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**Nurse Practitioners:
An Insight into their Integration into Australian Community Pharmacies**

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4

5 **ABSTRACT**
6

7 **Background:** Nurse practitioners (NPs) are independent health professionals with prescribing
8 rights, and have recently established primary care roles in pharmacies.

9 **Objective:** To describe the roles of pharmacy-based NPs in Australia.

10 **Methods:** Semi-structured interviews were undertaken on-site or by telephone with 28 staff
11 of all 9 Revive NP Clinics in Western Australia. Participants comprised NPs representing 6
12 practices and pharmacy staff of all 9 practices. Questions explored the NPs' scope of practice
13 and staff collaboration. Data are descriptively reported.

14 **Results:** The NPs undertook a range of services, including medication prescribing according
15 to clinical guidelines, provision and ordering of diagnostic services, vaccine administration
16 and provision of medical certificates. Community pharmacists reported to continue ensuring
17 the safe and quality use of medicines and to counsel clients. Both pharmacists and NPs
18 provided consumer medicine information leaflets. NPs are authorised to write prescriptions
19 for Pharmacist Only (S3) Medicines.

20 **Conclusions:** NPs' primary healthcare roles appear to complement roles of community
21 pharmacists. Potential exists for further collaboration and interdisciplinary care in health
22 promotion and screening services. Clarification is needed with respect to prescribing and
23 provision of Pharmacist Only Medicines, and offering consumer medicines leaflets.
24
25

26 INTRODUCTION

27

28 Nurse Practitioners (NPs) are registered nurses who are authorised to prescribe medicines,
29 order diagnostic investigations and provide referrals to specialist medical practitioners.^{1,2}

30 Traditionally, NPs have been employed in hospitals and medical clinics; a career path in
31 primary healthcare has now been developed.

32

33 The most significant and recent change for NPs in Australia is their eligibility, in private
34 practice and under a collaborative agreement with a general practitioner (GP),³ to provide
35 Government-subsidised medical services and prescribe Government-subsidised medicines.⁴

36 NPs work within their recognised 'scope of practice' and adhere to approved protocols for
37 patient safety.⁵ In primary healthcare, NPs have a 'generalist' role, with a broad range of
38 skills and knowledge⁶ to provide a range of primary care services including health checks,
39 vaccinations, health promotion, medical certificates and diagnostic testing.⁷ The NPs can also
40 prescribe many of the medicines in the GPs' formulary. The NP's role in primary healthcare
41 aims to increase timeliness and convenience of access to clinical and prescribing services,
42 complementing the roles of GPs and pharmacists; however, their impact on patient care has
43 not been evaluated.

44

45 The Revive Clinic franchise, founded in 2008 in Western Australia, is the primary operator of
46 a pharmacy-based NP service. In the Revive Clinic model, the community pharmacy
47 purchases a franchise and is supplied a Revive-trained NP, who practises independently
48 within the pharmacy. The pharmacy also receives signage and marketing collateral. Revive is
49 responsible for continuity of the service, while the NP's salary and income from consultations
50 are part of the pharmacy business. NPs consult patients within a private area provided by the

51 pharmacy; appointments are optional. Fixed Government-rebated consultation fees apply for
52 consultations.

53

54 Nurses have practised in community pharmacies in South Africa since 1995⁸ and the United
55 States, via ‘convenient care clinics’ established in 2000.⁹ The South African nurses were
56 positive about their primary health role, although some pharmacists perceived role
57 encroachment.⁸ Concerns about fragmentation of care and patient safety were raised in the
58 United States.⁹ These issues are worthy of further exploration in the Australian context. A
59 recent Australian study into the role, responsibilities and patterns of practice of NPs excluded
60 the pharmacy-based employment model,¹⁰ and other studies of NPs’ prescribing and
61 counselling practices were not representative of NPs in the private sector.^{2,11} Thus, there is a
62 lack of insight into the functionality of the Australian NP pharmacy model, with questions
63 relating to the services managed by NPs and interaction(s) between NPs and pharmacist staff.

64

65 **AIM**

66

67 This study aimed to describe the roles of pharmacy-based NPs in Australia and their
68 integration with those of other pharmacy staff.

69

70 **METHOD**

71

72 The study was approved by the Griffith and Curtin Universities Human Research Ethics
73 Committees. The study involved data collection via semi-structured interviews (20-60
74 minutes’ duration) of pharmacists, NPs and pharmacy assistants. Interviews were on-site
75 where feasible, to facilitate observation of the facilities and allow for interruptions, with field

76 notes and documentation of quotations of interest in lieu of recording the interviews.
77 Questions explored the NP's roles in the pharmacy, changes to the role(s) of pharmacy staff
78 and service provision, and NP-pharmacy staff interaction(s). Operational aspects of the
79 Revive Clinic were also explored but not reported here.

80

81 All NPs and the pharmacists-in-charge of the 9 Revive Clinics in Western Australia were
82 invited to participate during August-September 2011. All responses were coded by the category
83 of participant. Both authors analysed the transcripts independently to identify noteworthy
84 comments, trends and variability in the data, which were reported descriptively.

85

86 **RESULTS**

87

88 **Participant details**

89

90 Twenty-eight interviews took place across 5 metropolitan and 4 regional community
91 pharmacies (Revive Clinic franchisees). Interviews were conducted on-site for 6 accessible
92 Clinics, and by telephone for 3 regional Clinics. The participants comprised 10 pharmacists,
93 including 4 pharmacy owners, 11 pharmacy assistants and 1 non-pharmacist manager. Five
94 NPs participated in the study, with 1 who worked part-time across 2 Clinics providing
95 responses specific to each site. The NPs of 2 regional and 1 metropolitan Clinics were
96 unavailable for interview.

97

98 **Scope of Practice and Professional Roles**

99

100 Pharmacists in general were not concerned about the NP encroaching on their professional
101 roles. Pharmacists were still involved in the provision of Pharmacist Only Medicines, such as
102 emergency hormonal contraception. Some pharmacists considered it appropriate to refer
103 clients presenting for emergency contraception to the NP for prescribing of regular
104 contraception and further referral if warranted. Although the NP could supply a wide range of
105 non-prescription medicines, the NPs acknowledged that a pharmacist was legally required to
106 be involved in the provision of Pharmacist Only Medicines.

107

108 Regarding other non-prescription medicines, NPs acknowledged that they approached
109 pharmacy staff for advice if they were not familiar with a medicine, but also have a duty of
110 care to counsel their clients:

111

112 *“Certainly, I would make it my business to know what the dose was. If I had to go out*
113 *and ask what is the most appropriate [non-prescription] medication, I would discuss it*
114 *with the pharmacy assistant and client.” (NP5)*

115

116 The majority of pharmacists did not write medical (‘sick’) certificates, and would refer these
117 requests to the NP. Pharmacy staff performed blood pressure testing as a standard service,
118 with more advanced screenings referred to either the NP or GP.

119

120 Pharmacists confirmed that their role in dispensing NP’s prescriptions was no different to
121 dispensing for other prescribers. The majority of pharmacists indicated that the NP was
122 approachable to clarify medication queries. Given a scenario where the pharmacist identifies

123 a drug interaction from an NP's prescription, a typical response was: "*I would alert her [NP]*
124 *and would suggest an alternative*" (Pharmacist 6).

125

126 While NPs prescribed and reportedly counselled on medicine use during their consultations,
127 pharmacists also continued to provide advice:

128

129 "*I tell [the clients] as well - it is part of the job, if I am prescribing...how long to take*
130 *it, when to stop taking it, any side effects.*" (NP1)

131 "*Some of the pharmacists would go through [medicines information] again, which I*
132 *find really good, as it's reinforcement.*" (NP6)

133

134 Some NPs claimed to supply written medicines information when counselling clients, albeit
135 not routinely. This may be because the pharmacist continued to provide this information:

136

137 "*I have seen the [pharmacist] do it. I suppose we work together if you like.*" (NP5)

138 "*If it is a [contraceptive] pill...I would automatically print it out, even if they have used it*
139 *before and they just want information. Not so much on antibiotics - the pharmacist would*
140 *normally print it out.*" (NP6)

141

142 **Interaction between NPs and Pharmacy Staff**

143

144 Some NPs were officially introduced to the pharmacy staff via a staff meeting and undertook
145 an induction. Having two healthcare professionals co-located was commonly identified,
146 unprompted, as a key benefit of the NP clinic. Pharmacists reported undertaking *ad hoc*

147 discussions with the NP, for second opinions or referral for consultations, for cases such as
148 infection and wound management, vaccinations and medical certificate requests:

149

150 *“Depends ... if out of my scope, I would refer, e.g. skin lesions... would only refer to the*
151 *NP if it was within their scope...”* (Pharmacist 6)

152

153 Pharmacists felt strongly that they would not recommend consumers to see the NP if they
154 could assist them *“for free”* (Pharmacy Manager).

155

156 In a scenario of a 1-year-old child presenting with symptoms of bacterial conjunctivitis
157 (Table 1), the majority of pharmacists would have referred the child to the NP rather than
158 provide chloramphenicol eye drops, compliant with age indications in conjunctivitis
159 management guidelines,¹² although 2 pharmacists indicated that they would provide the
160 medicine to save the consultation fee.

161

162 Pharmacy assistants were inclined to refer clients to the pharmacist before seeking assistance
163 from the NP. This was identified in a scenario where a gentleman requested ranitidine tablets
164 and the assistant acted upon his need for advice about weight management (Table 1).

165

166 Most participants recognised the potential for NPs to be more involved in pharmacy-based
167 health promotion campaigns, although health checks were not conducted regularly in the
168 pharmacy. The NPs’ fee-for-service was mentioned as an issue, as pharmacists can provide
169 information at no cost and are available during the pharmacy opening hours for consultations.

170

171 **DISCUSSION**

172

173 Pharmacists reported that they referred consumers to the NP when the case was within the
174 NPs' expertise. While there are no Australian data on the clinical or economic impact of this
175 model, it could be postulated that triaging to the NP service should relieve GPs' workloads,
176 as demonstrated with nurses in clinics,¹³ and improve healthcare access.¹⁴ Other studies have
177 identified that NPs provide comparable primary care to GPs, in terms of compliance with
178 management guidelines, patients' self-reported health status and medical resource
179 consumption.^{15,16} Furthermore, another study demonstrated no significant difference between
180 the self-reported health status of NPs' and GPs' patients at two-year follow-up.¹⁷ Further
181 research is required into the contribution of NPs in a pharmacy setting, particularly their
182 effect on clinical outcomes^{13,18} and healthcare utilisation.

183

184 The incorporation of these NP clinics into pharmacies did not appear to change the
185 pharmacists' current roles. Pharmacists reported ensuring the quality use of medicines and
186 upholding patient safety by confirming the appropriateness of NP prescriptions, as they
187 would for traditional prescribers.¹⁹ Patient-focused interactions between the pharmacist and
188 the NP were not observed for confidentiality reasons; however, participants reported working
189 together to solve clinical issues, yet maintaining autonomy and independence for professional
190 integrity. The pharmacy profession supports non-medical prescribing,²⁰ and the inclusion of
191 an independent prescriber into the community pharmacy may help meet consumers' needs
192 without compromising patient safety.

193

194 Consumers may not recall all information provided in a medical consultation,²¹ and it is
195 appropriate for pharmacists to reinforce information provided by NPs. Indeed, South African

196 pharmacy-based nurses reported that advice on safe and effective medication use was a
197 pharmacist's domain.²² There is, however, a need to improve the provision and utilisation of
198 written consumer information,²³ particularly given the professional expectation of
199 pharmacists to provide these leaflets²⁴ and the risk that pharmacists and NPs could presume
200 that the other has already supplied written information.

201

202 Clarification is needed regarding the role of NPs in the provision of non-prescription
203 medicines, and for protocols to be adjusted accordingly. This discussion extends to legislative
204 matters, as pharmacists are legally required to be involved in the provision of Pharmacist
205 Only Medicines. The anomaly exists in that NPs could write prescriptions for Pharmacist
206 Only Medicines. Whether NPs' prescribing rights are consistent with the broader knowledge
207 base needed for a primary-care setting²⁵ is unknown.

208

209 NPs do have the scope of practice to complement the pharmacist's role. In a survey in the
210 United Kingdom, the majority of pharmacists agreed that NPs could expand pharmacy
211 activities.²⁶ One proposal for collaboration relates to sexual health services, with pharmacists'
212 promotion of sexually-transmissible infection screening by NPs (via fee-for-service) for
213 clients who present for emergency contraception. Other disease management services and
214 health promotion within community pharmacy²⁷ have been endorsed by the Australian
215 Government.

216

217 **Strengths and Limitations of the Study**

218

219 This study independently explored NPs' roles in Australian pharmacies. The small number of
220 pharmacy-based NP clinics only provides preliminary insight into the benefits and challenges
221 with this model, and the findings may not be generalisable to other franchises or
222 independently-owned NP clinics established in the future. Not all staff from the 9 Clinics
223 were available for interview. While the interviews were not recorded, comprehensive note-
224 taking was feasible given the location and timing of the interviews. This preliminary insight
225 was unable to evaluate the quality of NPs' prescribing, clinical outcomes and external
226 relationships, generating opportunities for further research in this field.

227

228 **CONCLUSION**

229

230 The NPs' scope of practice can complement that of community pharmacists. However, further
231 collaboration is warranted, particularly to extend health promotion services, ensuring that the
232 knowledge and skills of both parties are used to advantage. Clarification is also required as to
233 the extent of the NPs' role in non-prescription medicine supply within pharmacies.

234

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236

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239 project.

240

241 **CONFLICT OF INTEREST**

242

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244

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322 Table 1: Hypothetical case scenarios for pharmacy staff

323

Pharmacist Question(s)	<p>The nurse practitioner writes a prescription, which is handed in to you for dispensing. You identify on the dispensing record a potential drug-drug interaction that was not apparent to the nurse practitioner. What would happen next in your pharmacy?</p> <p>A mother brings her 1-year-old daughter to the counter and explains to you that the girl has an eye infection. You recognise the symptoms of conjunctivitis, and know that Chlorsig[®] (chloramphenicol) is now available as an S3 (Pharmacist Only) Medicine for children aged 2 years and older. The nurse practitioner is available for consultation. What would you do next?</p>
Pharmacy Assistant Question	<p>A middle-aged man approaches you and requests a pack of ranitidine tablets (Schedule 2^a) for his reflux. They're for himself, he's taken them before, he's not taking any other medicines, and he only uses the ranitidine occasionally. This appears to be a straightforward sale that you can manage. However, you are concerned that the man is overweight, and this might be contributing to his reflux. You feel that someone – either the pharmacist or the nurse practitioner – should talk with him about weight management. Both are busy. What would happen next in your pharmacy?</p>

324 ^a Pharmacy Medicine; can be sold by pharmacy assistants

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APPENDIX: OBSERVATION/STAFF INTERVIEW SHEET

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Pharmacy name:

Staff names (for reference only):

Pharmacist 1:

Pharmacist 2:

Nurse practitioner:

Pharmacy assistant 1:

Pharmacy assistant 2:

Pharmacy assistant 3:

Pharmacy assistant 4:

Other:

Staff Roles

(complete with the assistance of available staff; delete sample answers)

	Phcist	Assistant	Nurse Pr	Comments
Prescriptions	Usually 2nd	Usually 1st	Issue only	NP script is given to client, who usually hands to assistant (or phcist if at counter)
OTC (symptom presentations)	Usually referral by assistant	Usually 1st	Suggest brand to assistant	
OTC (product/brand requests)				
Supplements				
Wound mgmt	By referral; minor role	Usually 1st	Sometimes 1st	Phcist defers to NP; most clients unaware of NP services in wound mgmt
Mobility aids				
Blood pressure test	Prefer NP to manage	Refer to NP	Usually 1 st	Phcist can take BP if needed, but too busy
Weight mgmt/advice				
Diabetes care/equipment				
Medical certificates		Refer to either phcist or NP		
etc (add more rows)				

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Nurse Practitioner

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1. When was the Nurse Practitioner Clinic established in this pharmacy?
2. How was the service initially advertised?
3. How are your services advertised now (in-store and externally)?
4. When the Nurse Practitioner Clinic opened, what procedures were introduced to 'integrate' the service into the pharmacy?
5. What are your consultation hours compared to the pharmacy opening hours?
6. Who covers for your absence? Is there a locum system?
7. Are clients seen on a 'walk in' or appointment-based system? If by appointment, who arranges these?
8. Are consultations timed? Are they time limited?
9. Can you provide a summary of types of cases and clients (preferably from de-identified records) that you see? (follow up on this if access is not convenient)

395

396 10. Do you refer clients to the pharmacist to recommend certain medicines? If yes, what type
397 of medicines?

398

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400

401 11. When you recommend an OTC medicine, who usually provides information about dosage,
402 use, safety etc? If you think a client needs an S3 (Pharmacist Only) Medicine, how does
403 the client obtain it?

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407 12. When you write a prescription, what are patients told about where to get the
408 prescription dispensed?

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411

412 13. When you write a prescription, and it's dispensed in this pharmacy, who advises the client
413 about how to use the medicine? Who (you or the pharmacist) supplies written
414 information (e.g. a CMI) if it's considered appropriate?

415

416

417

418 14. What guidelines, checklists, protocols etc are in place to ensure that you provide a quality
419 service?

420

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423 15. If there is a guideline/checklist/protocol (*for example*) for supply of emergency
424 contraception, how does it compare to the PSA protocol?

425

426

427

428 16. What resources and equipment do you have available in your consultation area? (Include
429 software and online resources.)

430

431

432

433 17. What is available for nurse practitioners to keep up-to-date with techniques, diagnostics
434 and clinical therapeutics? Do drug and other reps who visit the pharmacy make an effort
435 to involve you? What CPD opportunities are there for nurse practitioners?

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18. Do you have regular meetings with the pharmacist(s)?

19. What documentation is kept of each consultation?

20. Are your case records linked with the dispensary records?

21. What sort of audit/quality control is performed? By whom?

22. If you refer a patient to the GP, is the pharmacist involved at any point in the referral?
What documentation is involved in the referral process?

23. If you order a pathology test, how is the patient notified of his/her result?

24. What are the benefits of practising within a pharmacy? (e.g. pharmacy image, workflow, job satisfaction, improved communication)

25. What are the challenges of practising within a pharmacy? (e.g. communication between staff, identifying who should handle which cases)

- 477 26. How do you feel clients have responded to this as a service? (e.g. appreciate
478 convenience, complaints about fees, confusion about how to access the NP)
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- 482 27. Do you run any health promotion campaigns in the pharmacy? If yes, how are the
483 pharmacy staff involved?
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- 487 28. A case study: A gentleman presents to the counter, and describes symptoms of a cold.
488 The pharmacy assistant asks questions about cough, sputum, fever etc, and decides
489 that he needs antibiotics. The assistant suggests that he waits to see you. You consult
490 him, write a prescription for antibiotics and suggest that he buys a cough medicine.
491 What would normally happen next with the prescription?
492 How is the OTC recommendation managed with respect to brand choice?
493
494
495
- 496 29. Another case study: A lady with a twisted ankle presents directly to you. You confirm
497 that it is a mild sprain, and you bandage it. The lady asks you about hiring crutches.
498 How would this request be managed in this pharmacy?
499
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501

Pharmacy Manager/Pharmacist(s)

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- 504 1. What prompted the decision to introduce a Nurse Practitioner Clinic in this pharmacy?
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- 508 2. What are the benefits of having a nurse practitioner in this pharmacy? (e.g. pharmacy
509 image, workflow, job satisfaction, improved communication)
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- 513 3. What are the challenges of having a nurse practitioner in this pharmacy? (e.g.
514 communication between staff, identifying who should handle which cases)
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- 518 4. How do you feel clients have responded to the change? (e.g. appreciate convenience,
519 complain about fees, appear confused about how to access the NP)
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5. How have other pharmacists you know (who don't have a Nurse Practitioner Clinic) reacted?
6. Did any staff training/inductions take place before and after the nurse practitioner started?
7. Were any services (e.g. blood pressure measurement) provided free of charge before the nurse practitioner came on board, and are now charged?
8. What change has there been to your role as a pharmacist since the nurse practitioner started here? (e.g. no longer check BP, supply EC, write medical certificates, triage symptoms OTC)? Advantages/disadvantages of this?
9. Has the number of pharmacy staff here changed since the nurse practitioner came on board? If so, how? (e.g. new/no Intern position, more/fewer pharmacy assistants)
10. If you think a client should see the nurse practitioner, but isn't aware that there is one in the pharmacy and has never consulted one, how do you explain the service to him/her?
11. Can you give some examples of situations where you would refer a patient to the nurse practitioner?
12. Have there been any situations when you would have recommended something different to the nurse practitioner? What were these? How did you resolve the issue?

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13. Has contact with GPs changed in any way since the introduction of the nurse practitioner?
14. Do you run any health campaigns in the pharmacy? If so, (how) is the nurse practitioner involved?
15. A case study: A gentleman presents to the counter, and describes symptoms of a cold. The pharmacy assistant asks questions about cough, sputum, fever etc, and decides that he needs antibiotics. The assistant suggests that he waits for the nurse practitioner. The nurse practitioner consults him, writes a prescription for antibiotics and suggests that he buys a cough medicine.
What would normally happen next with the prescription?
How is the OTC recommendation managed with respect to brand choice?
16. The nurse practitioner writes a prescription, which is handed in to you for dispensing. You identify on the dispensing record a potential drug-drug interaction that was not apparent to the nurse practitioner.
What would happen next in your pharmacy?
17. Another case study: A mother brings her one-year-old daughter to the counter and explains to you that the girl has an eye infection. You recognise the symptoms of conjunctivitis, and know that Chlorsig® (chloramphenicol) is now available as an S3 (Pharmacist Only) Medicine for children aged **two** years and older. The nurse practitioner is available for consultation.
What would you do next?

Pharmacy/Dispensary Assistant(s)

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1. If you think a client should see the nurse practitioner, but isn't aware that there is one in the pharmacy and has never consulted one, how do you explain the service to him/her?
2. What are the benefits of having a nurse practitioner in the pharmacy? (e.g. pharmacy image, workflow, job satisfaction, improved communication)
3. What are the downsides of having a nurse practitioner in the pharmacy? (e.g. communication between staff, defining who should handle which cases)
4. How do you feel clients/customers have responded to the change? (e.g. appreciate convenience, complain about fees, appear confused about how to access the nurse practitioner)
5. What change has there been to your role since the nurse practitioner started here?
6. A case study: A gentleman presents to the counter, and describes symptoms of a cold. You ask him questions about cough, sputum, fever etc, and decide that he needs antibiotics. You suggest that he waits for the nurse practitioner. The nurse practitioner consults him, writes a prescription for antibiotics and suggests that he buys a cough medicine.
What would normally happen next with the prescription?
How is the OTC recommendation managed with respect to brand choice?
7. Another case study: A lady with a twisted ankle presents directly to the nurse practitioner. The nurse practitioner confirms that it is a mild sprain, and bandages it. The lady asks the nurse practitioner about hiring crutches.
How would this be managed in your pharmacy?

645 8. A third case study: A middle-aged man approaches you and requests a pack of
646 ranitidine tablets (Schedule 2) for his reflux. They're for himself, he's taken them
647 before, he's not taking any other medicines, and he only uses the ranitidine
648 occasionally. This appears to be a straightforward sale that you can manage. However,
649 you are concerned that the man is overweight, and this might be contributing to his
650 reflux. You feels that someone – either the pharmacist or the nurse practitioner –
651 should talk with him about weight management. Both are busy.
652 What would happen next in your pharmacy?
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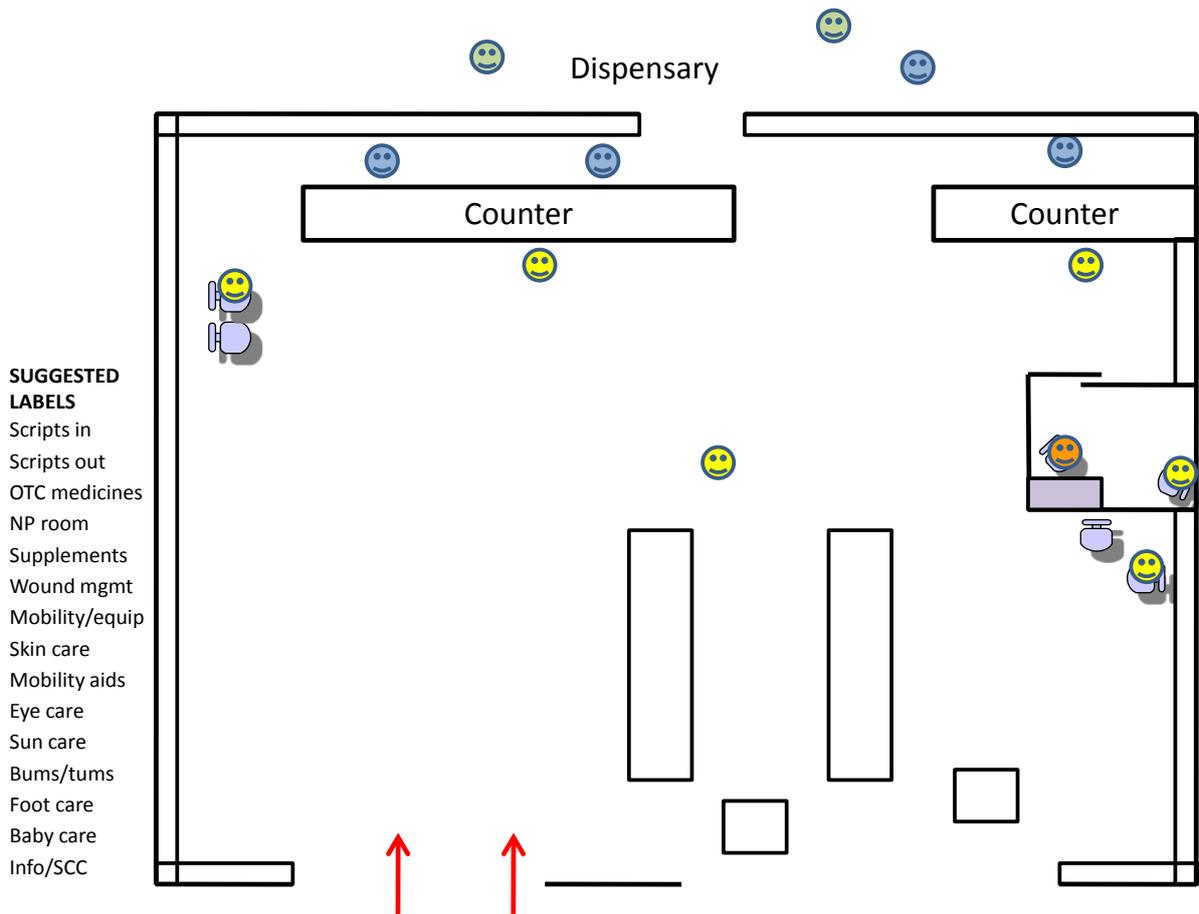
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Pharmacy layout (check with staff if needed):

Manipulate the Powerpoint template to indicate the location of the nurse practitioner consultation area in relation to other pharmacy products and services. Add arrows to indicate:

- Directions of foot traffic for prescriptions brought into the pharmacy
- Directions of foot traffic for prescriptions generated by the nurse practitioner
- OTC traffic from browsing and presenting to the counter
- OTC traffic generated by the nurse practitioner
- The nurse practitioner’s movements outside consultation room (e.g. to the OTC area)

(Powerpoint template inserted below as a picture)



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Observations of client movement
(no staff input needed; delete sample answers)

Client	Movement TO the nurse practitioner	Movement FROM the nurse practitioner
1	Asked at counter to make appointment with NP; assistant directed client to waiting area; interviewed there **client code number to match completed questionnaire	Handed in Rx to assistant; waited and browsed while Rx dispensed; purchased OTC when Rx ready
2	Entered phcy; sat in waiting area until NP available; declined interview (reason: too sick)	Left phcy folding up a printed sheet; no purchase
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