

Appendix 6.0

Stage 3 Elicitation of preferences from consumers, carers and health professionals about the delivery of pharmacy services

Appendix 6.1 – Discrete choice experiment

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Original Research

Preferences for the delivery of community pharmacy services to help manage chronic conditions

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Abstract

Background: To optimize positive outcomes, the design of new pharmacy services should consider the preferences of consumers with chronic condition(s) and their carers.

Objectives: (i) To evaluate the relative importance of community pharmacy service characteristics, from the perspective of consumers with chronic condition(s) and carers; (ii) To compare consumer and carer preferences to health professional beliefs about ideal service characteristics for consumers.

Method: A discrete choice experiment was completed by consumers with chronic condition(s) and/or carers ($n = 602$) and health professionals ($n = 297$), recruited from four regions in Australia. Participants were each randomized to one survey version containing four (from a total 72) different choices between two new pharmacy services. Consumer and carer participants were also given an 'opt out' alternative of current service. Each service was described using six attributes related to pharmacy service characteristics: continued medicines supply, continuity and coordinated care, location, medication management, education and information, and cost.

Results: Consumers and carers placed highest priority on continued medicines supply by a pharmacist for regular and symptom flare up medicines (100 priority points), a pharmacy located within a 'one-stop' health center (61 points) and home delivery of medicines (52 points). Although continued medicines supply was most important for consumers and carers, pharmacy location was perceived by health professionals to be the most important characteristic for consumers. Participants were less inclined to choose new services if their current pharmacy offered high quality services that were person-centered, easy to access and responsive to their needs. Younger, more highly educated

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and employed participants, and those with established condition(s) were more likely to choose new services.

Conclusions: Person-centered care is a fundamental tenet for pharmacy services. The provision of continued medicines supply (e.g. through pharmacist prescribing), convenient and coordinated care delivered through a one stop health centre, and home delivery of medicines, should be prioritized when planning pharmacy services to best assist consumers to manage chronic conditions.

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Background

The role of the pharmacist and community pharmacy has evolved from being principally centered on medicines supply to include a broader focus on medicines management, adherence support and promoting the judicious, appropriate, safe and efficacious use of medicines in the community.^{1,2} Pharmacists are amongst the most frequently visited, available and trusted health professionals in the community setting.^{3–6} The accessibility of pharmacy for most consumers reinforces its potential to promote general community health, but also self-management and optimal use of medicines by those with chronic conditions.

Pharmacy services other than dispensing have been reported to be beneficial in some settings to assist the management of selected chronic condition(s), leading to improved clinical outcomes, quality of life (QoL) and reduced health care utilization.^{7–10} Services that a pharmacist could potentially offer to help consumers and their carers effectively manage chronic conditions include medication reviews, education and information, safety monitoring through reporting adverse drug reactions or interactions or both, supporting compliance through dose administration aids, and liaising with a person's General Practitioner (GP) and other health providers as part of a care plan.¹¹ Perhaps more contentiously, in selected countries, pharmacists can also prescribe in a range of models across varying scopes of practice.^{12,13}

Despite the potential benefits of pharmacy-led services, there is little evidence available from the consumer perspective about the acceptability or preferred design of new or innovative pharmacy services.¹⁴ The few studies that have examined consumer preferences have reported some support for extended pharmacy roles, such as prescribing in England and Scotland, where pharmacist

prescribing is now comparatively well established.^{15,16} One Australian study reported support for the delivery of specialized asthma services through community pharmacy.¹⁷

In other areas, it is now recognized that to provide optimal benefit for consumers and carers and be responsive to their needs, the design of new services should consider the preferences of consumers. Indeed, the benefits of considering consumer preferences in health care reform and service design have been widely recognized.^{18–20} Consumers bring a unique perspective, which can promote the relevance, responsiveness, quality and safety of health service delivery. Furthermore, if consumers are engaged in the development of services, it is more likely that they will access these services, form partnerships around their care, and adhere to recommended management plans, ultimately leading to improved health outcomes.²¹ This is particularly important for populations with unique needs, such as young people who experience barriers to health care access and unmet health needs that youth-friendly pharmacy services could address.^{22,23} There is a clear need for a greater understanding of preferred pharmacy services from the consumer perspective, to harness the opportunity for pharmacy to develop innovative health and medicines services to benefit the community.

This study is part of a wider project focused on consumers' perceptions of chronic conditions, treatment burden, and the engagement of community pharmacy in chronic condition management. The primary aim of this sub-study was to examine the relative importance of different pharmacy service characteristics for consumers with chronic condition(s) and carers of people with these condition(s), and the trade-offs that are made when choosing between pharmacy services. A secondary aim was to investigate the similarities and differences between consumer and carer

preferences, and the perceptions of health professionals about consumer preferences. Given that health professional perceptions are likely to affect the design and delivery of services, agreement between these parties is critical. Several studies have investigated pharmacist preferences for an extended role,^{24,25} but none have directly compared the preferences of consumers and perceptions of health professionals for the preferred characteristics of pharmacy services.

Methods

A discrete choice experiment (DCE) was employed to elicit preferences for pharmacy services. The DCE is a choice-based preference elicitation method, with a theoretical foundation in Random Utility Theory and Lancaster's Theory of Value.²⁶ It is an established method for assessing preferences for health care and the trade-offs participants are willing to make between different desirable characteristics of a health care service, including in contexts related to the management of chronic conditions.^{29,30} The method has been applied previously to elicit preferences related to pharmacy and medicines use,¹⁴ including measuring consumer preferences for self-care or professional advice for minor illness,³¹ and examining the strength of preference of community pharmacists for existing and potential new roles.^{17,25}

DCEs typically involve a questionnaire containing a series of choices between two or more alternative products or services. Each alternative product or service is composed of different characteristics or "attributes," and in turn each attribute can take on several layers (referred to as "levels"). The levels of the attributes for each alternative are varied systematically across choices and for each choice set, participants select the alternative they prefer. The relative importance of improvements in the attributes and the trade-offs individuals make when choosing one alternative over another are estimated through analysis of the choice data.

Identification and selection of attributes and levels

In the DCE, each participant was asked to consider four hypothetical choice sets and each choice set was composed of two different new pharmacy services. The attributes and levels used to describe each new service were developed based on extensive qualitative research involving 97 interviews with consumers and carers,^{32–34}

followed by 26 focus groups with consumers, carers and health professionals, during which the nominal group technique was used to rank priorities for pharmacy service delivery.^{35,36} Findings of these formative studies suggested six overarching themes were highly and consistently prioritized by participants, and were potentially meaningful to a community pharmacy service model. These themes were developed into six related pharmacy service characteristics or "attributes," each described by between two and four levels. The attributes used to describe the hypothetical new services represented the extent to which a pharmacist could provide continued medicines supply (e.g. through repeat prescribing); whether pharmacy staff could direct individuals for advice from other service or other services were provided at the pharmacy; where the pharmacy was located; how medicines could be collected; how a pharmacist could be accessed for review of advice; and an indicative average out of pocket cost for the service per month (in addition to the cost of medicines). The themes and final selected attributes and levels are provided in Table 1.

Statistical design

The attributes and levels in Table 1 in combination describe a full factorial design of 648 (i.e. $4 \times (3 \times 4) \times 2$) different pharmacy services, in 209,628 different pairs.³⁷ Experimental design theory was used to select a manageable number of pairs to present to participants, whilst maximizing the efficiency (i.e. precision) of the preference estimates elicited from the choices.^{29,37} The level for each attribute was varied across alternative services according to a main effects fractional factorial experimental design, estimated using NGENE software using the Street and Burgess design approach.^{38,39} This ensured optimal statistical power for the design, whilst maintaining orthogonality in the variation of attribute levels, such that the main effects for the attribute levels could be independently estimated in the model.

The design identified 72 choice sets, with each set presenting a choice between two alternative pharmacy services. To ensure the number of choices faced by each participant was manageable, these were divided into 18 blocks of four choice sets, with participants randomized to one of the 18 blocks. An indicative choice set for consumers and carers is shown in Fig. 1. To increase realism, consumer and carer participants

Table 1
Attributes and levels, with cross reference to overarching theme

Theme	Attribute	How this is described in the DCE choice (i.e. levels) ^a
Innovation (i.e. pharmacist prescribing)	Continued medicines supply	Pharmacist, but only for regular medicines, and for medicines you've used periodically for symptom flare ups, with an annual review by the doctor Pharmacist, but only for regular medicines, with an annual review by the doctor Doctor for all medicines
Continuity and coordinated care (i.e. referral and integration)	Manage ongoing condition	Pharmacy staff available to speak with you and direct you to other health services, which you can then access yourself (e.g. dieticians) You can get advice from other health providers who are employed in the pharmacy (e.g. dieticians)
Access to pharmacy	Pharmacy location	Pharmacy that is located near to your home or work but away from other health services Pharmacy that is located near to your GP practice only Pharmacy that is located in a one stop health centre with all clinics and services, including your GP
Medication management	Getting your medicines	Face to face pick up at pharmacy Face to face pick up at pharmacy and you can collect your medicines without going into the pharmacy if required (e.g. drive thru) Face to face pick up at pharmacy and you can request home delivery
Consumer education and information	Medicines review or advice	The pharmacist is in the dispensary and you can ask to speak to them The pharmacist is available in the pharmacy without you needing to ask The pharmacist is available in the pharmacy without you needing to ask and you can speak to the pharmacist by phone, email, or internet The pharmacist is available in the pharmacy without you needing to ask and you can make an appointment for the pharmacist to visit you at home
Affordability (i.e. cost of service, additional to cost of medicines)	Average cost per month	\$0 per month \$10 per month \$20 per month

^a Wording shown is for consumer and carer survey; attributes and levels were the same for health professionals, but wording was amended to ask what service they thought their consumers would prefer.

were given a second level “opt out” option for each choice set; they were asked to indicate whether they would take their preferred new service (i.e. service A or B), or would in reality continue to use their current pharmacy service. This question was not relevant for health professionals, who were only asked to respond according to the new pharmacy service they thought consumers would prefer. Consumer and carer participants who opted out of a new service on one or more occasions were invited to explain their reasons for doing so.

In addition to the choice sets, participants were asked questions related to their (i) socio-demographic characteristics, (ii) use of primary health care services and medicines, (iii) health status (including generic health-related QoL assessed using the EQ-5D-3L),⁴⁰ (iv) treatment burden (consumers and carers only), using an

instrument developed by Tran and colleagues,⁴¹ and (iii) professional role (health professionals only). The results related to treatment burden and QoL will be presented elsewhere.

Study participants and data collection

Ethical approval for the study was provided by a University and a Health Service Human Research Ethics Committee (PHM/12/11/HREC; HREC/13/QPAH/605). The DCE was administered to two samples; (i) a sample of adults with one or more chronic condition(s) and/or adult unpaid carers of people with chronic condition(s); and (ii) a sample of health professionals (including pharmacists, doctors, nurses and allied health practitioners) who would commonly encounter people with chronic conditions in the community. A sample size of 600 consumers and carers and

Which new pharmacy service would you prefer to help you to manage your ongoing health condition and/or the condition of the person you care for? (Please select whether you would prefer Service A or Service B)

Services offered at the pharmacy	Service A	Service B
When you run out of your prescription medicines, you need to go to	Doctor for all medicines	Pharmacist, but only for regular medicines, and for medicines you've used periodically for symptom flare-ups, with an annual review by doctor
Help to manage ongoing health condition(s)	Pharmacy staff available to speak with you and direct you to other health services, which you can then access yourself (e.g. dieticians)	You can get advice from other health providers who are employed in the pharmacy (e.g. dieticians)
Pharmacy location	Pharmacy that is located near to your GP practice only	Pharmacy that is located near to your home or work but away from other health services
Getting your medicines	Face to face pick up at pharmacy	Face to face pick up at pharmacy and you can collect your medicines without going into the pharmacy if required (e.g. drive thru)
Medicines review or advice	The pharmacist is available in the pharmacy without you needing to ask and you can make an appointment for the pharmacist to visit you at home	The pharmacist is available in the pharmacy without you needing to ask and you can speak to the pharmacist by phone, email or internet
Average cost per month	\$10 per month	\$20 per month

Choice Set One: If these were the only two pharmacy services available to you, which service would you prefer to use?	<input type="checkbox"/> Service A	<input type="checkbox"/> Service B
Choice Set One: Would you choose your preferred service described above or your usual pharmacy service?	<input type="checkbox"/> I would choose my preferred new pharmacy service <input type="checkbox"/> I would stay with my usual pharmacy service	

Fig. 1. Indicative choice set (consumer and carer participants).

250 health professionals was targeted based on representation of the adult population with chronic conditions in Australia and the anticipated precision of estimates from the DCE analysis. For a population of approximately 17 million adults, with an estimated 75% of all Australians or 85% of those aged 15 years or over reporting one or more chronic condition(s),⁴² a completed sample of 600 has a margin of error of 4%.⁴³ There is no consensus on appropriate sample sizes for DCE tasks to give precise estimates, and sample sizes are based on rules of thumb.^{44,45} One commonly applied rule of thumb suggests that for the proposed DCE design, a minimum sample size of 250 is required.⁴⁴ The targeted consumer and carer sample size of 600 substantially exceeds that used for the majority of DCEs in health care,²⁹ and would be expected

to support the greater number of analyses to explore associations between preference and participant characteristics of interest.⁴⁶

Participants were recruited from four regions in Australia chosen for their socioeconomic, cultural and geographic diversity; Logan Beaudesert and the Mount Isa and North West region (Queensland), Northern Rivers (New South Wales) and the greater Perth area (Western Australia). Consumers and carers residing in these areas were invited to participate if they had one or more ongoing medical condition(s) and/or perceived themselves to be a carer of someone with one or more ongoing medical condition(s). Recruitment occurred via local newspaper advertisements, flyers placed in and distributed by pharmacies, medical centers, other health clinics, community centers and via consumer health

organizations in these regions. To ensure coverage of participants who were not accessing health services, recruitment also occurred through face-to-face contact distribution of flyers outside supermarkets and at markets. To ensure diversity, Aboriginal and Torres Strait Islander peoples and individuals from culturally and linguistically diverse backgrounds were targeted through community groups, health centers and non-government organizations. Health professionals were invited to participate if they resided or worked in one of the four areas, and perceived themselves to have a role that focused on providing health services to people with chronic condition(s) in the community.

A total of 849 consumers and carers and 412 health professionals expressed an interest and were invited to participate in the DCE survey. The DCE was predominantly administered as a computer-assisted telephone interview (CATI) by a third party research company on behalf of the research team. A CATI survey approach was chosen in an attempt to maximize both the rate and completeness of response, as compared to alternative approaches, such as mail or internet based administration.⁴⁷ Surveys and study materials were mailed to participants, who were then contacted one to two weeks later and invited to participate in a telephone interview. To maximize the diversity of the sample and ensure everyone who wanted to participate was able to do so, a minority of interviews were also conducted face-to-face by the research team. Face-to-face delivery was used particularly for groups that might be considered difficult to reach via the telephone or who preferred face-to-face interview, including culturally and linguistically diverse consumer and carer participants, health professionals and those identifying with an Aboriginal or Torres Strait Islander background. Although the approach was flexible and accommodated participant requirements, surveys were always completed individually. Each participant was provided a gift voucher to compensate for their time (i.e. AU\$50 for consumer and carer participants and AU\$30 for health professionals, as their survey was shorter).

The DCE instrument was piloted extensively, initially face-to-face in a convenience sample of adults (including consumer, carer and health professional participants). The instrument was refined, and then further piloted in 36 adults with chronic condition(s) via CATI, before the main data collection was undertaken between October 2013 and January 2014.

Data analysis

Data were analyzed using regression analysis, in which the discrete choice formed the dependent variable, and the attribute levels presented for each alternative were specified as independent variables to explain choice. The analysis for consumer and carer data was based on the choice between a new service or their current service (A, B or current). In addition, qualitative reasons given for opting out of a new service were analyzed thematically. The analysis of health professional data was based on the choice question allowing participants to indicate which new service (A or B) they considered their consumers would prefer.

The choice data were analyzed in NLogit statistical software using mixed logit models (MXL).⁴⁸ The MXL model is a generalized analytic approach that allows for potential correlation in the multiple choice responses provided by any one individual as well as across alternatives in the choice set, and also models preference heterogeneity by allowing preferences estimated by the model to vary across the individuals in the sample.^{29,49} For each attribute level, the model estimated a mean (i.e. average) preference weight for the sample, indicating its relative importance. Participant characteristics were entered into the model to explain the variation in preference around the sample mean (i.e. preference heterogeneity).

Model specification

The utility functions for the new pharmacy services (A and B) were specified as a linear additive function of the main effects for each attribute level. For the consumer and carer model, the utility function for the current service was specified to include an alternative specific constant. All attribute levels were initially specified using effects coding.⁵⁰ Preliminary analyses suggested that the levels of the cost attribute exhibited linear effects; therefore, the cost attribute was coded continuously. The MXL model was initially specified with all attribute level effects assumed to be random and following a normal distribution.⁴⁹ Attribute levels for which the standard deviation was not significant ($p \leq 0.2$, chosen as a cautious level given this provided the foundation for the next analytic step), suggesting no substantial preference heterogeneity for that attribute level, were then specified to be fixed and the model was re-estimated. All preliminary

models were estimated using 25 Halton draws; the final model was then estimated using 1000 Halton draws.⁴⁹

Modeling preference heterogeneity

Participant characteristics (Tables 2 and 3) were entered into the MXL model, to investigate the extent to which they explained any preference heterogeneity. All participant characteristics were specified as effects coded variables. There was a small proportion ($\leq 3\%$) of missing data

for some characteristics; missing data were coded as zero. This approach assumes the sample mean parameter estimate for a participant with missing data, allowing the retention of all choice observations in the model. A backward step regression approach was used, whereby all characteristics were entered in the model, and characteristics were then systematically removed with the least significant in explaining heterogeneity for any attribute level being removed first. The stepped process retained only those participant

Table 2
Characteristics of consumer and carer participants

Characteristic	Level	Total ^a (n = 602)	
		n	%
Consumer carer status	Consumer only	442	73.4
	Carer only	21	3.5
	Both consumer and carer	139	23.1
Unpaid carer	Has an unpaid carer	137	23.7
Region	Logan Beaudesert	236	39.2
	Mt Isa & North West	42	7.0
	Northern Rivers	191	31.7
	Greater Perth	133	22.1
Gender	Female	422	70.1
Age (years)	≤ 25	22	3.7
	26–40	81	13.5
	41–65	295	49.2
	≥ 66	202	33.6
Cultural background	Australian (non-indigenous)	368	61.2
	Aboriginal or Torres Strait Islander	54	9.0
	Other (inc. Culturally and linguistically diverse)	179	29.8
Main language spoken at home	English	579	96.2
Marital status	Has a partner (married or defacto)	322	53.5
Education	Highest educational attainment primary or secondary school	251	41.7
Employment status	Employed (part time, full time, casual)	163	27.1
Household income (AU\$)	$\leq \$50k$ per annum	363	60.5
	$> \$50,000$ per annum	180	30.0
	Prefer not to say	57	9.5
Community pharmacy loyalty	Usually visits one community pharmacy most of the time	414	68.9
Community pharmacy frequency	Visit community pharmacy fortnightly or more often	339	56.3
	Visit GP monthly or more often	316	55.1
GP visit frequency	Visit GP monthly or more often	316	55.1
QoL (EQ-5D-3L) ^b	Higher QoL (> 0.65)	345	57.4
Treatment burden ^c	Higher treatment burden ($> 60/150$)	247	42.0
Recent diagnosis	Consumer with one or more recently diagnosed (≤ 6 months) chronic condition(s)	37	6.6
Medicines use – number	Consumer taking ≥ 7 different medicines (including prescription medicines, OTC and vitamins) per day	247	41.2
Medicines frequency – times per day	Consumer taking medicines ≥ 3 different times per day	234	39.3

QoL, quality of life; WA, Western Australia.

^a Age, cultural background, educational qualification, GP frequency, household income, medicines use (number and frequency per day), pharmacy loyalty, QoL, recent diagnosis, treatment burden, and unpaid carer had small proportions of missing/incomplete data. Percentages are based on actual number of individual responses.

^b EQ-5D-3L utility weights assigned using the Australian tariff.⁴⁰

^c Treatment burden assessed using an adapted scale published by Tran et al.⁴¹

Table 3
Characteristics of health professional/health worker participants

Characteristic	Level	Total ^a (n = 297)	
		n	%
Health professional/worker role	Pharmacist	89	30.0
	Doctor (GP or specialist)	40	13.5
	Nurse	60	20.2
	Other, including allied health and health worker	108	36.4
Region	Logan Beaudesert	168	56.6
	Mt Isa & North West	20	6.7
	Northern Rivers	51	17.2
	Greater Perth	58	19.5
Gender	Female	230	77.4
Age (years)	≤25	28	9.5
	26–40	116	39.3
	41–65	147	49.8
	≥66	4	1.4
Cultural background	Australian (non-indigenous)	172	57.9
	Aboriginal or Torres Strait Islander	10	3.4
	Other (inc. Culturally and linguistically diverse)	115	38.7
Main language spoken at home	English	260	87.8
Employment sector	Hospital	32	11.0
	General practice	48	16.6
	Primary care	45	15.5
	Community/home-based care	129	44.5
	Other ^b	36	12.4
Industry sector	Private	121	41.7
	Public or not for profit	162	55.9
	Other	7	2.4
Time in profession	<5 years	83	28.9
	≥5 years	204	71.1
Consumer carer status	Consumer only	46	15.6
	Carer only	55	18.6
	Both consumer and carer	19	6.4
	Neither consumer nor carer	175	59.3

^a Age, consumer and carer status, language spoken at home, sector of employment and time in profession, had small proportions of incomplete and/or missing data. Percentages are based on actual number of individual responses.

^b Other includes research, mental health, education and training.

characteristics that were significant in explaining heterogeneity for one or more attribute levels at the significance level of $p \leq 0.2$, $p \leq 0.1$, $p \leq 0.05$ in turn. Only those characteristics that significantly explained preference heterogeneity at the 5% level were retained in the final regression model ($p \leq 0.05$).

Comparison between consumer and carer priorities and health professional perceptions of consumer priorities

The size of the coefficients in the preference models indicates the relative importance of different pharmacy services. The model coefficients were weighted such that the most preferred service improvement for each model was given

100 points, and the other improvements were given a lesser number of points in proportion to their relative importance for that sample. For each model, this was achieved for effects coded attributes by: (i) selecting the attribute for which there was the greatest statistically significant marginal utility associated with an improvement between any two levels (k); (ii) estimating the marginal utility for a gain from the least preferred level (R) to the most preferred level (L) (i.e. the difference in coefficients for these levels); (iii) assigning 100 points to this marginal utility gain; (iv) estimating points (Points K_L) for a gain between levels for each of the other attributes ($K \neq k$) as a relative proportion of 100 points according to Equation (1):

$$\text{Points } K_L = \frac{(\text{Coefficient } K_L - \text{Coefficient } K_R)}{\text{Coefficient } k_L - \text{Coefficient } k_R} \times 100 \quad [\text{For all } K \neq k] \quad (1)$$

For the cost attribute, points were assigned for the marginal effect associated with a \$1 cost reduction per month by using the coefficient for cost as the numerator in Equation (1).

Results

Participant characteristics

The DCE survey was completed by 602 consumer and carer participants (70.9% response rate) and 297 health professional participants (72.1% response rate). Data about the source of recruitment was available for 89% (536/602) consumers and carers who completed the survey. The most successful recruitment strategies were direct promotional activities by research team members in shopping centers and markets (33%), followed by flyer distribution by health providers and at health clinics and centers (21%). Data about recruitment sources were available for all 297 health professional participants, with the majority (61%) recruited via direct promotional activities conducted by the research team at lunch-time meetings, visits to health services and clinics and pharmacies located in shopping centers and email invitations sent to professional networks. The majority of surveys (548, 91.0% consumers and carers and 180, 60.6% health professionals) were conducted by CATI, with the remainder conducted face-to-face. Tables 2 and 3 summarize the characteristics of consumer and carer, and health professional participants respectively.

Responses to the DCE choice sets

A similar number of participants (between 4.8% and 6.1% of each sample) completed each of the 18 survey versions. Data analysis for the consumer and carer preference model was based on 2396 choices, consisting of four choices made by each of 602 consumer and carer participants (less 12 missing choices across 5 individuals). Data analysis for the health professional model was based on 1188 choices, consisting of four choices made by each of the 297 health professional participants.

Uptake of a new service versus retention of current service

The consumer and carer participants chose a new pharmacy service (i.e. service A or B) for 855 (35.7%) of all choices. Nearly one quarter of participants ($n = 131$, 21.8%) chose one of the new services in all four scenarios, whilst the majority of consumers and carers “opted out” of a new service and chose to remain with their current pharmacy service in at least one scenario. Almost half the participants ($n = 288$; 47.8%) selected their current pharmacy service in all four scenarios. Thus, there was evidence of a tendency for extreme patterns of choice, either favoring the current pharmacy or favoring new services in every choice scenario.

On average, participants who opted out of at least one scenario provided 1.9 reasons (range 1–6 reasons) for choosing their current pharmacy service. In total, 907 reasons were supplied by participants who opted out of at least one scenario; the most common reasons for opting out are given in Table 4. In summary, when clustered into broader themes, three main drivers of the choice to retain a current pharmacy service emerged; namely, person-centered services, such as a long-term personal and respectful relationship with pharmacy staff ($n = 349$; 38.5% of all reasons); easy access to pharmacy services (i.e., speed, convenience, location and low cost; $n = 259$; 28.6%); and continuous reliable supply of medication and availability of timely, quality advice about medicines and symptoms ($n = 242$; 26.7%). Participants often commented that they would not consider new pharmacy services if it meant a change to one or more of these qualities. Only a small number of participants held strong traditional views about the respective roles of GPs and pharmacists.

Consumer and carer preferences for the characteristics of pharmacy services

Six of the consumer and carer characteristics included in the DCE choice sets significantly explained preference heterogeneity ($p \leq 0.05$) in the preliminary MXL models, and were therefore included in the final MXL model (Table 5). The final model had a pseudo R^2 of 0.423, representing a good fit for a discrete choice model.⁴⁹

Consistent with the raw choice data, on average there was a strong propensity for consumers and carers to select their current service,

Table 4

Most common reasons given for choosing current pharmacy service from thematic analysis

Reason for choosing current pharmacy service	Number of times reason given ^a
Current service offered continuity through long-term knowledge about his or her needs and personal relationships with staff members	188
Current service friendly and helpful	161
Located in a convenient place	148
Preferred characteristics of new service already offered by current service	97
Not prepared to pay for new service and/or current service high quality for no cost	95
Current service was perceived to be a good source of advice, guidance, information and discussion about medications or symptoms that could not be replicated elsewhere	92
Current service flexible, reliable and timely source of medication supply, particularly in times of emergency	53
New services not needed at all or not appropriate for needs, or some small aspects were valued	26
New services were not appropriate for delivery within or by pharmacy	21
Speediness of current service (short/no wait)	16
No reason was stated for opting out	10

^a Total of 907 reasons were given by 471 consumers and carers who chose their current service for at least one scenario.

rather than a new service. This is indicated by the large and highly significant constant associated with the current service ($\beta = 2.048$; $p \leq 0.001$). Four of the six attributes significantly influenced choice of pharmacy service. Participants preferred to have access to a pharmacist for ongoing supply of regular medicines and for medicines they have used before for symptom flare ups, rather than having access to a doctor alone ($p \leq 0.001$). Having access to ongoing supply from a pharmacist for regular medicines tended to be preferred over access to supply from a doctor alone, but this did not reach statistical significance ($p = 0.725$). In terms of location, on average, a one-stop health centre was preferred over a pharmacy near a participant's home or workplace, but a pharmacy near home/work was preferred to a pharmacy near their GP practices ($p = 0.005$). On average, participants preferred the availability of home delivery as an option over having face-to-face pick up of medicines alone ($p \leq 0.001$). They also preferred having face-to-face pick up over other types of collection that do not involve going into the pharmacy e.g. by "drive thru" in addition to face-to-face ($p = 0.025$). Finally, participants preferred a pharmacy service that was available at a lower cost ($p = 0.002$).

Two attributes did not have a significant impact on choices, namely access to other health professionals and access to the pharmacist. First, choices were not influenced by the prospect of having access to other health professionals employed in the pharmacy or pharmacy staff directing individuals to other services ($p = 0.111$).

Second, choices were not influenced by the availability of the pharmacist for medicines review or advice (i.e. access to a pharmacist in the pharmacy but without having to ask, additional accessibility by phone/email/internet, or by appointment at home, as opposed to a pharmacist who remained in the dispensary but responded when asked; $p = 0.183$ – 0.416).

Substantial variation was observed in the strength of preference across the sample for the choice of current service over a new service, and for the impact of the attributes related to continued medicines supply and cost. This variation is indicated by significant standard deviations ($p \leq 0.01$) that are large relative to the size of the mean for the related parameter (Table 5). There were a number of participant characteristics that significantly explained the variation in preference for each of these attributes ($p \leq 0.05$). Older participants, those who usually visit the same pharmacy, those with a lower level of education, those with a recent diagnosis of a chronic condition, and those from the Greater Perth region were more likely to choose their current service than their counterparts, all else equal. Younger participants and those in employment were less likely to choose their current service than their counterparts. Participants taking medicines more frequently during the day were significantly more likely to value access to a pharmacist for continued supply of their regular medicines rather than relying on a doctor alone ($p = 0.008$). Conversely, those recently diagnosed with a chronic condition were less likely to value access

Table 5
Mixed Logit (MXL) model of consumer and carer preferences

Attribute	Level	Coefficient	p value ^b
Random and non-random parameters			
Constant	Current service***	2.048	≤ 0.001
Continued medicines supply	Doctor for all	−0.420	
	Pharmacist for regular	0.063	0.725
Manage ongoing condition	Pharmacist for regular and symptom flare***	0.357	≤ 0.001
	Health professionals employed in pharmacy	0.071	
Pharmacy location	Pharmacy staff direct to services	−0.071	0.111
	Near home/work	−0.081	
Getting your medicines	Near GP practice***	−0.196	0.005
	One stop health centre***	0.278	≤ 0.001
Medicines review or advice	Face to face pick up pharmacy	−0.088	
	Face to face pick up pharmacy and home delivery***	0.246	0.001
	Face to face pick up pharmacy and collect e.g. drive thru**	−0.158	0.025
	Dispensary, ask to speak	0.092	
Average cost per month	Pharmacy, no need to ask	−0.119	0.183
	Dispensary, and by phone, email, internet	0.104	0.254
	Dispensary, and by appointment at home	−0.077	0.416
	Additional \$1 increase in cost***	−0.064	0.002
Heterogeneity in mean, parameter: Variable ^a			
Current pharmacy service: Age ≤ 25 yrs***		−1.796	0.008
Current pharmacy service: Age ≥ 66 yrs***		1.883	≤ 0.001
Current pharmacy service: Employed**		−0.562	0.023
Current pharmacy service: Usually visit one pharmacy***		0.818	≤ 0.001
Current pharmacy service: Primary/Secondary education**		0.482	0.026
Current pharmacy service: Recent diagnosis (≤ 6 months)**		1.118	0.010
Current pharmacy service: Perth region**		0.935	0.023
Pharmacist for regular medicines: Recent diagnosis (≤ 6 months)**		−0.302	0.040
Pharmacist for regular medicines: Medicine ≥ 3 times per day***		0.198	0.008
Cost: Employed***		−0.032	0.001
Cost: Mt Isa & North West region***		0.065	0.002
Distributions of random parameters (standard deviations)			
Constant	Current service***	3.968	≤ 0.001
Continued medicines supply	Pharmacist for regular***	0.476	0.002
Average cost per month	Additional \$1 increase in cost***	0.074	≤ 0.001

^a Only 11 significant of 30 parameters shown (remainder not significant at 5% level).

^b p value: ***, ** = significance at 1%, 5% level.

to a pharmacist for continued supply of regular medicines ($p = 0.040$). Participants who were employed were significantly more averse to cost, while those from Mt Isa and North West Queensland region were less averse to cost ($p \leq 0.01$).

Health professional perception of consumer preferences

For the health professional preference model, five participant characteristics significantly explained perceived preference heterogeneity ($p \leq 0.05$) in the preliminary MXL models and were therefore included in the final MXL model. The final model had a pseudo R^2 of 0.235, representing a moderate fit for a discrete choice model.⁴⁹ The final model is presented in Table 6.

Overall, the perceptions of health professionals were substantially consistent with the preferences of consumers and carers. On average, a one-stop health centre was expected to be preferred over a pharmacy near a consumer or carer's home/work, and a pharmacy near home/work was expected to be preferred to a pharmacy near to their GP practice ($p \leq 0.001$). Participants expected consumers to prefer the availability of home delivery as an option over having face-to-face pick up of medicines alone ($p \leq 0.001$). There was a trend for participants to expect consumers to value the option to collect medicines without going into the pharmacy, e.g. through "drive thru" more than face-to face collection alone; however, this did not reach statistical significance at the 5%

Table 6
Mixed Logit (MXL) model of health professional perception of preferences

Attribute	Level	Coefficient	p value ^b
Random and non-random parameters			
Continued medicines supply	Doctor for all	−0.460	
	Pharmacist for regular	0.067	0.396
	Pharmacist for regular and symptom flare	0.393	0.075
Manage ongoing condition	Health professionals employed in pharmacy	0.052	
	Pharmacy staff direct to services	−0.052	0.723
Pharmacy location	Near home/work	0.477	
	Near GP practice***	−0.805	≤0.001
	One stop health centre***	0.328	≤0.001
Getting your medicines	Face to face pick up pharmacy	−0.198	
	Face to face pick up pharmacy and home delivery***	0.337	≤0.001
	Face to face pick up pharmacy and collect e.g. drive thru	−0.139	0.085
Medicines review or advice	Dispensary, ask to speak	−0.202	
	Pharmacy, no need to ask	0.048	0.657
	Dispensary, and by phone, email, internet	0.117	0.303
	Dispensary, and by appointment at home	0.037	0.734
Average cost per month	Per \$1 increase	−0.024	0.393
Heterogeneity in mean parameter: Variable ^a			
Pharmacist for regular and symptom flare medicines: Not consumer or carer**		−0.206	0.028
Pharmacist for regular and symptom flare medicines: Time in profession < 5 yrs***		0.221	0.009
Pharmacy staff direct to other services: Private sector***		−0.154	0.004
Location near GP practice: Aboriginal or Torres Strait Islander***		−0.628	0.007
Cost: Northern Rivers region***		0.034	0.009
Cost: Aboriginal or Torres Strait Islander***		0.076	0.006
Distributions of random parameters (standard deviations)			
Continued medicines supply	Pharmacist for regular and symptom flare**	0.416	0.027
Manage ongoing condition	Pharmacy staff direct to services	0.133	0.596
Pharmacy location	Near GP practice***	0.584	≤0.001
Average cost per month	Per \$1 increase***	0.108	≤0.001

^a Only 6 significant of 20 parameters shown (remainder not significant at 5% level).

^b p value: ***, ** = significance at 1%, 5% level.

level ($p = 0.085$). Such a trend was inconsistent with the preferences of consumers and carers, who preferred having face-to-face pick up alone over the availability of collection without going into the pharmacy, e.g. by “drive thru” in addition to face-to-face. Four attributes did not have a significant impact on perceptions of consumer choice ($p > 0.05$): continued medicines supply, managing ongoing conditions, medicines review or advice, and average cost per month.

Substantial variation was observed across the health professional sample in the extent to which the attributes related to continued medicines supply, managing an ongoing condition, pharmacy location and cost impacted choice (Table 6). There were a number of participant characteristics that significantly explained the variation in perceptions between participants for each of these characteristics ($p \leq 0.05$). First, participants who had been in their profession for less than

five years were more likely to indicate their consumers would value access to a pharmacist for ongoing supply of regular medicines and for medicines they have used before for symptom flare ups, rather than having access to a doctor alone ($p = 0.009$). Participants who were not a consumer or carer themselves were less likely to think their consumers would value this characteristic ($p = 0.028$). Second, participants that indicated they worked in the private sector were more likely to indicate their consumers would prefer access to other health professionals employed in the pharmacy over pharmacy staff directing individuals to other services ($p = 0.004$). Third, participants identifying with an Aboriginal or Torres Strait Islander background themselves perceived their consumers to be more averse to a pharmacy near a GP practice compared to a pharmacy near their home/work and less averse to cost ($p \leq 0.01$), as opposed to participants who did

not identify with an Aboriginal or Torres Strait Islander background. Finally, participants who were from Northern Rivers region perceived their consumers to be less averse to cost than participants from Logan Beaudesert ($p = 0.009$).

Priorities for the provision of pharmacy services

Figs. 2 and 3 show the relative strength of preference or priority participants would on average give to different service attributes, according to the preferences of consumers and carers, and the perception of health professionals, respectively. The size of the bars represents the relative importance of a service improvement (i.e. a gain from the least preferred level to a more preferred level), after rescaling the model coefficients such that the most preferred service improvement for each model was given 100 points, and the other improvements were given a lesser number of points in proportion to their relative importance for that sample. The colors of the bars represent the attributes, as per the color code in Fig. 4.

On average, consumers and carers placed the highest priority on continued medicines supply by a pharmacist rather than having to see a doctor

for regular and symptom flare up medicines (score 100), which was valued more than one and a half times as much as pharmacy location in a one stop health centre instead of their GP practice (score 61) and twice as much as having the availability of home delivery in addition to face-to-face pick up (score 52). Other characteristics were valued to a lesser extent.

On average, health professionals expected their consumers to place highest priority on having a pharmacy located near their home/work (score 100) or in a one stop health centre (score 88) rather than at a GP practice. Pharmacy location near home/work was expected to be valued one and a half times as much as continued medicines supply for regular and symptom flare up medicines (score 67) and more than twice as much as having the availability of home delivery in addition to face-to-face pick up (score 42). Other characteristics were expected to be valued to a lesser extent. Thus, whilst the attributes health professionals expect their consumers to prefer are largely consistent with actual consumer and carer preferences, some inconsistencies in the relative priorities were seen. Notably, continued supply was the most important priority for consumers

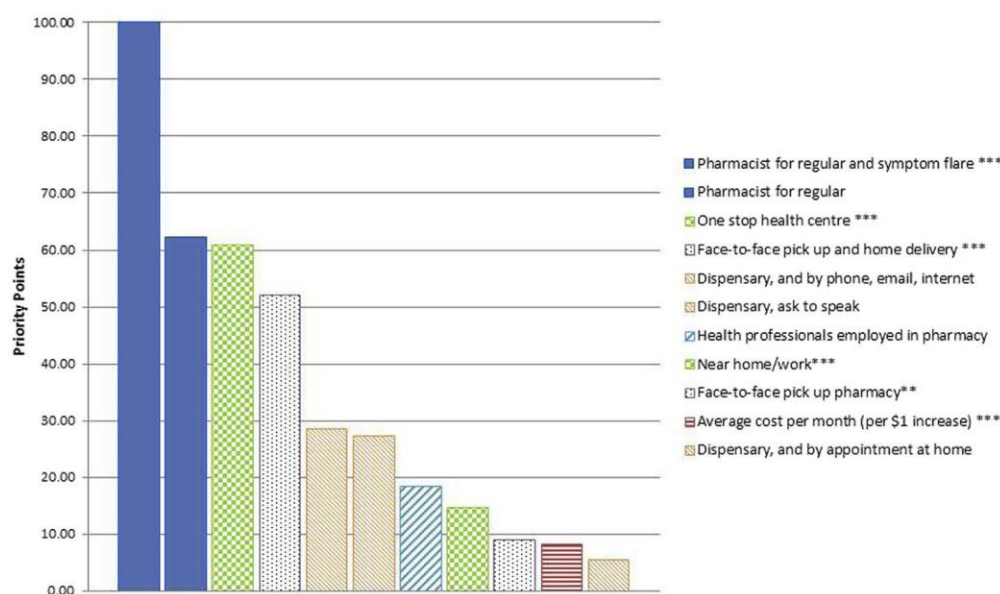


Fig. 2. Consumer and carer priorities for pharmacy services. Bars are color coded for attributes; order of legend is consistent with order of bars. Size of bar represents relative value of a gain in attribute from the least preferred level (defined in Fig. 4). ***, ** = relevant parameter (numerator for the rescaled weights) was significant in model at 1% and 5% level. (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

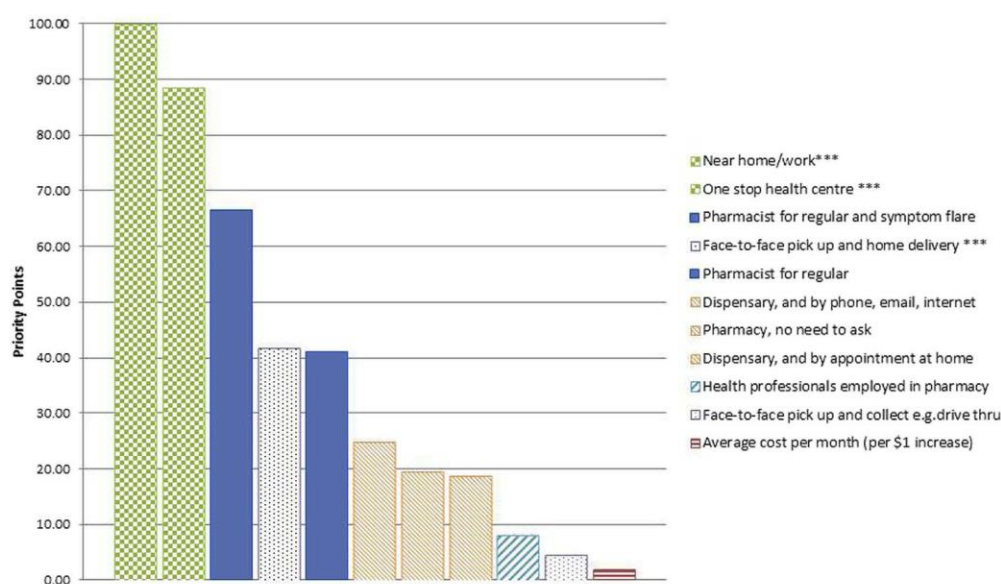


Fig. 3. Health professional perception of consumer and carer priorities for pharmacy services. Bars are color coded for attributes; order of legend is consistent with order of bars. Size of bar represents relative value of a gain in attribute from the least preferred level (defined in Fig. 4). ***, ** = relevant parameter (numerator for the rescaled weights) was significant in model at 1%, 5% level. (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

and carers, and pharmacy location was perceived to be highest priority by health professionals.

Discussion

This study provides evidence about the relative importance of different pharmacy service characteristics that are preferred by consumers and carers to assist with the management of their chronic condition(s). A substantial proportion of consumers and carers were willing to take up a

new service, and one quarter always chose a new pharmacy service for every choice set, suggesting that the potential for innovative and well-designed pharmacy services to optimize consumer-centered care of chronic condition(s) has not yet been fully realized. New pharmacy services were more likely to be taken up by younger consumers and carers, those in employment or with a higher level of education, and those with established as opposed to newly diagnosed chronic condition(s). The reason these consumer and carer subgroups in

Key for Figure Bars	Least preferred level ^a
Continued medicines supply	Doctor for all
Pharmacy location	Near GP practice
Getting your medicines	Face to face pick up pharmacy and collect e.g. drive thru (consumers and carers) Face to face pick up pharmacy (health professionals)
Medicines review or advice	Pharmacy, no need to ask (consumers and carers) Dispensary, ask to speak (health professionals)
Manage ongoing condition	Pharmacy staff direct to services
Average cost per month	Per \$1 increase

Fig. 4. Attribute color coding and least preferred level. ^aLeast preferred level aids interpretation of Figs. 2 and 3. (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

particular are more likely to take up new services was not explored. However, it is possible that these groups are more likely to accept or adopt innovation. It is also possible that these groups are underserved by current Australian pharmacy services. It would therefore be important to explore the reasons behind this finding in further studies. Nevertheless, this finding is consistent with a previous study in Scotland that also found younger people were more likely to take up innovative new services.¹⁵ Recognition that pharmacy services could alleviate unmet health needs of young New Zealanders²³ has been accompanied by calls that new services are youth-friendly and developed in consultation with young people.⁵¹ Although this population does not currently constitute the bulk of those with chronic conditions in most countries, they do represent a group with preventative potential. By adequately servicing this population and capitalizing on their willingness to try innovative pharmacy initiatives, it may be possible to stem the wave of chronic disease costs in future. Improvements in pharmacy service characteristics could produce worthwhile benefits, particularly for these subgroups.

It is notable that continued supply of prescription medicines by a pharmacist after an existing prescription runs out, particularly involving a supply of medicines that had been used before to manage symptom flare ups, was a high priority characteristic for consumers and carers. Pharmacist prescribing has already been implemented to varying extents in a number of countries including the United Kingdom, United States, Canada and New Zealand.^{12,13,52} However, in Australia, pharmacist prescribing initiatives remain very limited, occurring only within small pilot study schemes.⁵³ Recent initiatives in Australia have allowed “medication continuance” by pharmacists for lipid lowering agents and contraceptive medicines, without a written prescription, in specified circumstances.⁵⁴ However, this initiative is more akin to continued dispensing to ensure no break in supply, rather than formal repeat prescribing. Previous research has shown consumer preferences to support pharmacist repeat prescribing in Scotland,¹⁵ and pharmacist independent prescribing in England.¹⁶ Our findings provide considerable consumer and carer support for the provision of continued supply of regular and flare up medicines that have been previously prescribed by a medical practitioner in Australia. Obviously, this practice would need to occur under agreed guidelines by appropriately trained pharmacists and

with regular (i.e. annual) visits and review by the GP.

Expanding roles for health professionals including pharmacists are being driven in part by an imperative to find new models of care to sustain the over-burdened health system. In many countries, population growth and aging are leading or expected to lead to pressures on the health workforce and its capacity to maintain service delivery. This pressure is promoting the development of new models of care, for example telehealth, or new strategies for more affordable skill mix. In some areas, including Australia in which large population segments reside in underserved rural and remote regions, these pressures are heightened by access inequities. Over 4 million (3.3%) GP visits annually in Australia relate to a repeat prescription for a medicine that has been used before.¹¹ Some commentators have emphasized the potential for expansion of pharmacist roles, for example to include repeat prescribing, as a safe and cost-effective strategy to address workforce pressures.¹¹ In Australia, pharmacists are generally in support of an expanded prescribing role,^{55,56} although there has been little research into the opinions of other stakeholders, including the public.⁵⁷ This preference study provides evidence that a pharmacist supplementary prescribing initiative would likely be acceptable for the majority of consumers with chronic condition(s), and indeed may be a desirable service for many Australian consumers – particularly younger adults, those in employment, frequent medicine users, and those with an established diagnosis.

Pharmacy location in a “one-stop health centre” was also highly valued. A health hub might be seen as attractive as it provides coordination of services as well as convenience. Previous research has also confirmed the desirability of pharmacy as part of a one stop health hub as a proactive approach to care, encompassing advice and medication management, referral alongside assistance with health system navigation, and even health advocacy.³² Although the preference for availability of home delivery of medicines was expected, the aversion to the availability of medicine pick up without going into a pharmacy, for example by “drive thru”, was unexpected, as preliminary work indicated convenience to be a highly desirable characteristic.^{32,33} The option of “face-to-face pick up or drive thru” was valued less on average than face-to-face pick up alone. “Drive-thru” services are routinely provided in other markets in Australia (e.g. fast food,

alcohol). However, qualitative comments made by consumers and carers in response to the survey suggested one reason for not choosing a new service pertained to the safety and lack of personal contact associated with drive through options. The findings suggest that although consumers and carers value convenience highly, they identify pharmacy and medicines use services, and perhaps health care services more generally, as inappropriate commodities for impersonal services.

Despite the majority choosing to take up a new service on one or more occasions, a considerable proportion of our sample declined to choose a new service. This preference was predominantly explained by three reasons; the existence of high quality person-centered services based on positive long-term relationships and continuity, the convenience of existing services (in terms of speed and location), and the responsiveness of current services to their medication needs, including the reliable provision of medication supply and timely expert advice. These reasons mirrored those that were identified as important service characteristics in earlier qualitative stages of the larger project within which this study sits.^{32,33} It would seem that if participants are receiving these three qualities from their current pharmacy, the need for innovative services is negated. When compared against these fundamental qualities, new services were rarely viewed as an advantage. A strong tendency to favor the status quo in health care choices has been previously acknowledged,⁵⁸ and our findings are consistent with previous studies indicating a large group of loyal consumers.^{15,59} However, previous studies have seldom explored the reason for this loyalty. Our findings show that high quality, convenient, person-centered pharmacy services that are responsive to consumer and carer medicine needs are fundamental requirements for most consumers.

The overall consensus between health professional perceptions of consumer needs and actual consumer and carer preferences suggests health professionals are largely empathetic to what their consumers and carers require in a pharmacy service. By implication, this would suggest health professionals have an understanding of consumer and carer preferences, and service provision is likely to be largely consistent with consumer and carer desires. It is interesting, but perhaps not surprising, that newly qualified health professionals, and those who were consumers with chronic condition(s) or carers themselves, were more sympathetic to the value consumers placed

on continued medicines supply. The key difference between health professionals, and consumers and carers was the reverse order of priorities, with continued supply being most important for consumers and carers, and convenience of location perceived to be most important by health professionals. Both these characteristics relate to aspects of easy access. However, consumers and carers valued the convenience and/or cost avoidance afforded by eliminating the need for some doctor visits more strongly than was perceived to be the case by health professionals.

Strengths of this study include the very rigorous process undertaken to develop the DCE survey instrument, and the diversity of the large sample. For example, the high representation of participants identifying as Aboriginal or Torres Strait Islander or from a Culturally and Linguistically Diverse background, populations that are often under-represented in research in Australia, is notable. Nevertheless, the extent to which the findings can be held to represent those with chronic condition(s) in the general Australian population requires confirmation. There is only very limited relevant and published data available in Australia on individuals with chronic condition(s) to which the survey sample can meaningfully be compared. Of those reporting a chronic condition(s) in the Australian National Health Survey (NHS) 2007–08,⁴² 51.8% were female (current survey 70.1%) and 16.6% were 65 years or over (current survey 33.6% were 66 years or over). Of subgroups with selected chronic conditions in the NHS, 89.5% spoke English as their main language at home (96.2% in current survey), and 65.4% were employed in the labor force (27.1% in current survey). Therefore females, older adults and those speaking English at home were over-represented and the employed were under-represented in the current survey as compared to the Australian NHS population with chronic condition(s). However, any comparison of the DCE survey sample with the NHS needs to consider the differing aims and selection processes for the studies. The differences in participant characteristics between the current survey and the NHS likely reflects the focused aim of the current preference study to access the opinions of individuals who were extensive users of pharmacy and health care services, as well as those who were not; whereas, the NHS was a population survey designed to obtain national benchmark information on a range of health related issues (including risk factors and disability) and to enable the monitoring of trends in health over time.

Regardless, the limited number of participant characteristics that were associated with preference for service characteristics in the current study suggests that preferences for pharmacy service characteristics are unlikely to change substantially between different subgroups of people with chronic condition(s), suggesting that our findings may be generalizable to the Australian population with chronic condition(s) and their carers. Nevertheless, this study should be repeated in other samples to confirm the findings and examine the stability of choices in different sub-samples. Some counter intuitive findings emerged from our study, warranting further investigation. Specifically, consumers and carers in employment were more averse to service cost than those not in employment. Although employment was moderately correlated with income, income was not significantly associated with preference heterogeneity around service cost. Thus, it seems possible that those in employment may have a greater financial burden associated with their medicines use (as they have limited access to concession schemes), than those not in employment and may arguably be more cost averse. This assertion requires empirical confirmation.

A limitation of this study was the use of more than one data collection mode. This situation is not ideal in that it assumes no systematic effect of the mode on the responses, which may not be the case. However, this approach was used to ensure the size and diversity of the sample (i.e. access to those who were not easily reached by telephone) and convenience for participants. Another limitation was the use of hypothetical discrete choice questions in the survey based on the assumption that participants would choose in reality the services they indicated. Although DCEs in general make this assumption, the indirect elicitation nature of the DCE task has been argued to overcome any hypothetical bias, as compared to alternative preference elicitation methods.⁶⁰ Moreover, the DCE enables elicitation of preferences for services including new services for which revealed market preference data are not available, as is the case here. MXL requires a distributional assumption to be made for the data, and this could be considered a disadvantage of the MXL analytic approach. Nevertheless, the assumption of a normal distribution for all random parameters in the MXL analyses is commonly applied in health-related DCEs.²⁹ Finally, our comparison of the preferences of consumers and carers with the perceptions of health professionals may be limited by the DCE design, in that consumers and carers were offered an opt out

alternative of their current pharmacy service, whereas health professionals were not. However, this difference was necessary for realism. An opt out was necessary for consumers and carers who would not have to take up a new service in reality; whereas, such a choice for health professionals who were asked to provide their perception of consumers preferred choice would not be sensible (since they have no knowledge of the consumers current service).

Conclusion

This study emphasizes the fundamental importance, from the consumer and carer perspective, of the provision of high quality and convenient person-centered pharmacy services that are responsive to their needs. Pharmacy can deliver substantially greater benefits for consumers with chronic condition(s) and carers through well-designed services that attend to these fundamental characteristics. This is particularly the case for younger consumers and carers, those in employment, more highly educated, and those with established as opposed to newly diagnosed condition(s). Targeting these groups with new and innovative pharmacy services that align to their unique needs presents an opportunity for improving the management of chronic condition(s) in the community, reducing overall treatment burden. The provision of continued medicines supply (e.g. through pharmacist prescribing), convenient and coordinated care in a one stop health centre, and home delivery in particular, should be prioritized when planning pharmacy services to assist consumers to manage chronic conditions.

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Appendix 6.2 – Consumer, Carer and Health Professional Survey (Version 1)



CONSUMER AND CARER SURVEY

Are you dealing with an ongoing health condition? Have your say

Research Project PHM/12/11/HREC

This survey is seeking to understand how people with ongoing health conditions, and their family members or carers, might prefer to use their local pharmacies to manage their health more effectively. Ongoing, (long term) health conditions (e.g. asthma, diabetes) can have a significant impact on the people who experience them, on those who care for them (carers) and on other family members. We're interested in the ways that people with ongoing health conditions use their community (local) pharmacies to help to manage their health. In recent years, pharmacies have started to introduce healthcare services, such as medication reviews, and health promotion services. However, not all of the new services are available in all community pharmacies. In this survey, we ask you about what services you think could be made available in community pharmacies, and what services you would prefer.

What your participation means

Participants will be asked to complete a phone survey that will take approximately 30 minutes. A researcher from Colmar Brunton (a survey company) will call you on behalf of the research team at Griffith University to confirm your interest and conduct the survey with you. We encourage you to complete the survey when you receive it, which will help when you provide your responses to the researcher over the telephone.

The expected benefits of the research

The results of this study will improve our understanding of the ways that people manage ongoing health conditions and their preferences about using pharmacy services.

Your participation is voluntary

Participation in any research project is voluntary. You are free to withdraw at any time while the survey is being conducted. Once the survey is complete, your responses will be added to other people's responses and you will no longer be able to withdraw. If you decide not to take part, this will not affect your relationship with any health professional or health service.

Privacy and confidentiality

Your anonymity will at all times be safeguarded. Data collected for this research will be stored securely by the university for 5 years. The data will be used for academic research, conferences, reports and publications. Your details will be kept confidential and you will not be identified in any publication or report arising from this research project. A de-identified copy of the survey data may be used for other research purposes with your consent.

Questions/further information

For further information about this research project, contact the leader of the research team Professor Amanda Wheeler, on 1800 600 867 (free call) or Email: chronicillness@griffith.edu.au

Thank you for your participation.

The project is led by Griffith University, and is funded by the Australian Government Department of Health and Ageing as part of the Fifth Community Pharmacy Agreement Research and Development Program managed by The Pharmacy Guild of Australia.

Part A – The pharmacy you use

This section asks about how you currently use your community pharmacy (a pharmacy/chemist in your neighbourhood or shopping centre, not a hospital pharmacy).

1. **Which one of the following options best describes the frequency of your visits to a community pharmacy?** (select one box only)
 - ☐ Weekly
 - ☐ Fortnightly
 - ☐ Monthly
 - ☐ Once every 3 months
 - ☐ Once every 6 months
 - ☐ Once a year
 - ☐ Never (Go to PART B - Question 5)
2. **Which one of the following options best describes the community pharmacy that you usually visit?** (select one box only)
 - ☐ I use one pharmacy most of the time
 - ☐ I usually use one pharmacy but also visit other pharmacies for specific needs
 - ☐ I use different pharmacies
3. **Please rank these six options to show how important they are in choosing the pharmacy you visit** (Rank each item, giving a score of 6 to the most important, 5 to the second most important, and 1 to the least important)
 - ☐ Convenience/location of the pharmacy
 - ☐ Price/cost of medicines/items at the pharmacy
 - ☐ Quality of health services offered by the pharmacy
 - ☐ Friendliness/approachability of pharmacy staff
 - ☐ Personal preference (e.g. culture, language)
 - ☐ The pharmacy has my medicines and health history
4. **Have you ever used a community pharmacy for any of the following services, either for yourself or on behalf of a person you care for?** (select all that apply)
 - ☐ Deciding whether to see a doctor
 - ☐ Health screening and monitoring (e.g. blood pressure monitoring, cholesterol testing, etc)
 - ☐ Quit program
 - ☐ Discussing medicines with a pharmacist in my own home (e.g. Home Medicines Review)
 - ☐ Discussing medicines with a pharmacist while I am at the pharmacy (e.g. MedsCheck)
 - ☐ Having medicines or prescriptions delivered to my home (home deliveries)
 - ☐ Getting webster-packs/dosettes or other medicine Dose Administration Aids
 - ☐ Weight management
 - ☐ Vaccinations (e.g. administered by a nurse in the pharmacy)
 - ☐ Needle and syringe exchange
 - ☐ Glucometer testing
 - ☐ Other (please specify) _____

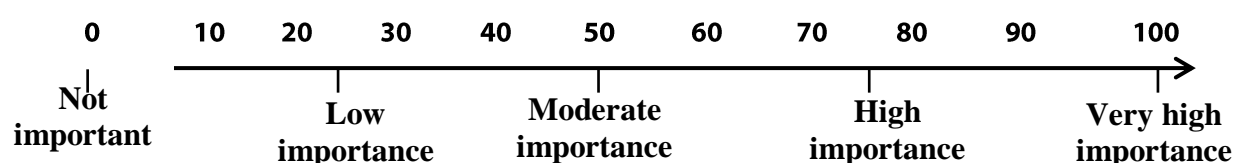
☐ None of these

PART B – Pharmacy services

This section asks about the services that pharmacies could offer. Previous research studies have indicated that these might be considered “ideal” services by consumers. Some of these services may currently be available to you, but not all of them. We would like to know how much these services might help you if they were to become available in the future.

Please tell us whether these services would make any difference in helping you to manage your ongoing condition(s), and/or the condition(s) of the person you care for.

Please rate the importance of each service shown in the box below, using this scale:



100 = Very high importance This service has very high importance for me

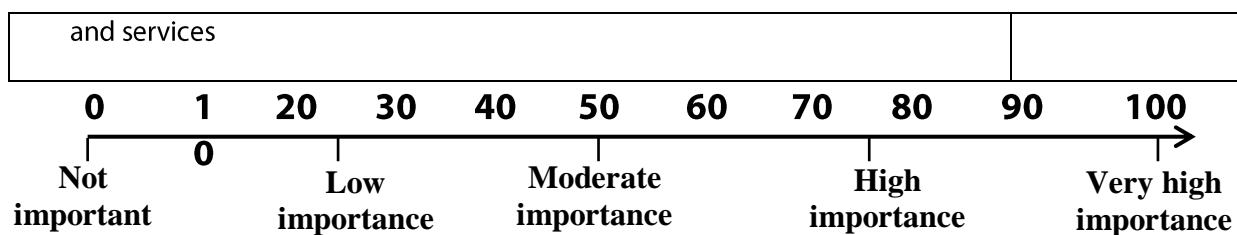
75 = High importance This service has high importance for me

50 = Moderate importance This service has moderate importance for me

25 = Low importance This service has low importance for me

0 = Not important This service is not important for me

<p>5. Please rate the importance of the following pharmacy services in helping you to manage your ongoing health condition and/or the condition of the person you care for. Please use the scale of 0 to 100 (the higher the score, the higher the importance of the service/care for you).</p> <p>Pharmacies/Pharmacists will:</p>	<p>Please write a score anywhere between 0-100 for each service</p>
<p>a) Offer advice on the management of minor ailments (e.g. cold and flu)</p>	
<p>b) Provide basic adult vaccinations or treatments (e.g. flu vaccine)</p>	
<p>c) Offer screening and monitoring services (e.g. blood glucose, blood pressure, weight, cholesterol checking and so on)</p>	
<p>d) Offer community health and wellness programs (e.g. cooking classes, walking groups and so on)</p>	
<p>e) Have other health providers working at the pharmacy (e.g. dieticians)</p>	
<p>f) Be located in a large community clinic or medical centre as part of a 'one stop shop' health centre</p>	
<p>g) Be able to speak with and put me in touch with other healthcare professionals</p>	



h) Have access to my prescription (dispensing) records from any pharmacy	
i) Have access to my medical records, with links to my GP, specialist and hospital records (e.g. a national health records database)	
j) Send reminders when my repeat prescription is due (e.g. SMS message)	
k) Offer home delivery for medicines	
l) Provide personalised advice and information on prescribed medicines (e.g. use, benefits, side effects)	
m) Review my medicines – either in the pharmacy or at home	
n) Be available in the pharmacy but away from the dispensary for consultation (e.g. at the front counter)	
o) Be available on the phone, internet or email for consultations	
p) Have a private consultation area for discussions with me about medicines and health	
q) Treat me as an individual, not as a number	
r) Recognise and value all parts of my life (e.g. holistic care).	
s) Be respectful of my needs and personal values	
t) Be a partner in my health care (e.g. work with me and my family)	
u) Prescribe an extra 6 months of my repeat medicines after my GP prescription runs out	
v) Prescribe a short course of medication under a healthcare plan that has been agreed with my GP, without my needing to see the GP	

Part C – Choosing the ideal pharmacy

This section asks about what your ideal pharmacy service might look like. We would like you to choose between different services that a pharmacy might be able to offer.

Many of the services suggested in this section do not currently exist. We are asking about them here because we are interested in finding out what pharmacy services people might want to have in the future.

For each question, we will describe two different pharmacies to you and ask which one you might prefer to use. You will notice that some of the information will be repeated across the four questions. Please view each choice set independently of others, and consider each service (e.g. service A or service B) as a whole. We will also ask whether you would prefer the suggested new service, or the pharmacy service you are currently using.

For each pharmacy that we suggest, we will ask you to imagine that there are choices about:

- Who gives you repeat prescriptions
- Who helps you to manage your ongoing health condition
- Where the pharmacy is located
- How you get your medicines (pick up or delivery)
- Whether the pharmacist can review your medicines and give advice
- How much you would pay for the service, in addition to the cost of medicines or consultation visits.

If you have any questions about these options, please talk to the researcher who interviews you for this study.

6. **Choice Set One:**

Which new pharmacy service would you prefer to help you to manage your ongoing health condition and/or the condition of the person you care for? (Please select whether you would prefer Service A or Service B)

Services offered at the pharmacy	Service A	Service B
When you run out of your prescription medicines, you need to go to	Doctor for all medicines	Pharmacist, but only for regular medicines, and for medicines you've used periodically for symptom flare-ups, with an annual review by doctor
Help to manage ongoing health condition(s)	Pharmacy staff available to speak with you and direct you to other health services, which you can then access yourself (e.g. dieticians)	You can get advice from other health providers who are employed in the pharmacy (e.g. dieticians)
Pharmacy location	Pharmacy that is located near to your GP practice only	Pharmacy that is located near to your home or work but away from other health services
Getting your medicines	Face to face pick up at pharmacy	Face to face pick up at pharmacy and you can collect your medicines without going into the pharmacy if required (e.g. drive thru)
Medicines review or advice	The pharmacist is available in the pharmacy without you needing to ask and you can make an appointment for the pharmacist to visit you at home	The pharmacist is available in the pharmacy without you needing to ask and you can speak to the pharmacist by phone, email or internet
Average cost per month	\$10 per month	\$20 per month

Choice Set One: If these were the only two pharmacy services available to you, which service would you prefer to use?	<input type="checkbox"/> Service A	<input type="checkbox"/> Service B
Choice Set One: Would you choose your preferred service described above or your usual pharmacy service?	<input type="checkbox"/> I would choose my preferred new pharmacy service <input type="checkbox"/> I would stay with my usual pharmacy service	

7. **Choice Set Two:**

Which new pharmacy service would you prefer to help you to manage your ongoing health condition and/or the condition of the person you care for? (Please select whether you would prefer Service A or Service B)

Services offered at the pharmacy	Service A	Service B
When you run out of your prescription medicines, you need to go to	Doctor for all medicines	Pharmacist, but only for regular medicines, and for medicines you've used periodically for symptom flare-ups, with an annual review by doctor
Help to manage ongoing health condition(s)	You can get advice from other health providers who are employed in the pharmacy (e.g. dieticians)	Pharmacy staff available to speak with you and direct you to other health services, which you can then access yourself (e.g. dieticians)
Pharmacy location	Pharmacy that is located near to your home or work but away from other health services	Pharmacy that is located in a one stop health centre with all clinics and services, including your GP
Getting your medicines	Face to face pick up at pharmacy and you can request home delivery	Face to face pick up at pharmacy
Medicines review or advice	The pharmacist is available in the pharmacy without you needing to ask	The pharmacist is in the dispensary and you can ask to speak to them
Average cost per month	\$10 per month	\$20 per month

Choice Set Two: If these were the only two pharmacy services available to you, which service would you prefer to use?	<input type="checkbox"/> Service A	<input type="checkbox"/> Service B
Choice Set Two: Would you choose your preferred service described above or your usual pharmacy service?	<input type="checkbox"/> I would choose my preferred pharmacy service <input type="checkbox"/> I would stay with my usual pharmacy service	

8. **Choice Set Three:**

Which new pharmacy service would you prefer to help you to manage your ongoing health condition and/or the condition of the person you care for? (Please select whether you would prefer Service A or Service B)

Services offered at the pharmacy	Service A	Service B
When you run out of your prescription medicines, you need to go to	Pharmacist, but only for regular medicines, with an annual review by doctor	Doctor for all medicines
Help to manage ongoing health condition(s)	You can get advice from other health providers who are employed in the pharmacy (e.g. dieticians)	Pharmacy staff available to speak with you and direct you to other health services, which you can then access yourself (e.g. dieticians)
Pharmacy location	Pharmacy that is located near to your GP practice only	Pharmacy that is located near to your home or work but away from other health services
Getting your medicines	Face to face pick up at pharmacy	Face to face pick up at pharmacy and you can collect your medicines without going into the pharmacy if required (e.g. drive thru)
Medicines review or advice	The pharmacist is available in the pharmacy without you needing to ask and you can make an appointment for the pharmacist to visit you at home	The pharmacist is available in the pharmacy without you needing to ask and you can speak to the pharmacist by phone, email or internet
Average cost per month	\$0 per month	\$10 per month

Choice Set Three: If these were the only two pharmacy services available to you, which service would you prefer to use?	<input type="checkbox"/> Service A	<input type="checkbox"/> Service B
Choice Set Three: Would you choose your preferred service described above or your usual pharmacy service?	<input type="checkbox"/> I would choose my preferred pharmacy service <input type="checkbox"/> I would stay with my usual pharmacy service	

B1_S16

9. **Choice Set Four:**

Which new pharmacy service would you prefer to help you to manage your ongoing health condition and/or the condition of the person you care for? (Please select whether you would prefer Service A or Service B)

Services offered at the pharmacy	Service A	Service B
When you run out of your prescription medicines, you need to go to	Pharmacist, but only for regular medicines, with an annual review by doctor	Doctor for all medicines
Help to manage ongoing health condition(s)	You can get advice from other health providers who are employed in the pharmacy (e.g. dieticians)	Pharmacy staff available to speak with you and direct you to other health services, which you can then access yourself (e.g. dieticians)
Pharmacy location	Pharmacy that is located near to your GP practice only	Pharmacy that is located near to your home or work but away from other health services
Getting your medicines	Face to face pick up at pharmacy and you can collect your medicines without going into the pharmacy if required (e.g. drive thru)	Face to face pick up at pharmacy and you can request home delivery
Medicines review or advice	The pharmacist is available in the pharmacy without you needing to ask	The pharmacist is in the dispensary and you can ask to speak to them
Average cost per month	\$20 per month	\$0 per month

Choice Set Four: If these were the only two pharmacy services available to you, which service would you prefer to use?	<input type="checkbox"/> Service A	<input type="checkbox"/> Service B
	<input type="checkbox"/> I would choose my preferred pharmacy service <input type="checkbox"/> I would stay with my usual pharmacy service	

B1_S62

Finally, if your usual pharmacy service was chosen for any of the questions above, please can you tell us why you did so? (It is fine to have chosen your usual pharmacy service: we want to understand what it is about your usual service that you like)

PART D – Your current health conditions

This section asks a few questions about your general health. Please answer these questions about your own health, not the health of anyone you care for.

10. Do you personally experience any ongoing health condition(s) (e.g. diabetes, asthma, high blood pressure, high cholesterol, hay fever, ongoing back pain and so on)?

- ☐ YES
☐ NO (go to PART E – Question 22)

11. If 'yes', please provide information about your ongoing health condition(s) and approximately how long you have had them: (select all that apply)

Condition(s)	YES	NO	If 'yes', for approximately how long?
Diabetes	<input type="checkbox"/>	<input type="checkbox"/>	_____ years
Heart disease	<input type="checkbox"/>	<input type="checkbox"/>	_____ years
High blood pressure	<input type="checkbox"/>	<input type="checkbox"/>	_____ years
Asthma	<input type="checkbox"/>	<input type="checkbox"/>	_____ years
COPD (e.g. emphysema)	<input type="checkbox"/>	<input type="checkbox"/>	_____ years
Other respiratory disease	<input type="checkbox"/>	<input type="checkbox"/>	_____ years
Renal disease (kidneys)	<input type="checkbox"/>	<input type="checkbox"/>	_____ years
Cancer	<input type="checkbox"/>	<input type="checkbox"/>	_____ years
Depression	<input type="checkbox"/>	<input type="checkbox"/>	_____ years
Anxiety	<input type="checkbox"/>	<input type="checkbox"/>	_____ years
Other mental health conditions	<input type="checkbox"/>	<input type="checkbox"/>	_____ years
Chronic neck/back pain	<input type="checkbox"/>	<input type="checkbox"/>	_____ years
Arthritis	<input type="checkbox"/>	<input type="checkbox"/>	_____ years
Skin condition	<input type="checkbox"/>	<input type="checkbox"/>	_____ years
Other (please specify)	<input type="checkbox"/>	<input type="checkbox"/>	_____ years
Other (please specify)	<input type="checkbox"/>	<input type="checkbox"/>	_____ years
Other (please specify)	<input type="checkbox"/>	<input type="checkbox"/>	_____ years

12. Which one of the conditions that you indicated 'yes' for above has the most **impact** on your life?

Please specify condition _____

13. Do you have an unpaid carer to help you to manage your condition(s)?

- ☐ YES
- ☐ NO (please go to Question 15)

14. How does this person help you to manage your condition(s)? (select all that apply)

- ☐ Helps me with my medicines
- ☐ Provides me with personal care (e.g. bathing)
- ☐ Helps me with household duties (e.g. cleaning)
- ☐ Helps with/arranges my transport
- ☐ Helps me with accessing my medicines
- ☐ Other (*please specify*) _____

15. Are you currently taking/using any medicine?

- ☐ YES
- ☐ NO (please go to Question 19)

16. In relation to your ongoing health condition, how many different medicines did you take/use yesterday? (include all medicines including vitamins, herbal remedies, supplements, puffers and creams etc.)

Please specify _____

17. In relation to your ongoing health condition, how many different times a day did you take/use medicines yesterday? (include all medicines including vitamins, herbal remedies, supplements, puffers and creams etc.)

Please specify _____

18. In the last 12 months, have you delayed getting or not got prescribed medicines from a GP for yourself because of cost?

- ☐ Yes, I delayed getting or did not get prescribed medicine because of cost
- ☐ No, I did not delay or not get prescribed medicine because of cost
- ☐ Not applicable

19. Which best describes how often you go to see a GP for yourself? (select one box only)

- | | |
|-------------|---------------------|
| Weekly | Once every 3 months |
| Fortnightly | Once every 6 months |
| Monthly | Once a year |
| Never | |

20. Which of these characteristics does your usual GP practice have? (select all that apply)

- My GP is within 5 kilometres of my home or my workplace
- My GP offers bulk-billing to me
- My GP has other healthcare providers available on site (e.g. dietician)
- My GP is next to a pharmacy
- My GP has nurses on staff, whom I see for treatment
- I have a healthcare plan(s) with my GP

21. The following questions are about the potential burden that your treatment(s) have on your life. For each question, please select the ONE answer that comes closest to the way you feel about your treatment. **When thinking about your treatment(s), how would you rate the following?** (select one number only)

a) The impact and inconvenience caused by your treatment or medication (e.g. taste, shape or size of your tablets or use of puffers, ointments, chemotherapy etc.)										
0	1	2	3	4	5	6	7	8	9	10
No burden			Some burden				Considerable burden			

b) The number of times you have to take your medication every day										
0	1	2	3	4	5	6	7	8	9	10
No burden			Some burden				Considerable burden			

c) The things you do to remind yourself to take your daily medication and/or to manage your treatment when you are not at home										
0	1	2	3	4	5	6	7	8	9	10
No burden			Some burden				Considerable burden			

d) The specific requirements of taking your medication (e.g. taking it at a specific time of the day or meal, not being able to do certain things after taking it – like driving or lying down)										
0	1	2	3	4	5	6	7	8	9	10
No burden			Some burden				Considerable burden			

e) The side-effects of your medication, treatment and medical tests										
0	1	2	3	4	5	6	7	8	9	10
No burden			Some burden				Considerable burden			

f) Medical tests and other exams (such as frequency, time needed and inconvenience)										
0	1	2	3	4	5	6	7	8	9	10
No burden			Some burden				Considerable burden			

g) Self-monitoring (e.g. taking your blood pressure or measuring your blood sugar yourself; think about the frequency, time needed and inconvenience of this monitoring)										
0	1	2	3	4	5	6	7	8	9	10
No burden					Some burden				Considerable burden	

h) The frequency and time needed for treatment visits										
0	1	2	3	4	5	6	7	8	9	10
No burden					Some burden				Considerable burden	

i) Arranging appointments, scheduling visits to doctors and healthcare professionals and arranging medical tests										
0	1	2	3	4	5	6	7	8	9	10
No burden					Some burden				Considerable burden	

j) The burden associated with taking care of paperwork from health insurance agencies, welfare organisations, hospitals and/or social care services										
0	1	2	3	4	5	6	7	8	9	10
No burden					Some burden				Considerable burden	

k) The constraints associated with changing your diet (e.g. not being allowed to eat certain foods, quitting alcohol or quitting smoking)										
0	1	2	3	4	5	6	7	8	9	10
No burden					Some burden				Considerable burden	

l) The burden associated with the lifestyle (e.g. recommendations from your healthcare professionals for regular physical exercise, relaxation or different sleep habits)										
0	1	2	3	4	5	6	7	8	9	10
No burden					Some burden				Considerable burden	

m) The impact of your healthcare on your social relationships (e.g. needing assistance or being concerned about taking your medication in front of people)										
0	1	2	3	4	5	6	7	8	9	10
No burden					Some burden				Considerable burden	

n) The financial impact of your medication and treatment (e.g. paying for medication and healthcare professional fees, paying private health insurance premiums, losing your income, etc.)										
0	1	2	3	4	5	6	7	8	9	10
No burden			Some burden				Considerable burden			

o) The impact of needing healthcare: 'Needing frequent healthcare reminds me of my health problems'										
0	1	2	3	4	5	6	7	8	9	10
No burden			Some burden				Considerable burden			

PART E – The health conditions of the primary person you care for

In this section, we ask a few short questions about the general health of the primary person you care for (if applicable). Please answer these questions for the ONE primary person you care for, even if you care for more than one person.

22. Are you currently providing unpaid care for someone with an ongoing health condition?

☐ YES

☐ NO (please go to PART F - Question 31)

23. If 'yes', please provide information about their ongoing health condition(s) and approximately how long the person has had them: (select all that apply)

Condition(s)	YES	NO	If 'yes', for approximately how long?
Diabetes	<input type="checkbox"/>	<input type="checkbox"/>	_____ years
Heart Disease	<input type="checkbox"/>	<input type="checkbox"/>	_____ years
High blood pressure	<input type="checkbox"/>	<input type="checkbox"/>	_____ years
Asthma	<input type="checkbox"/>	<input type="checkbox"/>	_____ years
COPD (e.g. emphysema)	<input type="checkbox"/>	<input type="checkbox"/>	_____ years
Other respiratory disease	<input type="checkbox"/>	<input type="checkbox"/>	_____ years
Renal disease (kidneys)	<input type="checkbox"/>	<input type="checkbox"/>	_____ years
Cancer	<input type="checkbox"/>	<input type="checkbox"/>	_____ years
Depression	<input type="checkbox"/>	<input type="checkbox"/>	_____ years
Anxiety	<input type="checkbox"/>	<input type="checkbox"/>	_____ years
Other mental health condition	<input type="checkbox"/>	<input type="checkbox"/>	_____ years
Chronic neck/back pain	<input type="checkbox"/>	<input type="checkbox"/>	_____ years
Arthritis	<input type="checkbox"/>	<input type="checkbox"/>	_____ years
Skin condition	<input type="checkbox"/>	<input type="checkbox"/>	_____ years
Other (please specify)	<input type="checkbox"/>	<input type="checkbox"/>	_____ years
Other (please specify)	<input type="checkbox"/>	<input type="checkbox"/>	_____ years
Other (please specify)	<input type="checkbox"/>	<input type="checkbox"/>	_____ years

24. Which one of the condition(s) that you indicated 'yes' for above, has the most impact on the life of the person you care for?

Please specify condition _____

25. What is your relationship to the primary person you care for?

- ☐ He/she is my parent/step-parent
- ☐ He/she is my partner/de-facto
- ☐ He/she is my child/step child
- ☐ He/she is my sibling/step-sibling
- ☐ He/she is my friend/relative
- ☐ Other (*please specify*) _____

26. Is the person you are caring for currently taking/using any medicine(s)?

- ☐ YES
- ☐ NO (please go to Question 30)

27. In relation to your ongoing health condition, how many different medicines did the person you are caring for take/use yesterday? (include all medicines, e.g. vitamins, herbal remedies, supplements, puffers and creams etc.)

Please specify _____

28. In relation to your ongoing health condition, how many different times a day did the person you are caring for take/use medicines yesterday? (include all medicines, e.g. vitamins, herbal remedies, supplements, puffers and creams etc.)

Please specify _____

29. In the last 12 months, have you delayed getting or not got any prescribed medicines from a GP for the person you care for because of cost?

- ☐ Yes, I delayed getting or did not get prescribed medication because of cost
- ☐ No, I did not delay or not get prescribed medication because of cost
- ☐ Not applicable

30. Which option best describes how often you accompany the person you are caring for to see their usual GP? (select one box only)

- ☐ Weekly
- ☐ Fortnightly
- ☐ Monthly
- ☐ Once every 3 months
- ☐ Once every 6 months
- ☐ Once a year
- ☐ Never

PART F – Your general health

This section asks about YOUR OWN current health status. Please answer these questions even if you do not experience an ongoing health condition yourself.

31. Please select one response to each statement below, to best describe your own health today:

a) Mobility *(select one box only)*

- ☐ I have no problems walking around
- ☐ I have some problems walking around
- ☐ I am confined to bed

b) Personal care *(select one box only)*

- ☐ I have no problems with personal care
- ☐ I have some problems washing or dressing myself
- ☐ I am unable to wash or dress myself

c) Usual activities (e.g. work, study, housework, family or leisure activities)
(select one box only)

- ☐ I have no problems with performing my usual activities
- ☐ I have some problems with performing my usual activities
- ☐ I am unable to perform my usual activities

d) Pain/Discomfort *(select one box only)*

- ☐ I have no pain or discomfort
- ☐ I have moderate pain or discomfort
- ☐ I have extreme pain or discomfort

e) Anxiety/Depression *(select one box only)*

- ☐ I am not anxious or depressed
- ☐ I am moderately anxious or depressed
- ☐ I am extremely anxious or depressed

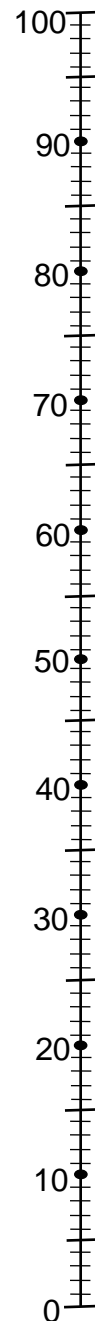
32. This question asks you to rate your health state right now. Imagine a health scale that looks a bit like a thermometer.

On the health scale, a score of 100 means that you are in the best health you can imagine. A score of 0 means that you are in the worst health you can imagine.

On this health scale of 0 to 100, where would you put your health state today?

**Your own
health state
today**

Best imaginable
health state



Worst
imaginable
health state

PART G – Some information about you

This is the last section of the survey. It asks for some basic information about you and your living circumstances. We collect this information so that we can look for patterns and differences between the different groups of people who complete this survey.

33. What is your gender?

- ☐ Male
- ☐ Female

34. What is your year of birth?

19_____

35. Which ethnicity/cultural background do you best identify with?

*Please specify*_____

36. Is English the main language spoken in your home?

- ☐ YES
- ☐ NO (*please specify*)_____

37. Which of the following options best describes your current living arrangements? (select one box only)

- ☐ Single, living alone
- ☐ Single, living with extended family
- ☐ Single, living with non-related others
- ☐ Married/de-facto, with no children
- ☐ Married/de-facto, with children
- ☐ Married/de-facto, children have left home
- ☐ Retirement village
- ☐ Nursing home: Low care / high care
- ☐ Other (*please specify*)_____

38. Do you currently qualify for government concession related to your healthcare (e.g. cheaper medication)?

- ☐ YES
- ☐ NO (Please go to Question 40)

39. If you answered 'yes' to the previous question, which kind of government concession do you have? (select one box only)

- ☐ Department of Veterans' Affairs card (*please specify colour*)
- ☐ Gold ☐ White ☐ Orange
- ☐ Healthcare Card
- ☐ Carers Concession Card
- ☐ Disability Card
- ☐ Age Pension Card
- ☐ Closing the Gap
- ☐ Other (*please specify*)_____

- 40. Have you qualified for cheaper prescription medicines by reaching the PBS safety net threshold either this year or last year?** (e.g. did you receive a CN or SN card from your pharmacy?)
- ☐ YES
- ☐ NO
- ☐ *Don't know*
- 41. Do you currently have private health insurance?**
- ☐ YES
- ☐ NO (Please go to Question 43)
- 42. If you answered 'yes' to the previous question, what kind of private health insurance do you have?** (select one box only)
- ☐ Hospital only
- ☐ Extras only (e.g. dental, prescription and/or allied health cover)
- ☐ Hospital and extras
- 43. What is your household's estimated total (gross) annual income before tax (including your income and the income of the other people living with you)?** (select one box only)
- | | |
|---|--|
| <input type="checkbox"/> Less than \$25,000 | <input type="checkbox"/> \$100,001-\$125,000 |
| <input type="checkbox"/> \$25,001-\$50,000 | <input type="checkbox"/> \$125,001-\$150,000 |
| <input type="checkbox"/> \$50,001-\$75,000 | <input type="checkbox"/> More than \$150,001 |
| <input type="checkbox"/> \$75,001-\$100,000 | <input type="checkbox"/> Prefer not to say |
- 44. What is your highest educational qualification?** (select one box only)
- ☐ Primary or secondary school
- ☐ Certificate or Diploma
- ☐ Bachelor Degree and/or postgraduate qualification (e.g. Masters, PhD)
- ☐ Other (*please specify*) _____
- 45. Which of the following options best describes your main activity?** (select one box only)
- ☐ Working full-time (e.g. working 35 hours or more in all jobs during the week)
- ☐ Working part-time/casual (e.g. working less than 35 hours in all jobs during the week)
- ☐ Unemployed/seeking work
- ☐ Student
- ☐ Home duties
- ☐ Retired/age pensioner
- ☐ Carer/disability pensioner
- ☐ Other (*please specify*) _____
- 46. Have you worked in health care in the last 10 years?**
- ☐ YES
- ☐ NO

End of survey

Thank you for completing this survey

The researcher who contacts you to complete this survey (over the phone) will ask to confirm your name and address so that we can send a gift voucher to you to say thank you for your time. Your name and contact details will be kept in a separate place from your answers to the survey questions and will not be used for any purpose other than to post out your gift voucher. Thanks for helping us with our research.



HEALTH PROFESSIONAL SURVEY

Chronic Illness Project – Pharmacy Survey

Research Project PHM/12/11/HREC

This survey is seeking to understand how people with ongoing (chronic and long term) health conditions, and their family members or carers, might prefer to use their local pharmacies to manage their health more effectively. In recent years, pharmacies have started to introduce healthcare services, such as medication reviews, and health promotion services. However, not all of the new services are available in all community pharmacies. In this survey, we ask you about what services you think health consumers would like community pharmacies to provide in managing their ongoing health conditions. We will be comparing the preferences of consumers and health professionals around what they expect would be important aspects of service delivery for consumers.

What your participation means

Participants will be asked to complete a phone survey that will take approximately 20-25 minutes. A researcher from Colmar Brunton will call you on behalf of the research team at Griffith University to confirm your interest and conduct the survey with you. We encourage you to complete the survey when you receive it which will greatly assist us when you provide your responses to the researcher over the telephone.

The expected benefits of the research

The results of this study will improve our understanding of the ways that people manage ongoing health conditions and their preferences about using pharmacy services.

Your participation is voluntary

Participation in any research project is voluntary. You are free to withdraw at any time while the survey is being conducted. Once the survey is complete, your responses will be added to other people's responses and you will no longer be able to withdraw. If you decide not to take part, this will not affect your relationship with any health professional or health service.

Privacy and confidentiality

Your anonymity will at all times be safeguarded. Data collected for this research will be stored securely by the university for 5 years. The data will be used for academic research, conferences, reports and publications. Your details will be kept confidential and you will not be identified in any publication or report arising from this research project. A de-identified copy of the survey data may be used for other research purposes with your consent.

Questions/further information

For further information about this research project, contact the leader of the research team Professor Amanda Wheeler, on 1800 600 867 (free call) or Email: chronicillness@griffith.edu.au

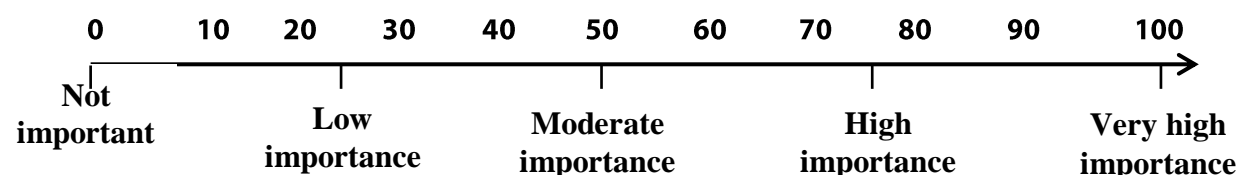
Thank you for your participation.

The project is led by researchers from Griffith University, and is funded by the Australian Government Department of Health and Ageing as part of the Fifth Community Pharmacy Agreement Research and Development Program managed by The Pharmacy Guild of Australia.

PART A – Pharmacy services

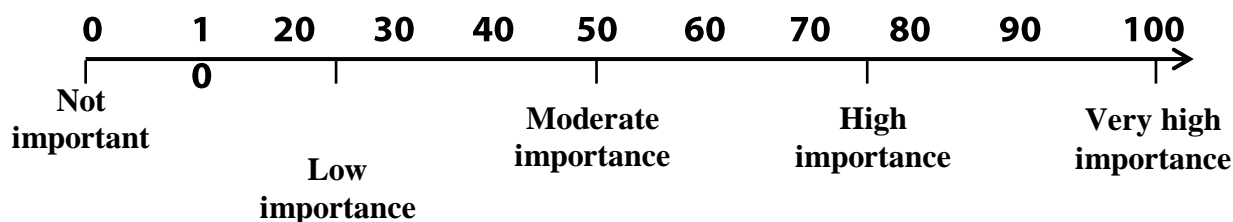
This section asks about the services that pharmacies could offer. We ask you to think about the services/care that you think your consumers would like from pharmacy/pharmacists to help them with their situation, NOT what you would like as a health professional. This is important in order to compare what health professionals think their consumers/patients want and what consumers/patients actually want.

Please rate the expected importance of each service shown in the box below, using this scale:



- 100 = Very high importance** This service will be very highly important for consumers
75 = High importance This service will be highly important for consumers
50 = Moderate importance This service will be moderately important for consumers
25 = Low importance This service will be of low importance for consumers
0 = Not important This service will not be important for consumers

<p>10. Thinking about your consumers, how would they rate the following 22 services/roles (items) in the box below? Please use the scale of 0 to 100 (the higher the score, the higher the importance of the service/care for consumers).</p> <p>Pharmacies/Pharmacists will:</p>	<p>Please write a score anywhere between 0-100 for each service</p>
a) Offer advice on the management of minor ailments (e.g. cold and flu).	
b) Provide basic vaccinations or treatments (e.g. flu vaccine).	
c) Offer screening and monitoring services, such as blood glucose, blood pressure, weight, cholesterol checking, etc.	
d) Offer community health and wellness programs, e.g. cooking classes, walking groups etc.	
e) Have other health providers working at the pharmacy (e.g. dieticians)	
f) Be located in a large community clinic or medical centre as part of a 'one stop shop' health centre.	
g) Be able to speak with and put the person in touch with other healthcare professionals and services	



h) Have access to a person's prescription (dispensing) records at any pharmacy.	
i) Have access to a person's medical records that are linked to the person's GP, specialist and hospital records (e.g. national database).	
j) Send telephone reminders to remind a person when a repeat prescription is due (e.g. SMS message).	
k) Offer home delivery for medications.	
l) Provide personalised advice and information on prescribed medications (e.g. use, benefits, side effects).	
m) Review a person's prescribed medication either in the pharmacy or at home	
n) Be available outside the dispensary for consultation (e.g. at the front counter).	
o) Be available on the phone, internet or email for consultations.	
p) Have a private consultation area for discussion about medications and health.	
q) Treat the person as an individual, not as a number.	
r) Recognise and value all parts of the person's life (e.g. holistic care).	
s) Be respectful of the person's needs and values.	
t) Be a partner in the person's health care (e.g. work with them and their family).	
u) Prescribe an extra 6 months of repeat medication after a person's GP prescription runs out.	
v) Prescribe a short course of medication under a chronic illness management plan that has been agreed with a person's GP, without the person needing to see the GP again.	

Part B – Choice tasks

(Please read carefully before progressing)

This section asks about what consumer's ideal pharmacy service might look like. We would like you to choose between different services that a pharmacy might be able to offer.

Many of the services suggested in this section do not currently exist. We are asking about them here because we are interested in finding out what pharmacy services people might want to have in the future.

For each question, we will describe two different pharmacy services to you and ask which one you think consumers would prefer to use. You will notice that some of the information will be repeated across the four questions. Please view each choice set independently of others, and consider each service (e.g. service A or service B) as a whole package. Again the focus is on what you believe your consumers would prefer.

For each pharmacy service that we suggest, we will ask you to imagine that there are choices about:

- Who gives repeat prescriptions
- Who helps to manage their chronic (ongoing) condition
- Where the pharmacy is located
- How medicines are collected (pick up or delivery)
- Whether the pharmacist can review medicines and give advice
- How much consumers would pay for the service, in addition to the cost of medicines or consultation visits.

If you have any questions about these options, please talk to the researcher who interviews you for this study.

11. **Choice Set One:**

Which new pharmacy service do you think your consumers would prefer to help them manage their chronic conditions and/or the conditions of the person they care for?

(Please select whether you think your consumers would prefer Service A or Service B)

Services offered at the pharmacy	Service A	Service B
When you run out of your prescription medicines, you need to go to	Doctor for all medicines	Pharmacist, but only for regular medicines, and for medicines you've used periodically for symptom flare-ups, with an annual review by doctor
Help to manage ongoing health condition(s)	Pharmacy staff available to speak with you and direct you to other health services, which you can then access yourself (e.g. dieticians)	You can get advice from other health providers who are employed in the pharmacy (e.g. dieticians)
Pharmacy location	Pharmacy that is located near to your GP practice only	Pharmacy that is located near to your home or work but away from other health services
Getting your medicines	Face to face pick up at pharmacy	Face to face pick up at pharmacy and you can collect your medicines without going into the pharmacy if required (e.g. drive thru)
Medicines review or advice	The pharmacist is available in the pharmacy without you needing to ask and you can make an appointment for the pharmacist to visit you at home	The pharmacist is available in the pharmacy without you needing to ask and you can speak to the pharmacist by phone, email or internet
Average cost per month	\$10 per month	\$20 per month

Choice Set One: If these were the only two pharmacy services available to your consumers, which service do you think they would prefer?	<input type="checkbox"/> Service A	<input type="checkbox"/> Service B
--	--	--

B1_S2

12. **Choice Set Two:**

Which new pharmacy service do you think your consumers would prefer to help them manage their chronic conditions and/or the conditions of the person they care for?

(Please select whether you think your consumers would prefer Service A or Service B)

Services offered at the pharmacy	Service A	Service B
When you run out of your prescription medicines, you need to go to	Doctor for all medicines	Pharmacist, but only for regular medicines, and for medicines you've used periodically for symptom flare-ups, with an annual review by doctor
Help to manage ongoing health condition(s)	You can get advice from other health providers who are employed in the pharmacy (e.g. dieticians)	Pharmacy staff available to speak with you and direct you to other health services, which you can then access yourself (e.g. dieticians)
Pharmacy location	Pharmacy that is located near to your home or work but away from other health services	Pharmacy that is located in a one stop health centre with all clinics and services, including your GP
Getting your medicines	Face to face pick up at pharmacy and you can request home delivery	Face to face pick up at pharmacy
Medicines review or advice	The pharmacist is available in the pharmacy without you needing to ask	The pharmacist is in the dispensary and you can ask to speak to them
Average cost per month	\$10 per month	\$20 per month
Choice Set Two: If these were the only two pharmacy services available to your consumers, which service do you think they would prefer?	<input type="checkbox"/> Service A	<input type="checkbox"/> Service B

B1_S7

13. **Choice Set Three:**

Which new pharmacy service do you think your consumers would prefer to help them manage their chronic conditions and/or the conditions of the person they care for?

(Please select whether you think your consumers would prefer Service A or Service B)

Services offered at the pharmacy	Service A	Service B
When you run out of your prescription medicines, you need to go to	Pharmacist, but only for regular medicines, with an annual review by doctor	Doctor for all medicines
Help to manage ongoing health condition(s)	You can get advice from other health providers who are employed in the pharmacy (e.g. dieticians)	Pharmacy staff available to speak with you and direct you to other health services, which you can then access yourself (e.g. dieticians)
Pharmacy location	Pharmacy that is located near to your GP practice only	Pharmacy that is located near to your home or work but away from other health services
Getting your medicines	Face to face pick up at pharmacy	Face to face pick up at pharmacy and you can collect your medicines without going into the pharmacy if required (e.g. drive thru)
Medicines review or advice	The pharmacist is available in the pharmacy without you needing to ask and you can make an appointment for the pharmacist to visit you at home	The pharmacist is available in the pharmacy without you needing to ask and you can speak to the pharmacist by phone, email or internet
Average cost per month	\$0 per month	\$10 per month
Choice Set Three: If these were the only two pharmacy services available to your consumers, which service do you think they would prefer?	<input type="checkbox"/> Service A	<input type="checkbox"/> Service B

B1_S16

14. **Choice Set Four:**

Which new pharmacy service do you think your consumers would prefer to help them manage their chronic conditions and/or the conditions of the person they care for?

(Please select whether you think your consumers would prefer Service A or Service B)

Services offered at the pharmacy	Service A	Service B
When you run out of your prescription medicines, you need to go to	Pharmacist, but only for regular medicines, with an annual review by doctor	Doctor for all medicines
Help to manage ongoing health condition(s)	You can get advice from other health providers who are employed in the pharmacy (e.g. dieticians)	Pharmacy staff available to speak with you and direct you to other health services, which you can then access yourself (e.g. dieticians)
Pharmacy location	Pharmacy that is located near to your GP practice only	Pharmacy that is located near to your home or work but away from other health services
Getting your medicines	Face to face pick up at pharmacy and you can collect your medicines without going into the pharmacy if required (e.g. drive thru)	Face to face pick up at pharmacy and you can request home delivery
Medicines review or advice	The pharmacist is available in the pharmacy without you needing to ask	The pharmacist is in the dispensary and you can ask to speak to them
Average cost per month	\$20 per month	\$0 per month

Choice Set Four: If these were the only two pharmacy services available to your consumers, which service do you think they would prefer?	<input type="checkbox"/> Service A	<input type="checkbox"/> Service B
---	--	--

B1_S62

PART C – Exploratory questions for pharmacists

This section is for pharmacists only.

If community pharmacists are to provide better care for people with chronic conditions and their carers, then an exploration of the changes that are required to enable pharmacists to implement this in their day to day practice is essential.

We would like you to think about the potential or current barriers that might prevent you from providing better care or additional services to people with chronic conditions and their carers. These can be environmental (i.e. limited privacy), legislative/regulatory or professional barriers.

We would also like your suggestions on proposed solutions or necessary changes that could minimise these barriers.

Reflect on your current situation as a pharmacist and the services you would like to provide as a pharmacist in the future. It may help to refer back to some of the services previously mentioned in this survey.

15. What are the barriers you see for the provision of new (e.g. repeat prescribing) or extended services (e.g. direct, formal referrals to other health professionals) into community pharmacy?
16. Please explain why you think these are barriers?
17. What do you think needs to happen to minimise these barriers?
18. If you have introduced or improved a service, what strategies made this successful?

PART D – Participant Characteristics

This final section gathers some basic information about your professional background and current health practice.

19. What is your gender?

- ☐ Male
- ☐ Female

20. What is your year of birth

19_____

21. Do you or does someone you are caring for have one or more long term health condition(s)?

- ☐ I have one or more long term chronic condition(s)

Please specify _____

- ☐ I am a carer/support person for someone with one/more long chronic condition(s)
- ☐ Both
- ☐ Neither

22. Which ethnicity/cultural background do you best identify with?

Please specify _____

23. Is English the main language spoken in your home?

- ☐ YES
- ☐ NO (*please specify*) _____

24. Which of the following options best represents your current health professional role? (*tick one box only*)

- | | |
|--|--|
| <input type="checkbox"/> Generalist medical practitioner | <input type="checkbox"/> Nurse/midwife |
| <input type="checkbox"/> Specialist medical practitioner | <input type="checkbox"/> Nurse practitioner |
| <input type="checkbox"/> Medical imaging worker | <input type="checkbox"/> Dental practitioner |
| <input type="checkbox"/> Pharmacist | <input type="checkbox"/> Allied health professional |
| <input type="checkbox"/> Pharmacy assistant / technician / retail manager | <input type="checkbox"/> Alternative health practitioner |
| <input type="checkbox"/> Aboriginal and Torres Strait Islander health worker | <input type="checkbox"/> Other _____ |

25. In which country did you first receive your professional training in your role?

Please specify _____

26. Which of the following options best represents the sector you primarily work in your professional role? (*tick one box only*)

- ☐ Hospital
- ☐ General Practice
- ☐ Primary care (including allied health)
- ☐ Community/home-based care
- ☐ Residential institution
- ☐ Other (*please specify*) _____

27. Which of the following best describes the health sector in which you primarily work? (tick one box only)

- ☐ Private
- ☐ Public
- ☐ Not for profit/social enterprise
- ☐ Other (*please specify*) _____

28. Which of the following describes your personal source of income as a health professional?
(please select all that apply)

- ☐ Receive a salary (full-time, part-time or casual)
- ☐ Fee for service
- ☐ Owner of pharmacy
- ☐ Owner of a GP clinic/health centre/other health-related service
- ☐ Other (*please specify*) _____
- ☐ Prefer not to say

29. How many years have you been working in your current professional role?

Please specify _____

30. How many hours do you work on average each week in your primary health professional role?

Please specify (*in hours*) _____

End of survey

Thank you for completing this survey

The researcher who contacts you to complete this survey (over the phone) will ask to confirm your name and address so that we can send a gift voucher to you to say thank you for your time. Your name and contact details will be kept in a separate place from your answers to the survey questions and will not be used for any purpose other than to post out your gift voucher. Thanks for helping us with our research.

Appendix 6.3 –Survey Information Letter for Consumer and Carer Participants



School of Human Services

Logan Campus
Griffith University
University Drive
Meadowbrook QLD 4131
Australia

Toll Free Telephone 1800 600 687
Facsimile +61 (0)7 3382 1041

www.chronicillnessproject.com.au

Dear

Some time ago you agreed to participate in Griffith University's Chronic Illness Project. You may recall we are particularly interested in pharmacy services that support you, or a person you care for. We have enclosed another information sheet about the project in case you don't have your original copy handy.

One of our Colmar Brunton researchers will call you in a few weeks to see if you are available to complete our 30 minute survey by telephone, or to arrange a suitable time to do so.

We have enclosed a copy of the survey in this pack. We encourage you to complete the survey when you receive it, which will help when you provide your responses to the researcher over the telephone. The interviewer will also be able to answer any questions you may have.

Once you have completed the survey over the phone with our researcher we will send you a \$50 Coles gift card in appreciation of your time.

If you have any queries you can reach us on freecall 1800 600 687 or by email at chronicillness@griffith.edu.au.

Yours sincerely

A handwritten signature in black ink that reads 'Beth Hunter'.

Beth Hunter
Project Manager

A handwritten signature in black ink that reads 'A.J. Wheeler'.

Amanda Wheeler (Project Leader),
BSc, BPharm, PGDip(PsychPharm), PGCert(PubHealth), PhD

Appendix 6.4 – Survey Information Letter for Health Professional/Worker Participants



School of Human Services

Logan Campus
Griffith University
University Drive
Meadowbrook QLD 4131
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Toll Free Telephone 1800 600 687
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Dear

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In this survey, we ask you about what services you think health consumers would like community pharmacies to provide in managing their ongoing health conditions. We will be comparing the preferences of consumers and health professionals around what they expect would be important aspects of service delivery for consumers. We have enclosed another information sheet about the project in case you don't have your original copy handy.

One of our Colmar Brunton researchers will call you in a few weeks to see if you are available to complete our 20-25 minute survey by telephone, or to arrange a suitable time to do so.

We have enclosed a copy of the survey in this pack. We encourage you to complete the survey when you receive it, which will help when you provide your responses to the researcher over the telephone. The interviewer will also be able to answer any questions you may have.

Once you have completed the survey over the phone with our researcher we will send you a \$30 Coles gift card in appreciation of your time.

If you have any queries you can reach us on freecall 1800 600 687 or by email at chronicillness@griffith.edu.au.

Yours sincerely

A handwritten signature in black ink that reads 'Beth Hunter'.

Beth Hunter
Project Manager

A handwritten signature in black ink that reads 'A. J. Wheeler'.

Amanda Wheeler (Project Leader),
BSc, BPharm, PGDip(PsychPharm), PGCert(PubHealth), PhD

Appendix 6.5 – Geographical Distribution of Stage Three Participants

Geographical distribution of Stage Three participants

Region	Consumers (n=442)		Carers (n=21)		Both (n=139)		TOTAL (n=602)	
	n	%	n	%	n	%	n	%
Logan-Beaudesert	178	40.2	7	33.3	51	36.7	236	39.2
Mt Isa & North West	24	5.4	4	19.1	14	10.1	42	7.0
Northern Rivers	134	30.3	8	38.1	49	35.3	191	31.7
Greater Perth	106	24.0	2	9.5	25	18.0	133	22.1

Region	Pharmacist (n=89)		Doctor* (n=40)		Nurse (n=60)		Other (n=108)		TOTAL (n=297)	
	n	%	n	%	n	%	n	%	n	%
Logan-Beaudesert	27	30.3	31	77.5	41	68.3	69	63.9	168	56.6
Mt Isa & North West	7	7.9	2	5.0	6	10.0	5	4.6	20	6.7
Northern Rivers	23	25.8	2	5.0	3	5.0	23	21.3	51	17.2
Greater Perth	32	36.0	5	12.5	10	16.7	11	10.2	58	19.5

*Includes general and specialist medical practitioner

Appendix 6.6 – Consumer and Carer Survey Participants and National Health Survey¹ Respondent Characteristics

Characteristic	Survey sample	Count	Mean /proportion [^]	NHS 2007-8 Sample	Count	Mean /proportion [^]	Difference (in mean /proportion)	p-value (for difference)
Age	581		57.28 (15.64)	8279		54.95 (17.32)	2.33	0.001
Female	581	407	70.05%	8279	4679	56.52%	13.54%	<0.001
Australian (born)	580	411	70.86%	8279	6089	73.55%	-2.69%	0.157
Primary/secondary school Certificate/diploma	581	244	42.00%	8279	4076	49.23%	-7.24%	0.001
Bachelor/postgraduate qualification	581	192	33.05%	8279	2584	31.21%	1.83%	0.357
	581	135	23.24%	8279	1478	17.85%	5.38%	0.001
Employed	581	155	26.68%	8279	4138	49.98%	-23.30%	<0.001
Household income ≤\$50,001	579	351	60.62%	8279	3670	44.33%	16.29%	<0.001
Two or more chronic conditions	581	501	86.23%	8279	7218	87.18%	-0.95%	0.507
Private Health Insurance	581	250	43.03%	8279	4274	51.62%	-8.60%	<0.001
Government concession	581	438	75.39%	8279	4196	50.68%	24.70%	<0.001
Diabetes & other endocrine	581	171	29.43%	8279	938	11.33%	18.10%	<0.001
Cardiovascular conditions	581	317	54.56%	8279	4277	51.66%	2.90%	0.176
Respiratory (asthma in NHS)	581	234	40.28%	8279	1658	20.03%	20.25%	<0.001
Cancer	574	62	10.80%	8279	370	4.47%	6.33%	<0.001
Mental illness	581	244	42.00%	8279	2165	26.15%	15.85%	<0.001
Musculoskeletal	581	368	63.34%	8279	3543	42.80%	20.54%	<0.001

[^]Figures are proportions, except for age which is mean (SD)

¹ The comparison data was taken from the 2007/08 National Health Survey(Australian Bureau of Statistics). This comprises a nationally representative sample of 20,788 individuals from which people under the age of 18 years (n=5,009) and without a National Health Priority Condition (cardiovascular disease, diabetes, cancer, asthma, arthritis, osteoporosis, and mental health conditions; n=7,500) were excluded. This left a sample of 8,279 individuals to use in the comparison. A tests for the difference of proportions was performed on all categorical variables and a t-test for continuous variables using Stata 13 software.

Appendix 6.7 – Medication Use Reported by Consumer Participants

	Number of medications ^b taken per day				Frequency of doses ^b per day			
	Consumers (n=420)	Both (n=128)	<i>p</i> value	TOTAL (n=548) ^a	Consumers (n=418)	Both (n=126)	<i>p</i> value	TOTAL (n=544) ^a
Mean	7.5	5.7		7.1	2.9	2.3		2.7
SD	5.7	3.8		5.3	2.0	1.5		1.9
Median	6.0	5.0	<i>p</i> ≤0.003	6.0	2.0	2.0	<i>p</i> ≤0.001	2.00
IQR	4 to 10	3 to 8.8		3 to 9	2 to 4	1 to 3		2 to 3

^aTotal excludes 22 Consumers and 11 Both (participant who experienced chronic condition and cared for someone that did) who had missing data for the number of different medicines taken each day and 24 consumers and 13 both who had missing data for the number of different times a day medicines taken.

^bVitamins and over-the-counter medicines were included. SD = Standard Deviation; IQR= Interquartile Range

Appendix 6.8 – Prediction of Treatment Burden (multiple linear regression)

Method

For the sample of consumers and consumers and carers (n=581), stepwise backward multiple linear regression was used to test the ability of a number of participant characteristics to predict overall levels of treatment burden. For each participant, the individual treatment burden item scores were summed to give a global score out of 150 indicating total treatment burden (with higher scores representing a higher level of burden).

Predictors tested in the model included:

- Personal characteristics (age, gender, marital status, household income, employment status, educational background, cultural background, government concession, private health insurance, and whether a person had an unpaid carer to help with managing his/her conditions); and
- Disease characteristics (number of chronic conditions, and the type of chronic condition, which was represented by the following conditions: diabetes and other endocrine conditions, cardiovascular conditions, mental illness, musculoskeletal conditions, respiratory conditions, and cancer).

Characteristics were entered into the model simultaneously and then removed individually in a backward step approach. The significance level was set at $p \leq 0.05$ for the retention of characteristics in the final model.

Results

The prediction model had statically significantly predictive capability, $F(4, 558) = 38.78, p < 0.001$. Twenty-one per cent of the variation in overall treatment burden was explained by the set of independent variables ($R^2 = .22$ adjusted $R^2 = .21$). The following four variables made significant ($p < 0.001$) contribution to the prediction of overall treatment burden: age, presence of an unpaid carer, number of chronic conditions, and experiencing diabetes and other endocrine conditions.

Variables	<i>b</i>	<i>SE-b</i>	(β)	<i>r</i>	<i>sr</i> ²
Constant***	62.819	4.995			
Age***	-.585	.085	-.27	-.16	.07
Presence of unpaid carer***	17.594	3.208	.22	.23	.05
Number of chronic conditions***	4.816	.570	.34	.31	.10
Experiencing diabetes and other endocrine conditions**	9.655	2.867	.13	.16	.02

Note. ***= $p \leq 0.001$; **= $p \leq 0.01$. Dependent variable is overall treatment burden. *b* = raw regression coefficient, β = standardised regression coefficient, *r* = Pearson's correlation, *sr*² = squared semi-partial correlations.

Age was measured in years (continuous), presence of unpaid carer was dummy coded 0 = no, 1 = yes, number of chronic conditions was measured by asking participants to report their number of conditions, experiencing diabetes and other endocrine conditions was dummy coded 0 = no, 1 = yes. Endocrine conditions included thyroid disorders, hormonal disorders, hypoglycaemia, etc.

Appendix 6.9 – Ideal Community Pharmacy Services

Table A shows the importance of specific community pharmacy services in helping to manage the chronic conditions consumers and or unpaid carers. Table B shows the importance of specific community pharmacy services, according to health professionals, in helping to manage the chronic conditions consumers and or unpaid carers. Important priorities (with a median score of 90) are highlighted.

Table A: Future community pharmacy services according to consumer and carer participants

	Consumers (n=442)		Carers (n=21)		Both (n=139)		Total (n=602)	
Future Community Pharmacy Service	Median	IQR^a	Median	IQR^a	Median	IQR	Median	IQR^a
Offer advice on the management of minor ailments	75.0	40.0	75.0	40.0	75.0	45.0	75.0	40.0
Provide basic adult vaccinations or treatments	50.0	70.0	60.0	70.0	50.0	65.0	50.0	60.0
Offer screening and monitoring services	60.0	65.0	75.0	70.0	70.0	60.0	70.0	65.0
Offer community health and wellness programs	50.0	60.0	40.0	60.0	50.0	70.0	50.0	65.0
Have other health providers working at the pharmacy	60.0	50.0	70.0	30.0	65.0	65.0	60.0	50.0
Be located in a large community clinic or medical centre as part of a 'one stop shop' health centre	60.0	65.0	70.0	75.0	70.0	65.0	60.0	65.0
Be able to speak with and put me in touch with other healthcare professionals and services	75.0	40.0	80.0	50.0	75.0	50.0	75.0	40.0
Have access to my prescription (dispensing) records from any pharmacy	90.0	45.0	100.0	20.0	90.0	40.0	90.0	40.0
Have access to my medical records, with links to my GP, specialist/hospital	80.0	50.0	90.0	40.0	80.0	50.0	80.0	50.0
Send reminders when my repeat prescription is due	75.0	54.0	85.0	50.0	75.0	50.0	75.0	50.0
Offer home delivery for medicines	55.0	65.0	67.5	80.0	70.0	70.0	60.0	65.0
Provide personalised advice and information on prescribed medicines	90.0	30.0	99.0	25.0	90.0	25.0	90.0	25.0
Review my medicines – either in the pharmacy or at home	70.0	60.0	80.0	75.0	75.0	40.0	70.0	50.0
Be available in the pharmacy but away from the dispensary for consultation	70.0	40.0	77.5	42.5	75.0	40.0	75.0	40.0
Be available on the phone, internet or email for consultations	60.0	60.0	72.5	45.0	72.5	30.0	70.0	50.0
Have a private consultation area for discussions about medicines and health	68.0	45.0	82.5	75.0	75.0	40.0	70.0	40.0
Treat me as an individual, not as a number	100.0	20.0	100.0	20.0	100.0	20.0	100.0	20.0
Recognise and value all parts of my life	80.0	50.0	75.0	45.0	80.0	50.0	80.0	50.0
Be respectful of needs and personal values	100.0	25.0	80.0	25.0	95.0	20.0	98.5	25.0
Be a partner in health care (e.g. work with me and my family)	80.0	50.0	100.0	20.0	80.0	40.0	80.0	50.0
Prescribe an extra 6 months repeat medicines after GP prescription runs out	75.0	60.0	85.0	60.0	75.0	70.0	75.0	60.0
Prescribe a short course of medication under a healthcare plan that has been agreed with GP, without needing to see the GP	80.0	50.0	90.0	45.0	75.0	50.0	80.0	50.0

^aIQR=Interquartile range. With a median score of 90 and above out of 100 points, yellow highlighted rows are the most important services, according to participants.

Table B: Future community pharmacy services according to health professional participant

	Pharmacist (n=89)		Doctor* (n=40)		Nurse (n=60)		Other (n=108)		TOTAL (n=297)	
Future Community Pharmacy Service	Median	IQR	Median	IQR	Median	IQR	Median	IQR	Median	IQR
Offer advice on the management of minor ailments	90.0	20.0	90.0	80.0	80.0	30.0	80.0	38.0	90.0	25.0
Provide basic adult vaccinations or treatments	50.0	30.0	70.0	75.0	75.0	60.0	75.0	30.0	69.0	30.0
Offer screening and monitoring services	75.0	20.0	75.0	90.0	90.0	40.0	90.0	30.0	80.0	30.0
Offer community health and wellness programs	40.0	30.0	50.0	50.0	50.0	45.0	50.0	40.0	50.0	40.0
Have other health providers working at the pharmacy	55.0	30.0	60.0	70.0	70.0	30.0	70.0	30.0	60.0	30.0
Be located in a large community clinic or medical centre as part of a 'one stop shop' health centre	65.0	30.0	90.0	80.0	80.0	30.0	80.0	30.0	80.0	35.0
Be able to speak with and put me in touch with other healthcare professionals and services	80.0	20.0	75.0	80.0	80.0	40.0	80.0	30.0	80.0	20.0
Have access to prescription (dispensing) records from any pharmacy	75.0	30.0	90.0	90.0	90.0	40.0	90.0	25.0	85.0	30.0
Have access to my medical records, with links to my GP, specialist/hospital	70.0	30.0	70.0	75.0	75.0	40.0	75.0	30.0	70.0	40.0
Send reminders when my repeat prescription is due	50.0	25.0	90.0	80.0	80.0	30.0	80.0	30.0	70.0	40.0
Offer home delivery for medicines	75.0	30.0	90.0	90.0	90.0	25.0	90.0	20.0	80.0	30.0
Provide personalised advice and information on prescribed medicines	90.0	20.0	90.0	90.0	90.0	20.0	90.0	20.0	90.0	20.0
Review my medicines – either in the pharmacy or at home	80.0	23.0	80.0	90.0	90.0	25.0	90.0	20.0	80.0	30.0
Be available in the pharmacy but away from the dispensary for consultation	90.0	20.0	75.0	80.0	80.0	30.0	80.0	25.0	80.0	25.0
Be available on the phone, internet or email for consultations	80.0	20.0	75.0	70.0	70.0	35.0	70.0	20.0	75.0	35.0
Have a private consultation area for discussions about medicines	85.0	30.0	80.0	90.0	90.0	30.0	90.0	30.0	80.0	30.0
Treat me as an individual, not as a number	100.0	10.0	100.0	100.0	100.0	10.0	100.0	10.0	100.0	10.0
Recognise and value all parts of my life	90.0	20.0	100.0	90.0	90.0	20.0	90.0	25.0	90.0	25.0
Be respectful of needs and personal values	100.0	8.0	100.0	100.0	100.0	10.0	100.0	10.0	100.0	10.0
Be a partner in health care (e.g. work with me and my family)	80.0	28.0	80.0	90.0	90.0	30.0	90.0	20.0	80.0	27.5
Prescribe extra 6 months repeat medicines after GP script runs out	70.0	30.0	75.0	75.0	75.0	40.0	75.0	40.0	70.0	37.5
Prescribe a short course of medication under a healthcare plan that has been agreed with GP, without needing to see the GP	80.0	20.0	80.0	80.0	80.0	35.0	80.0	30.0	80.0	30.0

*Includes general and specialist medical practitioner. IQR = Interquartile range. With a median score of 90 and above out of 100 points, yellow highlighted rows are the most important services, according to participant