

Lock To Be Safe- Modification of the door lock to improve patient safety

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Background

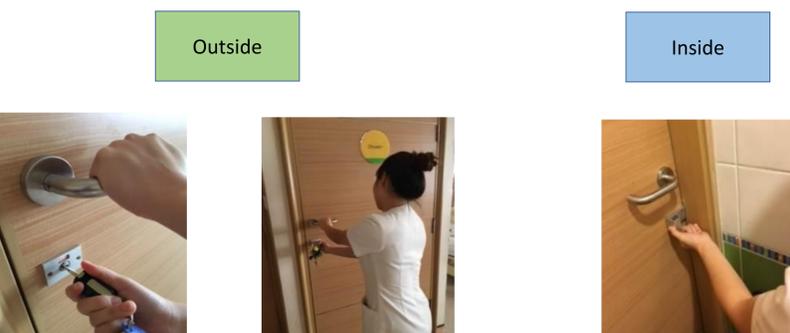
In a psychiatric ward, the patients' usage of toilets are monitored by the nurses to prevent them from self harm such as self-induced purging, attempting suicide and drinking excessive water. If the patient decides to lock him or herself in the toilet, the nurse may use a coin to unlock the door from the outside.

However there have been incidences where the patients manage to lock themselves in the toilet to the extent where the nurses are unable to unlock it. In such cases, the nurses would spend much time trying to gain access to the patient by coaxing the patient or by engaging Fault Reporting Center (FRC) to remove the door handle.

Unfortunately, the door lock should not be entirely removed from the door as the patient should be allowed a sense of privacy. Hence, the aim of this project is to allow the nurse to have more leverage from the outside than the patient inside.

Analysis

The team analyzed the issue and found two possible reasons why the patient can successfully stop the nurse from entering the toilet. Firstly, the patient is able to hold on to the door lock lever to prevent the nurse from unlocking the toilet door from the outside. Secondly, the groove on the lock has been worn out with repeated rescue attempts making it progressively difficult for the nurse to unlock the door from the outside.



The team surveyed door locks at other hospital settings and brainstormed for feasible solutions.

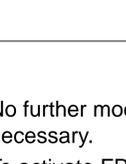
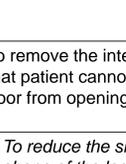
Hospital	Outside	Inside
Hospital A	 Nurses have a good grip on the knob when forcing the door open.	 Patients have a good grip on the knob when forcing it shut.
	 Nurses are able to unlock the door from the outside using a coin.	 Patients can prevent the nurse from unlocking the door by pressing on the lock.
Hospital B	 Nurses have a good grip on the lever when forcing the door open.	 Patients have a good grip on the lever when forcing it shut.
	 Nurses are able to unlock the door from the outside using a coin.	 Patients can prevent the nurse from unlocking the door by holding on to the lock lever.
Hospital C	 Nurses have a poorer grip on the knob when forcing the door open.	 Patients have a poor grip on the knob when trying to prevent it from opening.
	 Nurses are able to unlock the door from the outside using a coin.	 Patients can prevent the nurse from unlocking the door by holding on to the lock knob.
Hospital D	 Nurses have a poorer grip on the knob when forcing the door open.	 Patients have a poor grip on the knob when trying to prevent it from opening.
	 Nurses are able to unlock the door from the outside using a coin.	 Patients can prevent the nurse from unlocking the door by holding on to the lock lever.
Hospital E	Nurses have a good grip on the lever when forcing the door open.	Patients have a good grip on the lever when forcing it shut.
	Nurses are able to unlock the door from the outside using a coin.	Patients can prevent the nurse from unlocking the door by holding on to the lock lever.

Solutions

Our final solution is shown below.

Removing the handle and cutting part of the lock on the inside of the toilet door can reduce the leverage from inside and while still allowing the patient to lock the door. Installing a bigger grab bar from outside increase the leverage from outside.

In the event where a patient locks himself in the toilet and refuses to open it, this solution would be beneficial for the nurse who is trying to open the door while placing the patient, who wants to lock him or herself in, at a disadvantage.

Situation	Outside	Inside
Before implementation	 Staff has good grip on the lever to pull the door open.  Coin-turn unlocks inside lock.	 Patient can pull on the lever handle to prevent opening outwards.  Patient can pull on the lever handle to prevent opening outwards.
Measure proposed 16 May 2017	No further modification necessary. To activate FRC to replace the coin-turn whenever necessary, i.e. when the groove is damaged due to use.	To remove the interior door handle so that patient cannot pull on it to prevent door from opening outwards. 1. To reduce the size and modify the shape of the lock lever to a. minimize patient's grip so that patient cannot hold on strongly to resist unlocking from the outside; and b. prevent patient from tying any string to the lever.
After Implementation 19 Jun 2017 		

Results

A total of 3 separate hazardous situations occurred between 2012 to 2015 as a result of the previous door locks which ended with patient attempting self-harm in the toilets.

After this project was implemented, there were no more cases of patients locking themselves inside the toilets. Thus, staff were able to prevent patients from achieving self-harm while locked in the toilets, ensuring their safety.

Staff were confident that if patients attempted to lock themselves in the toilets, they would be able to unlock the doors and prevent any undesirable situation from occurring.

Conclusion

Protecting patients' autonomy and at the same time taking care of their safety is of utmost importance in a psychiatric ward setting, This project can achieve both criteria with minimal expenditure.