Evaluation of the Pharmacy Checking Technician Demonstration Site Project

Prepared by Quigley and Watts Ltd

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Acknowledgements

Executive Summary

The Pharmaceutical Society, on behalf of Health Workforce NZ, undertook the Pharmacy Accuracy Checking Technician Demonstration Site Project (the project) to investigate the viability of introducing pharmacy accuracy checking technicians (PACT) into the pharmacy workforce in New Zealand.

The objectives of the project were to assess the value of PACT in the New Zealand context and to evaluate the impact of these technicians in allowing pharmacists more time to interact directly with patients regarding medications management.

The demonstration site project was undertaken in 11 pharmacies across New Zealand. The pharmacies were chosen to provide a good spread of hospital and community pharmacies, geographical location and size of pharmacy.

The purpose of the evaluation was to investigate the viability (ability to work as intended/succeed) of introducing pharmacy accuracy checking technicians into the pharmacy workforce.

The criteria for judging the value and quality of the project were established in the evaluation plan which was reviewed by the Steering Group. The evaluation questions and criteria were then organised into five evaluation areas. Data were collected using online surveys, qualitative interviews, observation and a time and motion study. The conclusions of the evaluation below are based on the information collected.

Overall quality of the training content and delivery

Good –high quality with minor areas of improvement required

Overall the training content and delivery with the exception of the standard operating procedures, dispensing practice and workflow (which required further work post the training day) was fantastic. The 'good' rating from the technicians and 'OK' rating from the supervising pharmacists reflect this point and should not distract from the overall high quality of the training content. Both the pharmacists and the technicians said the training covered all the necessary content and they left the training day confident they had the tools and skills needed.

The face to face delivery created an effective learning environment that was valued by all participants.

There were some suggestions about improving the training day:

- Recognise and discuss the differences between hospital and community pharmacies and allow the processes to be adaptable to different settings
- More emphasis on how much work it will be

'It's a bit of short term pain for hopefully long term gain…it took us a lot longer, it was a lot harder, we had to rejig our staffing around a bit…it was quite a big undertaking. You need a fair bit of free capacity in your dispensary to make it happen' (Community Pharmacist)

Content

Criteria		Poor	OK	Good	Fantastic
based on best practice					●
relevant to the New Zealand setting	Technicians				●
	Supervising Pharmacists			●	
comprehensive (covered all necessary aspects)	Technicians			●	
	Supervising Pharmacists		●		
quality course materials	Technicians				●
	Supervising Pharmacists				●

Delivery

Criteria		Poor	OK	Good	Fantastic
Uses priciples of adult learning					
effective learning environment: sufficient time for learning **answered questions**	Technicians				●
	Supervising Pharmacists				●
adequate support	Technicians				●
	Supervising Pharmacists				●

Overall effectiveness of the training

Fantastic – All Techs & Pharmacists are well equipped to participate

The training was highly effective and requires only minor amendments to the module wording. Those sites with more than one PACT trainee strongly recommended only one PACT trainee per site at a time to allow the process to flow as intended. While all interviewees felt the error checking log was a lot of work it was seen as essential and no one thought there should be fewer items. The supervision role was a positive experience for all pharmacists involved.

Criteria		Poor	OK	Good	Fantastic
all training modules successfully completed by technicians				●	
everyone needing training receives it					●
Process of collating a portfolio of evidence achievable				●	
Assessment of technicians on completion of the training period effective					●
Possible within the legislative frameworks					●
Technicians have confidence, knowledge and skills needed to perform the new PACT role	Technicians				●
Pharmacists have the skills, knowledge and confidence to support the PACT role	Supervising Pharmacists				●
demonstration sites have capability and capacity to undertake training					
Instilled confidence in ability to complete training	Technicians				●
Provided skills/tools needed to support PACT role	Supervising Pharmacists				●

Overall effectiveness of project communication

Good – most people understand the PACT process and are supportive

The communication plan and implementation were fantastic and participants were very well supported to participate. The dissemination of information by the participants to other colleagues was mostly positive with only a few experiencing any negativity. Generally the sites were highly engaged and supportive. The findings highlight the need for senior support of the PACT and a high level of pharmacy buy-in to achieve successful outcomes.

Criteria	Poor	OK	Good	Fantastic
Comprehensive communication plan				●
sites engaged and supportive			●	
everyone understands and supports PACT framework			●	

Overall impact on quality and effectiveness of patient-centred service

Fantastic – significantly improvement

The overall impact on quality and patient-centred services was fantastic.

On average pharmacists in both groups increased the amount of time spent on patient focused activities. Some pharmacists had large increases in patient focused activities for example one from 16% to 48%.

The accuracy and safety of dispensing was positively impacted with technicians picking up errors at the same or greater rates than the pharmacists at baseline.

While participants said more time was needed to judge the full impact on dispensary workflow the impact had been positive so far with greater improvements forecast.

All of the PACTs reported that their enjoyment has increased and their work is more rewarding through having more responsibility and a greater sense of achievement. Only one pharmacist commented on job satisfaction for pharmacists saying

'Sometimes you feel like all you do is count and pour…and that's boring. We've got all this knowledge that we can be giving out to patients and we have to check prescriptions all the time…I'm not actually doing what I was trained for…for the whole profession it will be uplifting. Yes it will be a bit of work to start with but at the end of the time…it will actually be really good for the whole team' – Community pharmacist

Criteria	Poor	OK	Good	Fantastic
Pharmacists free up time to engage in, or expand on the provision of patient-centred services				🟢
Quality and safety of dispensing maintained				🟢
Increased efficiency in dispensary workflow				🟢
Increased satisfaction of job (pharmacists and technicians)				🟢

Suitability for national roll out

The project is suitable for national roll out and has the potential to work in all pharmacies with the proviso from participants that buy in and dispensary staff numbers are important considerations. All those interviewed would recommend the PACT training to other pharmacies.

'Just as long as you have supportive team members...I know that some pharmacists may be against checking technicians and if you've got someone in there that didn't think you should be doing that, I think it would make it very hard for them. They wouldn't be helping them out with getting their scripts or encouraging them or...teaching them a checking technique or anything like that' - Community PACT

All those who participated in the project said the potential impacts of a national roll out of PACT would be very positive for technicians, pharmacists, pharmacies and patients.

One potential barrier to a successful national rollout was negative attitudes of colleagues, particularly pharmacists who do not see the value in the PACT role. Participants recommended communication to promote the new roles and enable those opposing it to see the value in it for them.

For the PACT project to go to a wider rollout it requires the sector to drive it.
Once the sector has demonstrated that any legislative requirement or compliance requirements have been met and there is a framework in place for implementation of the process, with the support of the sector, can be rolled out nationally.

Introduction

The Pharmaceutical Society, on behalf of Health Workforce NZ, undertook the Pharmacy Accuracy Checking Technician Demonstration Site Project (the project) to investigate the viability of introducing pharmacy accuracy checking technicians (PACT) into the pharmacy workforce in New Zealand.

The objectives of the project were to assess the value of PACT in the New Zealand context and to evaluate the impact of these technicians in allowing pharmacists more time to interact directly with patients regarding medications management.

The project initiated and funded by Health Workforce NZ was managed by the Pharmaceutical Society of NZ. A Steering Group was established to oversee all aspects of the project governance. This Group included:

- The Pharmacy Council of NZ
- The Pharmacy Guild of NZ
- The Pharmaceutical Society of NZ
- Pharmacy Defence Association
- Ministry of Health (Chief Advisor Pharmacy, Pharmacy Manager, Medicines Control, HWNZ)
- NZ Hospital Pharmacists Association
- A nominated pharmacy technician representative

Why was the PACT programme initiated?

HWNZ was approached by a number of Pharmacy sector representatives to facilitate the development, regulation and implementation of the PACT role. The concept was supported by the Pharmacy Guild of NZ, NZ Hospital Pharmacists' Association, Pharmaceutical Society of NZ and in principle by the Pharmacy Council of NZ.

Context

PACT have been part of the UK pharmacy workforce for a number of years. Their role is to complete the dispensing process by conducting a final accuracy check on dispensed medications within a strict set of criteria and following a robust training and assessment process. This project drew heavily on the UK framework and model for PACT.

This project involved technicians being utilised in a role that has not previously been part of the pharmacy workforce in New Zealand. The Licensing Authority, Medicines Control allowed an exemption from specific aspects of the Pharmacy Services Standards (NZS 8134.7.2010) to ensure that the project could proceed and that the interests of participating pharmacies and associated personnel were not compromised due to legislative requirements.

Description of the project

PACT were trained and certified to carry out the final accuracy check on a dispensed item. This part of the dispensing process currently sits with the pharmacist. The addition of a PACT does not remove the involvement of a pharmacist from the dispensing process. The pharmacist was still required to ensure that the prescription was legally correct, clinically safe, appropriate to dispense, and to counsel patients. For some dispensaries this resulted in a change to their current work flow.

PACT Project consisted of two phases:

Phase 1: Training and benchmarking (Commencing September 2014)

Key actions during this phase

- Selection of demonstration sites for the project
- Collection of data from sites to establish benchmarks against which evaluation can be conducted
- Delivery of a training programme for technicians and pharmacists
- Collation of a portfolio of evidence by technicians
- Assessment of technicians on completion of the training period

Phase 2: Demonstration site activity (Commencing April 2015)

Key actions during this phase

- Technicians actively "accuracy check" items on a daily basis
- Collection and collation of data from sites
- Data evaluation
- Reporting of outcomes

PACT Project Model

Figure 1 below sets out the PACT project resources and activities.

Resources	Activities	
	Initial	**Subsequent**
Funding for project (HWNZ)		
Project leadership Pharmaceutical Society NZ	• Develop training package • Recruit demonstration site pharmacies • Train pharmacists and technicians	• Assessment of technicians
Medicines Control, Ministry of Health		• Issue amended licence schedule to Pharmacies
Demonstration sites	Pharmacists and technicians attend training day	• Collation of evidence portfolio (technicians) • Develop SOP for dispensary work flow
Project governance (Steering Group)	Oversee and advise on all aspects of the project	Develop Framework for PACT
School of Pharmacy research	Site engagement and briefing on data collection	Time and motion study and opinion survey

Where was the demonstration project undertaken?

The demonstration site project was undertaken in 12 pharmacies across New Zealand. The pharmacies were chosen to provide a good spread of hospital and community pharmacies, geographical location and size of pharmacy. The 12 pharmacies (4 hospital and 8 community) were selected from an expression of interest to the Pharmaceutical Society.

There were two trainees at one hospital site and two community sites, the remaining sites had one trainee only. One of the community sites pulled out of the pilot project before the post-training data collection due to unforeseen staffing issues.

Evaluation purpose and Methodology

Evaluation Purpose

The purpose of the evaluation was to investigate the viability (ability to work as intended/succeed) of introducing pharmacy accuracy checking technicians into the pharmacy workforce.

Key Evaluation Questions

The key evaluation questions are:
1. How good was the training content for Pharmacists and Technicians?
2. How effective was the training delivery?
3. How well did the training equip sites to participate?
4. How good were the communications about the project?
5. Was there sufficient engagement of demonstration sites to enable the project to be successful?
6. To what extent did the project free up time to engage in patient-centred services?
7. To what extent did the project maintain the accuracy and safety of dispensing?
8. To what extent did the project result in efficiencies in dispensary practice?
9. To what extent did the project increase the meaningfulness of work for technicians and pharmacists involved?
10. To what extent is the project suitable for all pharmacies?
11. To what extent is the project suitable to be rolled out nationally?

Evaluation Team

Individual	Title or Role	Responsibilities
Carolyn Watts **Quigley and Watts**	• Evaluation manager	• Develop evaluation plan • Oversight of all evaluation to ensure the evaluation is conducted as planned • Coordinate participant feedback surveys (post training) • Produce evaluation report for HWNZ
Rhiannon Braund **University of Otago**	• Research supervisor	• Oversee the research and provide quality assurance
Al McIntosh **Pharmaceutical Society of NZ**	• Evaluation sponsor	• Provide support and link with project governance
Patti Napier **University of Otago**	• Research manager	• Coordinate the collection and analysis of quantitative data (opinion survey and error logs) • Undertake time in motion study • Analyse quantitative data

Table 1. Roles and Responsibilities of the Evaluation Team Members

A project logic model was developed to guide the evaluation (see Figure 1 below).

Figure 1: Project logic

Outputs/ deliverables		Short-Term		Outcomes		
				Intermediate		Long-Term

Quality training programme
- ✓ Technicians trained
- ✓ Pharmacists trained
- ✓ SOP for dispensary work flow

Technicians have skills, knowledge and confidence to perform new PACT role

Lead pharmacists have skills, knowledge and confidence to support new PACT role

Good communication about PACT to all pharmacy staff

Increase understanding and support for PACT role in pharmacy
Site engaged and able to participate

Increase in pharmacist time spent directly on patient-related activities

Quality and safety of dispensing maintained

Better use of pharmacists and technicians (improve current practice)

Efficiencies in dispensary workflow

Improve career pathway for technicians

Increased enjoyment of work

Improved health outcomes for patients

Increase productivity pharmacy staff

Increase workforce satisfaction

Decrease in pharmacy staff turnover

Colour code

Training-related   Communication related   Project related outcomes   Long term outcomes outside of the scope of this project

Methodology

The criteria for judging the value and quality of the project were established in the evaluation plan which was reviewed by the Steering Group. The evaluation questions and criteria were then organised into five evaluation areas:

Overall quality of the training content and delivery

1. How good was the training content for Pharmacists and Technicians?
2. How effective was the training delivery?

Overall effectiveness of the training

3. How well did the training equip sites to participate?

Overall effectiveness of project communication

4. How good were the communications about the project?
5. Was there sufficient engagement of demonstration sites to enable the project to be successful?

Overall impact on quality and effectiveness of patient-centred service

6. To what extent did the project free up time to engage in patient-centred services?
7. To what extent did the project maintain the accuracy and safety of dispensing?
8. To what extent did the project result in efficiencies in dispensary practice?
9. To what extent did the project increase the meaningfulness of work for technicians and pharmacists involved?

Suitability for national roll out

10. To what extent is the project suitable for all pharmacies?
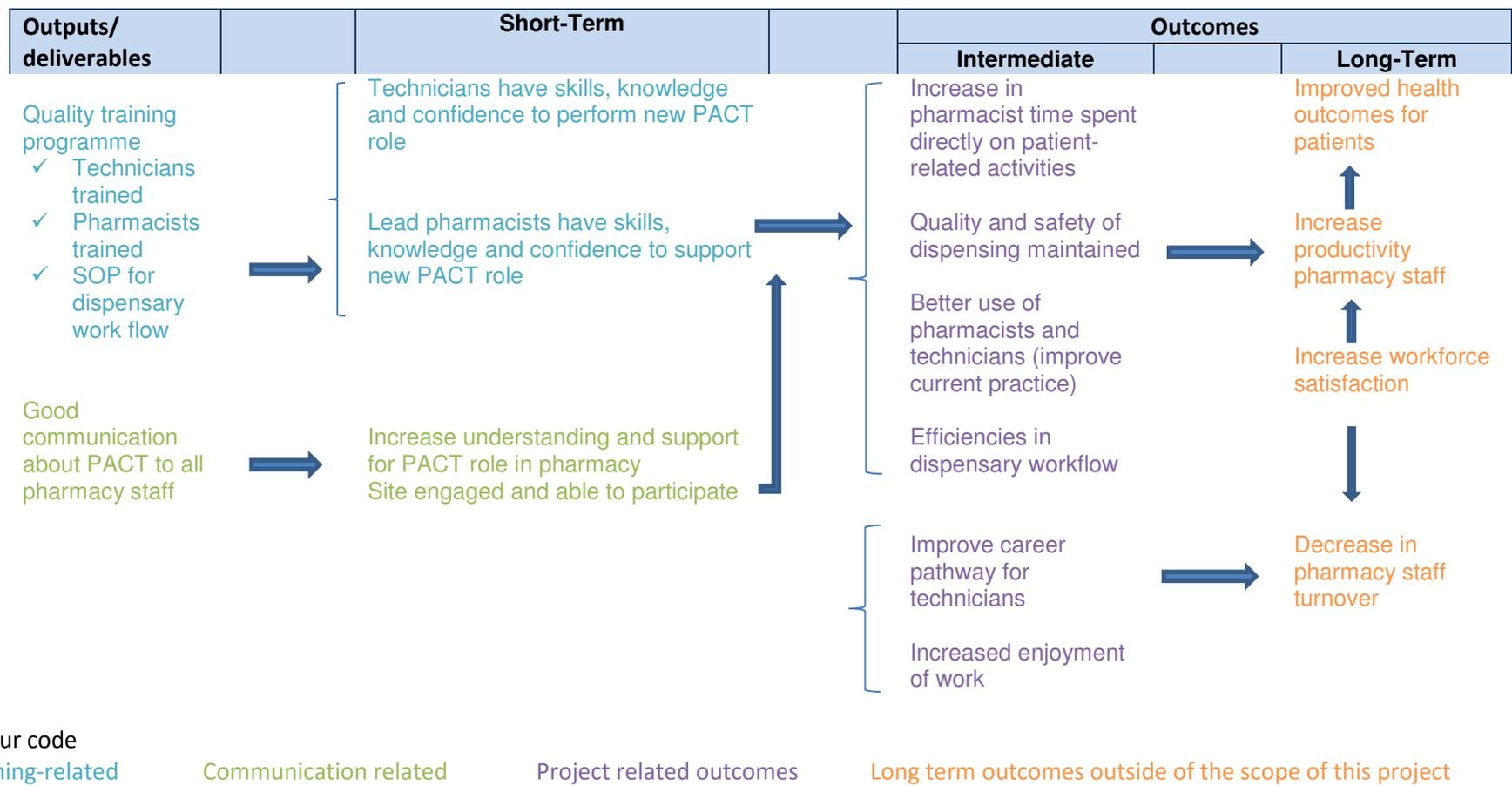11. To what extent is the project suitable to be rolled out nationally?

For each area a summary rubric[1] was developed to determine value or quality based on the data collected below:

Online survey

An online survey of all participants in the training (pharmacists and technicians) was conducted 1-2 weeks after the training day to find out their experience of the training day. Twelve of the fifteen PACT completed the survey n=12 (4 hospital, 8 community) and nine of the twelve pharmacists n=9 (3 hospital, 6 community).

Qualitative interviews

Interviews were used to find out more about the experience of PACT and supervising pharmacists during the completion of the training. This included completing the modules, the error log and the final exam. There were 10 phone interviews in total; six with PACTs and four with supervising pharmacists. A range of work experience and experience in the training was sought as well as a range of pharmacies.

Time and motion study

A time and motion study was undertaken with the use of smart phones for data entry by the University of Otago. The study was performed to evaluate whether there was a change in the work patterns of the pharmacists and technicians participating in the pilot project.

The baseline data collection took place prior to the PACT trainees undertaking any of their training. The post-training collection was to take place when all of the trainees had completed their training and assessment but this

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[1] A rubric is a tool to describe what quality 'looks like'.

was not possible. There were delays in the completion of this training and assessment at some sites and time constraints forced the decision to conduct the post-training data collection at a set point (census) in time rather than await all trainees to complete their training and assessment. Therefore the final number of sites available for comparison was nine sites, four hospital pharmacies and five community pharmacies. Full details about the time and motion study are reported in a separate report.

Opinion survey

The opinion survey was conducted by the University of Otago at two time intervals, baseline and final (as discussed above this was at a set point rather than when all trainees had completed). As a change in roles could have an impact on everyone working in the pharmacy all the staff in community pharmacies and selected staff in hospital pharmacies were invited to participate in the survey.

a. Baseline survey -Initial staff assessment of sites once selected, (baseline opinions)

b. Final survey - Assessment at end of pilot

Baseline survey

The first survey was a baseline assessment of the retail staff, technician and pharmacists understanding and opinion of the PACT role and current understanding of the pilot project.

The survey consisted of questions covering demographics of all the staff, their belief in a technicians' ability to take on this role, their perceptions on the impact this new role may have on the workplace and work patterns, and any perceived benefits or disadvantages of the new roles introduction.

Final survey

The survey covered changes to workflow as a result of the new role, impact on staff, do they feel it has freed up the pharmacist, any advantages or disadvantages experienced so far, and their experience with the pilot project. The aim is to see if their perceptions have changed over the course of the project.

Return rate

	Returned surveys (n)	Sites (n)	Hospital vs Community
Baseline	156	12	4 vs 8
Final Census	131	11	4 vs 7

Baseline		Census	
97/156 = hospital	62%	47/119 = hospital	61%
59/157 = community	38%	72/119 = community	39%

Nb. 57 responses at baseline (37%) and 43 responses at census (36%) came from one hospital.

Full details about the opinion survey are reported in a separate report.

Findings and Conclusions

The findings are organised into five sections. Each section begins with the overall evaluation area followed by the rubric for assigning value (how good is good?), the criteria for judging value and the rating, the evaluation questions followed by the evidence to support this. Conclusions are presented immediately prior to the evaluation questions and evidence.

Overall quality of the training content and delivery

Evaluation area

Poor quality – complete redesign required	OK –moderate quality, content and delivery require redesign	Good –high quality with minor areas of improvement required	Fantastic – training content and delivery were high quality
Most ratings below adequate (3) with some poor or very poor (1-2), comments highlight major issues	**Most ratings adequate or good (3-4) all adequate or above, comments highlight issues of importance**	**Most ratings good or very good (4-5) with one or two adequate (3), comments support this**	**All ratings good or very good (4-5), comments support this, no weaknesses of any consequence**

Rubric

Criteria		Poor	OK	Good	Fantastic
based on best practice					🟢
relevant to the New Zealand setting	Technicians				🟢
	Supervising Pharmacists			🟢	
comprehensive (covered all necessary aspects)	Technicians			🟢	
	Supervising Pharmacists		🟠		
quality course materials	Technicians				🟢
	Supervising Pharmacists				🟢

Rating

Conclusion

Good –high quality with minor areas of improvement required

Conclusion

Overall the training content with the exception of the standard operating procedures, dispensing practice and workflow (which required further work post the training day) was fantastic. The 'good' rating from the technicians and 'OK' rating from the supervising pharmacists reflect this point and should not distract from the overall high quality of the training content. Both the pharmacists and the technicians said the training covered all the necessary content and they left the training day confident they had the tools and skills needed.

The face to face delivery created an effective learning environment that was valued by all participants.

There were some suggestions about improving the training day:

- Recognise and discuss the differences between hospital and community pharmacies and allow the processes to be adaptable to different settings
- More emphasis on how much work it will be

'It's a bit of short term pain for hopefully long term gain…it took us a lot longer, it was a lot harder, we had to rejig our staffing around a bit…it was quite a big undertaking. You need a fair bit of free capacity in your dispensary to make it happen' (Community Pharmacist)

How good was the training content for Pharmacists and Technicians?

Evidence

Legend:
- Relevance to the New Zealand context Relevance to the New Zealand context
- Relevance to my Pharmacy Relevance to my Pharmacy
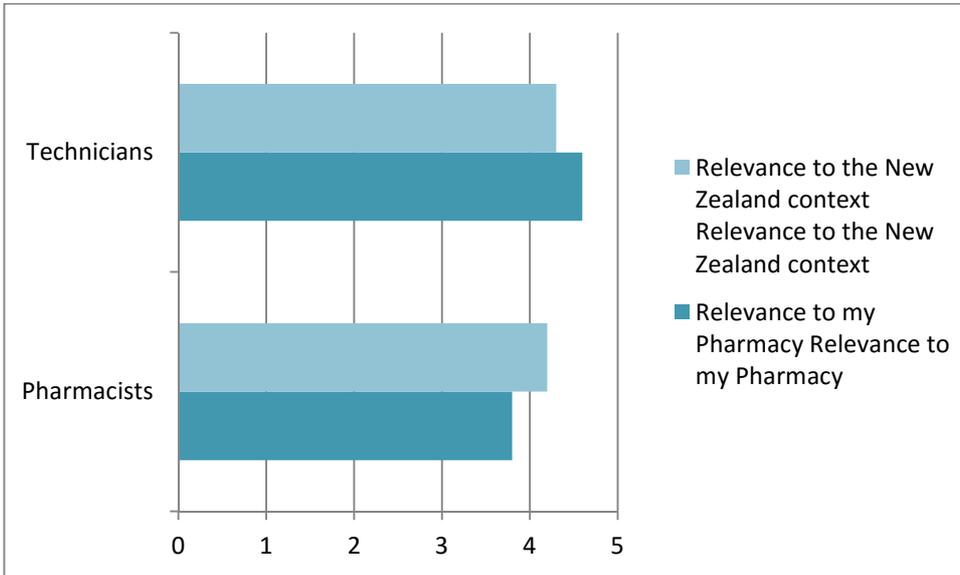
Comprehensive

Technicians

Supervising Pharmacists

Chart labels (top to bottom):
- Other questions you had
- The role of the Pharmacist Supervisor
- Technician training requirements
- Standard Operating Procedures
- What is in scope
- Dispensing practice and workflow…
- The legislative and compliance…
- The PACT project background

X-axis: 0, 1, 2, 3, 4, 5
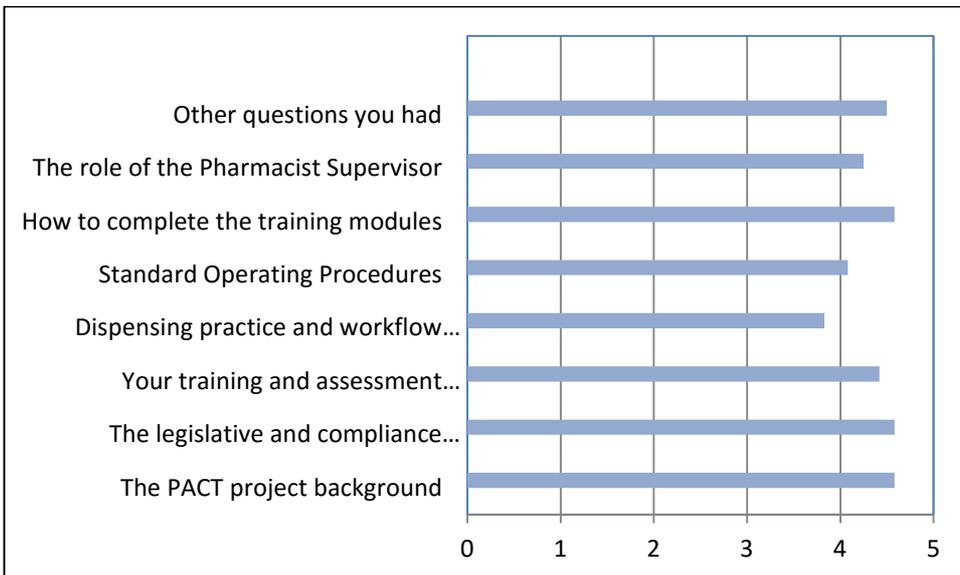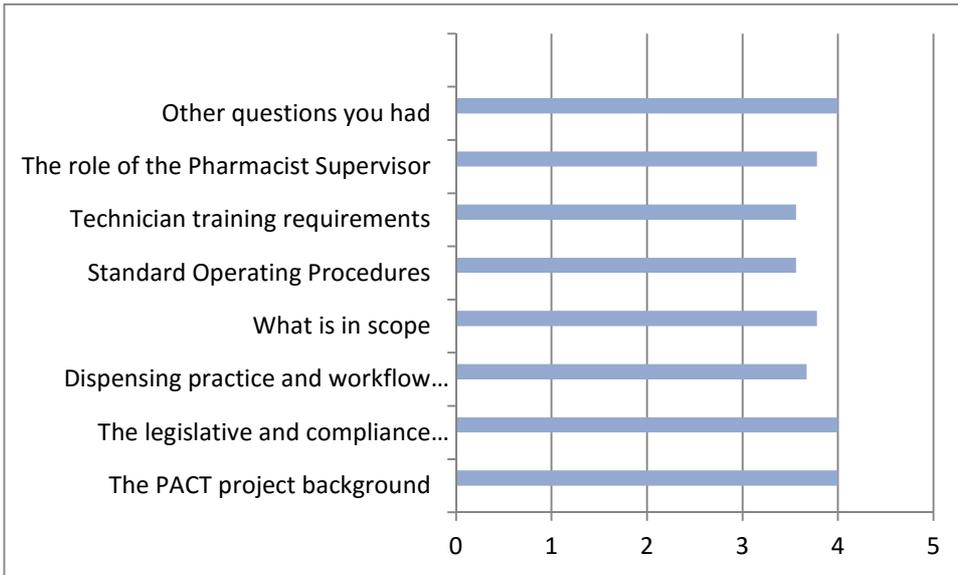
Quality course materials

How effective were the course materials

- Technicians
- Pharmacists

X-axis: 0, 1, 2, 3, 4, 5
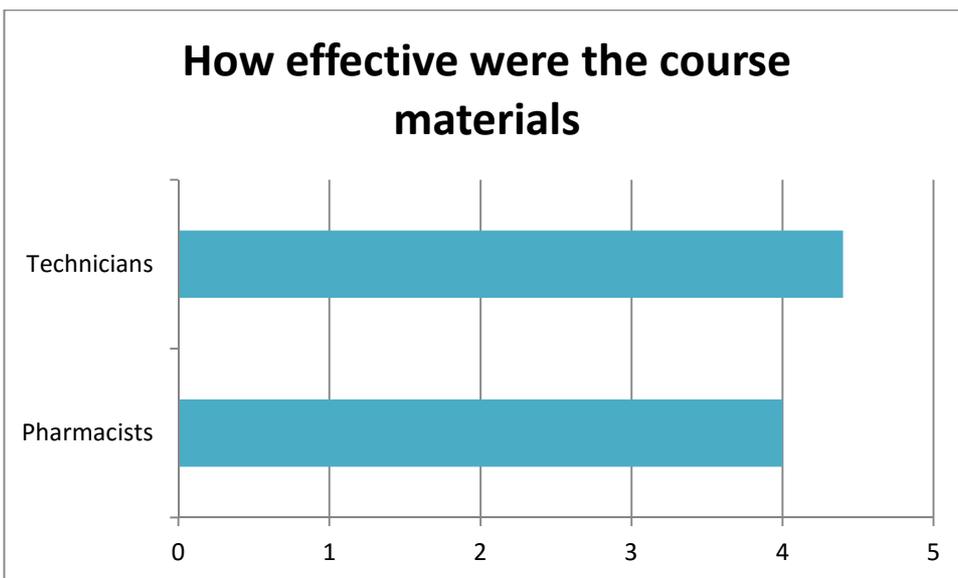
How effective was the training delivery?

Criteria		Poor	OK	Good	Fantastic
Uses priciples of adult learning					
effective learning environment: sufficient time for learning **answered questions**	Technicians				🟢
	Supervising Pharmacists				🟢
adequate support	Technicians				🟢
	Supervising Pharmacists				🟢

Evidence

Technicians
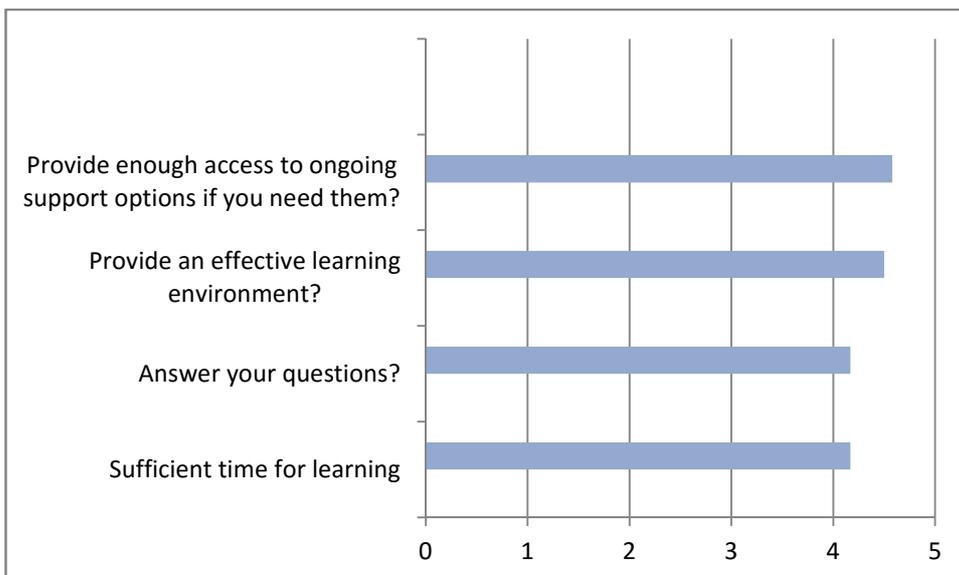
Supervising Pharmacists
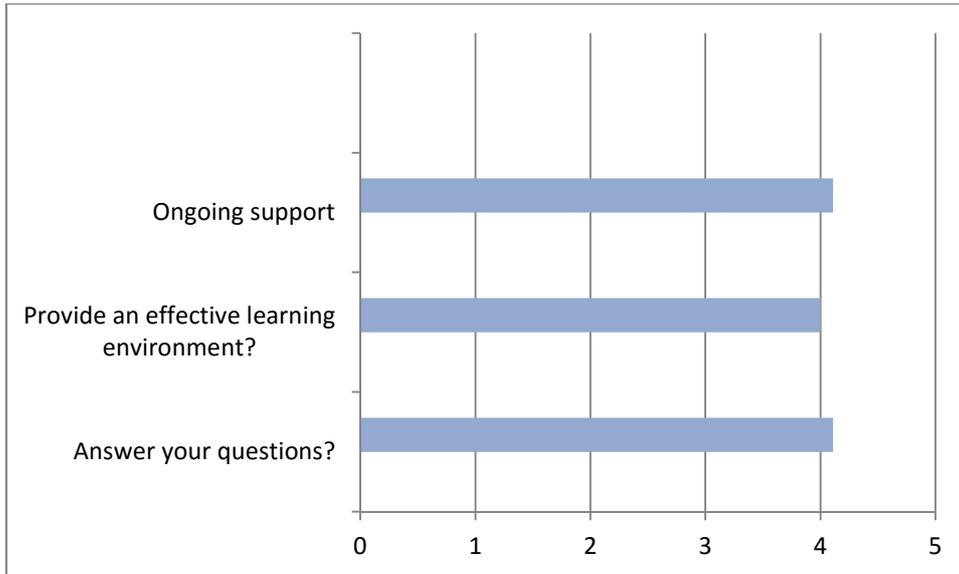
The face-to-face training day was informative, well organised and well facilitated. While a couple of the technicians acknowledged the training was *'a bit nerve wracking to begin with'*, people enjoyed the discussion format and appreciated having the opportunity to ask questions and meet the other technicians and pharmacists.

> *'I got a lot out of that day'* (Hospital Technician)

> *'[I] came away with a fair idea of what was expected of me'* (Community Technician)

All interviewees appreciated the face-to-face training and all but one said it would be important to keep the training face-to-face to eliminate confusion, be interactive, provide the opportunity to ask questions, listen to the responses of other people's questions, and put a face to who is involved in the training and who to go to for help. A PACT suggested separate training days in the North and South Islands to save on travel time and expenses.

Overall effectiveness of the training

Poor – Most Techs & Pharmacists not equipped to participate, major changes required	OK – Most Techs & Pharmacists are equipped to participate, substantial changes required	Good – Most Techs & Pharmacists are well equipped to participate, minor changes required	Fantastic – All Techs & Pharmacists are well equipped to participate
< 60% complete, major issues	60-80% complete, substantial issues	> 80% complete, minor issues	100% complete, no issues
Most ratings below adequate (3) with some poor or very poor (1-2), comments highlight major issues	Most ratings adequate or good (3-4) all adequate or above, comments highlight issues of importance	Most ratings good or very good (4-5) with one or two adequate (3), comments support this	All ratings good or very good (4-5), comments support this, no weaknesses of any consequence
Overall rating less than 5 out of 10	Overall rating 5 or 6 out of 10	Overall rating 7 or 8 out of 10	Overall rating >8 out of 10

Criteria		Poor	OK	Good	Fantastic
all training modules successfully completed by technicians				●	
everyone needing training receives it					●
Process of collating a portfolio of evidence achievable				●	
Assessment of technicians on completion of the training period effective					●
Possible within the legislative frameworks					●
Technicians have confidence, knowledge and skills needed to perform the new PACT role	Technicians				●
Pharmacists have the skills, knowledge and confidence to support the PACT role	Supervising Pharmacists				●
demonstration sites have capability and capacity to undertake training					
Instilled confidence in ability to complete training	Technicians				●
Provided skills/tools needed to support PACT role	Supervising Pharmacists				●

Conclusion

Fantastic – All Techs & Pharmacists are well equipped to participate

The training was highly effective and requires only minor amendments to the module wording. Those sites with more than one PACT trainee strongly recommended only one PACT trainee per site at a time to allow the process to flow as intended.
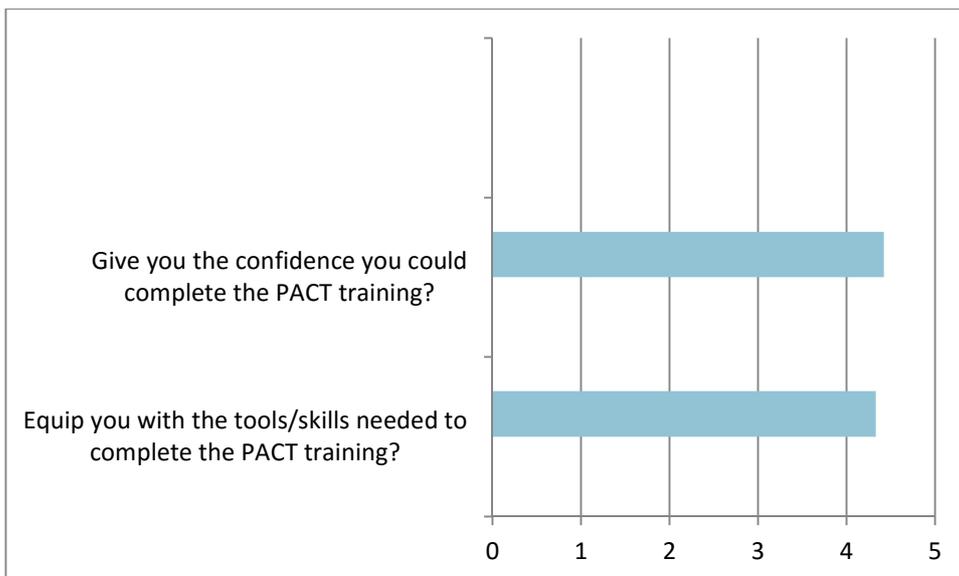
While all interviewees felt the error checking log was a lot of work it was seen as essential and no one thought there should be fewer items.

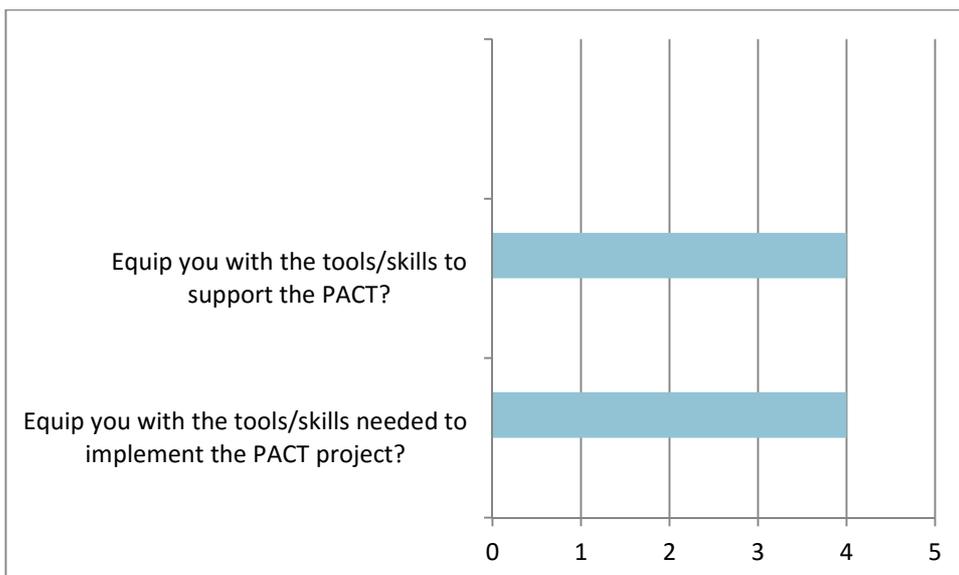The supervision role was a positive experience for all pharmacists involved.

How well did the training equip sites to participate?

Evidence

Technicians

Supervising Pharmacists

Modules

Interviewees said written modules need to be clearer, and relevant for both community and hospital contexts as well as the New Zealand context.

Over half of the technicians said the written modules need to be worded better as some were difficult to understand and sometimes there was more than one answer that could have been right so it was difficult to know which answer to select.

Other comments/suggestions included:

- There were discrepancies between hospital and community pharmacies – two hospital technicians said at least one question was community-specific and they got the answer wrong.
- Clarity about what constitutes an A error and what constitutes a B error.
- It was based on the UK standards and some of the information was not right for the New Zealand context e.g. this sometimes meant there was a discrepancy between theory and practice.
- The math module was good for revision but could have been harder.
- The math module had some good calculation examples but some of the calculations would never be used e.g. changing liquid weight to volume or vice versa.
- Have at least two examples of how to calculate things as people come to the same answer in different ways.
- Having the Standards of Practice was good to bring everyone into line about how the pilot scheme would run.

The checking log

The 1000 item checking log was a lot of work and took a lot of time but was good to do

While all interviewees felt this was a lot of work, no one thought there should be fewer items in the log. Technicians described it as '*a hell of a lot [of items to check]*', '*stressful but good*', '*never ending*' and '*time consuming*'. One said it was satisfying to find things that had been missed (AT).

'[It] *puts your mind right where it needs to be focused and you get so repetitive…you automatically do it*' – Hospital Technician.

> *'Doing the log has made you put your checking technique into place'* – Community Technician.

One community technician estimated spending an extra hour per day writing the log when they were up to 50 scripts a day. One of the technicians that took a long time to get through the process, said it took a while to get into it because of a lack of self-confidence but that it was a very worthwhile process and there needed to be high standards as not everyone would *'make the grade'*.

The timeframe to do the log was challenging for the pharmacies with two trainee technicians. One of the technicians said the timeframe would not have been such an issue if there was just one technician training at once.

One hospital technician felt the items in the log were more applicable to community pharmacies but noted that hospital technicians probably had more time to do their logs during the day, compared to a community technician, as they did not have as many scripts coming through.

Assessment

The practical exam was generally fine but the questions need to be relevant, adaptable and clear

The technicians generally felt the exam was fine but some had the following suggestions and concerns:

- Be able to tailor the exam templates to each pharmacy – this would make it better for the PACT as they have their own chart in mind and having to reorient themselves with a different chart could be confusing.
- Either state exactly how many errors there are to look for or do not state it at all because technicians got worried they did not find enough (i.e. when it said 6-8 and they had found 6 they got worried they had missed 2).
- Question whether it is 'fair' and consistent to have the exam set in a technicians own pharmacy – some supervisors may be strict but others may not.
- A hospital PACT would have felt more comfortable with a face-to-face interview at the end of the exam.
- Be able to tailor the content of each exam to each pharmacy.

> *'Each pharmacy has their own set of rules for what a technician can or can't check…I don't check controlled drugs or cytotoxics and that was on one of the practical exams…I saw it but I just went straight past it because that's what I'd been told to do'* - Community Technician.

Supervision process

Pharmacists experiences of supervising the technicians through the training was very positive

All of the pharmacists reported having positive experiences of supervising their technicians through the training and most said that was due to the technicians being motivated, committed and conscientious. These pharmacists said their technicians just got on with the work themselves, were well organised and developed their own processes which made it easy for them. One noted it was important for the technicians to have 'total buy-in' to the training.

It was just 'normal work practices' that made supervision difficult at times

The only things reported to get in the way or make things difficult were normal work practices e.g. lack of staff and time.

> *'We did ring fence this as an important task that we needed to prioritise and not let go'* – hospital pharmacist.

Another pharmacist, who was also the manager, gave the technician allocated time outside of her normal responsibilities to do the modules.

Have just one PACT in training at once within a pharmacy

Three of the interviewees worked at two pharmacies (two technicians and one pharmacist) where there were two technicians training to be a PACT at the same time. All three interviewees said it would have been better to have

only one person training at a time as it affected how long it took them to complete the training – both technicians had not started the probationary period at the time of the interviews.

Post training do PACT have the skills and knowledge to perform the new role?

All pharmacists were very confident and all but one PACT were very confident they had the skills and knowledge needed to perform the new PACT role. (1 = not at all confident; 5 = very confident)

> *'Any mistakes are going to leap out at me like crazy'* (Hospital Technician)

The remaining PACT chose 3.5 or 4 because their role was predominantly doing blister packs and they were not as close to the checking process or doing checks as often as the technicians whose main role was on the front bench. The supervisor of this technician was also interviewed and was 'very confident' in this technicians skills even though the technician was not as confident.

Rating the training overall

Interviewees were asked to rate the training overall (i.e. the complete package, the training day and the assessment work) from 1 – 10 with 1 being poor (the training content and delivery were of poor quality – they need to be completely redesigned) and 10 being fantastic (the training content and delivery were high quality).

The training overall was rated between a 7 and 10 by all interviewees. The three that rated it a 7 gave the following reasons:

- the paperwork could have been more of a step up to be aligned with the increased responsibility in the role
- needs to be more adaptable to different environments
- good but could be improved in some areas

The five that rated it an 8 gave the following reasons:

- was great, there are just a few things that need tweaking
- was supposed to receive something in the pack and it did not arrive
- some of the supporting information was still heavily based on the UK system and needs to be tweaked for the New Zealand context
- training is never perfect but it was really good
- no major changes, it just needs to be more practical.

The one that gave it a 9 gave the following reason:

- could have been a 10 if they had attended the training with the rest of the group and interacted with them.

The one that gave it a 10 gave the following reason:

- it was well explained and we knew what we were doing.

Overall effectiveness of project communication

Poor –many people do not understand the PACT process, low levels of support	OK – most people understand the PACT process and moderate levels of support	Good – most people understand the PACT process and are supportive	Fantastic – everyone understands the PACT process and is supportive
Qualitative data support this	Qualitative data support this	Qualitative data support this	Qualitative data support this

Criteria	Poor	OK	Good	Fantastic
Comprehensive communication plan				●
sites engaged and supportive			●	
everyone understands and supports PACT framework			●	

Conclusion

Good – most people understand the PACT process and are supportive

The communication plan and implementation were fantastic and participants were very well supported to participate. The dissemination of information by the participants to other colleagues was mostly positive with only a few experiencing any negativity. Generally the sites were highly engaged and supportive. The findings highlight the need for senior support of the PACT and a high level of pharmacy buy-in to achieve successful outcomes.

How good were the communications about the project?

Consensus that communication about the PACT training was very good

All interviewees said their communications with the project team, particularly Alasdair, were great – they were efficient and always answered the questions they had. One PACT said they felt like they had '*lost contact*' with the project team now that they had finished their probationary period and queried whether there could be a monthly email to keep everyone on the same page and avoid PACTs feeling isolated.

Most felt there was enough information for colleagues at the pharmacy

Almost all felt their colleagues had enough information about the training. They made concerted efforts to keep their colleagues informed through team meetings, at continuing education sessions, email updates highlighting the technicians milestones, developed own resources e.g. cards that the technician used to identify the trays and what scripts needed checking.

> '[Other staff] all knew what was going on because we wouldn't shut up about it' – Hospital pharmacist.

One of the community technicians felt the other pharmacists and technicians needed more information about what was involved as the staff meetings they had '*did not cut it enough*' to prepare staff for the change in dynamics within the dispensary. This technician said pharmacists needed more information so they felt comfortable and confident leaving the checking up to the PACT and giving them greater responsibility.

Was there sufficient engagement of demonstration sites to enable the project to be successful?

Most colleagues were very supportive of the training

Most, if not all, colleagues were reported to be very supportive of the training and could see the value in it. Several said they knew of technicians who now wanted to train as a PACT themselves. A community pharmacist said all of the pharmacists looked after the PACT - they were interested in what the PACT was doing, sometimes signed things off for her and knew not to touch her baskets in order for the system to work smoothly.

There were just a few technicians that talked about some conflict with colleagues. In one instance, one technician got chosen over another for training as a PACT and that caused some strain in relationships especially when the other technician was only processing or dispensing a lot and had the perception that the PACT was not doing as much work as they were. The PACT said they did not think the new role would affect the work of the other technician as much as it did as they anticipated the pharmacist would be doing more processing and dispensing but in reality, the pharmacists could not always switch into just a dispensing mode. This PACT noted there were more pharmacists to technicians in their pharmacy and that if there was another technician it could '*even things out*'. Another PACT said most colleagues had responded well but there was one pharmacist who did not want to '*change her ways*' and was set to retire soon. Similarly, another PACT said one or two pharmacists were a bit unsupportive to start with as it was difficult for them to let go and trust the technicians to do the work but as they progressed and proved they could do it, those pharmacists eased up and '*came on board*'.

The importance of everyone being on board with the training was highlighted by several interviewees. When one hospital pharmacist was asked what made the PACT training so successful, they said:

> '*Everyone was on board…wanted to be a success and wanted to do it for years…because of that our team was already very focused on it being a success because it was something we really wanted. We also had a number of UK pharmacists and technicians who have seen this work successfully in the UK so that helped to encourage everyone of the benefits of it. Our tech was an outstanding candidate from the beginning and we had a number of pharmacists who would have been good supervisors. We just had a really good environment*' – Hospital pharmacist.

Overall impact on quality and effectiveness of patient-centred service

Poor – minimal improvement some unforeseen problems	OK – some positive impact service – minor negative impacts	Good – an important positive difference	Fantastic – significantly improvement
Time spent on patient-related activities increased for less than 50% sites	Time spent on patient-related activities increased for some sites	Time spent on patient-related activities increased for most sites	Time spent on patient-related activities increased for all sites
Errors detected at lower rate	Errors detected at same rate	Errors detected at same or higher rate	Errors detected at same or higher rate
Dispensary workflow not improved	Dispensary workflow improved – minor negatives	Dispensary workflow improved	Dispensary workflow improved – no negatives
Technicians and pharmacists no more satisfied with job	Technicians and pharmacists somewhat more satisfied with job	Technicians and pharmacists more satisfied with job	Technicians and pharmacists much more satisfied with job

Criteria	Poor	OK	Good	Fantastic
Pharmacists free up time to engage in, or expand on the provision of patient-centred services				🟢
Quality and safety of dispensing maintained				🟢
Increased efficiency in dispensary workflow				🟢
Increased satisfaction of job (technicians and pharmacists)				🟢

Conclusion

Fantastic –
significantly
improvement

The overall impact on quality and patient-centred services was fantastic.

On average pharmacists in both groups increased the amount of time spent on patient focused activities. Some pharmacists had large increases in patient focused activities for example one from 16% to 48%.

The accuracy and safety of dispensing was positively impacted with technicians picking up errors at the same or greater rates than the pharmacists at baseline.

While participants said more time was needed to judge the full impact on dispensary workflow the impact had been positive so far with greater improvements forecast.

All of the PACTs reported that their enjoyment has increased and their work is more rewarding through having more responsibility and a greater sense of achievement. Only one pharmacist commented on job satisfaction for pharmacists saying

'Sometimes you feel like all you do is count and pour…and that's boring. We've got all this knowledge that we can be giving out to patients and we have to check prescriptions all the time…I'm not actually doing what I was trained for…for the whole profession it will be uplifting. Yes it will be a bit of work to start with but at the end of the time…it will actually be really good for the whole team' – Community pharmacist

Evidence

To what extent did the project free up time to engage in patient-centred services?

The time and motion study data collection was divided into seven categories:

- Direct patient activities
- Indirect patient activities
- Supportive patient actives
- Assembling prescriptions
- Checking prescriptions
- Other
- Breaks

Hospital vs Community – comparison of means

This section includes the means from the two different workplace settings for total patient focused activities, with dispensing activities broken down into assembling and checking prescriptions.

Pharmacist		Patient focused activities (%)		Assembling prescriptions (%)		Checking prescriptions (%)	
		Range	mean	range	mean	Range	mean
Hospital	pre	0 -57	16.3	0 - 9	5.3	7 - 38	21
	post	2 - 45	23.6	0.7	2.3	5-20	10.3
Community	pre	0-- 23	8.0	5 -37	19.2	16 -49	32.0
	post	0 - 46	13.3	7 - 29	18.8	7 - 53	18.8

Table 1. Comparison of pharmacist means, hospital vs community pre and post.

Technician		Patient focused activities (%)		Assembling prescriptions (%)		Checking prescriptions (%)	
		Range	mean	range	mean	Range	mean
Hospital	pre	4 - 26	17.3	13-46	31.6	0 – 3	1.0
	post	0 - 19	15.0	7 - 27	17.3	9– 28	21.0
Community	pre	0 - 35	11.3	17 - 71	47.0	0 – 3	1.0
	post	1 - 20	7.1	13 -62	38.2	4 - 29	19.0

Table 2. Comparison of technician means, hospital vs community, pre and post.

On average pharmacists in both groups increased the amount of time spent on patient focused activities. Some pharmacists had large increases in patient focused activities increased for example one from 16% to 48%.

Community pharmacists reported spending more time on dispensing activities than their hospital counterparts, both on assembling prescriptions and on checking prescriptions, although these decreased with the introduction of the PACT role. The amount of time spent checking prescriptions decreased by almost half for both groups.

Both groups of technicians means indicate decreasing patient focused activities and assembling prescription activities and an increase in checking prescription activities. Community technicians reported greater amounts of time assembling prescriptions compared to their hospital counterparts and the hospital technicians reported more time spent on patient focused activities in total.

Both groups reported increases in checking prescriptions with the hospital technicians reporting a slightly higher rate.

Nb. Hospital vs community 'direct activities' only mean calculated as: -

Hospital pre = 4% post = 15%.

Community pre = 16%, post =23%

It has freed up the pharmacists time in some pharmacies but is too soon to tell in others (qualitative interviews)

Several interviewees said the PACT has freed up the pharmacists time as they can leave the PACT to continue the checking while they focus on other things like answering patient queries, making phone calls, focus on clinical tasks e.g. doing Warfarin testing. Almost half of the interviewees reported their pharmacists were spending more time on patient-related activities as a result of the new PACT role. A community pharmacist observed no initial freeing up of her time as the PACT needed supervision and support but that lately, her and the other pharmacists had gotten everything done during the day and had not had to stay longer or take work home with them. This pharmacist also noted they were ahead with their rest home work programme.

> '*This week we've finished it and it's not due until next week and that never happens*' - Community Pharmacist

A community PACT said it was too soon to gauge the impact on the pharmacists' time because it was taking a while for the pharmacists to remember to share their workload with the PACT and for all staff to get used to the changes in roles. A hospital technician said it was too soon to really assess the impact but it should free up pharmacists time as they will not be so tied to the bench checking things.

A pharmacist felt that going forward the PACT would free up pharmacists times to engage more with patients and in clinical management with DHBs.

> '*I just think it'll enable the redistribution of current workload to enable them to pick up some other tasks*' – Community pharmacist.

This pharmacist was not yet convinced the PACT role would free up the pharmacies financial resources.

To what extent did the project maintain the accuracy and safety of dispensing?

Error data collected by PACT during training

This information details all the errors detected while the PACT trainees were checking their 1000 prescription items.

During this training period it was important for the trainees to demonstrate that they understood the importance of identifying errors and rectifying them. The data illustrates that they were very diligent in this.

The trainees identified the same range of errors as reported by the pharmacists during the baseline data collection. Procedural, label errors and quantity errors were the main categories identified by the trainees. The hospital trainees identified more procedural errors or failure to comply with standard operating procedures e.g. the requirement for expiry dates on all medications being sent up to the wards. The trainees also identified more labelling errors and quantity error i.e. too little or too much medication counted out during dispensing. The trainees appeared to identify more errors overall and were more fussy about label instructions.

No errors were reported from error number 20 which the pharmacists had previously reported, and no errors were reported for numbers 18 or 19 errors but these were both error categories that the pharmacists didn't report any of examples of during the baseline data collection.

		Content errors
1		Incorrect patient
2		Incorrect drug
3		Incorrect strength
4		Incorrect form
5		Incorrect quantity
6		Expired/deteriorated drug
7		Failure to supply
8		Other content error
		Label errors
9		Incorrect drug
10		Incorrect strength
11		Incorrect dosage form
12		Incorrect directions
13		Incorrect quantity
14		Incorrect ward/prescriber
15		Incorrect label on bottle/pack
16		Typos
17		Other
		Issue error
18		Given to incorrect patient
19		Incorrectly bagged
		Subsidy error
20		Incorrect brand on label
21		Incorrect patient code
22		Admin error
		Miscellaneous
23		Stopped medication dispensed
24		Repeats missed
25		Incorrect patient details (address)

Table 3. Examples of error types utilised for this project.

To what extent did the project result in efficiencies in dispensary practice?

Workflow and layout (opinion survey)

At census there were six questions asked on workflow compared to the initial two at baseline.

- Did your pharmacy workflow pattern for accepting and dispensing a prescription have to change with the introduction of the PACT?
- Has there been any further change to the workflow since the last survey?
- Did the changes involve a change in physical layout, furnishings or fittings moved or new ones bought etc. at any time?
- If there has been changes, did these change/s lead to an improvement in workflow?
- Did you feel these changes were needed?

- Do you think the current workflow would benefit from further reorganisation to best utilise the PACT role?

At baseline the respondents were asked if they felt this new role would fit into their current workflow and if they felt there would need to be a change in the existing workflow. Most respondents believed workplace changes would be necessary.

At census the respondents gave a mixture of responses. Many reported that little change had occurred with the physical layout of the dispensary and were comfortable with their layout to accommodate the new PACT role. There were others who believed that more changes would be beneficial.

Many of the changes reported had involved the expected changes to staff activities rather than physical changes in their workplace. There was very little reported change in the overall layouts of the pharmacies with many choosing to work within the existing layout and to move staff around and redistribute them within the dispensary. This included moving the PACT or the pharmacist performing the clinical check to a designated area within the existing layout.

There were many positive comments about how well the PACT was working. There was recognition of the change to the process of dispensing and many respondents commented on the change to the order in which prescriptions were processed to accommodate the initial clinical check. Many respondents commented positively on the benefit to the patients and the increased efficiency the PACT role had achieved.

It should be noted that these responses included two sites where the trainee had not completed the training and assessment therefore the trainee was not yet operating in the capacity of a PACT. This may mean that there were still workplace changes to be put in place in the future once the PACT role was fully established. This may account for some of the responses that believed there was a still a need for further changes.

Generally a positive difference already observed in the dispensary workflow (qualitative interviews)

Many said the PACT role had a positive influence on their workflow. This included:

- keeping to the two hour turnaround in the hospital x1
- clearing benches and moving prescriptions through faster without having to wait for pharmacist to begin the process x2
- finding more near misses and thinking more about not making mistakes x1
- pharmacist colleagues asking for help to ease workload or 'bottlenecks' and speed up workflow x2
- being more efficient because everyone in the pharmacy is more organised x1

Too soon to really see an impact

Several noted they had not yet started the probationary period or it had only been a short time since they or their technician had finished the probationary period. One of these interviewees, a hospital pharmacist, said it was too soon to see a noticeable difference in their pharmacy because their system was already very structured and they did not have to change it to accommodate the PACT working on the bench. They followed the process set out in the manual and that worked with the processes they already had in place.

A community pharmacist said it was too soon to see any impact at all and felt a key part of the pilot would be a follow up in six to 12 months' time to really assess the benefits from a commercial cost-saving perspective e.g. reduced staff costs and freeing up pharmacists time to spend elsewhere.

Greater improvements in dispensary workflow forecast for the future

Many thought their pharmacies would continue to become more efficient in the future as they all adjusted to the new roles. One of the community pharmacists said the pharmacists would be able to spend more time doing things like Long Term Conditions. One of the hospital pharmacists wanted a second PACT to become even more efficient.

> *'I think it'll speed things up…the pharmacist won't be so worried about what's going on behind [the counter]…and spend more time with the customer'* - Community PACT.

To what extent did the project increase the meaningfulness of work for technicians and pharmacists involved?

All of the PACTs reported that their enjoyment has increased and their work is more rewarding through having more responsibility and a greater sense of achievement.

> *'I'm a lot more thorough…you just feel like you're…a better technician for doing the course'* - Community PACT.

One of the community pharmacists thought the new PACT role would result in technicians having greater job satisfaction and a couple of the technicians said it was great to have career progression and something else to go on to. One of these technicians added that not all pharmacists treat technicians with respect but this training could help with that.

Increased job satisfaction for pharmacists

Increased job satisfaction was mentioned above for the PACTs and one of the community pharmacists talked about increased job satisfaction for the pharmacists through using more of the skills they learnt at university.

> *'Sometimes you feel like all you do is count and pour…and that's boring. We've got all this knowledge that we can be giving out to patients and we have to check prescriptions all the time…I'm not actually doing what I was trained for…for the whole profession it will be uplifting. Yes it will be a bit of work to start with but at the end of the time…it will actually be really good for the whole team'* – Community pharmacist.

Inspires other technicians to train as a PACT

A couple of the pharmacists mentioned they have other technicians who are now keen to train as a PACT as they've seen the valuable role they can perform and the increased responsibility and job satisfaction they can get.

Suitability for national roll out

Conclusion

The project is suitable for national roll out and has the potential to work in all pharmacies with the proviso from participants that buy in and dispensary staffing numbers are important considerations. All those interviewed would recommend the PACT training to other pharmacies.

'Just as long as you have supportive team members…I know that some pharmacists may be against checking technicians and if you've got someone in there that didn't think you should be doing that, I think it would make it very hard for them. They wouldn't be helping them out with getting their scripts or encouraging them or…teaching them a checking technique or anything like that' - Community PACT

All those who participated in the project said the potential impacts of a national roll out of PACT would be very positive for technicians, pharmacists, pharmacies and patients.

One potential barrier to a successful national rollout was negative attitudes of colleagues, particularly pharmacists who do not see the value in the PACT role. Participants recommended communication to promote the new roles and enable those opposing it to see the value in it for them.

For the PACT project to go to a wider rollout it requires the sector to drive it.
Once the sector has demonstrated that any legislative requirement or compliance requirements have been met and there is a framework in place for implementation the process, with the support of the sector, can be rolled out nationally.

Evidence

To what extent is the project suitable for all pharmacies?

All would recommend the PACT training to other pharmacies

All interviewees would recommend the PACT training to other pharmacies. 'Yes definitely' was a common response.

It has the potential to work in all pharmacies but depends on staff 'buy-in' and size of pharmacy

Almost all said the PACT role has the potential to work in all pharmacies but it depends on the dynamics of the pharmacy, staff ratios (may be difficult to do with just one pharmacist), having everyone 'on board' and the process used. One community technician felt an even ratio between pharmacists and technicians was important to get the right amount of processing and dispensing happening so other staff are not strained. Several interviewees said it would not work well in small pharmacies with just one pharmacist and one technician.

A hospital pharmacist noted the differences between hospital and community pharmacies saying it would work in all but it would work differently. A community pharmacist said pharmacies need to be positive and see the value in the PACT role and commented:

> *'You have to be motivated and want to do it…it's like when you have an intern…yes, you have to put the effort in…but at the end of that year that intern has come such a long way and can do so many things to be helpful that it makes it all worth it…it'll be a mindset [shift] for some people…the pharmacist and the owner especially' - Community pharmacist.*

Similarly, a community PACT said:

> *'Just as long as you have supportive team members…I know that some pharmacists may be against checking technicians and if you've got someone in there that didn't think you should be doing that, I think it would make it very hard for them. They wouldn't be helping them out with getting their scripts or encouraging them or…teaching them a checking technique or anything like that' - Community PACT.*

In contrast, a hospital pharmacist said it would work in the bigger hospital pharmacies that have enough staff but some smaller hospital pharmacies may struggle to get through their work and do the training and then ensure the PACT is not left to do all the checking after they have their qualification.

To what extent is the project suitable to be rolled out nationally?

All said the potential impacts will be very positive for the technicians, the pharmacists, the pharmacies and the patients.

More time with patients and faster medication distribution

Most of the interviewees felt the pharmacists will have more time with patients and patients will receive their medications faster. A hospital pharmacist said the additional input from the pharmacist (though taking patient medication histories, charge planning and discharge summaries) would result in patients being better educated upon admission and up to point of discharge.

Increased quality control for all pharmacy roles

A couple of the pharmacists mentioned that the PACT training and role has resulted in improved quality control for others in the pharmacy as everyone has become more aware of near misses. One of the hospital PACTS had found a 50/50 spread of mistakes across pharmacists and technicians so everyone had 'upped their game'.

Potential negative impacts on a national rollout of the PACT project

Could be some negative attitudes towards the changing roles

Almost half of the interviewees felt the negative attitudes of colleagues, particularly the pharmacists who do not see the value in the PACT role, could negatively affect the national rollout. These interviewees talked about some pharmacists thinking there is a specific role for pharmacists and technicians and this could result in some pharmacies not 'buying in' and/or slowly accepting the change towards pharmacists having more patient/clinical input.

> *'If your owner pharmacist isn't on board it could be a bit of a struggle'* – Community pharmacist.

> *'You're likely to have to win some 'old school' pharmacists over'* – Hospital Pharmacist

This pharmacist suggested the national rollout could involve communication to promote the new roles and enable those opposing it to see the value in it for them.

A couple of the PACTs commented on the need to ensure the right person is in the PACT role to overcome the 'hierarchy issues' – from both pharmacists and technicians. One of the PACTs talked about hierarchy between technicians and that some PACTs could feel as though they are above the other technicians as a result of their new role and the increased responsibility.

Need appropriate resources and support and the right person in the role

Several talked about the need for appropriate resources and support which could impact a national rollout. This included:

- extra responsibility should come with a higher pay x1
- the training needs to be funded x1
- there needs to be ongoing support for the PACT to ensure they are not just left to their own devices after the qualification which is about '*keeping everyone safe within their scope of practice*' x1
- needs to be an environment where the value of the PACT is apparent and supervisors need to be enthusiastic and positive about the project as well x1
- Identify the technician who would enjoy the challenge and have the required qualities e.g. attention to detail, committed, conscientious, experienced. X2.

'*Without the desire to achieve the qualification, I think it would be hard work for both parties*' – Hospital pharmacist.

Additional steps required

For the PACT project to go to a wider rollout it requires the sector to drive it. There is no singular authority or requirement to convince an external body. The role of HWNZ is to show evidence of whether the role can work or not.

Once the sector has demonstrated that any legislative requirement or compliance requirements have been met and there is a framework in place for implementation of the process, with the support of the sector, can be rolled out nationally. The pharmacy services standards would need to be changed to allow the new licences to be awarded longer term or in the shorter term a process of amendment as per the pilot project (email documentation).

Medicines Control issued an amended licence schedule to Pharmacies to allow technicians that had been assessed as meeting the PACT competency requirements to undertake this role.

A draft document outlining the *New Zealand Framework for Pharmacy Accuracy Checking Technicians* has been developed and reviewed by the Steering Group. A visual summary of the framework is included in Appendix 2. A briefing paper to the PSNZ National Executive outlining the future requirements for checking techs and seeking their interest in assuming this role, if it comes to fruition following the project, is under development.

Appendix 1: Sites involved

The demonstration site project was designed to trial the training, assessment, certification and subsequent impact of PACT in 12 pharmacies across New Zealand. The pharmacies were chosen to provide a good spread of hospital and community pharmacies, geographical location and size of pharmacy. The 12 pharmacies (4 hospital and 8 community) were selected from an expression of interest from the Pharmaceutical Society.

Of the original 12 demonstration sites 11 completed the project and one withdrew. There were 15 technicians trained across the 11 sites, of these 13 successfully completed the training, and began working as PACT during the project, one failed to complete and one trained but was withdrawn after moving to a new pharmacy (see Table 1).

Table 1: Location of sites and technicians that completed the Project

Pharmacy	Location	
Hospital		
Auckland City Hospital	Auckland	
Hawkes Bay Hospital	Hastings	2 technicians
Hutt Valley Hospital	Lower Hutt	
Christchurch Hospital	Christchurch	
Community		
Onerahi Unichem Pharmacy	Whangarei	
Westgate Pharmacy	Auckland	
Vivian Pharmacy	New Plymouth	
Westbury Pharmacy	Waikanae	2 technicians
Community Care Pharmacy	Blenheim	
Unichem Tower Junction	Christchurch	
Life Pharmacy Ashburton	Ashburton	

Appendix 2: PACT Framework Structure

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                    │                     │
                    └─────────────────────┘
         ↙                                      ↘
┌──────────────────────┐              ┌──────────────────────┐
│ Enrol onto the       │              │ Supervising          │
│ Framework            │              │ Pharmacist (SP)      │
│                      │              │ assigned, attends    │
│                      │              │ workshop             │
└──────────────────────┘              └──────────────────────┘
         ↓
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┌──────────────────────────┐   ┌──────────────────────────┐
│ Evidence of ongoing   │   │ Submit evidence of   │
│ competence   │   ──────────────→   │ ongoing competency and   │
│   │   │ statement signed by SP   │
│ Supporting statement   │   │   │
│ from SP that the   │   │   │
│ candidate continues to   │   │   │
│ competently check for a │   │   │
│ minimum of 8 hours a   │   │   │
│ month   │   │   │
└──────────────────────────┘   └──────────────────────────┘