

## **Abstract**

Essential information in the patient's medication process includes age, weight, height, allergies, diagnosis, laboratory results, and vital signs. Clinical judgments and interventions in intensive care units should be based on actual weight, not estimated weight, because it has been found that subjective weight estimates can be wildly inaccurate, with at least 10 to more than 47% of observations having a measurement error. On the other hand, actual weight measurement is performed only in 13.5% to 55% of patients admitted to the hospital wards.

Medical centers' most common weight measurement systems include Bed Weighing Scales, Floor scales, and Chair scales. The limitations of patient mobility, the potential risks of moving the patient or bed to the scale, and the high price of the bed equipped with a weighing system; are the challenges in measuring patients' weight.

The present study has designed and produced a unique PVC air mattress as a low-cost weighing system that can be used in intensive care units; Hemodialysis wards, burn units; surgery centers, internal medicine units, operating rooms, or other routine hospital wards. In this research, twelve samples were examined and weight measured in a double-blind manner. The data relating to weight measurement through the system designed in this study were compared with a calibrated digital scale. The Pearson correlation coefficient was 1.

**Keywords:** Body weight- medication errors- Patient safety- Hospital bed- Critical care nursing- Actual body