

# BAYER SHIELD PROJE

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BIOMEDICAL ENGINEERING DESIGN

## BACKGROUND

Why?

- To better protect lab technicians from the effects of radioactive contrast during radiology scans
- To improve upon the initial shield design
- To improve work ow during SPECT scans for epilepsy patients

What?

- A tungsten shield for the Bayer MRXperion injector to guard against radiation
- A loading gun to fill syringes faster and safer
- A new proposed procedure for technicians to follow

## INITIAL SOLUTION

- Had a tungsten thickness of 9 mm
- Very heavy and difficult to handle
- Not adaptable for different types of radioactive contrast

## REDESIGNED SHIELD (DETAILS ARE CONFIDENTIAL)

Features:

- Interchangeable shields of different lengths and widths to adapt to different types of contrast
- A sliding mechanism to hold the shield in place when the injector is in place
- Weight greatly reduced due to less aluminum being used on the device

## LOADING GUN (DETAILS ARE CONFIDENTIAL)

Features:

- Interlocks with the injector syringe to allow for easy syringe filling
- Has a fine tuning mechanism to ensure accurate filling

## NEW PROPOSED PROCEDURE (DETAILS ARE CONFIDENTIAL)

- Fill the injector syringe with radioactive contrast in the hospital's "hot room" using the loading gun, rather than in the patient's room
- Place the appropriate syringe shield on the syringe at this time
- Insert the loaded syringe onto the MRXperion injector
- Lock the shield into place with the U-shaped holding mechanism

## OBSERVATIONS AT CHILDREN'S HOSPITAL

- Worked with technician Michael Czachowski
- There was a huge opportunity to save time in system currently in place
- By using a loading gun with the syringe in the hot room, prep time in the hot room reduced by 1 minute

## ACKNOWLEDGEMENTS

The group members would like to like to give special thanks to Ned Uberti for his assistance and time spent on this project. The group members would also like to thank Dr. Zapanta and Abraham Umo for providing useful feedback and keeping the project on track throughout the year. Special thanks to Mike C for his time

