Evaluating the effectiveness of different pressure relieving devices for ear ulcer
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Introduction
Ear is one of the common sites that patients develop pressure ulcers during prolonged bedrest in hospitals. (Jenkins et al., 2010) Appropriate application of pressure redistributing devices can delay the formation of pressure ulcers. (EPUAP & NPUAP 2009) There are devices of different designs with rationales behind for ear ulcer management.

Objectives
This study was aimed to compare the effectiveness of different pressure redistributing devices with a single case study.

Methodology
The subject was a female with 92 lbs and 17.4 in BMI, whose left ear developed stage II pressure ulcer about 1cm X 1cm. A probe like pressure sensor (Kikuhime) was used to measure the interface pressure at the post-auricular area of left ear (reference point A). Measurement was taken in 30 degree side lying with use of hospital pillow as baseline and 7 different pressure redistributing devices in the same position. These devices included two types of design. The first one is cut out design, which aimed to shift pressure to other areas (oasis closed head ring, oasis open head ring, ring pillow and cut out pillow). The second one is immersion design, which aimed to reduce pressure by increasing contact surface area (azure head protector, softform flexipad and water-base pillow).

Result
Result: In the baseline position, the interface pressure was 20mmHg. Pressure redistributing devices with cut out design showed excellent pressure redistributing function, with interface pressure ranged from 0 to 3 mmHg. Pressure redistributing devices with special materials to increase conformity and contact surface area and
subsequently managed to reduce interface pressure at 5 mmHg. Conclusion: Pressure redistributing devices with cut out design are more effective in eliminating interface pressure. However, further studies might be needed to investigate the effectiveness for prolonged use, at various positions and effects on other supporting body parts. Besides, appropriate support surface is only one of the strategies and can never replace repositioning and turning in prevention of pressure ulcers (EPUAP & NPUAP 2009).