Piloting Extended Community Pharmacy Services

A thesis submitted in partial fulfilment

of the requirements of the

Degree of Doctorate in Pharmacy

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Abstract

Previous studies reported that community pharmacists in Malta are in favour of expanding their roles and consumers agree with extended services provided by community pharmacists. A framework consisting of standard operating procedures (SOPs) for provision of extended community pharmacy services, including medicine use review (MUR), patient review, and advice and treatment services, was proposed in a previous study. This research addressed piloting of standardised extended community pharmacy services to assess feasibility and outcomes.

The study was conducted in four phases. *Phase I:* The proposed SOPs were appraised and observation was conducted in the study setting, which was a community pharmacy selected by convenience sampling. During the observation, extended services to be piloted were identified according to infrastructure present in terms of space, time, staff, equipment, and other logistics. *Phase II:* Eleven extended services were identified, and the corresponding SOPs were updated reflecting patient impact and practicality. A new SOP (urinalysis) and pharmacist checklists were compiled. *Phase III:* Face and content validity of the SOPs and checklists were assessed by 4 community pharmacists and 3 general practitioners (GP). *Phase IV:* Feasibility testing, which involved piloting the SOPs and checklists, was conducted over 300 hours (September 2023-January 2024), targeting at least 10 participants for each service by purposive sampling. Time taken and outcomes of service implementation were assessed.

The infrastructure present comprised a private consultation area, one pharmacy support staff, medical devices/consumables, documentation forms, medicines information resources, computer/software, and medical waste management logistics. Key updates to the SOPs were providing participants with outcome of review and/or test results, development of MUR form,

result sheets and SOAP form, referring to accessible evidence-based guidelines during service provision for drug-related problems and to support decision-making at the point of care, and review of treatment options to reflect current practice. SOPs and checklists were rated highly (>4 out of 5) by the validation panel for relevance of content, comprehensibility, and presentation. Eighty-eight out of the targeted 120 participants were recruited; number of participants (n) and time (mean M, range R, in minutes) for the services piloted were: MUR (n=10, M=14, R=7-24), patient review services (n=22, M=21, R=14-28), including blood pressure (BP) measurement (n=10, M=23, R=18-28), urinalysis (n=10, M=15, R=14-17), weight management (n=2, M=24, R=22-27), and advice/treatment services (n=56, M=17, R=11-26), including eye conditions (n=10, M=15, R=11-21), ear conditions (n=10, M=16, R=13-21), sore throat, (n=10, M=14, R=13-16), skin conditions (n=10, M=15, R=13-21), urinary tract infection (n=10, M=17, R=11-26), routine immunisation (n=3, M=14, R=12-16), smoking cessation (n=2, M=18, R=17-20), international travel health (n=1, M=25). Non-pharmacological advice was provided to all participants, non-prescription pharmacotherapy dispensed in 42 participants, and 44 were referred to a GP. Examples of reasons for referral were side-effects, drug interactions, abnormal urinalysis, elevated BP, and red flag symptoms. Most participants (n=87) were satisfied with pharmacist interventions.

Availability of the appropriate infrastructure and utilisation of practical SOPs and checklists support the feasibility and successful implementation of extended community pharmacy services within a collaborative care context. Implementation of community pharmacy extended services led to pharmacist interventions which were accepted by patients.

Keywords: *collaborative care; community pharmacy; extended services; pharmacist interventions; standard operating procedures*

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List of Abbreviations

BMI	Body Mass Index
BNF	British National Formulary
BP	Blood Pressure
DRP	Drug-Related Problems
ESC/ESH	European Society of Cardiology/ European Society of Hypertension
FIP	International Pharmaceutical Federation
GP	General Practitioner
HMR	Home Medication Review
MTM	Medication Therapy Management
MUR	Medicine Use Review
NICE	National Institute of Health and Care Excellence
PCNE	Pharmaceutical Care Network Europe Association
POCT	Point of Care Testing
POM	Prescription-Only Medicine
SOAP	Subjective, Objective, Assessment, Plan
SOP	Standard Operating Procedure
UTI	Urinary Tract Infection
WHO	World Health Organization

Chapter 1: Introduction

1.1 Community pharmacy as an advanced profession

Over the years, the community pharmacy profession has advanced and has become more patient-focused (Azzopardi & Serracino-Inglott, 2020; Calfat et al, 2021). Further evolution in healthcare has revealed that the terminology 'person-centred approach' may be more appropriate. The term 'patient-centred' considers an individual's values, goals, and preferences within the context of clinical treatment, while 'person-centred' focuses on the whole person from every aspect of an individual's life, to comprehensively interpret health encounters, problems and goals (Olson & Burns, 2023). Healthcare stakeholders, including community pharmacists, are encouraged to form a partnership with patients and their carers, and to collaborate with other health care professionals to provide personalised care through professional services, including traditional and extended pharmacy services (Eklund et al, 2019; Sepp et al, 2022; Chong et al, 2023).

Pharmacists in the community setting are very accessible healthcare professionals to the public, where community pharmacies are usually the first place visited by consumers seeking advice on health and medicines (Palaian et al, 2022; Valliant et al, 2022). During the COVID-19 pandemic, access to primary care, notably general practice, was greatly reduced. Community pharmacies largely remained open and their services were accessible to the public (Patterson et al, 2022).

Professional services offered in community pharmacy should be in line with the Good Pharmacy Practice guidelines by the World Health Organization (WHO) and the International Pharmaceutical Federation (FIP)[1] to ensure service quality. Service provision in accordance with guidelines contributes to enhanced medication effectiveness, therapy adherence and patient safety, leading to achievement of optimal therapeutic outcomes, improvement of patient satisfaction and quality of life, and reduction of healthcare costs and physician workload (Yousuf et al, 2019; El Hajj et al, 2021). Community pharmacists must ensure delivery of evidence-based and suitable medication-related care, for both traditional and extended services (Alzubaidi, et al, 2018; Hattingh et al, 2020; Shirdel et al, 2021).

Traditional community pharmacy services include dispensing of prescription-only medicines (POM), non-prescription medicines and compounding. These services have evolved, paving the way for community pharmacists to offer a broader range of novel services, referred to as 'extended' services, with the goal to improve individual patient and societal outcomes (Tesfaye & Yismaw, 2020, Bayked et al, 2023, Mehta et al, 2023).

1.2 Extended community pharmacy services

'Extended' community pharmacy services is a term used in various literature to describe contemporary activities in community pharmacy patient management other than traditional services (Karia et al, 2020; Yong et al, 2021; Chiutsi et al, 2022; Chu et al, 2024; Hussain & Babar, 2023). Focus is being placed on introducing unique patient care services and practice

[1] World Health Organization/International Pharmaceutical Federation (WHO/FIP). Annex 8 - Joint FIP/WHO guidelines on good pharmacy practice: standards for quality of pharmacy services [Internet]. WHO/FIP; 2011 [cited 2024 Jan 14]. Available from: https://www.who.int/docs/default-source/medicines/norms-and-standards/guidelines/distribution/trs961-annex8-fipwhoguidelinesgoodpharmacypractice.pdf

models in the community pharmacy setting. Extended pharmacy services allow community pharmacists, in addition to dispensing medicines to patients, to address medication-related issues and monitoring aspects to meet treatment goals. Community pharmacists can support patients in the management of their treatments by offering extended services specifically tailored to patient needs (Sim et al, 2020; Bawab et al, 2021). Extended community pharmacy services include management of minor ailments and referral to physician as necessary, health screening and point-of-care testing (POCT), provision of personalised pharmacotherapy and comprehensive medication management, immunisation advice, and smoking cessation, among others.[2]

1.2.1 Management of minor ailments and referral to physician

Access to physicians may be restricted due to factors such as geographical distance, waiting lists, and limited socioeconomic resources. Such factors frequently lead the public to seek community pharmacists in the first instance for advice and treatment of minor conditions, allowing for early detection and intervention (Tew et al, 2023; Sarira et al, 2022). Management of minor conditions by community pharmacists includes assessment of symptoms, selection of treatment approach, and patient counselling about the condition and treatment. Conditions covered include infectious diseases, gastrointestinal disorders, respiratory conditions, pain and inflammation, dermatology conditions, emergency hormonal

[2] International Pharmaceutical Federation (FIP). Pharmacy vision: Board of Pharmaceutical Practice trends report [Internet]. The Hague: FIP; 2017 [cited 2024 Jan 14]. Available from: https://www.fip.org/files/fip/BPP/Pharmacy-Vision-BPP-Trends-Report.pdf

contraception and motion sickness, among others (Stampfli et al, 2022; Nakhla & Taylor, 2024).[3]

1.2.2 Health screening and point-of-care testing

Health screening uses medical devices and equipment for physiological measurements and risk assessment forms to determine a patient's risk of the targeted disease.[4] POCT offers non-invasive or minimally invasive screening such as blood pressure (BP) measurement and anthropometric measurements, as well as rapid testing for biomarkers such as blood glucose, HbA1c, lipid profile, respiratory function, coagulation, infections, and urinalysis, among others. These direct patient services facilitate diagnosis, monitoring, and management of chronic conditions such as diabetes, dyslipidaemia, hypertension, obesity, thrombosis, anaemia, and other conditions (Hohmeier et al, 2018; Gallimore et al, 2021). Community pharmacy-based programmes for health screening and POCT are reported to be efficient, accurate and minimally invasive, with quick results allowing community pharmacists to offer timely patient care and to propose interventions complementing community disease surveillance (Alzubaidi et al, 2019; Yonel et al, 2020; Zammit, 2021; Sepp et al, 2022).

[3] International Pharmaceutical Federation (FIP). Pharmacist-led common ailments schemes: A global intelligence report [Internet]. The Hague: FIP; 2023 [cited 2024 Jan 15]. Available from: https://www.fip.org/file/4751

[4] International Pharmaceutical Federation (FIP). Beating non-communicable diseases in the community. The contribution of pharmacists [Internet]. The Hague: FIP; 2019 [cited 2024 Jan 15]. Available from: https://www.fip.org/files/content/publications/2019/beating-ncds-in-the-community-the-contribution-of-pharmacists.pdf

1.2.3 Personalised pharmacotherapy and comprehensive medication management

Precision or personalised pharmacotherapy and provision of comprehensive medication management are being delivered by community pharmacists through a series of services, such as medication therapy management (MTM) and home medication review (HMR), which involve medication checks to identify, address and prevent therapeutically significant medication-related problems, health education, patient counselling, disease monitoring and communication with the healthcare team (Hashmi et al, 2017; Lias et al, 2021). Pharmacists can assume a leading role in medication concerns for patients who are at higher risk, such as patients taking high-risk medications or with polypharmacy. MTM and HMR services are geared towards improvement in the disease management process and patient quality of life, increasing patient knowledge on medications, and reducing hospital admissions and global treatment costs (Rose et al, 2020; Merks et al, 2022).

1.2.4 Immunisation advice

Advice on immunisation, and advocacy for vaccination are practical services being offered by community pharmacies to help diversify and simplify vaccination pathways (Murray et al, 2021; Le et al, 2022). This is particularly relevant to vulnerable individuals, including immunocompromised, elderly, with underlying conditions, pregnant, and with limited access to healthcare facilities (Deslandes et al, 2020).[5] Vaccines on influenza, Covid-19, herpes

[5] International Pharmaceutical Federation (FIP). Supporting life-coimurse munisation through pharmacy-based vaccination: enabling equity, access and sustainability. A toolkit for pharmacists. [Internet]. The Hague: International Pharmaceutical Federation; 2023 [cited 2024 Jan 14]. Available from: https://www.fip.org/file/5588

zoster, pneumococcal, human papilloma virus, hepatitis, meningococcal, tetanus, diphtheria, and pertussis, among others are considered (Berce et al, 2020).[6]

1.2.5 Smoking cessation

Smoking cessation is a public health priority since smoking significantly affects the health of individuals, society, and the healthcare system, making it a primary cause of premature morbidity and mortality worldwide (Sohanpal et al, 2016; Albasheer et al, 2023). Pharmacists in the community setting interact with the public and can support patients throughout the process of tobacco cessation. Pharmacists have an important role in the provision of personalised, comprehensive, and accessible care to patients through health promotion, assessment, intervention, and follow-up, making pharmacists invaluable to enhance public health and decrease the burden of smoking on healthcare systems (Peletidi et al, 2016, Berry et al, 2023).[7]

[6] International Pharmaceutical Federation (FIP). Building vaccine confidence and communicating vaccine value: A toolkit for pharmacists. [Internet]. The Hague: International Pharmaceutical Federation; 2021 [cited 2024 Jan 14]. Available from: https://www.fip.org/file/5093

[7] International Pharmaceutical Federation (FIP). Supporting tobacco cessation and the treatment of tobacco dependence: A handbook for pharmacists. [Internet]. The Hague: International Pharmaceutical Federation; 2023 [cited 2024 Jan 16]. Available from: https://www.fip.org/file/5656

1.3 Extended community pharmacy services worldwide

The outcomes and challenges of offering extended services in community pharmacies have been studied in different countries over the years. A literature analysis of community pharmacy extended services spanning the years 2012 to 2021 was conducted by Cancellu (2022). Outcomes and limitations of various extended services including provision of lifestyle advice, patient counselling, medicines review, laboratory results interpretation/monitoring, and therapy assessment/adherence were analysed (Cancellu, 2022). This literature analysis was updated in the present study until the year 2024. The studies appraised cover Europe, Asia, Oceania and America. A systematic review by Ababneh (2023) included studies from countries employing innovative services in community pharmacy in five continents namely Asia, Africa, Europe, North America and Oceania (Table 1.1).

The extended services cover provision of personalised pharmacotherapy and comprehensive medication management, particularly medication review (Christopher et al, 2024; Hogervorst et al, 2024; Ababneh et al, 2023; Fonseca et al, 2022; Buss et al, 2020; KC et al, 2020; Imfeld-Isenegger et al, 2019; Lelubre et al, 2019), smoking cessation program (Alzahrani et al, 2023; Palaian et al, 2022; El Hajj et al, 2021; Lertsinudom et al, 2021; Beaupre et al, 2020), health screening and POCT (Fonseca et al, 2022; Palaian et al, 2022; Schulz et al, 2020; Verma et al, 2019), management of minor ailments and referral to physician (Amador-Fernandez et al, 2022; Benzaken et al, 2021; Schulz et al, 2020), and immunisation advice and administration of vaccines (Lee et al, 2020) (Table 1.1).

Most of the studies emphasise on provision of personalised pharmacotherapy and comprehensive medication management being offered in Asia, Africa, Europe, North America

and Oceania. Studies in Asia focus more on smoking cessation, while studies in European countries focused more on minor ailments. Studies on health screening and POCT services were mostly conducted in Europe and Asia. Outcomes of these studies have shown that the various extended services contribute to patient overall health outcomes and are feasible to be conducted in the community pharmacy setting (Table 1.1).

Challenges encountered in the studies appraised were workforce issues such as training or staffing, and lack of resources such as financial aid, remuneration, drug information sources, or availability of private space within the community pharmacy premises. Concerns on the awareness and collaboration with patients, other healthcare professionals, or the government were reported, as well as issues related to time management in the pharmacy, adherence to standards, and accessibility to medicines. Workforce issues and time constraints were concluded to be the main issues in all continents. The studies show that adherence to standards and remuneration are challenges encountered in European countries. Lack of resources and accessibility to medicines were concerns found in Asian countries. Countries in Asia and Europe experience issues on collaborative care and physician and patient awareness (Table 1.1).

Table 1.1 Extended community pharmacy services in different countries

In-text citation	Setting	Pharmacist Intervention	Outcomes/further improvements identified	Challenges
Christopher et al, 2024	Malaysia	Medication review with follow-up	Medication review with follow-up is a practical service in community pharmacy	• Lack of workforce • Lack of collaboration • Time constraints • Lack of financial aid
Hogervorst et al, 2024	The Netherlands	Clinical medication review	• Community pharmacists are efficient in offering clinical medication reviews • Conducting clinical medication reviews meets patient care needs	• Time constraints • Lack of collaboration with medical specialists
Ababneh et al, 2023	Africa Asia Europe North America Oceania	• Pharmaceutical care • Professional and public health activities • Extended pharmacy services for special populations • Health promotion activities • Drive-thru pharmacy services	• Extended community pharmacy services are provided efficiently, with the understanding of significant concerns regarding their provision and improvement of pharmacist skills through training programs • To further improve efficiency, standardised guidelines by different stakeholders and organisations are recommended	• Time constraints • Lack of workforce • Training and education

Alzahrani et al, 2023	United Arab Emirates (UAE)	Smoking cessation program	Pharmacists play significant role in smoking cessation activities by assisting patients to set a quit date, prepare cessation plan, provide written educational materials, and arrange referral to GPs and follow-up	• Lack of collaboration with patients • Lack of private space • Lack of drug information sources • Time constraints
Amador-Fernandez et al, 2022	Spain	Minor Ailment Service	Minor ailment service in community pharmacies increases patient safety	Training and education
Fonseca et al, 2022	Portugal	• Point-of-care testing including blood pressure and anthropometric measurements • Patient pharmacotherapy review	Community pharmacists contribute in improving cardiovascular disease management	Adherence to standards
Palaian et al, 2022	UAE	• Weight management • Smoking cessation program • BP measurement	Community pharmacists can complement the healthcare system in terms of cost and time savings for patients	• Lack of collaboration with patients • Time constraints

Benzaken et al, 2021	London, UK	Minor ailment service	Pharmacy minor ailment services are highly cost-effective and accessible	Training and education
El Hajj et al, 2021	Qatar	Smoking cessation program	Beneficial to help patients quit smoking and positively contributes to advancing pharmacist role	• Lack of private space • Time constraints • Lack of workforce
Lertsinudom et al, 2021	Thailand	Smoking cessation program	Community pharmacists helped smokers quit smoking and proactively promote health within the community.	• Training and education • Accessibility to medicine • Lack of patient awareness
Beaupre et al, 2020	Canada	Smoking cessation program	Community pharmacist-led smoking cessation program resulted in higher patient smoking cessation rates	Lack of collaboration with patients
Buss et al, 2020	Australia	Medication review	Medication review program in community pharmacies is helpful to improve understanding and management of medicines by patients	• Lack of workforce • Lack of patient awareness
KC et al, 2020	Malaysia	Travel health-related services	Pharmacists have a larger role in travel medicine, advising on complex medication issues, especially regarding polypharmacy and interactions	• Training and education

Lee et al, 2020	Australia	Immunisation	Pharmacist vaccinators enable quick and large-scale vaccination to achieve herd immunity	• Lack of workforce • Training and education
Schulz et al, 2020	Germany	• Blood pressure screening • Referral to physician	Community pharmacists play a significant role in collaboration with physicians in improving hypertension management	• Adherence to standards • Time constraints • Remuneration
Imfeld-Isenegger et al, 2019	Europe	Medication review	Medication review is feasible to implement in community pharmacy	• Remuneration • Time constraints • Lack of collaboration with government • Training and education
Lelubre et al, 2019	Belgium	Medication review	Medication review is feasible in practice	• Lack of workforce • Lack of Physicians' and patients' awareness • Lack of drug information sources
Verma et al, 2019	Malaysia	Weight management	Screening for cardiovascular risks with physiological measurements aids in the detection of abnormalities at baseline, allowing proper referral to physicians for treatment of comorbidities or a pharmacological approach for weight loss therapy	• Lack of workforce • Accessibility to medicine

1.4 Extended community pharmacy services in Malta

Pharmacy practice in Malta has evolved to become more patient-focused and community pharmacists deliver clinical services with the purpose of detection, prevention and management of minor conditions and chronic diseases (Azzopardi & Serracino-Inglott, 2020). Access to extended community pharmacy services have a direct impact on the public, patients, and their caregivers (Cassar, 2023). It has been reported that consumers in Malta have an overall positive perception of community pharmacists and services provided in community pharmacies (Wirth et al, 2010). A study by Vella et al (2015) showed that extended services perceived as most important by consumers were pharmacist–physician collaboration in the management of chronic conditions and provision of POCT. Abdulrahman (2019) assessed the perception of pharmacists and consumers regarding extended community pharmacy services. Pharmacists were in favour of expanding their roles such as in smoking cessation, management of skin conditions and medication review, and these extended services were accepted by consumers.

Evidence from a study by Mifsud et al (2019) supports the development of community pharmacist clinical activities through provision of MUR services, particularly in patients on the high-risk medication warfarin. A study by Parnis (2020) demonstrated that consumers in Malta have positive attitudes and beliefs with respect to receiving help from community pharmacists to achieve better clinical outcomes. These findings are supported by a study carried out by Cancellu (2022), where consumers were willing to pay between 5 and 20 Euro

for extended services, with the majority in favour of management of sore throat, eye and ear conditions, urinary tract infections, followed by travel health and vaccination advice.

Local studies show that consumers were found to be highly satisfied with current services provided by community pharmacists, however improvement regarding standardisation in the implementation of extended services was reported as one of the needs to be addressed (Aninon, 2020; Agius Markham, 2022).

1.5 Rationale of the study

Practice changes have resulted in significant variation from one community pharmacy to another in the activities performed by community pharmacists. Standardisation of care quality is a fundamental requirement for implementation of clinical guidelines (Weir et al, 2019; Rose et al, 2020). Standard operating procedures (SOP) for delivering pharmacist interventions have been recognised as one of the main contributing factors to high implementation of extended services in community pharmacy practice (Martins et al, 2015). The implementation of standardised extended services in community pharmacy locally was initiated with the proposal of a framework by Cancellu (2022), however feasibility testing of implementing these services was not undertaken.

1.6 Research question, Aim and Objectives

The research question was: Is implementation of standardised extended community pharmacy services feasible and what are the outcomes of service implementation? The aim of the research was to pilot standardised extended services in community pharmacy practice to assess feasibility and outcomes.

The objectives of the research were to:

I. Identify extended community pharmacy services to be piloted and infrastructure required for service provision.
II. Develop practical standards and pharmacist checklists for provision of extended community pharmacy services.
III. Pilot the extended services and assess feasibility and outcomes of service implementation.

Chapter 2: Methodology

2.1 Study Design

The method was divided into four phases: I) Appraisal of SOPs proposed by Cancellu (2022) and observation in study setting to identify extended services to be piloted according to infrastructure present, II) Updating of SOPs for extended services identified, compilation of new SOP and development of pharmacist checklists, , III) validation of SOPs and checklists by an expert panel, and IV) Feasibility testing of implementing identified extended services in community pharmacy practice using the validated SOPs and checklists (Figure 2.1).

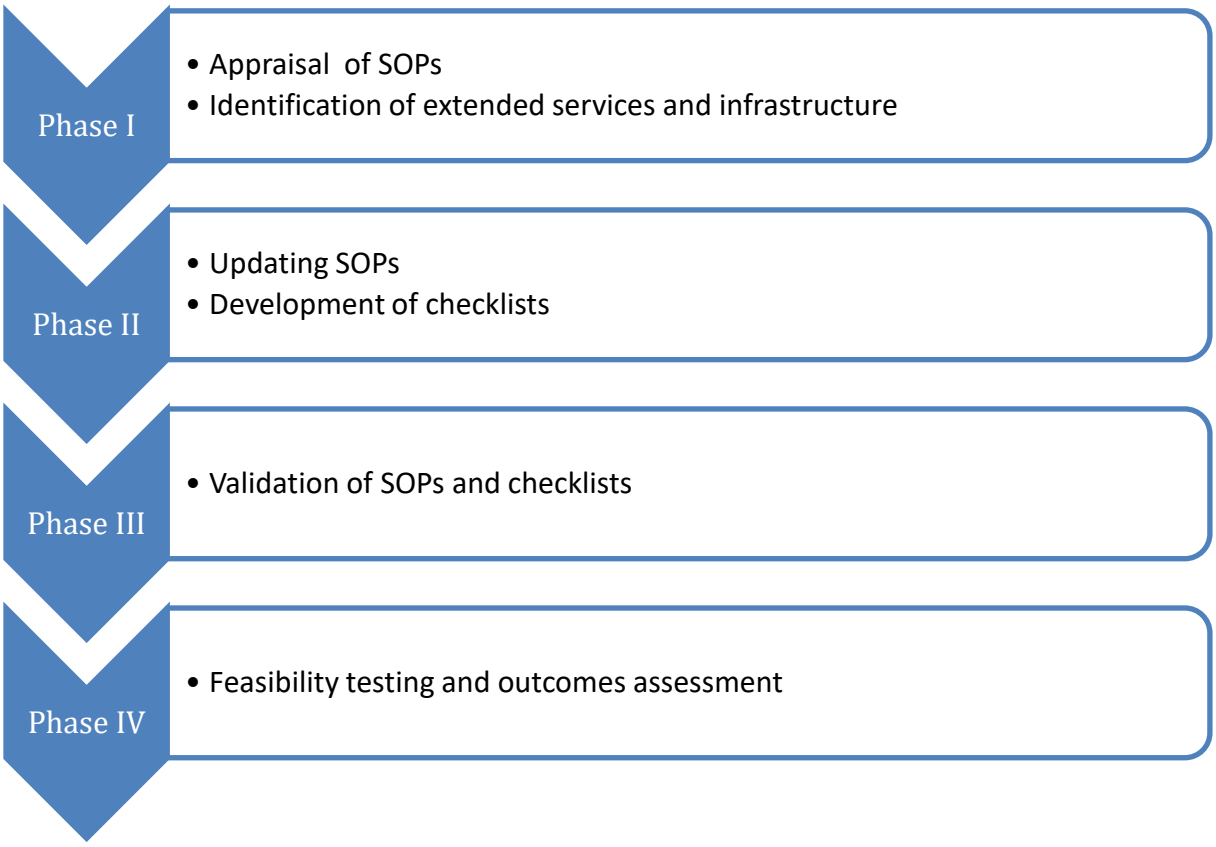

Figure 2.1: Flowchart of research methodology

2.2 Ethics Approval

The study was approved by the University of Malta Faculty of Medicine and Surgery Research Ethics Committee (MED-2023-00233) (Appendix 1).

2.3 Study setting

The research was undertaken in a community pharmacy located in the northern region of Malta which was selected by convenience sampling.

2.4 Phase I: Identification of SOPs and infrastructure

The SOPs categorised into medicine use review, patient review, and advice and treatment services proposed by Cancellu (2022) were appraised. Eight hours of observation by the researcher over two days were conducted in the study setting to identify the extended services performed and infrastructure present to implement these services. In accordance with observation in the study setting, the SOPs to be piloted in the present study were identified.

The infrastructure required to provide the identified extended services was assessed through literature review and was compared to the infrastructure present in the study setting. The infrastructure was examined in terms of space, time, staff, equipment, and other logistics. The

literature search was conducted using PubMed, Cochrane Database of Systematic Reviews, SCOPUS, Hydi, and Google Scholar. A combination of keywords was employed due to differences in indexing and vocabulary between the databases used. The search strategy used free-text keywords combined with Boolean operators; namely (community pharmacy service AND infrastructure), (community pharmacy service AND space), (community pharmacy service AND time), (community pharmacy service AND staff), (community pharmacy service AND equipment) and (community pharmacy service AND logistics). Articles included were published between January 2013 and June 2023, in English, and available as free full text. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) was used as a reporting tool.

The initial search produced a total of 10,759 articles. Duplicates were removed and the title and abstract of 5,490 records were screened. Reports unavailable in full text were removed and the full text records of 1,226 articles were screened, resulting in 25 articles being included based on relevance (Figure 2.2). A total of 3,956 records were excluded during title and abstract screening and 1,201 records during full-text screening using the criteria shown in Table 2.1.

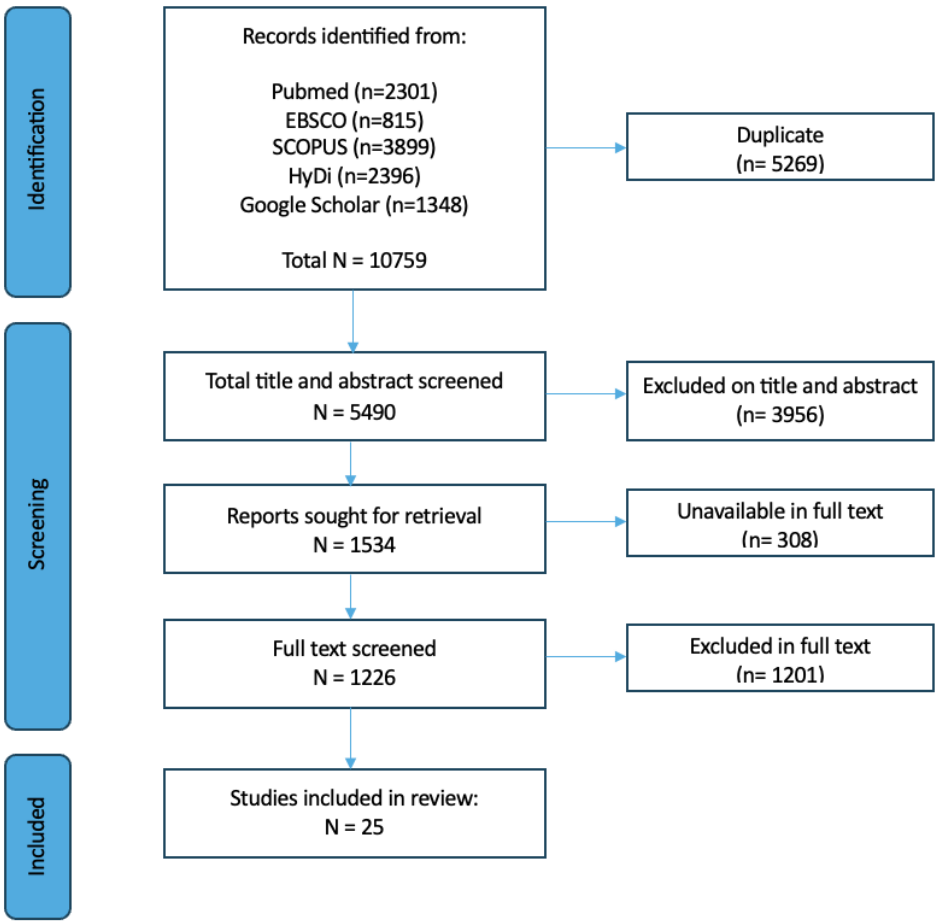

Figure 2.2 PRISMA flow diagram of study selection regarding infrastructure

Table 2.1 Criteria used to exclude records during screening process: Infrastructure

Reason for record exclusion	Number of records excluded during screening of:	
	Titles and abstracts	Full text
Not related to community pharmacy and community pharmacist	2,681	579
Not related to extended community pharmacy services (medicine user review, patient review and advice and treatment services)	1,002	514
Not related in terms of space, time, staff, equipment, and logistics	273	108
Total	3,956	1,201

2.5 Phase II: Updating of SOPs and development of pharmacist checklists

Another literature search was carried out to guide updating of the identified SOPs. The literature search was conducted using the same databases as section 2.4. The search strategy used free-text keywords combined with Boolean operators; namely (community pharmacy service AND medicine use review), (community pharmacy service AND blood pressure), (community pharmacy service AND weight), (community pharmacy service AND urinalysis), (community pharmacy service AND smoking cessation), (community pharmacy service AND eye), (community pharmacy service AND ear), (community pharmacy service AND sore throat), (community pharmacy service AND skin), (community pharmacy service AND urinary tract infection), (community pharmacy service AND travel health), and (community pharmacy service AND immunisation). Articles included were published between January 2018 and June 2023, in English, and available as free full text. PRISMA was used as a reporting tool.

The initial search produced a total of 13,669 articles. Duplicates were removed and the title and abstract of 6,726 records were screened. Reports unavailable in full text were removed and the full text records of 1,565 articles were screened, resulting in 31 articles included based on relevance (Figure 2.3). A total of 4,598 records were excluded during title and abstract screening and 1,534 records during full-text screening using the criteria shown in Table 2.2.

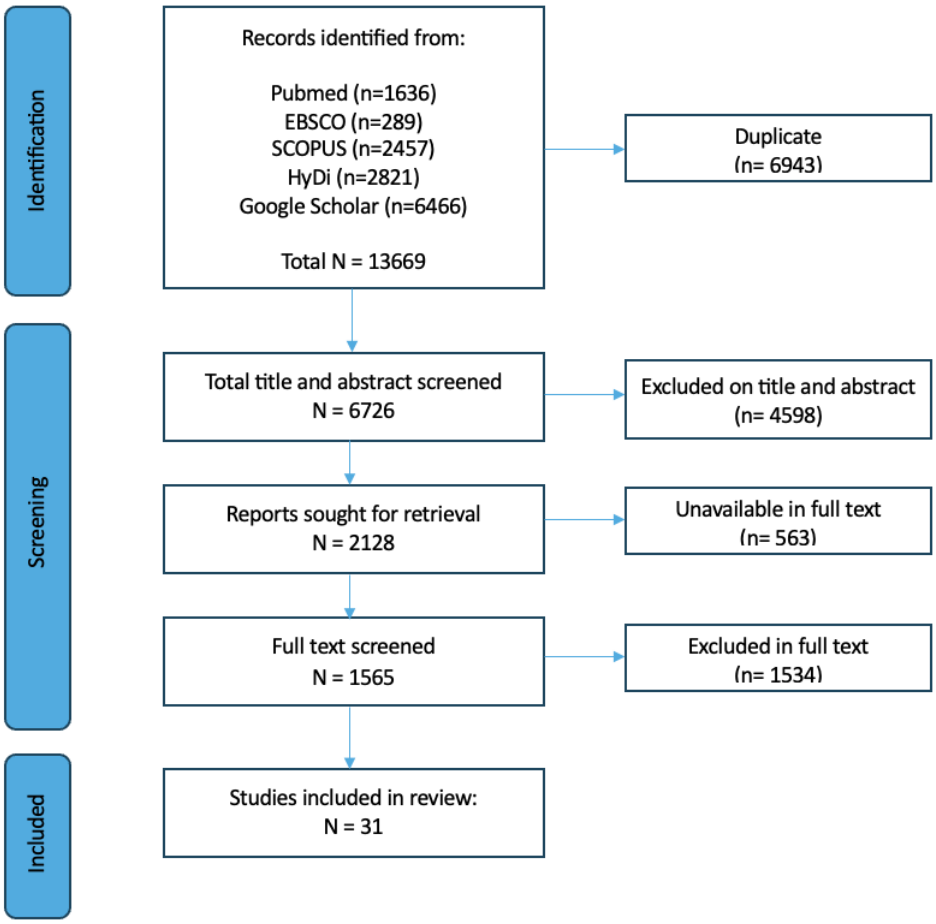

Figure 2.3 PRISMA flow diagram of study selection regarding SOP updates

Table 2.2 Criteria used to exclude records during screening process: SOP updates

Reason for record exclusion	Number of records excluded during screening of:	
	Titles and abstracts	Full text
Not related to community pharmacy and community pharmacist	3,299	763
Not related to extended community pharmacy services (medicine use review, patient review and advice and treatment services)	1,299	352
No additional information to add to current SOPs	0	419
Total	4,598	1,534

The updates to the SOPs were completed based on patient impact, practicality, and relevance to practice (Section 3.3). The Malta Medicines Authority Advanced Search (https://medicinesauthority.gov.mt/advanced-search) was consulted to determine the status of the treatments included in the SOPs.

A pharmacist checklist for each extended service to be used during feasibility testing (Phase IV) was developed. The composition of each checklist was based on the corresponding updated SOP and formatted uniformly. Each checklist is composed of the steps for service provision as a quick self-check tool. The checklists were divided into three sections: before, during and after the consultation. The “Before the consultation” section includes introduction of the pharmacist and the service, acquisition of consent from patient and preparation of forms, devices and consumables. The “During the consultation” section includes assessment, discussion and documentation of health-related information, outcomes of the service, and advice and recommendations provided. The “After the consultation” part includes the provision of results, referral to GP, ensuring patient satisfaction, and completion and secure storage of documents. Columns for ‘Yes’, ‘No’ and ‘N/A’ or not applicable were provided for the pharmacist to tick as applicable for each step performed to provide the service. A section for pharmacist additional comments was included.

2.6 Phase III: Validation of SOPs and pharmacist checklists

The updated SOPs and developed pharmacist checklists were validated for face and content validity by an expert panel using a validation tool created using Google Forms®. An invitation email outlining the study's aim and objectives, the steps required to complete the validation and the validation tool, was sent to four community pharmacists and four GPs. Four community pharmacists and three GPs accepted to participate in the validation process. Three of the pharmacists and all the GPs practice in Malta, while one pharmacist practices in the United Kingdom.

The validation tool was divided into two parts, one for the SOPs and the other for the checklists. The expert panel were asked to rate relevance of the content, comprehensibility, and presentation of the SOPs and checklists on a Likert scale ranging from 1 (Poor) to 5 (Excellent), and a comments box was included to enable panellists' suggestions for improvement if a rating of 3 or below was given. The seven experts returned the validation tool within two weeks. The rating scores were transferred to Microsoft Excel® and a mean score out of 5 was computed for each validation criterion. The comments and recommendations were reviewed by the researcher and used to refine the SOPs and checklists.

2.7 Phase IV: Feasibility testing of extended community pharmacy services

Feasibility testing, which involved piloting of the validated SOPs and checklists in the study setting, was carried out over a five-month period (September 2023 – January 2024), targeting ten participants to be recruited for each extended service. The researcher was present in the

study setting to recruit participants for 300 hours from Monday to Friday in the afternoon (1:30pm-4:30pm). Potential participants were selected by purposive sampling and invited to the study by an intermediary (managing pharmacist) using a developed participant information letter and consent form, available in English and Maltese.

The participants considered were 18 years and older, both male and female. For those who accepted to participate in the research, each participant was introduced to the researcher by the intermediary. The researcher explained the aim and procedure of the service, further ensuring that the participants were willing to proceed to the consultation room. Consent was acquired and the relevant forms, medical devices, and consumables were prepared. Age and gender of each participant were documented. No personal identifiable data were collected, and each participant was assigned a code for anonymity of documentation.

The services involved conducting MUR and patient review services which included measurement of blood pressure using a validated automated blood pressure monitor, weight using a validated weighing scale, height and waist circumference using a tape measure, and/or visual examination of a urine sample using Combur test strips. Advice and treatment services employed examination of the eyes, outer ear, neck area, face, or skin. All the services entailed a pharmacist-patient discussion to explore any relevant health and medication-related information to be able to provide the necessary recommendations. The outcomes of each participant encounter were documented.

At the end of the service, the researcher provided the participant with the test results, advice and/or recommendations, and a GP referral letter if necessary. The participant's satisfaction and understanding of recommendations were confirmed by the researcher. The time taken for each service implementation was recorded. Pertinent data collected was inputted into Microsoft Excel® for analysis of participants' profiles and outcomes of implementation of the SOPs and checklists (Table 2.3). Descriptive statistics (frequencies and percentages) were used to analyse the data collected.

Table 2.3 Criteria for data collection

Participants' profile	Age range Gender
Outcomes of service implementation	Frequencies of uptake of extended services Time taken for each service (mean, range) Non-pharmacological advice Pharmacotherapy recommendations Referral to GP Satisfaction and understanding of advice / recommendations

Any challenges encountered during service implementation using the SOPs and checklists were documented. Following feasibility testing, any improvements required to enhance the applicability and practicality of the SOPs and checklists were incorporated.

Chapter 3: Results

3.1 Identified extended services for piloting

From the SOPs proposed by Cancellu (2022), 13 SOPs for provision of extended services and 9 SOPs related to general and ancillary services were identified. Following the observation study, SOPs on glycaemic control monitoring and lipid profile monitoring were excluded since the devices/equipment for these services were not available in the study setting. Hence, 11 services were identified for piloting and another service (Urinalysis) was added, amounting to 12 services piloted in the present study (Table 3.1). The general and ancillary services, which included how to conduct a clinical service and acquire informed consent, how to provide advice to customers, how to complete a patient medication record, pharmacy consultation room standards, record keeping and storage requirements, dealing with customers' complaints, dealing with needle stick injuries and SOP training, were incorporated into the 12 SOPs during updating and not left as separate SOPs as in the study by Cancellu (2022).

Table 3.1 Extended community pharmacy services index (N=12)

Classification of service	Number and Title
Medicine Use Review, MUR (n=1)	1. Conducting MUR
Patient review (n=3)	2. Blood pressure measurement
	3. Weight management
	4. Urinalysis
Advice and treatment (n=8)	5. Smoking cessation service
	6. Eye conditions
	7. Ear conditions
	8. Sore throat
	9. Skin conditions
	10. Urinary tract infections
	11. International travel health advice
	12. Routine immunisation advice

3.2 Infrastructure in study setting compared to literature

The specifications for provision of extended services in the study setting are comparable with findings from the literature review. A summary of the comparison between the infrastructure observed in the study setting and literature is shown in Table 3.2

Table 3.2 Description of infrastructure in study setting and literature

Infrastructure	Study setting	Literature
Space	Private clinic room	Private consultation area
Time	8-20 minutes per patient encounter	4-26 minutes per patient encounter
Staff	• 1 full-time pharmacist • 1 full-time pharmacy technician • 1 part-time pharmacist • 2 regular locum pharmacists • 1 student pharmacist • No physician in attendance; 2 clinics nearby (130m, 350m) • Attendance to training and medicines/medical device presentations	• Presence of at least one pharmacy support staff • Cooperation with other health care providers • Participation in training and continuing professional education
Equipment	• Automated BP measurement device • Weighing scale • Tape measure • Combur9 test strips	• *Medical devices:* validated automated BP measuring device, weighing scale, tape measure • *Consumables:* urine dipsticks, paper towels, gloves
Logistics	• MUR form • Result sheet (BP, Urinalysis) • British National Formulary, recent version • 1 laptop and printer • Clinical waste bin	• Documentation • Updated medicines information resources • Computer equipment / software • Medical waste disposal

3.2.1 Space

From the 25 studies appraised, 9 mentioned specifications regarding space (Gyawali et al, 2014; Malangu, 2014; Hattingh et al, 2016; Seubert et al, 2017; Carson-Chahhoud et al, 2019; Jakupi & Jakupi, 2021; Dhital et al, 2022; Alghamdi et al, 2023; Alotaibi et al, 2023). When designing pharmacy plans, the arrangement needs to offer a private consultations area to provide consumers with the opportunity to engage in a consultation without being heard by other consumers or pharmacy staff (Seubert et al, 2017). Patients may hesitate to ask questions or share their understanding about medicines and disease conditions if not in a separate counselling room (Gyawali et al, 2014). Lack of a pharmacy clinic for private counselling poses an operational challenge hindering pharmacist professional activities, and pharmacy staff and consumers have to apply strategies to achieve the required level of privacy (Hattingh et al, 2016; Alghamdi et al, 2023). Consulting rooms should be in line with the Good Pharmacy Practice Guidelines such as a designated private place in the community pharmacy for MTM services (Malangu 2014; Alotaibi et al, 2023) or smoking cessation advice and counselling (Carson-Chahhoud et al, 2019). Considering that extended services require adequate space for acceptable delivery, the pharmacy must consider accessibility problems for stroke survivors in wheelchairs and caregivers (Dhital et al, 2022), and that services offered in extraordinary times, such as in the COVID 19 pandemic, require a more isolated space than the abovementioned standards (Jakupi & Jakupi, 2021).

The study setting has one clinic room serving as a private consultation area conducive to effective communication with patients and carers. The clinic room was deemed accessible to

patients with disabilities and large enough to accommodate both patient and caregiver, confirming that the study setting was appropriate in terms of space requirements.

3.2.2 Time

Four studies (Gregorio et al, 2017; Cavaye et al, 2018; Carson-Chahhoud et al, 2019; Acheuk et al, 2020) were relevant regarding time taken to offer extended services. According to the study by Gregorio et al (2017), the mean duration of pharmacist-patient interactions was 4 minutes (range 10 seconds - 26 minutes, median 3 minutes). The mean duration of semi-directive interviews was 15 ±5 minutes depending on the service, such as smoking cessation sessions which may require at least 60 minutes (Carson-Chahhoud et al, 2019; Acheuk et al, 2020). Cavaye et al (2019) noted that longer interventions may not be easily integrated into current pharmacy workflow, limiting the amount of time designated for each service. The time range taken by the pharmacist on duty to provide an extended service as observed during the observation study was 8 to 20 minutes and comparable to the literature reporting an estimated range of 4 to 26 minutes per extended service.

3.2.3 Staff

Thirteen studies (Gyawali et al, 2014; Carson-Chahhoud et al, 2019; Salgado et al, 2020; Crespo-Gonzalez et al, 2021; Marwitz et al, 2021; Pope et al, 2021; Zheng et al, 2021; Karia et al, 2022; Alghamdi et al, 2023; Alotaibi et al, 2023; Gomez Martinez et al, 2023; Michel et al, 2023; Sendekie et al, 2023) mentioned aspects on staffing concerning the provision of extended community pharmacy services. Pharmacists' traditional workload encompass technical and operational tasks. Provision of extended community pharmacy services would

need support through adequate staffing levels and assistance ensuring appropriate staffing ratios (Marwitz et al, 2021). A study by Karia et al (2022) recommended that an extra supporting pharmacist enables conducive workflows, supported by the proposal of Alotaibi et al (2023) of having a designated pharmacist focused on only providing extended services to help lessen the workload on the other pharmacist in the same pharmacy. The study by Salgado et al (2020) stated that pharmacy technicians can free pharmacists' time for clinical duties and for new care provision opportunities. However, Carson-Chahhoud et al (2019) suggested to better distinguish the pharmacy technician role from the pharmacist role. The findings coincide with the observation at the study setting where the staff employed include one full-time, one part-time and two locum pharmacists, one full time pharmacy technician, and one student pharmacist, confirming the presence of a pharmacist and at least one support staff during all opening hours.

The pharmacy staff are trained through attendance to presentations by different pharmaceutical companies to update on current treatments and recommendations which is necessary as part of continuing professional education and development as reported by the studies of Gyawali et al (2014) and Alghamdi et al (2023). Some studies showed that upgrading qualifications is useful for medicine use review (Michel et al, 2023), smoking cessation (Gomez Martinez et al, 2023) and prevention and management of non-communicable diseases (Sendekie et al, 2023). Pope et al (2021) supports training of pharmacy technicians for POCT to positively impact the number of health screenings conducted in a community pharmacy setting, requiring standardisation of training for both pharmacists and pharmacy technicians. Crespo-Gonzalez et al (2021) emphasised that having an adequate number of trained staff in

cooperation with other health care providers is required to enhance and maintain services over time.

The study setting has no physician in attendance; however, two clinics are nearby, one at 130m and another at 350m from the pharmacy and pharmacy staff in the study setting have a close collaboration with these nearby clinics. This is highlighted in a study by Zheng et al (2021) which states that community pharmacists shall establish a partnership with surrounding clinics providing services in the context of collaborative care.

3.2.4 Equipment

Three studies (Malangu, 2014; Harris et al, 2022; Rondeaux et al, 2022) discussed equipment to be utilised for providing extended community pharmacy services. For anthropometric measurements, weighing scale and tape measure are required, in addition to automated BP monitors, and urine dipsticks (Harris et al, 2022). Moreover, registration of the required equipment for conducting patient examination and conducting rapid laboratory tests should be certified (Malangu, 2014). The pharmacy must ensure validation of POCT devices and availability of consumables to maintain hygiene (Rondeaux et al, 2022). The study setting has validated medical devices to be used for patient review services including an automated BP measuring device, weighing scale, and tape measure. Consumables were available, including urinalysis test strips, paper towels and gloves.

3.2.5 Other Logistics

Reference to other logistics including documentation, medicines information resources, computer equipment, and medical waste disposal was found in 7 studies (Gyawali et al, 2014; Malangu, 2014; Carson-Chahhoud et al, 2019; Hallit et al, 2019; Salgado et al, 2020; Jakupi & Jakupi, 2021; Chimbuco et al, 2022). Documentation is one of the pharmacist's main responsibilities (Chimbuco et al, 2022). Result sheets for BP measurement, weight management, and urinalysis, GP referral letter to be given to patients as necessary, MUR form and Subjective, Objective, Assessment, Plan (SOAP) form for the pharmacist to record relevant information and outcomes of the service provided, are important in extended services to document pertinent patient counselling, recommendations and/or interventions made to determine effectiveness of pharmaceutical care, and to facilitate continuity of care (Hallit et al, 2019), such as in MTM (Salgado et al, 2020). To substantiate existing documentation in the study setting, the researcher optimised the MUR form and result sheets for BP measurement and urinalysis. A GP referral letter, weight management and SOAP forms were newly developed.

For accurate service provision, suitable educational materials (Carson-Chahhoud et al, 2019) and updated reference books and manuals (Malangu, 2014) should be available. Required information could be accessed through digital platforms (Jakupi & Jakupi, 2021), requiring computer equipment and software to support extended services (Alghamdi et al, 2023). The study setting was equipped with computer equipment and software with internet connection to support medication assessment and updated drug information sources from digital platforms. Reference books such as a recent version of the BNF was available as a physical

copy. Good pharmacy practice supports medical waste disposal as a pharmacist responsibility, such as availability of a clinical waste bin in the pharmacy premises (Gyawali et al, 2014). In line with this guideline, a clinical waste bin for urinalysis was available in the study setting.

3.3 Updates to the SOPs

Based on the literature review, updates to the SOPs were implemented. A summary of the updates is shown in Table 3.3

Table 3.3 Summary of updates to the SOPs

Criterion	Updates	References
Patient impact	• Introduction of pharmacist to patient • Assessment and documentation of current medication use • Provision of outcome of review and/or test results to patients • Assurance of patient satisfaction and understanding	Hefny Mohamed et al, 2018; Omboni & Caserini, 2018; Romero-Saldaña et al, 2018; Policarpio et al, 2019; Ilardo & Speciale, 2020; Ramdurai, 2020; Kvarnstrom et al, 2021; Guzman-Garcia et al, 2022; Stergiou et al, 2023
Practicality	• Measurement with automated BP device • Use of waist-to-height ratio to measure health risk • Utilisation of urine test strips for urinalysis	Jasani et al, 2019;Vulj anić et al, 2019; Bhansali et al, 2020; Pandarbale & Fernandes, 2020; Rohla et al, 2023
Relevance to practice	• Improvement of documentation • Referral to evidence-based guidelines • Classification for BP • Follow up and local support for smoking cessation • Warning signs for eye, ear, and throat conditions • Availability of current treatment options	Aaron et al, 2018; Paudyal et al, 2018; Williams et al, 2018; Abu Farha et al, 2019; Koubaity et al, 2019; Grech et al, 2020; Schindler et al, 2020; Ni et al, 2021; Shokr et al, 2021; Zahn et al, 2021; Qadus et al, 2022; Sapkota et al, 2022; Taylor et al, 2022; Amza et al, 2023; Alexa & Bertsche, 2023; Jarab et al, 2023; Soroush et al, 2023

3.3.1 Patient impact

Introduction of the pharmacist to the patient was added to the start of every service since pharmacist introduction before providing a healthcare service is essential in forming a therapeutic relationship facilitating effective communication between the pharmacist and patient (Ilardo & Speciale, 2020).

Assessment and documentation of current medication use was added in BP measurement (SOP 2), weight management (SOP 3), and urinalysis (SOP4), as confirmed by Omboni & Caserini (2018) that pharmacist's interventions such as medication review, monitoring and reconciliation are required for patient education and counselling to improve clinical outcomes. Discussion on home BP monitoring was added to SOP 2 since management and long-term follow-up of hypertension are key for improving patient outcomes.

Providing patients with the outcome of review and/or test results was added before the end of each service since patient engagement emphasises on the importance of patients playing an active role in their well-being. Patient engagement includes knowing and acting on health information in partnership with health care professionals, discussing and choosing possible and appropriate treatment options through collaborative decision making, and offering feedback on the care processes and outcomes (Ramdurai, 2020)

Patient satisfaction and understanding of pharmacist recommendations are ensured at the end of each service since insufficient understanding about the illness or medication may lead patients to seek information from unreliable sources (Kvarnstrom et al, 2021). Satisfaction

should be reinforced by pharmacists to increase cost-effectiveness of therapy and successfully perform health monitoring (Hefny Mohamed et al, 2018). Satisfaction and understanding are emerging criteria to improve patient trust and health outcomes (Policarpio et al, 2019).

3.3.2 Practicality

Replacement of the auscultatory method with automated BP measurement was done in the BP measurement SOP (SOP 2). Automated blood pressure machines have a fair degree of agreement with manual devices (Jasani et al, 2019). This is confirmed by Stergiou et al (2023), stating that manufacturers of BP devices are provided with the required specifications in the accurate detection and management of hypertension. In comparison to automated devices, manual devices are less practical since they require more training and practice. Pharmacists in community pharmacies use automated BP monitors improving BP control over time (Rohla et al, 2023) and patients use automated devices for home BP monitoring for easier and more convenient utilisation (Pandarbale & Fernandes, 2020).

In weight management (SOP 3), 'Waist-to-height-ratio for adults' was used instead of waist circumference as the basis for health risk. Waist-to-height ratio was highlighted to offer a truer measure of central adiposity than waist circumference measurements alone which may be inaccurate in people with a body mass index (BMI) over 35 kg/m², regardless of all ethnicities and sexes leading to higher diagnostic capacity (Guzman-Garcia et al, 2022). Waist-to-height ratio is a practical measurement in adults with high muscle mass for whom BMI may be less accurate. This non-invasive method is easily applied and interpreted in any healthcare

setting providing a measure of health risk and allowing more accurate detection and effective intervention (Romero-Saldaña et al, 2018).

The SOP on urinalysis includes use of urine test strips since National Institute for Health and Care Excellence (NICE) guidelines recommend using dipsticks as a screening tool (Vuljanić et al, 2019). Urine test strips are valid in detecting urinary tract infections, even in limited resource settings (Bhansali et al, 2020).

3.3.3 Relevance to practice

General practitioner referral letter, weight management, urinalysis and SOAP form were developed. The MUR and BP measurement were optimised. Developing and maintaining accurate, complete, and scientifically valid records are the professional obligation of health care providers in practice areas to facilitate communication between health care practitioners. These records can be used to ensure continuity of patient care and outcomes and improve quality assurance in health care delivery and research (Sapkota et al, 2022). Pharmacists having records such as histories with information about healthcare activity is essential to demonstrate and evaluate the activities performed to improve daily practice (Abu Farha et al, 2019).

Referral to accessible evidence-based guidelines was incorporated during service provision of MUR since community pharmacists need this information for evidence-based medication counselling (Alexa & Bertsche, 2023). The Pharmaceutical Care Network Europe Association (PCNE) classification is an internationally established tool for drug related problems (DRPs) (Jarab et al, 2023) and has been engaged in medication review studies (Schindler et al, 2020)

since it showed a high content validity to be utilised by academics and community pharmacists (Koubaity et al, 2019) for searching the nature, prevalence, and incidence of DRPs (Ni et al, 2021). The British National Formulary (BNF) is a well-established evidence-based formulary (Zahn et al, 2021) comprising a compilation of concise medicines information to support point of care decision-making (Qadus et al, 2022).

The classification for BP was updated with BP ranges according to the European Society of Cardiology/ European Society of Hypertension (ESC/ESH): optimal with systolic BP less than 120 and diastolic BP less than 80, normal with systolic BP 120-129 and/or diastolic BP 80-84, and high normal with systolic BP 130-139 and/or diastolic BP 85-89 (Williams et al, 2018; Shokr et al, 2021).

For smoking cessation (SOP 5), follow up of one to two weeks was incorporated in the SOP, as well as local support available namely the Health Promotion and Disease Prevention Directorate within the Department for Health Regulation/ Superintendence of Public Health, Ministry for Health for Malta (Grech et al, 2020).

Warning signs were updated since purulent discharge from eyes, ears, and throat and/or fever should be referred to a GP (Amza et al, 2023). In case of ear conditions, vertigo warrants additional medical attention (Paudyal et al, 2018)

The treatment options from the previous study (Cancellu, 2022) were reviewed. Treatments not available in community pharmacy (carmellose, sodium bicarbonate 5%, urea-hydrogen peroxide, acetic acid 2% solution), with invalid status (dibrompropamidine isethionate), or

withdrawn (benzocaine 0.15%, benzalkonium chloride, propamidine isethionate, sodium citrate) as per Malta Medicines Authority records, were omitted. Natural substances such as witch hazel could potentially be used as a non-prescription treatment for eyes (Soroush et al, 2023) and turpentine oil for the ears (Aaron et al, 2018). Additional agents for ear conditions include decongestant nasal spray and oral decongestants for ear blockage due to congestion and air pressure (Taylor et al, 2022).

3.4 Expert panel's assessment of validity of SOPs and checklists

The majority of the experts selected 4 "Very Good" or 5 "Excellent". Since the overall rating of the SOPs was 4 "Very Good" in all criteria, the SOPs were considered valid. The mean rating and range of the expert panel's scores for each of the SOPs are shown in Table 3.4.

Table 3.4 Expert panel rating for SOPs (N=7)

SOPs		Mean rating scores (Range)		
Number	**Title**	**Relevance of content**	**Comprehensibility**	**Presentation**
1	Conducting MUR	4.57 (4-5)	4.57 (4-5)	4.29 (3-5)
2	Blood Pressure measurement	4.57 (4-5)	4.57 (4-5)	4.71 (4-5)
3	Weight management	4.57 (4-5)	4.57 (4-5)	4.71 (4-5)
4	Urinalysis	4.71 (4-5)	4.71 (4-5)	4.86 (4-5)
5	Smoking cessation service	4.57 (4-5)	4.57 (4-5)	4.71 (4-5)
6	Eye conditions	4.43 (4-5)	4.43 (4-5)	4.43 (4-5)
7	Ear conditions	4.57 (4-5)	4.57 (4-5)	4.43 (4-5)
8	Sore Throat	4.43 (4-5)	4.43 (4-5)	4.43 (4-5)
9	Skin conditions	4.29 (3-5)	4.43 (4-5)	4.57 (4-5)
10	Urinary tract infections	4.71 (4-5)	4.71 (4-5)	4.71 (4-5)
11	International travel health advice	4.14 (1-5)	4.14 (1-5)	4.14 (1-5)
12	Routine immunisation advice	4.29 (1-5)	4.29 (1-5)	4.29 (1-5)
	Mean	4.49	4.50	4.52

One panellist suggested using the term “patient” instead of “customer” in all SOPs as “customer” was used in the previous study (Cancellu, 2022). The term “customer” was replaced since studies have also concluded that healthcare recipients prefer the term “patient” (Costa et al, 2019; Fitzpatrick et al, 2020). For relevance of content, one panellist gave a score of 3 “Good” for SOP9 (skin conditions) to ensure that all treatments are non-prescription. Terbinafine was removed from the treatment options since it is a POM medicine.

SOP 11 (International travel health advice) was rated 1 “Poor” for all criteria by one panellist. The panellist suggested that patients should ensure that they carry the relevant documents for POM and dangerous drug items (or at least a copy of) when travelling. The additional statement suggested by the panellist was added to the SOP. One panellist rated SOP 12 (Routine immunisation advice) 1 “Poor” for all criteria, stating that the SOP was too vague to be followed during a consultation with a patient and needs further work. Amendments to advice and recommendations given to the individuals at increased risk were made to the SOP.

For presentation, one panellist gave a score of 3 “Good” for SOP 1 (Conducting MUR) suggesting to reduce the size of formulation and strength columns and increase the size of the column for issues identified in the MUR form. The researcher implemented this change.

For validation of the pharmacist checklists, all the experts selected 4 “Very Good” or 5 “Excellent”. No comments or recommendations were given for the checklists in the validation exercise. The mean rating scores from the expert panel for each checklist are shown in Table 3.5. All checklists were rated between 4 and 5 for relevance of content, comprehensibility and presentation.

Table 3.5 Expert panel rating for pharmacist checklists (N=7)

Pharmacist checklists		Mean rating scores		
Number	**Title**	**Relevance of content**	**Comprehensibility**	**Presentation**
1	Conducting MUR	4.43	4.57	4.43
2	Blood Pressure measurement	4.43	4.57	4.43
3	Weight management	4.43	4.57	4.43
4	Urinalysis	4.43	4.57	4.43
5	Smoking cessation service	4.43	4.57	4.43
6	Eye conditions	4.43	4.57	4.43
7	Ear conditions	4.43	4.57	4.43
8	Sore Throat	4.43	4.57	4.43
9	Skin conditions	4.43	4.57	4.43
10	Urinary tract infections	4.43	4.57	4.43
11	International travel health advice	4.43	4.57	4.43
12	Routine immunisation advice	4.57	4.71	4.57
	Mean	4.44	4.58	4.44

3.5 Piloting of extended services

3.5.1 Study population

Eighty-eight participants out of the targeted 120 (73.3% response) were recruited for the study. Eight services were often requested by patients. Services for weight management, smoking cessation, international travel health advice and routine immunisation advice were not regularly sought out at the time of the study.

Participants were of various age ranges: 18-30 years (n=27), 31-40 years (n=25), 41-50 years (n=11), 51-60 years (n-8), 61-70 years (n=12), 71-80 years (n=4), and >80 years (n=1). The age ranges of the participants for each service are presented in Table 3.6. Fifty-five participants were female and 33 were male. The number of participants who requested each extended service and their characteristics for age and gender are shown in Table 3.6.

Table 3.6 Participants' characteristics (N=88)

Extended service (Number of participants)		**Age range** in years	**Number of participants**	**Gender**	
				Female	Male
Medicine Use Review, MUR	Conducting MUR	18-30	1	5	5
		31-40	1		
		41-50	1		
		61-70	5		
		71-80	2		
Patient review services	Blood pressure measurement (n=10)	31-40	1	7	3
		41-50	3		
		51-60	3		
		61-70	2		
		71-80	1		
	Urinalysis (n=10)	18-30	2	5	5
		31-40	3		
		51-60	1		
		61-70	2		
		71-80	1		
		>80	1		
	Weight management (n=2)	18-30	1	2	0
		31-40	1		

Advice and treatment services	Eye conditions (n=10)	18-30	5	6	4
		31-40	2		
		41-50	2		
		61-70	1		
	Ear conditions (n=10)	18-30	4	6	4
		31-40	4		
		41-50	1		
		51-60	1		
	Sore throat (n=10)	18-30	4	7	3
		31-40	5		
		51-60	1		
	Skin conditions (n=10)	18-30	3	7	3
		31-40	3		
		41-50	2		
		51-60	1		
		61-70	1		
	Urinary tract infections (n=10)	18-30	2	7	3
		31-40	4		
		41-50	2		
		51-60	1		
		61-70	1		
	Routine immunisation advice (n=3)	18-30	3	3	0
	Smoking cessation (n=2)	18-30	1	0	2
		31-40	1		
	International travel health advice (n=1)	18-30	1	0	1

3.5.2 Overall outcomes of implementation

Table 3.7 shows an overall summary of the time taken to perform the extended services and pharmacist interventions provided according to service classification (MUR, patient review, advice and treatment services). The extended services were conducted with a mean time of 17 minutes (range 7-28), depending on factors such as number of medications, extent of language barrier and testing performed. Non-pharmacological advice was provided to all participants. Forty-four participants were referred to GP due to side effects, drug interactions, abnormal results and red flag symptoms and non-prescription pharmacotherapy was dispensed in 42 participants.

Table 3.7 Outcomes of extended community pharmacy services (N=88)

Outcomes	**Medicine use review** (n= 10)	**Patient review services** (n=22)	**Advice and treatment services** (n=56)
Mean time in minutes (range)	14 (7-24)	21 (14-28)	17 (11-26)
Non-pharmacological advice	10	22	56
Pharmacotherapy recommendations	0	0	42
Referral to GP	3	16	25

3.5.3 Conducting a medicine use review

Conducting MUR was piloted in 10 participants with a mean time of 14 minutes (range 7-24) (Table 3.7) depending on the number of medications the patient was taking. Language barrier may have affected the time since the researcher encountered the need to translate certain words or phrases during service provision. Issues with medication adherence (n=2), medicine access (n=2), drug interactions (n=1) and side effects (n=1) were encountered during service provision. Three participants were referred to the GP for assessment. Side-effect of muscle pain was experienced by another participant taking simvastatin leading to non-adherence. Medications such as bumetanide and vildagliptin were out of stock from the government free medicines scheme and the participant refused to purchase them out of pocket, preferring to be referred to the GP for alternative free medications. Drug interactions were discovered for 1 participant, between amiodarone and ciprofloxacin (major) and between amiodarone and atorvastatin (moderate) (Table 3.7).

All participants were given non-pharmacological advice by the researcher regarding the importance and methods to improve patient adherence (n=10), lifestyle modifications (n=4), and self-monitoring of blood pressure (n=2), blood glucose (n=1) and about the protocol for the government free medication scheme (n=1). None of the participants were given pharmacotherapy recommendations.

3.5.4 Patient review services

Table 3.8 shows the time taken to perform patient review services such as blood pressure measurement, urinalysis and weight management, with the pharmacist interventions provided.

Table 3.8 Outcomes of patient review services (n=22)

Outcomes	**BP measurement** (n=10)	**Urinalysis** (n=10)	**Weight management** (n=2)
Mean time in minutes (range)	23 (18-28)	15 (14-17)	24 (22-27)
Non-pharmacological advice	10	10	2
Pharmacotherapy recommendations	0	0	0
Referral to GP	6	8	2

Blood pressure measurement was piloted in 10 participants with a mean time of 23 minutes (range 18-28). The time was affected by the circumstance of being the first visit for all participants so BP was measured 3 times with 1–2-minute interval. Six participants had issues during blood pressure monitoring: Grade 1 Hypertension (n=3), Grade 2 Hypertension (n=2), High Normal with light-headedness (n=1) and were all referred to the GP. All participants were given non-pharmacological advice regarding lifestyle modifications concerning exercise and diet (n=10), self-monitoring of blood pressure (n=10) and medication adherence (n=4). None of the participants were given pharmacotherapy recommendations (Table 3.8).

Urinalysis was piloted in 10 participants with a mean time of 15 minutes (range 14-17). Eight participants were referred to GP due to abnormal urinalysis results. Non-pharmacological advice was provided to all participants regarding hydration (n=10), personal hygiene (n=10) and self-monitoring of blood glucose levels (n=1). None of the participants were given pharmacotherapy recommendations (Table 3.8).

Weight management was piloted in 2 participants with a mean time of 24 minutes (range 22-27). The time was affected by explanation of the results and discussion on lifestyle modifications. The two participants who requested the service were categorised overweight. They were referred to the GP since one had increased health risk and the other had highest health risk. The participants were given non-pharmacological advice such as advice on physical activity and diet and on self-monitoring of anthropometric measurements. None of the participants were given pharmacotherapy recommendations (Table 3.8).

3.5.5 Advice and treatment services

Table 3.9 shows the time taken to perform advice and treatment services for eye conditions, ear conditions, sore throat, skin conditions, urinary tract infections (UTI), routine immunisation, smoking cessation and international travel health with the pharmacist interventions provided.

Table 3.9 Outcomes of advice and treatment services (n=56)

Outcomes	**Eye conditions** (n=10)	**Ear conditions** (n=10)	**Sore throat** (n=10)	**Skin conditions** (n=10)	**UTI** (n=10)	**Routine immunisation advice** (n=3)	**Smoking cessation** (n=2)	**International travel health advice** (n=1)
Mean time in minutes (range)	15 (11-21)	16 (13-21)	14 (13-16)	15 (13-21)	17 (11-26)	14 (12-16)	18 (17-20)	25
Non-pharmacological advice	10	10	10	10	10	3	2	1
Pharmacotherapy recommendations	7	8	10	7	8	0	2	0
Referral to GP	4	4	5	3	9	0	0	0

Ten participants requested for advice and treatment services regarding eye conditions with a mean time of 15 minutes (range 11-21). Issues included dry eyes (n=3), infection, style (n=2), allergy (n=1), foreign substance (n=1), pain (n=1), minor injury (n=1) and floaters (n=1). Non-pharmacological advice on the condition, management, preventive measures and eye hygiene was given to all participants. Seven participants were recommended treatment such as artificial tears (n=2), hypromellose (n=2), paracetamol (n=2), azelastine (n=1), saline solution (n=1) and were advised on how to use them. Four of the participants who had infection/stye, pain, and floaters were referred to the GP (Table 3.9).

Advice and treatment services for ear conditions were piloted in 10 participants with a mean time of 16 minutes (range 13-21). Concerns included ear pain (n=4), wax (n=3), trapped water (n=1), pressure (n=1), and blockage (n=1). Non-pharmacological advice on the condition, management, preventive measures, and ear hygiene was given to all participants. Eight participants were recommended treatments such as olive oil (n=3), paracetamol (n=2), xylometazoline (n=2), solution of lidocaine hydrochloride in glycerol (n=1), and ibuprofen (n=1). Two of the participants were recommended to continue prior treatments. The four participants who had ear pain were referred to the GP (Table 3.9).

Ten participants sought advice and treatment services regarding sore throat with a mean time of 14 minutes (range 13-16). Four participants had simple sore throat, four had tonsilitis, one had dry throat and one had ulcers. All participants were given non-pharmacological advice on the condition, management, preventive measures, and oral hygiene. All participants were recommended with treatment options such as lidocaine with chlorhexidine lozenges (n=3), ibuprofen (n=3), benzydamine spray (n=2), amylmetacresol with 2,4-dichlorobenzyl alcohol

lozenges (n=1), paracetamol (n=1), propolis spray (n=1), and betadine mouthwash (n=1), and advice on how to use them was provided. Five participants were referred to the GP due to tonsillitis (n=4) and ulcers (n=1) (Table 3.9).

Advice and treatment services concerning skin conditions were piloted in 10 participants with a mean time of 15 minutes (range 13-21). The cases included infected mosquito bites (n=2), athlete's foot (n=1), jelly fish sting (n=1), sunburn (n=1), boils (n=1), fungal nail infection (n=1), burns (n=1), atopic eczema (n=1), and cold sores (n=1). All the participants were given non-pharmacological advice on the condition, management, preventive measures and skin hygiene. Treatment options recommended to 7 participants were paracetamol (n=2), clotrimazole cream (n=1), hydrocortisone cream (n=1), panthenol, (n=1), clotrimazole solution (n=1), burn gel (n=1), calamine lotion (n=1) and aciclovir cream (n=1) and advice on how to use them was provided. Participants who presented infected mosquito bites and boils were referred to the GP (Table 3.9).

Ten participants requested advice and treatment services on UTI with a mean time of 17 minutes (range 11-26) depending on if participants agreed to have urinalysis done. Six participants needed confirmation of having infection since they refused to undergo urinalysis, 2 were confirmed to have UTI, 1 had simple cystitis and 1 had erythrocytes and haemoglobin in the urine but was negative for leukocytes. Non-pharmacological advice on the condition, management, preventive measures, and intimate hygiene were given to all participants. Treatment recommendations include potassium citrate (n=5) and paracetamol (n=4). Two participants were not provided with treatment options as one had finished a treatment course and another one had blood in the urine without other signs and symptoms of UTI. Nine

of the participants including those who refused urinalysis and with abnormal urinalysis results were referred to the GP (Table 3.9).

Three participants sought advice and treatment regarding routine immunisation with a mean time of 14 minutes (range 12-16). Participants inquired for work permit (n=2) and one was a health care professional (n=1). The participants were recommended to approach the immunisation centre for further vaccination. The healthcare professional was recommended to have meningitis and influenza vaccination. The other two participants were recommended to complete Covid 19, Hepatitis B, tetanus, diptheria, pertussis with polio and influenza vaccine. None of the participants were referred to GP (Table 3.9).

Smoking cessation service was piloted on 2 participants with a mean time of 18 minutes (range 17-20). Both participants smoke more than 20 cigarettes per day and within an hour of waking up. Patches were preferred by both participants and advice on how to use them was provided. Non-pharmacological advice included duration of treatment, side effects and management of withdrawal symptoms. None of the participants were referred to the GP (Table 3.9).

One participant who was going to Thailand requested international travel health advice which was completed in 25 minutes. The 25-day travel included activities within rainforest, river, beaches and city centers. The participant was recommended to approach immunisation and health centre for Hepatits A, Hepatitis B, Typhoid and malaria prophylaxis. The participant was given general advice on travelling, first aid and prevention of deep vein thrombosis, insect bites, and sunburn. The participant was not referred to a GP (Table 3.9).

3.5.6 Participant satisfaction

Eighty-seven of the participants confirmed their satisfaction and understanding of the advice and recommendations provided. One participant who requested advice and treatment for UTI denied satisfaction since rather than being referred to GP, the participant preferred antibiotic prescribing by the pharmacist.

3.5.7 Amendments after feasibility testing

Table 3.10 summarises the amendments after feasibility testing and lists the SOPs and checklists in which updates were incorporated. The updated versions of the SOPs and checklists are provided in Appendix 2 and 3 respectively.

Asking the patients their preferences was added to SOPs 5 to 11 to encourage shared decision-making. A person-centred approach suggests that treatment decisions should consider the patient's preferences, values and wishes. In advice and treatment services, 3 participants requested a different product from the initial recommendation; for sore throat one participant was recommended with lozenges but preferred spray and one participant was recommended with chlorhexidine lozenges but specifically wanted the combination product of amylmetacresol / 2,4-dichlorobenzyl alcohol lozenges. For UTI, one participant refused urinalysis and was referred to the GP. The participant asked if she could also take potassium citrate. Initial discussion of the advantages and disadvantages of the preference can promote understanding and patient compliance (Addario et al, 2018; Forest et al, 2021) (Table 3.10).

Additional conditions and treatments were encountered during service implementation and were incorporated into SOPs 5 to 9. Additional condition such as red eye was included in SOP for eye conditions. Additional treatments for dry eyes, allergic conjunctivitis, minor eye infections, trapped water in the ear, ear pain, throat emollients and antiseptics, athlete's foot and fungal nail infections were incorporated into SOPs 6 to 9 (Table 3.10).

Scheduling of follow-up services was added to SOPs 1 to 4 and 6 to 10 to promote safe and effective use of medications. The perceived benefits include facilitating diagnosis of recurrent conditions, managing comorbidities, assessing adherence, and monitoring the effectiveness and side-effects of advice and recommendations provided (Miah et al, 2019; Ng et al, 2021) (Table 3.10).

"Provide advice on what to do if symptoms do not improve" was added to SOPs 6 to 10 since evidenced-based medications could have distinct effects on various individuals (Goetz & Schork, 2018; Rykov,2022). Patients could be lost to follow-up but well-informed patients could be more involved in their healthcare and should be informed on the next course of action in case of inefficacy of the treatment. Patient engagement increases awareness, self-care and clinical outcomes (Damen et al, 2022; Carroll et al, 2023) (Table 3.10).

Table 3.10 Amendments to SOPs and checklists following piloting

Amendments	SOPs and pharmacist checklists	
	Number	**Title**
Asking patient their preferences	5	Smoking cessation
	6	Eye conditions
	7	Ear conditions
	8	Sore throat
	9	Skin conditions
	10	UTI
	11	International travel health advice
Conditions and treatments	5	Smoking cessation
	6	Eye conditions
	7	Ear conditions
	8	Sore throat
	9	Skin conditions
Scheduling of follow-up services	1	Conducting MUR
	2	Blood pressure measurement
	3	Weight management
	4	Urinalysis
	6	Eye conditions
	7	Ear conditions
	8	Sore throat
	9	Skin conditions
	10	UTI
Provision of advice on what to do if symptoms do not improve	6	Eye conditions
	7	Ear conditions
	8	Sore throat
	9	Skin conditions
	10	UTI

3.6 Dissemination of findings

An abstract was accepted for poster presentation at the 52nd European Society of Clinical Pharmacy (ESCP) Symposium, Krakow, Poland, October 2024 (Appendix 4).

Chapter 4: Discussion

4.1 Professionalisation of extended community pharmacy services

In the process of the professionalisation of community pharmacy practice, an attempt to close the gap between the 'desired' and the 'usual' pharmacy practice has advanced the formal development of quality standards (Batalden & Foster, 2021). Formal processes to be followed, including SOPs and documentation, have been developed, such as those proposed in the previous study by Cancellu (2022). Despite the growing proposal of guidelines and standards in healthcare, many everyday situations, patient pathways, pharmacy workflows, and infrastructure remain highly localised, varying from country to country and between settings (Khayal, 2022). Awareness of the existing system into which standards are to be introduced is crucial for the success of service implementation (Kriznik et al, 2019).

The SOPs and checklists developed in the present study aim to standardise the collection of health-related information, performance of POCT, documentation and interpretation of results, provision of patient advice and recommendations, facilitating successful implementation of standardised extended services in daily community pharmacy practice. Adoption of a step-by-step approach in the SOPs and checklists, supported by evidence-based practice, encourages systematic thinking and development of consistency and continuity in service provision. In agreement with Martinez Garcia et al (2018), it is increasingly important to keep clinical and practice guidelines regularly updated ensuring the validity of recommendations to assist in sound decision-making for the benefit of patients, health-care providers, and other stakeholders. This view was adopted in the present study and the SOPs

from the previous study (Cancellu, 2022) were updated to reflect current evidence and practice.

The research has contributed to the development of usable checklists in accordance with the updated SOPs, as a form of self-check tool and guide for pharmacists during provision of the extended services. It has been highlighted that use of checklists as a cognitive guide could assure that all components of a service are completed, promoting adherence to best practices, and preventing errors of omission (Parekh et al, 2023). This aspect was confirmed in a study by Amaratunge et al (2022) assessing the usability of a checklist as a reporting guideline. During patient encounters, a checklist serves as a quick guide before, during and after the consultation, facilitating service provision and improving the quality of the consultation experience (Svensberg et al, 2022). The developed checklists assisted the researcher during service provision for effective and efficient pharmacist consultation within the time constraints of a community pharmacy practice setting. A study by Waszyk-Nowaczyk et al (2022) confirmed that by following appropriate standards and guides significantly influences personalised healthcare, helping to improve future clinical standards of new and existing services.

Despite availability of SOPs and checklists, offering extended services necessitates quality in a community pharmacy's infrastructure, which may be challenging. Privacy is a factor that should be considered when designing pharmacy layouts since it may affect the behaviour of patients during a consultation. Availability of easily accessible areas, allowing discussions which are not heard by other consumers and pharmacy staff, provides patients with the opportunity to participate comfortably during consultations with the pharmacist (Seubert et

al, 2017). Aside from a designated private area, the pharmacy must certify that equipment and devices to be used during service provision are of appropriate standards with respect to validation and quality control and also considering factors including accuracy, sensitivity, specificity, user-friendliness, rapidity, robustness, and affordability. Tests conducted in community pharmacies should have a satisfactory analytical aspect, ensuring that pharmacist interventions resulting from the application of test results are of high-quality (Buss et al., 2019).

Providing high-quality community pharmacist-led services can be time consuming, requiring technical and operational strategies to release pharmacist time to perform clinical services, such as adoption of methods including triage and adequate staffing ratios. Due to time constraints in dealing with the various pharmacy services, priority may be given to persons with immediate medical needs, such as those presenting with symptoms (Amador-Fernandez et al, 2022; Stampfli et al, 2022). Adequate staffing ratios offsets the dispensing activities, assisting in successful implementation and maintenance of extended services (Mattingly & Mattingly, 2018; Marwitz et al, 2021; Lynch & O'Leary, 2023). In the present study, factors such as language barrier could have affected the time taken for participant encounters, as reflected in the mean and range of time reported in Chapter 3: Results, which could have been overestimated in some instances. Other studies have suggested the abovementioned solutions and other strategies, such as utilising non-verbal communication and written medication information, to promote quality of service provision (Mohammad et al, 2021; Sletvold & Nguyen, 2021; Filmer et al, 2023).

Familiarity with the SOPs and checklists through training may reduce the time taken. Promoting efficiency of workflow necessitates training of pharmacists and technicians to ensure possession of skills and confidence to undertake new pharmaceutical care roles, such as extended services, as well as incorporating digitalisation aspects (Alghamdi et al, 2023). Digitalisation applies to structures for exchanging patient-related information and acquiring process-related information needed in the context of personalised treatment (Brönneke & Debatin, 2022). The scheme for free chronic medicines from the government in Malta, the Pharmacy of Your Choice (POYC) scheme, launched an electronic medical record, 'CARE', which could be accessed by certain authorised healthcare personnel strictly for the provision of a medical service. The challenge in accessing patient health records and lack of documentation on consultations performed in the community pharmacy have been recognised as limiting factors for seamless care services (Costa et al, 2017; Eldooma et al, 2023).

A combination of skill mixes, together with maximisation of opportunities to access evidence-based information, facilitates competencies in performing traditional and extended services. Pharmacists have the responsibility to maintain access to appropriate evidence-based information such as essential medicines lists, reference books, journals, and standard treatment guidelines, leading to accurate and complete interventions and documentation (Hallit et al, 2019). As a result, precisely curated documentation is vital in improving clinical outcomes, facilitating care coordination, accelerating practice proficiencies, and tracking data over time (Almond & Mather, 2024).

Presence of an appropriate infrastructure in the community pharmacy setting would incur expenses on the part of pharmacy management, hence it is vital that these services are also revenue generating. Some studies suggest remuneration through insurance or government projects (El-Den et al, 2022; Abdul Aziz et al, 2023). In Malta, only patients under the POYC scheme have MUR services subsidised by the government. Fees for patient review services in community pharmacies, such as blood pressure measurement, are paid out-of-pocket by patients, while for the provision of advice and treatment services payment is for the cost of the medicines dispensed and not for the pharmacist-patient consultation. Maintaining long-term sustainability of extended services and ensuring that cost-effective services are provided to patients necessitates efforts in establishing policies that assure fair compensation for community pharmacists and at the same time, access to affordable medicines and medical devices for patients (Hussain & Babar, 2023). Remuneration of services alone is not considered a success factor and other factors such as professionalisation of the service and healthcare collaboration could help achieve faster, more efficient, and safer healthcare provision (Waltering et al, 2021).

Standards promote safe, reliable and high quality services offered by community pharmacists. Standards have a promising role in guiding institutions to adopt sustainable and ethical practices, seamlessly blending quality with conscience. Studies have put efforts into synthesising tools to evaluate the value of service quality through assessing health outcomes, patient perception, pharmacist technical skills and profitability (Mirzaei et al, 2019; Hindi et al, 2024). Standardisation of services improves quality of care and patient outcomes since it was found that globally accepted standardised, evidence-based procedures diminish sources of heterogeneity and reduce variations in clinical practice, decreasing errors and uncertainties

in clinical interactions and enhancing health experiences, especially in partnership with patients and other healthcare professionals (Martínez-Mardones et al, 2019; Carter et al, 2023; Nazaryan et al, 2024).

4.2 Extended community pharmacy services in a collaborative care context

The growing healthcare demand has become a long-term challenge due to an increase in the prevalence of non-communicable diseases and an ageing population with greater concomitant multimorbidity (Keebler et al, 2022). Due to effectively positioned community pharmacies, community pharmacists are often the initial contact in healthcare for many patients, advancing from traditional roles to an approach more focused on patients. During the Covid-19 pandemic, community pharmacies continued to open despite facing risks. Around the world, community pharmacies offer a wide variety of services, focusing on immunisation, triaging common minor ailments, health screening programs, smoking cessation and comprehensive medication management (Newman et al, 2019; Berenbrok et al, 2022; Kim et al, 2023).

Pharmacists are highly trained health care professionals, well versed with medical conditions and very knowledgeable on medicines (Knapp et al, 2019; Salom-Garrigues, 2024). The present study has led to pharmacist interventions relating to medication therapy management, POCT of essential parameters, patient education on medication adherence, lifestyle modification, self-monitoring of non-communicable chronic diseases, management and preventive measures for minor conditions, and personal hygiene in line with literature,

providing high-quality services to patients (Gordon et al, 2018; Cadogan & Hughes, 2020; Liu et al, 2021).

Facing the change in perception and advancement of community pharmacy practice, these additional extended services could put a strain on pharmacist workload, necessitating the establishment and support of a pharmacy team. The pharmacy team consists of pharmacists, pharmacy technicians and support staff assisting each other to sustain the community pharmacy practice (Hohmeier et al, 2019; Sparkmon et al, 2023). The role of the pharmacy team continues to evolve and expand and professional qualifications can cement the team's role in resolving healthcare needs, leading to patient acceptance of the advice and recommendations provided (te Paske et al, 2023).

Patient engagement in their healthcare is vital to advance quality improvement of extended services offered in community pharmacy. Evidence suggests that encouraging patients to participate in deciding and reshaping their care and treatment in ways that fit their needs and preferences ultimately results in improved health outcomes (Clavel et al, 2021). The willingness of patients to participate in the present study demonstrates confidence in the pharmacist, enabling an effective and useful pharmacist-patient relationship. A good pharmacist-patient relationship encourages patients to play an active role in their health and yields a significant impact on health information collection, adherence to the treatment process, and continuity of care, facilitating effectiveness and safety of therapy and patient satisfaction (Dainty & Kiran, 2020; Esmalipour et al, 2021). Factors such as communication and technical competences are identified as key components for building trust in pharmacist-patient relationships (Siddiqua et al, 2018). The participants in the present study confirmed

satisfaction and understanding when provided with advice on their condition and/or when recommended with non-prescription medications with advice on how to use them in accordance with the SOPs. Extended services ensure patient safety through appropriate use of non-prescription treatment and direct GP referrals (Amador-Fernandez, 2021).

Importance of GP referral was noted in the present study due to side-effects, drug interactions, abnormal urinalysis, elevated BP, and "red flag" symptoms, leading to a need for POM products or a change in the current treatment regimen. Reasons for referral encountered in the present study are consistent with reasons reported in other studies. Medication-related problems, abnormalities in health screening and signs and symptoms indicative of other conditions or infections confirm the necessity for GP referral (Swystun & Davey, 2019; Mantzourani et al, 2020; Schulz et al, 2020; Amador-Fernandez et al, 2021; Lias et al, 2021; Payton & Warren, 2024).

An issue which arose during the present study was when a participant could not accept and be fully satisfied with the intervention offered due to prescribing limitations for pharmacists. Pharmacist prescribing is reported in Canada, New Zealand, the United Kingdom (UK) and the USA, leading to efficient delivery of services and cost reduction. In Malta, this service is not yet implemented. A study by Attard-Pizzuto (2019) has shown an overall positive perception of pharmacists and the public with respect to antibiotic prescribing for minor ailments. Without pharmacist prescribing services, the pharmacist can only act as an intermediary between the GP and patient (Johnson et al, 2022). Studies have shown the importance of close communication and collaboration between community pharmacists and GPs and of having a clinic within proximity of the pharmacy (Zheng et al, 2020; Zammit, 2021). Studies by

Thurman et al (2020) and Oñatibia-Astibia et al (2022) have suggested that partnerships among healthcare professionals to help the community are necessary.

Better engagement with the pharmacy team, physicians and patients decreases the burden on the healthcare system. Collaboration strengthens interdisciplinary teamwork and supports the continuum of care. However, greater efforts should be made to improve a team-based approach practice, which may be accomplished by promoting awareness of the extended services provided by pharmacists and appreciating further the value of each member of the healthcare team to appropriately evaluate overall health outcomes (Bachynsky, 2019; Khayyat et al, 2021; Wei et al, 2022).

4.3 Emergence of extended community pharmacy services

Studies by Rose et al (2020) and Ababneh et al (2024) showed that standardised guidelines promote efficiency in performing extended services, while studies by Chimbuco et al (2022) and Alghamdi et al (2023) focused on infrastructure as a factor in offering extended services. Collaborative care was deemed to have a significant role in community pharmacy practice in various studies (Verma et al, 2019; Schulz et al, 2020; Alzahrani et al, 2023). Employment of elements such as standards, infrastructure and collaborative care in the present study have established the feasibility of offering extended services in community pharmacies. This research is in line with the FIP development goals for quality assurance, advancing integrated services, policy development and people-centred care.[8]

[8] International Pharmaceutical Federation (FIP). The FIP Development Goals [Internet]. The Hague: International Pharmaceutical Federation; 2020 [cited 2024 Jan 16]. Available from: https://www.fip.org/file/4793

A number of studies demonstrated that with the evolution of the roles and responsibilities of pharmacists, there was improvement in medication use, health outcomes were optimised and health care costs reduced. Employing pharmacist-led services and holistic interventions could lead to identification and prevention of undiagnosed and underlying complications, decreasing the demand on high-order healthcare practice such as general practice and emergency department visits, affecting health care utilisation in general (McKeirnan et al, 2018; Murphy et al, 2020; Nabhani-Gebara et al, 2020).

The expansion of community pharmacists' roles is being further explored, for example POC screening for Vitamin D in a community pharmacy setting (Busuttil et al, 2022). Pharmacist-led health risk screening through POCT services for blood glucose, lipid levels, atrial fibrillation and hypothyroidism are of interest and may impact health care. Screening for atrial fibrillation by community pharmacists for example potentially decreases the probability of stroke, morbidity, mortality, and health care costs (Alzubaidi et al, 2019; Amadi et al, 2020; Bleske et al, 2022; Al-Arkee et al, 2024). Thyroid dysfunction is relatively common, and to improve health outcomes, monitoring of thyroid stimulating hormone ensures the least effective dose of levothyroxine with minimum adverse drug effects (Fsadni & Caruana Galizia, 2016; Caruana et al, 2021). A study by Parakkal et al (2022) suggests that pharmacists can significantly mediate between patients and physicians to enhance use of test results to guide drug and dose adjustments.

Patients in the present study inquired if a service for administration of vaccines is available in the pharmacy. Vaccination services are being offered in community pharmacies in various countries following vaccination training programs (Lee et al,2020; Murray et al, 2021).

Utilization of community pharmacists as immunisers contributes to cost-effectiveness of vaccine uptake and enhances patient outcomes (Berce et al, 2020). During the present study, patient encounters included advice and recommendations on the use of inhalers and self-monitoring of blood pressure and blood glucose, thus, knowledge on how to use medical devices was deemed essential. Patient factors such as misuse, reuse of single-use devices, and disposal were identified to affect safety and effectiveness of medical devices (Ribo, 2020). Development of medical device use reviews could enhance the overall impact of medical devices on healthcare outcomes (Fathelrahman, 2021; Tettey et al, 2023).

An evolving innovative topic in healthcare is pharmacogenomics, which provides valuable patient pharmacokinetic and pharmacodynamic information for pharmacist assessment. Use of pharmacogenomics can reduce the likelihood of developing adverse drug reactions and increase the probability of selecting the appropriate drug or dose. Until 2022, pharmacogenomic testing services in community pharmacy have been implemented and evaluated in the USA, Canada and in the Netherlands (Hayashi et al, 2022; Rendell et al, 2022).

4.4 Strengths and Limitations

A strength of this study is the high level of patient engagement and trust, as evidenced by the pharmacist-patient discussions and interventions, crucial for successful service implementation. The use of validated SOPs and checklists facilitated consistent and high-quality service delivery.

With respect to limitations, a selected number of extended services were piloted by the researcher, in one community pharmacy, and in one locality, hence the study was not able to represent the different districts in Malta. This restricted input from other pharmacists with varying experience and from patients in different localities. Patient follow-up was not performed to assess the outcome of the interventions recommended, hindering evaluation of the effectiveness of the advice and recommendations provided to patients. Although the researcher encouraged patients to ask questions and to discuss treatment options until they were satisfied with the advice and recommendations, and the "Teach back" technique was employed by the researcher to confirm whether patients understood the points being explained to them, possible bias could be observed with regards to participant satisfaction and understanding since it was a face-to-face inquiry with the participant by the researcher. Another limitation was that the time taken for service provision could have been longer since the researcher did not speak Maltese, which at times required use of Google translate or assistance from Maltese pharmacy staff.

4.5 Recommendations for further studies

Further studies are recommended to implement and evaluate the extended services in other pharmacies in different regions of Malta, discovering new extended services to initiate and identifying pharmacist and patient concerns in implementing standardised extended services to suit the health care needs of a wider range of the population. Piloting of extended services such as blood glucose and lipid profile, which were not performed in the present study and are deemed relevant based on previous studies, is an area for future research. Cost-effectiveness analysis of the extended services will help to assess the financial impact of

pharmacist interventions. Testing the feasibility of providing follow-up services needs to be explored in succeeding studies to evaluate patient outcomes. In further research, participants could be asked to complete an anonymous satisfaction and understanding feedback form to decrease bias.

4.6 Conclusion

This research has contributed practical SOPs and checklists to be used during provision of extended community pharmacy services to ensure consistency, efficiency and high-quality person-centred practice. SOPs are to be regularly updated to reflect current evidence and practice. Availability of the necessary infrastructure in the community pharmacy setting and utilisation of the SOPs and checklists facilitated implementation of extended services. Ensuring a private consultation area, validated equipment, staff, up to date information resources, and accurate documentation are important for the provision of extended services. The research shows that implementation of extended community pharmacy services is feasible within a collaborative care context. Implementation of community pharmacy extended services led to pharmacist interventions which were accepted by patients. Patient participation in the study and acceptance of interventions demonstrates trust in pharmacists and agreement with extended services provided by community pharmacists. The study recognised the importance of standardisation in practice, appropriate infrastructure, and collaborative care in establishing the sustainability of extended community pharmacy services. However, challenges such as time management, language barriers, training, digitalisation and remuneration are to be considered in the development and implementation of further extended services in community pharmacy.

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Appendices

Appendix 1 Ethics Approval

L-Università ta' Malta

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18 August 2023

Ms Valerie Arianne Rivera
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Birkirkara
Malta

With reference to your application submitted to the Faculty Research Ethics Committee in connection with your research entitled:

Piloting Extended Community Pharmacy Services

The Faculty Research Ethics Committee is granting ethical approval for the above-mentioned application.

Professor Anthony Serracino Inglott
Chair
Faculty Research Ethics Committee

Appendix 2: SOPs

Standard Operating Procedure (SOP) Index		
SOP Number	**Classification**	**Title**
1	Medicine Use Review	Conducting MUR
2	Patient review	Blood Pressure measurement
3		Weight management
4		Urinalysis
5	Advice and treatment	Smoking cessation service
6		Eye conditions
7		Ear conditions
8		Sore throat
9		Skin conditions
10		Urinary Tract Infections
11		International travel health advice
12		Routine immunisation advice

SOP 1. Conducting a Medicine Use Review (MUR)

Process step	
1	Introduce yourself. Describe aim and procedure of the service. Ensure patient is willing to proceed and take patient to consultation room.
2	Prepare consent form. Acquire consent before starting the service.
3	Prepare the MUR form. Confirm identification of patient and retrieve MUR form from filing system for follow-up appointments.
Undertaking the consultation	
4	Document and discuss each medicine in turn, allowing patient to ask questions.
5	Document issues with access to medicine, any clinically significant side-effects and drug interactions and non-adherence identified or other drug-related problems (PCNE classification) Note: Refer to BNF, SmPC
6	Document conclusions and outcomes of the review after the treatment plan was reviewed. Document advice and recommendations in the "Pharmacist's note" section.
7	Provide the patient the outcomes of the review. Provide patient advice and recommendations and schedule follow-up.
8	If referral to physician is required, complete General Practitioner referral letter. Provide patient a copy and ask patient to give letter to GP.
9	Ensure that patient is satisfied and has understood advice and recommendations.
10	Complete pharmacist section, including pharmacist's name, registration number and signature. Complete pharmacy section using pharmacy stamp.
11	Attach consent form to MUR Form and store documents securely.
Referring patients	
Consider referral to other healthcare professionals those patients who:	
12	Require further support, advice, or treatment that pharmacist cannot provide.
13	Present with side-effects or warning signs and symptoms or require updating in therapy.
14	Present with abnormal test results suggesting a potentially serious underlying condition.
Important note: Patient's details and information contained in the MUR form are strictly confidential. Access to these documents must be restricted to authorised pharmacists only.	

References:
Pharmaceutical Services Negotiating Committee. New Medi Service [Internet]. England; 2021 [cited 2024 Jul 29]. Available from: https://cpe.org.uk/national-pharmacy-services/advanced-services/nms/
International Pharmaceutical Federation (FIP). Medication review and medicines use review: A toolkit for pharmacists [Internet]. The Hague: International Pharmaceutical Federation; 2022 [cited 2024 Jul 29]. Available from: https://www.fip.org/file5100

Medicine Use Review Form

Age:	Gender:	Allergies and Intolerances:
Medicines (POM, OTC, supplements, herbal and alternative products):		

Drug Name	Formulation	Dose Strength	Frequency	Issues identified

During the MUR, the abovementioned treatment plan as prescribed was reviewed

The following conclusions were drawn:	**Yes**	**No**
Participant understands his/her clinical condition		
Participant understands his/her treatment plan		
Participant understands the clinical targets of his/her treatment plan		
Participant is adhering to his/her treatment plan		
Participant complains of side effects.		
Participant is being monitored adequately by his/her family doctor or/and consultant		
Outcomes of review:	**Yes**	**No**
it is possible to conclude that participant/carer understands his/her condition, is adhering to his/her treatment plan and is not suffering from any side effects		
Referral to his/her treating family doctor or consultant for further evaluation is necessary.		

Pharmacist's note

Pharmacist name: _____ Pharmacist's signature: _____ Pharmacist PC reg. no.: _____ Date of report: _____	Pharmacy details: Pharmacy contact number:

References:
Cancellu O. Clinical Pharmacy Services in Primary Care [dissertation]. Msida (Malta): Department of Pharmacy, University of Malta; 2022.
Malta Chamber of Pharmacists. Pharmacist Led MUR Administration in The National POYC Service; 2023

General Practitioner Referral Letter

Dear Dr,

Please accept this referral for full assessment and investigation as a result of the following:

- Medicine Use Review
- Patient Review Services
- Advice and Treatment Services

performed today at this pharmacy.

Please do not hesitate to contact this pharmacy for further details.

Sincerely,

Age:	Gender:

Reason for referral:

Additional information notes:

Pharmacy details:

Pharmacy contact number:

Pharmacist name: _____

Pharmacist's signature: _____

Pharmacist PC reg. no.: _____

Date of report: _____

References:
Cancellu O. Clinical Pharmacy Services in Primary Care [dissertation]. Msida (Malta): Department of Pharmacy, University of Malta; 2022.

SOP 2. Blood Pressure (BP) measurement

Process step	
1	Introduce yourself. Describe aim and procedure of the service. Ensure patient is willing to proceed and take patient to consultation room.
2	Prepare consent form. Acquire consent before starting the service.
3	Prepare BP measurement result sheet.
4	Ensure that blood pressure device is clean and in calibrated condition.
Undertaking the consultation	
5	Ask patient to remove any bulky or tight-fitting clothing and relax for five minutes.
6	Ensure patient is seated comfortably with back supported, legs uncrossed, and upper arm bare. Avoid talking or moving whilst cuff inflates and deflates.
7	Ensure proper hand hygiene. Wash and dry own hands.
8	Place appropriate cuff around patient's arm about 2-3 cm above elbow. The medium cuff size is suitable for arm circumferences of 22-34cm, the large cuff for up to 42cm. Rest patient's arm on a table at heart level. **Note: Refer to physician patients with arm circumference outside this range and patients with arrhythmias.**
9	Start BP reading according to manufacturer's instructions. **Note: At first visit, measure BP in both arms. Use arm with higher value as a reference.**
10	Measure three BP measurements 1-2 minutes apart and calculate average of the two highest measurements taken from reference arm.
11	Document systolic BP, diastolic BP, heart rate and interpretation of results on sheet.

Interpreting results

Category	Systolic(mmHg)	Diastolic(mmHg)	Recommendations
Optimal	< 120	< 80	Monitor BP every 3-5 years.
Normal	120-129	80-84	
High normal	130-139	85-89	
Grade1 hypertension	140-159	90-99	Repeat BP at least annually. Consider Out-of-Office BP measurement. Refer to physician for ambulatory or home BP monitoring.
Grade2 hypertension	160-179	100-109	
Grade3 hypertension	> 180	> 110	

Source: European Society of Hypertension. 2023

12	Document current medication use, home blood pressure monitoring and advice and recommendations (refer to NICE guideline NG136) in the “Pharmacist’s note” section.
13	Provide patient the results. Provide patient the advice and recommendations and schedule follow-up.
14	If referral to physician is required, complete General Practitioner referral letter. Provide patient a copy and ask patient to give letter to GP.
15	Ensure that patient is satisfied and has understood advice and recommendations.
16	Complete pharmacist section, including pharmacist's name, registration number and signature. Complete pharmacy section using pharmacy stamp.
17	Attach consent form to Blood Pressure Measurement Form and store documents securely.

Important note: Patient's details and information contained in Blood Pressure Measurement form are strictly confidential. Access to these documents must be restricted to authorised pharmacists only.

References:
National Institute for Health and Care Excellence. Hypertension in adults: diagnosis andmanagement (NICE guideline NG136) [Internet]. London: NICE; 2019 [cited 2024 Jul 29]. Available from: https://www.nice.org.uk/guidance/ng136
Mancia G, Kreutz R, Brunström M, Burnier M, Grassi G, Andrzej Januszewicz, et al. 2023 ESH Guidelines for the management of arterial hypertension The Task Force for the management of arterial hypertension of the European Society of Hypertension Endorsed by the European Renal Association (ERA) and the International Society of Hypertension (ISH). Journal of Hypertension. 2023; Online ahead of print. doi: 10.1097/HJH.0000000000003480

Blood Pressure Measurement Result Sheet

Age:		Gender:			
Date	Time	Arm	Systolic	Diastolic	Heart Rate

Interpretation of results:

Pharmacist's note

Pharmacist name: _____ Pharmacist's signature: _____ Pharmacist PC reg. no.: _____ Date of report: _____	Pharmacy details: Pharmacy contact number:

References:
British Hypertension Society. Home Blood Pressure Diary [Internet]. Manchester; 2017 [cited 2024 Jul 29]. Available from: https://bihsoc.org/wp-content/uploads/2017/09/Home_blood_pressure_diary.pdf
Cancellu O. Clinical Pharmacy Services in Primary Care [dissertation]. Msida (Malta): Department of Pharmacy, University of Malta; 2022.

SOP 3. Weight management

Process step	
1	Introduce yourself. Describe aim and procedure of the service. Ensure patient is willing to proceed and take patient to consultation room.
2	Prepare consent form. Acquire consent before starting the service.
3	Prepare weight management result sheet.
4	Ensure that weighing scale is clean and in calibrated condition. Ensure tape measure is clean.
Undertaking the consultation	
5	Ask patient to empty pockets and remove bulky clothing and shoes.
6	Ensure patient is standing straight, looking straight ahead, and with feet joined together. Ask patient to relax and breathe normally.
7	Ensure proper hand hygiene. Wash and dry own hands.
8	Measure patient's weight in kilograms and height in metres and centimetres.
9	Measure patient's waist circumference in centimetres by placing a tape measure tightly around patient's body, halfway between rib cage and iliac crest (pelvis).
10	Calculate Body Mass Index (BMI) using the formula: $BMI = \frac{\text{Weight (kg)}}{\text{Height (m) x Height (m)}}$
11	Calculate waist-to-height ratio using the formula: $\text{Waist-to-height ratio} = \frac{\text{waist circumference (cm)}}{\text{height (cm)}}$
12	Document weight, height, waist circumference, BMI, waist-to-height ratio and interpretation of results on sheet.
Interpreting results	

Body Mass Index for adults using standard weight status categories					
BMI (kg/m2)	Underweight	Normal	Overweight	Obesity	Extreme Obesity
	< 18.5	18.5 – 24.9	25.0 – 29.9	30.0 – 39.9	≥ 40

Waist-to-height ratio for adults			
Waist-to-height ratio	No Health Risk	Increased Health Risk	Highest health risk
	0.4-0.49	0.5-0.59	>0.6

Source: National Institute for Health and Care Excellence 2022

13	Document current medication use and advice and recommendations (refer to NICE guidelines CG189) in the "Pharmacist's note" section.
14	Provide patient the results. Provide patient advice and recommendations and schedule follow-up.
15	If referral to a physician is required (BMI≥30 or Waist-to-height ratio≥0.5), complete General Practitioner referral letter. Provide patient a copy and ask patient to give letter to GP.
16	Ensure that patient is satisfied and has understood advice and recommendations.
17	Complete pharmacist section, including pharmacist's name, registration number and signature. Complete pharmacy section using pharmacy stamp.
18	Attach consent form to Weight Management form and store documents securely.

Important note: Patient's details and information contained in Weight Management form are strictly confidential. Access to these documents must be restricted to authorised pharmacists only.

References:
National Institute for Health and Care Excellence. Obesity: identification, assessment and management (Clinical guideline CG189 [Internet]. London: NICE; 2014 [cited 2024 Jul 29]. Available from: https://www.nice.org.uk/guidance/cg189
Mach F, Baigent C, Catapano AL, Koskinas KC, Casula M, Badimon L, et al. 2019 ESC/EAS Guidelines for the Management of dyslipidaemias: Lipid Modification to Reduce Cardiovascular Risk. European Heart Journal. 2019;41(1). doi:https://doi.org/10.1093/eurheartj/ehz455

Weight Management Result Sheet

Age:		Gender:	
Weight (kg)		Height (cm)	
Height (m)		Waist Circumference (cm)	
Body Mass Index:		Waist-to-height ratio:	

Interpretation of results:

Pharmacist's note

Pharmacist name: _____ Pharmacist's signature: _____ Pharmacist PC reg. no.: _____ Date of report: _____	Pharmacy details: Pharmacy contact number:

References:
Cancellu O. Clinical Pharmacy Services in Primary Care [dissertation]. Msida (Malta): Department of Pharmacy, University of Malta; 2022.

SOP 4. Urinalysis

Process step	
1	Introduce yourself. Describe aim and procedure of the service. Ensure patient is willing to proceed and take patient to consultation room.
2	Prepare consent form. Acquire consent before starting the service.
3	Prepare urinalysis result sheet.
4	Prepare test strips, paper towels, clock/timer and gloves. Check expiry date of test strips.
Undertaking the consultation	
5	Ensure proper hand hygiene. Wash and dry own hands and wear a new pair of gloves.
6	Ask the patient to take out their urine sample if they brought it or take a urine sample in a clean, sterile urine specimen container. Note: First morning urine is best but if not taken, hold urine for at least 30 minutes to allow adequate time in the bladder. Sample should be tested within 2-4 hours of collection.
7	Gently swirl the urine sample to mix it. Document colour, clarity and odour of the sample on sheet.
8	Take a test strip out of the test strip canister and close the canister immediately.
9	Dip the test strip into the urine sample for about 1 second ensuring that all test areas are moistened.
10	Withdraw the test strip from the sample, wipe the edge against the rim of the specimen container and touch the long edge followed by the back of the test strip on a paper towel for not longer than 1 second to remove excess urine.
11	Wait 1 minute (2 minutes for leukocyte test area) and compare the reaction colours of the test areas with the colours on the canister label to interpret results. Note: Colour changes appearing only along edges of the test area of which develop after more than 2 minutes do not have any diagnostic significance.
12	Document urine parameters on sheet. Document interpretation of results (refer to urinalysis guide on test strip container), then discard strip as clinical waste.
13	**Warnings:** Red or brown urine, presence of foreign objects, offensive odour, abnormal test results. Refer to physician in presence of at least one of the warnings.
14	Document current medication use, and advice and recommendations (WebMd: Women's Health Guide) in the "Pharmacist's note" section.
15	Provide patient the results. Provide patient advice and recommendations and schedule follow-up.
16	If referral to physician is required, complete General Practitioner referral letter. Provide patient a copy and ask patient to give letter to GP.
17	Ensure that patient is satisfied and has understood advice and recommendations.
18	Complete pharmacist section, including pharmacist's name, registration number and signature. Complete pharmacy section using pharmacy stamp.
19	Attach consent form to Urinalysis form and store documents securely.
Important note: Patient's details and information contained in Urinalysis form are strictly confidential. Access to these documents must be restricted to authorised pharmacists only.	

References:
Roche. Combur-Test® strip [Internet]. Switzerland [cited 2023 May 23] Available from: https://diagnostics.roche.com/global/en/products/instruments/combur-chemstrip-ins-656.html

Urinalysis Result Sheet

Age:		Gender:	
Colour:			
Clarity:			
Odour:			
pH	5 6 7 8 9	Ketones	NEG 1+ 2+ 3+
Leucocytes	NEG 1+ 2+ 3+	Urobilinogen	NORM 1+ 2+ 3+ 4+
Nitrites	NEG POS	Bilirubin	NEG 1+ 2+ 3+
Protein	NORM 1+ 2+ 3+	Erythrocytes	NEG 1+ 2+ 3+ 4+
Glucose	NORM 1+ 2+ 3+ 4+	Haemoglobin	1+ 2+ 3+ 4+
Interpretation of results:			
Pharmacist's note			

Pharmacist name: _____ Pharmacist's signature: _____ Pharmacist PC reg. no.: _____ Date of report: _____	Pharmacy details: Pharmacy contact number:

References:
References:
Roche. Combur-Test® strip [Internet]. Switzerland [cited 2023 May 23] Available from: https://diagnostics.roche.com/global/en/products/instruments/combur-chemstrip-ins-656.html

SOP 5. Smoking cessation service

Pharmacists must use their professional judgement to identify those who may benefit from the service and advise appropriate nicotine replacement therapy (NRT).

Process step	
1	Introduce yourself. Describe aim and procedure of the service. Ensure patient is willing to proceed and take patient to consultation room.
2	Prepare consent form. Acquire consent before starting the service.
3	Prepare SOAP form.
Undertaking the consultation	
4	Document medical and smoking history and smoking habits in the SOAP form. Document how many cigarettes are smoked per day and when first cigarette is smoked.
5	Provide patient recommendation of the best NRT product(s) based on smoking history and patient's preferences.
6	Document advice and recommendations (refer to NICE guideline NG209) in the SOAP form.
7	Provide patient explanation on how to use NRT product, including duration of treatment, side-effects and management of withdrawal symptoms.

NRT suggested guidance

Smoke after one hour of waking	Smoke fewer than 10 a day	15 mg patch or 2 mg gum
	Smoke 10 or more a day	25 mg patch with 2 mg gum
Smoke within one hour of waking	Smoke fewer than 10 a day	25 mg patch with 2 mg gum
	Smoke 10 or more a day	25 mg patch with 4 mg gum

NRT product available and recommended use. Always refer to product instructions.

Patches (25mg, 15mg, 10mg)	Apply ONE patch daily to clean, dry and hairless skin. Remove old patch overnight and apply new patch on alternating sites.
Gum (4mg, 2mg)	Recommend regular use. Chew gum, then rest inside of the mouth. Chew again when taste starts to fade.
Mouth spray (1mg/dose)	Recommend regular use when cravings occur. Spray one puff into mouth. Do not swallow for a few seconds after spraying.

Note: NRT is unsuitable for participants taking clozapine, warfarin, theophylline, aminophylline, lithium, insulin, olanzapine. Refer to GP if any of these are taken. Patches are not suitable during pregnancy.

8	Provide patient schedule follow-up in 1-2 weeks and inform patient about local support available (Quitline, Health Promotion and Disease Prevention Directorate). Note: When attempting to quit, behavioural therapy improves success rate.
9	If referral to physician is required, complete General Practitioner referral letter. Provide patient a copy and ask patient to give letter to GP.
10	Ensure that patient is satisfied and has understood advice and recommendations.
11	Complete pharmacist section, including pharmacist's name, registration number and signature. Complete pharmacy section using pharmacy stamp.
12	Attach SOAP form to consent form and store these documents securely.

Important note: Patient's details and information obtained are strictly confidential. Access to these documents must be restricted to authorised pharmacists only.

References:
National Institute for Health and Care Excellence. Tobacco: preventing uptake, promoting quitting and treating dependence (NICE guideline NG209) [Internet]. London: NICE; 2021 [cited 2024 Jul 29]. Available from: https://www.nice.org.uk/guidance/ng209

SOAP Form

Age:	Gender:
Subjective:	
Objective:	
Assessment:	
Plan:	

Pharmacist name: _____ Pharmacist's signature: _____ Pharmacist PC reg. no.: _____ Date of report: _____	Pharmacy details: Pharmacy contact number:

Reference:
Podder V, Lew V, Ghassemzadeh S. SOAP Notes [Internet]. StatPearls; 2022 [cited 2023 Jun 14]. Available from URL: https://pubmed.ncbi.nlm.nih.gov/29489268/

SOP 6. Eye conditions

Pharmacists should use clinical skills to distinguish acute self-limiting conditions from severe threatening diagnoses. Pharmacists must use professional judgement to decide whether referral to a clinician is required or treatment can be recommended.

Process step	
1	Introduce yourself. Describe aim and procedure of the service. Ensure patient is willing to proceed and take patient to consultation room.
2	Prepare consent form. Acquire consent before starting the service.
3	Prepare SOAP form. Prepare gloves.
Undertaking the consultation	
4	Document history of presenting complaint: symptoms, onset (sudden or gradual), course (how it has progressed), duration, severity, location (involving one or both eyes), and whether it was treated with any medication in the SOAP form.
5	Document presence of associated symptoms (ocular pain, headache, nausea, vomiting, decreased sight, double or blurred vision). Document contact lenses use, past similar problems, family and medical history.
6	Ensure proper hand hygiene. Wash and dry own hands and wear a new pair of gloves.
7	Document presence of redness, swelling, discharge, excessive watering, squinting, irregular pupils, haemorrhage, injury or foreign body with examination of both eyes.
8	**Warnings:** Photophobia, significant ocular pain, changes in visual acuity, suspected foreign objects, distorted pupil or iris, purulent discharges, fever. Refer to physician in presence of at least one of the warnings.
9	Document advice and recommendations in the SOAP form.
Advice and treatment	

Provide patient advice on the condition, management, treatment, preventative measures and hand- eye hygiene. Ask patient's preferences. If over-the-counter medicines are recommended, advice on correct use. Provide advice on what to do if symptoms do not improve and schedule follow-up.

Eye hygiene: Wash hands, bathe/clean eyelids with cotton wool or wipes dipped in sterile saline or boiled (cooled) water, and gently press onto eyelid for 2-3 minutes. Use cotton wool or cotton bud soaked in saline water to remove possible crusting. Avoid touching or scratching eyes, sharing towels, or wearing contact lenses for a week.

Treatment: Minor eye conditions often resolve in 5-7 days without treatment. The following are common over-the-counter products.

Dry eyes: artificial tears, liquid paraffin, sodium hyaluronate, hypromellose, perfluorohexyloctane, dextran/hypromellose

Red eyes: Hamamelis water/naphazoline

Allergic conjunctivitis: sodium cromoglicate 2%, azelastine

Minor infections: propamidine isethionate, bibrocathol

10	If referral to physician is required, complete General Practitioner referral letter. Provide patient a copy and ask patient to give letter to GP.
11	Ensure that patient is satisfied and has understood advice and recommendations.
12	Complete pharmacist section, including pharmacist's name, registration number and signature. Complete pharmacy section using pharmacy stamp.
13	Attach SOAP form to consent form and store these documents securely.

Important note: Patient's details and information obtained are strictly confidential. Access to these documents must be restricted to authorised pharmacists only.

References: Addison B, Brown A, Edwards R, Gray G. Minor illness or major disease. 6th ed. London:Pharmaceutical Press; 2016. P.166-176

Kennedy E, Honnet R, Woodley F. Common clinical conditions and minor ailments. Scotland: NHS; 2016. p.128-133

SOP 7. Ear conditions

Pharmacists should use clinical skills to distinguish acute self-limiting conditions from severe threatening diagnoses. Pharmacists must use professional judgement to decide whether referral to a clinician is required or treatment can be recommended.

Process step	
1	Introduce yourself. Describe aim and procedure of the service. Ensure patient is willing to proceed and take patient to consultation room.
2	Prepare consent form. Acquire consent before starting the service.
3	Prepare SOAP form. Prepare gloves.
Undertaking the consultation	
4	Document history of presenting complaint: symptoms, onset (sudden or gradual), course (how it has progressed), duration, severity, location (involving one or both ears), and whether it was treated with any medication in the SOAP form.
5	Document associated symptoms (pain, nasal congestion, headache, nausea, vomiting, dizziness, unilateral hearing loss, tinnitus, vertigo). Document allergies, past similar problems, family and medical history.
6	Ensure proper hand hygiene. Wash and dry own hands and wear a new pair of gloves.
7	Document presence of redness, swelling, discharge, excessive wax, haemorrhage, injury or foreign body with examination of outer auricular areas and ear canal.
8	**Warnings:** Significant ear pain, changes in hearing acuity, suspected foreign objects, periorbital cellulitis, fever, headaches, purulent discharges, vertigo. Refer to physician in presence of at least one of the warnings.
9	Document advice and recommendations in the SOAP form.
Advice and treatment	
Provide patient advice on the condition, management, treatment, preventative measures and ear hygiene. Ask patient's preferences. If over-the-counter medicines are recommended, advise on correct use. Provide advice on what to do if symptoms do not improve and schedule follow-up. Ear hygiene: Wash hands and use cotton wool or wipes dipped in sterile or saline water to remove excess wax. Avoid using cotton buds or leaving cotton buds in the ear. Treatment: Minor ear conditions and middle ear infections often resolve in 3-5 days without treatment. The following are common over-the-counter products. Wax softener: olive oil, almond oil, turpentine oil. Drying agent: lidocaine HCl in glycerol Analgesics: paracetamol, ibuprofen, codeine. Local analgesic: phenazone Decongestants: saline, xylometazoline, pseudoephedrine	
10	If referral to physician is required, complete General Practitioner referral letter. Provide patient a copy and ask patient to give letter to GP.
11	Ensure that patient is satisfied and has understood advice and recommendations.
12	Complete pharmacist section, including pharmacist's name, registration number and signature. Complete pharmacy section using pharmacy stamp.
13	Attach SOAP form to consent form and store these documents securely.
Important note: Patient's details and information obtained are strictly confidential. Access to these documents must be restricted to authorised pharmacists only.	

References: Addison B, Brown A, Edwards R, Gray G. Minor illness or major disease. 6th ed. London: Pharmaceutical Press; 2016. P.177-184
Kennedy E, Honnet R, Woodley F. Common clinical conditions and minor ailments. Scotland: NHS; 2016. p.134-136

SOP 8. Sore throat

Pharmacists should use clinical skills to distinguish acute self-limiting conditions from severe threatening diagnoses. Pharmacists must use professional judgement to decide whether referral to a clinician is required or treatment can be recommended.

Process step	
1	Introduce yourself. Describe aim and procedure of the service. Ensure patient is willing to proceed and take patient to consultation room.
2	Prepare consent form. Acquire consent before starting the service.
3	Prepare SOAP form. Prepare gloves.
Undertaking the consultation	
4	Document history of presenting complaint: symptoms, onset (sudden or gradual), course (how it has progressed), duration, severity, and whether it was treated with any medication in the SOAP form.
5	Document associated symptoms (fever, chills, headache, loss of appetite, swallowing and breathing difficulties). Investigate smoking status and alcohol intake, past similar problems, family and medical history.
6	Ensure proper hand hygiene. Wash and dry own hands and wear a new pair of gloves.
7	Document presence of swelling with examination of neck and face. Document presence of inflammation, redness, swelling, abscess, exudate, ulcers, injury or foreign body with examination of throat.
8	Warnings: high fever, unilateral swelling, difficulty breathing, dysphagia, drooling, recurrent sore throat, neck lumps, suspected foreign objects, purulent discharges. Refer to physician in presence of at least one of the warnings.
9	Document advice and recommendations in the SOAP form.

Advice and treatment

Provide patient advice on the condition, management, treatment, preventative measures and oral hygiene. Ask patient's preferences. If over-the-counter medicines are recommended, advise on correct use. Provide advice on what to do if symptoms do not improve and schedule follow-up.

Oral hygiene: regular teeth brushing and use of mouthwash.

Treatment: Sore throat often resolves in 5-7 days without treatment. The following are common over-the-counter products.

Analgesics: paracetamol, ibuprofen, paracetamol plus codeine.

Local anaesthetics: lidocaine 0.1% mouthwash, spray or lozenges.

Local antiseptics: hexylresorcinol, chlorhexidine, povidone iodine mouthwash

Anti-inflammatory: benzydamine 0.15% spray and mouthwash, flurbiprofen lozenge

Emollient: iceland moss extract lozenges, hedge mustard/marshmallow/dog rose/menthol lozenges, iceland moss extract/hedge mustard gel

Combination products: amylmetacresol/2,4-dichlorobenzyl alcohol lozenges, benzydamine hydrochloride/cetylpyridinium chloride lozenges, chlorhexidine/benzocaine/enoxolone lozenges, chlorhexidine/lidocaine lozenges and sprays, tyrothricin/chlorhexidine/lidocaine lozenges.

10	If referral to physician is required, complete General Practitioner referral letter. Provide patient a copy and ask patient to give the letter to their GP.
11	Ensure that patient is satisfied and has understood advice and recommendations.
12	Complete pharmacist section, including pharmacist's name, registration number and signature. Complete pharmacy section using pharmacy stamp.
13	Attach SOAP form to consent form and store these documents securely.

Important note: Patient's details and information obtained are strictly confidential. Access to these documents must be restricted to authorised pharmacists only.

References: Addison B, Brown A, Edwards R, Gray G. Minor illness or major disease. 6th ed. London:Pharmaceutical Press; 2016. P.185-190

Kennedy E, Honnet R, Woodley F. Common clinical conditions and minor ailments. Scotland: NHS; 2016. p.145-147

International Pharmaceutical Federation (FIP). Empowering self-care: A handbook for pharmacists [Internet]. The Hague: International Pharmaceutical Federation; 2022 [cited 2024 Jul 29]. Available from: https://www.fip.org/file/5111

SOP 9. Skin conditions

Pharmacists should use clinical skills to distinguish acute self-limiting conditions from severe threatening diagnoses. Pharmacists must use professional judgement to decide whether referral to a clinician is required or treatment can be recommended.

Process step

1	Introduce yourself. Describe aim and procedure of the service. Ensure patient is willing to proceed and take patient to consultation room.
2	Prepare consent form. Acquire consent before starting the service.
3	Prepare SOAP form. Prepare gloves.

Undertaking the consultation

4	Document history of presenting complaint: symptoms, onset (sudden or gradual), course (how it has progressed), duration, severity, and whether it was treated with any medication in the SOAP form. Document about change in diet or medications.
5	Document associated symptoms (widespread rash, painful rash, fever, blistering rash, red or purple spots, skin discoloration, intense pruritus, swelling). Document smoking status and alcohol intake, allergies, past similar problems, family and medical history.
6	Ensure proper hand hygiene. Wash and dry own hands and wear a new pair of gloves.
7	Document the presence of inflammation, redness, swelling, bleeding, infections, abscess, exudate, ulcers or injury with examination of affected skin.
8	**Warnings:** fever, cellulitis, angioedema, pustulent crusts, crusted yellow lesions, broken skin, breathing difficulties, suspected foreign objects. Refer to physician in presence of at least one of the warnings.
9	Document advice and recommendations in the SOAP form

Advice and treatment

Provide patient advice on conditions, management, treatment, preventative measures and skin hygiene. Ask patient's preferences. If over-the-counter medicines are recommended, advise on the correct use. Provide advice on what to do if symptoms do not improve and schedule follow-up.

Condition and appearance	Treatment	Advice
Contact dermatitis: Erythema, itchy, crusting, scaling, cracking, swelling of the skin.	Emollients: ointment or creams Mild steroids: hydrocortisone 1% (not on broken skin or face) Soothing creams: calamine	Remove irritants. Use mild soap. Avoid alcohol and fragrance products.
Urticaria: Erythema, itchy, superficial swelling (hives), small, raised blisters (weal). Insect bites and stings may cause it.	Emollients: ointment or creams Soothing creams: calamine, urea, Panthenol cream 5% Antihistamine: eg. cetirizine, loratadine	Avoid common allergens (animal fur, chemicals, food). Avoid aspirin and NSAIDs.
Eczema: Erythematous plaque, itchy, vesicular, oozing, scaly, dry, poorly demarcated and crumbly borders.	Emollients: ointment or creams Soothing creams: calamine, zinc oxide ointment Mild steroids: hydrocortisone 1% (not on broken skin or face)	Regular moisturiser. Use gloves when using irritants. Use mild soap. Avoid scratching, extremes temperatures, humidity, abrasive clothing fabrics.

Psoriasis: Scaly red patches covered with silver or white scales. Affect body and scalp. It can be itchy with cracks and blood.	Emollients: ointment for thick scales, lotion, solution or gel for the scalp or hair-bearing areas Anti-inflammatory: tar-based preparations Mild steroids: hydrocortisone 1% (not on broken skin or face)	Regular emollient use: lotion throughout the day, creams and ointments before sleeping. Use sun protection creams. Avoid scratching.
Wart: Hard raised papules with rough edges, look-like cauliflower. It grows outwards and may show black dots on the surface. ***Verruca:*** Plantar warts on soles of feet. It grows inwards. Black dots are visible under the skin.	Keratolytic agent: Salicylic acid or lactic acid preparation Freezing agent: Dimethyl ether and propane spray	Extremely contagious. Treatment is not necessary unless painful. It can be filed weekly to remove dead skin. Advice to reduce spreading.
Herpes simplex (cold sore): Tingling, itchy and numb sensation followed by eruption of small red fluid-filled vesicles on the lips, mouth and nose. The lesions may burst and crust over.	Soothing creams: vaseline, lip balm Antivirals: aciclovir 5% lip cream.	Self-limiting condition with recovery in 10-14 days. Highly infective. Avoid exposure to the sun. Advice to reduce spreading. Lip balm can be used to avoid skin cracks.
Athlete's foot (tinea pedis): Scaling, itchy, soggy skin between toes. The soles of the feet can appear dry and scaly.	Emollients: moisturising creams Antifungals: clotrimazole, ketoconazole, miconazole	Foot hygiene. Highly contagious. Avoid scratching. Continue for 7 days after the infection disappear.
Fungal nail infections: Discoloured, thickened, and raised nails. Affect toes and hand nails.	Antifungals: amorolfine 5% liquid., urea 40% ointment, propylene glycol/urea/glycerol/lactic acid, glycerol/nail care lipids/biotin, rye ferment filtrate/pentylene glycol, sodium benzoate/limonene acid/panthenol	Foot hygiene. Long treatment required.

10	If referral to physician is required, complete General Practitioner referral letter. Provide patient a copy and ask patient to give letter to GP.
11	Ensure that patient is satisfied and has understood advice and recommendations.
12	Complete pharmacist section, including pharmacist's name, registration number and signature. Complete pharmacy section using pharmacy stamp.
13	Attach SOAP form to consent form and store these documents securely.

Important note: Patient's details and information obtained are strictly confidential. Access to these documents must be restricted to authorised pharmacists only.

References: Addison B, Brown A, Edwards R, Gray G. Minor illness or major disease. 6th ed. London: Pharmaceutical Press; 2016. P214-239

Kennedy E, Honnet R, Woodley F. Common clinical conditions and minor ailments. Scotland: NHS; 2016. p.151-181

SOP 10. Urinary tract infections

Pharmacists should use clinical skills to distinguish acute self-limiting conditions from severe threatening diagnoses. Pharmacists must use professional judgement to decide whether referral to a clinician is required or treatment can be recommended.

Process step	
1	Introduce yourself. Describe aim and procedure of the service. Ensure patient is willing to proceed and take patient to consultation room.
2	Prepare consent form. Acquire consent before starting the service.
3	Prepare SOAP form.
Undertaking the consultation	
4	Document history of presenting complaint: symptoms, onset (sudden or gradual), course (how it has progressed), duration, severity, presence of blood, and whether it was treated with any medication in the SOAP form. Document about hydration state.
5	Document associated symptoms (fever, chills, nausea and vomiting, loss of appetite, lower back pain, infected discharge). Document smoking status and alcohol intake, past similar problems, family and medical history.
6	For urinalysis procedure, refer to SOP4: Urinalysis.
7	**Warnings:** high fever, back pain, red or brown urine, offensive odour, abnormal test results, difficulty breathing, foreign objects. Refer to physician in presence of at least one of the warnings.
8	Document advice and recommendations in the SOAP form
Advice and treatment	
Provide patient advice on the condition, management, treatment, preventative measures and intimate hygiene. Ask patient's preferences. If over-the-counter medicines are recommended, advise on the correct use. Provide advice on what to do if symptoms do not improve and schedule follow-up. Treatment: Uncomplicated cystitis resolves in 5-7 days without treatment. The following are common over-the-counter products. Alkalinising agents: potassium citrate. Antibacterial agents: cranberry products Analgesics: paracetamol, ibuprofen	
9	If referral to physician is required, complete General Practitioner referral letter. Provide patient a copy and ask patient to give letter to GP.
10	Ensure that patient is satisfied and has understood advice and recommendations.
11	Complete pharmacist section, including pharmacist's name, registration number and signature. Complete pharmacy section using pharmacy stamp.
12	Attach SOAP form to consent form and store these documents securely.
Important note: Patient's details and information obtained are strictly confidential. Access to these documents must be restricted to authorised pharmacists only.	

References: Addison B, Brown A, Edwards R, Gray G. Minor illness or major disease. 6th ed. London: Pharmaceutical Press; 2016. P.130-138
Kennedy E, Honnet R, Woodley F. Common clinical conditions and minor ailments. Scotland: NHS; 2016. p.110-114

SOP 11. International travel health advice

Regulation and requirements regarding immunisation for travel purposes change frequently. Pharmacists should consult the most updated guidelines as a reference.

Process step	
1	Introduce yourself. Describe aim and procedure of the service. Ensure patient is willing to proceed and take patient to consultation room.
2	Prepare consent form. Acquire consent before starting the service.
3	Prepare SOAP form.
Undertaking the consultation	
4	Document a complete medical history from patient, family history, allergies (eggs, gelatin, latex, antibiotics), previous history of anaphylaxis, and smoking status in the SOAP form.
5	Document a comprehensive travel itinerary, duration of stay, and activities planned during travel, to establish whether preventive vaccination or chemoprophylaxis is required.
6	Document vaccination history. If not available, ask direct questions to investigate patient's immunisation. Childhood immunisation should be up to date.
7	Document advice and recommendations in the SOAP form.
8	Provide patient advice regarding managing and monitoring pre-existing medical conditions (diabetes, respiratory or cardiovascular conditions). Advice to bring copy of medical certificate and prescriptions, including the generic names for medicines.
9	Provide patient advice on any vaccination requires a booster dose (e.g. tetanus). If any vaccination is required, refer patients to immunisation centre.

Advice

Ask patient's preferences. If over-the-counter medicines are recommended, advise on the correct use.

General advice: Choose food and drinks carefully, only drink sealed bottled water, avoid drinks with ice cubes, wash hands or use a hand sanitiser frequently.

Risk of DVT: Consider wearing compression stockings for long haul flights.

Insect bites prevention: Wear long-sleeved shirts and long pants, use high socks, sleep under a mosquito net, use insect repellents such as DEET (N,N-diethyl-meta-toluamide) in adults and children over five years old.

Sun exposure: Stay in the shade, wear a hat and sunglasses with UVA and UVB ray protection, cover as much skin as possible, drink plenty of water, use sun protection with a high protection factor, avoid prolonged sun exposure.

First aid: Plasters, bandages, cotton wool, disinfectants, antiseptic cream. Consider medicines such as analgesic, antiemetic, anti-diarrhoeal, decongestant, oral rehydrating sachets.

10	Ensure that patient is satisfied and has understood advice and recommendations.
11	Complete pharmacist section, including pharmacist's name, registration number and signature. Complete pharmacy section using pharmacy stamp.
12	Attach SOAP form to consent form and store these documents securely.

Important note: Patient's details and information obtained are strictly confidential. Access to these documents must be restricted to authorised pharmacists only.

Reference:
National Travel Health Network and Centre. Travel Health Pro [Internet]. England; 2022 [cited 2024 Jul 29]. Available from: https://travelhealthpro.org.uk/
European Centre for Disease Prevention and Control. European Vaccination Information Portal [Internet]. Sweden; 2023 [cited 2024 Jul 29]. Available from: https://vaccination-info.europa.eu/en

SOP 12. Routine immunisation advice

Pharmacists should promote routine and recommended immunisation through screening, counselling, and educating the public.

Process step

1	Introduce yourself. Describe aim and procedure of the service. Ensure patient is willing to proceed and take patient to consultation room.
2	Prepare consent form. Acquire consent before starting the service.
3	Prepare SOAP form.

Undertaking the consultation

4	Document a complete medical history from patient, family history, allergies (eggs, gelatin, latex, antibiotics), and previous history of anaphylaxis in the SOAP form.
5	Document vaccination history. If not available, ask direct questions to investigate patient's immunisation. Childhood immunisation should be up to date.
6	Document advice and recommendations in the SOAP form.
7	Provide patient the importance of respecting recommended intervals between doses of multi-dose antigens to provide optimal protection.
8	Provide patient advice on any vaccination requires a booster dose (e.g. tetanus). If any vaccination is required, refer patients to immunisation centre.

Advice

General advice for managing localised site reactions: Apply a cold compress to the injection site. Consider giving an analgesic (paracetamol) or antipruritic medication. High body temperatures can be controlled with paracetamol.
General advice about immunisation: Full coverage may take two weeks. Tetanus and diphtheria toxoids require booster doses. Difference between live, attenuated and inactivated vaccines. Serology testing for immunity may be necessary for unknown or uncertain vaccination status for antigens (e.g., measles, rubella, hepatitis A, and tetanus).

Individuals at increased risk	Vaccinations
Older people	COVID-19, Influenza, TDaP, Pneumococcal, Zoster
Pregnant women	COVID-19, Influenza, Hepatitis B, TDaP
Individuals with respiratory or cardiac disease, immunosuppressed	COVID-19, Influenza, Hepatitis A and B, MMR, Varicella, TDaP Meningococcal, Human papillomavirus, Pneumococcal, Zoster
Occupational risk, carers of other people	COVID-19, Influenza, Hepatitis B, MMR, Varicella, TDaP Meningococcal

9	Ensure that patient is satisfied and has understood advice and recommendations.
10	Complete pharmacist section, including pharmacist's name, registration number and signature. Complete pharmacy section using pharmacy stamp.
11	Attach SOAP form to consent form and store these documents securely.

Important note: Patient's details and information obtained are strictly confidential. Access to these documents must be restricted to authorised pharmacists only.

Reference:
World Health Organization. Vaccines and Immunization [Internet]. Denmark; 2021 [cited 2024 Jul 29]. Available from: https://www.who.int/europe/health-topics/vaccines-and-immunization#tab=tab_1
European Centre for Disease Prevention and Control. European Vaccination Information Portal [Internet]. Sweden; 2023 [cited 2024 Jul 29]. Available from: https://vaccination-info.europa.eu/en

Appendix 3: Pharmacist Checklists

Pharmacist checklist Index		
Checklist Number	**Classification**	**Title**
1	Medicine Use Review (MUR)	Conducting MUR
2	Patient review	Blood Pressure measurement
3		Weight management
4		Urinalysis
5	Advice and treatment	Smoking cessation service
6		Eye conditions
7		Ear conditions
8		Sore throat
9		Skin conditions
10		Urinary Tract Infections
11		International travel health advice
12		Routine immunisation advice

Checklist 1. Conducting a Medicine Use Review		Yes	No	N/A	Comments (if applicable)
1	**Before the consultation:**				
1.1	Self and service introduced				
1.2	Consent acquired using Consent Form				
1.3	Medicine Use Review form prepared				
2	**During the consultation:**				
2.1	Medicines used documented and discussed				
2.2	Access to medicine issues documented				
2.3	Clinically significant side effects documented				
2.4	Clinically significant drug interactions documented				
2.5	Non-adherence issues documented				
2.6	Other drug-related problems (PCNE classification) documented				
2.7	Conclusions and outcomes of review discussed and documented				
2.8	Advice and recommendations discussed and documented				
2.9	Follow-up scheduled				
3	**After the consultation:**				
3.1	General Practitioner referral letter provided				
3.2	Patient satisfied and has understood advice and recommendations				
3.3	Medicine Use Review Form completed				
3.4	Documents stored securely				

*N/A - Not Applicable

Checklist 2. Blood pressure measurement		Yes	No	N/A	Comments (if applicable)
1	**Before the consultation:**				
1.1	Self and service introduced				
1.2	Consent acquired using Consent Form				
1.3	Blood pressure measurement result sheet prepared				
1.4	Automated blood pressure device prepared				
1.5	Patient in appropriate condition				
2	**During the consultation:**				
2.1	Systolic blood pressure measured and documented				
2.2	Diastolic blood pressure measured and documented				
2.3	Heart rate measured and documented				
2.4	Results interpreted and documented				
2.5	Current medication use discussed and documented				
2.6	Home blood pressure monitoring discussed and documented				
2.7	Advice and recommendations discussed and documented				
2.8	Follow-up scheduled				
3	**After the consultation:**				
3.1	Results provided				
3.2	General Practitioner referral letter provided				
3.3	Patient satisfied and has understood advice and recommendations				
3.4	Blood pressure measurement result sheet completed				
3.5	Documents stored securely				

*N/A - Not Applicable

Checklist 3. Weight management		Yes	No	N/A	Comments (if applicable)
1	**Before the consultation:**				
1.1	Self and service introduced				
1.2	Consent acquired using Consent Form				
1.3	Weight management results sheet prepared				
1.4	Weighing scale prepared				
1.5	Tape Measure prepared				
1.6	Patient in appropriate condition				
2	**During the consultation:**				
2.1	Weight measured and documented				
2.2	Height measured and documented				
2.3	Waist circumference measured and documented				
2.4	BMI calculated and documented				
2.5	Waist-to-height ratio calculated and documented				
2.6	Results interpreted and documented				
2.7	Current medication use discussed and documented				
2.8	Advice and recommendations discussed and documented				
2.9	Follow-up scheduled				
3	**After the consultation:**				
3.1	Results provided				
3.2	General Practitioner referral letter provided				
3.3	Patient satisfied and has understood advice and recommendations				
3.4	Weight management results sheet completed				
3.5	Documents stored securely				

*N/A - Not Applicable

Checklist 4. Urinalysis		Yes	No	N/A	Comments (if applicable)
1	**Before the consultation:**				
1.1	Self and service introduced				
1.2	Consent acquired using Consent Form				
1.3	Urinalysis results sheet prepared				
1.4	Test strips prepared, Expiry checked				
1.5	Paper towels, clock/timer, gloves prepared				
2	**During the consultation:**				
2.1	Colour, clarity, odour assessed and documented				
2.2	Urine parameters assessed and documented				
2.3	Results interpreted and documented				
2.4	Current medication use discussed and documented				
2.5	Advice and recommendations discussed and documented				
2.6	Follow-up scheduled				
3	**After the consultation:**				
3.1	Results provided				
3.2	General Practitioner referral letter provided				
3.3	Patient satisfied and has understood advice and recommendations				
3.4	Urinalysis results sheet completed				
3.5	Documents stored securely				

*N/A - Not Applicable

Checklist 5. Smoking cessation service		Yes	No	N/A	Comments (if applicable)
1	**Before the consultation:**				
1.1	Self and service introduced				
1.2	Consent acquired using Consent Form				
1.3	SOAP form prepared				
2	**During the consultation:**				
2.1	Medical history assessed and documented				
2.2	Smoking history assessed and documented				
2.3	Smoking habits assessed and documented				
2.4	Advice and recommendations discussed and documented				
2.5	Recommendation of NRT provided				
2.6	Explanation on how to use NRT provided				
2.7	Follow-up scheduled				
2.8	Patient informed on local support available				
3	**After the consultation:**				
3.1	General Practitioner referral letter provided				
3.2	Patient satisfied and has understood advice and recommendations				
3.3	SOAP form completed				
3.4	Documents stored securely				

*N/A - Not Applicable

Checklist 6. Eye conditions		Yes	No	N/A	Comments (if applicable)
1	**Before the consultation:**				
1.1	Self and service introduced				
1.2	Consent acquired using Consent Form				
1.3	SOAP form prepared				
1.4	Gloves prepared				
2	**During the consultation:**				
2.1	History of presenting complaint assessed and documented				
2.2	Associated symptoms assessed and documented				
2.3	Contact lenses use assessed and documented				
2.4	Past similar problems assessed and documented				
2.5	Family history assessed and documented				
2.6	Medical history assessed and documented				
2.7	Presence of redness, swelling, discharge, excessive watering, squinting, irregular pupils, haemorrhage, injury or foreign body assessed and documented				
2.8	Advice and recommendations discussed and documented				
2.9	Advice on the condition, management, treatment, preventative measures and hand- eye hygiene provided				
2.10	Over-the counter medicines recommended, Advice on correct use provided				
2.11	Follow-up scheduled				
3	**After the consultation:**				
3.1	General Practitioner referral letter provided				
3.2	Patient satisfied and has understood advice and recommendations				
3.3	SOAP form completed				
3.4	Documents stored securely				

*N/A - Not Applicable

Checklist 7. Ear conditions		Yes	No	N/A	Comments (if applicable)
1	**Before the consultation:**				
1.1	Self and service introduced				
1.2	Consent acquired using Consent Form				
1.3	SOAP form prepared				
1.4	Gloves prepared				
2	**During the consultation:**				
2.1	History of presenting complaint assessed and documented				
2.2	Associated symptoms assessed and documented				
2.3	Allergies assessed and documented				
2.4	Past similar problems assessed and documented				
2.5	Family history assessed and documented				
2.6	Medical history assessed and documented				
2.7	Presence of redness, swelling, discharge, excessive wax, haemorrhage, injury or foreign body assessed and documented				
2.8	Advice and recommendations discussed and documented				
2.9	Advice on the condition, management, treatment, preventative measures and ear hygiene provided				
2.10	Over-the counter medicines recommended, Advice on correct use provided				
2.11	Follow-up scheduled				
3	**After the consultation:**				
3.1	General Practitioner referral letter provided				
3.2	Patient satisfied and has understood advice and recommendations				
3.3	SOAP form completed				
3.4	Documents stored securely				

*N/A - Not Applicable

Checklist 8. Sore Throat		Yes	No	N/A	Comments (if applicable)
1	**Before the consultation:**				
1.1	Self and service introduced				
1.2	Consent acquired using Consent Form				
1.3	SOAP form prepared				
1.4	Gloves prepared				
2	**During the consultation:**				
2.1	History of presenting complaint assessed and documented				
2.2	Associated symptoms assessed and documented				
2.3	Smoking status assessed and documented				
2.4	Alcohol intake assessed and documented				
2.5	Past similar problems assessed and documented				
2.6	Family history assessed and documented				
2.7	Medical history assessed and documented				
2.8	Presence of inflammation, redness, swelling, abscess, exudate, ulcers, injury or foreign body assessed and documented				
2.9	Advice and recommendations discussed and documented				
2.10	Advice on the condition, management, treatment, preventative measures and oral hygiene provided				
2.11	Over-the counter medicines recommended, Advice on correct use provided				
2.12	Follow-up scheduled				
3	**After the consultation:**				
3.1	General Practitioner referral letter provided				
3.2	Patient satisfied and has understood advice and recommendations				
3.3	SOAP form completed				
3.4	Documents stored securely				

*N/A - Not Applicable

Checklist 9. Skin Conditions		Yes	No	N/A	Comments (if applicable)
1	**Before the consultation:**				
1.1	Self and service introduced				
1.2	Consent acquired using Consent Form				
1.3	SOAP form prepared				
1.4	Gloves prepared				
2	**During the consultation:**				
2.1	History of presenting complaint assessed and documented				
2.2	Associated symptoms assessed and documented				
2.3	Smoking status assessed and documented				
2.4	Alcohol intake assessed and documented				
2.5	Allergies assessed and documented				
2.6	Past similar problems assessed and documented				
2.7	Family history assessed and documented				
2.8	Medical history assessed and documented				
2.9	Presence of inflammation, redness, swelling, bleeding, infections, abscess, exudate, ulcers or injury assessed and documented				
2.10	Advice and recommendations discussed and documented				
2.11	Advice on the condition, management, treatment, preventative measures and skin hygiene provided				
2.12	Over-the counter medicines recommended, Advice on correct use provided				
2.13	Follow-up scheduled				
3	**After the consultation:**				
3.1	General Practitioner referral letter provided				
3.2	Patient satisfied and has understood advice and recommendations				
3.3	SOAP form completed				
3.4	Documents stored securely				

*N/A - Not Applicable

Checklist 10. Urinary tract infections		Yes	No	N/A	Comments (if applicable)
1	**Before the consultation:**				
1.1	Self and service introduced				
1.2	Consent acquired using Consent Form				
1.3	SOAP form prepared				
2	**During the consultation:**				
2.1	History of presenting complaint assessed and documented				
2.2	Associated symptoms assessed and documented				
2.3	Smoking status assessed and documented				
2.4	Alcohol intake assessed and documented				
2.5	Past similar problems assessed and documented				
2.6	Family history assessed and documented				
2.7	Medical history assessed and documented				
2.8	Urinalysis performed				
2.9	Advice and recommendations discussed and documented				
2.10	Advice on the condition, management, treatment, preventative measures and intimate hygiene provided				
2.11	Over-the counter medicines recommended, Advice on correct use provided				
2.12	Follow-up scheduled				
3	**After the consultation:**				
3.1	General Practitioner referral letter provided				
3.2	Patient satisfied and has understood advice and recommendations				
3.3	SOAP form completed				
3.4	Documents stored securely				

*N/A - Not Applicable

Checklist 11. International travel health advice		Yes	No	N/A	Comments (if applicable)
1	**Before the consultation:**				
1.1	Self and service introduced				
1.2	Consent acquired using Consent Form				
1.3	SOAP form prepared				
2	**During the consultation:**				
2.1	Medical history assessed and documented				
2.2	Family history assessed and documented				
2.3	Allergies assessed and documented				
2.4	Previous history of anaphylaxis assessed and documented				
2.5	Smoking status assessed and documented				
2.6	Travel itinerary discussed and documented				
2.7	Vaccination history assessed and documented				
2.8	Advice and recommendations discussed and documented				
2.9	Advice regarding managing and monitoring pre-existing medical conditions provided				
2.10	Advice on vaccination requiring boost dose provided				
2.11	General advice provided				
2.12	Advice on risk of DVT provided				
2.13	Advice on Insect bites prevention provided				
2.14	Advice on sun exposure provided				
2.15	Advice on first aid provided				
3	**After the consultation:**				
3.1	Patient satisfied and has understood advice and recommendations				
3.2	SOAP form completed				
3.3	Documents stored securely				

*N/A - Not Applicable

Checklist 12. Routine immunisation advice		Yes	No	N/A	Comments (if applicable)
1	**Before the consultation:**				
1.1	Self and service introduced				
1.2	Consent acquired using Consent Form				
1.3	SOAP form prepared				
2	**During the consultation:**				
2.1	Medical history assessed and documented				
2.2	Family history assessed and documented				
2.3	Allergies assessed and documented				
2.4	Vaccination history assessed and documented				
2.5	Advice and recommendations discussed and documented				
2.6	Importance of respecting recommended intervals provided				
2.7	Advice on vaccination requiring boost dose provided				
2.8	General advice for managing localised site reactions provided				
2.9	General advise about immunisation provided				
2.10	Individuals at increased risk advised				
3	**After the consultation:**				
3.1	Patient satisfied and has understood advice and recommendations				
3.2	SOAP form completed				
3.3	Documents stored securely				

*N/A - Not Applicable

Appendix 4: Dissemination of findings

Abstract accepted for poster presentation at the European Society of Clinical Pharmacy (ESCP) Symposium in Krakow, Poland, October 2024

Clinical pharmacy practice and services in any healthcare setting (including development, evaluation, implementation)

ESCP24SY-1034

PILOTING EXTENDED SERVICES IN COMMUNITY PHARMACY PRACTICE

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Background: A framework consisting of standard operating procedures (SOPs) for the provision of extended services, including medicine use review, patient review and advice and treatment services, in community pharmacy practice in Malta was proposed.[1] This study addresses piloting of these extended services.

Aim: To assess the feasibility of implementing standardised extended community pharmacy services.

Method: The study was conducted in a community pharmacy selected by convenience sampling. Twelve extended services to be piloted were identified according to infrastructure for service implementation present in the pharmacy. A pharmacist checklist corresponding to the SOP was compiled for each service and reviewed for face and content validity by 4 community pharmacists and 3 general practitioners (GP). Feasibility testing was conducted over 300 hours, targeting at least 10 participants for each service by purposive sampling. Time and outcomes of service implementation were assessed.

Results: The infrastructure present comprised a private consultation area, one pharmacy support staff, medical devices/consumables, and documentation forms. The checklists were rated highly (>4 out of 5) by the validation panel. Eighty-eight participants were recruited; number of participants (n) and time (mean M, range R, in minutes) for services piloted were: Medicine use review (n=10, M=14, R=7-24), patient review (n=22, M=21, R=14-28), including blood pressure (BP) measurement, weight management, and urinalysis, and advice/treatment services (n=56, M=17, R=11-26), including eye, ear, skin conditions, sore throat, urinary tract infections, smoking cessation, routine immunisation, and international travel health. Non-pharmacological advice was provided to all participants, 44 were referred to GP and non- prescription pharmacotherapy was dispensed in 42 participants. Examples of reasons for referral were side-effects, drug interactions, abnormal urinalysis, elevated BP, and *red flag* symptoms.

Conclusion: Availability of the necessary infrastructure and utilisation of practical SOPs and checklists support the feasibility and successful implementation of extended community pharmacy services within a collaborative care context. Implementation of extended services led to pharmacist interventions which were accepted by patients. Study limitations include conducting the study in only one community pharmacy and patient follow-up to assess the outcome of interventions was not undertaken.

References/Acknowledgments: Cancellu O, Wirth F, Azzopardi L. Development and validation of a framework to standardise clinical pharmacy services in primary care. J Am Coll Clin Pharm. 2022;5(12):1341–2. doi: 10.1002/jac5.1732

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