



Ministry of Health and Social Welfare



Japan International Cooperation Agency

GOOD PRACTICES OF “KAIZEN”

Cases from Public Hospitals in Tanzania

Technical Cooperation Project for HRH Development
Ministry of Health and Social Welfare
and
Japan International Cooperation Agency (JICA)



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ACKNOWLEDGEMENT

Development of the “Good Practices of KAIZEN – Cases from Public Hospitals in Tanzania” is a manifestation of the desire and commitment of the Ministry of Health and Social Welfare (MoHSW) to improve quality of health care services provided at health facilities in the country through mutual learning and sharing from health care practitioners nationwide. It is a continuous process for reaching higher standards of quality of services.

The Government of Japan through Japan International Cooperation Agency (JICA) has supported MoHSW since 2007 for the implementation of 5S-KAIZEN-TQM Approaches for improvement of quality of health care services in Tanzania. To date, 67 hospitals are practicing 5S activities and 8 hospitals are vigorously applying KAIZEN Approach to improve health care services. Putting together and disseminating the experiences of these hospitals is extremely important as it provides valuable insights and resources to fellow hospitals aspiring to applying KAIZEN Approach now and near future.

MoHSW would like to thank HRH Development Project of JICA for supporting us to develop the “Good Practices of KAIZEN”, as it is the first of its kind in Africa, let alone Tanzania. Sincere gratitude goes to Mr. Hisahiro Ishijima, Chief Advisor and Mr. Noriyuki Miyamoto of HRH Development Project, who have poured tireless efforts to put together this publication before the end of the Project.

MoHSW also acknowledges contribution of the national 5S-KAIZEN-TQM facilitators in editing “Good Practices of KAIZEN”. Sincere appreciation goes to Dr. Eliudi Eliakimu, Assistant Director for his continued stewardship.

Lastly, MoHSW congratulates all health facilities and health workers for the commitment they have demonstrated for making provision of quality health care services a reality.



Dr. Mohamed A. Mohamed
Director of Health Quality Assurance

1. Background

1.1. Application of “KAIZEN” approach to healthcare services

“KAIZEN” is a Japanese word, which has the meaning of “Change for better”. It is well known as continuous quality improvement approach in manufacturing sector. “KAIZEN” can be defined as problem-solving process, and used for actions of making situation, products or services better for meeting the needs and expectation of clients. It is widely applied in manufacturing sector since 1960’s, and it was expanded to service industry in late 1980’s¹.

Applying KAIZEN to health care services became common in 1990’s in the US and other western countries, as well as Asian countries. Many managers of private hospitals introduced the approach, and succeeded to improve health care services delivery and saved a lot of resources for running health facilities². The approach is widely used now and by numerous hospitals around the world^{2,3}.

Application of KAIZEN approach to health services is often reported from Western and Asian countries. However, there is no report from Africa on national rollout of KAIZEN approach and successful KAIZEN cases implemented in multi-levels of public hospitals. Therefore, this report is assumed to be valuable to various stakeholders who are supporting quality improvement of health care delivery and hospital management in Africa.

1.2. Introduction of “KAIZEN” approach into Tanzanian health sector

5S-KAIZEN-TQM approaches were introduced to Tanzania in 2007 through the Asia-Africa Knowledge Co-Creation Program (AAKCP), which was launched by Japan International Cooperation Agency (JICA). The approaches were piloted in Mbeya Zonal Referral Hospital (MZRH), and showed great success in improving working environment and health care services delivery.

The first KAIZEN case was reported from MZRH in 2010. The first case was implemented at Out Patient Department (OPD) of MZRH aiming to reduce patient waiting time at OPD. The case was properly implemented and showed huge reduction of patient waiting time. MZRH continued with other KAIZEN cases and reported to the Progress Report Meeting for 5S-KAIZEN-TQM approaches, organized by Ministry of Health and Social Welfare (MoHSW) in collaboration with JICA. The success resulted from the implementation of KAIZEN, enabled the MoHSW decision to rollout the KAIZEN approach to other hospitals practicing the 5S activities in 2011.

2. National rollout of KAIZEN approach in Tanzania

Precondition of KAIZEN practice is good implementation of 5S approach (method for working environment improvement) in health facility. The hospitals that participated in Training of Trainers for the 5S approach (5S ToT) must practice 5S activities in their facilities. MoHSW conducts Consultation Visit (CV) to each hospital practicing 5S activities to monitor and evaluate the progress of 5S.

If the hospital shows good progress and high coverage of 5S activities (Hospital average score of 5S implementation should be more than 70% of all departments and sections practicing 5S activities), those hospitals are invited to participate in KAIZEN Training of Trainers (KAIZEN ToT).

Based on the criteria mentioned above, 18 hospitals listed in Table 1 below were trained on KAIZEN since 2011 to date. Some hospitals such as Muhimbili Orthopedic Institute, Mwananyamala Regional Referral Hospital, Mirembe Mental Health Hospitals, were not active to practice KAIZEN after ToT, and 5S implementation of these hospitals were also declining to below 70%. Also the MoHSW decided to train more staff from the hospitals that are keeping good average of 5S implementation but slow practice of KAIZEN cases.

1 Implementation Guideline for 5S-KAIZEN-TQM approaches in Tanzania, MoHSW. March 2013

2 Healthcare Kaizen: Engaging Front-Line Staff in Sustainable Continuous Improvements, Mark Graban and Joseph Swartz Introductory material by Masaaki Imai and Norman Bodek Release date: June, 2012

3 “Continuous Improvement: Lean” <http://www.hqc.sk.ca/improve-health-care-quality/lean/> (Access 12/8/2014)

Table 1: List of hospitals trained on KAIZEN

#	Name of the hospital	Located region	Type of hospital	Trained in
1	Mbeya Zonal Referral Hospital	Mbeya	Consultant	2011, 2012, 2013, 2014
2	Kilimanjaro Christian Medical Center	Moshi/ Kilimanjaro	Consultant	2011, 2012, 2013, 2014
3	Bugando Medical Center	Mwanza	Consultant	2011, 2012, 2013, 2014
4	Muhimbili National Hospital	Dar es Salaam	National	2011, 2012, 2013, 2014
5	Amana Regional Referral Hospital	Dar es Salaam	RRH	2014
6	Mwananyamala Regional Referral Hospital	Dar es Salaam	RRH	2011
7	Iringa Regional Referral Hospital	Iringa	RRH	2014
8	Tumbi Regional Referral Hospital	Kibaha	RRH	2014
9	Singida Regional Referral Hospital	Singida	RRH	2011, 2012, 2013
10	Sumbawanga Regional Referral Hospital	Rukwa	RRH	2012
11	Morogoro Regional Referral Hospital	Morogoro	RRH	2014
12	Songea Regional Referral Hospital	Songea	RRH	2012, 2014
13	Tosamaganga Designated District Hospital	Iringa	DDH	2011, 2012, 2013
14	Mugana Designated District Hospital	Bukoba	DDH	2011, 2012, 2013
15	Mirembe Mental Health Hospital	Dodoma	Specialized	2012
16	Muhimbili Orthopedic Institute	Dar es Salaam	Specialized	2011
17	Kibong'oto Referral Hospital for Infection Disease	Siha/ Kilimanjaro	Specialized	2012
18	CCBRT Super Specialist Hospital	Dar es Salaam	DRH	2014

Source: Reports on KAIZEN ToT, MoHSW-JICA

Participants of the KAIZEN ToT learn basic concepts of “KAIZEN” and how to practice “KAIZEN process” (also called “Quality Control [QC] story”) during the training. The ToT is designed to have more practical experiences than theoretical part. All QC tools are used for KAIZEN process, and be taught for evidence-based problem solving process⁴. There are seven (7) steps to complete KAIZEN process and are as follow:

⁴ “KAIZEN Handbook for Health Facility, Pocket guide for Facilitators”, Ministry of Health and Social Welfare, 2014

- Step 1. Selection of KAIZEN theme
- Step 2. Situation analysis for before KAIZEN and prioritization of contributing factors
- Step 3. Root cause analysis
- Step 4. Identification of countermeasures
- Step 5. Implementation of identified countermeasures
- Step 6. Check effectiveness of the countermeasures between before and after KAIZEN
- Step 7. Standardization of the effective countermeasures

Teaching materials for KAIZEN ToT are standardized and published as “Implementation Guideline for 5S-KAIZEN-TQM approaches in Tanzania” (ISBN-978: 9987-737-04-8) and “KAIZEN Handbook for Health Facility, Pocket guide for Facilitators” (ISBN-978: 9987-s737-10-9). Other teaching materials are Power Point Presentations used during ToT. All presentations are saved in CDs and are distributed to the participants of KAIZEN ToT. These two documents and the presentations should be utilized to train other health workers on KAIZEN approach within their facility.

3. KAIZEN Cases in Tanzania

As mentioned above, 18 hospitals were trained on KAIZEN approach in the country since 2011 to date. However, only 8 hospitals out of 18 hospitals started to practice KAIZEN approach to improve quality of patient’s services care delivery and hospital management. 80 KAIZEN cases were reported from 8 hospitals since 2011 as listed in Table 2 below.

67 KAIZEN cases out of 80 cases, which account for 84% of total cases, are from 4 major hospitals, namely: Kilimanjaro Christian Medical Center, Bugando Medical Center, Muhimbili National Hospital, Mbeya Zonal Referral Hospital.

Table 2: 80 KAIZEN cases in Tanzania

#	KAIZEN Theme	Hospital	Department Section	Category
1	Misplacement of patients files is reduced	Kilimanjaro Christian Medical Center	Dermatology	CLS
2	Time to start consultation is reduced		Dermatology	CLS
3	Overcrowding of clients in triage area at CCFCC is reduced		CCFCC	CLS
4	Incomplete filled prescriptions for ARV drugs is minimized		CCFCC	CLS
5	Caring patient with cannula is improved		Medical ICU	CLS
6	Booking system for patients undergoing endoscopy is improved		Endoscopy	CLADM
7	Endoscopy result forms are filled properly		Endoscopy	CLS
8	Reduce patient relatives in the ward during working hours		Medical 1	CLADM
9	Time is receiving patients from ICU and medical is reduced		Medical 2	CLS
10	Patients prepared on time for surgery		Eye OT	CLS
11	Presence of relatives in the ward during the working hours is reduced		Surgical 2	CLADM
12	Late changing cannula is reduced		OBGY 1	CLS
13	Medicine given on time		OBGY 1	CLS
14	Long waiting time for ordering teaching materials is reduced		TATCOT	ADMN
15	Filling of NHIF format is improved		Pediatric 2	CLADM
16	Charting of patient's drug sheet is improved	Bugando Medical Center	C8 - Female medical ward	CLS
17	X-ray ordering are done timely		E8 - Orthopedic ward	CLS
18	Relatives in C703 adhere with visiting hours		C7 - Male medical ward	CLADM
19	Blockage of sink reduced		C7 - Male medical ward	CLADM
20	Number of relatives in our ward is reduced after visiting hours		E7 - Medical ward	CLADM
21	Use of patient toilet is improved		C4 - Postnatal ward	CLADM
22	Missing patient file is reduced		Medical record	CLS
23	Documentation on admission and discharge books is improved		C6 - Male general surgery	CLS
24	Handing report is improved		E4	CLS
25	Documentation of nursing activities improved		C9 - Female surgical	CLS
26	Medication charting is improved		E9 - Pediatric surgical	CLS
27	Inadequate documentation on observation chart is reduced		E6 - Surgical Urology and ENT	CLS

#	KAIZEN Theme	Hospital	Department Section	Category
28	Patient record is improved	Muhimbili National Hospital	Ward 16	CLS
29	Readmission of post catheterization patient is reduced		Ward 14	CLS
30	Number of days patients stay in the ward reduced		Ward 13	CLS
31	Patients complaining to missing treatment is reduced		Ward 12	CLS
32	Number of patients developed phlebitis is reduces		Ward 11 (Male surgical)	CLS
33	Poor documentation of fluid intake and output chart is reduced		Ward 10	CLS
34	Number of rejected laboratory samples is reduced		Ward 9	CLS
35	Undocumented treatment procedures reduced		Ward 9	CLS
36	Inadequate documentation in wound care chart is reduced		Ward 24	CLS
37	Hand washing practice in the ward is improved		Ward 23	CLS
38	Report writing for serious patients is improved		Ward 22	CLS
39	Decontamination process errors are reduced		Ward 21	CLS
40	Documentation on patients treatment is improved		Ward 20	CLS
41	Care of patients tracheotomy tubes is improved		Ward 19	CLS
42	Improper documentation of nursing intervention chart is improved		Pediatric burn unit	CLS
43	Delay in giving injectable medication is reduced		Pediatric Surgery	CLS
44	Improper clerking procedure of patient is improved		IPPM Annex	CLS
45	Waiting time of clients is reduced		Antenatal clinic	CLS
46	Readmission rate due to wound sepsis is reduced		Ward 33	CLS
47	Monitoring of mother during labor is improved		Ward 34	CLS
48	Documentation of fluid chart is improved		Ward 35	CLS
49	Improve timely care of newly admitted patients		Ward 36	CLS
50	Poor documentation of drugs is reduced		Ward 37	CLS
51	Reduction of false high blood pressure recording on nursing intervention chart		Ward 38	CLS
52	Wound sepsis is reduced		Ward 39	CLS

#	KAIZEN Theme	Hospital	Department Section	Category
53	Patient waiting time for consultation is improved	Mbeya Zonal Referral Hospital	OPD	CLS
54	Overstocking and redundant of stock at Central Store Department		Central Store	ADMN
55	Improve revenue collection		Administration - Accounts	ADMN
56	Reduce re-sterilization of unused trays and packs at CSSD		CSSD	CLADM
57	Missed records of Pantograph for mothers and babies after delivery is improved		Labor ward	CLADM
58	Improper patients record are improved		SCBU	CLADM
59	Practice in documentation is improved		Operating Theatre	CLADM
60	Improve adherence to CSSD rule		CSSD	CLADM
61	Improve nursing procedure and documentation		ICU	CLADM
62	Improve accessibility of patient's radiology report		Radiology	CLADM
63	Improve dressing procedures		Ward 2 - Female ward	CLS
64	Triage of patients at OPD/NHIF Clinic is improved		OPD	CLS
65	Improve waste segregation at the point of collection in the hospital		IPC	CLS
66	Improve CTC documentation in tools		CTC	CLADM
67	Improving segregation of washing items		Laundry	ADMN
68	Waste segregation improved	Singida Regional Referral Hospital	Labor ward (6A)	CLADM
69	Usage of cleaning tools is improved		Post caesarian (6B)	CLS
70	Long waiting time for patient to get medicine is reduced		Pharmacy	CLS
71	Nursing document improved		Female ward (Ward 1)	CLS
72	Improper management of decontamination buckets is improved		Operating Theatre	CLS
73	Management of patient in the maternity ward is improved	Tosamaganga Designated District Hospital	Maternity ward	CLS
74	Long waiting time for patient's results is shorten (Delay of lab. results improved)		Laboratory	CLS
75	Delay of getting patient's files is reduced		Medical record	ADMN
76	Revenue collection is increased		Accounts	ADMN
77	Infections at post scissoring ward is reduced	Mugana Designated District Hospital	Maternity Labor ward	CLS
78	Delaying of laboratory results is reduced	Iringa Regional Referral Hospital	Laboratory	CLADM
79	Documentation of patient drug chart is improved		Ward 10 (Male medical)	CLS
80	Number of Partography forms not filled after delivery is reduced		Labor ward	CLS

ADMN: Administration, CLS: Clinical Service, CLADM: Clinical Administration

Categorization of KAIZEN themes was studied. Themes of KAIZEN cases from several hospitals were categorized into three groups: 1) Administration (ADMN), 2) Clinical Service (CLS), 3) Clinical Administration (CLADM). 70% of KAIZEN themes are targeted to improve the situation or solve a problem on clinical services for patients care. 23% of KAIZEN themes are targeted to improve or strengthen clinical management for patients care. Only 7% of KAIZEN themes are targeted to improve the situation or solve a problem on administrative services or resource management.

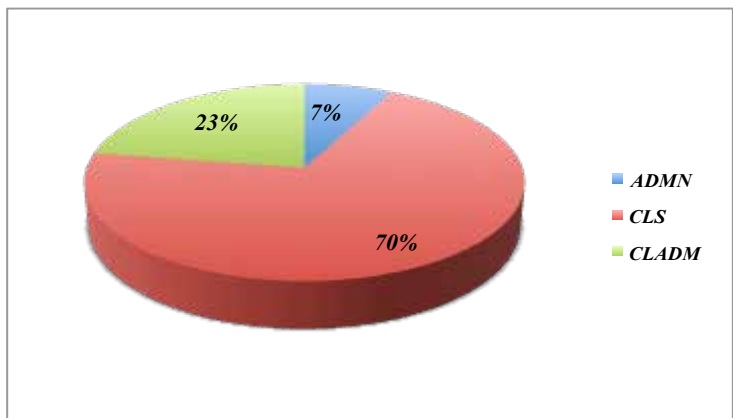


Figure 1: Categorization of KAIZEN themes

Figure 2 explains the trend in the number of KAIZEN cases and the number of trained health workers on KAIZEN. Based on the record of KAIZEN cases and KAIZEN ToT, it was observed that the number of KAIZEN cases increased with the increase of trained health workers on KAIZEN. This finding is very important to revise the strategy of rolling out KAIZEN approach nationwide. It is necessary to increase the number of participants from each hospital in KAIZEN rather than invite few staff from many hospitals.

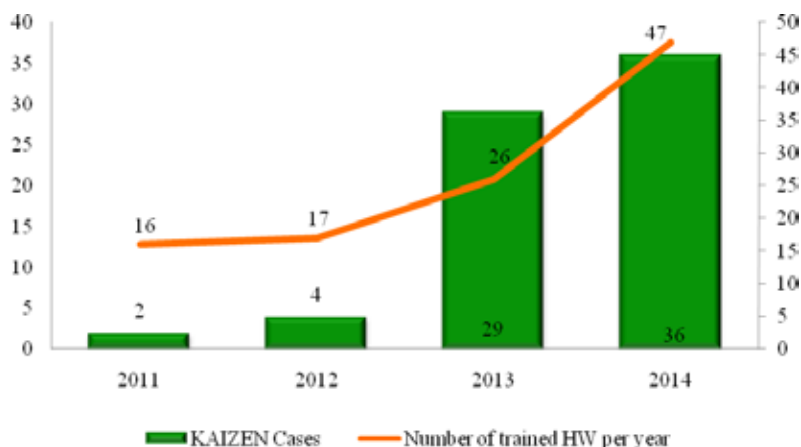


Figure 2: Comparison between # of KAIZEN cases and # trained health workers on KAIZEN

4. Good practices of KAIZEN

As mentioned in Chapter 3, 80 KAIZEN cases have been practiced in 8 hospitals. However, some cases are not well practiced in terms of data collection for the situation analysis, weak root cause analysis, or weak implementation of M&E activities, among others. Therefore, we thought of analyzing all 80 KAIZEN cases practiced in the country, and selecting “Good KAIZEN cases” for our future references.

“Good KAIZEN case” can be defined as “KAIZEN cases that are using QC tools properly and completed all KAIZEN process from step 1 to step 7 in 6 months, with good improvement of the situation”.

During CV to the hospitals that are practicing KAIZEN, CV Team used KAIZEN Supportive Supervision Checklist in Annex 1 and KAIZEN Progress Sheet in Annex 2 to collect all information of KAIZEN cases with support of pictorial evidences. Then, the information was analyzed to see the usage of different QC tools, understanding of the process, collection of data for a situation analysis and so on. Based on the analysis, we picked up the best 12 KAIZEN cases out of 80 cases that are matching with the definitions of “Good KAIZEN cases”.

The 12 KAIZEN cases are listed below;

- “Number of rejected laboratory samples is reduced” from Ward 9, Muhimbili National Hospital
- “Number of patient developed phlebitis is reduced” from Ward 11, Muhimbili National Hospital
- “Decontamination process error is reduced” from Ward 21, Muhimbili National Hospital
- “Overcrowding of clients at the triage area at CCFCC is reduced” from CCFCC, Kilimanjaro Christian Medical Center
- “Misplacement files is reduced” from Dermatology clinic, Kilimanjaro Christian Medical Center
- “Endoscopy request form is filled properly”, Endoscopy unit, Kilimanjaro Christian Medical Center
- “Waiting time for patients to the consultation is reduced”, OPD, Mbeya Consultant Hospital
- “Overstocking and redundant of equipment and instruments in the store is reduced”, Central Store Department, Mbeya Consultant Hospital
- “Improve waste management at the point of collection in the hospital”, Infection Prevention and Control Office, Mbeya Consultant Hospital
- “Reduce re-sterilization of unused trays and packs at CSSD”, CSSD, Mbeya Consultant Hospital
- “Waste segregation is improved (at the ward level)”, Ward 6A, Singida Regional Referral Hospital
- “Delay of getting patient’s files on time is reduced”, Medical Record section, Tosamaganga DDH.
- 4.1. MNH - Ward 9

4.1. MNH - Ward 9

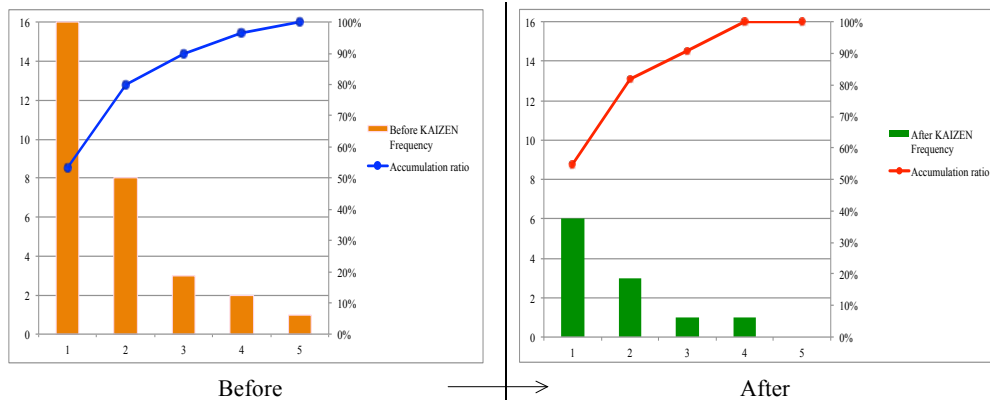
KAIZEN Theme	Number of rejected laboratory samples reduced
Data collection method	<ul style="list-style-type: none"> Counting of rejected samples per day
Major root causes	<ul style="list-style-type: none"> No training on how to collect laboratory sample No supervision checklist for laboratory sample collection No proper schedule for sending specimen to the laboratory



Major countermeasures
<ul style="list-style-type: none"> Develop training material to conduct trainings on sample collection at the ward Conduct training for the ward staff on sample collection Inform the ward staff to collect samples in proper timing



Effectiveness of the KAIZEN



#	Contributing factors	Frequency		Reduction rate (%)
		Before	After	
1	Clotted sample	16	6	62.5
2	Wrong container	16	3	62.5
3	Quantity not sufficient	8	1	66.7
4	Un-booked sample	3	1	50.0
5	Container not labeled	2	0	100.0
TOTAL		43	11	63.3



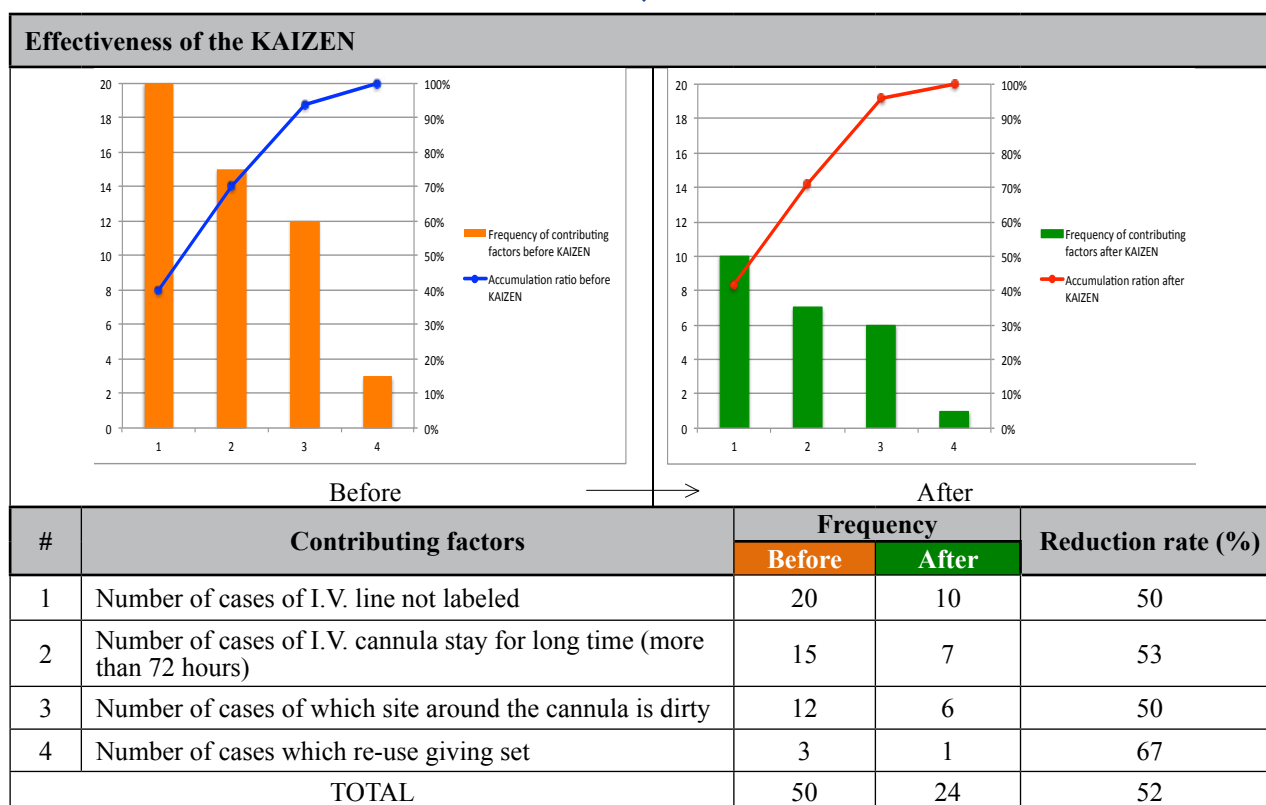
Standardized activities to prevent reoccurrence						
Effective countermeasures	Who	What	Where	When	Why	How
Training on sample collection	Ward I/C, WIT	Training on sample collection	Ward 9	Every Tuesday and Friday	To strengthen knowledge and skills	Conduct
Remind time for sample collection	All staff on duty	Time for sample collection	Ward 9	Daily	To prevent clotted samples	Check by checklist

4.2. MNH - Ward 11

KAIZEN Theme	Number of patient developed phlebitis is reduced
Data collection method	<ul style="list-style-type: none"> Counting number of patients developed phlebitis
Major root causes	<ul style="list-style-type: none"> No training on cannulation management No supervision to cannulation management No protocol of handing over report of I.V. line No SOPs for I.V. cannulation in the ward



Major countermeasures
<ul style="list-style-type: none"> Conduct on the job training on proper I.V. cannulation Identify and assign specific person to put labels and check I.V. cannulation in every shift Develop SOPs on proper I.V. cannulation Develop report protocol about I.V. cannulation



Standardized activities to prevent reoccurrence						
Effective countermeasures	Who	What	Where	When	Why	How
Assign person to check labeling of cannulas	KAIZEN team, Ward in-charge	Specific person	Ward 11	Daily	To strengthen checking	Assign (put star (*) on the roster)
Use SOPs on I.V. cannulation	KAIZEN team	SOPs	Ward 11	Daily	To reduce misunderstanding of proper cannulation among staff	Use
Check progress of checking I.V. cannulas	Ward in-charge	Progress of checking I.V. cannulas	Ward 11	Daily, before next shift starts	To strengthen checking	Check

4.3. MNH - Ward 21

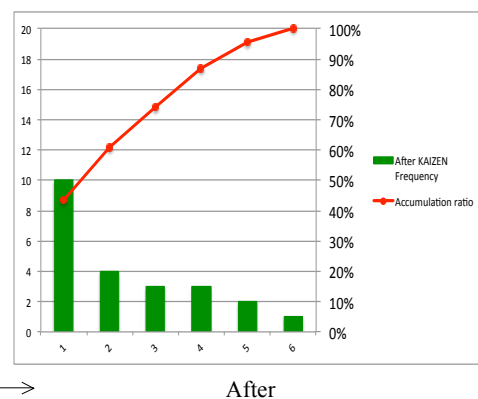
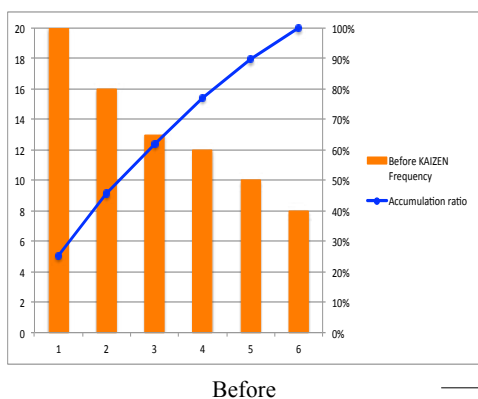
KAIZEN Theme	Decontamination process error is reduced
Data collection method	<ul style="list-style-type: none"> Counting number of errors in decontamination process
Major root causes	<ul style="list-style-type: none"> Disorganized working environment for decontamination process No SOPs and no checklist of decontamination process No sectional training on decontamination process No handing over note between shifts No responsible person for management of decontamination process in each shift



Major countermeasures
<ul style="list-style-type: none"> Conduct training on decontamination process with teaching materials sourced by the national guideline Develop handover note to give decontamination reports between shifts Develop and SOPs on decontamination process and display it in decontamination area Purchase an alarm clock to remind staff about proper timing to change buckets and water Identify specific person to manage decontamination process in each shift



Effectiveness of the KAIZEN



#	Contributing factors	Frequency		Reduction rate (%)
		Before	After	
1	Soaking of used instruments exceeds 10 minutes	20	8	60.0
2	Bucket's lids not well covered	16	5	68.8
3	Chlorine used more than 24 hours	13	3	76.9
4	Used instruments not well immersed in chlorine solution	12	3	75.0
5	Wrong dilution of chlorine solution for decontamination	10	2	80.0
6	Mistake of rinsing instruments before immersing into chlorine solution	8	1	87.5
TOTAL		79	22	72.2



Standardized activities to prevent recurrence						
Effective countermeasures	Who	What	Where	When	Why	How
Plan and conduct training for staff on decontamination process	WIT and KAIZEN members	Training on decontamination process	Ward 11	Monthly	To strengthen knowledge on the process	Conduct as per the training plan
Identify responsible person for decontamination process	Shift in-charge	Responsible person for decontamination process	Ward 11	Every shift starting	To ensure change of decontamination process	Identify

4.4. KCMC - CCFCC

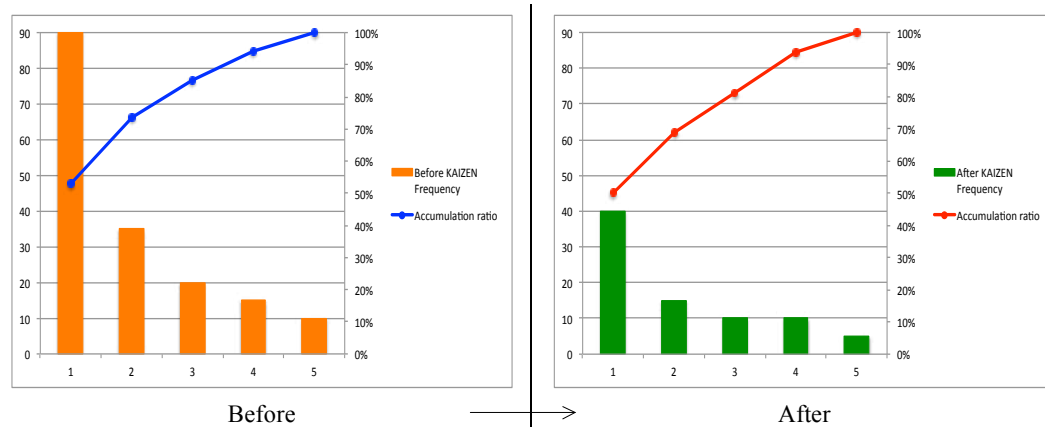
KAIZEN Theme	Overcrowding of clients at the triage area at CCFCC is reduced
Data collection method	<ul style="list-style-type: none"> Counting of contributing factors related to the KAIZEN theme
Major root causes	<ul style="list-style-type: none"> No body assigned to take care of client's appointment Unavailable appointment book No proper information on appoint system provided to clients



Major countermeasures
<ul style="list-style-type: none"> Assign person to manage client's management Prepare specific book for appointment Develop and display clear instruction on appointment system in CCFCC



Effectiveness of the KAIZEN



#	Contributing factors	Frequency		Reduction rate (%)
		Before	After	
1	No. of clients coming with no appointment	90	40	55.6
2	No. of episodes the triage nurse is allocated to other activities	35	15	57.1
3	No. of clients who are not directed properly to triage	20	10	50.0
4	No. of clients not given priority according to arrival time	15	10	33.3
5	No. of clients who are delayed by the triage nurse	10	5	50.0
TOTAL		170	80	52.9



Standardized activities to prevent reoccurrence						
Effective countermeasures	Who	What	Where	When	Why	How
Adhere appointment system	Triage nurse everyday	Appointment system	Triage area, CCFCC	Clinic days	To reduce number of clients coming without appointment	Continuously practice

4.5. KCMC - Dermatology clinic

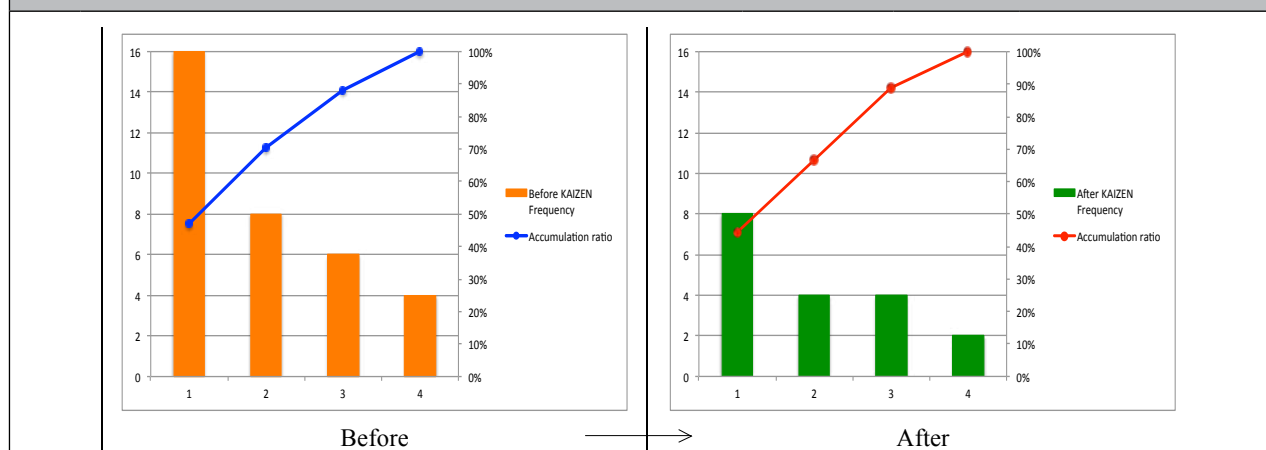
KAIZEN Theme	Misplacement files is reduced
Data collection method	<ul style="list-style-type: none"> Counting of number of misplacement of files in the clinic
Major root causes	<ul style="list-style-type: none"> Improper job allocation of the medical record staff Not clear communication between the medical record staff and the clinic staff



Major countermeasures
<ul style="list-style-type: none"> Develop job allocation of the medical record staff Conduct daily supervision to job tasks Develop and use clear instruction for the medical record staff and the clinic staff for file management



Effectiveness of the KAIZEN



#	Contributing factors	Frequency		Reduction rate (%)
		Before	After	
1	Number of episodes patients files are found in other clinics	16	8	50.0
2	Number of episodes files are improperly stored	8	4	50.0
3	Number of episodes patients files not seen completely	6	4	33.3
4	Number of times files are found in doctor's office	4	2	50.0
TOTAL		34	18	47.1



Standardized activities to prevent reoccurrence						
Effective countermeasures	Who	What	Where	When	Why	How
Adhere to job allocation	In charge	Supervision	Dermatology clinic	Daily	To strengthen file management	Conduct

4.6. KCMC - Endoscopy

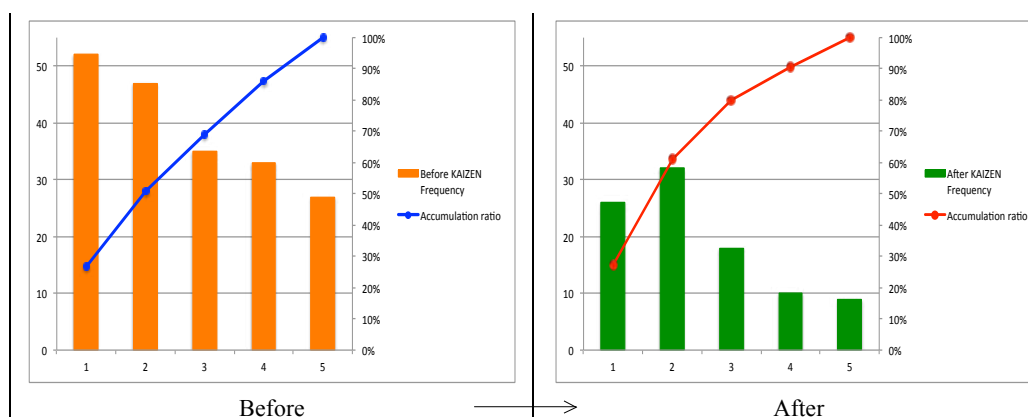
KAIZEN Theme	Endoscopy request form is filled properly
Data collection method	<ul style="list-style-type: none"> Counting of number of improper filling in endoscopy request form
Major root causes	<ul style="list-style-type: none"> No on the job training on how to fill in the request form No clear instruction on how to fill in the request form No handover mechanism among staff



Major countermeasures	
<ul style="list-style-type: none"> Conduct on the job training on how to fill in endoscopy request form with developed training material Develop clear instruction on how to fill properly in the request form Establish handover mechanism to strengthen information sharing among staff 	



Effectiveness of the KAIZEN



#	Contributing factors	Frequency		Reduction rate (%)
		Before	After	
1	No. of times previous disease complication is not reported	52	26	50.0
2	No. of times the clinical summary is not written	47	32	31.9
3	No. of times answers of endoscopic findings is not indicated	35	18	48.6
4	No. of times the time of procedure not indicated	33	10	69.7
5	No. of times requesting doctors is not named	27	9	66.7
TOTAL		194	95	50.0



Standardized activities to prevent reoccurrence						
<i>Effective countermeasures</i>	<i>Who</i>	<i>What</i>	<i>Where</i>	<i>When</i>	<i>Why</i>	<i>How</i>
Use handover book to fill in the request form	Unit in charge	Hand over book	Endoscopy unit	Daily	To strengthen the proper filling in the request form	Utilize
Strengthen checking mechanism of the request form	All staff on duty	The request form	Endoscopy unit	After receiving the request form from the patients	To reduce improper filling in the request form	Check

4.7. MZRH - Out Patient Department

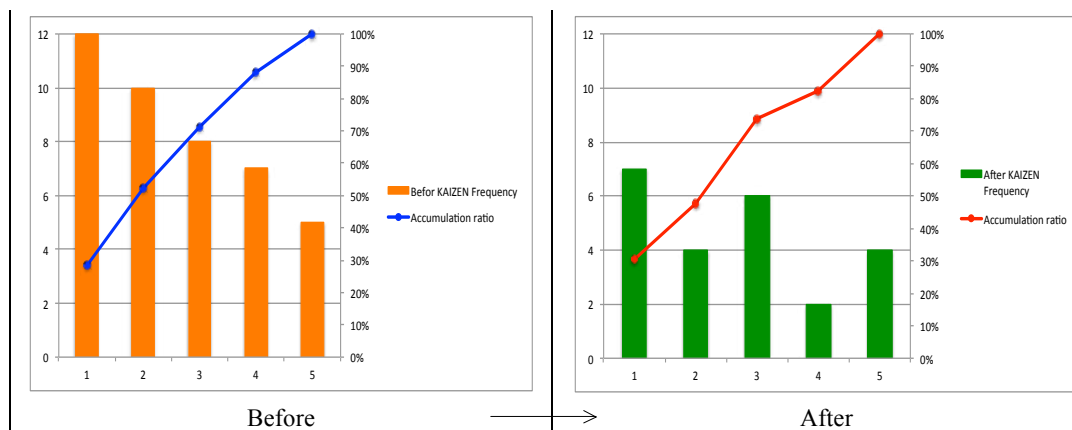
KAIZEN Theme	Waiting time for patients to the consultation is reduced
Data collection method	<ul style="list-style-type: none"> • Interview to outpatients • Interview to staff of OPD
Major root causes	<ul style="list-style-type: none"> • Not defined patient flow protocol • No clear job allocation for daily duties • Not defined activity schedule and meeting schedule • Not defined responsibilities of the leader



Major countermeasures
<ul style="list-style-type: none"> • Develop patient flow protocol and display it in common place • Clarify proper job allocation of daily duties • Conduct the training on time management • Manage the department meetings; agenda, schedule • Develop monitoring and evaluation mechanism to proper service delivery



Effectiveness of the KAIZEN



#	Contributing factors	Frequency		Reduction rate (%)
		Before	After	
1	Delay in starting consultation	12	8	33.3
2	Long break during consultation	10	4	60.0
3	Interruption by emergency cases	8	6	25.0
4	Bypass of staff	7	2	71.4
5	Long contact time	5	4	20.0
TOTAL		42	24	42.9



Standardized activities to prevent reoccurrence						
<i>Effective countermeasures</i>	<i>Who</i>	<i>What</i>	<i>Where</i>	<i>When</i>	<i>Why</i>	<i>How</i>
Utilize staff attendance register	All staff	Staff attendance register	OPD	Daily	To control daily duties	Utilize
Utilize job allocation according to number of staff	In-charge of OPD, All staff	Job allocation	OPD	Daily	To control daily duties	Adhere
Develop weekly activity schedule	In-charge of OPD	Weekly activity schedule	OPD	Weekly	To reduce disorganization of activities at OPD	Develop
Utilize patient flow protocol	In-charge of OPD	Patient flow protocol	OPD	Twice per year	To reduce time wasting	Review

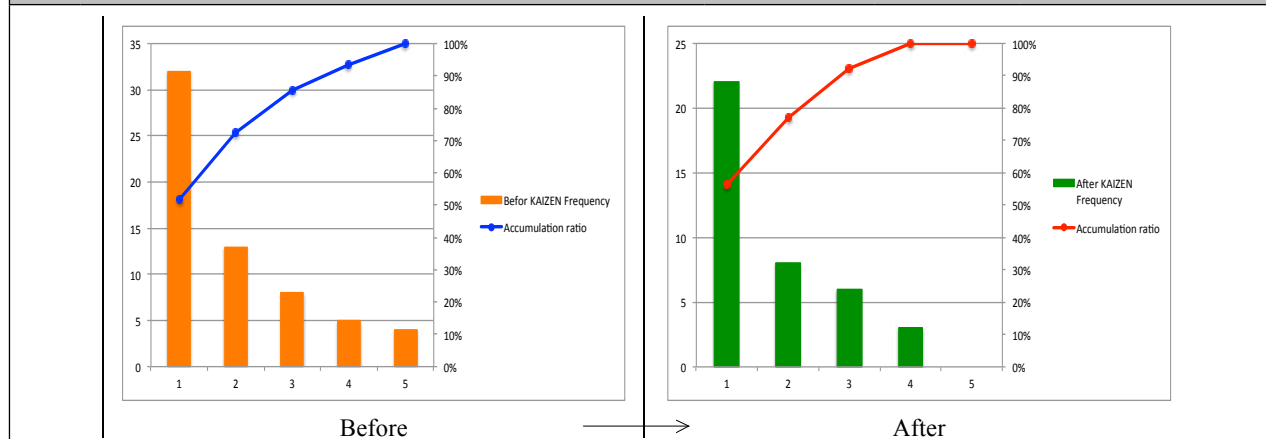
4.8. MZRH - Central Store Department

KAIZEN Theme	Overstocking and redundant of equipment and instruments in the store is reduced
Data collection method	<ul style="list-style-type: none"> Counting of number of redundant items in the store
Major root causes	<ul style="list-style-type: none"> Improper ordering mechanism of items from the departments Improper management to keep items in the store Non-functional the procurement management unit and receiving committee

Major countermeasures
<ul style="list-style-type: none"> Improve ordering mechanism: checking, recording, grasping needs of user departments Establish lists of items, bin cards Adhere to FIFO (First In, First Out) philosophy Empower the procurement management unit and receiving committee



Effectiveness of the KAIZEN



#	Contributing factors	Frequency		Reduction rate (%)
		Before	After	
1	Number of redundant equipment/instruments	32	22	31.3
2	Number of redundant medical supplies	13	8	38.5
3	Number of redundant stationeries	8	6	25.0
4	Number of redundant cleaning materials	5	3	40.0
5	Number of redundant medical items	4	0	100
TOTAL		62	39	37.1



Standardized activities to prevent reoccurrence						
Effective countermeasures	Who	What	Where	When	Why	How
Confirm needs from user departments	Store keepers	Needs from user departments	Each department	Monthly	To grasp timely needs / requests	Confirm and check
Check physical balance of items in the store	Store officer in charge	Physical balance of items	Central store	Monthly	To prevent redundant items	Check
Update lists of items	Store keepers	Lists of items	Central store	Whenever new items arrivals	To clarify available items	Update
Conduct a meeting to justify items to be procured	Store officer in charge	Meeting	MZRH conference hall	Quarterly	To justify items to be procured	Conduct

4.9. MZRH - Infection Prevention and Control Unit

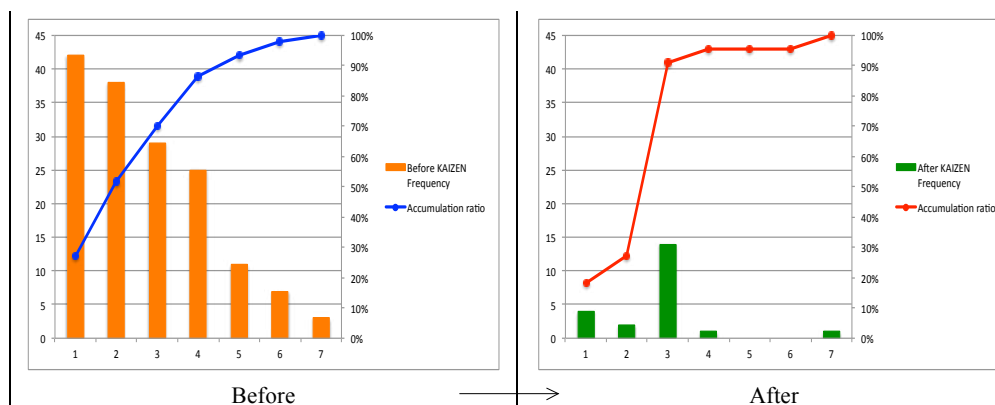
KAIZEN Theme	Improve waste segregation at the point of collection in the hospital
Data collection method	<ul style="list-style-type: none"> Counting of improper way of waste management at the point of collection in the hospital
Major root causes	<ul style="list-style-type: none"> No orientation program for new employees on waste management Not submitted IPC monitoring and evaluation report from each section Delay in supply of waste bin liners



Major countermeasures
<ul style="list-style-type: none"> Conduct on the job training for new employees on waste management Review and improve methodologies of monitoring and evaluation mechanism to IPC Establish the needs and forecast the number of color coded waste Strengthen the procurement of color coded waste bin liners rationally



Effectiveness of the KAIZEN



#	Contributing factors	Frequency		Reduction rate (%)
		Before	After	
1	Case of bin liners in a wrong containers	42	4	90.5
2	Case of one type of bin liner missing (out of stock) at the point of waste collection	38	2	94.7
3	Case of mixing up of waste at point of collection (i.e. an item gets into wrong containers)	29	14	51.7
4	Case of waste container without a bin liner	25	1	96.0
5	Case of unauthorized waste containers/bin liners found at disposal point (incinerator)	11	0	100
6	Case of container found in a wrong area (areas which where does not generate waste that match with container)	7	0	100
7	Case of mixing waste bags at the waste storage area	3	1	66.7
TOTAL		155	22	85.8



Standardized activities to prevent reoccurrence						
<i>Effective countermeasures</i>	<i>Who</i>	<i>What</i>	<i>Where</i>	<i>When</i>	<i>Why</i>	<i>How</i>
Conduct on the job training and mentoring on waste management	IPC coordinator	On the job training on waste management	IPC office	5-10 minutes, Every Thursday	To remind and refresh health workers on waste management	Conduct continuously
Conduct monitoring to waste segregation	IPC coordinator, focal persons of IPC	Monitoring to waste segregation	Respective areas	Daily	To ensure proper waste segregation	Conduct
Strengthen the procurement of color coded waste bin liners rationally	IPC coordinator, Store manager	Amount of color coded waste bin liners	Central store	Weekly	To ensure proper amount of color coded waste bin liners	Check

4.10. MZRH - Central Sterilization Supply Department (CSSD)

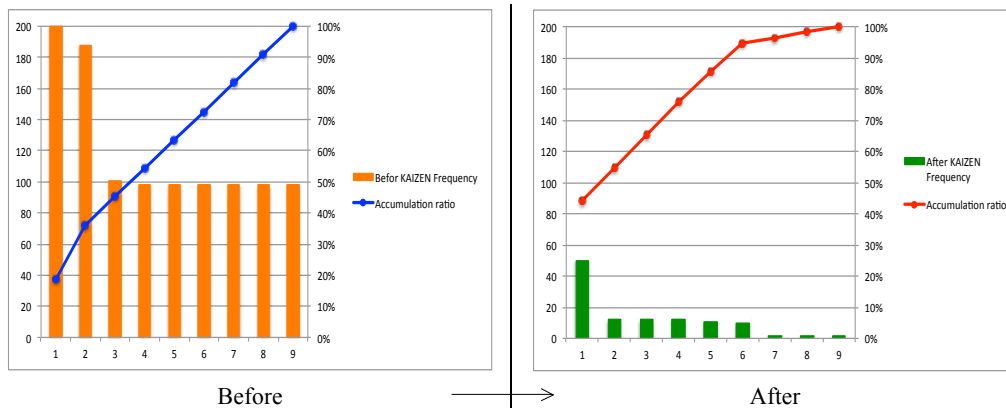
KAIZEN Theme	Reduce re-sterilization of unused trays and packs at CSSD
Data collection method	<ul style="list-style-type: none"> Counting of number of re-sterilization of unused trays and packs
Major root causes	<ul style="list-style-type: none"> No cost consciousness among CSSD workers Not clear work flow pattern in CSSD



Major countermeasures
<ul style="list-style-type: none"> Develop a plan for continuous education on sterilization management Develop SOPs on contents of each sets/trays Clarify working flow pattern in CSSD Create and organize space for storage of sets/trays



Effectiveness of the KAIZEN



#	Contributing factors (Number of re-sterilization of unused sets/packs)	Frequency		Reduction rate (%)
		Before	After	
1	Male circumcision	200	50	75.0
2	Spinal set	188	12	93.6
3	Epidural set	101	12	88.1
4	Chest aspiration	98	12	87.8
5	Endotracheal tubes	98	11	88.8
6	I.V. cut down	98	10	89.8
7	General set JAPAN	98	2	98.0
8	Orthopedic JAPAN	98	2	98.0
9	Vaccination set	98	2	98.0
TOTAL		1077	113	89.5



Standardized activities to prevent reoccurrence						
<i>Effective countermeasures</i>	<i>Who</i>	<i>What</i>	<i>Where</i>	<i>When</i>	<i>Why</i>	<i>How</i>
Utilize pictorial SOPs on contents of each sets/trays	All CSSD staff	SOPs on contents of each sets/trays	CSSD	Everyday	To ensure kinds and number of necessary instruments of each sets/trays	Utilize
Conduct on the job training for all CSSD staff on storage rules and CSSD regulations	In-Charge of CSSD	On the job training on storage rules and CSSD regulations	CSSD	Continuously	To organize the storage of all sets / trays / other items in CSSD	Conduct for all CSSD staff

4.11. Singida RRH: Ward 6A: Labor ward

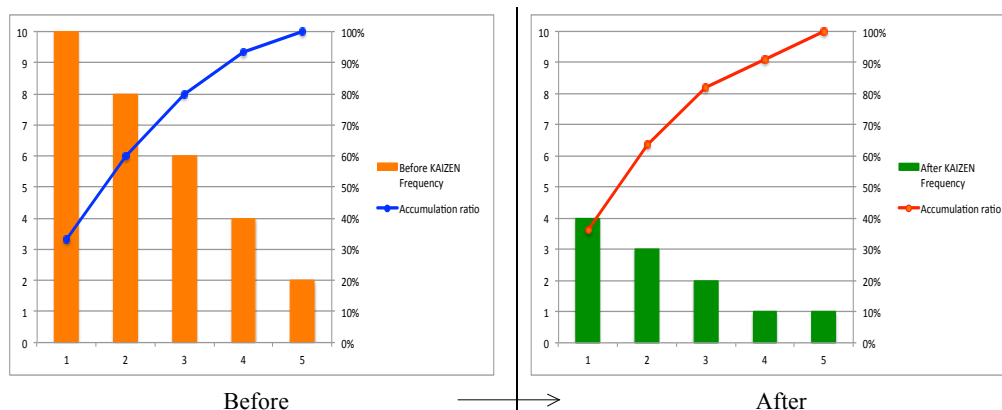
KAIZEN Theme	Waste segregation is improved (at the ward level)
Data collection method	<ul style="list-style-type: none"> Counting number of improper waste management every day
Major root causes	<ul style="list-style-type: none"> No coaching on waste segregation at the section level No rules to maintain proper waste segregation



Major countermeasures
<ul style="list-style-type: none"> Conduct coaching continuously Define rules to maintain proper waste segregation Develop and display clear instruction on waste segregation



Effectiveness of the KAIZEN



#	Contributing factors	Frequency		Reduction rate (%)
		Before	After	
1	Wrong items in red dust bin	10	4	60
2	Wrong items in yellow dust bin	8	3	63
3	Wrong items in blue/black dust bin	6	2	67
4	Wrong items in safety box	4	1	75
5	Wrong use of bin liners	2	1	50
TOTAL		30	11	63



Standardized activities to prevent reoccurrence						
Effective countermeasures	Who	What	Where	When	Why	How
Coach staff about waste segregation	Ward in-charge, WIT	Coaching on waste segregation	Ward 6A	Daily	To strengthen knowledge on waste segregation	Conduct

4.12. Tosamanga DDH: Medical Record Department

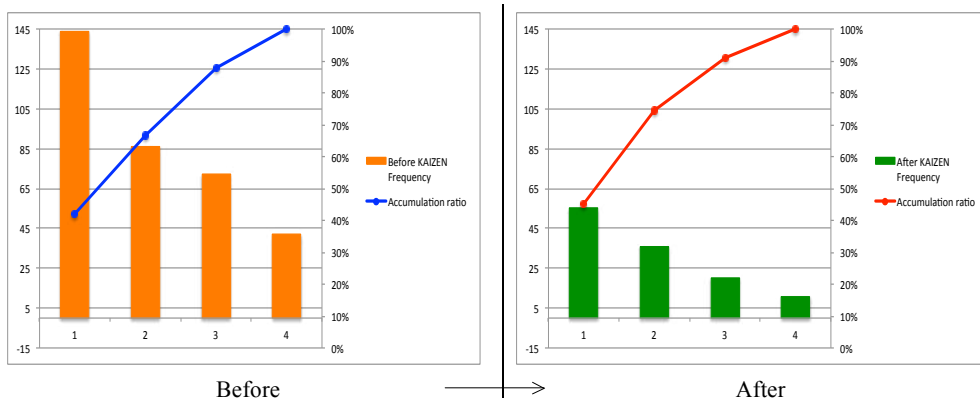
KAIZEN Theme	Delay of getting patient's files on time is reduced
Data collection method	<ul style="list-style-type: none"> Counting of number of improper file management related with delay of getting patient's files
Major root causes	<ul style="list-style-type: none"> No on the job training on handling patient's file properly No proper partitions in the shelves in the medical record department



Major countermeasures
<ul style="list-style-type: none"> Conduct training for the department staff on proper file management with developed training material Set partitions and clear labels on all the shelves in the department



Effectiveness of the KAIZEN



#	Contributing factors	Frequency		Reduction rate (%)
		Before	After	
1	Misplacement of files in shelves	144	55	62
2	Patients return without card number	86	36	58
3	Patient's discharged files not returned on time	72	20	72
4	Improper patient's file recording	42	11	74
TOTAL		344	122	65



Standardized activities to prevent reoccurrence						
Effective countermeasures	Who	What	Where	When	Why	How
Conduct continuous coaching for staff on file management	WIT and KAIZEN team	Coaching on proper file management	Medical record department	Daily	To prevent misplacement of patient's files	Conduct

5. Lesson learnt from the national roll out of KAIZEN

Currently, 67 hospitals are practicing 5S activities in the country. Among those 67 hospitals, 18 hospitals received KAIZEN TOT since 2011 to date. However, only 8 hospitals out of 18 hospitals are practicing KAIZEN approach and 80 KAIZEN cases were reported from those 8 hospitals.

From the past experiences and observation of hospital performance on 5S-KAIZEN activities, MoHSW and JICA expert team learned some lessons, as below, through scale up of KAIZEN approach.

- Some trained health workers have a difficult image about KAIZEN approach.
- Close monitoring and coaching by Quality Improvement Team is very important to keep KAIZEN cases on the right track.
- Negative attitude and “Blaming others” policy still remains among health workers, which slows down implementation of KAIZEN process.
- No in-house KAIZEN training, No KAIZEN cases. Hospitals with many KAIZEN cases are conducting in-house KAIZEN training.
- Data collection for Step 2 (situation analysis) and Root cause analysis in Step 3 are most difficult procedures for many health workers.
- Step 7 is often neglected, causing recurrence of the problems

6. Challenges

According to the interview with QIT members of the hospitals that are implementing KAIZEN approach, and observation of KAIZEN activities by national facilitators, the following issues are raised as challenges for implementation of KAIZEN:

- Image of KAIZEN among health workers is “difficult and time consuming”
- Resistance to practice KAIZEN process without monetary incentives
- Slow implementation of KAIZEN Process
- Weak mechanism of in-house KAIZEN Training within health facility
- Weak root cause analysis, as guessing of causes became their habits
- Weak follow up of implemented countermeasures

The challenges that are mentioned above are not big problems and can be solved within the hospital. It can also be good KAIZEN themes for improvement of KAIZEN practices. To overcome the challenges, check list for KAIZEN process, attached in Annex 1, will help to monitor and keep KAIZEN implementation on the right track.

7. Conclusions

This document was developed to share experiences of KAIZEN practices in Tanzanian health sector, and to cast doubt on the strategy of increasing resource inputs to health sector in developing countries.

Based on the implementation of KAIZEN approach in Tanzania, we strongly believe that KAIZEN approach is very useful for reduction of waste of resources, and increase productivity, safety and quality of health care services in developing countries where health resources are limited and scarce. Developing countries and development partners tend to concentrate more on acquiring resource for health which neglects or gives minimal importance on the efficient and effective use of the available resources to reduce the resource gap.

However, the actual situation of health facilities in developing countries is slightly different. It is true that human resource for health, medical supplies and other health resources are not enough to provision of health care services. It is also true that many resources, particularly medical supplies and equipment are wasted while the productivity, quality and safety of health care services are not well considered among health care providers in many developing countries. During the national rollout of 5S-KAIZEN-TQM approaches, we found that “Just in case” attitude of health care providers and managers resulted in many expired medicines and redundant items in the hospital store and the cabinet in various offices. Through implementation of 5S-KAIZEN-TQM in the facility things have shown improvement.

ANNEX 1: KAIZEN Implementation Check sheet

Steps	#	Points to check	Yes	No	Date of check	Check by
<i>Example</i>	--	Staff are committed to practice KAIZEN or not	√		13 Oct.	Jane
Before KAIZEN	1	Ask number of WIT members				
	2	Check problem statement of the section/unit				
	3	Check the date of the KAIZEN case started				
Step 1	4	Check whether they have selected the theme which can be solved within the section/unit or not				
	5	Check whether the KAIZEN theme was selected with Matrix Diagram				
	6	Check whether the scale of feasibility is clarified or not				
	7	The KAIZEN theme is written in “positive manner”				
Step 2	8	Check whether appropriate quantitative data collected relate with the KAIZEN theme or not				
	9	Check whether WIT members understood well relation between the KAIZEN theme and contributing factors or not.				
	10	Check whether data source is appropriate or not				
	11	Check whether data collection method is appropriate or not				
	12	Ask the period of data collection and check if it is appropriate or not				
	13	Check whether all the records were kept for data collection or not				
	14	Check whether compilation of the data, calculation of cumulative frequency and ratio was done properly by using table or not				
	15	Check whether Pareto Chart is properly developed based on the table or not; Need to check the scale, Plotting point of cumulative ratio, Description of contributing factors)				
	16	Check whether the target setting is done or not				

<i>Steps</i>	<i>#</i>	<i>Points to check</i>	<i>Yes</i>	<i>No</i>	<i>Date of check</i>	<i>Check by</i>
Step 3	17	Check whether prioritized problem / contributing factors that were identified in Step 2 is used as a head of Fishbone or not				
	18	Check whether contributing factor in the head of Fishbone Diagram is stated in sentence; Why (the contributing factor) happened?				
	19	Check whether "Cause-Effect (Why-Because)" relation is clarified or not				
	20	Check whether "Why-Because" is asked enough to find root causes or not				
	21	Check whether sentence used in the Fishbone Diagram are clearly stated or not				
	22	Check whether "No money", "No human resource" and "No material" are not identified as a root cause				
Step 4	23	Check whether all the identified root causes in Step 3 is reflected in Tree Diagram or not				
	24	Check whether detailed countermeasures are identified or not; breakdown of countermeasures by the level of countermeasures				
	25	Check conflict of activities among identified countermeasures				
	26	Check whether feasibility is appropriately done or not; Check the relation among the identified countermeasures against a root cause				
	27	Check whether the scale and cutoff point of feasibility check are clarified or not				
Step 5	28	Check whether all countermeasures identified are possible to carried out within the section/unit or not				
	29	Check whether all feasible countermeasures are reflected in the action plan				
	30	Check whether the action plan are developed based on "5W1H"				
	31	Check whether monitoring checklist is developed or not				
	32	Check whether appropriate timing is given to implement all countermeasures or not				

<i>Steps</i>	<i>#</i>	<i>Points to check</i>	<i>Yes</i>	<i>No</i>	<i>Date of check</i>	<i>Check by</i>
Step 6	33	Check whether all necessary data is collected for effectiveness check or not; same methodology and period applied in Step 2				
	34	Check whether comparison table for effectiveness check is developed or not; Frequency before and after KAIZEN, cumulative number frequency before and after KAIZEN, Cumulative ratio before and after are appropriately calculated or not in the comparison table				
	35	Pareto Charts for before and after KAIZEN are developed based on the comparison table or not; Scale of frequency, Cumulative ratio, Plotting points of cumulative ratio				
	36	Check whether Pareto Chart is properly developed based on the table or not; Need to check the scale and scale adjustment between before and after the KAIZEN, Plotting point of cumulative ratio, Description of contributing factors)				
	37	Check whether effective countermeasures are identified and listed or not				
	38	Check whether ineffective countermeasures are identified and listed or not				
Step 7	39	Check whether all effective countermeasures are reflected on standardization plan or not				
	40	Check whether standardization is developed based on "5W1H"				
	41	Check whether a monitoring checklist for standardized activities is developed and used or not				
	42	Check whether standardization plan is shared with all staff working in the section/unit				

<i>Steps</i>	<i>#</i>	<i>Points to check</i>	<i>Yes</i>	<i>No</i>	<i>Date of check</i>	<i>Check by</i>
<i>Common Issues</i>	43	After completion of one KAIZEN case, check whether discussion and action are taken for next KAIZEN case or not				
	44	Check whether all records of KAIZEN process are kept properly or not				
	45	Check whether starting and completing period of each KAIZEN step is clearly recorded or not				
	46	Check whether All KAIZEN process is planned to complete within 6 months or not; check existence of implementation schedule				
	47	Observe knowledge and skills of using QC tools among staff				
	48	Check whether staff are understanding purpose of each KAIZEN step or not				
	49	Check frequency of communication between QIT and KAIZEN members on the KAIZEN case				
	50	Check the evidences of countermeasures of the KAIZEN case, for example Training manuals, SOPs, Training report and so on				

ANNEX 2: KAIZEN Process Checklist

Hospital	
Department/Section/Unit/ Ward	
Date of Monitoring	

When KAIZEN started?	
Number of KAIZEN team members	
Last date of meeting with QIT for consultation	
Problem statement of the section	

KAIZEN Theme				
1. Theme of KAIZEN	0	1	2	Marks
KAIZEN Theme	Matrix not used and difficult to implement within department	Matrix used but difficult to implement within department	Matrix used and possible to implement within department	
2. Situation analysis	0	1	2	Marks
Information collection	No information collected	Wrong information collected	Right information collected	
Current data table	Not made	Made but wrongly	Made correctly	
Pareto chart development	Not made	Made but wrongly	Made correctly	
Pareto chart scale	No scale written	Scale of Pareto chart is not correct	Scale of Pareto chart is correct	
3. Root cause analysis	0	1	2	Marks
Fishbone diagram development	Not done	Developed wrongly and root causes are not well identified	Developed correctly and root causes are identified	
Description/Sentence completeness	Difficult to understand	Sentences are not completed	Complete and clear	
Depth of Why-Because analysis	WHY-BECAUSE is not asked	WHY-BECAUSE asked not enough	WHY-BECAUSE asked enough	
4. Countermeasure identification	0	1	2	Marks
Tree diagram	Not made	Made but wrongly	Made correctly	
Matrix diagram	Not made	Made but wrongly	Made correctly	

Feasibility check	Not done	Done but wrongly	Done correctly	
5. Implementation of counter measure	0	1	2	Marks
Action Plan development	5W1H action plan not developed	5W1H action plan developed wrongly	5W1H action plan developed correctly	
Countermeasures implementation	Not implemented	Identified measures partially implemented	All identified measures implemented	
Monitoring of implementation	Monitoring not done	Checklist developed but not used	Checklist developed and used	
6. Effectiveness check	0	1	2	Marks
Comparison data table	Not made	Made but wrongly	Made correctly	
Comparison Pareto chart	Not made	Made but wrongly	Made correctly	
Pareto chart scale	No scale written	Scale of Pareto chart is not correct	Scale of Pareto chart is correct	
7. Standardization of effective measures	0	1	2	Marks
Identification of effective measures	Not identified	Identified wrongly	Identified correctly	
Standardization procedure	Not implemented	Effective measures partially implemented	All effective measures implemented	
Standardization Plan development	5W1H standardization plan not developed	5W1H standardization plan developed wrongly	5W1H standardization plan developed correctly	
Monitoring of implementation of effective measures	Monitoring not done or not yet	Checklist developed but not used	Checklist developed and used	
Target achievement	0	1	2	Marks
Set target (%)	No improvement or not yet	Partially achieved	Fully achieved	
Achieved (%)				
8. Suggestion				

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