PROJECT "ANA" – AUTOMATED NON-APPROVED ABBREVIATION MONITORING

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Problem Statement

Using abbreviations can be both problematic and dangerous, leading to miscommunication and potential errors in the care of patients. As such, KKH has an existing approved list of abbreviations that can be used in case notes. Quarterly, Health Information Management Services (HIMS) reviews 80 case notes randomly to detect non-approved abbreviations. The % of approved abbreviations would be published in a dashboard to create awareness amongst healthcare practitioners. This audit process, however, was onerous since it requires one single clinical staff to review all 80 case notes. The heavy reliance on that single staff makes the results susceptible to errors; each case takes at 2 hours to completion.

No. of Case Notes	Time Spent
1 case note	120 mins
80 case notes (per quarter)	**9,600 mins**
320 case notes (per year)	**38,400 mins or 640 hours**

Project Aim

To reduce the time spent on case note audit process from **2 hours** to **30 min per case note** within 6 months.

Step 1: Obtain data from eHINTS → Step 2: MACD Processing → Output: Audit Results by location
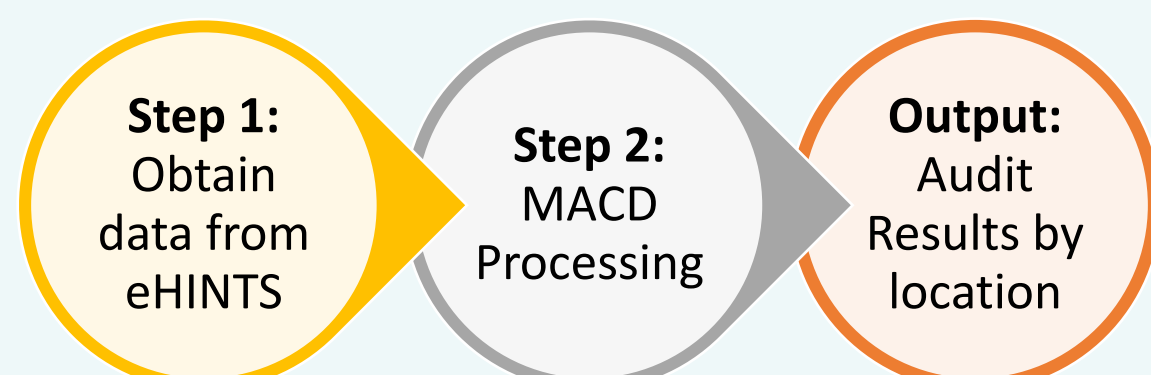
Broad Workflow

Figure 4

Lessons Learnt

There is much potential to increase the audit capacity, from 80 cases per quarter to > 100 cases in the near future.

There is a high potential in scaling up the programme feature to increase wider usage of same tool. There is also potential to enhance the in-house programme (approved abbreviation list) with predictive machine-learning models.

Potential Solutions

Part 1: Data Report Extraction

eHIntS
Electronic Health Intelligence System

a. HIMS randomly provides 80 case notes' number
b. Based on the standardised database query set-up, audit member input case notes' numbers into eHints to generate report.
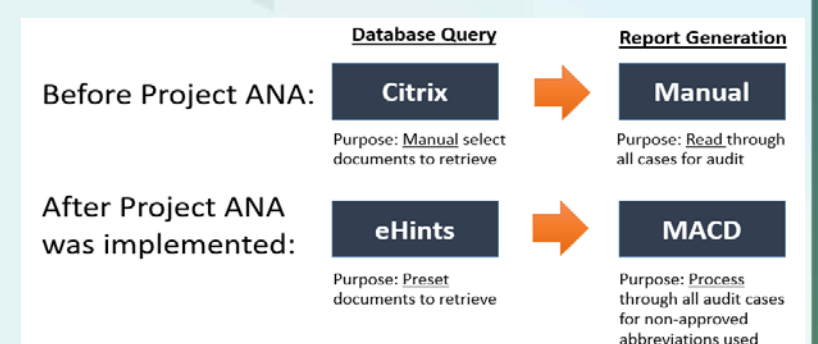
Part 2: Automating non-approved abbreviations with MACD

a. MACD is an in-house programme developed using Microsoft Excel Visual Basic Analysis (VBA), with a user-friendly interface.
b. With the report generate from 1b, it is able to output a formatted excel file that is dashboard friendly.
c. c. There is room for expansion of current database, as user is able to fill in missing meanings of abbreviations or new updates to the approved abbreviation list.

Part 3: Redesigning a new workflow

a. Figure on right illustrated the differences in previous and current workflow with the implementation of Project ANA.

b. After Project ANA was implemented, audit team now spends 20 mins on 80 case notes (data retrieval and processing time), as compared to 960 mins previously.

	Database Query		Report Generation
Before Project ANA:	Citrix	→	Manual
	Purpose: Manual select documents to retrieve		Purpose: Read through all cases for audit
After Project ANA was implemented:	eHints	→	MACD
	Purpose: Preset documents to retrieve		Purpose: Process through all audit cases for non-approved abbreviations used

Outcomes & Impacts

From the comparison of the baseline and post implementation results, Project ANA has:

❖ Reduced time spent significantly from 960 mins to 20 mins for 80 case notes, or **120 mins (2 hours)** to **0.25 mins** per case note, that is a **99.7%** time reduction! There is **sustainable improvement** since this is an *ongoing* audit with *no changes* to no. of case notes audit per quarter.

❖ Improved reliability and accuracy of report to **91%** with MACD. In the previous workflow with manual audit process, it was difficult to ascertain the reliability of the final report, as it was reviewed only by 1 staff.

	Baseline	After Project "ANA" was implemented in Jul 2022	Remarks
Time Spent (per quarter on 80 case notes)	9,600 minutes	**20 minutes**	↓ 99%
% of accuracy of report [Formula: number of approved abbreviation accurately detected/ total number of abbreviations used]	Unable to ascertain	91%	Sole auditor was unable to establish total number of abbreviation used per case note (previously)

Coupled with the significant results in reduction of time spent on case audit process, the following positive feedback was gathered from end-user (audit team):

❖ Ease of usage and maintenance
❖ Better representation of data (with location identified)

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