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CASE STUDY

Transforming Claims Adjudication with AI-Enabled Clinical Enrichment & FWA Detection

Business problem

AIA Malaysia faced rising medical costs, which it suspected was partly due to **significant health claims leakage going undetected**. The health insurer also wanted to improve customer experience by speeding up turnaround times, which were constrained by a slow and largely manual claims adjudication process.

Accordingly, AIA Malaysia wanted to implement an automated claims adjudication solution that could check across numerous policy rules and arrangements, and detect unusual claim patterns that suggest potential medical Fraud, Waste and Abuse (FWA) – to provide rapid and intelligent support on health claim decisions.

Technical challenge

To automate claims adjudication, AIA Malaysia needed to capture all relevant information from received health claims into a standardised, digital format, that can be analysed by a digital claims processing solution in a consistent way. However, constructing this standardised data pipeline was challenging due to the following reasons:

Lack of digitised health claims data

Majority of health claims are submitted in a non-digitised format, such as physical paper forms or images.

Lack of consistency in medical invoice formats

No standardisation in how information is presented in medical claim invoices across various healthcare providers (i.e. in terms of fees, formats and levels of details) who use different billing systems.

Lack of standard clinical terminology

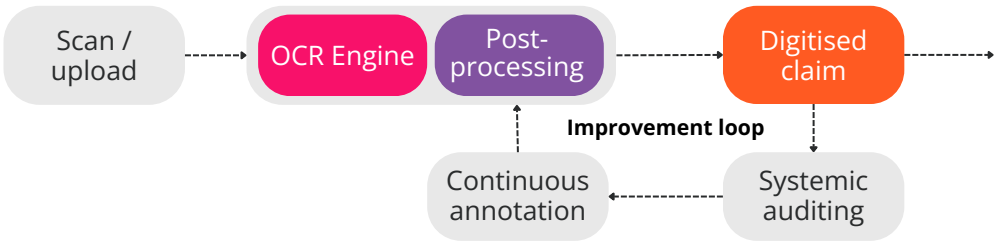
Use of varied service names in medical bills to describe the same medical cases and treatments, makes it difficult to analyse each medical service billed in its exact medical context.

amplifyhealth's solution

We developed an integrated AI-driven solution that enabled AIA Malaysia to **digitally capture** and **clinically enrich** their health claims data, and automatically identify specific claim lines that breach policy agreements or suggest potential FWA:

NLP-enhanced data capture

Deployed an Optical Character Recognition (OCR) solution trained on Asian market data (increased accuracy compared to tools trained on predominantly USA or Europe data) and enhanced with proprietary Natural Language Processing (NLP) techniques to extract all relevant information from claims invoices and organise them into standardised health data.



AI-Enabled clinical enrichment

Deployed multi-stage generative AI algorithms to rapidly map health claims text into a comprehensive range of clinical codes across 17 medical domains, with systematic human-in-the-loop quality assurance.

Rapid custom policy guidelines tracking

Deployed *Drools* rule engine with *Camunda* workflow processing orchestration to automatically track compliance with corporate and individual policy arrangements – including complex clinical rules, negotiated hospital discounts, duplicate claims detection.

ML-Powered granular FWA detection

Deployed machine learning models to granularly analyse each itemised claim and identify potential instances of FWA – such as overcharging, overservicing, procedure and diagnosis mismatches – not just by flagging suspicious claims but pinpointing specific line items that human assessors should review.

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All representations of outcomes and key results referenced herein are based on previous engagements. Actual product-specific results may vary depending on eligibility criteria for claims processing, pre-existing solutions, and current assessor practices, where applicable. For Clinical Encoder, the actual results may vary based on data quality and variability.

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Business impact

By transforming AIA Malaysia's health claims data, Amplify Health raised the health insurer's auto-adjudication and FWA detection levels, resulting in **significant cost savings** within the first year of deployment.

Enriched claims data

Automated enrichment of 91% of all health claim line data with standardised clinical codes, enabling AIA Malaysia to assess medical claims in their medical context.

Automated claims adjudication

Enabled **2x increase** in number of claims available for straight-through processing, by digitising a variety of unstructured healthcare paper claims received by AIA Malaysia.

Enhanced FWA detection

Located overbilling, overservicing, diagnosis-claim mismatch in individual claim line items with up to **95% accuracy**, through the use of multiple granular FWA detection models.

Significant cost savings

Prevented medical leakage by identifying **~2.1% savings** on total claims processed by the end of year one, which is projected to grow to 5.1% by year four.

~2.1% savings

On total claims processed in first year

*"Amplify Health's AI-Driven Claims Adjudication and Fraud, Waste and Abuse (FWA) detection system has **transformed our claims processing workflow**. The end-to-end claims solution has significantly improved our operational efficiency by enabling decision support for our assessors, reduced manual coding errors and improved detection of suspicious claims at a granular level to realise claims savings. This deployment has set a foundation for our claims transformation journey and shifted our traditional claims adjudication practices to AI-enabled decision making."*

Ooi Zhen Yang
General Manager
AIA Health Services

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