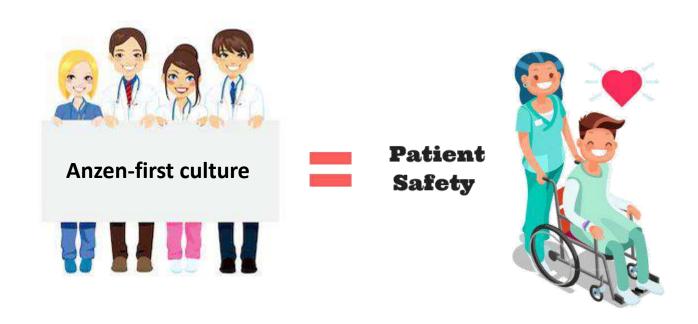


'Anzen-first culture' through systematic 'Kiken-Yochi' gemba audits and 'HIRA' methodology in facility upkeep, for optimizing patient safety"



1. Background of Kaizen



- Rehabilitation Facility needs high resources in terms of advanced tools for diagnosis and therapy
- 100% safety compliance is essential
- Many preventable scenarios lead to frequent equipment break down
- Inconvenience to patients and clinicians, Inadequate clinical outcome > Poor patient satisfaction
- Loss of revenue as patient opts for other healthcare services

Before Kaizen situation

Conventional practices (reactive approach) in equipment upkeep > Unsafe facilities



Issues to be solved

- 1. Regular gemba visits by service providers
- 2. Minimalizing communication Barriers
- 3. Prioritizing complaints based on HIRA scoring

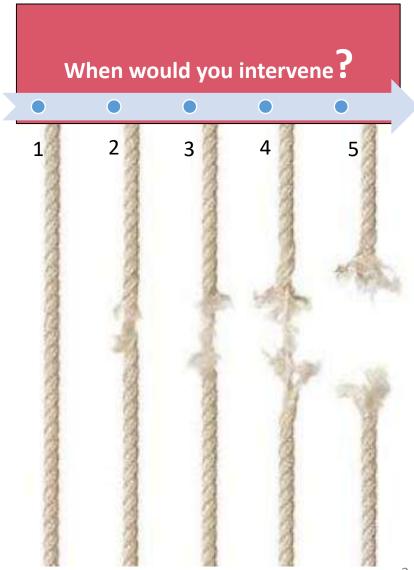
Ideal situation

Anzen-first work culture through proactive equipment upkeep for patient safety

2. Situation before KAIZEN – Problem List

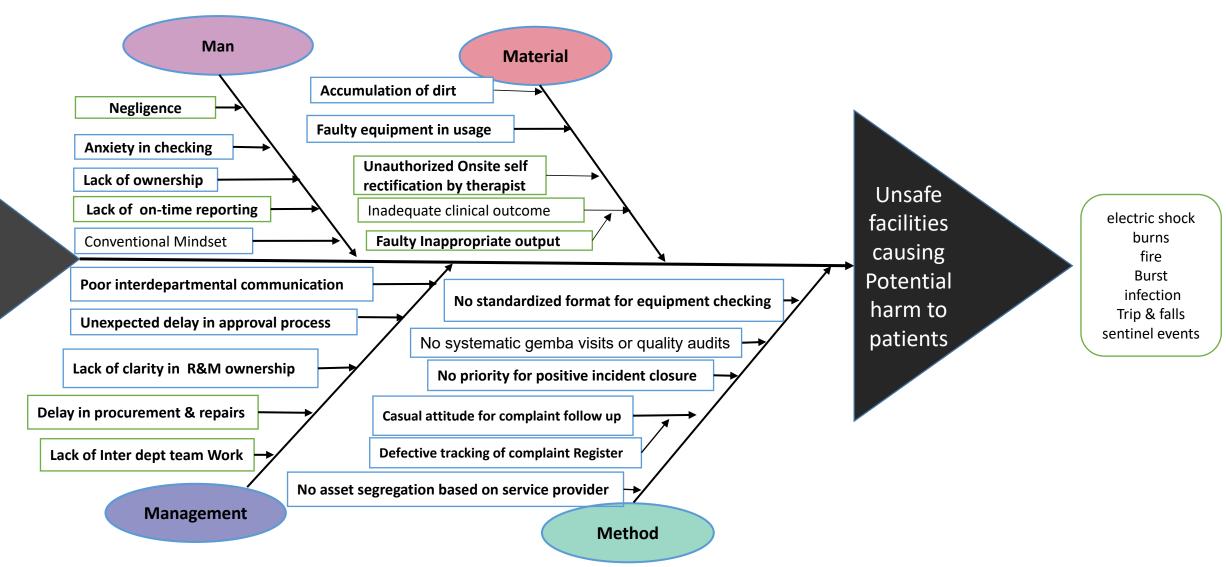


- Unsafe facilities causing Potential harm to patients. Unsafe equipment may cause electric shock, burns, fire, burst, infection, falls or sentinel events.
- Careless attitude towards hazards and risk exposure.
- Muda(wastage) due to inventory, motion, transport, intelligence, rework and waiting period



3. Analyse the root cause - Ishikawa Diagram





4. Develop countermeasure

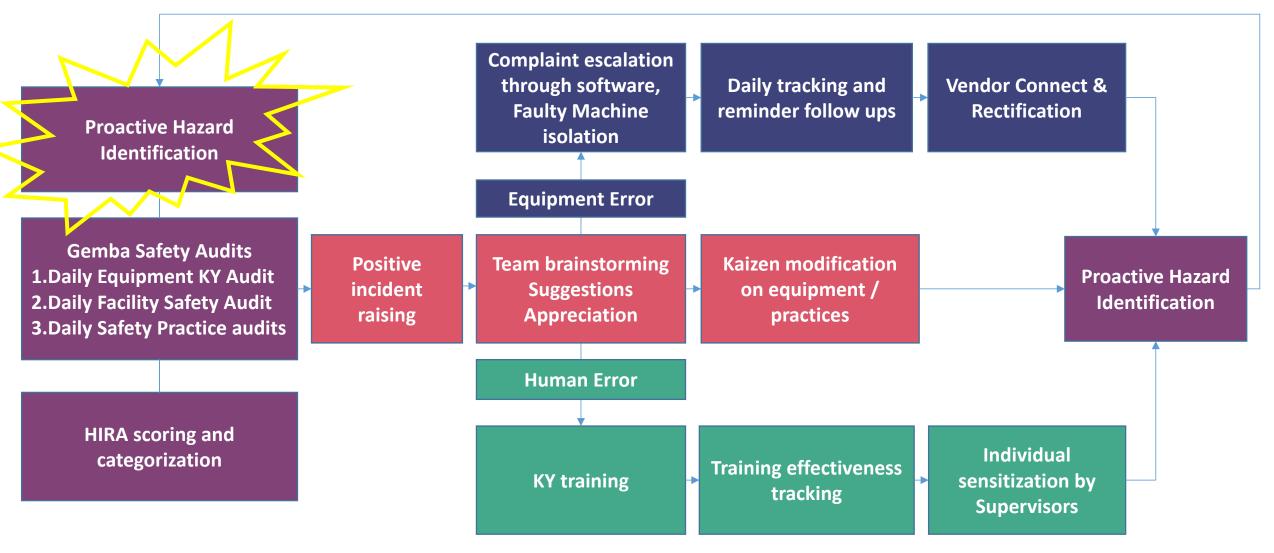
Issues	Countermeasures
Lack of timely identification of errors that can cause potential safety hazards	Adapt the principles from Japanese model of Kiken Yochi Gemba KY audits and timely escalation
Poor customer experience and complaints	Dedicated KY champion & Equipment Guardians Mandatory equipment functional check by clinician Creating equipment disinfection SOP and tracking
Inefficient complaint reporting and tracking system	Digital complaint escalation system Daily tracker based follow up reminders
Conventional mind-set of user department Therapist reluctant to take responsibility	Involvement in equipment upkeep from start of induction Team brainstorming in Photo KY On spot sensitization by supervisor on gemba
Muda(wastage) due to inventory, motion, transport, intelligence, rework and waiting period	Equipment procurement based on user trials Inventory management, 5S Critical Equipment Log Asset movement tracking
Reactive approach of service providers Blame culture between service providers	Stakeholder meetings Service provider specific Asset allocation
Service providers make false closures for	User OTP based Complaint closure



Kiken Yochi (Hazard Prediction) as safety culture

5. Process flow – Continuity of safety culture





6. Set Target



SI	Project KPI	Target / Status
1	Hazards proactively identified through KY audits	1
2	Percentage of facility related positive incidents raised	1
3	Process adherences to safety practice as per SOP	100%
4	Percentage of equipments found clean and disinfected	100%
5	5S compliance	100%
6	Process adherence to daily KY gemba audit and follow ups	100%
7	Availability of functional equipment for clinical use	1

7. Implementation of Countermeasures – PDCA Cycles for Standardization

Timeline	Concerns/Problems	Solutions
	No regular checking of equipment by service providers.	
2014-16	Complaints were raised only after total machine breakdown	Inform Biomedical engineer and enter in the complaint register
	Unavailability of functional equipment when required	5S implementation, Training, Appointment system
	Equipment related patient complaints	Created biomedical equipment checklist
	Preventable smaller equipment issues causing patient harm	Introduced KY through KY training, Rotatory postings for therapists
	Lack of honest reporting of errors (integrity issues)	Allocation of a dedicated KY champion, Appreciation for honest reporting
2017	Lack of ownership by other therapists. Responsibility pushed	
	to only KY champion	Along with KY champion, rotatory posting on a weekly basis
	Hesitation of clinicians to do equipment checking	Training and inclusion of new joiners, Allocation of equipment guardians
2018	No uniformity in checking leading to missing of errors	Structured KY SOP creation and training
	Mismatching wrong entries in complaint registers kept at	
2018	user end and at service provider. NABH NC	Digitalized Complaint escalation system (Treatwell)
2018	Delay in response by engineers	Daily emails reminders to service providers
	Open complaints are shown as closure by engineers to show	
2019	less TAT	Introduced OTP for complaint closure
2019	Less importance given to patient safety	Team sensitization through weekly presentation of incidents
	Ownership conflicts between biomedical and engineering	
2019	teams	Service provider specific Inventory allocation
2019	Lack of team contribution for effective solutions	Encourage user suggestions and implemented equipment based kaizen
2020	Proactive complaints not prioritized	HIRA scoring and raise positive incidents with CAPA
2021	Non sustenance of on ground practices	Gemba shadowing, Photo KY brainstorming, Sensitization
		8

									Legends: —	Plan	 ► Actual
8. Activity Tracker	2018-Q1&2	2018-Q3	2018-Q4	2019-Q1	2019-Q2	2019-Q3	2019-Q4	2020-S1	2020-S2	2021-S1	2021-S2
Kiken Yochi training											
Training effectiveness tracking											
KY audit by therapist	-										
5S implementation											
Dedicated KY Champion											
Structured KY SOP				-							
Daily tracking and reminder follow ups						>					
Kaizen on equipment / practices											
Digitalized Complaint escalation system											
Inventory allocation for service provider						- 					
Cleaning and disinfection of equipments				 -	-						
Photo KY brainstorming/sensitization											
OTP based complaint closure											
Positive incident reporting											
HIRA scoring and categorization											
Gemba Safety Audits - Shadowing											9
Individual sensitization by Guardians											

9a. GEMBA Audits - Kiken Yochi Checking (KYC)



Kiken Yochi (hazard prediction) is a Japanese activity to recognize and predict hazards.

Gemba – KYC @ Rehab

Structural Check

are

intact

with the

treatment

✓ readily available

equipment for



Functional Check



- ✓ Assure the Ensure accessories clinically approved output of
 - ✓ Patient satisfaction

equipment

Cleanliness Check



- ✓ To prevent any cross contamination
- ✓ Create a positive impact on our patients

Quick K Y Check



- Prevent any delay in patient treatment
- **Ensuring optimal** output
- Quick calibration
- Timely hazard detection

Started from: Feb 2018

Frequency: **Daily**

Duration: 120 minutes /day

Compliance till date: 100%

Daily KYC Checklist

Daily Kilken Yochi Checklist - PM	124.09.19 7.900	m 25.07.17/7.00	4. RE 09 17 9.15	see better it is a
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Daily Facility & 5S Checklist

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9b. Equipment & Facility Cleaning

Daily facility cleaning by Rehab GDA



Disinfection after every patient use





Why cleaning and disinfection?

- ✓ Prevents cross contamination
- ✓ Dust accumulation may affect the effective output
- ✓ Visually pleasing
- ✓ Moving parts are kept healthy

Quarterly cleaning by Rehab Therapists

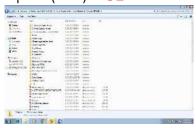


9c. Training on Facility Upkeep

Equipment manuals Hard copies (No.) = 68



Equipment manuals Soft copies (No.) = **81**







Training from Original Equipment Manufacturer



acturer

Training from Vendors



Training from Biomedical



Departmental Training



ROLE PLAY - recreating the reported incidents for team brainstorming & Sensitization

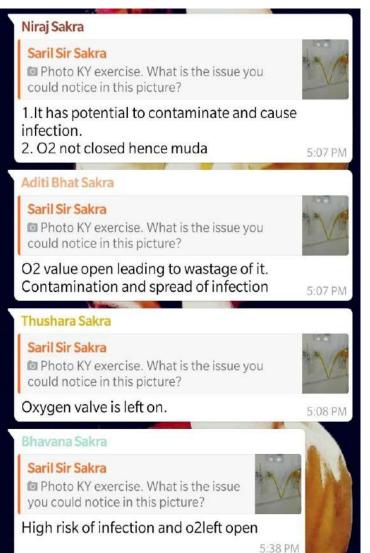


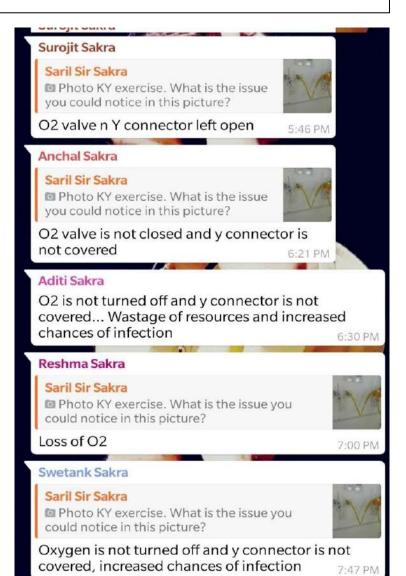
9d. Innovative Training Methodologies - Photo Kiken Yochi Training



Photos / videos of on ground practice deviations are brainstormed on official whatsapp group for RCA and CAPA sensitization and better adherence to solutions







10 a. Kaizen modifications related to Equipment and Facility





Fixed the base of the SWD unit with a trolley to prevent machine fall



Replaced the inbuilt vacuum unit (frequent fail) with the ICU suction vacuum jar



Extended the base of O2 trolley to prevent accidental fall



Wider footrest to prevent foot slipping and injury.
Plus comfort and support



Fixed the couches with a safety belt to avoid patient fall



Velcro with car seat buckle and additional strap to prevent accidents



Process change – Avoid frequent unplugging of cables to avoid breakage



Wooden platform to prevent water seepage and avoid short circuit in Biodex



Digital temperature regulator and auto cut off to maintain optimal temperatures to prevent burns



10 b. Kaizen modifications related to Equipment and Facility – Contd.





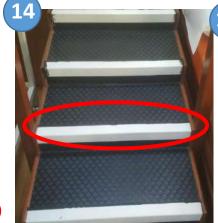
Footrest extensions for good stability



Bags to prevent loss of equipment and easy transport



Chair leg extensions to prevent spastic patients leaning over and fall



Strips at the edge of the stairs to avoid patient injury while climbing up/down



After use the safety switch is removed from the treadmill to avoid sudden start & potential fall



Wheels fixed - easy transport and reduce damage to flooring



Caretaker burden to manually support



Addition of extra straps to facilitate



Fixation of metallic mirror guard



Entangled cables cause damage and cost for replacements.

10 c. Kaizen modifications related to Equipment and Facility – Contd.



Safety device – Orbi turn for safe patient transfers, Reduce manpower for shifting, Facilitate patient's abilities



Assessment tool for endurance test, designed and created in house, Save cost



Fixation of traction unit to the base to prevent dislodging and sentinel events



CPM machine larger than trolley. Machine not usable if accidental fall. Customized trolley as per machine proportion



Fixation of hook to ceiling to prevent patient fall and damage to existing assets



Design and created transfer belts to reduce patient fall during treatment/transfers



Wireless patient alarm in disabled toilet –
To help patients call for help if required



Addition of base padding to protect equipment and for good stability

10 d. Kaizen modifications related to Equipment and Facility – Contd.



Procuring Recliner wheelchairs with safety belt and head support to prevent patient slip and fall from normal wheelchairs during transfers. Additional leg support for post operative patients.



Measuring scale sticker – to reduce need for repeated placement of tape and cones for assessments



Fabrication of extra base extension for Cardiac monitors for good stability and avoid accidental fall and damage



Innovative use of head cap on chest vibrators to prevent contamination



Use of technology instead of risky manual procedure for safe patient transfers. Less manpower needed and less chances of contact and infection spread



Weekly cleaning, preventive maintenance and 17 safety audit of recliner Wheelchairs

10 e. Kaizen modifications related to Equipment and Facility – Contd.



Process change – Patient to purchase own electrodes to avoid cross contamination

Direct Revenue: 72,29,680/ year



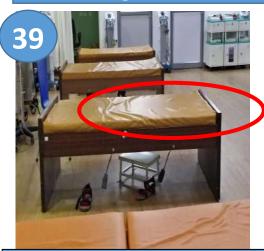
Locally manufactured economical pneumatic actuator for safety walker

Cost saving: ₹2,76,448/-



Use of in-house centralized pneumatic compressor

Cost saving: ₹ 3,50,000/-



Upholstery lamination for beds – reduced repeated cost for torn upholstery change

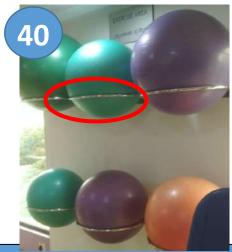
Cost saving: ₹38,000/-



SAKRA
WORLD HOSPITAL
JV by SECON & TOYOTA TSUSHO, JAPAN

Custom modified Tilt Table as per user suggestions

Cost saving: ₹ 3,31,500/-



Use of discarded wheelchair part as a wall stand to avoid damage to Swiss balls

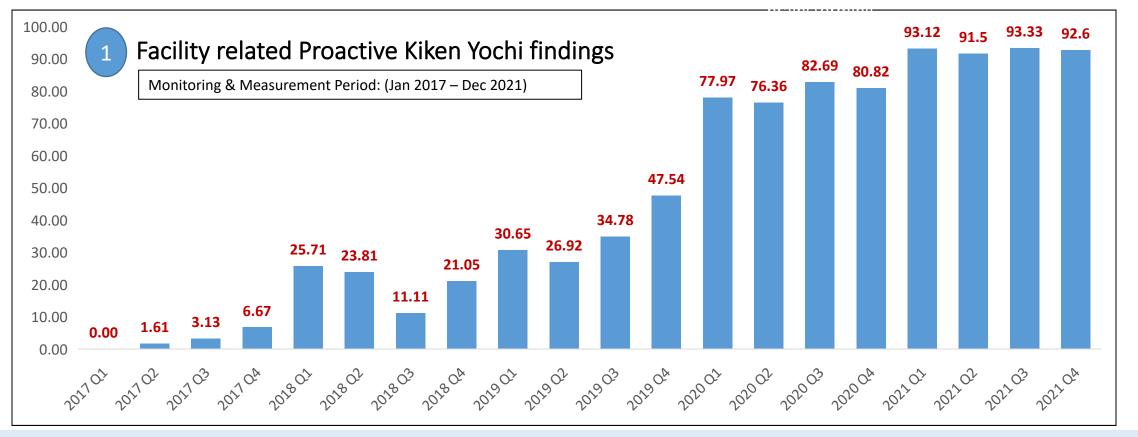
Cost saving: **₹** 50,000/-

11. Results

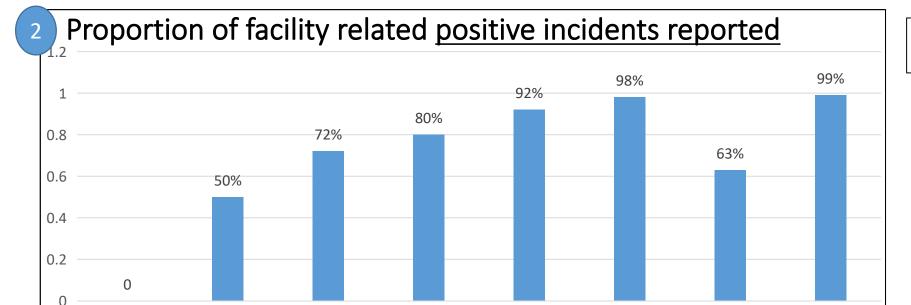


SI	KPI	Before Kaizen	Target / Status	Actual Achieved (2021)
1	Hazards proactively identified through KY audits (2017 – 2021)	0	1	92.64%
2	Proportion of facility related positive incidents raised (2014 – 2021)	0		99%
3	Adherences to safety practice as per SOP (Apr 2021 – Dec 2021)	No process	100%	95.83%
4	Percentage of equipment found clean and disinfected (2017 – 2021)	No process	100%	97%
5	5S compliance (2018 -2021)	No process	100%	93%
6	Process adherence to daily KY gemba audit and follow ups(2018-2021)	No process	100%	100%
7	Availability of functional equipment for clinical use (2017 – 2021)	86.9%	1	96.80%





The culture of proactive identification of errors has been improving from a reactive complaint management system



2017

Positive Incidents

2018

2019

2020

2021

Monitoring & Measurement Period: (Jul 2014 – Dec 2021)

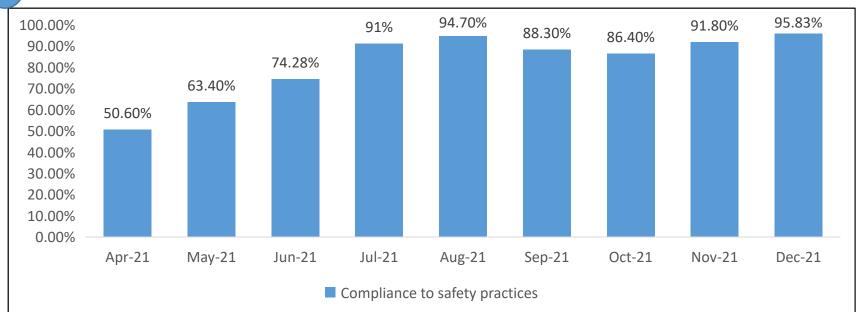
The culture of identifying and raising positive incidents have been getting established which prevents major harm reaching patients/therapists.

3 Adherences to <u>safety practices</u> as per SOP-2021

2016

2014

2015



Monitoring & Measurement Period: (Apr 2021 – Dec 2021)

The adherence to facility related safety practices as per SOP has been improving as per the shadowing audit findings.

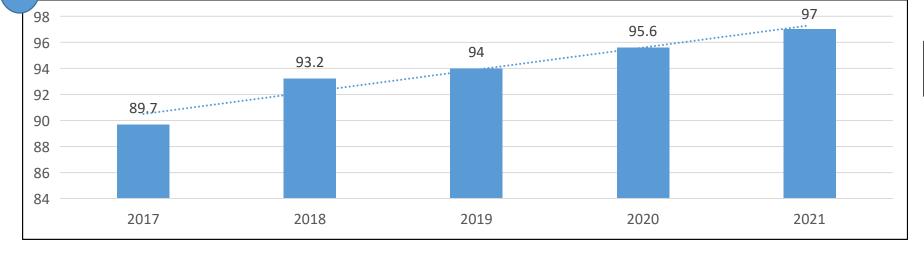
Proportion of equipment found clean and disinfected



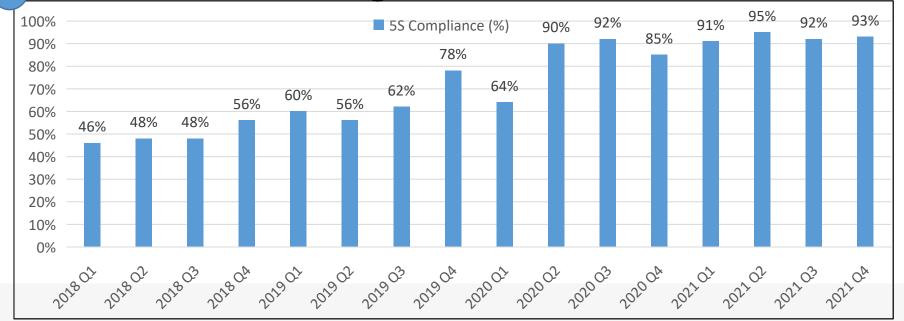


Monitoring & Measurement Period: (Jun 2017 – Dec 2021)

The process adherence to daily facility cleaning and disinfection has been improving



5 SS Process Adherence on gemba



Monitoring & Measurement Period: (Jan 2018 – Dec 2021)

The culture of sustaining standardized 5S practices have been getting established which prevents damage to the equipments

12. Standardization for sustenance



- Automated digital complaint escalation system
- Gemba shadowing audit by supervisors for KY before procedure, 5S, OJT and on spot corrections
- Dedicated Quality Circle for Safety & Facility Upkeep, regular review of KPI
- Appreciating Integrity through HR laurel awards

13. Residual challenges

- Lack of adherence during peak hours for process compliance
- Lack of proactive gemba visits by service providers
- Lack of HIRA based triaging for complaint closure

14. Yokoten

Implement the KY gamba audit practice to other teams

The Paradigm Shift

Evolution of Anzen-first culture for facility upkeep to ensure patient safety

PATHOLOGICAL

Who cares as long as we are not caught

REACTIVE

We take action when we have an accident

CALCULATIVE

Systems in place to manage hazards

PROACTIVE

Identify challenges in advance and deal

RESILIENT

Anzen first is a Way of Life

*Safety Culture Model of Hudson





