Project Title

Eliminate Hazard on Use of the Calf Compression Unit

Project Lead and Members

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Organisation(s) Involved

KK Women's and Children's Hospital

Healthcare Family Group(s) Involved in this Project

Nursing

Applicable Specialty or Discipline

Biomedical Engineering

Aims

To eliminate hazard on broken earth pin of the power plug of the calf compression unit

Background

See poster appended/ below

Methods

See poster appended/ below

Results

See poster appended/ below

Conclusion

See poster appended/ below

Project Category

Care & Process Redesign

Quality Improvement, Lean Methodology

Keywords

Design Thinking

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Eliminate hazard on use of the calf compression unit

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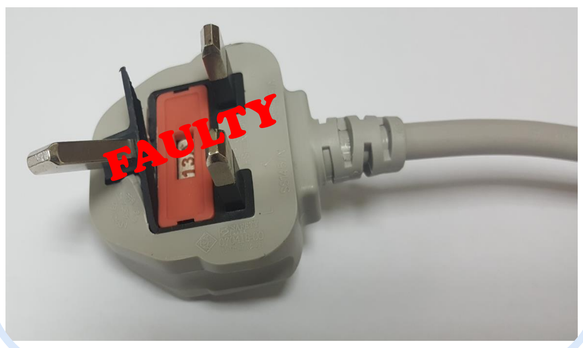
AIM : Eliminate hazard on broken earth pin of the power plug of the calf compression unit

Introduction

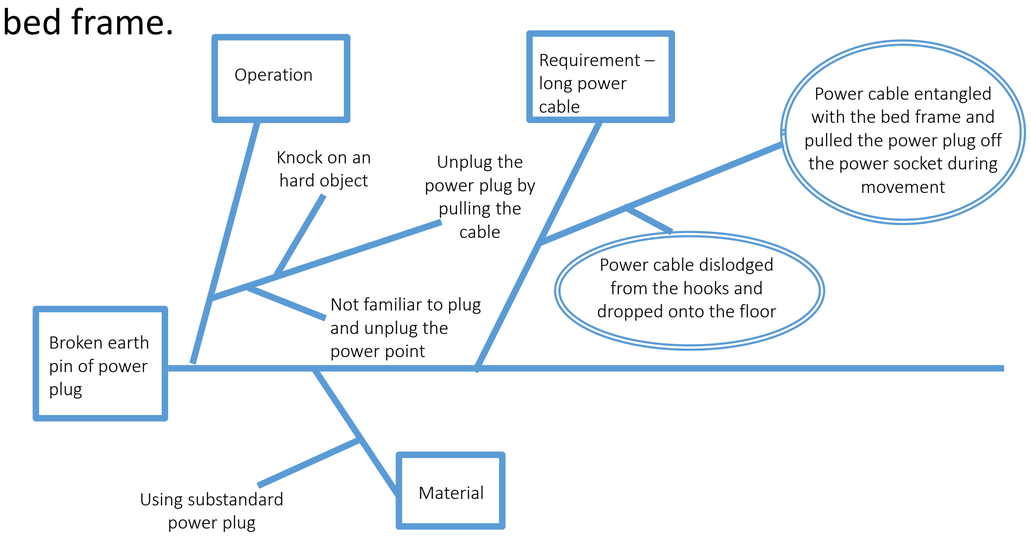
During review of 2017 corrective maintenance records, BME found that there was an increase of broken earth pin of the power plug used for the calf compression unit. The nature of this fault is abnormal.



Methodology and Finding

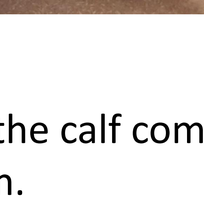
BME and Nursing investigated on this abnormal fault by observing the setup and use of the calf compression unit. Two small hooks were used to hang the power cable at the side of the bed. During normal movement and height adjustment of the bed, the power cable shifted in tandem and sometimes got entangled with the bed frame.

Further bed movement and increased tension on the entangled power cable lifted and pulled the power plug off the wall socket thereby fracturing the earth pin of the power plug. Using the cause and effect fishbone diagram, we identified the root cause of the problem.



Resolving the problem

We purchased and tried different types of hook to replace the existing small hooks for hanging the power cable.

	1	2	3	4	5	6
Types of hook	Small S Hook	Big S Hook	S Hook with cable tie	Hook with clip	Carabiner Snap Hook	Carabiner S Style Snap Clip Hook
						
Cost	$0.20/pcs	$0.40/pcs	$0.25/pcs	$0.50/pcs	$0.71/pcs	$3.90/pcs
Evaluation by user	The opening of the hook is too big. It drops when we adjust the bed.	The opening of the hook is too big. The power cable dislodged from the hook when we adjust the bed.	The sharp edge of the cable tie may injure user. The power cable cannot slide smoothly in the cable tie loop.	The clip is made of plastic which broke easily when in use.	The carabiner is able to secure to the bed frame without being dislodged. At the same time, the power cable is able to glide smoothly when we adjust the bed.	The carabiner is able to secure to the bed frame without being dislodged. At the same time, the power cable is able to glide smoothly when we adjust the bed. However, it is more expensive.
Final Solution	X	X	X	X		Keep in view. Will introduce this when there is a price reduction

Result

There was no broken earth pin power plug fault reported after implementing the use of Carabiner Snap Hook.

Conclusion & future works

Using the Carabiner Snap Hooks eliminated the hazard of broken earth pin of the power plug of the calf compression unit.
We will change to the Carabiner S Style Snap Clip Hook when there is a significant price reduction.