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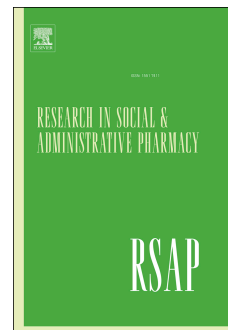
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A REVIEW OF INTERNATIONAL PHARMACY-BASED MINOR AILMENT SERVICES AND PROPOSED SERVICE DESIGN MODEL

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Abstract

Background: The need to consider sustainable healthcare solutions is essential. An innovative strategy used to promote minor ailment care is the utilisation of community pharmacists to deliver minor ailment services (MASs). Promoting higher levels of self-care can potentially reduce the strain on existing resources.

Aim: To explore the features of international MASs, including their similarities and differences, and consider the essential elements to design a MAS model.

Methods: A grey literature search strategy was completed in June 2017 to comply with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses standard. This included (1) Google/Yahoo! search engines, (2) targeted websites, and (3) contact with commissioning organisations. Executive summaries, table of contents and title pages of documents were reviewed. Key characteristics of MASs were extracted and a MAS model was developed.

Results: A total of 147 publications were included in the review. Key service elements identified included eligibility, accessibility, staff involvement, reimbursement systems. Several factors need to be considered when designing a MAS model; including contextualisation of MAS to the market. Stakeholder engagement, service planning, governance, implementation and review have emerged as key aspects involved with a design model.

Conclusion: MASs differ in their structural parameters. Consideration of these parameters is necessary when devising MAS aims and assessing outcomes to promote sustainability and success of the service.

Classification and keywords

Keywords

Minor ailments, Minor ailments services, Minor conditions, Self-care, Community pharmacy, Community pharmacy services

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Introduction

Self-care is a key facet of primary health care¹ and a key public health resource² pervading all types of public health and medical care.³ The World Health Organisation (WHO) defines self-care as “the ability of individuals, families and communities to promote health, prevent disease, maintain health and to cope with illness and disability with or without the support of a health-care provider”.¹ The emphasis on self-care has been accentuated by the WHO and international government policies.²⁻⁹ It is well recognised that self-care delivers resource optimisation, limits health expenditures, increases patient satisfaction, improves healthcare and disease outcomes, and improves quality of life.¹⁰⁻¹⁴ It empowers an individual to take accountability for their conditions to achieve health care solutions, which is facilitated by increased access to medicines, remedies and information.¹⁵ Self-care is often the preferred treatment option to manage minor ailments.¹³ Minor ailment treatment and self-medication with over-the-counter (OTC) products are considered ‘the traditional heartland of self-care’.¹⁶ Furthermore, self-care is considered to be of increasing importance in the management of certain minor ailments¹⁷ and plays a crucial role to deliver resource optimisation, limit health expenditure, empower individuals, increase patient satisfaction and improve healthcare.^{10, 13, 14}

Community pharmacists play a key role in promoting self-care,^{13, 18, 19} and are ideally placed to promote consumer self-care and self-medication.²⁰ They are trusted, accessible health care professionals that already deliver sustainable healthcare solutions.²¹⁻²³ An innovative strategy used to promote access to minor ailment care is the utilisation of community pharmacy and pharmacists to deliver minor ailment services (MASs) in collaboration with patients. The emergence of MASs are incorporated into government policy to increase the accessibility to primary health care, reduce the demand for minor ailment care at accident & emergency (A&E) and general practitioner (GP) services, improve resource allocation, and promote a better quality of patient care.²⁴ The increased utilisation of community pharmacy-based minor ailment care is driven by many factors: including the rising pressures on A&E²⁵⁻²⁹ and GP services^{4, 30, 31}; high volumes of A&E and GP presentations and extended waiting times to access appropriate medical care. This influences individual’s access to timely care. The need to consider cost effective, sustainable healthcare solutions is multifaceted; driven by ageing populations, a mounting burden of chronic disease and continuing economic pressure on health care systems.³²⁻³⁶

MASs exist nationally in Scotland,³⁷ Northern Ireland,³⁸ parts of Wales,³⁹ parts of England,⁴⁰ and parts of Canada.⁴¹ They are on, or attempted to be included in the policy agenda in a number of other countries and regions, including Australia,^{21, 42} New Zealand^{43, 44} and Ontario (Canada).⁴⁵ These programs allow pharmacists to provide essential primary care services in a structured manner; offering advice, treatment and/or referral if necessary^{14, 23, 46, 47} and allow greater access to health services, greater workforce utilisation, with increased emphasis on self-care.^{5, 48, 49}

A systematic review published in 2013 suggests that MASs are associated with positive patient outcomes and economic benefits.⁵⁰ GP re-consultation rates following MAS consultation vary from 2.4-23.4%, and high levels of symptom resolution are reported following initial MAS consultation, 68-94%.⁵⁰ MASs reduce GP’s minor ailment workload by 1.4-56.6%,⁵⁰ produce positive health

outcomes⁵⁰⁻⁵² and are associated with positive stakeholder views.^{24, 50, 52-54} In the UK, pharmacy-based care of minor ailments was more cost-effective than other higher cost settings,^{55, 56} highest in A&E £147.09 compared with £82.34 and £29.30 in GP and pharmacy-based settings, respectively.⁵⁵ Similarly, Rafferty *et. al* presented similar findings regarding the cost-effectiveness of pharmacy-based minor ailment care in Saskatchewan, Canada. Community pharmacy offered the most cost-effective treatment site of \$18 CAD, whereas the cost of a GP exploratory appointment and A&E visits were estimated at \$66.40 CAD and \$138 CAD.⁵⁷

International MASs are characterised by different structural features and service delivery, and operationally vary from an organisational and management perspective. However, all schemes appear to be based on similar principles and standards. At present, no MAS model exists to aid the design of the service, despite the clear benefits to effective MAS implementation in community pharmacy. A MAS model presents a structured framework to guide the organisation and development of a MAS for service providers to deliver high levels of service delivery, integration and support into the primary care arena.

Study Objective

The objective of this systematic review was to identify the elements and features associated with pharmacy-based MASs in order to facilitate the design and implementation of a standardised MAS model.

Methods

A literature search was conducted in June 2017 according to the grey literature searching strategies outlined by Godin *et al*⁵⁸ to comply with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) standard. For the purposes of this review, the use of grey literature was necessary, as it contains relevant policy and research data, such as standards and guidelines from official, authoritative sources not normally published in the scientific literature. This provided the most accurate, detailed and recent information pertaining to current MAS structural elements. It offered specific process and planning information that was unavailable in scientific, peer-reviewed research materials. Published research material offered little information regarding the research aims, as they were evaluation documents, as opposed to service standards and guidelines.

English literature associated with the service elements and implementation of community pharmacy-based MASs were included. No publication date filters were used. English language records including the protocols and standards for implementation of community pharmacy based MAS published by a government organisation, professional body or commissioning organisation were included in their most current, updated form. Records removed based on the exclusion criteria included those that were (1) not published in English language, (2) not published by a commissioning/professional organisation, (3) draft/ out dated documents, (4) not inclusive of a community pharmacy based MAS, or (5) not inclusive of MAS implementation standards.

Information sources and search strategy

The term “minor ailment service”(MAS) is recognised across UK-based literature as a structured community pharmacy-based service to assess, treat and manage minor ailments. However, the term “minor ailments assessment” and/or “minor ailments prescribing” is used in Canada to characterise

community pharmacist's assessment and prescribing for minor ailment conditions. For the purpose of this review, the term MAS is used interchangeably for all regions and countries.

The search strategy was developed to include three components: (1) Google and Yahoo! search engines, (2) targeted websites, and (3) contact with commissioning bodies and professional organisations to identify the countries/regions that operated pharmacy-based MASs and the relevant details.

The first search strategy involved the application of 14 unique queries to Google and Yahoo! Search Engines listed in Table 1. Twenty results were selected for the initial five queries; however, no relevant data was located in the latter ten records. Consequently, ten results were selected for each search category. The first ten results of each search's hits were reviewed by the title and accompanying text. Ten results for each search category were selected. Websites were bookmarked using a bookmark manager. For each search strategy utilised, the search terms and the number of results obtained were recorded and duplicate records were removed.

Table 1: Search strategies used for literature retrieval

The second search strategy involved a review of websites of professional groups and commissioning organisations with the search terms of "minor ailments scheme" OR "minor ailments assessment". These search terms were selected as they yielded similar results to all other combinations (including "minor illness service," "minor ailment prescribing service" etc.). Google and Yahoo! search engines were used to identify organisations of relevance to MASs and the relevant subject area. A list of the groups and organisations searched is documented in Appendix 1. The first ten results of each search's hits were reviewed for relevant titles and information using the URL and the additional text below the title. The date and website's URL was recorded. Each of the ten resulting websites were 'hand-searched' for the relevant documents until the relevant information was found.

The third search strategy was only used if none or minimal data were obtained from the previous two search strategies. Sixty-six individuals associated with commissioning bodies/professional organisations were contacted by email to obtain the relevant documents and obtain the necessary data. The introductory email introduced the research team, the scope of the research undertaken, and the potential information/documents requested and/or a request to forward the email to a colleague who would be more suitable to offer assistance.

Eligibility assessment and data selection

The literature selection process was undertaken and discussed between two authors, (KW and MA). To determine potentially relevant records, a screening of records retrieved from the search was performed. This process was over-inclusive. The title and source organisation or group of records were gathered and duplicate documents were excluded. The executive summaries, table of contents, and title pages of documents were reviewed to identify their relevance to research aims. The full-text documents of all items were obtained and reviewed. Documents that were considered irrelevant were excluded according to the exclusion criteria. All documents that remained after full text screening were included.

Data collection process and synthesis of results

A pre-designed spreadsheet was produced to assist in data collection and management. Data collected included: the year of service commencement, service commissioner, eligible patient groups, location of service delivery, patient outcomes, healthcare professional collaboration, patient cost, number of minor ailments treated, number of drug formulary items, pharmacy reimbursement, pharmacy/staff accreditation, patient follow up and quality control.

Results

The search strategies generated 719 relevant items for screening (see Figure 1). Five hundred and fifty-one records were excluded according to the exclusion criteria.

Figure 1: Study flow diagram

From these 147 records, twelve were from Canadian professional organisations, eight were from Scottish professional organisations, four were from Welsh organisations, and three were from Northern Irish organisations. The remaining 120 records were from English pharmacy organisations and Clinical Commissioning Groups (CCGs).

Analysis of service specifications

Service description

A total of 94 MASs were identified internationally across 103 regions, areas or countries in UK (Scotland, Northern Ireland, England, Wales) and Canada as of the 1st June 2017. These services varied in their structural design. A single national MAS was identified in Scotland (n=1) and Northern Ireland (n=1).

In England, Wales and Canada, MASs were operated locally/regionally. In Wales, a MAS operated in two health board areas (with the intention to roll out nationally). In England, 83 MASs operate across 92 regions (three commissioning bodies offer the same service over multiple areas). Of these English MASs, 26/83 (31%) MASs were commissioned by 11 Area Teams (ATs) and 57/83 MASs (68%) were commissioned by 64 Clinical Commissioning Groups (CCGs). ATs were responsible for healthcare commissioning and service delivery in the regional areas whereas CCGs were responsible for commissioning the majority of hospital and community National Health Services (NHS) services in the local area that they were accountable for.

In Canada, 8/13 (61%) of provinces operated MASs commissioned by their respective provincial pharmacy organisations. MASs ranged in complexity and the main characteristics of the service specifications are summarised in Appendix 2.

MAS characteristics

Patient groups

MASs were structured to meet the needs of several different patient groups. UK based MASs (n= 83) were available to individuals who were exempt from prescription charges. In England, 33/73 (45%) of MASs were offered exclusively to individuals exempt from prescription charges. Some MAS

services were available to those that do pay prescription charges, 48/73 (65%). Several UK based MASs had additional criteria to access MASs, including local GP registration or age restrictions, etc.

Canadian MASs (n=3) were available to all individuals who were residents of the provincial area. (No information regarding the remaining Canadian MASs was located). The MAS offered in Saskatchewan (Canada) differed slightly to other Canadian services, as the service was only available to patients that had the capacity to “self diagnose” their minor ailment. Thus, for individuals in Saskatchewan to access the local MAS they needed to clearly communicate the ailment that they were suffering from, instead of just seeking assessment or diagnosis of their minor ailment condition from the consulting community pharmacist. If a pharmacist could not confirm or agree with a patient’s self- diagnosis, the patient needed to be referred to their GPs.

Accessibility

The access to English, Scottish, and Northern Irish MASs was through a variety of pathways, including self-referral or GP Practice staff referral. To access 12/65 (18%) English MASs, MAS users needed either formal documentation or referrals from either a GP or GP Practice staff. This could be in the form of an access card, referral letter or “MAS passport”. In contrast, 53/65 (82%) English MAS were accessible without such referral or documentation. No information could be obtained about access methods to the Welsh or Canadian MAS.

Service specifications

All UK-based MASs required service providers to:

- offer the patient advice, or
- offer advice and a medicinal product from a specific, defined formulary accompanied by advice on its use, or
- offer advice plus a referral to a more appropriate health care provider.

English (n=83), Northern Irish (n=1) and Welsh (n=1) MASs did not require pharmacists or pharmacy staff to follow up the patient’s following initial consultation. In Scotland (n=1), patient follow up was at the discretion of the pharmacist.

All Canadian MASs (n=5) offered a similar service specification to UK based MASs’ to offer advice, and/or medicinal product and/or referral. Medicinal products included over the counter (OTC) and prescription products (if deemed necessary), and pharmacists were permitted to initiate these prescriptions. According to the MAS guidelines for which detailed service specifications were available (3/8), in New Brunswick and Nova Scotia, this prescription could be presented at any community pharmacy in the province. Patients were at the liberty to obtain the prescribed medication at any community pharmacy of their choice. All Canadian MASs (n=5) stipulated the requirement for patients to be followed up after their initial pharmacist assessment and consultation. No information regarding the remaining Canadian MASs was located.

Patient cost

All UK-based MASs required service providers to deliver MAS at no cost to individuals who were exempt from prescription charges. (Prescription charges were abolished in Scotland, Northern Ireland and Wales.)

English MASs 33/73 (45%) that were available to individuals that were not exempt from prescription charges (i.e. individuals who had to purchase prescriptions) required a patient to pay the prescription levy or purchase the OTC products (whichever is cheaper). No information was obtained regarding the patient cost to access MASs in Canada. This was determined by the cost of the item they required for minor ailment treatment.

Staff involved in MAS provision

English MASs were delivered by either pharmacists or trained pharmacy staff members. A total of 37/72 (51%) of English MASs were operated exclusively by pharmacists and 35/72 (49%) of MASs were operated by pharmacists and/or pharmacy staff members. The Scottish, Northern Irish, and Welsh MASs were operated exclusively by pharmacists. All Canadian MASs (n=8) were operated exclusively by pharmacists.

Privacy requirements

A significant proportion of MASs required MAS consultations to be delivered in a private, confidential setting. All English (n=83), Northern Irish, Welsh and Canadian MASs (n=2) required consultations to be conducted in a private, confidential manner. The guidelines did not cover issues regarding the privacy of NHS Scotland MAS consultations.

Minor ailments treated

The variety of minor ailments treated by English based MAS varied from one to 47 minor ailments (n=73). The Scottish, Welsh and Northern Irish service specification treated 25, 10 and 28 minor ailments respectively. The complexity of conditions varied across MASs. The most common indications across UK based MAS included vaginal thrush (52/70), hay fever (49/70) and, sore throat (48/70).

A total of 13/73 (18%) of English MASs were associated with Patient Group Directions (PGDs) allowing pharmacists to treat presenting minor ailments with more complex products including antibiotics. A PGD is a locally enhanced NHS service where the pharmacy can supply or administer prescription-only medicines (POMs) under a PGD to patient groups.

The variety of minor ailments treated by Canadian-based MAS varied from 12-34 minor ailments (n=6). Vaginal thrush, allergic rhinitis, haemorrhoids and canker sores were treated in 6/6 Canadian MASs.

Formulary

Minor ailment conditions can be treated with the use of OTC or prescription medicines if considered appropriate and necessary. Each Scottish NHS Board region has developed a local MAS formulary in conjunction with local stakeholders. Pharmacists can supply all Pharmacy (P) & General Sale List (GSL) medicines that are not blacklisted, dressings and appliances from Part 2 of the Drug Tariff and selected items from Part 3 of the Drug Tariff. Certain POMs can be supplied if underpinned by a PGD. POMs available under Scottish PGDs include Chloramphenicol 0.5% eye drops and Fluconazole 150mg capsules.

In Northern Ireland and Wales, a uniform formulary exists with P and GSL items, consisting of 31 and 60 items, respectively. In England, each CCG has developed their own local formulary in conjunction with local stakeholders consisting of P, GSL and POMs. The number of medicinal products supplied by the different CCGs varies from one to 97 items. Medicines available under English PGDs include the influenza vaccine and oral antivirals. Trimethoprim 200mg tablets was available in 12/13 (92%) MASs offering PGDs, whereas chloramphenicol 0.5% eye drops and fusidic acid 2% cream were available in 8/13 (61%) and 6/13 (46%) MASs offering PGDs.

Similarly, a wide variety of medicinal items were supplied by Canadian MASs. The range of medicinal products supplied varied from 52- 84 items (n=2). The Saskatchewan formulary consisted of a range of Schedule I items (prescription drugs appropriate for pharmacists to prescribe under specific circumstances).

Additional pharmacist training requirements

Many MASs required pharmacists or appropriately trained staff members to complete additional training or competency assessments. In England, 33/69 (48%) of service commissioners required pharmacists or appropriate trained staff members to complete additional training. The training and pharmacist accreditation methods varied to include attendance at organised training events, completion of accredited minor ailments training material and relevant continuing professional development education. However, 36/69 (52%) of service commissioners did not require pharmacists to complete any additional training requirements. Moreover, 3/69 (4%) of service commissioners required pharmacists or appropriately trained staff members to complete additional training for the supply of POMs, but did not require pharmacists or appropriately trained staff members to offer P or GSL Items.

Similarly, pharmacists needed to complete mandatory training to offer the MAS in Scotland, whereas there were no compulsory training requirements for pharmacists to complete in Wales or Northern Ireland.

However, 4/5 (80%) of Canadian MAS provincial commissioning organisations required pharmacists to complete additional training (No information regarding the remaining Canadian MAS was located). Most provinces offered online training courses.

Remuneration schedules

The level of pharmacy reimbursement differed across programs. All UK-based MAS commissioners offered MAS contractors varied forms of reimbursement, whereas Saskatchewan and Alberta (Canada) were the only Canadian governments to offer reimbursement to pharmacists (of \$18 CAD/prescription and \$25 CAD/assessment, respectively). No information regarding the remaining Canadian MASs was located.

In England, 60/64 (94%) of service commissioners remunerated MAS service providers with a fee using a common payment model that involved setting a consultation fee and payment for drug costs including taxes. This consultation fee varied from £2.00- £10.00. In addition, 4/64 (<1%) of service commissioners offered a single fixed consultation fee only and 7/64 (11%) of service commissioners offered additional fees or payments for administrative/additional costs or retainer fees. The capitation model, which sets a rate on a per-patient scale, was less commonly used in England by 2/64 (3%) of service commissioners. This capitation model was used by commissioning bodies in Scotland, Wales and Northern Ireland.

A table summarising the key elements and characteristics of MASs can be found in Appendix 2.

Proposed service design model

The increasing uptake of international MASs is encouraging as it reduces the burden of care at other primary care sites, and demonstrates patient acceptability and adoption of increased utilisation of pharmacists as primary care providers. Evidence indicates that individuals prefer self-care and community pharmacy is the preferred source of advice.^{13, 59} Furthermore, individuals are seeking health care solutions from a greater variety of sources including community pharmacies, social networking sites and the internet, particularly as successful health systems allow individuals to take responsibility for their own minor ailments. The increased utilisation of self-care and non-prescription medication to treat minor ailments enhances individual's confidence to manage their own health and well-being.¹²

As the demand for self-care increases and policymakers highlight the role of the shared responsibility in health care,^{21, 23, 40, 42} the importance of integrated self-care models into the primary care domain is essential. Effective implementation of such models is profoundly important to ensure their viability and sustainability, and potential scale-up of services.

Concepts have emerged across the multiple service standards reviewed consisting of a series of elements for consideration. Several factors need to be considered for the implementation of a MAS particularly the contextualisation of the service for the market, the role of GPs at the centre of patient primary care management, and needs of the population. Successful development and implementation of a local MAS requires an understanding of the way the new intervention will affect the health workforce, health consumers, medical practitioners and the overall health care system. Successful MAS implementation and utilisation requires use of multiple strategies including the use implementation and change management theories.

The implementation of an MAS is a multi-stage, collaborative process with significant stakeholder impacts. Effective development and implementation of the program into pilot sites is essential to establish if wider utilisation is warranted. An initial needs assessment of the area or locality is essential to understand population data and demographics, existing primary care service utilisation and existing providers. Using this data, an estimate of MAS utilisation can be derived and MAS model elements can be considered. A proposed service design model has been presented to describe the implementation process, using a collaborative method (Figure 2).

Figure 2: Proposed service design model

Stakeholder engagement

Key collaborators regarding MAS design include representatives of consumers, GPs, pharmacists, and policy makers. The involvement of stakeholder groups is critical throughout such an iterative process to identify and recognise the impact of changes in the health care system. It is proposed that stakeholders would be active participants in the conceptualisation, creation, development, implementation, evaluation, quality control and improvement of the service.

Service planning and design

Service planning and design is critical and requires detailed service protocols to aid staff and stakeholders associated with the MAS. The protocol should encompass any mandatory, regulatory

requirements as well as physical resources, and changes to the staff workflow. Effective MAS implementation entails the use of a robust framework. Collaborative agreements on protocols and referral pathways would need to be developed. It is important to note that in many countries, the population already uses community pharmacy as a source of minor health treatment advice. However, there are no formal pathways for referral or protocols agreed with other stakeholders such as A&Es and consumers.

Establishing a governance structure

A multi-level governance structure could be established to lead, plan and implement the MAS, with clearly defined lines of reporting and accountability. The multi-level governance structure could be composed of various members representing the stakeholder groups and an implementation team could report to the main governance committee.

Implementation

Community pharmacies in at least two pilot regions, using a randomised clustered control trial methodology are to implement the MAS for six months. Pharmacists are to be educated on minor ailments, their treatment, and referral protocols. Treatment protocols to be agreed with GPs, ensuring an integrated and collaborative model. Patient details, nature of consultation, referral and re-consultation rates, changes in GP workload, and treatment offered to be collected. Baseline data on the use of A&E and GPs' minor ailment workload to be used as the control.

Monitoring, review and evaluation

An extensive objective and systematic evaluation of the MAS operating from pilot sites will need to be completed before wide-scale implementation is considered to determine if the service is achieving intended outcomes. The evaluation could comprise of an assessment of both process and outcome indicators that will consider the effectiveness, efficiency, relevance, impact and sustainability of the program. Clinical, economic and humanistic impact data could be analysed using time series analysis. Patient details, nature of consultation, referral, and re-consultation rates and treatment offered could also be collected.

Discussion

MASs led by community pharmacists aim to release primary care capacities by managing minor ailments through self-care and treatment available in community pharmacies. The underlying objectives of an MAS, as defined the UK and Canadian schemes, is to improve health outcomes, actively promote self-care and treat individuals suffering from minor ailments promptly. They endeavour to reduce overall health care expenditure indicated by national government policies.^{37, 39-41, 60, 61} The value of structured pharmacy minor ailment programs in the UK and Canada have enhanced the delivery of primary care services, promoted efficiencies and reduced overall health care costs.^{55, 62, 63}

International MASs differ in their structural features, presentation and delivery. It is likely that structural design features affect the local and national usability and impact of the programs and influence access, outcomes, usability and overall costs. This is the first known international review that considers the key features of international community pharmacy-based MASs so as to identify

the key elements for consideration for their design. No records reported the evaluation of structural design or implementation of MASs; however, previous research has evaluated the success, uptake, and use of MASs.^{50, 51, 64} Thus, there is a need to promote the development of a service model to promote effective service design and implementation into community pharmacy. Policymakers need to consider the importance of linking the theoretical service components to service planning and implementation strategies.

The varied patient eligibility criteria affect the types of individuals accessing MASs. Whilst all UK-based MASs are available to individuals who are exempt from NHS prescription charges, 65% of English MASs are accessible to individuals who do pay NHS prescription charges. NHS recommendations indicate that localities with high levels of income deprivation may benefit from a MAS as individuals cannot typically afford the costs associated with purchasing OTC medicines (acting as a barrier to the utilisation of community pharmacies and access to appropriate treatment), and consequently utilise GP services.⁶⁵ The availability of the MAS to individuals who do pay NHS prescription charges (in the UK) promotes equity of access to essential healthcare, not just exclusively to deprived population groups.

Canadian MASs are accessible to all individuals in their respective province, independent of the level of deprivation or income, indicating the benefits in opening the service to the wider community. This increases access to primary care services and reduces the burden of minor ailment care on GP and A&E services. All individuals need to access self-care and minor ailment treatment at some point, and if not accessing these services in community pharmacies will utilise other primary care sites, such as GP and A&E services. Thus, enhancing access to a wider variety of individuals may be beneficial in reducing the overall health care burden and transferring minor ailment sufferers to community pharmacy. MASs give individuals greater choice in the source of care and the treating health care professional.

Interestingly, the MAS in Saskatchewan is available only to residents who have already self-diagnosed their presenting minor ailment. A patient's inability to self-diagnose their own minor ailment does not allow them access to the service. A potential reason for this "self-diagnosis principle" in the Saskatchewan guidelines is that GPs claim that pharmacists are unable to diagnose.⁶⁶ Thus, suitable MAS users may potentially be diverted back to other sources of minor ailment care if unable to self-diagnose appropriately, thus potentially increasing pressures on other primary care sources.

A significant proportion of MASs (82%) are accessible to patients who self-present to community pharmacies (not requiring a GP or GP Practice staff referral), promoting ease of access to individual consumers. Easy 'walk-in' access to the scheme recognises the role of the community pharmacy as a primary health care nexus and health destination where pharmacists can effectively treat and manage minor ailment symptoms. 'Walk-in' access allows pharmacies to operate the MAS independent of whether patients are registered with local GP surgeries, promoting greater MAS utilisation. Eighteen percent of MASs require patients to consult GP surgeries for a referral to the MAS. This referral may be by offering patients referral documentation (voucher/health passport documents) or by directly notifying the pharmacy. Whilst this provides direct evidence of whether the MAS consultation replaces the GP appointment, it also increases GP Practice staff's workload as a triage point. Despite this, greater MAS utilisation was attributed to collaborative efforts with

GPs/practice staff facilitating referrals.⁵¹ However, if individuals need to consult GP Practices to seek referrals, the need to visit MASs may be neglected if individuals are already at primary care provider sites who can offer necessary care.

The privacy requirements indicated in all MASs highlights the confidential nature of the consultation, placing greater importance on the consultation rather than merely the provision of advice and/or supply of a product. The appropriate use of private consultation rooms offers many benefits in promoting MASs and improving the public perception of community pharmacists. Their use facilitates open communication between patients and pharmacists, and respects patient's personal and privacy requirements. They allow community pharmacists to access patient information and make holistic, informed decisions.⁶⁷ Evidence indicates that the lack of privacy in some community pharmacies acts as a potential barrier to MAS consultations.⁵⁴ Furthermore, limited privacy is considered to be a barrier to pharmacy services.^{68, 69}

MASs are pharmacist led clinical care services operated by or under the supervision of a registered community pharmacist, (with assistance from appropriately trained staff members). The delivery of MASs by pharmacists recognises the evolution of the pharmacist's professional role, from primary dispensers and medication suppliers to incorporate the delivery of safe and effective use of medicine in a collaborative environment. Similarly, the inclusion of appropriately trained staff members in service guidelines highlights the importance of their support role in delivering the service and facilitating the delivery of care in community pharmacy. They play an essential role in the administration, maintenance, record keeping and patient interaction aspects of the service.

The varied nature and scope of complexity of conditions treated under MASs indicate the depth of pharmacist skills, being able to offer self-care advice, appropriate referrals, or issue prescription products under PGDs in England, such as chloramphenicol 0.5% eye drops and trimethoprim tablets. In Alberta (Canada), pharmacists who have obtained 'additional prescribing authority' are licensed to prescribe medication in areas that they have demonstrated competency (with the exception of narcotics and controlled drugs). Access to a greater medicinal formulary allows pharmacists to optimise minor ailment care in the community. This is consistent with the findings of Puntong et al., who reported that the limited formulary available to pharmacists acted as a barrier to patient care, and the restrictive nature of such formularies may result in more GP referrals to obtain a 'better' treatment option.⁵³

Structured clinical training requirements exists for several MASs in the UK and Canada, yet very little or nil formal training is offered to other staff associated to the delivery and successful utilisation of MASs including GPs, GP Practice staff and receptionists, community pharmacy staff and other allied health care professionals. In order for other health care sites to triage individuals effectively, it is essential they have an understanding of local MASs, conditions treated and mode of operation. Evidence highlights the key role that GP practice staff and receptionists play with regards to promoting the MAS at GP surgeries and referring the appropriate patients to the service.⁵¹ Similarly, Medicines Counter Assistants (MCAs) in England play a vital role MAS delivery.^{60, 70} Ensuring that MCAs are trained in service delivery promotes utilisation and uptake of the service. Research indicates that health care providers (and the general public) may not have an understanding of MASs, the conditions treated and the treatment options available in community pharmacy. Thus,

promoting awareness and understanding of the MAS in the healthcare community is essential to promote the use of MASs.⁷¹

Pharmacists are largely required to practice within their own competency and skill area. Additional clinical training is required in nearly half of the international MASs, however a lack of training requirements across MASs may be indicative of pharmacists already being adequately qualified to manage and treat minor ailments from their own training. This is consistent with Lee⁷² and Puntong et al.,⁵³ indicating that some pharmacists perceive that additional minor ailment training is unnecessary, having completed such training during their own studies and practical workplace experience.^{53,72} Registered community pharmacists already possess invaluable skills, having completed university-based training and clinical assessments. Minor ailment management is a core professional activity. In fact, the completion of additional clinical training for pharmacists may be a barrier to them obtaining accreditation to deliver the service. Thus, the value of training may lie in educating pharmacists regarding the operational elements of the MAS, use of protocols and communication with other healthcare providers.

Interestingly, Canadian MASs required pharmacists to notify GP providers of the patient consultation and treatment plan. Yet, very few UK- based MASs were associated with structured communication pathways with other health care professionals (such as GPs). This differed to other pharmacy clinical services that entailed structured communication to GPs, such as Medicines Use Reviews or New Medicines Service (England). A potential reason for this may be that the need for structured communication between pharmacists and GPs may not be required for minor conditions that resolve spontaneously through the use of self-care, ie, the use of an oral antihistamine to treat hayfever. GP review of such minor ailment cases is a poor use of resources that could be diverted elsewhere. Nevertheless, the need for such communication pathways is necessary for conditions that do not resolve, or present with alarm symptoms or follow-up treatment and management that cannot be treated in the pharmacy. However, the value of reporting pharmacist based interventions to GPs through structured pathways highlights that GPs are at the centre of primary care. Greater collaborative efforts between GPs and pharmacists offer more effective patient services.⁷³ Evidence suggests that the professional relationships between GPs and pharmacists improved as a result of offering the MAS service.⁵¹ Furthermore, literature suggests that collaboration, communication and teamwork are vital to provide essential and effective healthcare.⁴⁸

The majority of MASs offer reimbursement independent of the outcome of the consultation. The varied pharmacy remuneration models highlight the role of community pharmacies as the primary source of medicines (as opposed to supermarkets or other sites). Most remuneration models are designed around patients receiving a product to treat minor ailments with 94% of English MASs being remunerated for a consultation fee and product cost. This is in line with international literature that suggests that the majority of countries offer remuneration for pharmacy-based services only when a medicine is paid under the reimbursement arrangements.⁷⁴ This payment method allows community pharmacists to be remunerated based on the number of MASs delivered. There is a stronger incentive to deliver more services, and actively promote self-care and transfer minor ailment care to MASs. A possible disadvantage associated with this remuneration method is that as pharmacists seek greater volumes of patients consulting MASs, opportunities for potential misuse of MASs may occur.

In Saskatchewan (Canada), the \$18 CAD remuneration fee is only offered for minor ailments that result in a prescription. A concern associated with remunerating pharmacies only if drug treatment is given may be that pharmacists are motivated to prescribe products when unnecessary or where alternative treatment options, such as self-care are available. Additionally, pharmacists' skills may not be fully utilised and recognised,⁷² and thus community pharmacists' skills may be underutilised.

The capitation remuneration model is a pre-determined population-centred method of calculation, determined by a fixed number of patients being enrolled at a community pharmacy. It requires patients to be affiliated to a community pharmacy. This payment model allows community pharmacists to treat patients in a manner that is not influenced by the cost of drug treatment. It also may encourage pharmacists to promote treatment with non-drug measures. The use of this model was the least commonly used payment system across MASs. Whilst it appears that patients are mobile across community pharmacies, it may not be reflective of MAS utilisation and uptake. Additionally, as this method of payment is determined by a defined population, pharmacists may encourage people to access MASs that do not require the service.

Each remuneration model presents its own benefits and challenges, MAS providers need to be fairly remunerated by service commissioners to ensure the healthcare needs of users are met efficiently, and that pharmacists can allocate time and resources to service delivery. However, a structured remuneration program could ensure a commitment to the quality of the service and potential to expand, differentiate, or diversify service provision.

Limitations

The aim of this review was to offer an international perspective regarding MASs for global policymakers to consider implementation. Consequently, no geographical restrictions were imposed during the literature search; however, the majority of the records identified were from the UK (particularly England). This limited the international outlook of the research as UK based MASs were tailored for their local or national healthcare systems and policies. Furthermore, the lack of available data relating to the structural features of identified MAS's limited the scope of analysis (particularly Canadian services).

The nature of literature searching and retrieval presented some challenges and may have introduced bias into search results. Search engines were more likely to display the preferred records within certain geographical locations, determined by the automatic relevance rating. Additionally, some searches within the search engines used displayed a smaller number (than ten pages) as potential records for screening. Furthermore, the evolving and transient nature of the internet and changing website domains and URLs influenced the records identified and later accessed during the grey literature searching process.

Future research

The utilisation and uptake of MASs at an international level is indicative of the potential for the expansion of primary health care services by community pharmacy. Previous evidence including Paudyal et. al,⁵⁰ Watson et. al,⁶² and the Mary Seacole Research Institute⁵¹ reported local or national outcomes of MASs. No publications considered the role of MAS implementation and service design in achieving service outcomes despite its fundamental importance. Furthermore, most of the

published evaluation reports were UK based. Further research should consider other international MASs and enhanced self-care services.

Further studies should consider minor ailment management in different settings, including pharmacies, A&E departments and other primary care services and their implementation processes. The cost of minor ailment care should be considered broadly, from the patient, provider and government perspectives, beyond the cost of the consultation and treatment, and should consider time spent by patient/health care provider seeking treatment, time to access treatment, convenience, and availability of parking at treatment site, loss of productivity, cost of re-consultation, and impact on other resources and quality of life etc.

Further research is necessary to facilitate changes in health policy, including clinical and economic evaluations and implementation research. Potential expansion and legislative changes to promote implementation of MAS and community pharmacy based self-care may be a feature of more extensive, complete economic and clinical evaluations of MASs. However, the utilisation and uptake of MASs at an international level is indicative of its potential value. The Birmingham (UK) MAS delivered cost savings of £2 million in 2014.⁶⁴ A modelling analysis considering the implementation of a national MAS in England is predicted to generate cost savings of £12 to £56 million.^{63, 75} Existing MAS providers should consider the effectiveness and outcomes of MASs alongside the design model to promote community pharmacy as the preferred treatment site for minor ailment care.

Conclusion

It is evident that MASs are unique in their structural design parameters. These parameters need to be adapted to the local health context, population and stakeholder needs and health systems. The impact of these design features and structural features need to be assessed when considering MAS outcomes and success. The implementation of a MAS is a multi-stage, collaborative process with significant stakeholder impacts. Effective service implementation requires the combined skillset of multiple stakeholders to ensure robust frameworks, protocols, and governance structures.

Existing research indicates that MASs have significant benefits to patients, health care professionals, and governments to transfer minor ailment treatment to community pharmacy. It would allow greater volumes of people to access appropriate care in a timely, efficient manner without increasing the strain on existing resources. Better utilisation of community pharmacies and pharmacists, in conjunction with GPs at the core of the primary care system is efficient and implementable to meet essential primary care needs and improve access to health care services. Thus, the use of the proposed MAS model is essential to promote the ongoing sustainability of the services and the potential to scale them up.

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"Minor ailments scheme"
"Minor ailments service"
"Minor illness service"
"Minor ailments assessment"
"Minor ailment prescribing"
"Minor ailment service providers"
"Minor ailments scheme England"
"Minor ailments scheme Scotland"
"Minor ailments scheme Wales"
"Minor ailments scheme Northern Ireland"
"Minor ailments scheme Canada"
"Minor ailment prescribing Canada"
"Minor ailments assessment Canada"
"Minor ailment prescribing United States of America"

Table 1. Search Strategy Used for Literature Retrieval

Stakeholder engagement

- This includes active communication with GPs, pharmacists, other allied health practitioners, professional organisations, policy makers and service users.

Service planning and design

- Elements of service design that need to be considered include:
- Aims and objectives
- Patient eligibility and access methods
- Cost of access
- Service flow and patient experience
- Location of delivery
- Minor ailments treated and drug formulary
- Protocols and algorithms
- Patient outcomes and follow up
- Record keeping and use of technology
- Professional collaboration and communication
- Staff training and reimbursement
- Marketing and communication

Establishing a governance structure

- A specific, clear governance structure to outline the policies and procedures aligned to service aims and objectives

Implementation

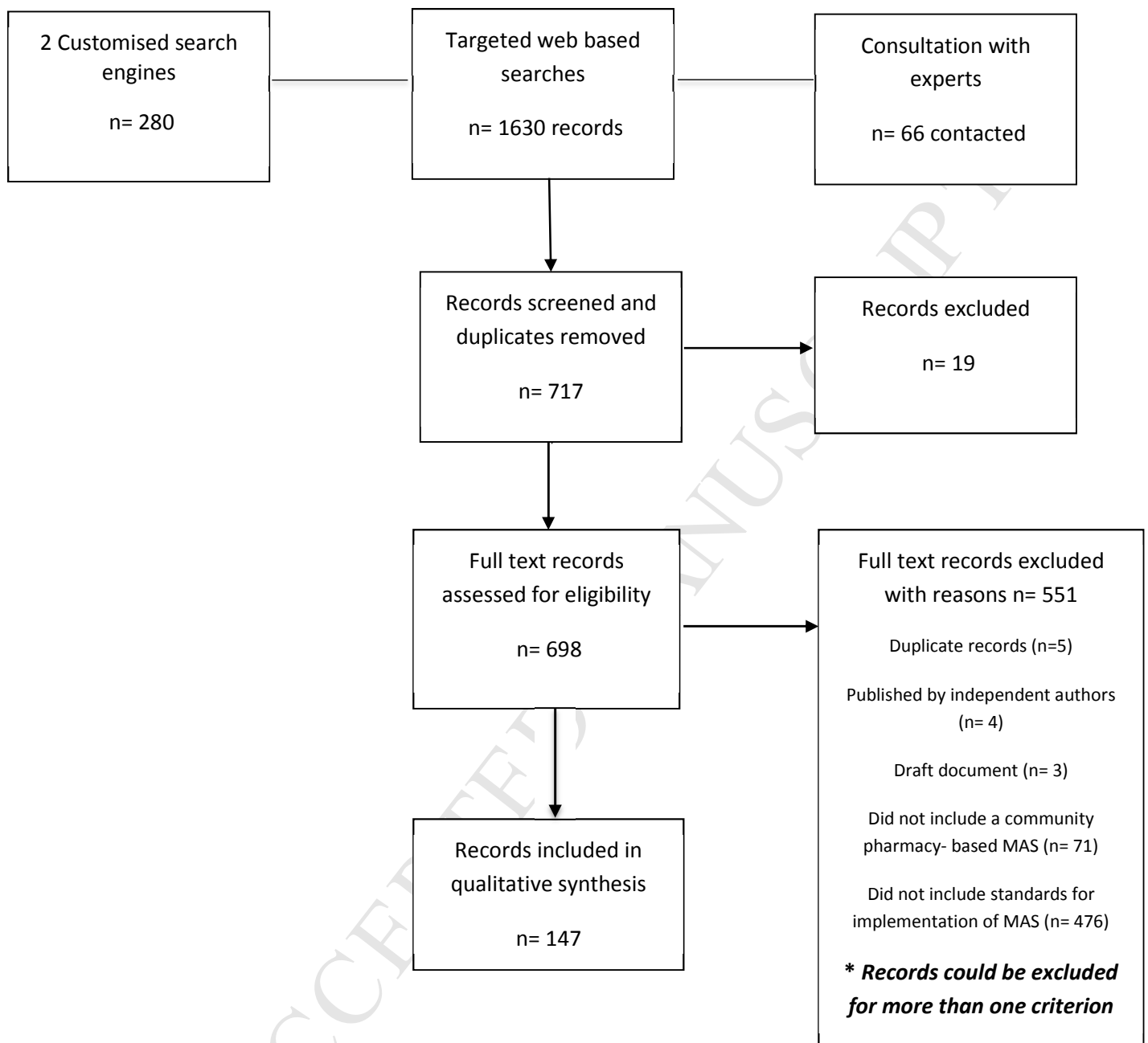
- Pilot MAS implementation considerate of barriers, facilitators and other management strategies

Monitoring, review and evaluation

- Regular audit and evaluation of existing service model in light of key performance indicators
- Strengthening existing engagement and governance strategies
- Adopting service revisions

Figure 2. Proposed Service Design Model.

Figure 1



Highlights

- This is the first known comparative review of minor ailments service features.
- A minor ailments service design model is proposed.
- Service delivery needs to be adapted to the local context to promote success and viability.
- Utilisation of a design model requires implementation and change management theories.