

Project Statement

Patient Positioning Aid

Team 10

Andrew Harris

Bhavin Patel

Ashley Reeners

Christen Thomsen

Sponsored by the RERC

Contact:

John Enderle, Ph.D

Email: jenderle@bme.uconn.edu

Phone: (860)-486-5521

I. Statement of Need

A patient positioning aid is needed for individuals with disabilities. The disabilities create difficulties related to patient positioning including transferring onto medical devices and maintaining static positions during use. The static positioning aids such as foam wedges that wrap around in use today for CT and MRI scan technologies are not very effective because they only satisfy the needs of specific patients and a broader positioning aid with a wider range of capabilities is needed.

The project will be to create a versatile, low-cost, easy-to-adjust patient positioning aid that will work with a range of examination tables and imaging platforms and meet the needs of patients with disabilities.

II. Basic Preliminary Requirements

Patients need to undergo various medical examinations which require them to remain static throughout the testing process. Currently, diagnostic imaging presents problems for patients with disabilities such as cerebral palsy and obesity. This problem in the medical field has led to the request for a better positioning aid which can be used by patients suffering from these disabilities among others.

The current static positioning aids available for use are foam wedges and wrap around coils which can be used, however are ineffective for patients suffering from the disabilities described above and similar ailments. For example, a foam wedge would not be able to fully support body segments of larger weights and wrap around coils can cause discomfort as well as endanger patients that suffer from uncontrollable and/or involuntary movement.

The general requirements of this project are to create a low-cost, versatile, easy-to-adjust patient positioning aid. The device should also be able to work with a range of examination tables and imaging platforms and meet the special needs of patients with a wide variety of disabilities.

III. Basic Limitations

The positioning aid needs to be both functional for the medical professionals as well as comfortable for the patient. This limitation requires the design of the positioning aid to be durable and able to support a heavier body segment weight as well as be able to be operated by smaller, weaker hospital staff. Hospitals have little storage space for such positioning aids therefore, it is crucial that the device can be easily stored in the limited amount of space available. The material the device is made out of is also a limitation. The positioning aid cannot be made out of a metallic material. The use of certain materials can cause interferences with the imaging technologies such as the CT, MRI and x-ray. The design of this device must not exceed the RERC budget of \$2000.

IV. Other Data

This positioning aid is being designed with six patients in mind. The patients suffer from obesity, strokes, limited limb function, diabetes, paralysis and fragile bones. All of these ailments must be kept in mind when developing this positioning aid.

V. Questions?

1. What material will the positioning aid be made out of?
2. How must the body be positioned via the positioning aid?
3. What type of constraints/straps will be needed to stabilize the patient?
4. What would be the maximum body segment weight?
5. What is the maximum weight the positioning aid can weigh?
6. What kind of examination tables does it need to be compatible with?
7. How much space is there to store the positioning aid?
8. What are the dimensions of the functioning positioning aid?
9. What kind of environment is the device going to be in? (i.e. Temperature, humidity)
10. Are there any patient allergies to consider?