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Enhancement of Body Weight and Height Measurement by Ultrasonic Scales for Patient Assessment on Admission

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Introduction

Body mass index (BMI) is known to be associated with the nutritional status, which is calculated as body weight (kg)/ height squared (m²). Therefore, body weight and height are essential measurements of patient assessment on admission. In 2017, 9117 patients were admitted to the 3 surgical wards of department, and their body weight and height were measured routinely. For the surgical patients with underweight or obesity, they had a higher risk of peri-operative morbidity and mortality, and surgical site infection (SSI). Accurate and continuous assessment of body weight and height is required for early detection of risk factors leading to post-operative complications. However, it was relatively time-consuming (average 10-15 seconds) for body weight and height measurement by the traditional manual scales. In some circumstances, a bit difficult for female staff measuring body height of male patient by manual meter ruler. They have to elevate their arms above shoulders when operating the ruler. This might increase the risk of occupational safety health (OSH), and affect the accuracy due to measurement error (by eyeball observation).

Objectives

To enhance the body weight and height measurement by ultrasonic scales for patient assessment on admission.

Methodology

Ultrasonic sensing scales with digital and fully-automated measurements of body weight, height and BMI were introduced to the surgical wards on November 2017. Instructions were provided to all clinical staff with return demonstrations. The average measurement time (body weight and height) of 60 admitted patients was recorded on December. The satisfaction level of patient and staff was collected.

Result

The average measurement time (body height and weight) by ultrasonic scales was 3.5 seconds. No staff report on work-related muscular-skeletal problem after the

introduction of ultrasonic scales. High satisfaction level (9.5/10) of patient and staff was obtained. Owing to the more rapid and objective measurements of ultrasonic scales, it could enhance the efficacy of body weight and height measurements in patient assessment.