SCRIPT Audit: Preliminary Report

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PREFACE

This document is a preliminary report on the Te Manawa Taki Regional Script Audit undertaken during Patient Safety Week in September 2025. This specific week was selected because the primary aim of the audit was to collect current data on a known international problem –prescriptions that require pharmacist intervention – to enhance patient safety and reduce clinical risk.

Both pharmacists and GPs frequently express concern about problematic scripts. Whilst many examples are shared amongst healthcare professionals in New Zealand, we have no current* data to properly assess the potential scale and type of issues that people are concerned about.

** 'Current data' refers to script intervention research **undertaken since the introduction of electronic prescribing.***

We acknowledge previous NZ studies including by Rhiannon Braund et al. These were based on analysis of issues with paper scripts (i.e. prior to the advent of electronic prescriptions). Our findings show a significantly different set of issues with electronic scripts compared to paper scripts.

This work was not commissioned or funded by any agency, entity or grant. It was designed, developed and executed by the healthcare professional leaders of Midland and Bay of Plenty Community Pharmacy Groups voluntarily within their own time - driven by the extent of concern expressed by pharmacists nationally about system-wide clinical risk. The proposal to undertake an audit was produced by Stuart MacDonald, Chair of BOPCPG. Stuart, along with Charlotte Schimanski (Chair of MidCPG) - who are both clinical pharmacists - co-sponsored the two community pharmacy group teams to undertake this work.

Prior to commencing this audit, we engaged with national level health agency leaders and received significant encouragement to undertake this work – for which we are very grateful. Because script issues are multi-factorial and broadly systemic there is no single group, agency or entity that is able to make substantial improvements alone. Our aim is therefore to impartially contribute one piece of work into national awareness to aid further exploration and to steer collective improvements over time.

This preliminary report does not purport to be an academic product. Rather, it is to share our core data and findings with clinical colleagues in response to the considerable interest in this piece of work. Whilst we have identified a range of findings and proposed some next steps, this release

primarily intends to inform further health system discussion and exploration especially between pharmacy and primary care colleagues to be able to explore root causes and joint improvement solutions better.

Key points and limitations of this audit

Throughout the report we deliberately differentiate between "issues" and "errors". **An "issue" is any problem requiring intervention, but is not necessarily a prescriber error.** Many issues we identify arise from electronic system design, rather than clinical oversight. This distinction is essential.

Given the audit, the first known of in New Zealand to investigate *electronic* script issues, was intended to enable pharmacists to self-report data during a fixed short timescale, there are some inherent limitations and factors which need to be highlighted:

- **Under-reporting** is likely, given competing workload pressure and feedback from participants.
- The audit captured a **snapshot** week, with many pharmacies closed at weekends.
- Many pharmacies faced **staff shortages** due to seasonal illness and school holidays, affecting the number of days they could contribute

Notwithstanding the above, we have gained extremely valuable data and insights.

The central question – do we have a problem? – can be answered unequivocally yes. The issues identified mirror concerns in other international public health systems and confirm that electronic prescribing has introduced a new set of risks and inefficiencies that impact patients, pharmacists, prescribers and the wider health system. The initial analysis of audit data, which we hope can be expanded on, provides sufficient clarity to both steer short-term quality improvement focus and to highlight areas for further exploration with frontline clinical staff.

Acknowledgments

There was significant enthusiasm and support for the audit from pharmacists across the region in both urban and rural areas. Many pharmacists asked to be able to repeat the audit annually, some wanted to use the reporting process permanently and others requested to participate when staffing permitted. The topic clearly resonated both with pharmacists and prescribers alike. In fact, some GPs have asked whether a primary care version could be developed to add further depth and detail to the dataset. All of these suggestions warrant further consideration.

We offer our sincere thanks to all of the pharmacists across our region who generously contributed their time and effort to voluntarily capture this information. The collective

commitment shown across the region is unprecedented and your contributions are already supporting improvements in patient safety and quality of care. Thank you all.

Stuart MacDonald – Chair, Bay of Plenty Community Pharmacy Group

Charlotte Schimanski – Chair, Midland Community Pharmacy Group

Pete Chandler – CEO, Midland Community Pharmacy Group

Leanne Hall – Liaison Pharmacist, Bay of Plenty Community Pharmacy Group

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1. INTRODUCTION

This report summarises the preliminary findings of the regional Script Audit, undertaken across the Te Manawa Taki (Midland) region of New Zealand during International Patient Safety Week in September 2025. The audit was a joint initiative between the Bay of Plenty Community Pharmacy Group (BOPCPG) and Midland Community Pharmacy Groups (MidCPG) with a clear objective to capture current data on the types of prescription issues occurring in prescribing systems and assess the resulting clinical risk.

Background and Purpose

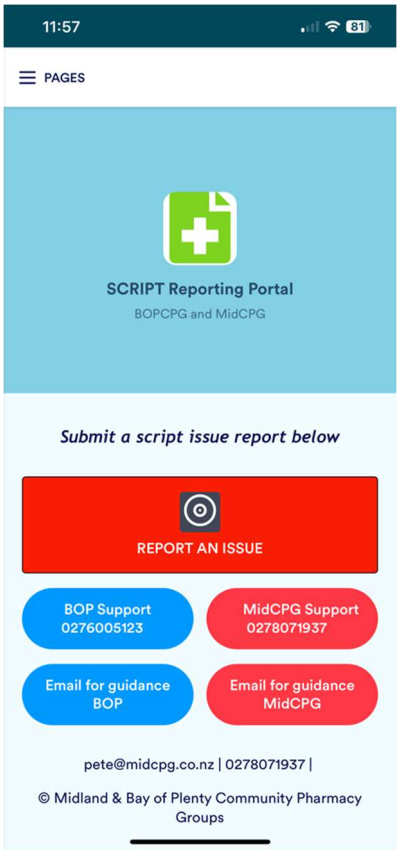
Prescription-related issues have long posed challenges for health systems. Historically, these stemmed from illegible handwriting, missing information or lost paper scripts. The introduction of electronic prescribing has addressed some of these risks, but introduced new and often more complex ones.

A key observation throughout this audit process is that many issues appear to have originated from suboptimal IT system design, including the way prescribing software generates and transmits scripts. This reflects an emerging international trend where electronic prescribing, while beneficial in many respects, has created a different set of safety and workflow risks for both prescribers and pharmacists.

Globally, pharmacists and many prescribers report that prescription problems are not only more frequent but increasingly intricate, demanding greater time and intervention to resolve. These issues can delay patient care, heighten clinical risk, and compromise safety. Despite repeated reports and anecdotal evidence highlighting these concerns, there remains a lack of structured data to quantify their prevalence and impact.

To address this gap, the Script Audit – the first exploration of electronic scripts in New Zealand – provides a one-week snapshot of the nature, frequency and impact of electronic script issues. The findings offer a robust starting point for targeted quality improvement across the health system.

Audit Design and Data Capture



To streamline reporting, reduce administrative burden and importantly to gain maximum participation, an in-house reporting app was constructed based on MidCPG's newly developed e-form digital suite. The app was designed for ease of use on mobile and desktop devices and included:

- Structured fields to capture key data points
- Optional photo upload of (anonymised) scripts
- One-click access to phone or email support

Data points

Data points and questions were determined by experienced clinical pharmacists from the BOP and MidCPG leadership teams with the aims of collecting a logical dataset which took as little time as possible to input (targeted at 10 seconds per report).

The phrasing of some questions, along with the range of selectable answers, was amended during the audit based on feedback from participants – improving clarity, consistency and data quality.

Audit Steps

The audit was conducted over a defined one-week period (15th–21st September 2025) with the process as follows:

1. **Pharmacy Engagement** – Invitations to participate sent to all community pharmacy members of Bay of Plenty and Midland Community Pharmacy Groups in Tairawhiti, Bay of Plenty, Lakes, Waikato and Taranaki health districts
2. **Training and Onboarding** – Guidance distributed on using the app and categorising issues
3. **Data Collection** – Real-time submission of prescription issues during routine workflow
4. **Daily communications** – Daily information, FAQ responses and advice
5. **Data Consolidation and Cleaning** – Export of all submissions into a master dataset for analysis
6. **Post-audit data collection** – Seeking pharmacy data on hours worked and number of new scripts for issue and intervention rate calculations
7. **Final data tidy-up, merging and analysis**

2. AUDIT RESULTS: Analysis of reports

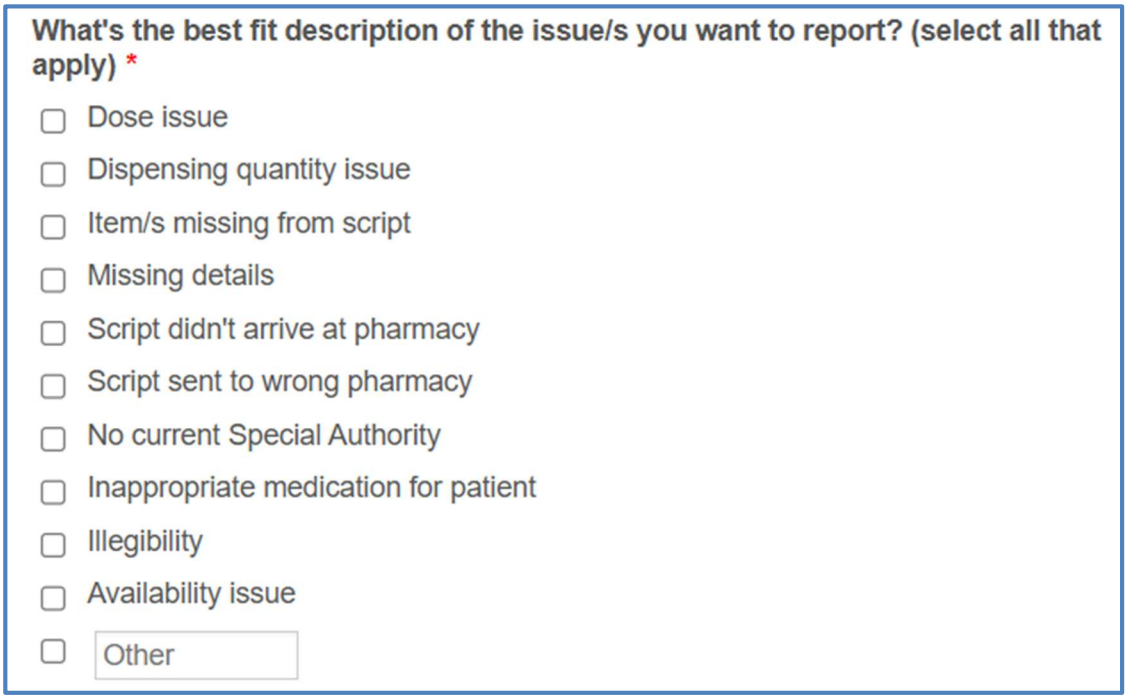
2.1 Participation summary highlights

68 pharmacies from across the Te Manawa Taki region participated in the audit:

- 43 (63%) were located in the main urban centres (Gisborne, Whakatāne, Tauranga, Rotorua, Hamilton and New Plymouth)
- 25 (37%) were located in small towns and rural communities
- 110 individuals submitted reports during the audit
- 84% of submissions came from pharmacists, 15% from pharmacy technicians and 1% from admin or management staff.

2.2 Issues by type

The first data point collected for each report was the **type of issue**. Defined categories were used to minimise the use of "other" selections and improve consistency:



Participant feedback during the audit proposed the addition of 'Script sent to wrong pharmacy' where this was known. Some scripts didn't appear to have arrived at any pharmacy despite prescribers being confident they had been sent. This issue warrants further investigation due to the frustration and delay for patients and providers alike

Audit data output: Issues by type

Across the 1145 submissions, 1257 issues were reported - indicating that numerous submissions contained more than one issue.

The below table shows us the type and proportions of issues being encountered:

Issue Type	Count	%
Dose issue	326	25.93%
Dispensing quantity issue	196	15.59%
Missing details	168	13.37%
Inappropriate medication for patient	105	8.35%
Item/s missing from script	100	7.96%
Availability issue	93	7.40%
Script didn't arrive at pharmacy	90	7.16%
No current Special Authority	82	6.52%
Script sent to wrong pharmacy	48	3.82%
Illegibility	25	1.99%
Miscellaneous	24	1.91%
TOTAL ISSUES	**1257**	**100.00%**

Table 1: Master data count of issues reported during the audit

Key points on issue type findings

1. Many pharmacists contributed optional freetext commentary into their reports which provided more detailed information on the nature of each issue.
2. Findings point strongly to IT functionality issues as a consistent theme rather than clinical errors. In many cases, the prescribing software allowed scripts to be transmitted with critical fields blank or incomplete.

   Examples of the *missing details* comments from pharmacists are summarised as follows:

Key Themes Related to Missing Details

- **Missing instructions:** 38 occurrences
  (Includes missing or unclear instructions, signature, directions, dose, or frequency)
- **Missing special authority:** 25 occurrences
  (Lack of special authority number or related authorisation details)
- **Missing medication details:** 15 occurrences
  (Omitted medication, drug, or item details)
- **Missing patient details:** 13 occurrences
  (Missing address, date of birth, or other patient identification details)
- **Missing prescriber details:** 12 occurrences
  (Missing prescriber, doctor, or specialist name/details)
- **Missing quantity or supply period:** 8 occurrences
  (No quantity specified or supply period missing)

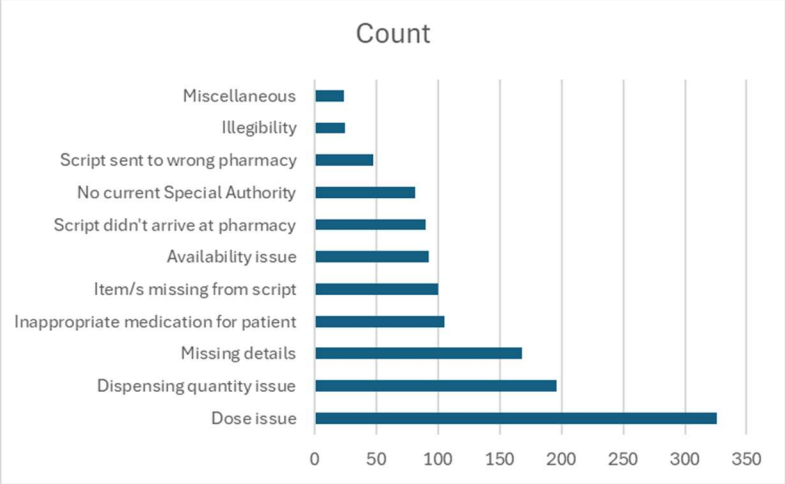
3. **10% of reports identified more than one issue** which was greater than expected. Consequently, the data analysis phase of the audit required new fields to be created to best identify the appropriate category for 2nd, 3rd and sometimes 4th issues reported on a single script.
4. Many of the ***dose issues*** **were clinically complex** involving multiple comorbidities and multiple prescribers. They were **not** typically simple prescriber mistakes.
5. ***Items missing from script*** was less common, however each case is significant in terms of time and effort to resolve. This accounted for 13.6% of the total of GP prescriber issues, leaving patients without required medications until clarification was obtained. GP perspectives on this will be useful
6. Entries in the ***Inappropriate medication*** category commonly referred to patients prescribed multiple medications, often by different sources (e.g. hospital and GP) where there may be a risk of drug interactions or where such combinations are contraindicated.
7. ***Illegibility*** included bar codes that wouldn't scan and occasionally referencing handwritten (hospital) scripts
8. ***Miscellaneous*** items categorised as 'other' did not warrant the creation of additional categories at the analysis phase because of the type of issues described being infrequent. A small number of entries included reference to the cost of an unfunded medicine which can cause patient distress.

Given that ***dose issues*** are the most frequently reported issue type, thematic analysis of freetext comments is warranted:

Key Themes Related to Dose Issues

- **Incorrect dose:** 125 occurrences
  (Includes wrong, underdose, overdose, or otherwise incorrect dosing)
- **Calculation error:** 72 occurrences
  (Errors in calculation, often involving weight-based dosing, units like mg/mcg/kg, or mathematical mistakes)
- **Slow release or formulation issues:** 71 occurrences
  (Problems with slow release, modified release, immediate release, or incorrect formulation/tablet type)
- **Missing instructions:** 41 occurrences
  (Lack of dosing instructions, missing sig, or unclear directions)
- **Dose adjustment:** 30 occurrences
  (Required increases, decreases, or changes to the dose, including reductions)
- **Specialist vs GP discrepancy:** 28 occurrences
  (Conflicting instructions or repeated/old doses between specialist and GP)

In summary, the chart below illustrates the proportion of each issue type reported:



2.3 Issues by source and prescriber type

Identification of the prescriber's name or entity for each issue report was explicitly excluded. Pre-audit questions from pharmacists identified concern about blaming or singling out prescribers, and anonymity was essential for honest reporting.

Instead, issues were grouped by prescriber category with proportions as follows:

Data	Response	%
GP practice	925	80.79%
Hospital	144	12.58%
Specialist	32	2.79%
Dentist	7	0.61%
After hours	6	0.52%
Other entries	31	2.71%

Audit data output: Prescriber type issues

The following table sets out the top 5 most frequently reported issues by prescriber type

Rank	GP Practice (%)	Hospital (%)	Specialist (%)
1	Dose issue (38.7%)	Dose issue (36.8%)	Dose issue (28.2%)
2	Dispensing quantity issue (27.2%)	Missing details (21.6%)	Missing details (25.6%)
3	Missing details (17.4%)	No current Special Authority (14.6%)	Availability issue (10.3%)
4	Inappropriate medication for patient (14.7%)	Dispensing quantity issue (10.4%)	No current Special Authority (10.3%)
5	Item/s missing from script (13.6%)	Availability issue (7.2%)	Script didn't arrive at pharmacy (5.1%)

Table 2: Comparison of Top 5 Issues by source/provider type

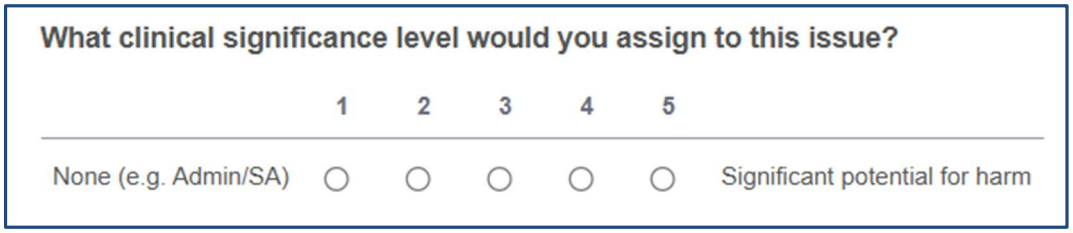
Key points on findings by prescriber:

1. '*Other*' source entries include Midwife, Dentist, After hours, Dietician, Nurse Practitioner, Pathlab, Private Hospital, OST, Medimap, Resthome and Telemed rx. Issues were broadly consistent across prescriber types.
2. ***Dose issues*** were the most commonly reported issues **across all main prescriber types**, however there is variation in the 2nd-5th most frequent issues reported for each group as per ***Table 2*** above.

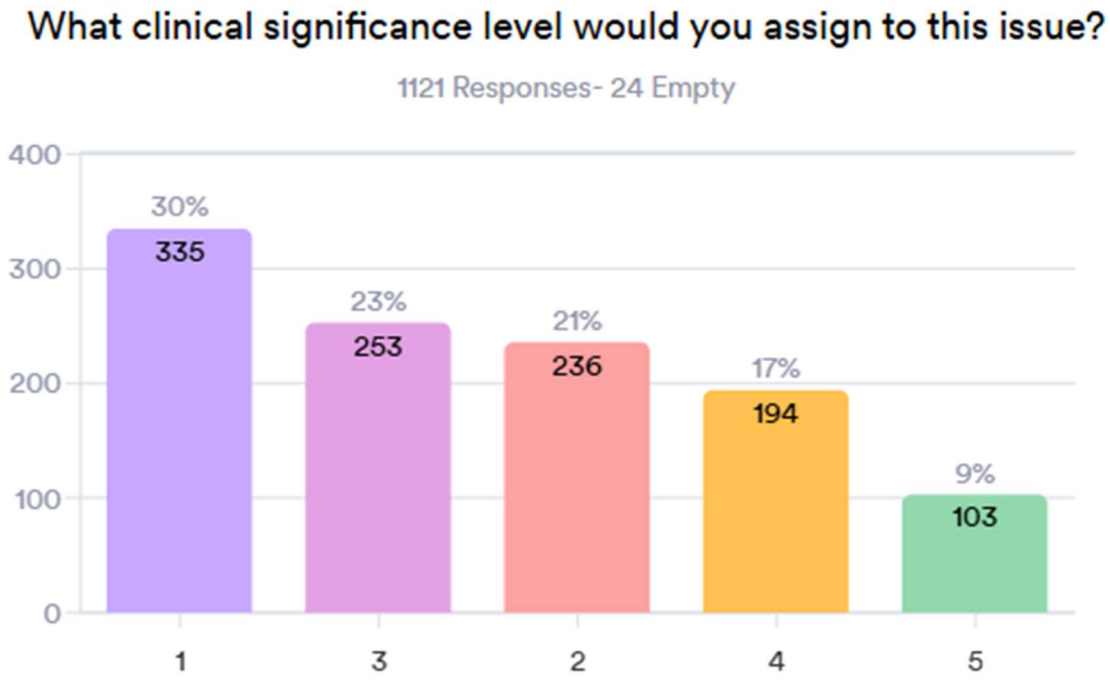
3. A key issue relating to hospital script ***Missing details*** reports (from freetext comments) indicated the absence of an identifiable doctor's name to raise issues with, making resolution more difficult.

2.4 Clinical significance assessment

Pharmacists rated the clinical significance of each issue using a five point scale. This was optional, however 98% of reports included a rating.



Audit data output: Clinical significance



Key points on clinical significance findings:

1. **26% of reports submitted were deemed to constitute high or significant potential for harm**, had the pharmacist not intervened. This statistic underscores the essential safety role pharmacists play in identifying and preventing harm caused by problematic or incomplete prescriptions. Whilst checking processes are a professional obligation, there

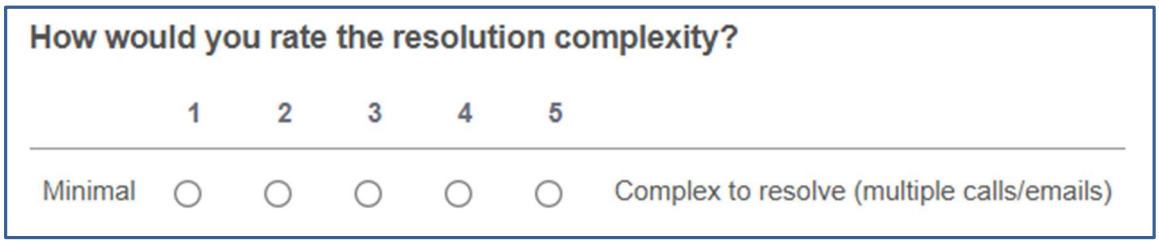
are numerous issues of capacity, funding, and the increasing volume and range of issues due to electronic prescribing that place pharmacists, prescribers, and patients alike at risk. This will be expanded on in the full report to include broader prescriber input.

2. No concerns or confusion were raised about the rating scale, and we trusted pharmacists' professional judgment.

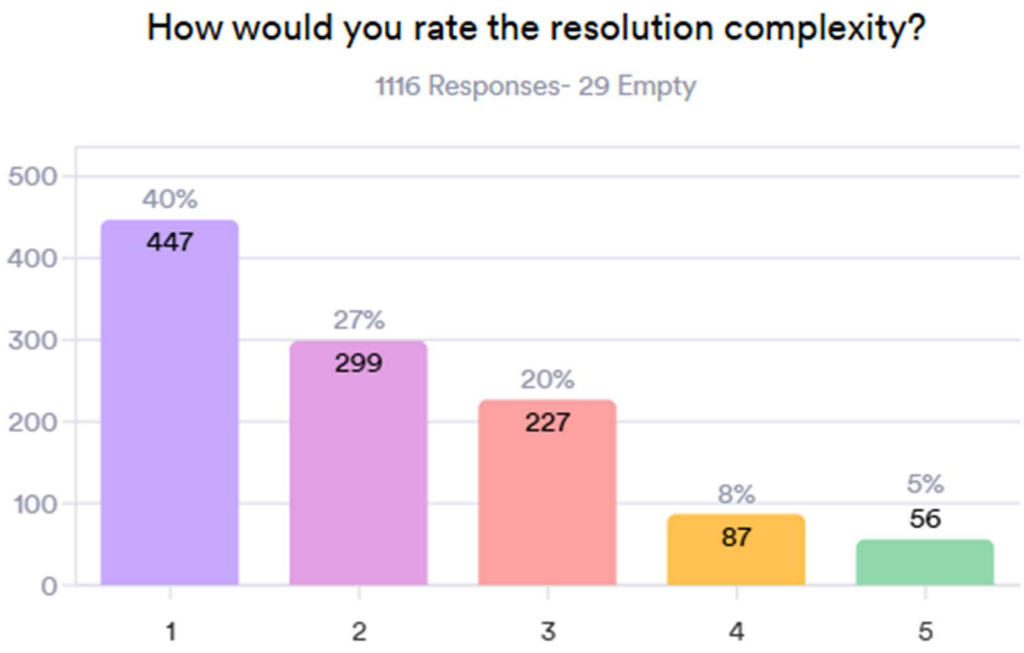
The audit provides clear evidence that electronic prescribing has shifted the risk profile of prescription issues, increasing both complexity and potential for harm.

2.5 Resolution complexity

Pharmacists were asked to rate the relative level of difficulty in resolving each issue based on the following scale:



Audit data output: resolution complexity



Key points on resolution complexity findings:

1. **13% of reports were in the two 'most difficult to resolve' categories.**
2. GP scripts were generally the easiest to resolve.
3. Specialist, nurse practitioner and "other" prescribers were more complex to resolve.
4. We didn't collect information on the number and type of attempts to resolve and some participants felt this would have been helpful to include (i.e. recording the number of phone calls made, emails sent etc.). Resolution complexity frequently involved both:
    a. Clinical complexity -e.g. determining correct dose or regimen, and
    b. Administrative complexity - e.g. difficulty contacting prescribers.

2.6 Resolution time

We wanted to establish an indication of how much time pharmacists are spending on resolving script issues (i.e. the total time in minutes spent on emailing, phone calls, keeping the patient informed etc.).Unfortunately:

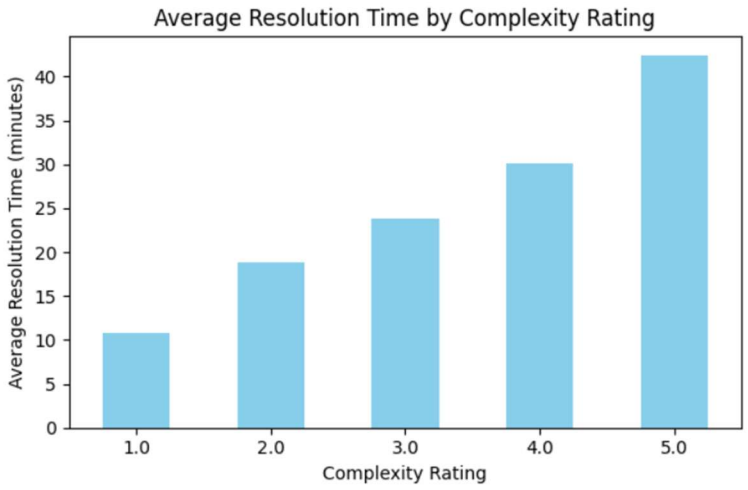
- some pharmacists recorded the number of days over which they were trying to resolve a script (sometimes 2,3 or even 4 days)
- there were a notable number of obviously incorrect time entries which appear to be typos.

To address this, careful calculations were undertaken for every anomaly entry (identified by AI algorithms) to:

(a) establish the mean resolution time for each type of issue which was correctly input
(b) replace incorrect entries with the appropriate overall mean resolution time

Audit data output: resolution time

The following graph and tables therefore provide an ***indicative average resolution time:***



Distribution of Time Estimates

Time Range (minutes)	Count
0–5	401
6–10	243
11–20	270
21–30	77
31–60	83
61–120	30
120+	12

Resolution Time Statistics

- **Mean (average):** 18.59 minutes
- **Median:** 10 minutes
- **Maximum:** 185 minutes
- **Standard deviation:** 26.63 minutes

Key points on resolution time findings:

1. **The mean resolution across all issue types is indicated as 18.59 minutes**
2. **During audit week participating pharmacists recorded that they'd spent nearly 21,000 minutes (347 hours) dealing with script issues**
3. There is notable variation in average resolution times between individual pharmacies, and intriguingly variation between localities as per the table below. This will be subject to further exploration.
4. It would be very helpful to also be able to assess the amount of time that prescribers spend on issue resolution and some further snapshot audits in this area could be undertaken, but were not in scope of this audit

Location	**Mean Resolution Time (minutes)**
New Plymouth (Area 1)	60.7
Thames-Coromandel	40.1
Katikati	34.1
Cambridge	31.0
Waihi Beach	29.9

Ngaruawahia	25.6
Oakura	23.2
Opotiki	23.2
Putaruru	22.2
Whakatane	21.4
New Plymouth (Area 2)	20.2
Hamilton	19.8
Horotiu	17.5
Te Awamutu	16.1
Matamata	14.9
Tauranga	14.7
Rotorua	14.2
Te Puke	13.4
Taumaranui	9.7
Gisborne	9.2
Taupo	8.6
Kawerau	7.2
Tamahere	7.0

2.7 Resolution status

We asked pharmacists whether their intervention was able to resolve the script issue during the week of the audit, with the following results:

Outcome	Resolution status	%
Resolved	914	79.83
Not resolved	178	15.55
Unconfirmed	53	4.63

This indicator is probably the best **patient experience** measure outcome from the audit.

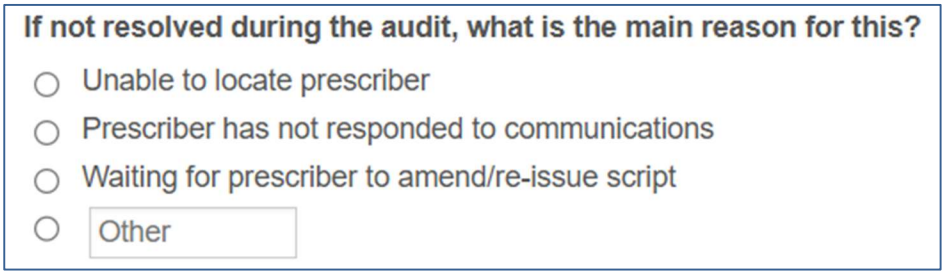
Key points on resolution status findings:

1. All but 53 issue reports definitively confirmed whether the issue had been successfully resolved or not by the end of the audit week. We cannot be certain whether the 53 were resolved and the report not updated, or whether they remained unresolved.
2. Given this indicator is a patient experience measure, it is appropriate to translate this into patients rather than mere numbers in a table. In short, during this small one-week snapshot from approximately 20% of the pharmacies across the region, over **178 patients were waiting for their medication during audit week because of a problem with their script.**

If we were to extrapolate this data, it would be reasonable to estimate that over 1,000 patients, in just one of the four national health regions, were unduly waiting for their medication during the audit week because of an issue of some kind.

2.8 Reasons for non-resolution

For script issues which weren't able to be resolved, we wanted to understand why patients were waiting for their medication, hence the final question:



Audit data output: non-resolution

Freetext fields were used by many pharmacists in answering this question, providing insights into repeating issues and occasionally highlighting potential collaboration challenges between some pharmacies and some prescribers.

Reason for Not Resolving During Audit	Count	Percentage of Unresolved (%)
Waiting for prescriber to amend/re-issue script	104	48.4%
Prescriber has not responded to communications	70	32.6%
Unable to locate prescriber	11	5.1%
Other/Unique reasons	30	14.0%

Key points on unresolved issue findings:

1. **Nearly half** of unresolved cases are due to waiting for a prescriber to amend or re-issue the script.
2. **About one third** are due to **no response** from the prescriber.
3. Difficulties locating prescribers were common – particularly for hospital scripts.
4. Some pharmacists noted *'repeated attempts to address the related IT issues" and certain GP practices*.

2.9 Participant feedback

On the last weekday of the audit, we decided to add a rating field to the app for participants to optionally complete to gain some feedback on the functionality of the reporting tool. This was important to try and assess whether this approach had worked well for people, in part for any future re-use, with pleasing ratings as follows:

Data	Response	%
★★★★★	81	94%
★★★★☆	4	5%
★★★☆☆	1	1%
★★☆☆☆	0	0%
★☆☆☆☆	0	0%

PART 3: Post-audit calculations

Participants were advised that we would be requesting a post-audit dataset to support the calculation of intervention rates and to estimate the proportion of pharmacist time spent managing prescription issues.

The post-audit data requests included:

1. **Confirmation of the days audited**
    a. Specifically, which days the pharmacy fully and consistenly reported script issues.
2. **Pharmacist hours worked**
    a. Total pharmacist hours for each audited day.
3. **New script volumes**
    a. The number of new prescriptions (as extracted from dispensing software) processed on each audited day.

This part of the audit process has been challenging for several reasons including:

- **Missing data** – some pharmacies didn't return the requested information, or returned it well after the audit period, making accuracy uncertain.
- **Partial auditing** - some pharmacies felt they hadn't fully audited consistently every day, often due to completing workload demands.
- **Staffing constraints** – seasonal illness and school holidays meant some teams relied on locum who were unaware of the audit or not set up to participate.
- **Under-reporting** – these constraints reinforce the likelihood that the true volume of script issues was under-captured.

These factors do not affect the robustness of the findings presented in Part 2. They do however impact these Part 3 calculations and therefore it is important to stress that ***intervention rates are indicative*** rather than definitive, due to considerable data cleaning and logic testing being necessary at the final analysis stage. Interventions rates must be interpreted cautiously.

Comments on intervention rates

Previous international studies on **paper scripts** reported intervention rates around 0.7% (UK). A 2010 study on paper scripts in Dunedin by *Braund et al.*[1] calculated an intervention rate of circa

[1] Braund R, Furlan HM, George K, Havell MM, Murphy JL, West MK. Interventions performed by New Zealand community pharmacists while dispensing prescription medications. *Pharm World Sci*. 2010;32(1):22-25. doi:10.1007/s11096-009-9343-7

7%. However, the nature of the issues identified in paper script studies is a very different picture what we've found in relation to electronic scripts. Key differences include:

- Intervention frequency may be similar or slightly reduced
- **Intervention time and complexity have increased substantially** with electronic prescribing due to multiple-issue scripts, missing information and IT system factors.

For electronic scripts, **intervention rate alone is not the most meaningful metric**. Far more clinically relevant indicators include:

- The proportion of issues with high or significant clinical risk
- The number of unresolved issues (e.g. patients waiting)
- The total time required to resolve issues.

These issues relate directly to patient safety.

Former studies (as referenced) highlighted the most common issue with scripts as 'bureaucratic type issues' and issues with drug dose were relatively small – this has reversed and with this comes a significantly higher level of clinical risk.

Summary of data cleaning, validation and manipulation steps

1. A download of all Script report data was taken from MidCPG's reporting portal (e-form)
2. Report counts by day, for each pharmacy were merged with post audit data (pharmacist hours worked and number of new scripts received) as per the example below:

Pharmacy name	Sep 15, 2025			Sep 16, 2025			Sep 17, 2025		
	Reports	Pharmacist Hours	Scripts received	Reports	Pharmacist Hours	Scripts received	Reports	Pharmacist Hours	Scripts received
	5	12	480	9	12	500	11	12	515
	4	12	99	4	12.5	98	4	8.5	87
	11	13.5	114	4	13.5	129	9	13.5	107
	6	32	614				4	24	686
				5	15.2	120			
	12	16	272	9	16	187	4	16	209
	4	8	138	3	8	76	4	8	62
	4	9.5	103	4	9.5	145	3	9.5	108
	14	16	198	9	16	200	8	16	168
	5	21	205	2	16	294	2	21	368
							4	17	212
	5	9	54	4	9	26			
	5	8	199				5	8	128
	7	9	144	6	9	120	4	9	94
	5	7.5	215	7	7.5	229	8	7.5	194
	9	18	751	20	19	811	10	19	663
				3	17	360	5	17	290
	12	25	486				10	17	350
	6	32	641	5	34	720			
				4	8	142	4	8	87
	2	8.5	146	3	15	172	3	15	137
	2	21	298	5	21	299	1	16	275
	5	9	145	2	9	165			

3. Careful review of a number of confidence factors in each day's reporting volumes, for each pharmacy was undertaken to determine which pharmacies data we were sufficiently confident in overall to include in calculations. This filtered to a subset of 46 pharmacies and 940 issue reports.
4. Further consideration of anomalies on individual days (using both AI and human analytics) where it appeared that auditing may not have been in full – for example where a pharmacy was recording 10-12 issues each weekday, except for one weekday when 0-1 issues were recorded, we deemed it reasonable to conclude that the day was not a full audit day, and therefore excluded that day's data from the calculations. A number of direct checks with pharmacists were undertaken to cross-check this logic and known factors (by pharmacies) in relation to data anomaly days provided confidence in this being a reasonable approach.
5. Rates were calculated by both individual pharmacy, and for all pharmacies for each individual day.

Key intervention rate findings and comments:

1. There was significant variation in calculated intervention rates across the range of pharmacies included – from **0.69% to 11.25%**
2. The **mean calculated intervention rate was 2.8%**
3. The **median calculated intervention rate was 2.4%**
4. **Weekday intervention rates were slightly higher on Fridays, and notably the highest rate was on Saturdays (albeit volumes were much lower)**

5. The pharmacies with the highest intervention rates were as follows:

Location	Rurality	Week rate by pharmacy
TAURANGA	URBAN	11.25%
TAURANGA	URBAN	6.86%
TAURANGA	URBAN	6.79%
TAURANGA	URBAN	5.04%
WAIKATO	RURAL	5.00%
TAURANGA	URBAN	4.85%
TARANAKI	RURAL	4.75%
EASTERN BAY OF PLENTY	RURAL	4.22%
HAMILTON	URBAN	3.85%
PAPAMOA	URBAN	3.85%
WAIKATO	RURAL	3.54%

Note: pharmacy names have been removed, and location of easily identifiable pharmacies amended to their broader locale to ensure anonymity

The pharmacies with the highest intervention rates are well known to the leadership teams of BOPCPG and MidCPG as:

- Highly competent
- Diligent
- Thorough in clinical checking
- Strong contributors to regional initiatives.

High intervention rates therefore likely **reflect more robust identification** rather than poorer practice. We would expect a degree of variation in intervention rates, but not to this extent. This poses some key questions including:

- ***Are the pharmacies with the highest intervention rates encountering more issues, are they more diligent in identifying scripts that require intervention, or were they more robust in their auditing during audit week, or something else?***
- ***Can the variation in intervention rates be explained by the differences in post-audit data of new script volume extracts?***

Subsequent to releasing this report to participants, our intention is to engage in a series of presentation discussion sessions with pharmacies to further explore the variation. This may lead to further data analysis or intervention rate recalculations.

PART 4: Summary of audit findings

- During audit week, 1145 reports were submitted with a total of 1257 issues
- Issue rates by prescriber type (e.g. GP, Hospital doctor, specialist, midwife) are broadly proportional
- 10% of reports contained more than one issue with a script
- The most common issue across all provider types related to drug dose, with the top 5 issues reported as follows:

Issue Type	Count	%
Dose issue	326	25.93%
Dispensing quantity issue	196	15.59%
Missing details	168	13.37%
Inappropriate medication for patient	105	8.35%
Item/s missing from script	100	7.96%

- The most common drug named was Ferrograd (presentation changes)
- **RATE MEASURE:** The indicative intervention rate ranged from 0.69% to 11.25% across different pharmacies with a mean of 2.8%
- **CLINICAL SAFETY MEASURE:** 26% of issues were in the higher categories of risk of harm to a patient, had the pharmacist not intervened
- **REWORK MEASURE:** Pharmacists spent 347 hours during audit week resolving issues with scripts
- The mean resolution time was 18.59 minutes
- **PATIENT EXPERIENCE MEASURE:** Over 15% of issues had not been resolved during audit week – i.e. >178 patients waiting for their script (a key patient experience measure)
- In relation to unresolved script issues, 81% were waiting for a response to the query or for an amended script
- There is significant variation in key data points between pharmacies
- Data outputs (including issues types, resolution time and complexity) for electronic script related issues are very different to those of previous paper script studies and have an increased level of clinical risk
- Across multiple issue types there are themes indicating poorly designed electronic script generated IT systems have added considerable difficulty for both prescribers and pharmacists

PART 5: Final considerations and next steps

The Te Manawa Taki Script Audit was not designed simply to document a problem, rather to support meaningful quality, safety and patient experience improvements in the health system.

While electronic prescribing has addressed the historic problem of illegible handwriting, this audit reveals that the technology change appears to be a common factor in a new and different range of issues, many of which are potentially more harmful and more complex to resolve.

During the audit, several small tests were carried out comparing the prescriber's view of an electronic script at the point of generation with what ultimately appears on a script in a pharmacy. These preliminary checks were revealing. In some systems, prescribers had limited or no ability to preview the final script, in others key fields failed to populate or transferred incomplete information. The historic process of GPs visually checking the content of a handwritten script before signing has been compromised due to the way the IT systems operate including:

- Suboptimal or inconsistent preview/check/approval functionality
- Failure of prescriber or patient details to flow through reliably
- Critical information (dose, units, instructions) being sent with typos or omissions
- Lack of logic checks for quantity, dosing frequency, or missing mandatory fields.

It would be inaccurate to attribute all issues solely to electronic prescription. Training, knowledge of drug changes and the inherent complexity of patient care remain contributing factors. However, the scale and pattern of findings indicate that **IT system flaws do appear to be responsible for a substantial proportion of script issues** increasing the workload and risk for both pharmacists and prescribers. Our findings align with developing international research.[2]

New Zealand studies indicate that we have a higher rate of interventions than other countries over time. When comparing our snapshot results with the limited international picture of interventions in electronic scripts this difference persists.

Encouragingly, many of the types of issues we've seen reported can be significantly reduced provided there is coordinated action across the health sector and a willingness to address root causes rather than relying on workarounds. Promising micro-improvements are already emerging (e.g. a dedicated text-only line for pharmacy prescription enquiries at a GP practice),

[2] Farghali, A. A., & Borycki, E. M. (2024). A Preliminary Scoping Review of the Impact of e-Prescribing on Pharmacists in Community Pharmacies. *Healthcare*, *12*(13), 1280. https://doi.org/10.3390/healthcare12131280

indicating the potential for simple, practical collaborations to reduce delays, frustration, and clinical risk. Systemic improvement over time will undoubtedly involve some national level, some regional level and some local level (i.e. local pharmacy and general practice) quality improvement activities; but even If we only do one thing – work with IT providers to improve their systems – we would make a significant difference.

The broader lesson is clear **– we cannot continue to rely on pharmacists to absorb an ever-increasing volume of systemic issues without addressing the underlying causes**. Pharmacists have become the default safeguard against electronic deficiencies and other prescribing issues, yet this safeguard is neither resourced nor acknowledged in current funding or workforce planning. This is happening at a time when pharmacists should be contributing far more to reducing hospital and primary care pressures.

Similarly, there is an undefined quantum of script issue rectification time which adversely impacts GPs and other prescribers in a context of significant demands to increase care capacity.

The results of this audit highlight:

- An unreasonable and unfunded workload placed on pharmacists
- Significant potential for patient harm
- Systemic risk exposure for prescribers
- Growing frustration for patients experiencing delays, errors, or repeated pharmacy visits.

This small snapshot validates the significant concerns pharmacists across Aotearoa have been signaling for years – that script issues are increasing, clinical risk is rising and the system is not responding to make quality and safety improvements at the pace required.

Doing nothing is no longer a defensible option.

Next steps to move towards meaningful, sustainable improvement

1. **Share findings and stimulate sector-wide discussion**
   This preliminary report will be distributed to stakeholders including: participating pharmacists, PHOs, General Practice, regional clinical leaders, health agencies, and relevant prescribers. The aim of this is to support informed dialogue and investigate potential solutions together.

2. **Facilitate regional presentations and collaborative workshops to:**
   i. to understand variation across localities and prescriber groups
   ii. Identify high impact improvement opportunities
   iii. Strengthen shared understanding of workflow barriers

3. **Support expansion of the dataset**
   Other community pharmacy and hospital groups have expressed interest in repeating the audit. A broader dataset would provide a stronger national picture and inform improvement initiatives.
4. **Refine audit tools and methods**
   We have identified slight improvements that we can make to the audit questions and digital technology behind the app to make future analysis easier
5. **Pilot innovative local improvement partnerships**
   We will be looking for a small number of partnerships of GP practices and pharmacies who are willing to work together, with Community Pharmacy Group support, to pilot local improvement initiatives as an innovation test case group
6. **Explore IT system variation**
   We plan to organise some further tests to ascertain whether there is variation between the e-prescription IT systems in use and associated script issues

This audit demonstrates the leadership of community pharmacists across Te Manawa Taki and their commitment to system improvement. Their willingness to document the reality of current issues including the challenges with electronic prescribing has created a powerful evidence base for change.

The findings challenge all parts of the system to work together. Improvements are achievable. The clinical risk is known. And the need for collective action is urgent.