

Project Specifications

Patient Positioning Aid

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I. Introduction and Overview

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. The positioning aid will be able to support the weight of various body segments belonging to a person weighing up to a total of 500 pounds. This is one way to insure a variety of different sized patients will be able to utilize this device. The positioning aid will also be easy to adjust for transferring patients and position maintenance by medical professionals who have limited strength or flexibility. The aid will be easy to store and compatible with different imaging technologies and table types. Our group intends to create three potential designs for the positioning aid and then pick the most optimal of the designs. Our choice of the most optimal design will be based on one which is most cost effective and which most accurately satisfies the specifications and requirements above. As of right now we intend to design a device without the use any type of magnetic materials which would interfere with many imaging technologies. For example an inflatable or plastic device would be more suitable since they would not interfere with the imaging technologies.

II. Technical Specifications

General Parameters:

Number of required operators: 4-6
Imaging Compatibility: MRI, CT-Scan, X-ray

Mechanical Parameters:

Weight of Device: < 30 lbs
Maximum Load: 500 lb
Operational Dimensions: 72" x 22" x 10.5"
Storage Dimensions: 72" x 22" x 0.5"
Durability: Impact Resistant, Abrasion Resistant, Corrosion Resistant
Range of Movement:
Upper body: 12" horizontally
Lower body: 20" horizontally
10" vertically

Environmental Parameters:

Humidity: 0-100%
Operating Temp: Room Temperature
Storage Temp: Room Temperature
Dust: Easily cleaned

Operating Location: Clinical Setting
Storage Location: Wall

Health Specifications:

Toxicity: None
Carcinogenicity: None
HMIS Ratings (0-4):
Flammability: 1
Reactivity: 0
Health: 1