Constant worry over costly replacement of damaged seat cushions in the hospital’s fleet of vehicles is now over

**BACKGROUND**

If one thing will cost the hospital’s transport portfolio in the first quarter of 2017, it is the changing of all the passenger seat cushions, damaged by accidental jarring, inside its three mini-vans. Our front-runners in transport, the drivers, have long known it is damage waiting to happen, but they have to let the wheelchairs and trolleys be hoisted onto the vehicles anyway, when these belong to the patients that are being ferried.

After the wheelchairs or trolleys have been hoisted into the back of the mini-vans, they are limited to forward or backward movement along the aisle, which might result in their accidental and, occasionally forceful contact against the passenger seats mounted on either side of the aisle. The cushion covering over the seat rails have always been most vulnerable to serious damage by such jarring. Without any protection, it is just matter of time before the cushions become damaged irretrievably.

**PROJECT AIM**

To find a sustainable way to protect the cushion covering over the seat rails when these come into accidental contact with another object, in the hope that the intervention will save their exorbitant cost of having to frequently replace badly damaged seat cushions.

**ANALYSIS**

You can already see the how the early damages on the cushion covering over the seat front rails look like in the two pictures below:

![Damages on cushion covering over seat rails](image)

As you would have guessed from the pictures, there is little wriggle room for you to prevent accidental contact with the seat front rails in trying to extract a wheelchair or trolley from the narrow aisle when all the seats have been folded down with people already seated on them. It is damage waiting to happen. The project team comprising all the drivers have noted this and other factors for sometime as the root causes of the damages seen in the above pictures. All the factors that were identified have been put together in the fishbone diagram shown below:

**PROCESS**

- Replacing damaged cushions is not a sustainable solution
- The new cushions are going to get damaged again
- The wheelchairs and trolleys are not being properly handled
- Poor judgement can result from challenging maneuvering of things within the narrow aisle
- Poor judgement

**PEOPLE**

- Drivers run on a tight, tiring schedule
- Many of the drivers need better assistance
- Cushions are soft and have to be used with care
- Cushions are vulnerable to surface damage

**ENVIRONMENT**

- Bulky items like wheelchairs and trolleys are not properly packed on board
- Surface conditions

**EQUIPMENT**

- Many of the patients need better assistance
- Medium height on the seat rails for securing wheelchairs and trolleys
- Seat cushions in mini-vans are highly vulnerable to damage by jarring
- Metal strips on the seat rails to secure wheelchairs and trolleys

**SOLUTIONS**

One day, a member of the team happened to see some wall guards made of PVC in the hospital maintenance room. Upon closer inspection, and like a sudden bolt from the blue, an idea came into his mind. The wall guards can be modified for use as a protective barrier over the seat rail cushion!

According to the maintenance guys, there is a surplus stock of those wall guards, and certainly plentiful enough for the project team to test out their ideas. The challenge facing the team is not about quantity, but rather, the suitability of the wall guard. The team had to grapple for a period of time how to bend the wall guard to fit the round corners of the seats. Plan A is to use heat to do the bending, but it took just one charred piece to convince everyone on the team that using PVC has been a terrible idea.

Plan B in the Plan-Do-Check-Act cycle is to cut a groove into the wall guard’s L-shaped cross-section and then try to bend it around the weakened grooved section. The pictures below will convince anyone that Plan B has been a great success.

![Grooves cut into the L-shaped cross section before attempting to bend the PVC wall guard to fit the seat corner](image)

**PROJECT’S IMPACT**

The wall guards have already been secured all around the seat rails in all three vehicles to protect the cushion underneath. With the protective barriers in place, there is no longer any worry about hard accidental knocks against the soft cushion on the seat front rails, when moving wheelchairs or trolleys through the passage of the narrow aisle. Moving those objects is now anxiety-free, smoother and a lot much faster. Everyone is happy.

**SUSTAINABILITY AND SPREAD**

The success of this project, and the first attempt at one by our hospital’s drivers, has added a very meaningful dimension to their work. The hospital management is so encouraged, they just wanted this project be featured in this year’s hospital’s annual QI poster competition. The very conception of the project show this is what happy employees do.