

# STREAMLINE AND DIGITALIZE PATIENT EDUCATION BROCHURE/INFORMATION IN NGEMR ACROSS ALLIED HEALTH PROFESSIONALS IN NTFGH

**MEMBERS:** Qiu Huaying<sup>1</sup>, Tan Jia Wen<sup>1</sup>, Sim Yin Hui<sup>1</sup>, See Chee Qing<sup>1</sup>, Nicolas Mcindoe<sup>2</sup>, Charlotte Lee<sup>2</sup>, Low Inn Sze<sup>3</sup>, Alison Tan<sup>3</sup>, Jesslyn Chong<sup>4</sup>, Jerrold Tan<sup>4</sup>, Yak Gai Wee<sup>4</sup>, Zeng Hui Hui<sup>5</sup>, Jayden Tan<sup>5</sup>, Lee Chiew Lan<sup>6</sup>, Kelly Chan<sup>6</sup>

**Departments:** Allied Health <sup>1</sup>Occupational Therapy, <sup>2</sup>Podiatry, <sup>3</sup>Speech Therapy, <sup>4</sup>Dietetics and Nutrition, <sup>5</sup>Medical Social Service, <sup>6</sup>Physiotherapy

## Define Problem

### Problem Statement

Patient education is a core component of allied health practice, traditionally facilitated through the distribution of hardcopy Patient Education Brochures (PEBs). However, current methods have proven largely ineffective: 92.3% of patients or their Next of Kin (NOK) misplace these materials after hospital discharge or clinic visits, with only 11.1% retaining the information provided. Without the retention of the necessary information, patients are susceptible to fall risks due to wrong transfer techniques, poor fracture healing due to wrong compliance to splint wear, choking due to wrong fluid thickness etc

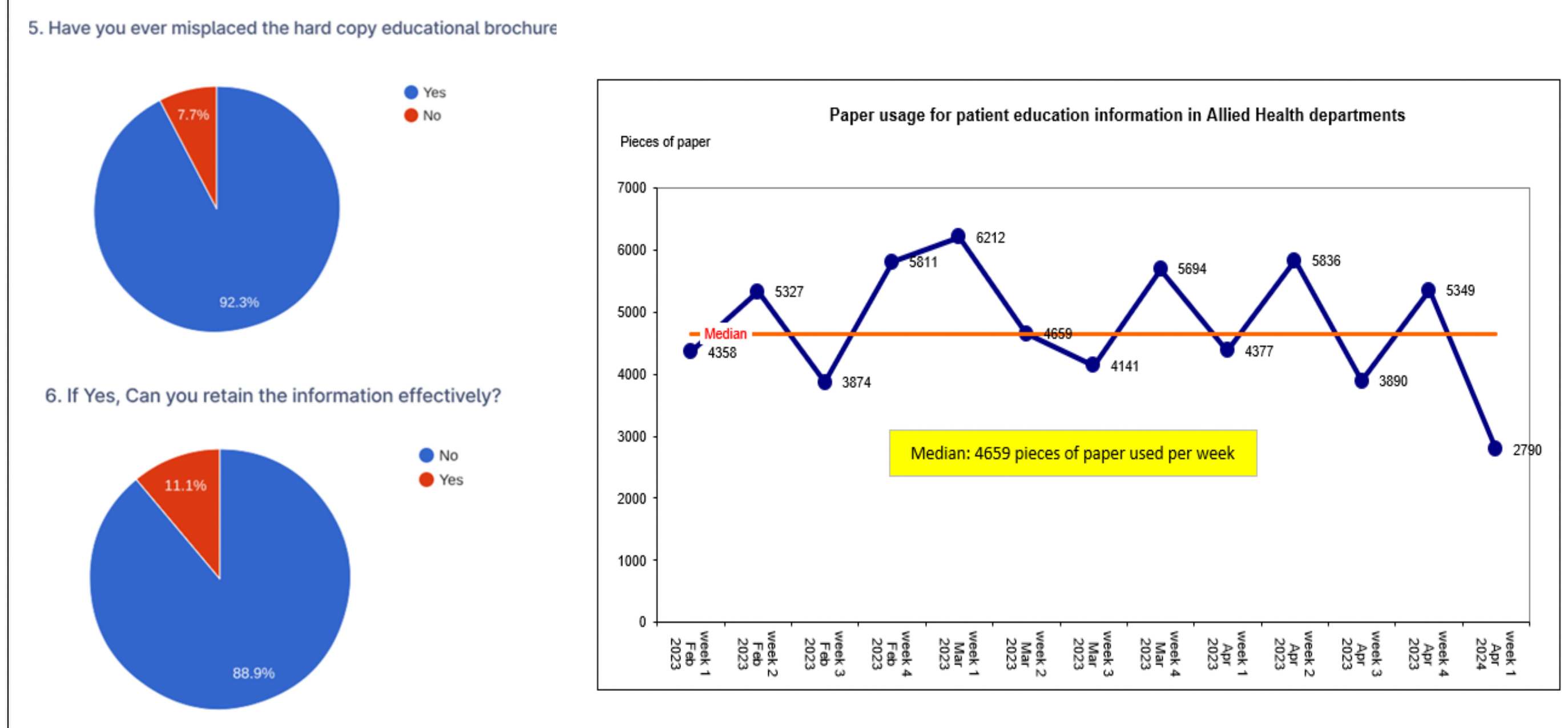
This issue not only undermines the effectiveness of patient education but also leads to significant environmental and financial costs. Between February and April 2023, Allied Health Professionals (AHPs) distributed 59,528 sheets of printed materials, amounting to approximately 238,112 sheets annually. This paper usage results in the loss of 29 trees and incurs a printing cost of \$51,670 per year. This highlights the urgent need for a more sustainable, accessible, and effective patient education approach. Redesigning care to improve information retention and reduce reliance on paper will help enhance learning outcomes while benefiting the environment.

## Establish Measures

Before implementation, nearly 100% of educational materials were provided in hard copy. A survey showed 92.3% of patients misplaced them, and only 11.1% retained the information effectively. AHP distributed 238,112 sheets of hardcopy information annually = loss of 29 trees

Total printing cost annually by vendor = \$0.217 / pc x 238,112 = \$51,670

Type of measure	Measure
Outcome	Improve the effectiveness in keeping patient education materials and patient's satisfaction with digital materials
Process	Number of sheets of paper being saved annually and total cost reduction for printing patient educational material annually, target for 50% reduction annually.
Balancing	Number of digitalised educational materials available among AHPs
Balancing	Contact time between AHPs and patient remains the same by using digitalised educational information versus hardcopy information without compromising education



## Test & Implement Changes

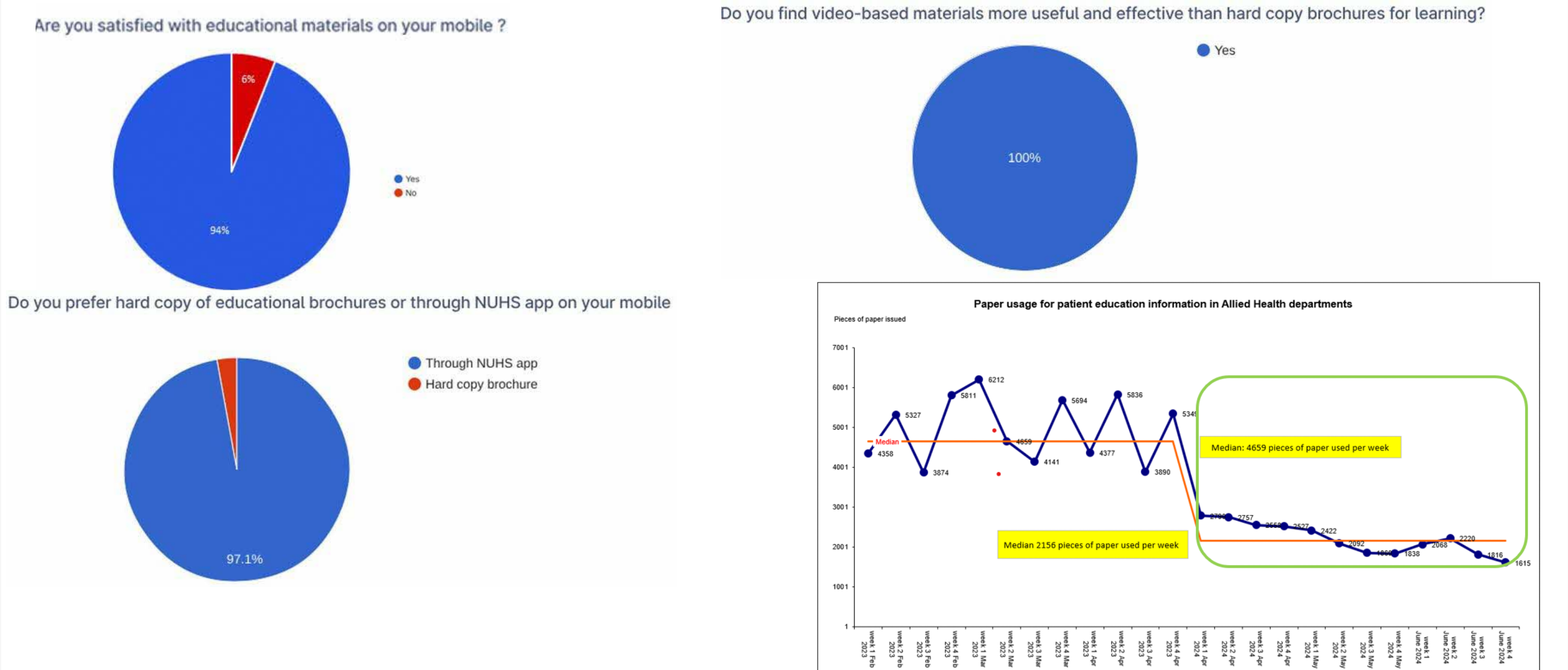
Cycle	PLAN	DO	STUDY	ACT
1	<b>Trial use of smartlist</b> to consolidate discharge instructions to replace educational brochures in the discharge summary	<ul style="list-style-type: none"> <li>Generate Smartlist with various discharge instructions</li> <li>Trialed with NTFGH OTs in inpatient from May to August 2023</li> </ul>	<ul style="list-style-type: none"> <li>Discharge information was captured in the discharge summary</li> <li>Information indicated on the discharge summary can be space consuming just from 1 discipline</li> <li>Wordy and lengthy instructions when addressing multiple educational topics</li> </ul>	<ul style="list-style-type: none"> <li>To trial the usage of QR code to capture all the necessary information concisely in discharge summary</li> </ul>
2	<b>Trial the usage of QR code</b> that directs patient to a softcopy online education material	<ul style="list-style-type: none"> <li>Generation of QR code to an existing publicised educational material in NTFGH internet page. One common education topic of "Fall Prevention" brochure was identified for trial.</li> </ul>	<ul style="list-style-type: none"> <li>QR codes from various discipline can be included concisely in the printed discharge summary without much space consumption hence, reducing paper wastage.</li> <li>Patient feedback: able to obtain the digitalised brochures readily but require another mobile device to access the QR code and obtain the brochures which was an inconvenient step</li> </ul>	<ul style="list-style-type: none"> <li>To trial the addition of hyperlink with the QR code to determine improved accessibility or "clickability"</li> </ul>
3	<b>Trial the usage of hyperlinks</b> to access the digital brochures directly from the patient's phone	<ul style="list-style-type: none"> <li>Generate hyperlink access to the same "Fall Prevention" brochure in cycle 2</li> </ul>	<ul style="list-style-type: none"> <li>Feedback of hyperlink gathered from the same group of patients in cycle 2</li> <li>They were able to access the hyperlink directly from the memo section of their NUHS app without the need for another mobile device</li> <li>Felt this was more useful and versatile if they want to share the information to family or friends</li> </ul>	<ul style="list-style-type: none"> <li>Scale up and implement use of hyperlink and QR code for all AHP groups</li> <li>Share success with cluster level</li> </ul>

This is great, now I can click the link to read more about activity modification and bring home my exercise program  
- Patient Mdm Lit

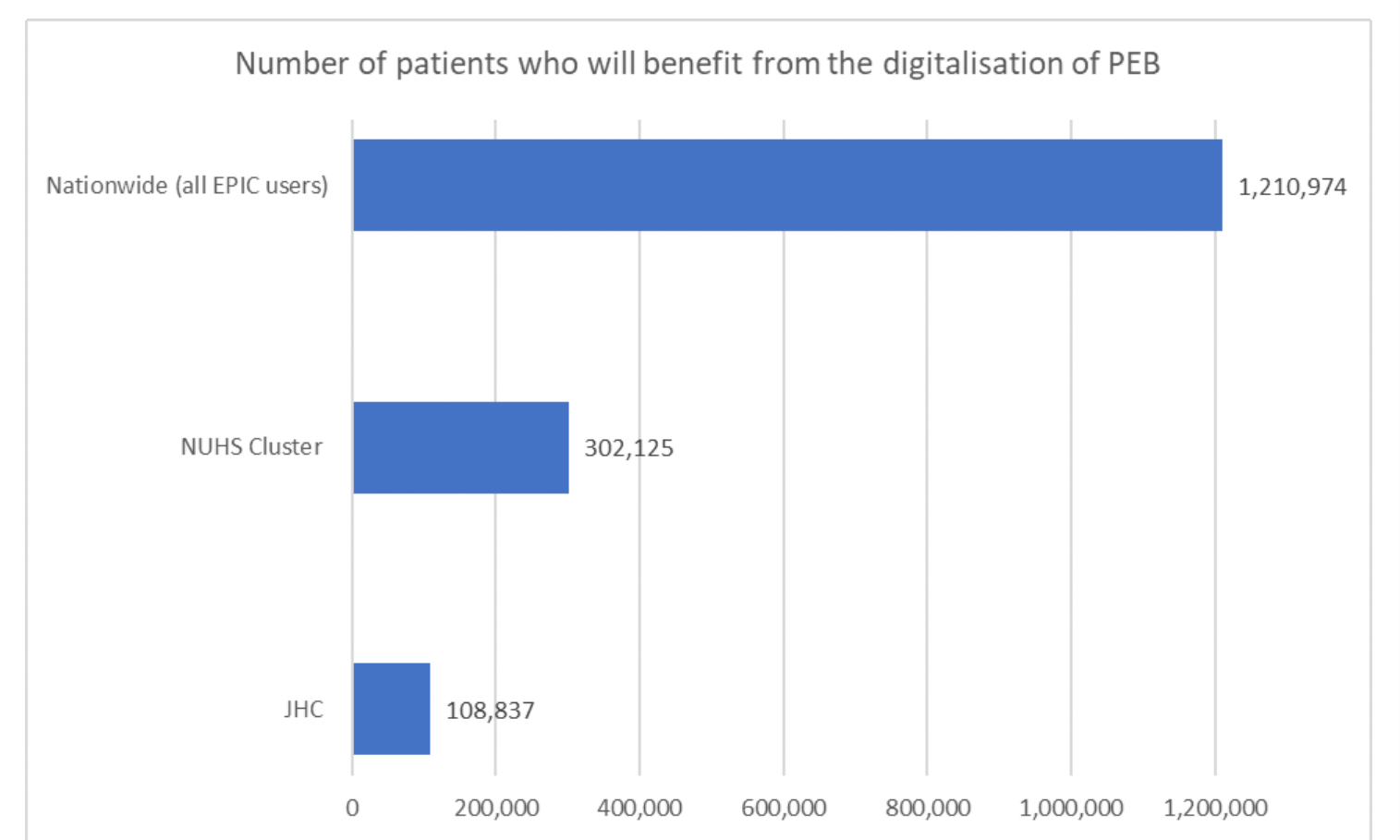
Now I don't have to always borrow my husband's handphone to scan and watch the video for my exercise !!  
- Patient Mdm Goh

## Outcome

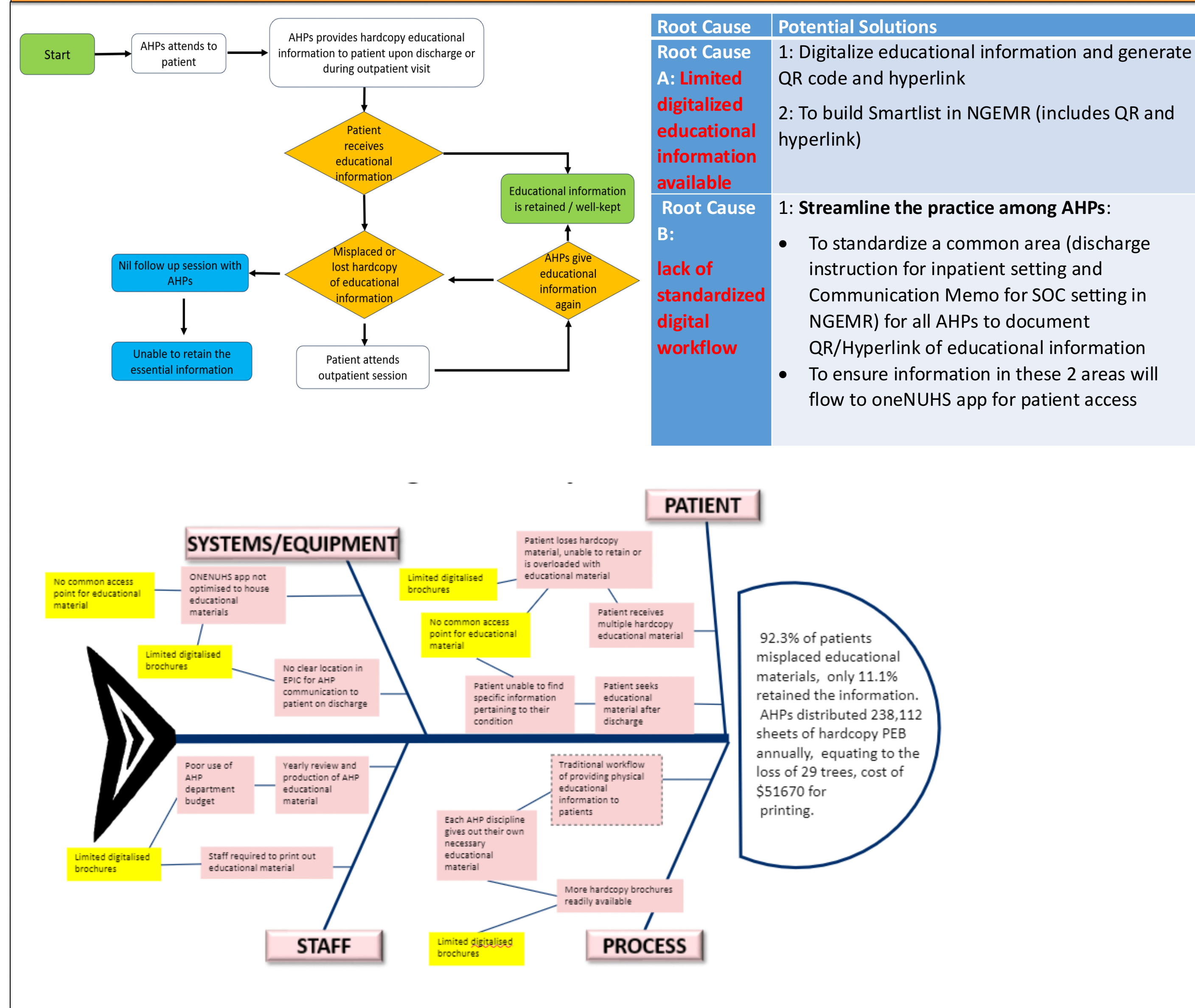
After implementation, a patient survey found 94% of patients were satisfied with digital materials, 97.1% preferred storing materials in the NUHS app, 100% found video-based materials more useful than hardcopy brochures. Between April and June 2024, AHP distributed 26,563 sheets of paper educational materials. We achieved 55.4% of paper reduction which estimates to about 106,252 sheets annually. This is around 15.8 trees saved in a year.



Efforts are ongoing to digitalize existing educational materials, improve current resources, and create new ones in the form of brochures and videos. Scaling up this project to JHC benefits approximately 108,837 patients which aligns with NUHS digital roadmap and environmental sustainability goals. Expanding further across the NUHS cluster could impact 302,125 patients, and a nationwide rollout would extend these benefits to an estimated 1,210,974 patients. Transforming healthcare accessibility and sustainability on a massive scale by saving 727 trees per year.



## Analyze Problem/Select Change



How the communication memo appear in NUHS app for SOC patients



## Spread Changes, Learning Points

### Allied Health Everywhere, Everytime

The use and success of this intervention demonstrates potential possibilities for AHPs to remain accessible to our patients in this evolving digital space and climate of sustainability.

AHPs were quick to use this opportunity to re-create, update, refine educational materials for patients, e.g. creating videos for visual and auditory learning and communication.

Patients' positive feedback on greater accessibility and learning with these digitalised materials is an encouraging start in how AHPs can innovate service development, improvement and quality in the future.