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ASIAN SOCIETY FOR QUALITY IN HEALTH CARE

Topic 2

Completed Projects

on Engaging Patients for Patient Safety

Patient Engagement Towards the Development and Trial of 'EzyInsert': A Prototype Device for Breast Ultrasound

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ABSTRACT

Introduction:

Breast ultrasound is a commonly performed examination in the Department of Biomedical Imaging, Universiti Malaya Medical Centre, Kuala Lumpur. However, during the examination, a 'rolled-up fabric' used to support patients from moving posed motion artefact challenges and staff ergonomics issues. Therefore, this study examined the capability of a prototype device, 'EzyInsert', for facilitating breast ultrasound examinations with the engagement of patients on comfort level and staff ergonomics while minimising motion artefacts.

Methods & Materials:

The implementation phase of using the EzyInsert included staff empowerment, hands-on training, video sharing, and information pamphlets for standardisation. In addition, a heated-up gel pack was inserted into the EzyInsert pocket to act as a warmer. Seventy-seven EzyInsert patients were surveyed for feedback on their comfort level, and 40 operators were surveyed to evaluate their ergonomic aspects. The quality of the ultrasound images was compared before and after using the EzyInsert.

Results:

The results showed that 92% of the 77 EzyInsert patients reported no discomfort or pain in their shoulder and neck, 90% expressed a high level of comfort, and 96% did not experience skin redness from the warmed device. Additionally, 96% agreed that EzyInsert enhanced their comfort during the examination. There was no significant difference in the workflow before and after using Ezy Insert besides the additional 3 minutes due to the gel pack warming activity. An 82.5% of 40 operators agreed that the Ezy Insert improved their ergonomics and scanning time, resulting in 100% excellent image quality by eliminating motion artefacts.

Discussion and conclusion:

EzyInsert has effectively improved patient and staff comfort during breast ultrasound examinations. Furthermore, the device reduced scanning and positioning time due to reduced patient motion. In conclusion, EzyInsert has eliminated motion artefacts in the breast ultrasound images with improved staff ergonomics and image quality.

CONTACT

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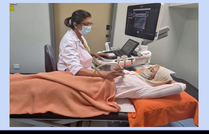
INTRODUCTION

Breast ultrasound is a commonly performed examination in the Department of Biomedical Imaging, Universiti Malaya Medical Centre, Kuala Lumpur. However, during the examination, a 'rolled-up fabric' used to support patients from moving posed motion artefact challenges and staff ergonomics issues.

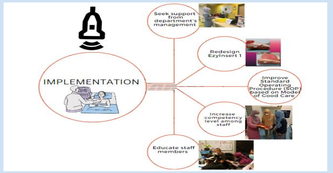
Therefore, this study examined the capability of a prototype device, 'EzyInsert', for facilitating breast ultrasound examinations with the engagement of patients on comfort level and staff ergonomics while minimising motion artefacts.



METHODS AND MATERIALS

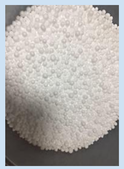
METHODS AND IMPLEMENTATION

Study Design	Quantitative Study
Study Setting	Mammography Ultrasound Room, Department of Biomedical Imaging, UMMC
Sample Size	Patients: 77 Staff: 40
Data Collection	January 2021 till August 2022
Study Tools	Microsoft Excel, Google Form Questionnaires
Data Analysis	Microsoft Excel
Inclusion Criteria	All scheduled or walk in patients who are indicated for breast ultrasound
Exclusion Criteria	1. Patients who have a history of diabetes 2. Swollen arm secondary to previous mastectomy



MATERIALS









RESULTS

A study on EzyInsert showed positive results: **92%** of 77 patients reported no discomfort or pain in their shoulder and neck, **90%** expressed high comfort, and **96%** didn't experience skin redness. **96%** agreed that EzyInsert enhanced their comfort. Workflow remained largely unchanged, except for a 3-minute gel pack warming activity. **82.5%** of 40 operators agreed that EzyInsert improved ergonomics and scanning time, resulting in **100%** excellent image quality by eliminating motion artifacts.



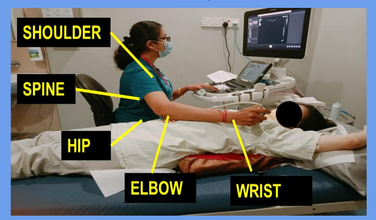
Motion artefact without EzyInsert

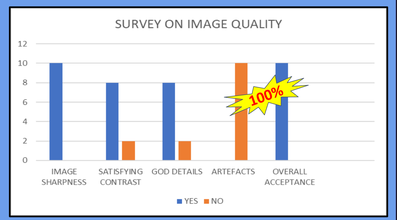
MOTION ARTEEFACT ELIMINATED

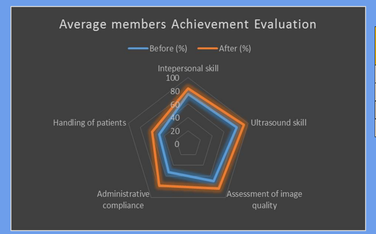


No motion artefact when EzyInsert was used

GRAPHS AND TABLES







PATIENT'S FEEDBACK ON EZY INSERT 2

DESCRIPTION	NO OF PATIENTS		
	DISAGREE	NEUTRAL	AGREE
No discomfort or pain in shoulder/ neck	0	6	71
Device's height and thickness is comfortable	0	8	69
No skin redness	0	3	74
Provides comfort during procedure	0	3	74

90%

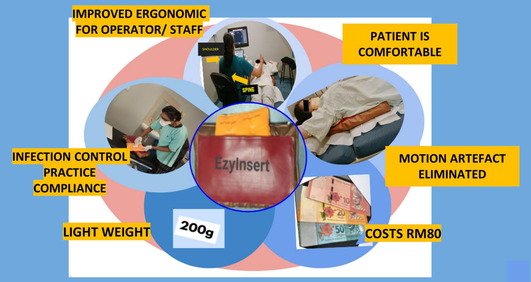
DATA FROM QUESTIONNAIRE FOR PATIENTS ON EZYINSERT 2



Ezy Insert 2 is placed under the patient's shoulder during breast ultrasound examination

DISCUSSION

EzyInsert has effectively improved patient and staff comfort during breast ultrasound examinations. Furthermore, the device reduced scanning and positioning time due to reduced patient motion.



CONCLUSIONS

Patient's engagement and feedback on EzyInsert has assisted in eliminating the motion artefacts in the breast ultrasound images with improved staff ergonomics and image quality.

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