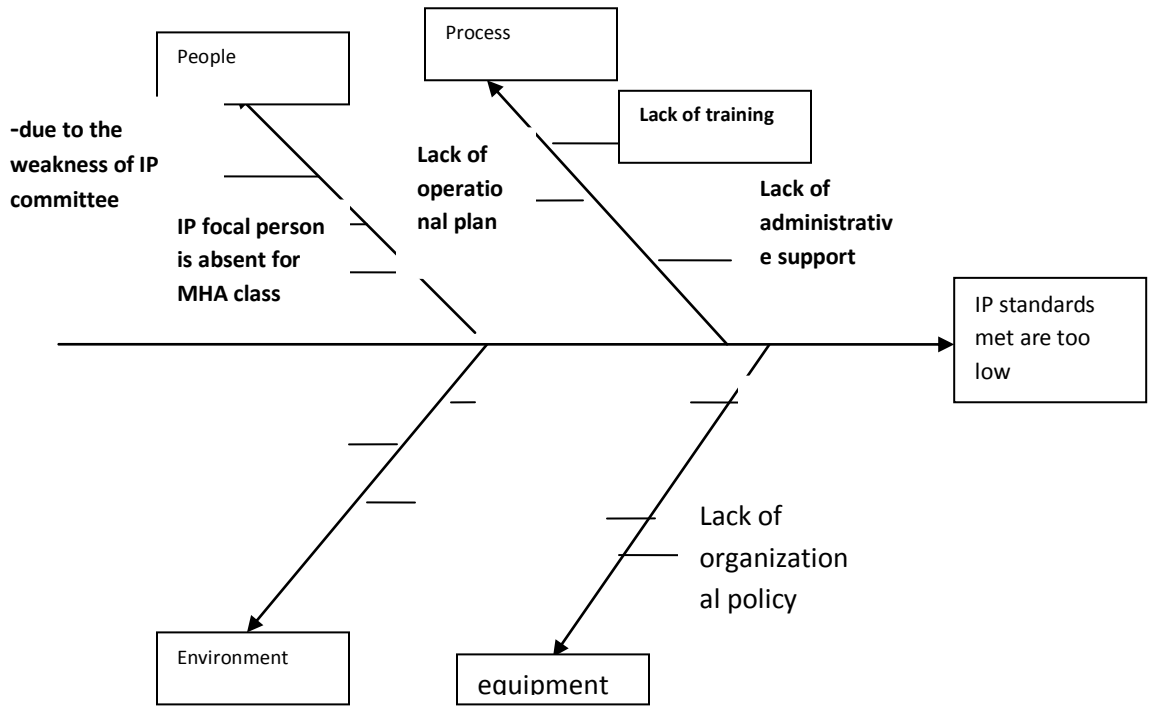
1.3.2. **Specific objectives**

- To increase the compliance infection prevention standard from 25% to 75% by the end of August 2013.
- To prepare required IP documents according to Ethiopian hospital reform implementation guideline.
- Improving health education from the current 0% to 100% at inpatient and outpatient department in June 2013.

1.4. Root causes analysis

About 29 different reasons were forwarded during the first discussion with SMT and IP committee of Suhul hospital as contributors to the existence of low IP standards, such as shortage of water, irregularity of sanitation campaign, lack of staff commitment, shortage of IP supplies, lack of staff training, etc. Of these with further discussion 23 of them were dropped out with in short period of time at that discussion and six of them were enrolled in the root cause analysis using fish bone tool.

Figure 1: Fish bone diagram



It is well documented that fishbone does not tell the real cause of the problem so it needs further analysis in order to know the real cause of the problem. Therefore, through discussion where conducted with key stakeholders at Suhul hospital according to which: data were collected through interview focused group discussion and checklist. Interviews and focused group participants were selected using purposive sampling technique and they were selected purposively because they were found to be familiar with and responsible to the IP standards under study. Interview was conducted with SMT and all department heads. Focus group discussion was carried out with IP committee to further brainstorm during the identification of the root causes.

1. The IP committee was not carrying out its functions.

   The hospital had established an IP committee. It had a clear operational plan which was evaluated and approved by the committee and the SMT. When we reviewed IP committee meeting minutes we observed that it was regularly on monthly basis. The committee conducts IP assessment, identifies IP gaps, develops action plans and reports were sent to the SMT. So this was not the root cause of the problem
2. IP focal person was not around because of his educational leave for Masters of Health care and Hospital Administration

   An IP focal person was assigned in the hospital in the year 2004 E.C. The focal person was also attending classes of Master in Health Care and Hospital Administration (MHA) program at Addis Ababa University which resulted in the absence of the focal person three times a year the focal person was away from the hospital for a month long class each. However, when even the focal person has been away from the hospital, there was delegated person in the hospital to continue the IP activities. Since IP work is a multidisciplinary effort, IP focal person being away is not the root cause of the problem.
3. Hospital administration was not supportive

   To investigate with the compliance if the hospital administration was given enough support to the IP activities SMT together and the CEO interview was

conducted. Human Resource Management (HRM) is a member of SMT and he respond us as IP budget was allocated. Encase in year 2005 E.C it was checked from human resources management financial documents that the budget approval for IP activities was about 380,000 birr from public and in addition close to 300,000birr from partners a total of 680,000 birr (3.7% of the total budget including staff salary). The hospital administration also conducted quarterly IP assessment; their feedbacks were given to IP committee for follow up. Since the IP focal person was also a member of SMT; any IP issues raised in the SMT meeting would be discussed with the IP focal person. The SMT also supports and approved the bi weekly sanitation campaign; in which all staff participated. So, this was not the root cause of the problem

4. All staff of the hospital were not trained on IP

   The hospital had an infection prevention training plan to support IP efforts. 50 supportive 80 clinical staff has received in-service trainings on infection prevention. Every professional was expected to be knowledgeable on infection prevention activities professionally with the essence of commitment every health care worker can implement IP practices. Even though IP standard number seven says all hospital staff must get IP training using appropriate IP training materials to take it as strategy it was beyond the hospitals financial capacity and takes long time to accomplish this was not taken as a root cause of the problem to be intervened.

5. Infection prevention national guideline based operational plan was not in place.

   Although operational plan for IP was available, though the operational plan was not national guideline based. , it was with a lot of activities to be implemented by the committee and staff using action plans and since it was a matter of edition in a short time that was not the root cause of the problem.

6. Lack of national guide line based organizational IP policies and so the staff had no orientation about it.

   The organizational policy was expected to include wide ideas of the eight standards and their way of implementation. When we had conducted our analysis using the focus group discussion of IP committee, observation and interviews of

SMT and ward heads so far, health orientation and education as one part of the assessment was not given to patients, care givers and visitors. This was checked by selecting20 randomly selected admitted patients, 4 ward heads and if report was sent to SMT, their response was "no". Based on the 8th standard health education should be given to all care givers, patients and visitors. And when we asked head nurses why, their response was also that they do not have health education manual for reference and no policy to evaluate their health education performances.

When we observe and assess based on our check list, standard and transmission based precautions were not set in the hospital, and the practices related to standard and transmission precautions were not implemented based on the standardized precautions. The reason behind was, the unavailability of organizational policy which contain mainly basic IP components, such as the health education procedures, personal protective equipment application, proper health care waste management, the application of, hand hygiene practices, etc was not set as we identified it in the focus group discussion with IP committee. IP team was responsible to prepare the policy and to provide an orientation on the policy was also expected to be done by the committee to the staff. So, this was the main reason for the problem.

Generally, lack of national guideline based organizational policy has been identified as the major reasons for low infection prevention standards in Suhul hospital.

1.5. Literature review

In American hospitals alone, healthcare acquired infections account for an estimated 1.7 million infections and 99,000 associated deaths each year. Around 32 % are urinary tract infections, 22 % are surgical site infections, 15 % are pneumonia (lung infections) and 14 % are bloodstream infections (1).

These problems are pretty fueled in the absence of proper infection prevention practice and shortage of infection prevention supplies. In Eastern Ethiopia, a study revealed high prevalence of exposures healthcare workers to blood and other body fluids and frequent shortage of supplies(3).

In Africa, the hospital-wide prevalence of nosocomial infections varied between 2.5% and 14.8%. In surgical wards, the cumulative incidence ranged from 5.7% to 45.8% showing the need to focus on infection prevention and control strategies (4).

High prevalence of surgical site infection was reported in many African countries. A Cross-sectional prospective study in Tanzania showed around 26.0% surgical site infection rate among those underwent major surgeries in Uganda Medical Centre. One independent predictor was poor infection prevention practice during surgical intervention period (5).

Surgical site infection rate in a Kenyan University hospital was found to 7.0%. The risk factors associated to this prevalence were high length of hospital stay and poor wound management stemmed from poor infection prevention practice (6). Hospital acquired outbreak was reported from a South African hospital and found to have been controlled by intensive infection control measures(7).

Healthcare acquired infections are more serious and difficult to treat as most are drug resistant strains. The prevalence of drug resistant pathogens has been reported from

different corners of Africa (6-8). Similar finding was reported from Northwest Ethiopia, Gondar University hospital (9).

As the study conducted in Tukur Ambessa referral hospital showed, the first infection prevention standard surveillance was done at October 2009 in which the score obtained was 33% and there were two other surveillances in Tukur ambessa done in February 2010. The score was 37% which was before implementation. After implementation was started surveillance was done at September 2010, December 2010 and March 2011 the results were 57%, 69%, 89% respectively. (10)

A study done by FMOH on IP guidelines for health care facilities indicated , although the spread of infectious diseases in hospital has been recognized for many years, understanding how to prevent nosocomial infections and implementing policies, standards and practices that are successful have been more difficult. Standard precautions which apply to all clients and patients attending health care facilities and transmission based precautions which applied primarily to hospitalized patients. (11)

In waste disposal method which was indicated in checking up of possible cause six of this project and the study done in London hospitals indicated health care wastes must be segregated immediately by the person generating the waste to appropriate color-coded waste bins, defined as with current national and local policies. (12)

A study in south Africa showed nosocomial infection rate is 15% and an associated attributable mortality of 5%, it could that health care associated infection rank, either directly or indirectly among the most important causes of death. (13)

2. Methodology

1.1Setting:

The study was conducted in Suhul hospital which is located in Shire town, North West Tigray, Northern Ethiopia.

1.2 Study Design:

Pre-post intervention study was used to evaluate the performance of IP standards. A pre-intervention baseline data were collect in May 2013. Based on the baseline, it was found out that the EHRIG, IP standards met were low. Therefore, an intervention was conducted to improve the EHRIG, IP standards and a follow- up data was collected in July 2013. The same indicator was used for the assessment of performance.

2.3.Measures and data collection procedure

An orientation of half of a day was given to the data focal person and data was collected using observation and check list and the percentage of IP standards achieved met out of the 8 standards a measure was made to compare with the findings at the baseline.

2.4.Data collection technique

After half of a day orientation taken from experienced masters graduate of MHA data were collected through interview SMT discussions, focus group discussion of the IP committee and checklists.

. Interview was conducted with 18 senior management team members and a focused group discussion was made with IP committee of hospital Suhul.

2.5.Data analysis procedure

Data was analyzed using manual technique. Moreover, tables were also used to calculate and create of the graph.

2.6.Ethical consideration

An official letter was obtained from AAU to the Woreda helath office and then from Woreda health office to SMT of Suhul general hospital. An agreement and consent with the interviewee was done. consent was sought from patients during interview

2.7.Plan for dissemination

The findings of this study were disseminated to local and external partners including Suhul General Hospital, Addis Ababa University, Tigray Regional Health Bureau and others as necessary. Efforts will also be made to present it in conferences and possibility of publication will also be sought.

3. Intervention

3.1 Alternative interventions/ Strategies

1. Developing national guideline based organizational policies and orienting case team heads on the policies.

2. Motivating the health care workers by material and financial incentives.

3. Ensuring full availability of IP supplies and equipments by writing proposal to partners.

4. Providing IP training to all staff to tackle the attitudinal problems by requesting budget from partners and Tigray Regional Health Bureau (TRHB).

3.2 The alternative intervention analysis

A. Developing national guideline based organizational policies and orienting case team heads on the policies.

Impact: Numerous research studies have shown the importance of developing code of standards and organizational policies for all health care workers to accomplish infection prevention practices. And follow up of the implementation by setting agendas to be discussed twice a day by health care workers on morning and afternoon short time sessions was also essential ways of intervened.

. One of the benefits of developing the manual of code of standards and organizational policies is to help health care workers know their role and responsibility up on the project area.

Feasibility: this intervention was proved to be feasible, because this manual was part of the federal and regional policies and ethical values as a result that was acceptable to have it in suhul hospital

Cost: The intervention was also feasible in terms of cost as developing the manual does not incur much cost rather some limited already existed stationary materials

.

Time: the time used to develop the manual and an orientation supposed to be provided did not take more time. So, it was feasible to take it as an intervention /additional best strategy

B. Ensuring availability of IP supplies and equipments by writing proposal to partners and Tigray Regional Health bureau (TRHB).

Impact: Though out of the 8 standards of infection prevention the 6th standard was concerning the availability of sufficient infection prevention supplies using the above strategy it was beyond the capacity of Suhul hospital and was less crucial to use the strategy as a best strategy.

Feasibility: that was feasible to apply this strategy as of its acceptability in the legal way of organizational rules and regulations which are part of the country's health rule and regulations.

Time: though time to accomplish such strategy might be long, it was believable that accomplishing that strategy will ensure the sustainability of the intervention.

C. Providing in-service IP training to all staff to tackle the attitudinal problems to fill the knowledge gap on the standards by requesting budget from partners and Tigray Regional Health Bureau.

Impact: an in-service training is expensive to have a sustainable knowledge based change and attaining the final standard of the 8 standards of infection prevention practices. Furthermore, that was intended to get financial help from partners which have initiative of infection prevention practices in health care facilities. So, that was less impactful intervening this problem.

Time: the time to get a positive response from partners and the hospital was needed to negotiate more by taking some time and partners was needed to wait until an approval of that was come from head office of a respective organization. After all that strategy was very helpful and ensures sustainability but may take more time to get response.

Feasibility: it was feasible to achieve that strategy, since partners have take part to help heath care organizations nationally and regionally in the area of infection prevention and patient safety e.g. Clinton Health Access Initiative (CHAI) and was less feasible.

Table 2: Comparative analysis of the strategies on IP standard compliance improvement, Suhul Hospital, Shire, May 2013? Please correct this??.

s.no	Strategies	impact	Time	Political feasibility	cost	total
1	Developing national guideline based organizational policies and orienting case team heads on the policies.	4	4	4	4	16
2	Motivating the health care workers by material and financial incentives.	2	3	3	2	10
3	Ensuring full availability of IP supplies and equipments by writing proposal to partners.	3	3	4	3	13
4	Providing IP training to all staff to tackle the attitudinal problems by requesting budget from partners and RHB.	3	3	3	3	13

3.3 The best strategy

Developing national guideline based organizational policies and orienting case team heads on the policies

4. Implementations accomplished

As part of this project, the following results were accomplished.

Developing national guideline based organizational policies and orienting case team heads on the policies.

After manual of national guideline based organizational policy was developed by the hospital's SMT and approved it to be used as a tool by which all health care workers of Suhul hospital to accomplish their IP activities esp. the standards.

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Procedures were established to ensure efficient organizational administration support, infection prevention committee activities, practice of standard and transmission based precautions, provision of health education for all patients and hospital communities.

Nurses and other health care workers are part of the discussion. All the staff in Suhul hospital is net worked 1 to 5 in which one of the five is good performer and the leader of the net work and daily net work meeting are conducted. An infection prevention is one discussion area after it was identifies as a problem and everyone was believed the problem would never be solved by an individual and/or a few staff. The other nice initiation started and now in continuation was nurses' morning and afternoon session in which infection prevention and nursing care standard are the major discussion points. Nurses who care patients in their respective shifts came in to meeting at the end of the day for about 20 minutes to discuss what have happened in caring patient and what infection prevention practices look like as part of patients care. And if they are night shift they have to come to meeting in the morning to discuss on the overall care of patients including IP issues based on the policies developed. The discussion was conducted among the nurses and was chaired by Chief Nursing Officer (CNO) and IP focal person as vice chair person to evaluate daily IP practices.

5. Results and discussions

5.1 results

A total of 8 standards were used in this capstone project both in the pre and post intervention to assess compliances of EHRIG, IP standards and determine improvement progress. During the intervention period the improvement of infection privation standards were changeless in June and in July two standards were met and standards improved from 25% to 50% as a result of intervention taken in standards 2(standard on IP committee and its activities) and 3(standard on having national guideline based operational plan) were met.

At the end of project duration the improvements has been achieved from 50% to 75% as a result of the standards 4(standard on standard precaution) and 5(standard on transmission based precaution) were met.

The analysis of data from the baseline regarding the number of met standards showed a change from 25% to 7%5% and also showed the surgical site infection rate decrease from 0.4 % to 0.2%.

Generally, the change in the number of infection prevention standards in Suhul general hospital ranged from 25% in pre-intervention to 75% in the post intervention.

Table 3: result of the compliance of EHRIG, IP standards in Suhul general hospital, May to August, 2013

Accomplishments	Time accomplished	No of standards met	% of standards met
Pre intervention	May	2/8	25%
Follow up	June July	2/8 4/8	25% 50%
Post intervention	August	6/8	75%
Difference	At August	4	50%

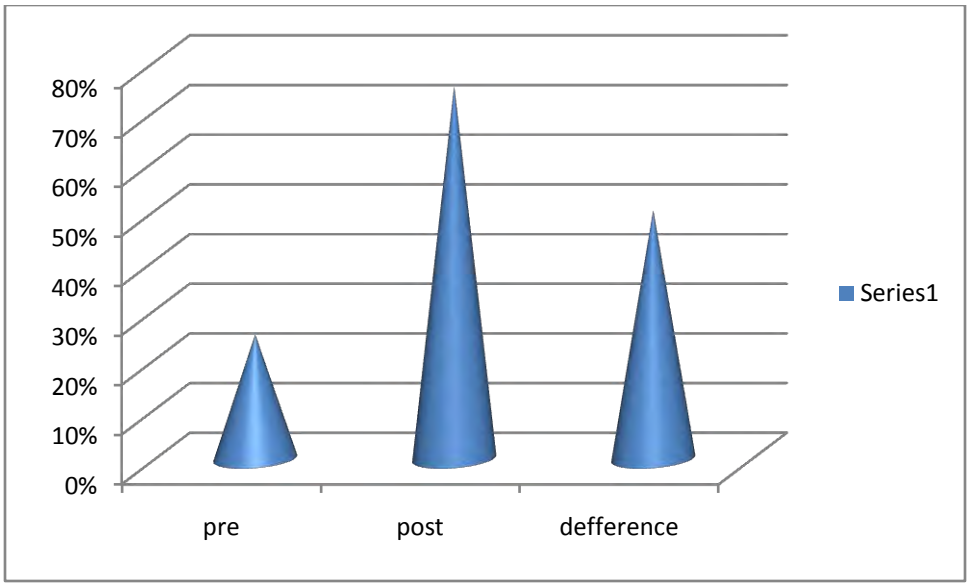

Fig 2: Compliance of Ethiopian hospital reform implementation guideline pre-post intervention in Suhul general hospital, August , 2013.

5.2 Discussions

In this capstone project, it was found out that the number of met and unmet infection prevention standards in Suhul general hospital. The main finding of this project is compliance with Ethiopian hospital reform implementation guide line standards for infection prevention increased from 25% to 75 %.

In Africa, the hospital-wide prevalence of nosocomial infections varied between 2.5% and 14.8%. In surgical wards, the cumulative incidence ranged from 5.7% to 45.8% showing the need to focus on infection prevention and control strategies (4). Though study on nosocomial infections was not conducted in Suhul hospital, Suhul hospital may also have such a problem before the intervention and there may be improvement after intervention taken similar to the improvement in the IP standards.

Surgical site infection rate in a Kenyan University hospital was found to 7.0%. The risk factors associated to this prevalence were high length of hospital stay and poor wound management stemmed from poor infection prevention practice (6).

Hospital acquired outbreak was reported from a South African hospital and found to have been controlled by intensive infection control measures(7) such an outbreak had never seen in Suhul hospital before and after an intervention taken.

As the study conducted in Tukur Anbessa showed, the first infection prevention standard surveillance was done at October 2009 in which the score obtained was 33% and there were two other surveillances in Tukur Anbessa done in February 2010. The score was 37% which was before implementation. After implementation was started surveillance was done at September 2010, December 2010 and March 2011 the results were 57%, 69%, 89% respectively. In the case of Suhul hospital the first infection prevention score was 25% before implementation was taken and after implementation was taken the score was 25% in June 2013, 50% in July 2013 and 75% in August 2013. The result at June was without improvement because of fewer acceptances of intervention by the staff. The result was showed us a after the intervention was taken fast change was achieved and better than that of Tukur Anbessa. The intervention taken was also more significant than that of taken in Tukur Anbessa. Because the change obtained in Tukur Anbessa referral

hospital is in three year duration where as the project duration in suhul general hospital was three month (10).

A study done by FMOH on IP guidelines for health care facilities indicated , although the spread of infectious diseases in hospital has been recognized for many years, understanding how to prevent nosocomial infections and implementing policies, standards and practices that are successful have been more difficult. Standard precautions which apply to all clients and patients attending health care facilities and transmission based precautions which applied primarily to hospitalized patients(1). Suhul general hospital, then, is applied isolation precaution entailing the three precautions. These are;

- Air born precaution
- Droplet precaution and
- Contact precaution

The above precautions were not implemented before infection prevention was not identified as a problem. But after the intervention has been taken these precautions are practiced and nosocomial infections have been expected to reduce. So the practices of isolation precaution based on Federal Ministry of Health was practiced well (11)

In waste disposal method which was indicated in checking up of possible cause six of this project and the study done in London hospitals indicated health care wastes must be segregated immediately by the person generating the waste to appropriate color-coded waste bins, defined as with current national and local policies. And in the case of Suhul general hospital, segregation of waste was head ache before the problem was investigated and the intervention was taken. But after the implementation of the intervention there is a great improvement on waste segregation practices. (12)

A study in south Africa showed nosocomial infection rate is 15% and an associated attributable mortality of 5%, it could that health care associated infection rank, either directly or indirectly among the most important causes of death. Although the study in our hospital as a hospital in developing countries, has not been done before intervened the prevalence of nosocomial infections may occur in a similar or more than a study in South Africa. (13)

Strengths

- The intervention and methodology taken was helpful for the achievement of the results.
- Involvement and commitment of SMT
- There were enough references to discuss the results in a situation from international to local.

Limitations

- Financial limitation
- Computer shortage

6. Conclusion and recommendation

6.1 Conclusion

The compliance of EHRIG, IP standards were improved using the development and implementation of national guideline based organizational policy manual which was prepared by IP committee of Suhul hospital as an intervention. As a result the improvement of the compliance was changed from 25% at the baseline to 75% after implementation of the strategy.

6.2 Recommendation

- The hospital has to strengthen the further follow up and sustainability of the project.
- The hospital has to plan to be able to equip the shortage of IP equipments by itself from its revenues so far.
- Requlars assessment and supportive supervison by SMT and TRHB.

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8. Annexes

Annexes a: check list used to collect the data

Check-list developed by the investigator

Infection prevention committee is not lead IP activities

Q No	Interview question	Response	Comment
101	Is infection prevention committee existed? Based on the EHRIG standards	Yes No	
102	The committee has clear and achievable operational plan	Yes No	
103	Regular monthly meeting was conducted by the committee. Checked in the minute	Yes No	
104	Monitoring of IP activities is conducted and reported to SMT. By the check lists at the end of chapter 7 of EHRIG standards.	Yes No	
105	The committee identifies gaps in its regular meeting and assessment.	Yes No	

106	Action plan was developed to fix identified gaps	Yes No	
It was due to less attention given by the administration.			
201	There is enough budget allocated to IP activities	Yes No	
202	Approved and declared budget issued for IP practices	Yes No	
203	There is regular IP assessment conducted by the hospital administration	Yes No	
204	Feedback was given to IP committee from SMT /QIT	Yes No	
205	IP focal person is a member of SMT/QIT to discuss and give response when IP issues are raised in the team	Yes No	
206	There is clear and regular schedule for sanitation campaign decided by SMT and all staff is participated	Yes No	
207	There is training plan to support IP and the plan is implemented as of its time table (check annual plan and training profile at HRM)	Yes No	
208	There is sufficient PPE and PEP corner	Yes	

	for staff safety	No	
Unavailability of clear and achievable operational plan for infection prevention			
301	Is there operational plan and policy prepared by IP committee?	Yes No	
302	Is the plan and policy national guide line based?	Yes No	
303	Is the plan commented and approved by senior management team?	Yes No	
Lack of commitment and negligence of clinical staff			
401	There was strict provision of health care information about IP to patients, visitors, and care givers in the IPD by health care workers	Yes No	
402	Standard precautions are defined and are implemented by health care worker	Yes No	
403	Transmission based precautions are defined and are implemented by health care workers	Yes No	
404	Existed IP resources /equipments are used wisely to prevent health care injuries	Yes No	
405	Proper health education is provided based on the program set in service area	Yes No	

406	Heads and other health care workers practices proper hand washing practices	Yes No	
It was due to the absence of infection prevention focal person for MHA class.			
501	Is the class sandwich or solid year class	Yes No	
502	How often does the focal person attend class in a year	1.2 times 2. 3 times 3. the whole year	
503	There was full delegation system when focal person attend the class	Yes No	

Annex b: Ethiopian hospitals reform implementation guideline IP standards

No	Standards	met	Unmet
1	Hospital mgt to support improvement efforts in infection prevention by ensuring that operational and technical capacity financial and human resources required to adhere to IP guidelines are available		
2	Designated group and/or individual(s) are in place to implement and monitor infection prevention activities		
3	The hospital has an operational plan for the implementation of IP activities. The plan follows national guidelines and includes guidance on IP practice and procedures and materials.		
4	Standard practices that prevent, control and reduce risk of hospital acquired infection are in place.		
5	The hospital has an adequate plan to address transmission based precautions for staff, patient, caregivers and visitors.		
6	The hospital ensures that equipments, supplies, and facilities/infrastructure necessary for IP are available.		
7	All hospital staff are trained using standard IP training materials		
8	The hospital provides health education to patients, caregivers, and visitors as appropriate on IP practices.		
	Total infection prevention		