

Introduction

A key challenge in primary health reporting is the complexity and diversity of the data ecosystem in a privatised and unregulated health information sector. The data ecosystem relies on high quality ‘electronic health records’ (EHRs) that play a crucial role in improving the provision of health care services and patient outcomes (AIHW 2024a). In Australia, general practices use Practice Management Systems (PMS) and extraction tools (ET), which have been developed by different software providers to manage patient EHRs, and to support and enhance clinical decision-making (RACGP, 2025). If the data contained in EHRs are trusted and of sufficient quality, clinicians can use it to enhance patient outcomes and improve quality of care (RACGP, 2025).

There are many different PMS used by practices to electronically record administrative and clinical information, and three different tools (CAT4, POLAR, Primary Sense) extract de-identified data from the PMS. Diversity in software tools and methods for capturing general practice data can cause inconsistencies in the outputs generated, with new tools or versions potentially leading to data inaccuracies and loss of context (Canaway et al., 2022; AIHW, 2024b).

Methods

The AIHW has been conducting quarterly surveys with 31 Primary Health Networks (PHNs) since 2023 on the software tools used by practices to submit their PIP Eligible Data Set (DoHAC, 2020). The survey captures information on the various pathways for collecting and extracting data from PMS for reporting, including:

- The number of practices enrolled and submitting data.
- The PMS software type used by practices.
- How practices submitted their data to the PHN (e.g. an extraction tool, or an aggregated JSON data extract).
- The tools and versions used to extract data from the PMS.

Results

In April 2025, most of the 6,095 PIPQI practices extracted data to their PHN using CAT4, POLAR or Primary Sense tools (93.2%, 5,679). The remaining 6.8% of practices (416) submitted an aggregated JSON data extract generated by their native PMS or an extraction tool. The proportion of practices submitting an aggregated JSON data extract has increased over time from 4.3% in October 2021 to 6.8% in April 2025.

Two PMS combined accounted for over 95% of the practice market share (Best Practice – 71.9%, and Medical Director, 25.1%), but there are at least 15 PMS in operation (Figure 1). More practices have started using Best Practice software, increasing from 63.4% (3,737) in January 2023 to 71.9% of practices (4,380) in April 2025.

The tools used by practices to extract data from their PMS have changed significantly over time. Historically, the PenCS CAT4 extraction tool was the most widely used by practices. In October 2023, practices across multiple PHNs changed to using Primary Sense (instead of CAT4) and it is now the most widely used ET (Figure 2). In 2024-25, three PHNs also started using the new ‘PAT’ tool (instead of PATCAT) to summarise their practices’ CAT4 extracts, which has resulted in further diversification of the data ecosystem. More PHNs are expected to transition from PATCAT to PAT over time.

There is also extensive diversity among the 6.8% of practices (416) that submitted an aggregated JSON data extract that was generated by their native PMS or extraction tool. In April 2025, practices used 36 unique types of software and versions to generate the aggregated JSON extracts, and this diversity is increasing over time.

Each new software type or version update has the potential to generate different results. For example, comparing QIM8 results for the recording of cardiovascular disease risk factors for regular clients aged 45 to 74 years by the size of each practice cohort (number of regular clients 15 years and over) shows that recording rates are all <20% for practice files generated by a particular software version (Figure 3). This version has known coding issues which results in low recording rates and these data artefacts could be misleading for practices that are participating in quality improvement activities.

Figure 1: PMS types used by 6,095 general practices, April 2025

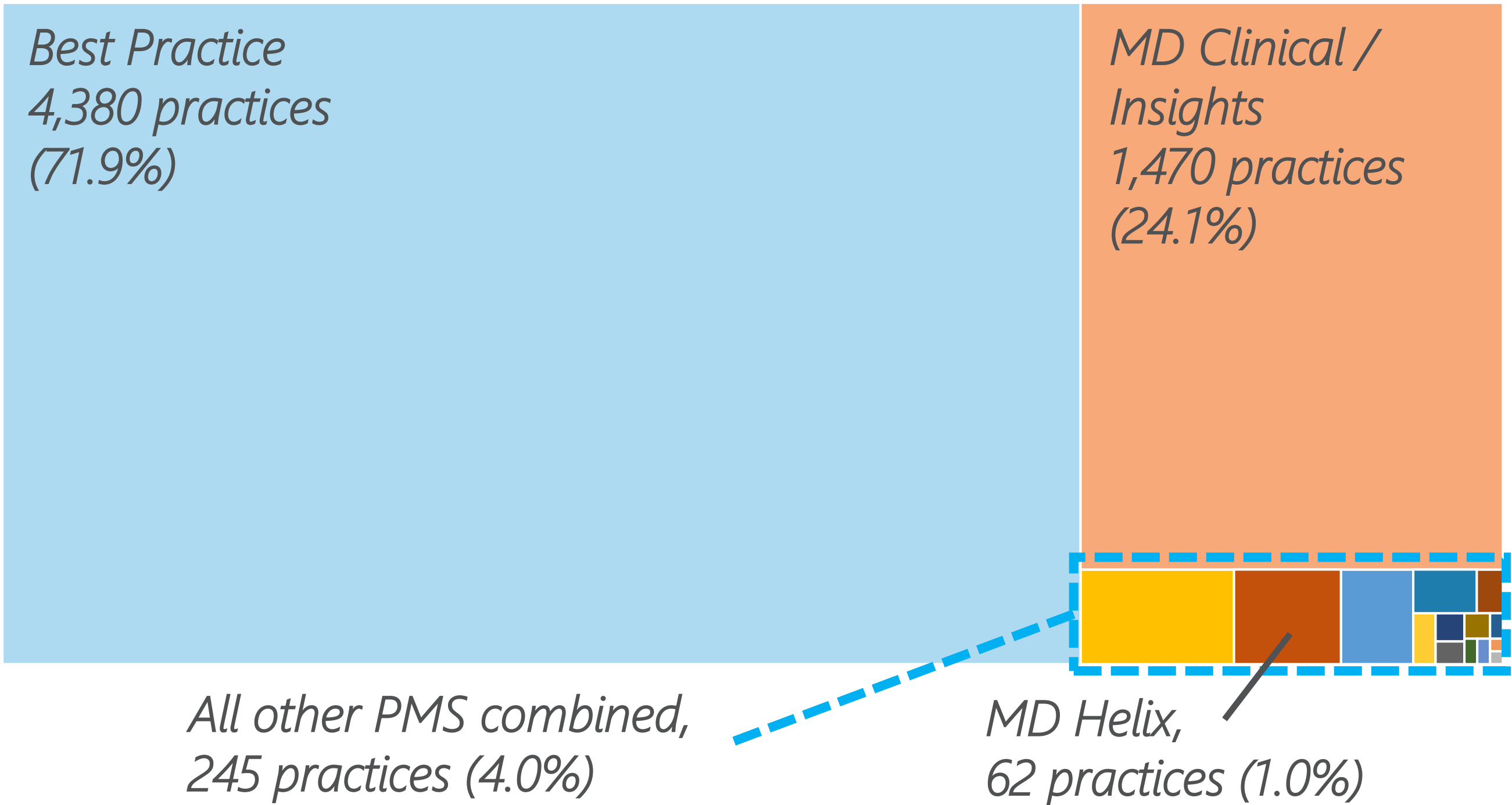


Figure 2: Extraction tools used by 6,095 general practices, April 2025

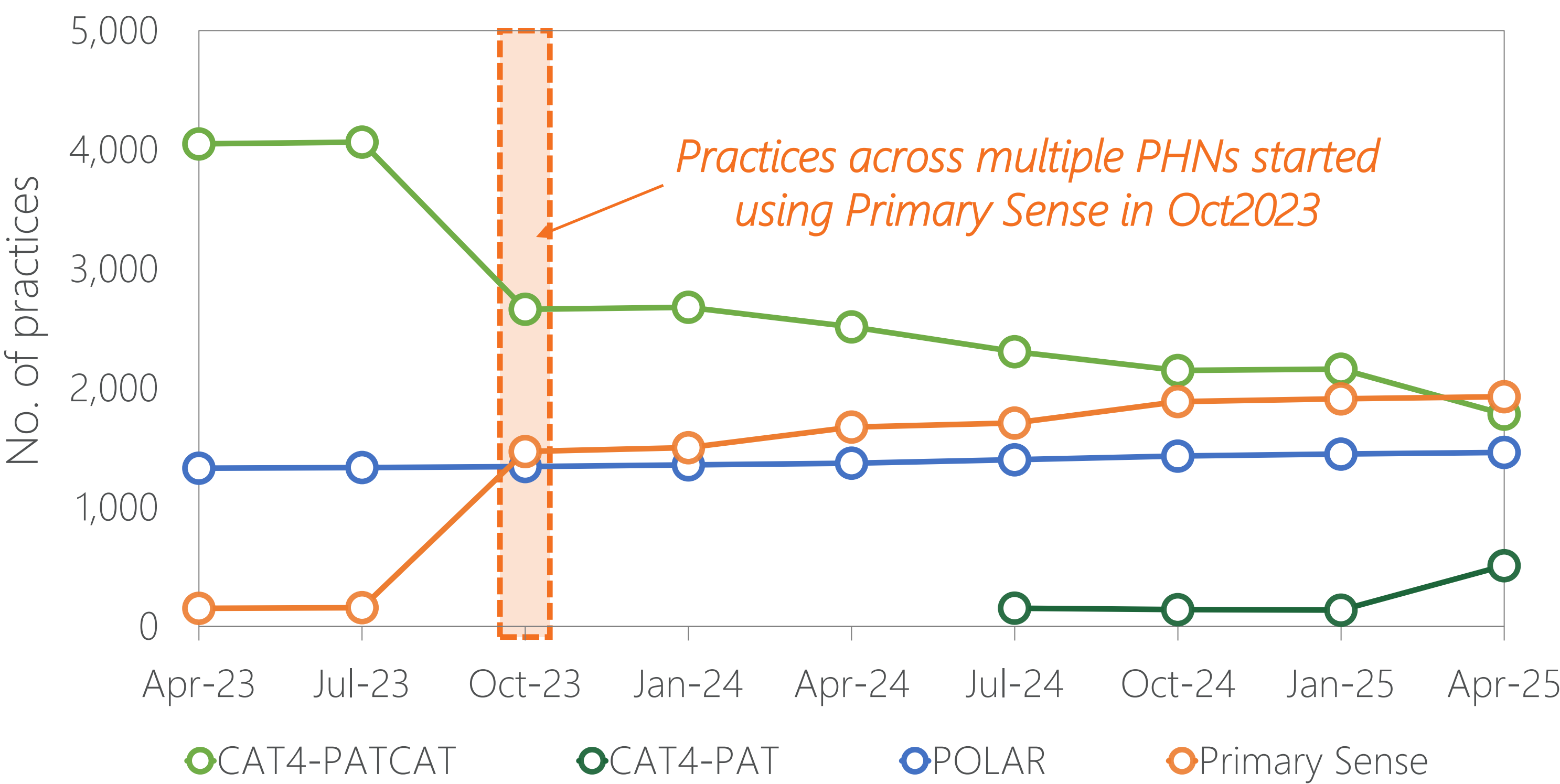
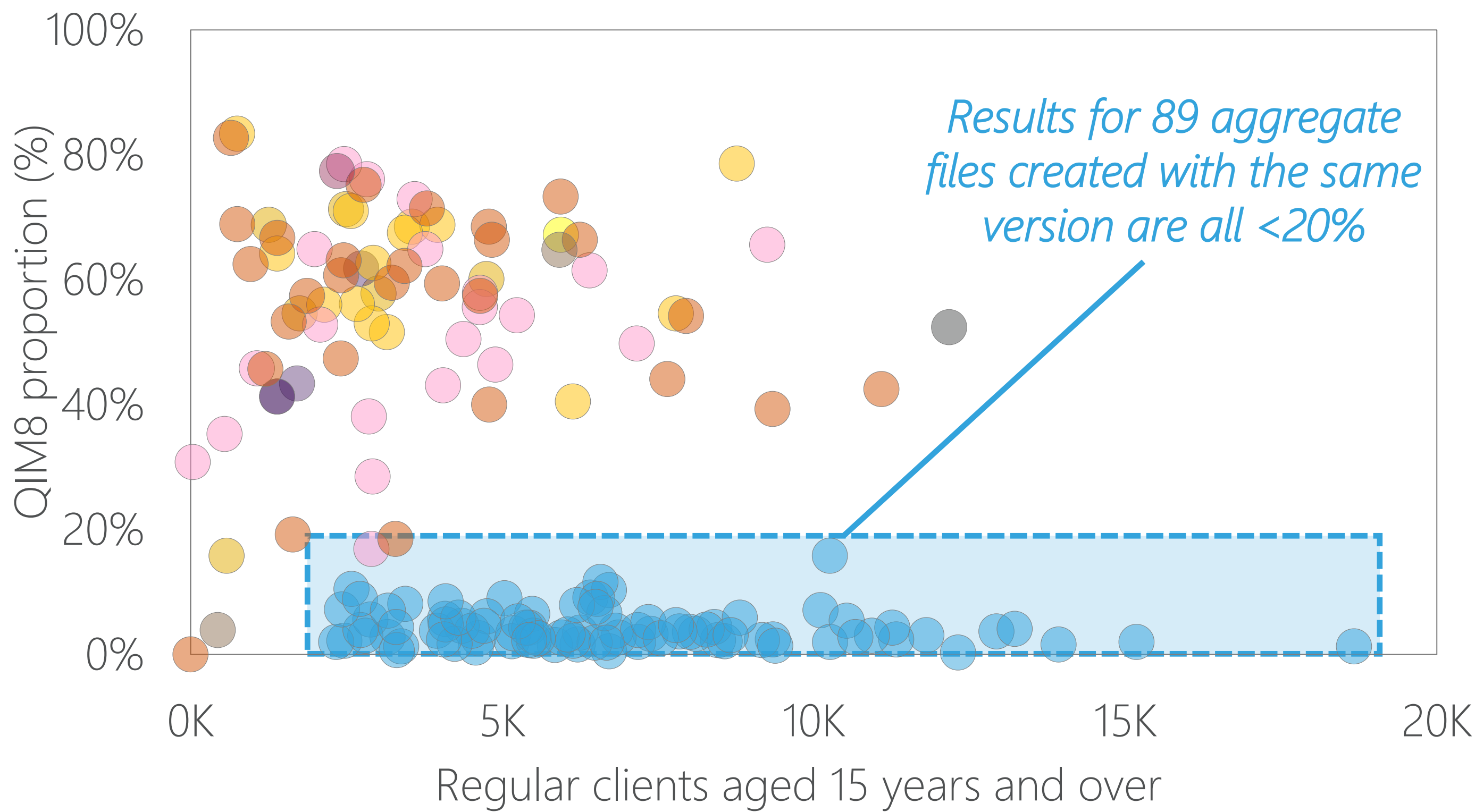


Figure 3: QIM8 results for a sample of 167 Best Practice JSON files, April 2025



Discussion

This project provides insights into the complex and diverse data ecosystem that is the source of Australia’s largest general practice dataset. The findings show that there are multiple PMS and ET software products that are used to collect and extract data. The diversity in these tools and methods causes inconsistencies in data outputs, which makes it challenging to draw meaningful population-level insights from general practice data. The data ecosystem has changed significantly, with Best Practice now the most widely used PMS (71.9%); a drastic change from 20 years ago when Medical Director accounted for 73.1% of practices while Best Practice only represented 2.2% (McInnes et al., 2006). Differences across software products and version numbers reduce the comparability and reliability of data. The diversity in the data ecosystem is explored in more detail in the AIHW PIPQI national report (AIHW, 2024b). There is a need to standardise software tools and implement quality assurance monitoring at all stages of the data lifecycle, so that secondary users of the information can rely on these data to make important decisions (AIHW, 2024a).

References

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