Empowering self-care

A handbook for pharmacists

2022

FIP Development Goals

International Pharmaceutical Federation

Colophon

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Executive summary

Supporting and empowering individuals to responsibly engage in self-care is an important part of pharmacists' daily practice around the world. Self-care spans the whole wellness spectrum, from disease prevention to the management of symptoms and common ailments. It also encompasses interventions ranging from advice on non-prescription medicines and medical devices (often described as "over the counter") to education on healthy diets, hygiene and mindfulness practices.[1] The ability to engage in self-care empowers individuals to act on their own health and well-being, and it encourages the inclusion of their input and specific needs when making healthcare decisions. Self-care empowers people and societies to transform health. Moreover, to promote health equity, health literacy is needed, and there is significant room for improvement and for greater research in this field.

Self-care has been conceptualised through internationally recognised frameworks.[2] The Self-Care Matrix is a widely accessible framework that conveys the concept of the "totality" of self-care by highlighting the inter-relationships between four cardinal dimensions of self-care. These dimensions are:

1. Person-centred self-care activities;
2. Self-care behaviours;
3. Self-care in the context of resource utilisation; and
4. The prevailing environment as a key enabler of self-care practice.

Self-care is an important contributor to universal health coverage (UHC) through savings in healthcare expenditure and the reallocation of resources by means of reduced use and pressure on healthcare systems. For example, patient education and assessment conducted by pharmacists in addition to supporting the informed choice of non-prescription medicines could relieve the burden placed on healthcare systems, such as in primary care facilities or emergency departments, from patients seeking consultation for minor ailments, and lessen the reliance on prescription-only medicines.

Furthermore, many regulatory bodies are supporting technological advancements in healthcare, particularly those that can support populations to better manage chronic diseases and help prevent potential medical issues. The expansion of self-care, however, faces structural and regulatory barriers across the world. Additional areas for improvement include the need for higher levels of health literacy within the population as well as adequate education and training for the pharmacy workforce to support individuals more effectively in managing their conditions.

Policies should also further highlight how engaging in self-care can improve health and well-being in complement with formal healthcare systems. Strong healthcare systems should empower self-carers. Countries can promote self-care by providing populations with effective, efficient and inclusive primary healthcare services, quality healthcare information, and accessible preventative care and supplementary care services through community pharmacies.

Pharmacists are trusted sources of health information within communities, and they contribute to generating positive health outcomes by empowering individuals to better care for their own health. This is highlighted in the FIP Community Pharmacy Section Vision 2025. The role of pharmacists is evolving, and their set of professional competencies continues to change and grow, therefore requiring continuous development to support their colleagues, their patients, and their communities.

This handbook provides guidance for pharmacists on supporting self-care in six areas of frequent consultations: sore throat, gastrointestinal complaints, musculoskeletal pain, children's fever, sexual health, and disinfection and the pharmacy.

1. **Sore throat** is a common condition that is usually self-limiting, and pharmacists can play a supportive role in the identification of symptoms and their respective management with non-prescription medicines and non-pharmacological interventions. Because sore throat is one of the most common symptoms leading to unwarranted antibiotics use, pharmacists can play an important role in the screening and referral of patients in addition to educating them and monitoring their medicines use.

2. **Gastrointestinal complaints** can be influenced by several lifestyle factors, including diet and stress, and using certain types of medicines. It is important for pharmacists to consider these factors when interacting with patients who present with such symptoms. Different non-prescription medicines are available to treat symptoms related to GI complaints, rendering pharmacies key access points for trusted advice and access to self-care products which can provide relief and care to affected individuals. Nutritional advice — one of the fundamental pillars of self-care — was also identified as an integral part in controlling GI symptoms.

3. **Musculoskeletal pain** represents a prevalent issue in the community and can ultimately lead to disability. They are also a frequent cause of pharmacist consultations. When assessing potential causes and characteristics of the pain, pharmacists should consider occupational and behavioural aspects. Different formulations of non-prescription medicines are available for pharmacists to recommend the most appropriate treatment. Lifestyle factors, such as weight management and adequate physical exercise, can also be important factors for the prevention and management of musculoskeletal pain.

4. **Children's fever** is a frequently presented symptom in community pharmacies. Pharmacists have an important role to play in reassuring and providing relief to patients and their families and caregivers. Age, vaccination status and recent complaints are important factors that should be considered when determining the most appropriate management strategies or the need for referral. In addition to recommendations on medicines, pharmacists are well placed to provide education on other topics related to fever, such as the correct method to measure temperature, hydration options and at-home non-pharmacological management options.

5. **Sexual health** comprises different conditions that vary with gender and age. Pharmacists must be sufficiently able to conduct respectful, open-minded conversations, which may sometimes be difficult to engage in, and provide evidence-based advice on topics with the privacy and discretion they require. Pharmacists can also actively participate in the prevention and screening of sexually transmitted infections by leveraging their accessibility through partnerships with referral or specialised centres. Pharmacists can also advise individuals on the use of a broad range of self-care approaches for improved sexual health and safer sex practices.

6. **Disinfection and the pharmacy** is an essential consideration in the prevention of transmissible diseases. Cleaning and disinfection should be regularly implemented and practised, even beyond pandemics and peak seasons of communicable diseases like influenza. To support disinfection in the pharmacy, it is important that frequently used surfaces and devices, especially those used in point-of-care testing, are regularly disinfected. Handwashing is also an important strategy that should be ingrained in the daily routine of pharmacists, and that should be regularly promoted to patients, to minimise the risk of disease transmission.

This handbook aims to provide the pharmacy workforce with relevant and concise guidance on coaching practices and person-centred approaches to promoting and engaging in self-care. It discusses current trends and strategies in self-care and explores the implications, innovations and approaches adopted across several practice areas. It also aims to support and engage the frontline pharmacy workforce to overcome the barriers, challenges and realities of self-care while exploring the extent of all its potential benefits, especially those that contribute to the vision for UHC.

Foreword

By the president of the International Pharmaceutical Federation

In 2018, FIP signed the Declaration of Astana, committing to work towards better primary health care as an essential step towards sustainable, resilient health systems and universal health coverage. Self-care is an important component of health care, with important implications for health systems. Self-care includes a broad scope of areas where individuals can be proactive in sustaining, improving and managing their own health and well-being, ranging from health promotion, disease prevention and management, to self-medication. It is imperative that individuals are empowered with the knowledge and the ability to fully understand and care for their own health in an autonomous way.

Pharmacists are ideally placed to support informed self-care by empowering patients to make better health choices. These interventions are essential to optimise the use of resources by health systems and can deliver better health outcomes for individuals and contribute to health system sustainability and broader societal and economic gains.

Community pharmacists provide education and guidance in multiple areas of self-care, including nutrition and physical activity, hygiene and disinfection, lifestyle choices, sexual health and other key lifestyle areas. They dispense and advise on the use of non-prescription medicines and other self-care products and devices. These services are closely aligned with FIP's Development Goals 15 (People-centred care) and 18 (Access to medicines, devices and services). Further, FIP Development Goal 21 (Sustainability in pharmacy) is also relevant in this context as self-care is a key driver of universal health coverage and an important contributor to healthcare cost savings and better use of resources.

In 2017, FIP published "Pharmacy as a gateway to care: Helping people towards better care", a publication that highlights several aspects of self-care, from its architecture (especially behavioural and system components) to the understanding and importance of health systems. This reference paper was the basis for the FIP statement of policy "Pharmacy: Gateway to care", which included a commitment by FIP to support member organisations in developing quality standards for self-care services and protocols for self-care provision that are appropriate to their national context, and to advocate pharmacist-delivered self-care services to improve and manage health. In 2019, FIP and the Global Self-Care Federation published a joint policy statement highlighting the responsibilities of pharmacists in dispensing self-care products, supporting patients with education, collaboration with other healthcare providers and encouraging individuals to make proactive life choices.

It is within the spirit of these statements and publications that FIP now publishes this handbook, which provides pharmacists and their professional organisations with a resource to support them in advocating the important role that the pharmacy workforce can play in supporting self-care. It also provides a person-centred approach with professional guidance to support self-care in specific areas. It discusses current strategies for self-care and its various dimension for common symptoms and ailments often managed in the community. These professional services by pharmacists highlight their commitment to primary healthcare, and they leverage pharmacies as gateways to care, as trusted sources of advice and medicines, and as accessible healthcare facilities at the heart of each community.

I encourage you to implement the services described in this handbook in your daily practice and to support colleagues in your country in doing so. FIP is proud to support the advancement of self-care globally and committed to equip and empower pharmacy professionals and their organisations to deliver pharmacy-supported self-care interventions in the communities that they serve.

Dominique Jordan

1 Introduction

1.1 Background and definitions

The World Health Organization (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 healthcare provider".[3] Considered as the "oldest type of care", self-care represents one of the most promising approaches to improving health and quality of life. Self-care also contributes towards universal health coverage (UHC) and health equity.

The ability to engage in self-care empowers patients to take on active roles in the management of their health and well-being. It also encourages the provision of patient-centred care, which can consequently improve care and outcomes at the individual and health system levels.[4] Social determinants of health, which are defined as "the conditions in which people are born, grow, work, live and age, and the wider set of forces and systems shaping the conditions of daily life", may notably influence the ability to engage in self-care.[5] Examples of these determinants include income, education, food safety, working life conditions or social inclusion and non-discrimination, among others. In sum, these factors directly impact patients' perception on their health, their capacity to intervene in it and the ways they access health services. An individual's ability to perform self-care is often limited by their socioeconomical situation, health literacy level and access to professional advice.[6]

As highly accessible healthcare professionals, pharmacists are essential in advocating for and assisting individuals and families with self-care.[7] Pharmacists can contribute to an increase in self-care autonomy through a number of different interventions. It is imperative that pharmacists invest their knowledge and expertise as well as operate at the full scope of their practice to improve health and economic outcomes.[8]

1.1.1 WHO classification of self-care interventions for health

In December 2021, the WHO launched a new resource focusing on self-care interventions and their classification. Interventions include "evidence-based quality drugs, devices, diagnostics and/or digital technologies which can be provided fully or partially outside of formal health services and can be used with or without the support of a health worker".[9]

This WHO document aims to promote an accessible and bridging language for researchers, policy-makers and health programme managers in five key areas:

- Synthesising evidence and research;
- Promoting advocacy and communication;
- Conducting national inventories and landscape analyses;
- Articulating needs based on identified health system challenges; and
- Formulating operational considerations for implementation guidance.[9]

The interventions are grouped around different primary user profiles, including self-carers and caregivers, health workers, health programme managers and health policy-makers, legislators and regulators. The key role that pharmacists can play in self-care is acknowledged as supporting, promoting and overseeing self-care interventions to individuals in their communities towards improved health outcomes. Pharmacists can also have a role as programme managers and in policy-making roles in their country or region.

Through the above-mentioned roles, pharmacists can respond to peoples' health needs by supporting self-care interventions and helping them overcome health system challenges. Those challenges are diverse and include insufficient number of accessible health facilities, poor health literacy and lack of clear information that is user-friendly and simple to understand, lack of access or limited service for certain populations, and out-of-pocket expense to individuals.[9]

1.1.2 Self-Care Readiness Index

The Global Self-Care Federation recently launched a Self-Care Readiness Index that serves both as a framework for implementing self-care and as an advocacy tool to prioritise self-care on health and social care agendas locally and internationally. This framework highlights four different enablers of self-care: stakeholder support

and adoption, consumer and patient empowerment, self-care health policies, and a supportive regulatory environment.

Pharmacists have a particularly important role in driving the second enabler (consumer and patient empowerment) as they work in direct contact with patients every day and can thus regularly empower them to make better-informed health choices. This framework also provides several recommendations that pharmacists and policy makers should consider and implement for advancing self-care generally:[10]

- Launch a global advocacy campaign to clarify and align stakeholders around the WHO's single and universally recognised definition of self-care to inspire action and unite diverse stakeholders;
- Develop a new "global compact" on self-care with the ultimate goal of bringing forward a new WHO resolution on self-care;
- Increase the quantity and quality of self-care information available to consumers;
- Educate and incentivise healthcare providers to recommend self-care products and practices;
- Scale up digital health solutions in association with the deployment of multidisciplinary care teams;
- Forge a broader alliance of self-care advocates to make the case that investments in self-care result in healthier populations and lower costs; and
- Encourage governments to "connect the dots", ensuring more coherent healthcare policies and regulatory frameworks across the multitude of strategies, plans, and programmes that touch on self-care.

To ensure the optimal delivery to patients of information and services regarding self-care, it is also important to establish interprofessional collaboration among different stakeholders and healthcare professionals. Like the index, there are also various models and frameworks that exist which aim to capture the complexity surrounding the definition and scope of self-care.

1.1.3 Seven pillars framework

The seven pillars framework consists of seven domains or "pillars", with each pillar describing a set of activities that individuals may undertake to improve and preserve optimal levels of health and quality of life. They are:[11]

1. **Knowledge and health literacy**

The knowledge and health literacy pillar includes individuals' capacity to obtain, process and understand the necessary health information and services to make appropriate health decisions. Improving health literacy allows patients to adequately interpret information, whether written or verbal.

2. **Mental well-being, self-awareness and agency**

Self-awareness and agency represent an important pillar as they are considered as basic starting points for all future self-care activities. Activities in this pillar include being cognisant of the current state of health indicators (or common health measurements), such as body mass index (BMI), cholesterol levels and blood pressure.

3. **Physical activity**

Regular moderate intensity physical activity significantly improves cardiorespiratory and mental health. As such, dedicating sufficient time to sports and activities regularly and reducing sedentary behaviour are important to consider.

4. **Healthy eating**

The healthy eating pillar reinforces the maintenance of a nutritional, balanced diet with appropriate calorie intake.

5. **Risk avoidance and mitigation**

The risk avoidance and mitigation pillar highlights health prevention actions or practices, such as quitting tobacco, limiting alcohol use, using safe and effective vaccines, practising safer sex and using sunscreen.

6. **Good hygiene**

The adoption of regular hygiene practices, such as washing hands regularly, brushing teeth and washing food, is an additional pillar that contributes to self-care.

7. **Rational use of products and services**

The rational use of health products, services and medicines, including using medicines responsibly and when necessary, contributed to self-care.

1.1.4 Self-care continuum

The self-care continuum places the individual within a range that describes the extent to which an individual is dependent on external support and resources. Points in this continuum range from pure self-care, where the individual is solely responsible for their health choices and health conditions, to pure medical care, where the healthcare professional holds full responsibility. Examples of activities found within this continuum include daily choices, minor ailment management and care of major trauma.[12]

The self-care matrix, explored in detail below, describes a comprehensive point of departure for self-care thinking by consolidating the seven pillars framework with the self-care continuum as well as aspects relevant to behavioural considerations and the external environment.

1.2 The self-care matrix

The self-care matrix (SCM) is an important framework that considers the four "cardinal dimensions of self-care" (Figure 1). The SCM recognises the repercussions made by social and health systems on self-carers in addition to wider environmental and policy-based determinants of health. It supports the conceptualisation of self-care in its totality and describes the relationships between self-care activities, behavioural change and resource use while considering the environment and the culture in which individuals live. Furthermore the, SCM considers and includes the seven pillars framework and the self-care continuum, which are mentioned in dimensions 1 and 3 of the SCM, respectively.

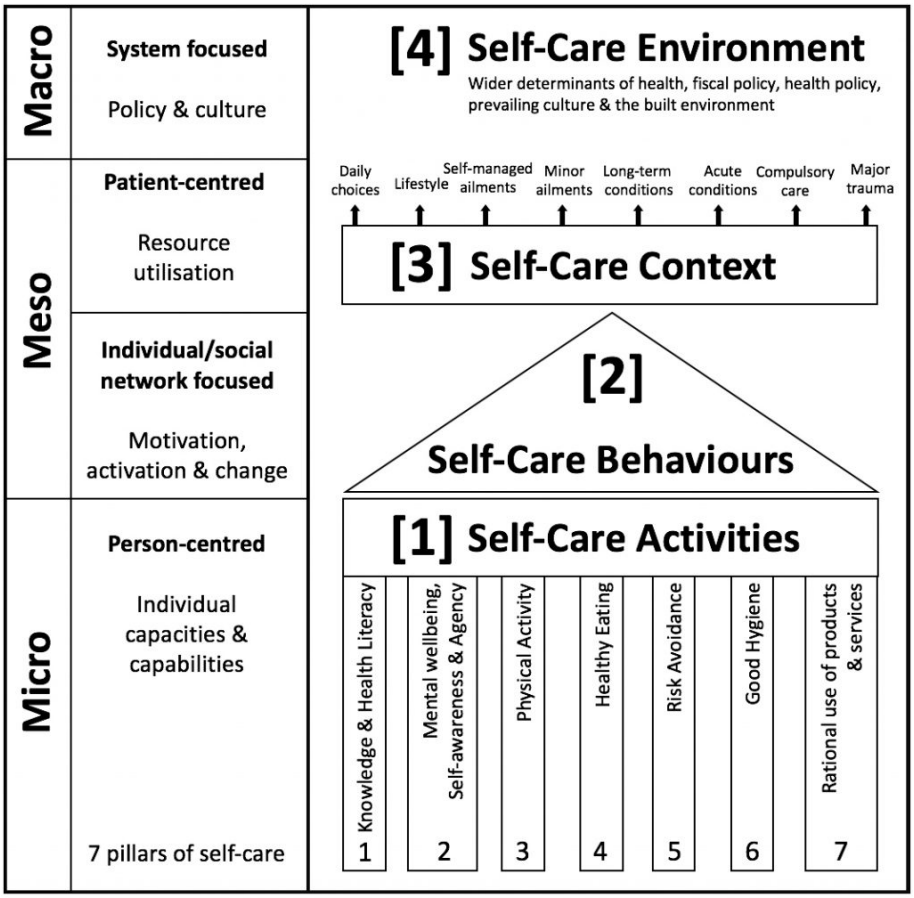
The SCM offers a variety of perspectives to enable pharmacists to more thoroughly understand the individual and societal factors that influence self-care. By acquiring this knowledge, pharmacists will be better equipped to support patients in maximising their autonomy and to advocate person-centred decision making.

The four cardinal dimensions of self-care are:

1. Self-care activities, which represent the person-centred set of activities that constitute self-care;
2. Self-care behaviours and how to sustain them;
3. Self-care context and individual dependence on external support and resources; and
4. Self-care environment, including wider determinants of health and the built environment.

By considering how each of these dimensions impact, shape and guide self-care, pharmacists will understand how individualised solutions can be optimised and appropriately put into practice. Each dimension is further described below using diabetes management as a contextual example.[2]

Figure 1. — The SCM and its different levels[2]



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1.2.1 Self-care activities

The cardinal dimension of self-care activities is concerned with the set of activities that individuals can perform themselves to maintain or improve their physical health and well-being. These activities directly relate to individuals' capacity to self-care in various domains, including health literacy, mental well-being and personal awareness, healthy eating, physical activity, risk avoidance, good hygiene practices, and the rational and responsible use of products and services.

Activities, such as at-home disease monitoring, maintaining a healthy diet and self-management of disease states, are examples of self-care activities. Pharmacists can support patients with strategies to supplement and improve their disease or treatment knowledge, encourage autonomous monitoring of symptoms, encourage self-treatment through personalised action plans in response to worsening symptoms or exacerbations, and enhance accountability in engaging in healthy lifestyle choices.[13] This dimension strictly focuses on what individuals can perform for themselves through their autonomous actions and within the scope of their knowledge, health literacy and self-awareness while being able to measure such activities.[14] In the example of diabetes management, pharmacist interventions might include improving patients' knowledge on the disease and the medicines they are taking, fostering their ability to adequately use their glucose monitoring device, and educating them on adequate foot self-examination skills.

1.2.2 Self-care behaviours

The cardinal dimension of self-care behaviours operates within the context of social groups and individuals' immediate surroundings. It is concerned with how interactions within these settings contribute to the long-term adoption of health-seeking self-care habits. While this dimension is primarily focused on the individual, it recognises the impact of social norms and attitudes on engaging in self-care .[15] Key factors that operate at this level include the use of nudges, gamification and technology to promote the routine and sustained adoption of self-care activities as well as the ways in which individuals interact with these features. The

behavioural change components that are interlinked within this dimension are exemplified by the behaviour change wheel, which consists of a synthesis of 19 theories of behavioural change.[16] Potential pharmacist-driven interventions concerning diabetes management might include encouraging household-wide adoption of a diabetes-friendly diet and improved utilisation of technologies to encourage ongoing lifestyle changes (e.g., applications or devices which track and encourage goal setting for healthy lifestyle habits).

1.2.3 Self-care context

The cardinal dimension of self-care context emphasises the degree of interactions between an individual and the health system and considers the individual's underlying reliance on external sources. Dependence on external resources represents a wide range of activities, from requiring assistance from other members of the same household to relying on community programmes for transportation and other activities of daily living. The Kaiser permanent pyramid of self-care model highlights the inverse relationship between the need for external resources and individual autonomy.[17] Pharmacists' interventions at this level are more closely related to promoting individualised approaches, such as organising diabetes talks or workshops with other healthcare professionals.

1.2.4 Self-care environment

The cardinal dimension of self-care environment is concerned with the environment, including the policy, societal and public health landscapes, the built environment, and even ecological spaces, such as parks and green spaces. These factors shape major cultural and normative attitudes towards self-care. Interventions and influencing factors at this level focus less on the individual self-carer and place more emphasis on how self-care is articulated in the prevailing culture and in society as a whole.[2] Through this macro-level analysis, it may be appreciated how major societal, governmental and socioeconomic structures can both benefit and limit self-care efforts. Using diabetes management as an example, interventions at this level might include advocating additional government funding for diabetes supplies or implementing national programmes for improved access to specialist care. This also allows pharmacists to identify barriers for larger groups of individuals, such as those in rural areas or low-resource settings who have trouble attending health appointments due to lack of reliable transportation means. Positioning pharmacies as "community hubs" where individuals can be supported in their personal self-care journey (e.g., diabetes management services) is another example.

1.3 Aim and objectives

This handbook provides relevant and concise guidance to self-care for pharmacists and the pharmacy workforce. It discusses current strategies and explores the implications, innovations and approaches adopted across several practice areas. Moreover, it aims to educate and engage the frontline pharmacy workforce to meet the barriers, challenges and realities of self-care across different settings while exploring the benefits of optimising self-care and its impact on UHC. Lastly, this handbook will describe several common conditions often managed through self-care and discuss possible treatment options.

2 The evolution of self-care and its contribution to the sustainability of health systems

As populations grow and health needs diversify, the need for access to medical care and the reliance on self-care will continue to grow as well. By 2030, there will be an estimated shortage of 18 million healthcare workers worldwide.[18] This shortage highlights why self-care, though not a novel concept, has been brought into the spotlight in recent years and is at the heart of different practices and institutions, such as the emerging specialty of lifestyle medicine and the WHO. Stakeholders are being increasingly made aware that the current and traditional models of healthcare will soon be insufficient to meet the healthcare demands of the upcoming decade.[18] Chapter 2 focuses on the current trends in self-care, the necessary resources, and the barriers that should be overcome to expand the reach of self-care before reflecting on the critical role of self-care in achieving the UHC agenda.

2.1 Current trends in self-care

Progressing towards self-reliance and an individualistic approach to healthcare has been a point of discussion for decades. It should be noted that while self-care is considered as the "oldest type of care", it was for some time a nearly forgotten concept in the light of the former paradigm of purely biomedical approaches to treating diseases. Whereas some cultures may have a strong culture of self-care, such as the routine use of traditional remedies and mindfulness techniques, there is now a focus on the key role of healthcare workers in developing and advocating evidence-based self-care products, technologies and practices, such as non-prescription medicines or self-monitoring.[19]

2.1.1 Changes in terminology

One significant change within the healthcare community is the shift in how self-care is defined and articulated, especially in the context of the proactive care and person-centred medicine approaches. There has been an effort to move away from more paternalistic and traditional language, such as "my patient" or "doctor knows best", to more empowering language, such as "person-centred care" and "shared decision making". A notable shift within the pharmacy landscape regards the language surrounding adherence to medication regimens, replacing the term "non-compliance" with the more widely accepted concept of "non-adherence". The increasingly recognised relationship between self-care and patient empowerment not only continues to impact perceptions and attitudes in self-care, but also highlights the key role of healthcare providers as enablers of self-care through the advice and access to interventions they provide.[20]

The concept of person-centred or patient-centred approaches dates to George Engel and his biopsychosocial model, which highlighted the need for a shift from a "diagnosis focus" to an "individual focus". Engel argued that to provide adequate care, the social and psychological aspects are as equally important as more objective, biological markers.[21] Person-centred care is an integral part of self-care and represents an area in which pharmacists can play a significant role.

2.1.2 Technology and increased access to information

Technology is a key enabler of self-care. Advances in both the amount of health information readily available and accessibility to health resources, including those available via the internet, have greatly impacted how individuals are empowered to engage in self-care. This has been facilitated through the use of digital health tools, electronic prompts and reminders, remote monitoring tools and wearables. In addition, there has been a shift towards using applications and smartphones to track health test results and support the decision to seek direct care. This availability of both correct and, in some cases, inaccurate information has significant implications for pharmacists who are frequently solicited by individuals attempting to sift through all these data.[22]

In fact, more and more individuals are using online resources to purchase self-care medicines and devices as well as to self-diagnose and research treatment options, sometimes even before discussing with a trusted

healthcare provider. Online symptom checkers, such as Healthily, Ada and WebMD, have facilitated this. Developers promote such digital health tools as a method for patients to save time and reduce anxiety, and to provide patients with the opportunity to take control of their own health and well-being. In contrast, automated systems which provide no clinical judgement or personalised assessments may convey inaccurate health information and suggest inappropriate interventions. Pharmacists may support self-care through remote monitoring and the use of the "quantified self" approach, which is the process of systematically collecting and analysing data about oneself to improve one's life. Using this approach, pharmacists can educate patients on the pitfalls of solely relying on online resources, as they will be regarded as the important facilitators of self-care.

Demographic shifts and strained healthcare budgets, as well as the ongoing COVID-19 pandemic, have also accelerated the use of digital advice and applications and the development of online pharmacies (e-pharmacies), particularly with regard to self-care. The use of digital devices for non-communicable diseases is expected to improve disease monitoring through facilitated health measurements, such as blood glucose, and the maintenance of logbooks as well as improve medication adherence by preventing missed doses.

2.2 Self-care as a contributor to UHC

The WHO has cited self-care as an important enabler to reaching the goal of UHC.[23] It has long been argued that engaging in self-care significantly contributes to collectively achieving UHC.[24]

UHC ensures that all individuals, everywhere, can access quality essential health services with financial protection. It is firmly rooted in the human right to health and requires strong political leadership. Because affordable, accessible and quality health services unlock individuals' potential, UHC is considered to be one of the most cost-effective investments. It is believed that nearly all countries and territories, including low-income countries and territories, have the capacity to mobilise the resources required to achieve UHC. Achieving UHC is essential for inclusive development, prosperity, gender equality and fairness.[25] Each of the potential contributions is discussed below.

2.2.1 Reallocation of healthcare resources

Arguably the most intuitive contribution of self-care to UHC regards the improved efficiency in how scarce resources are utilised. Self-care diverts resource use away from hospital and acute care (primary healthcare) facilities and rather depends on the autonomy and self-reliance instilled in individuals for common, minor and self-treatable conditions. When one considers pharmacists' role in triaging minor health issues in the community pharmacy, the potential to liberate hospital beds and reduce physician waiting lists is even more significant. One study in the UK demonstrated that up to 40% of general practice (GP) visits were for minor illnesses which could likely be managed outside of the clinical setting.[20] This shift towards self-care could allow for more efficient and timely delivery of care, especially for those with more serious conditions or complaints. Focusing on self-care could even allow for more cost-effective and time-efficient health services as care and treatments would be more readily available. Furthermore, this would also benefit healthcare providers as their time and efforts would be more efficiently managed and directed to caring for patients who require more complex interventions.

2.2.2 Healthcare cost savings

While the reallocation of resources has the potential to significantly impact healthcare costs, another significant area for savings is in chronic non-communicable disease management. Engaging in self-care to manage one's own diabetes or asthma, for example, can provide benefits in preventing hospitalisations.[26] It is important to also consider indirect healthcare costs, such as work absenteeism to schedule and attend appointments, in addition to the cost of childcare and travel expenses. These savings have the potential to free resources for patients who require them more promptly and, by extension, make UHC more achievable.[27]

2.2.3 Improved emergency preparedness

In 2021, an estimated one in five individuals in the world was living through a humanitarian crisis.[23] Along with this instability comes an increased need for autonomy and self-reliance in making rational healthcare decisions. Improvements in health literacy, individual capacity and capability to engage in self-care all contribute to empowering individuals in situations where healthcare providers and resources may not be

readily available. This is also the case when individuals are required to rely on their own knowledge and problem-solving skills to care for their health and well-being.[28] As recently seen with the complexities and limitations associated with the COVID-19 pandemic, self-care and self-reliance have become less of an option and rather more of a necessity to care for one's health in a timely manner.

2.2.4 Improved healthy lifestyles and health literacy

An important aspect that contributes to the provision of UHC is the widescale adoption of healthy lifestyle choices and behaviours by individuals from all walks of life, including improvements in daily habits related to nutrition, physical activity, mental health, sleep and general health routines.[29] Pharmacists are essential in supporting individuals in establishing and maintaining health-seeking behaviours with positive impacts on health and well-being. They are also well placed to support individuals in improving their health literacy. They play a critical role in educating patients on the adoption of healthy lifestyle habits as well as addressing concerns and dispelling myths regarding such habits.[30]

The combination of these factors may greatly and positively impact efforts to achieve UHC. Chapter 3 provides a more thorough discussion of how pharmacists can contribute to these goals.

2.3 Barriers to self-care

Recent events, including the COVID-19 pandemic, emphasised the need to accelerate access to effective self-care interventions. A significant challenge that many healthcare providers now face is establishing effective ways to raise awareness about engaging in self-care and to scale up self-care interventions. A non-exhaustive list of several key barriers is presented below.

2.3.1 Structural and regulatory barriers

Despite recent progress, several barriers, including structural deficits, such as practice time constraints, and regulatory structures, continue to exist and limit self-care. The decrease in the pharmacy workforce has reduced the availability of pharmacists to counsel patients, thereby greatly lowering their ability to empower patients regarding self-care.[31] Meanwhile, pharmacists' rather restricted scope of practice in some regulatory settings can greatly impede their ability to support self-care.[32]

These frustrations may also be perceived by patients, which therefore creates an additional barrier to accessing healthcare. Pharmacists are often best placed to educate and screen patients in addition to monitoring their medication therapy, but through regulatory restrictions, they may find themselves routing patients back through a dysfunctional system. This may involve the inability, in some instances, for pharmacists to supply emergency refills, extend prescriptions or initiate therapies for minor ailments which could usually be managed in the outpatient setting.

2.3.2 Pharmacists' perceptions as a barrier

Pharmacists' perceptions of their own abilities and training can also create a barrier to self-care. The lack of trust in their skillset to provide sound advice on self-care may be perceived by patients who may feel inadequately supported to engage in self-care. In some situations, this lack of confidence may be due to insufficient training and experiential learning within the pharmacy curriculum. Another major limitation to self-care is a culture of reluctance to change as well as an inflexibility to adapt from a more traditional, dispensing role to a more progressive role with additional clinical responsibilities.[20]

2.3.3 Impact of the COVID-19 pandemic

The COVID-19 pandemic has made many individuals pay closer attention to their health and adopt new behaviours to minimise risk of contracting and transmitting the virus, such as more frequent handwashing and regular disinfection techniques. With more and more individuals around the world utilising new technologies and devices, health and wellness have become an increasingly digitised space, with more diagnostics, treatments and professional assistance available on demand.

Along with other barriers, the COVID-19 pandemic has brought its own set of challenges and setbacks which impact on individuals' abilities to engage in self-care. Due to the contagious nature of the coronavirus, self-isolation measures or quarantine orders have contributed to patient avoidance of healthcare facilities, especially when novel services, such as telemedicine or improved delivery circuits, have not been appropriately implemented. Clinics and health establishments have also limited access to regularly scheduled check-ups and screenings. In some ways, the pandemic has caused a shift to the use of online pharmacies, thereby limiting availability to individuals who may not have reliable ways to access these digital services. Furthermore, with generations of students and trainees missing significant amounts of in-person education and training, concerns have been raised regarding the lack of health literacy.[33]

Consumers have become increasingly interested in utilising technology to manage their healthcare, especially in the context of the COVID-19 pandemic which made it difficult for many people to see healthcare professionals in person. This therefore underscores the need for digital solutions that help consumers manage their healthcare from home in partnership with their physicians, pharmacists and other healthcare providers.

2.3.4 Need for improved health literacy

Health literacy has been defined as "the degree to which individuals have the ability to find, understand and use information and services to inform health-related decisions and actions for themselves and others".[34] According to UNESCO, there are still 773 million adults around the world who are unable to read, highlighting the urgent need for advancement in this area.[35] The lack of health literacy is a major barrier to self-care as it prevents individuals from making informed decisions regarding their health and well-being. Examples of such decisions include collecting reliable information and accessing available health services. People with low health literacy tend to abandon self-care and seek advice from a physician earlier than necessary for self-limiting minor ailments.[36]

2.3.5 Workload efficiency

Pharmacists often face multiple types of pressure at work which can lead to mental health conditions and burnout. Factors for workload efficiency include workforce capacity, staff management, service provision, the management of medicine shortages, suitable remuneration models, and safety and wellbeing, among others. The COVID-19 pandemic aggravated the situation as in many parts of the world pharmacists remained open to the public during lockdowns.[37] The use of digital tools such as stock management software and online training for staff can be part of the solution.

2.3.6 Lack of appropriate remuneration models

The increasing evidence surrounding the effectiveness and usefulness of pharmacy services supporting self-care lacks an important shift in pharmacy remuneration models. The global predominance of product-based remuneration models often binds pharmacists to prioritising dispensing over the provision of other healthcare services for which they are not remunerated. This renders the provision of such services unsustainable. Future enablers for promoting self-care include remuneration incentives for services in the areas of health literacy, disease prevention and health education.[38]

2.3.7 Education and workforce development

The knowledge and skills required to provide needs-based, self-care services require ongoing updates through continuous professional development and continuous education activities. Soft skills, including communication and understanding of behaviour change, are important not only to prepare future healthcare professionals at undergraduate level to deliver patient-centred self-care services, but to develop and update their skills throughout their professional lives. Further, the pharmacy workforce require tools and training on those skills adapted to the real-life needs of each community.[38]

2.3.8 Interprofessional teamwork

Pharmacies are an integral part of healthcare systems, leading to communication with different healthcare providers. Challenges in medication management and referral networks arise when communication between healthcare providers across transitions of care is lacking, or when patient information is not readily accessible to pharmacists through a patient's health records. Additionally, pharmacy representation in national policy making networks and primary care frameworks is essential if pharmacists are to be included in the decision-making process of health policy development.[38]

All these barriers are important for pharmacists to consider advancing self-care at the local, national and regional levels. A global overview of the different regulations, scopes of practice, and distribution and remuneration models with potential direct impacts on the delivery of self-care services can be found in the FIP report "Community pharmacy at a glance 2021".

3 The role of pharmacists in supporting informed self-care

Chapter 3 begins with a focus on pharmacists' role in supporting individuals in their self-care journey and explores the ways in which pharmacists can improve and expand health literacy levels within their communities. It also considers the future of self-care and the role of organisations, such as FIP and its member organisations, in supporting pharmacists before concluding with a note regarding the appropriate management of medicines when guiding self-care decisions.

3.1 Pharmacists as trusted local sources of information

Community pharmacists are front-line, accessible healthcare professionals who are conveniently placed at the hearts of our communities, conferring them with a unique position to provide care to patients. Pharmacists have always been and continue to be in close contact with members of their communities, including individuals from all walks of life. In fact, patients encounter pharmacists more frequently than other healthcare professionals. Pharmacists routinely educate patients on effective ways to manage minor ailments and prevent disease through a relationship of trust and loyalty. Pharmacists are also are well trained to effectively educate patients and provide evidence-based advice on a broad range of topics, including self-care interventions and the use of non-prescription medicines in the treatment of minor ailments.[39, 40] This proximity allows pharmacists to provide healthcare services focusing on key elements through different approaches, including patient centricity, medication management, communication and care coordination, timely follow-up by a healthcare provider, and patient education and coaching.[41]

There are nevertheless multiple barriers to pharmacists' involvement in increasing the uptake of self-care initiatives. These barriers include limited scope of practice, insufficient training, and hesitancy from the profession to adapt to the ever-changing healthcare environment,[20] and they are often compounded with chronic underinvestment in community pharmacy.

3.2 Pharmacists' impact on health literacy

Health literacy is largely regarded as one of the principal pillars of self-care, as evidenced by different conceptual depictions of self-care, and is essential for both making self-directed decisions and for engaging in meaningful conversations with healthcare providers. Health literacy is greatly impacted by different factors, such as level of education and access to information resources. Low health literacy is a common issue, particularly in persons with lower socioeconomic status, those with limited education and older adults.[1] The consequences of poor health illiteracy include difficulties in following directions on treatment regimens, inability to understand counselling provided by healthcare providers and, ultimately, increased health system costs due to these misunderstandings.

Furthermore, improving and maintaining adequate levels of health literacy presents a challenge for all countries and territories, regardless of income.[42] Data on health literacy levels is limited and vary according to the settings in which data were collected. For example, in the United States, an estimated 36% of the population, which represents approximately 90 million individuals, are limited in their ability to understand health information. Improving health literacy is essential to improving self-care in all countries and settings.[43]

There are several ways in which pharmacists can significantly improve health literacy levels as well as assist and empower individuals in understanding key aspects relevant to their health and well-being needs. This begins by creating a "shame-free" environment in which individuals can ask questions as well as receive non-judgmental answers and encouragement to improve their well-being regardless of their level of health literacy. Pharmacists can achieve this by identifying patients' abilities and level of engagement in health-related discussions. Consequently, they can adjust how their information is delivered. Consultation rooms in community pharmacies can provide a more suitable environment for patients to express all their questions and concerns.

Another method to promote and ensure health literacy includes using the "teach back" technique. This consists of asking individuals to repeat in their own words what has been previously discussed. This may also be accompanied by the use of drawings or diagrams. Additionally, pharmacists can utilise a participatory teaching approach when educating patients, such as allowing an individual to count their tablets as they explain the medicine or asking the patient to demonstrate the use of a blood glucose monitoring device. These strategies empower individuals to take on active roles in the management of their own health. When interacting with patients, it is important that pharmacists remember to use "patient-friendly" language and avoid healthcare jargon and complicated, elaborate explanations. Not doing so may decrease patients' ability to grasp important concepts and miss essential take-away messages.

Another issue often associated with low health literacy is medication non-adherence. Patients who are unable to access and understand the necessary information on prescribed medication regimens may feel less engaged in managing their own health, which can lead to non-adherence, poor management of chronic conditions and a higher likelihood of hospitalisation.[43] On this note, FIP recently developed toolkits on medication review and medicines use review and on medicines reconciliation to support pharmacists in establishing these important services which contribute to improving medication adherence, medication effectiveness and health outcomes. A situation of full medication adherence and therapeutic stability might lead to better self-care as patients are more motivated to explore self-care conditions and solutions for their minor ailments.[44]

Another major area where pharmacists can improve health literacy is digital health literacy.[45] Digital tools and the internet have increased the amount of health information available to the general public and have the potential to help with chronic disease management. However, for many individuals, their lack of experience and training using technology limits their ability to access and comprehend health information as well as to analyse results from point-of-care tests and health measurements. This difference can increase the self-care gap between groups of individuals where health disparities already exist due to such factors as income, access to technology and education.

3.3 The future of pharmacy and self-care

Policies should more prominently reflect the benefits of self-care, especially demonstrating how self-care can improve health and well-being in complement with formal healthcare systems. Strong healthcare systems should empower self-carers. Governmental health authorities can promote self-care by providing populations with effective, efficient and inclusive primary care services, especially via community pharmacies, quality healthcare information, and easy access to preventive care services and supplementary care. In the long term, systems will benefit from efficient allocation of resources across primary and specialised care services.

Changes are required at both the patient and health system levels. Changing passive patients into proactive participants involved in the management of their own health as well as evolving healthcare systems from sickness systems to prevention systems are necessary for the progression of healthcare.

Pharmacy has substantially evolved in recent decades in ways that help the profession support self-care. However, considering the barriers discussed in Chapter 2.3, there is still much progress to be made. One major barrier is the way the profession perceives itself. If pharmacy is going to evolve, growing from a "dispensers and sellers only" mentality to a more clinical, patient-centred entity, significant efforts will have to be made. Notably, pharmacist interventions in non-prescription (over the counter) medicines therapy is widely accepted and can lead to improvements in patient outcomes.[46] The FIP Community Pharmacy Section vision for 2025 highlights how empowering pharmacists through the four practice pillars of "review, prescribe, dispense and administer" breaks down barriers to care by improving choice and access.[47]

Improved education and training to prepare the pharmacy workforce to support patients as they engage in self-care is also necessary. Although guidance documents can assist pharmacists with these issues, there still remains a need for further coursework, sufficient training and experiential learning regarding self-care.

There is a need for increased digital health literacy among pharmacy graduates. As electronic health records and digitised data become more common, it is essential that graduates can easily understand and work with these systems and conduct the necessary research to answer self-care questions.

In today's globalised world, the advance of self-care in pharmacy will require a concerted and united effort across multiple countries and territories. The advancement of the pharmacy profession is assuredly a shared goal among all pharmacy practitioners and advocates across the world. FIP aims to equip and empower pharmacy professionals to advocate pharmacy-supported self-care while also establishing common clear and measurable goals. FIP recently joined forces with the Global Self-Care Federation in a joint statement highlighting pharmacists' responsibilities in dispensing self-care products, supporting patients with adequate education, participating in multidisciplinary collaboration and encouraging individuals to make better proactive health choices. Moreover, the FIP report "Pharmacy as a gateway to care: Helping people towards better health" highlights the concept of facilitated or advised self-medication as well as the role that pharmacists can play as facilitators to the self-care decisions consumers take in the selection and use of non-prescription (over the counter) medicines.

The FIP Development Goals established in 2020 set forth a vision for the future of pharmacy, including self-care, through 21 objectives. Goals 5 (Competency development) and 15 (People-centred care) are particularly relevant to advancing self-care. Through utilising different tools, documents and handbooks, pharmacists can strive to become competent stewards of self-care while using a person-centred approach.

Chapters 4 to 9 will present six different key areas for self-care: sore throat, gastrointestinal complaints, musculoskeletal pain, children's fever, sexual health, and disinfection and the pharmacy.

4 Sore throat

Sore throat can be defined as a painful, dry or scratchy feeling in the throat. It is generally a self-limiting condition that usually has no significant long-term harmful effects on health. Throat pain is one of the most commonly encountered symptoms in the community pharmacy, especially during winter, and accounts for a high number of GP visits each year, therefore placing a considerable burden on the health systems.[48]

Causes of sore throat can vary and can include viral infections, environmental factors, allergies and smoking. It is less commonly caused by bacteria. The most common occurrence of bacterial infection causing sore throat is group A streptococcal throat infections or commonly referred to as “strep throat”. Viral infections are frequently accompanied by cough, runny nose, hoarseness and sometimes conjunctivitis. In contrast, bacterial infections (strep throat) include symptoms such as fever, white patches on the throat (tonsillar exudates which indicate the presence of bacteria) and generally high levels of local inflammation.[49]

Other factors that might cause a sore throat include allergies, postnasal drip, dryness caused by external factors or irritants, irritation from excessive voice use, or inflammation due to reflux disease. Exposure to tobacco or chemical irritants, a weakened immune system, and recurrent upper respiratory infections can put an individual at higher risk of developing a sore throat.[50]

The routine use of antibiotics for sore throat is not recommended. Sore throat is one of the most common upper respiratory tract infections where inappropriate and unjustified antibiotics use occurs.[51] There are increasingly more studies on the use of rapid tests to differentiate between viral and bacterial throat infections to guide antibiotics prescription and minimise the misuse of antibiotics for infections caused by viruses or other microbial agents.[52]

4.1 Signs and symptoms

Symptoms of sore throat include:[50]

- Pain or a scratchy sensation in the throat;
- Pain that worsens with swallowing or talking (odynophagia);
- Difficulty swallowing (dysphagia);
- Sore, swollen glands in the neck or jaw;
- Swollen, red tonsils; and
- A hoarse or muffled voice.

Red flag symptoms include:[53]

- A sore throat that is severe or lasts longer than a week;
- Difficulty and painful swallowing (odynophagia or dysphagia), with difficulty in breathing or opening the mouth;
- Joint pain, earache or swelling of the neck;
- Fever higher than 38.3°C (101°F) with or without shaking, chills and night sweats;
- Frequently recurring sore throats; and
- Hoarseness lasting more than two weeks.

The presence of any red flag symptoms should lead the pharmacist to refer the patient to the healthcare system where the patient can see a doctor and get an adequate follow-up and treatment if needed.

4.2 Triage

Community pharmacies can play an important role in screening for bacterial infections through the use of rapid tests. These tests help distinguish between cases that can be managed with non-prescription (over the counter) medicines and those that require referral for further examination and a potential prescription for

antibiotics. Offering these types of screening tests can aid in antimicrobial stewardship efforts within the community while relieving the pressure placed on health systems by frequent consultations for sore throat.[54]

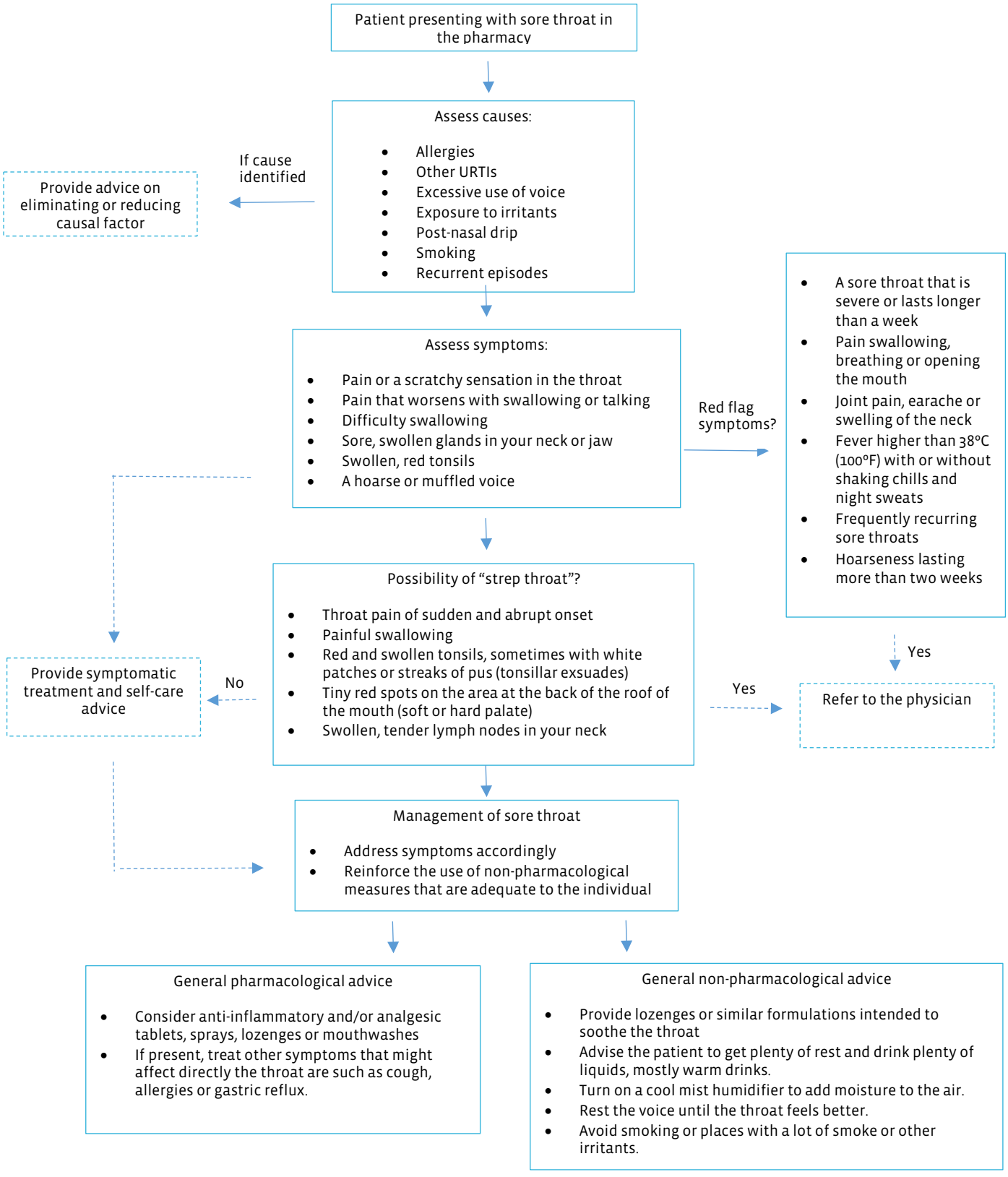
In countries and territories without accessible point-of-care diagnostic testing or screening tools, the tendency for antibiotics to be prescribed is higher than in countries and territories that possess such capacity.[55] As an example, in the UK, there is a community pharmacy-based screening and treatment service using point-of-care testing.[56] This type of service supports the mitigation of antimicrobial resistance by reducing inappropriate antibiotics use. In comparison, in instances without access to such tests, several tools, such as the Centor or McIsaac scores, can support pharmacists in screening patients for streptococcal throat infections.[57]

In addition to the use of these tests, pharmacists play an important role in accurately collecting patient data and screening for red flag symptoms in their patient assessments. Specific questions that pharmacists may ask patients to guide their recommendations on the most appropriate treatment for sore throat include:

- Do you have any visible red or white dots in your throat?
- Is cough present? Dry or productive? What colour is your sputum?
- Do you have fever? For how long? What is the average reading? How did you measure it?
- Does it hurt when you swallow? Are you able to adequately eat or drink?
- Do you have any known allergies?
- Do you feel any other symptoms, such as acid reflux?

The decision to refer the patient or recommend interventions to manage symptoms should be considered on a case-by-case basis after careful patient assessment. Figure 2 summarises the guidance steps for the management of sore throat.

Figure 2 — Chapter summary flowchart for sore throat management



4.3 Pharmacological management

As sore throat is a self-limiting condition, advising patients to get plenty of rest is helpful to allow the immune system to fight off the infection. The use of non-prescription (over the counter) medicines can also relieve symptoms associated with sore throat in most cases and prevent unnecessary visits to the doctor. Pharmacological options usually available in the pharmacy are generally aimed at reducing local pain and inflammation. These can include anti-inflammatory and analgesic agents, lozenges, sprays, drops and mouthwashes.[58]

Concomitant cough may also increase irritation and worsen the sore throat. In these cases, medicines to reduce cough may be also useful. Moreover, postnasal drip is frequent in conditions like rhinitis or sinusitis and may cause further irritation in the throat. Post nasal drip is often associated with cough, which can also increase the symptoms of sore throat.[59] Gastric reflux and patient allergies can also lead throat irritation. With regard to allergies, non-prescription (over the counter) antihistamines may be recommended to help reduce symptoms and support management of the sore throat.

The most used non-prescription medicines in the management of sore throat are listed in Table 1.

Table 1. Most common non-prescription medicines used in sore throat

Non-prescription medicines	Normal dosage	Onset of action	Duration of use	Main adverse effects	Considerations
Paracetamol (acetaminophen)[60]	Adults: 500 to 1,000mg at a time up to four times in 24 hours (up to 4,000mg per 24 hours, though the daily maximum dose may be reduced in the elderly). Children: 10 to 15mg/kg per dose (up to 60 to 75mg/kg per 24 hours).	Takes up to an hour to work. It keeps on working for about five hours. Always leave at least four hours between doses.	It is safe to take paracetamol regularly for many years as long as the recommended dosage is not exceeded. It should be taken in the presence of symptoms until they disappear.	Increased aminotransferase levels. Liver toxicity in overdose. Hypersensitivity reactions (rare).	Dose reduction is required in liver disease. Refer to local protocol or product information for dosing guide. Inform the patient to check the label to see whether they contain paracetamol, before taking any other medicines Safe in pregnancy and breastfeeding.
Non-steroidal anti-inflammatory medicines (NSAIDs), such as ibuprofen[61]	Ibuprofen: Adults: 200 to 400mg up to three times a day, preferably with food. Children, usually starting at 6 months: 5–10mg/kg (up to 40mg/kg per 24 hours).	Ibuprofen takes 20 to 30 minutes to work.	It is recommended to take the lowest dose for the shortest time possible. It should be taken in the presence of symptoms until they disappear.	Gastrointestinal adverse effects. Dizziness. Potential exacerbation of asthma. May increase the risk of bleeding and of kidney injury.	Advise not to use it for more than 10 days and to not use for more than two weeks without talking to a doctor.
Topical analgesics (anaesthetics and anti-inflammatories): • **Benzocaine[62]** • **Lignocaine** • **Benzydamine** • **Flurbiprofen**	One lozenge dissolved in mouth; repeat every two hours. Apply one spray to affected	Allow medication to stay on painful area for at least one minute before spitting it out	Generally, use for less than two days.	Sensitivity reactions. Oral rinse can cause stinging sensation. Mild abdominal symptoms.	No major cautions for use. Advise not to use this product for children younger than two years due to risk of serious side effects.

Non-prescription medicines	Normal dosage	Onset of action	Duration of use	Main adverse effects	Considerations
	area; spit after one minute; may repeat up to four times.	or rinsing the mouth.			

4.4 Non-pharmacological management

There are many measures that can be taken to control the symptoms of sore throat. Due to inflammation, the purpose of non-pharmacological treatments is to soothe the throat and relieve local pain. Advise the patient of the following management options:[50]

- Get plenty of rest;
- Gargle with a mixture of warm water and salt;
- Drink warm liquids that feel soothing to the throat, such as hot tea with honey, soup broth, or warm water with lemon, as well as drinking plenty of liquids;
- Soothe the throat area with a piece of hard candy or a lozenge (this can also be done with honey);
- Turn on a cool mist humidifier to add moisture to the air;
- Rest the voice until the throat feels better; and
- Avoid smoking and places with a lot of smoke.

4.5 Useful resources and links

- Australian commission on safety and quality in health care – factsheet: should I take antibiotics?
- NHS UK – Sore throat
- Health Direct (Australia) – Sore throat
- News in health (USA) – Soothing a sore throat
- Management of Respiratory Disorders and the Pharmacist's Role
- Global Respiratory Infection Partnership resources
- CDC checklist - Virus or Bacteria
- Centor and McIsaac scores

5 Gastrointestinal complaints

The gastrointestinal (GI) tract is responsible for the digestion and absorption of nutrients from ingested food and drinks. The most common GI conditions are heartburn, vomiting, dyspepsia, bloating, diarrhoea and constipation.[63]

Causes for GI complaints include a diet low in fibre and high in fat, smoking, excessive ingestion of irritant drinks, stress, lack of ingestion of water or an inactive lifestyle.[64] There is a positive association between excess weight and the frequency of gastroesophageal reflux.[65] Neurologic factors may also be contributory as individuals with depression may be more likely to experience upper GI complaints.[66] Changes in intestinal motility due to inflammation or changes in nutrition or by conditions like irritable bowel syndrome or coeliac disease can lead to diarrhoea or constipation.[67]

Although most cases of upper GI complaints might be of low severity, peptic ulcer disease is a complicated condition, especially if associated with *Helicobacter pylori*, which warrants extensive treatment with antibiotics.[68] Persistent complaints of GI symptoms might indicate this cause, and pharmacists should consider referral for testing if this situation is encountered.

5.1 Signs and symptoms

The most common symptoms associated with upper GI complaints are abdominal discomfort, which can be present in the form of bloating, pain or cramps, nausea or vomiting, acid reflux (heartburn), difficulty in swallowing (dysphagia), and loss of appetite due to the discomfort.[69]

On one hand, diarrhoea might cause abdominal pain and cramps, a sense of urgency in having to use the toilet (sudden onset of three or more loose stools per day or increased frequency as compared with baseline), and nausea. In most cases, acute diarrhoea is self-limiting and resolves after a couple of days. Chronic diarrhoea is usually associated with a chronic gastric disease, such as inflammatory bowel disease, and should be monitored by a physician.[70] On the other hand, constipation is characterised by slow bowel movements (passing fewer than three stools a week or decreased frequency as compared with baseline) and a feeling of incomplete emptying of the bowels (suboptimal sense of relief following defaecation). This may be caused by changes in nutrition, changes in bowel structure, fissures or sometimes cancer.[71]

Red flag symptoms include the presence of blood in the vomit (haematemesis) or stool (haematochezia), dark or black faeces (melena), persistent vomiting, progressive unintentional weight loss (up to 5% of the body normal weight over six to 12 months without an identifiable cause), chest pain, or severe difficulty in swallowing (dysphagia).[72] If patients present any of these symptoms, they should be promptly referred for further evaluation.[73]

5.2 Triage

Pharmacists can support patients in making an accurate assessment of their condition by asking simple questions that characterise the frequency, nature and severity of symptoms. Pregnant women may also suffer with reflux due to an altered position of the GI tract. The use of drugs with minimum systemic absorption (such as sucralfate or alginic acid) are preferred in this specific patient population.[74]

Community pharmacists are critical in screening for different conditions related to the GI tract. Examples of colorectal cancer screenings exist in community pharmacies and are useful in the identifying cases that would require referral for medical assessment.[75,76] Considering the potential risk of complications and severe disease, thorough patient education and assessment are also paramount as patients might rely on the use of non-prescription (over the counter) medicines for extensive periods and refrain from seeking medical advice.[76,77]

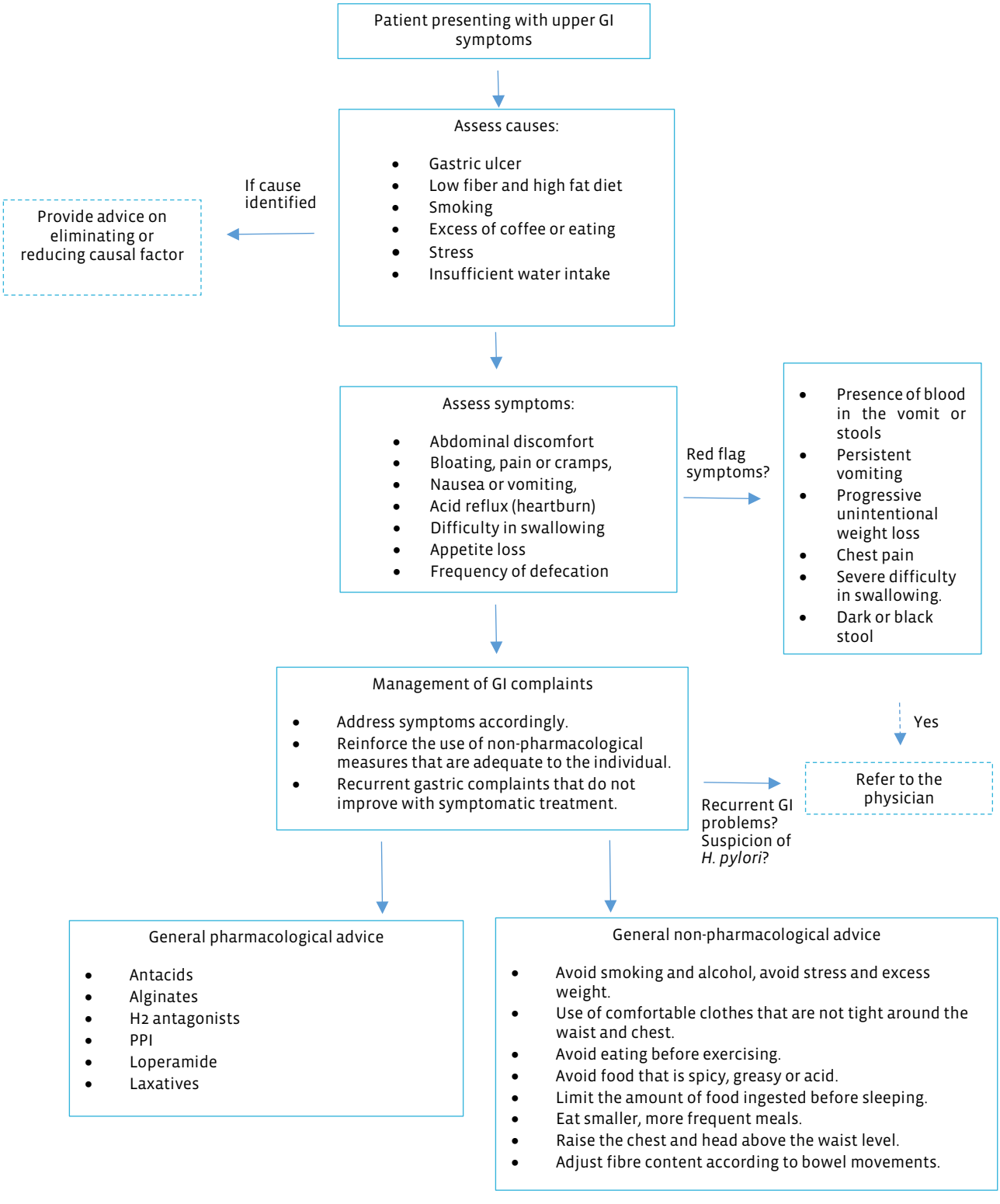
Several questions can be used to understand the main symptoms associated with upper GI tract conditions:[78]

- Does it burn in the area above your stomach?

- Does it feel worse when you eat too much?
- For how long have you had these symptoms?
- Are you taking any anti-inflammatory medicines or other medicines that may irritate the GI tract?
- Do you have nausea or vomiting? Is there any blood in the vomit?
- How frequently do you usually use the toilet? Has this frequency increased or decreased?
- How is the consistency of the stool? Is there any blood?
- Have you got a temperature?
- Have you been travelling abroad?

Figure 3 provides an overview of the information in this chapter and a flowchart for the management of GI complaints in the community pharmacy.

Figure 3 — Chapter summary flowchart for GI complaints management



5.3 Pharmacological management

Pharmacists are key players in helping individuals with frequent GI complaints. Moreover, as they frequently interact with regular patients and have access to their medication data, they can also identify medicines that may contribute to GI symptoms, such as NSAIDs.[79] Pharmacists should also be aware that medicines used to relieve GI symptoms can significantly alter the pH of the stomach, which may ultimately interfere with the absorption of other medicines. A complete review of the patient's current medication regimen is therefore necessary to ensure appropriate management options.[80] Different pharmacological options exist for the treatment of upper GI tract symptoms:[78, 81]

- Antacids are normally recommended for short or intermediate term relief, as they are salts (minerals) that act by neutralising gastric acid.
- Alginates precipitate in the form of a gel that physically creates a coating around the stomach mucosa, acting as a protective barrier against the acid.
- Anti-histaminic (H2) medicines provide longer relief than antacids and act by blocking the secretion of gastrin and acid that appears after a meal.
- Proton pump inhibitors (PPI) can be obtained without a prescription (over the counter) in most countries and territories. They are mostly associated with chronic use, representing one of the most effective treatments for frequent reflux symptoms, and are often recommended as initial treatment in uncomplicated cases.[82] PPIs act by inactivating the active form of the proton pump, resulting in decreased acid secretion. The different drugs available in this class have different availability as non-prescription medicines according to local regulatory frameworks. PPIs should be used at the lowest effective dose for the shortest possible time.
- For nausea and vomiting, several agents exist, including ginger tablets and dimenhydrinate. Domperidone and metoclopramide are prescription-only medicines that are also commonly used.
- For diarrhoea, the most commonly used drug is loperamide, which is available without a prescription in many countries and territories.
- For constipation, there are a range of laxatives with different mechanisms of action that can be used.

The most common used non-prescription (over the counter) medicines used in the management of GI complaints are listed in Table 2.

Table 2 — Most common non-prescription (over the counter) medicines used in upper GI complaints

Non-prescription medicines	Normal dosage	Onset of action	Duration of use	Main adverse effects	Considerations
Upper GI medicines: Antacids and alginates[83]	Usually take one tablet or sachet up to four times per day.	Effects of antacids normally last for around four hours.	Use it according to the duration of symptoms and do not take it for longer than seven days without checking with a doctor.	Antacids do not usually have many side effects if they are taken only occasionally and at the recommended dose.	Antacids can affect how well other medicines work, so advise not to take other medicines within two to four hours of taking an antacid.
Upper GI medicines: H2 antagonists[84]	Usually come as a tablet or a liquid to take by mouth. It is usually taken up to two to four times a day on an empty stomach.	Effects usually provide relief from 15 minutes of their intake.	If symptoms last longer than two weeks, stop taking over the counter H2 antagonists and visit your doctor.	Most common side effects include headache, dizziness, constipation and diarrhoea.	This medicine might not be available without a prescription according to local regulatory frameworks.
Upper GI medicines: PPIs[85]	Usual dose of one tablet first thing in the morning. Can be used up to twice a day on an empty stomach.	Commonly, these medicines are taken 30 minutes before the first meal of the day.	If you have a peptic ulcer, your doctor may prescribe PPIs for up to two weeks.	Side effects from PPIs are rare. You may have a headache, diarrhoea, constipation, nausea or itching	PPIs are normally well tolerated. PPIs should be used at the lowest effective dose for the shortest possible time.

Non-prescription medicines	Normal dosage	Onset of action	Duration of use	Main adverse effects	Considerations
					Patients should be warned that rebound acid secretion often occurs following withdrawal of treatment, even after periods as short as four weeks. Many patients will be able to manage symptoms during this withdrawal period with alternative medicines, such as antacids.
Loperamide[86]	Usual dose of two capsules or tablets, taken immediately following a loose stool. Then one capsule or tablet after each loose stool to a maximum of eight per day.	Usually works within one hour.	Use in acute situations. Do not take for more than 48 hours.	Side effects include constipation, flatulence and headache. Using for too long can cause constipation.	Do not give loperamide to children under 12 years old unless their doctor has prescribed it. Reinforce the importance of adhering to dietary and lifestyle measures (drink plenty of water and exercise regularly). Avoid in infective diarrhoea, unless essential for travel.
Laxatives (preferred order):[87] 1. **Bulk-forming** 2. **Osmotic** 3. **Stimulant**	Usual dose depends on the compound and pharmaceutical form but is normally used once or twice a day for the duration of the symptoms.	Suppositories have a quicker onset of effect (around 15 to 30 minutes). Can take up to two or three days to work. Some laxatives must be taken first thing in the morning or last thing at night.	Use until soft and formed stools are produced without straining. Gradually reduce the medication.	Intestinal obstruction, perforation or inflammation. Can also cause bloating and flatulence. Using for too long can cause diarrhoea.	Reinforce the importance of adhering to dietary and lifestyle measures (drink plenty of water, eat a high fibre diet, and exercise regularly).

5.4 Non-pharmacological management

GI complaints are commonly associated with lifestyle factors. It is important for patients not to smoke or drink excessive alcohol as well as to avoid stress and excess weight. The use of comfortable clothes which are not restrictive or tight around the waist and chest may also help relieve symptoms in some cases. Avoiding eating before exercising may also help to reduce symptoms. Other tips include getting adequate sleep, waiting sufficient time between the final meal and bedtime, and avoiding lying down immediately after eating.

Nutrition can play an important role in the prevention of these conditions. Avoiding food that is spicy, greasy or acidic in addition to excessive caffeine or alcohol can help maintain a neutral pH of the stomach. Before going to bed at night it is important to limit the amount of food ingested. For patients with frequent GI complaints, advice should be given to eat smaller, more frequent meals as this will facilitate digestion and avoid the feeling of bloating. In cases of constipation, high fibre diets (at least 30g per day) are advised. Of note,

FIP has developed a toolkit on Nutrition and weight management services that can support pharmacists in delivering correct nutritional advice to patients.

Lying on the left side may help reduce the movement of stomach acid towards the oesophagus. A similar strategy may be to recommend to patients that they raise the chest and head above their waist level while they are lying down.

Natural supplements containing digestive enzymes and components to aid in digestion, such as pancreatin or amylase, may be useful for certain individuals. Plant infusions, such as peppermint, may also help with digestion.[88] Finally, the use of probiotics or oral rehydration solutions may also be adequate for relief.

5.5 Useful resources and links

- NHS UK Heartburn and acid reflux
- NHS UK Diarrhoea and vomiting
- National Institute of Health (USA) - GERD
- International Foundation for GI Disorders (IFFGD) – common conditions
- IFFGD sites – further resources
- National Institute of Health – Digestive diseases
- The minute counsellor - Guide to Heartburn and PPI
- World Gastroenterology Organisation "Coping with Common GI Symptoms in the Community"

6 Musculoskeletal pain

Musculoskeletal pain affects around 1.71 billion people worldwide and comprises more than 150 conditions that affect mobility. Common examples include mechanical lower back pain, tendon problems, osteoarthritis, gout, and more complex immune diseases such as rheumatoid arthritis. It is estimated that at least half of the world population has experienced musculoskeletal pain in their lives and around one in five experiences chronic pain.[89]

In ageing populations, musculoskeletal pain will be more frequent, leading to a higher burden of this illness and greater frequency of the associated disability. Musculoskeletal conditions are also the biggest contributor to years lived with disability (YLDs) with approximately 149 million YLDs, accounting for 17% of all YLDs worldwide. Musculoskeletal pain is one of the main reasons behind the need for rehabilitation services and represents the reason for consultation for approximately two-thirds of all adults in need of rehabilitation.[90] Musculoskeletal issues commonly occur with other long-term conditions (multimorbidity).

Overweight and obese people might suffer from pain in the lower back, knees and feet. This may in part be due to the excessive force placed by the patient's increased weight on their joints.[91] Another functional aspect that contributes to the presence of pain is low levels of muscle mass, also known as sarcopenia. Weak muscles lead to increased joint strain, causing tendon inflammation and leading to reduced limb function (which may translate into things like difficulty undoing jars or getting out of a chair), reducing mobility and ultimately quality of life.[92]

The pathophysiology of musculoskeletal pain has not been entirely elucidated, but local joint problems (such as inflammation and tissue degradation), systemic factors and central (sensitisation) factors may be involved. The common triggers that exacerbate musculoskeletal pain usually consist of repetitive and forceful actions, and they especially affect individuals who are weak and those with prolonged static positioning. Joint pain can uncommonly also be secondary to other causes, such as infection, autoimmune disorders or injuries.[93]

6.1 Signs and symptoms

Low back pain is one of the most prevalent types of pain, being the single leading cause of disability in 160 countries, especially in younger age ranges. This is an important cause for premature work absenteeism, which leads to significant direct and indirect health costs.[94] Symptoms can fluctuate during the day and be affected by work shifts, schedules and rest patterns.[95] Furthermore, there are established guidelines for the classification of chronic pain that can be applied in primary care settings, developed by the International Classification of Diseases of the WHO.[96]

Time may also be an important factor in hyperalgesia and larger pain areas because musculoskeletal pain develops over time, possibly linked to different mechanisms, such as sensitisations, central integration, and expansion of receptive fields for pain.[97] In older populations, neuropathic pain and central pain syndromes may also be present. Chronic pain also contributes to other conditions, such as low physical activity levels, poor mobility, frailty, depression and poor sleep quality.[98]

Pain can be related to a particular joint or referred to another site (e.g., shoulder pain is commonly felt mid-upper arm). Common symptoms related to joint pain include weight-bearing or movement-related pain, disuse stiffness (e.g. after sitting for a prolonged period), fatigue and muscle twitches.[99]

Red flag situations that warrant further investigation for conditions such as fracture or infection include:[100]

- Older age at new symptom onset;
- Night pain;
- Fever and sweats;
- Neurological features; and
- Previous history of malignancy.

6.2 Triage

The most useful question to ask people with joint pain is to appropriately characterise their pain. This includes identifying how long they have morning pain or stiffness, descriptions of the type of pain they feel (soreness, numbness, feelings of electrical shocks, etc.) and what provides them with relief (rest or activity).

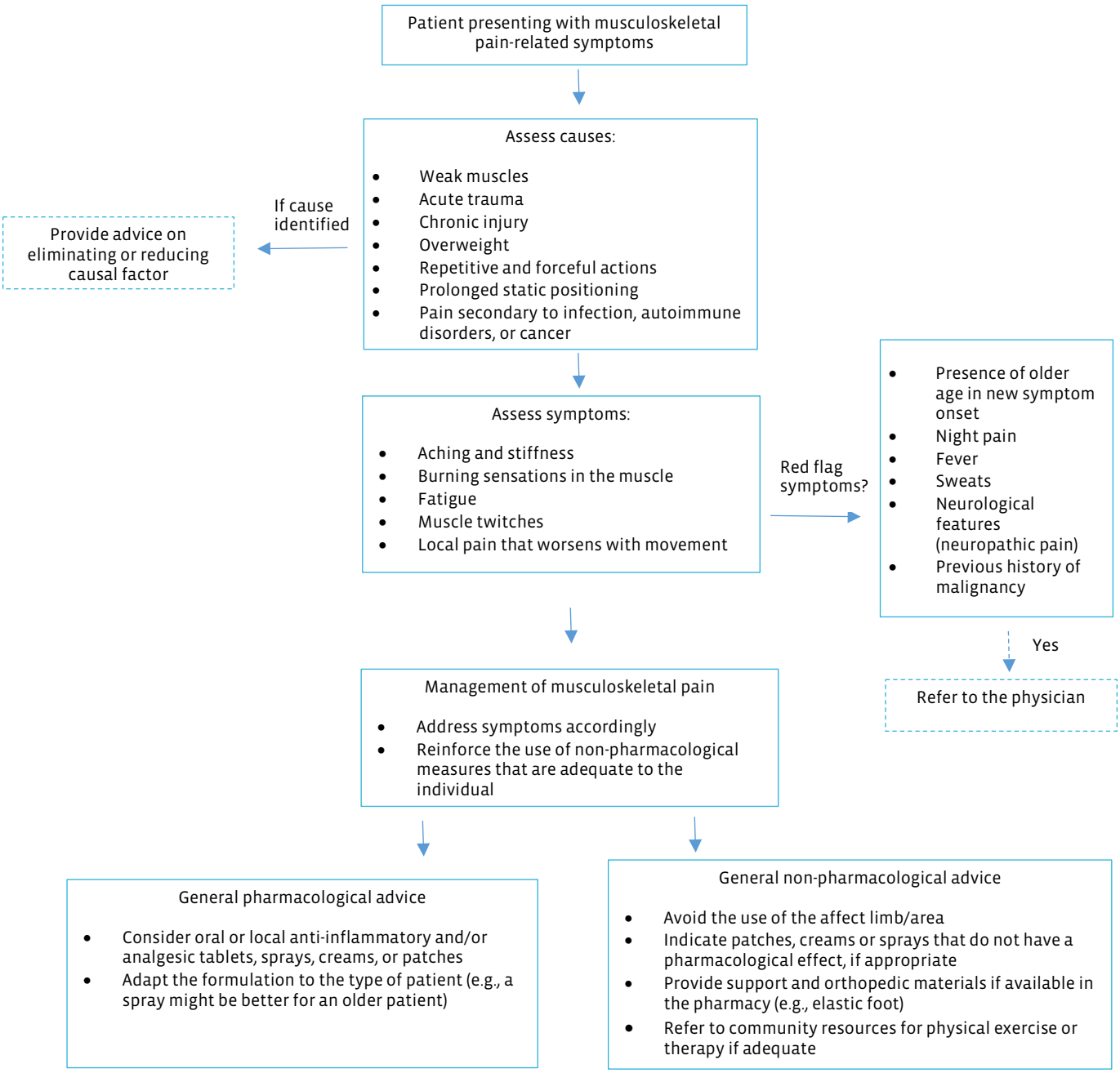
People with osteoarthritis may have five to 10 minutes of morning stiffness after getting out of bed before the joint "frees up". In some cases, the pain may get worse again throughout the day, especially following prolonged time on their feet. Morning stiffness is ruled out if individuals feel their stiffness is present all day. If there is more than 60 minutes of morning stiffness, it may be worth referring the patient to their physician or to a rheumatologist for further assessment.

Asking patients about activities of daily living, such as the ability to undo jars or if they can easily get out of deep chairs, is a simple way of flagging muscle weakness, which is commonly associated with tendon inflammation and joint pain. It is important to ask about gout history and to look for swollen joints, especially in male patients, to rule out gout as a contributing factor to musculoskeletal pain.

Occupational activities and work responsibilities carried out by patients can also influence the severity and recurrence of musculoskeletal pain and lower back pain in particular.[101] For example, many jobs require extensive hours in a seated position, which can contribute to lower back pain. Referral to appropriate healthcare professionals may also help to minimise the risk of developing long term musculoskeletal pain.

Figure 4 provides an overview of the information in this chapter and a flowchart for musculoskeletal pain management in the community pharmacy.

Figure 4 — Summary chapter flowchart for musculoskeletal pain management



6.3 Pharmacological management

A pain management plan should be multimodal (e.g., physical, pharmacological, psychological) and developed in close partnership with the patient. Treatment objectives include reducing pain, enhancing physical function and promoting return to work or other valued activities. All these goals can improve the overall health-related quality of life.[102] Pharmacists can support these goals through ongoing monitoring using motivational approaches and providing patients with advice on pharmacological and non-pharmacological management, with referrals to other members of the healthcare team, if needed.

The management of musculoskeletal pain by pharmacological means can be challenging as many individuals will respond differently to different types of medication. It is, however, important to reach therapeutic doses of the initial agent before switching to a different analgesic, with the aim of minimising the risk of medicine-

specific adverse effects, such as gastric complications with NSAIDs.[103] The medicine should always be adapted to the patient, e.g., some of them may have mobility restrictions and prefer oral formulations.

To consider the pharmacological options described below, pharmacists should consider the different factors that influence treatment options. These factors include: patient choice and characteristics; cost, access and insurance coverage; type, pattern and severity of pain; and aspects related to drug response and drug monitoring.[104, 105]

Pharmacists can advocate self-care for acute pain through the use non-prescription (over the counter) analgesics by a multi-modal approach while referring to other healthcare professionals only when needed. The first step generally includes topical NSAIDs. Topical treatments for pain may also be used for the treatment of chronic joint pain, especially in the knee or hand, or where there are limitations the oral route of administration. Different potential therapies, NSAIDs or capsaicin, are commonly found in creams or gels and are readily available.[106]

For increased analgesia, opioids may also be considered, but they are only available by prescription in most countries and territories. Because of the risks of interactions with other medicines and their adverse effect profile, opioids should not be used on a long-term basis as tolerance and dependence can develop.[107] The combination of different medication classes is also common. Of note, there is literature that highlights the absence of evidence on the efficacy of low-dose codeine, which is found in many non-prescription formulations, normally in combination.[108]

Cannabis-based products have been tried for the management of chronic pain around the world, but there is limited evidence of their benefits for musculoskeletal pain.[109] Pharmacists can play an important role in inquiring about the use of cannabis-based products to assess for potential effectiveness and safety as well as provide strategies to reduce harm and enhance therapeutic outcomes with these products.[110]

The most common non-prescription medicines used in the management of musculoskeletal pain are listed in Table 3.

Table 3 — Most common non-prescription (over the counter) medicines used in musculoskeletal pain

Non-prescription medicines	Normal dosage	Onset of action	Duration of use	Main adverse effects	Considerations
Paracetamol (acetaminophen)[60]	Adults: 500 to 1,000mg at a time up to four times in 24 hours (up to 4,000mg per 24 hours, though the daily maximum dose may be reduced in the elderly).	Takes up to an hour to work. It keeps on working for about 5 hours. Always leave at least 4 hours between doses.	It is safe to take paracetamol regularly for many years as long as the recommended dosage is not exceeded. It should be taken in the presence of symptoms until they disappear.	Increased aminotransferase levels. Liver toxicity in overdose. Hypersensitivity reactions (rare).	Dose reduction is required in liver disease. Inform the patient to check the label to see whether they contain paracetamol, before taking any other medicines. Usually safe in pregnancy and breastfeeding.
Non-steroidal anti-inflammatory medicines (NSAIDs): e.g., ibuprofen[61]	Ibuprofen: Adults: 200 to 400mg up to three times a day, preferably with food.	Oral ibuprofen takes 20 to 30 minutes to work.	It is recommended to take the lowest dose for the shortest time possible. It should be taken in the presence of symptoms until they disappear.	Gastrointestinal adverse effects. Dizziness. Potential exacerbation of asthma. May increase the risk of bleeding and of kidney injury.	Advise not to use it for more than 10 days without talking to a doctor.
Topical anti-inflammatories are available as **gels, gel patches, sprays, or**	To be applied to the affected body areas	Effect of pain reduction usually happens	Use for the duration of symptoms or up to 21 days or as	Dryness, redness, itching, swelling, pain, hardness, irritation, swelling,	Advise not to apply the medicine to skin that is broken,

Non-prescription medicines	Normal dosage	Onset of action	Duration of use	Main adverse effects	Considerations
foams. They contain an anti-inflammatory medicine such as **ibuprofen, diclofenac, felbinac, ketoprofen or piroxicam** and come in various brand names	four times daily.	within 15 minutes from the application and lasts up to several hours.	recommended by a doctor.	scaling or numbness at application site.	peeling, infected, swollen, or covered with a rash.

6.4 Non-pharmacological management

The treatment of musculoskeletal pain includes multiple non-pharmacological therapies, such as physical and psychological therapies. Physical modalities can include muscle strengthening, exercise programmes and physical activity.[111] For some patients, using hot or cold packs can provide short-term pain relief. These agents also have favourable safety profiles despite limited evidence on effectiveness. Pharmacists can also educate patients on the appropriate use of relevant orthotic materials, if available in the pharmacy, such as walking sticks (knee or hip pain) or thumb splints (base of thumb pain), to support patients and improve their mobility.

Physical exercise plays an essential preventive and therapeutic role in muscle strengthening. Muscle strength is positively associated with reduced joint pain. Even if exercise helps reduce pain severity and improves physical function, it may be perceived as a barrier or inconvenience to some patients as compared with pharmacological options which require less time and effort investment for relief.[112] For patients with lower limb osteoarthritis, the use of a pool facility to perform exercise may be useful (walking in the water being the simplest and safest form).

Pain education is an important part of psychological approaches to relieving pain. Pharmacists can provide such education and can correct misinformation when interacting with patient. Other psychological approaches include cognitive behavioural therapy, mindfulness-based stress reduction, and acceptance and commitment therapy. As pharmacological options have limited robust evidence to support their use for most types of musculoskeletal pain, these non-pharmacological approaches are important to include in the management of this condition while respecting patients' beliefs and preferences.[113]

Referral to community facilities that can provide support with rehabilitation, physiotherapy or other pain coping strategies, such as meditation or relaxation techniques, should also be considered.[114]

Other management options to consider include a reduction in workload and increased rest. In addition, a reduction in weight of approximately 5–10% has been associated with improvements in knee pain and disability.[115] Weight loss is challenging for many patients, which may contribute to fear and apprehension and ultimately result in a lack of physical activity and low dedication to weight reduction. In instances where the patient is motivated to lose weight, referral to specialised healthcare professionals or formal weight loss programmes should be considered.[116]

6.5 Useful resources and links

- WHO MSK factsheet
- NHS UK MSK pain videos
- The pain toolkit resources
- MSK Hub – Useful links
- Versus Arthritis
- Musculoskeletal Australia
  Paracetamol/ibuprofen combinations for acute pain

7 Children's fever

A fever is an elevation of body temperature as a natural response to an ongoing infection. Temperature in children can be measured via rectal, axillary or oral routes or with the aid of infrared devices used in the ear or on the forehead. In infants under the age of four weeks, body temperature measurements with an electronic thermometer in the axilla may be performed. In children aged four weeks to five years, body temperature measurements by electronic or chemical dot thermometer in the axilla or infra-red tympanic thermometer may be taken.[117] However, rectal measurement of temperature is highly accurate and represents the preferred way to measure temperature where feasible.[118] Fever is identified via rectal measurement with a temperature over 38°C (100°F), via oral measurement with a temperature over 37.8°C (100.4°F) and via axilla measurement with temperature over 37.2°C (99°F).[119]

Fever, often worrying to parents and caregivers, is normally caused by a self-limiting illness that can be safely managed with non-prescription (over the counter) medicines.[120] Children's fever represents a common reason for consultation in community pharmacies, and pharmacists and their teams should therefore be well equipped to address this condition and screen for red flag signs and symptoms (see below) that would warrant further investigation. Through education on the appropriate use of anti-pyretic medication and safety netting advice, including how to access care out of hours, parents and families are further empowered to engage in the self-care of their children, and the use of emergency departments and other health resources can be reduced and optimised.[121]

Physician referral is warranted when a child aged under three months has a fever higher than 39°C (102.2°F) - measured by electronic or chemical dot thermometer in the axilla or infra-red tympanic thermometer - or when a child of any age presents with persistent high fever for five days or more, is not drinking or breastfeeding, is vomiting and dehydrated, or is having convulsions. Other warning symptoms of severe disease requiring urgent referral to emergency services include non-responsiveness, abnormal breathing or grunting, neck stiffness, and a rash that does not fade on pressure. In most cases, fever is cause by viral infection, and therefore antibiotics are not required. However, if a bacterial cause is suspected, children should be urgently referred for assessment.[122]

7.1 Triage

Community pharmacists play an important role in supporting parents with questions about childhood fever, even if the child is not physically present at the pharmacy. Reported parental perception of a fever should be considered valid and taken seriously by healthcare professionals.[123] If the child is present in the pharmacy, pharmacists should adequately assess the child by verifying if they are energetic or if they appear quiet, unwell or somnolent. Wherever possible, the temperature should be measured.

Pharmacists should be capable of recognising life-threatening and serious illnesses in young children, including meningitis, sepsis and measles. As most pharmacists do not routinely physically examine young children, assessments are usually based on patient history and interpretation of signs and symptoms. Furthermore, physical signs of serious illness in the very young can be difficult to assess. Utilising tools, such as categorising symptoms into red flag, amber, and green symptoms as depicted by the UK National Institute for Health and Care Excellence traffic light system, may be useful for identifying the risk of serious illness in children.[124]

Pharmacists can also use the opportunity to inquire about vaccination status, previous childhood diseases, such as measles, and reinforce the positive aspects of immunisation that protect against future illness.

Questions pharmacists can ask to support their screening of fever include:

- How old is the child?
- How long has the child had fever? Are they getting better or worse?
- How high is the temperature? How was it measured?
- Have any medicines been given to help control the fever? If so, which medicine and how was it administered?
- Does the child have any other symptoms, such as a rash or difficulty breathing?

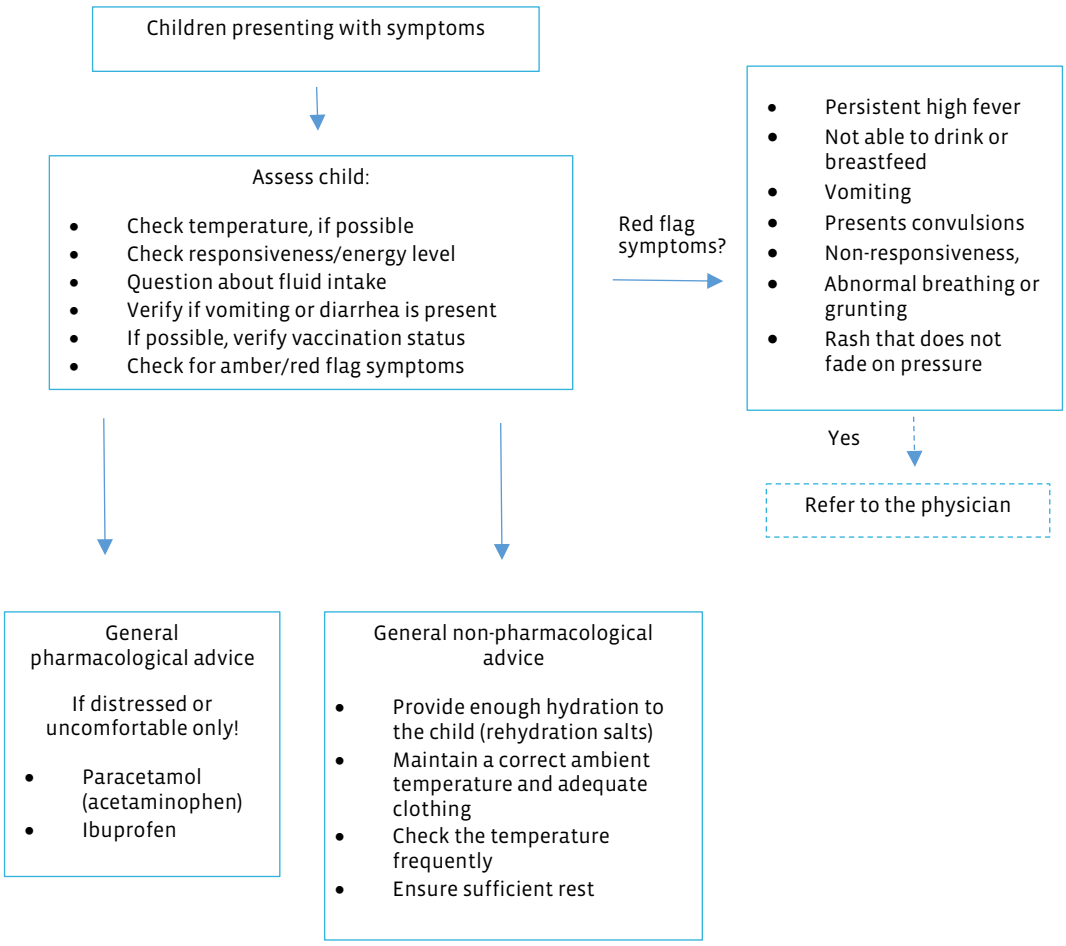
- Is the child behaving normally?
- Are they eating and drinking as normal, and have they had a wet nappy/been to toilet to urinate in past 12 hours?

One of the primary goals when encountering a child with fever should be to improve the child's overall comfort, advise parents on maintaining adequate intake of fluids, and closely monitor the child during their period of unwellness, including during the night. Community pharmacists can advise parents to keep a thermometer at home to allow for regular monitoring of the temperature.

If a child presents with vomiting or diarrhoea, the route of administration of medicines should be adapted to avoid absorption losses and dehydration. The label and product information can provide reliable information regarding weight-based dosages. Parents should be reminded of the correct dosage regimen and should be educated on the proper use of administration devices, such as oral syringes. Parents should also be advised to note the dose and timing of administered medicines to facilitate follow up.

Figure 5 provides an overview of the information in this chapter and a flowchart for children's fever management in the community pharmacy

Figure 5 — Chapter summary flowchart for children's fever management



7.2 Pharmacological management

Antipyretic medication is not usually required to reduce fever unless the child is uncomfortable or distressed. The most frequent antipyretic medicines used in children are paracetamol (acetaminophen) and ibuprofen.[125] In the case of liquid formulations, it is important to ensure the dose is adequately determined and measured.

Paracetamol (acetaminophen) is usually used with doses of 10 to 15mg/kg given every four to six hours, up to a maximum of 60 to 75mg/kg depending on local guidelines and product labelling. Different pharmaceutical formulations are available for children of different ages, including suppositories, syrup, chewable tablets and soluble powders. Parents should be counselled not to give any other medicines which contain paracetamol or ibuprofen at the same time and to ensure that the most suitable age-based formulation for their child is used.

Ibuprofen is as effective as paracetamol when used to reduce fever, normally used with doses of 5 to 10mg/kg. Due to its acute use for febrile illness, there is a low probability of developing the common side effects for ibuprofen, such as gastric inflammation.[126] In children who have been diagnosed with asthma, preference should be given to paracetamol to avoid any potential respiratory side effects, although the probability of complications is not high. Prior tolerance to ibuprofen of children with asthma may reassure patients, caregivers and healthcare professionals, and it should be adequately documented.[127]

When administering antipyretic medicines, parents should be advised to continue only if the child appears distressed. The agent of first choice can be changed to an alternative agent if the child's distress is not alleviated. It is, however, not recommended to use both ibuprofen and paracetamol simultaneously. Parents and pharmacists should only consider the concomitant, alternating use of these agents if the distress persists or recurs before the next dose is due, with careful monitoring of administered doses.

The use of aspirin is not recommended as it might cause the risk of developing Reye's syndrome in children.[128] The most commonly used non-prescription (over the counter) medicines used in the management of children's fever are listed in Table 4.

Table 4 — Most common non-prescription (over the counter) medicines used in children's fever

Non-prescription medicines	Normal dosage	Onset of action	Duration of use	Main adverse effects	Considerations
Paracetamol (acetaminophen)[60]	Children: 10 to 15mg/kg per dose (up to 60 to 75mg/kg per 24 hours) .	Takes up to an hour to work. It keeps on working for about five hours.	It should be given only if the child is distressed or uncomfortable in the presence of symptoms until they disappear and according to the child's weight.	Increased aminotransferase levels. Liver toxicity in overdose. Hypersensitivity reactions (rare).	Refer to local protocol or product information for dosing guide.
Non-steroidal anti-inflammatory medicines (NSAIDs): Ibuprofen[61]	Children, usually starting at 6 months: 5–10mg/kg (up to 40mg/kg per 24 hours).	Oral ibuprofen takes about 20 to 30 minutes to work.	It is recommended to give the lowest dose for the shortest time possible. It should be given only if the child is distressed or uncomfortable in the presence in the presence of symptoms until they disappear and according to the child's weight.	Gastrointestinal adverse effects. Dizziness. Potential exacerbation of asthma.	Recommend not to use it for more than five days. Do not recommend for use in children with chicken pox.

7.3 Non-pharmacological management

Hydration remains a priority when managing a child with fever. It is important to maintain adequate hydration levels to support the normal physiological functioning of the body and prevent dehydration. Signs of dehydration include dry mouth, lips and eyes, low urinary frequency, and increased thirst and tiredness. In the presence of these signs, caregivers should be encouraged to visit a healthcare professional for further advice.

To maintain adequate body temperature, children with fever should not be wearing excessive amounts of clothing or be covered by many clothes or blankets. In the case of extensive sweating, a regular change of clothes should be considered. The child's room should be neither too hot nor too cold, with an average temperature of 18°C (64°F).[122]

7.4 Useful resources and links

- WHO learning module on fever
- NHS (UK) - Fever in children
- NHS (UK) - Paracetamol for children
- NHS (UK) – Fever in children flowchart
- NHS (UK) Fever Pathway
- NICE Guidelines for assessment and initial management of fever
- Royal Children's Hospital Melbourne (Australia) - Paracetamol and Ibuprofen
- Kids Health - Fever for parents
- Stanford Children's health – Fever in children
- How to give medicines: liquid medicine using an oral syringe from a bottle without a bung

8 Sexual health

Promoting sexual health is fundamental for the social development of communities and is a major contributor to the overall health status and well-being of individuals. Achieving positive and respectful approaches to sexuality and sexual health depends on access to comprehensive, reliable and quality information as well as clear data on the dangers of high-risk sexual practices.[129]

Sexual health-related issues comprise a variety of different conditions, which differ in prevalence according to sexual orientation and gender identity, sexual expression and relationships. The most common sexual health-related issues are the consequences of unprotected sexual practices. Issues include the transmission of the human immunodeficiency virus (HIV) and other sexually transmitted infections (STIs). In addition to these conditions, there are also cases of unintended pregnancy and abortion, sexual dysfunction, or violence and harmful practices, such as female genital mutilation.[129]

Community pharmacists can serve as a close ally to individuals with sexual health-related conditions. This is linked to the trust and accessibility associated with pharmacists around the world. In daily practice, pharmacists may encounter several situations linked to sexual health and should therefore be prepared to face them with respect, open-mindedness and sensitivity.[130] There are nevertheless several barriers to meaningful interactions between pharmacists and patients regarding sexual health, which include the lack of privacy, the high sensitivity of certain topics, and the lack of training to engage in these topics.[131]

Pharmacies can also promote sexual health through awareness and educational campaigns, especially among higher risk groups within the community. In their communities, pharmacists may encounter individuals with different beliefs and therefore different views regarding sexual practices and sexual health. Pharmacists can also have various beliefs regarding these topics. Despite that, as healthcare professionals, pharmacists' priority needs to be to promote health and prevent disease by providing evidence-based advice and services to their patients, or to refer them to other appropriate professionals or facilities if their own beliefs preclude them from providing care directly. Pharmacists are also responsible for providing products and devices — and, in many parts of the world, also education and services — that improve sexual health.

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8.1 Signs and symptoms

Signs and symptoms for sexual health-related conditions are varied and differ greatly. Common general symptoms can include:[132]

- Itching, burning or tingling around the genitals;
- Blisters, sores, spots or lumps around the genitals or anus;
- Dryness and pain during intercourse;
- Erectile dysfunction;
- Black powder or tiny white dots in the underwear — these could be droppings or eggs from pubic lice.

The pharmacist should assess the severity, intensity and duration of the above symptoms. In some cases, and depending on product regulations in each jurisdiction, pharmacists may be able to recommend non-prescription medicines or other products to manage these symptoms and improve sexual health and well-being, or they should refer patients to a medical doctor for diagnosis. In the section "Useful resources and links" below, you can find detailed information for the management of most of these symptoms.

Pharmacists should always refer patients for evaluation if any of the following symptoms are present:[133]

- Altered vaginal discharge;
- Discharge from the penis;
- Pain or burning on urination;
- Severe itch, rash, warts, lumps or blisters around the genitals or anus;
- Pain or bleeding during or after sex;
- Bleeding between periods or breakthrough bleeding on contraception; and
- Pain in the testicles or lower abdomen.

8.2 Triage

Pharmacists are well equipped to identify patients with at-risk sexual behaviours and offer personalised advice on testing procedures and on available community resources offering services specifically related to sexual health. In some countries and territories, there is even the possibility to have tests in a pharmacy. These include tests for STIs, such as chlamydia, HIV, human papilloma virus (HPV) and hepatitis C.[134]

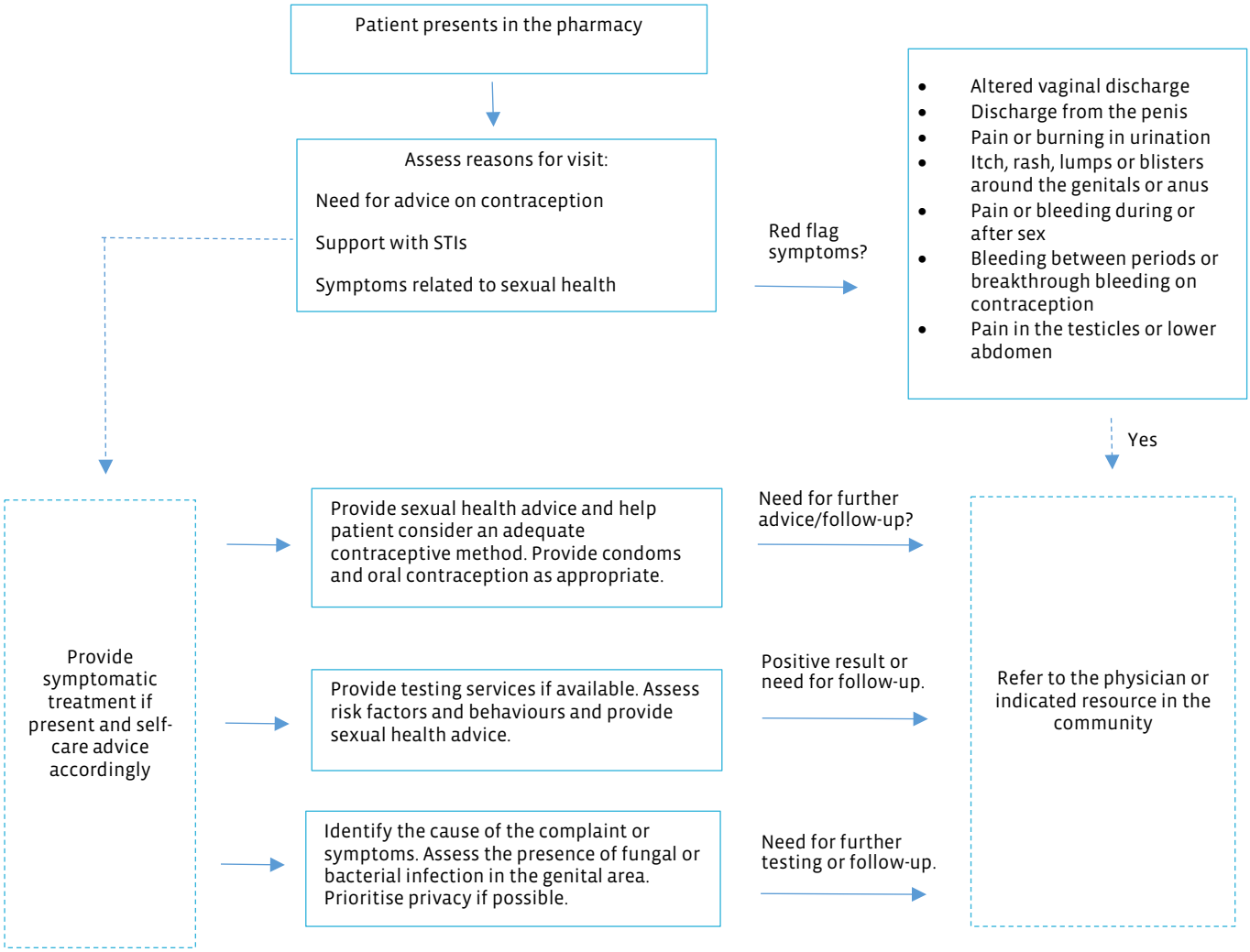
In those specific instances, pharmacists can support the entire process, including testing, liaising and referring to other healthcare professionals, and providing support in initiating the appropriate treatment for patients with positive testing results. For most of these tests, privacy and confidentiality are essential when explaining methods for sample collection. Care must also be taken when interpreting the results of the tests, especially with regard to the psychological aspects related to positive test results. Wherever possible, referral for a confirmation of the result in a clinical biology laboratory or specialised facilities may be relevant to determine the steps for further management and follow up.

Contraception is another area in which pharmacists play an important role in providing support and advice. Pharmacists can support the dispensing, education and, in some countries and territories, prescribing of hormonal contraception and administration of injectable contraceptives. In many countries and territories, pharmacists are autonomous in prescribing and dispensing emergency contraception. Moreover, patients can seek advice on the use of contraceptives, such as condoms, lubricants and other hygiene products, to engage in self-care with regard to sexual health.

Finally, pharmacists can make significant impacts in sexual health with regard to vaccination, such as with the HPV vaccine. Frequent interactions with individuals in the community pharmacy are ideal opportunities to inquire about a patient's vaccination status.[135]

The use of private consultation rooms should always be encouraged when engaging in conversations about sexual health because a private and confidential environment facilitates productive discussions.[136]
Figure 6 provides an overview of the information in this chapter and a flowchart for sexual health management in the community pharmacy

Figure 6 — Chapter summary flowchart for sexual health management



8.3 Pharmacological and non-pharmacological management

Advice on sexual conditions varies widely according to a patient's gender and age in addition to sexual activity and additional factors. Pharmacists will encounter a variety of different scenarios regarding sexual health, and they should be ready to manage different situations in their daily routine. Pharmacists are well positioned to liaise with family planning consultations and specialised centres within the community and support the long-term management of these patients.

Pharmacists are often involved in the dispensing of medicines, and the monitoring and follow-up of individuals who take regular hormonal contraception. This involves different medicines that are prescribed alone or in combination and can be present in the form of tablets, patches, injectable devices, intra-uterine devices or vaginal rings. Collaboration and communication with GPs is essential to optimise the continuous monitoring of contraception and avoid unwanted pregnancies. In some countries and territories, pharmacists can also initiate the prescription of this type of contraception, facilitating access to these services and improving patient satisfaction.[137] The use of different types of contraception can provide advantages depending on a patient's lifestyle and preferences. For example, the use of vaginal rings allows for the local

release of a lower dose of hormones, eliminates forgetfulness, and may reduce discomfort associated with modified bleeding patterns.[138]

Besides regular contraception, pharmacists are also instrumental in the prescription of emergency contraception and the associated counselling.[139] Providing an emergency contraception service normally involves a series of questions to ensure the responsible, safe and effective use of the medicines involved. As with most, if not all, conversations regarding sexual health, discussions regarding emergency contraception should be addressed with privacy and discretion. The most common molecules used as emergency contraception are levonorgestrel and ulipristal. Knowledge about the menstrual cycle and fertile windows are important pieces of information to determine the most appropriate course of action. Patients should be warned that, after emergency contraception, disruption of the menstrual cycle and occasional bleeding can occur.[140]

Dryness or pain experienced during intercourse may be improved through the use of appropriate lubricants. It is important to highlight that water-based lubricants are safe to use with latex condoms, while oil-based lubricants may lead to condoms breaking and therefore represent a hazard for transmission of diseases or for unwanted pregnancies.

Vaginal itching, burning or pain during intercourse may be associated with fungal infections such as candidiasis. In some jurisdictions, pharmacists may be authorised to dispense antifungal NPMs for treating such infections, together with the provision of advice and indications for non-pharmacological measures.

For infestations by pubic lice, pharmacists can provide advice on the treatment options available locally and the required hygienic measures to eliminate lice and nits from the body and clothes. More information is available via the link under useful resources.

Pharmacists can support individuals with sexual dysfunction through education on specific medicines used in erectile dysfunction and female sexual dysfunction. These medicines present in different formulations, from oral tablets to injectable pens. In countries where treatment options for erectile dysfunction are available as NPMs, pharmacists play an important role in assessing the suitability of such treatments for specific patients and in supporting men in using them correctly and safely.[141] Pharmacist education is especially important to ensure the safe and effective use of these medicines and the management of potential side effects.

8.4 Useful resources and links

- WHO factsheet on Sexually Transmitted Infections
- WHO factsheet on contraception methods
- WHO factsheet on HIV/AIDS
- University of Manchester, Sexual health in pharmacies open learning programme
- NICE guidelines for sexual health
- Public Health England, The offer for sexual health, reproductive health and HIV
- CDC actions on missed contraception
- FSRH UK Clinical Guideline on Emergency Contraception
- Global Advisory Board (GAB) for Sexual Health and Wellbeing
- World Fertility and Family Planning 2020: Highlights
- NHS UK: emergency contraception
- CDC Birth Control Methods
- CDC Factsheet on HPV
- CDC Factsheet on vaginal candidiasis
- Erectile dysfunction
- Female sexual dysfunction
- CDC Factsheet on pubic lice

9 Disinfection and the pharmacy

Disinfection can be defined as "the treatment of surfaces/equipment using physical or chemical means such that the amount of microorganisms present is reduced to an acceptable level".[142] This can be achieved using chemical disinfectants, such as alcohol, or other inactivating agents, like ultraviolet light. Some disinfectants can be used in combination, such as hydrogen peroxide and peracetic acid.[143]

The lack of regular disinfection measures contributes to the dissemination of transmissible diseases, the burden of which in healthcare systems is estimated to reach 1.4 million patients worldwide.[144] This highlights the importance of maintaining clean working conditions in the pharmacy, especially as the community pharmacy represents a healthcare facility frequently visited by patients, such as immunocompromised individuals, who may be at greater risk of contracting infections. Educating the public on appropriate hygiene measures is key to reducing levels of transmission of microorganisms and to protecting more vulnerable groups. Disinfection is an important way of inactivating or eliminating contagious microorganisms, such as flu.[145]

It has also been theorised that targeted hygiene practices, which represent risk management approaches to break down the chain of transmission of pathogens, can provide benefits with regard to antibiotics use and therefore contribute to the reduction of antimicrobial resistance.[146]

Pharmacists can promote disinfection and the prevention of disease transmission in their workplaces: [147]

- In the community pharmacy, pharmacists can actively participate in the proper selection and dispensing of disinfectants, increase the supply and production of hand sanitisers, and promote thorough hygiene among both staff and patients.
- As educators, pharmacists can teach and raise awareness among health professionals and the public about disinfection, counsel patients and caregivers on proper disinfection methods, and provide training sessions on infection prevention and control practices in the workplace.
- In the hospital setting, pharmacists can participate in infection prevention and control committees, work towards preventing contamination of medicines prepared or dispensed by the pharmacy, promote adherence to hygiene standards, and strive for zero tolerance of healthcare-associated infections.

The production of disinfecting solutions is usually performed by pharmaceutical manufacturers, but community pharmacies may also participate. The production of alcohol-gel disinfectants in some countries and territories was extremely important during the COVID-19 pandemic, considering the restricted access to and shortage of these products. The COVID-19 pandemic was an ideal opportunity for pharmacists to understand and champion the importance of appropriate disinfection practices in daily routines as well as while dispensing medicines, testing or vaccinating for COVID-19.[148]

Pharmacists can ensure their workspaces are equipped with infection-resistant materials and with reliable access to the necessary compounding ingredients, quality control tests, workforce and equipment. Furthermore, training for the preparation of disinfectant solutions should also be considered.[149]

Although most members of the pharmacy team are aware of the importance of proper hygiene measures, several barriers continue to exist. Aspects such as wearing gloves and managing personal protective equipment as well as establishing a multi-phased disinfection protocol and other guidelines can be challenging due to the workload they bring and sustained efforts they require.[150]

The disinfection of surfaces in the community pharmacy is an important measure to implement, especially, but not only, in times of pandemics or seasonal conditions like flu. Regular disinfection plays a central role in infection inhibition and in the control of transmissible diseases outbreaks. Surfaces that are frequently in contact with pharmacy staff and patients should be regularly disinfected. These include counters, chairs, working equipment and private consultation areas, as well as payment devices, door knobs and point-of-care testing apparatus.[151]. A guideline from FIP developed in March 2020 contains a summary of the different disinfectants that can be used depending on the objects that require disinfection (Figure 7).[152]

Figure 7 — Objects for disinfection and types of disinfectants[152]

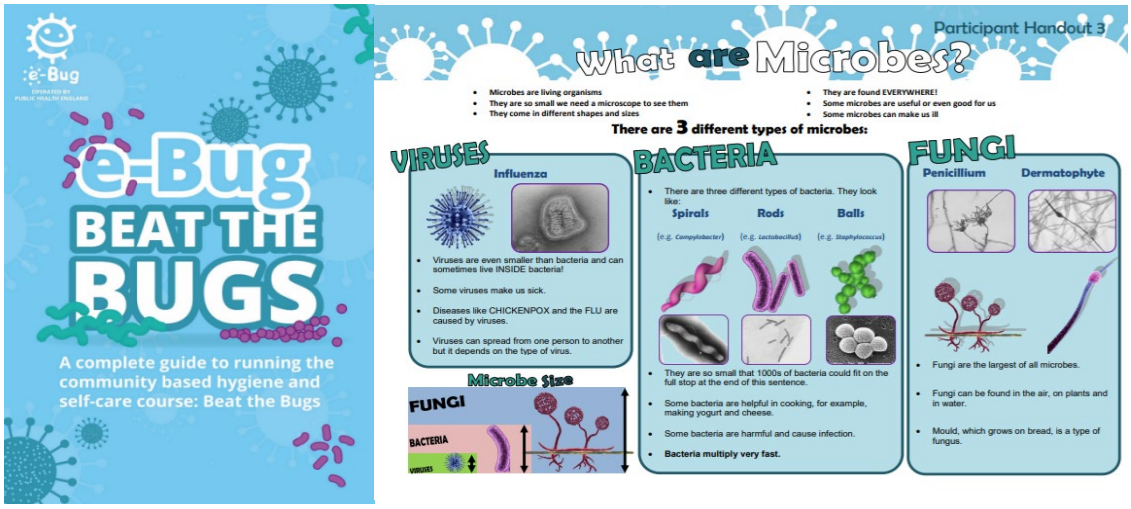
Object for disinfection	Type of disinfectant	Consumables
Environmental object surface	Chlorine-containing disinfectant (1000mg/L), chlorine dioxide (500mg/L), 75% alcohol	Disposable absorbent material
Hands	Alcohol-containing quick-drying hand disinfectant, chlorine-containing disinfectant, hydrogen peroxide,	
Skin	0.5% iodine-based disinfectant, hydrogen peroxide	
Mucosa	0.05% iodine-based disinfectant	
Indoor air	Peracetic acid, chlorine dioxide, hydrogen peroxide	
Pollutant	Chlorine-containing disinfectant (5000-20000mg/L), disinfectant powder or bleach powder containing water absorption	
Textiles such as clothes, bedding	Chlorine-containing disinfectant (500mg/L, ethylene oxide	
Prescriptions	Ethylene oxide	

Pharmacists can support populations and communities through education on and increased awareness of hygiene. Frequently encountered themes in this area include adequate hand hygiene, which has been the subject of several health campaigns around the world.[153] In addition, pharmacists can reinforce the benefits of additional hygiene measures, such as the use of face masks, among their patients. Integrating hygiene practices into their daily routine reduces patients' risk of contracting and transmitting diseases, ultimately reinforcing their engagement in self-care.

Disinfection can apply to adequate hand-washing practices, especially as hands come into contact with a variety of surfaces throughout the day.[154] Pharmacists should wash their hands on a regular basis, especially before and immediately after the provision of health services which require direct patient contact, such as vaccination or testing. The aim is to minimise the possible transmission of microorganisms during their daily tasks.[155]

The e-Bug campaign (Figure 8) operated by the UK Health Security Agency is an educational campaign encompassing a variety of resources that focus on the prevention and transmission of diseases in addition to providing basic explanations on microorganisms. This readily available resource includes training materials and simple videos that can be used for younger audiences, but can also be shared with the general population. It is available in more than 20 languages.[156,157]

Figure 8 — "Beat the bugs" educational handout[157]



9.1 Useful resources and links

- FIP Guidelines for pharmacists and pharmacy workforce
- CDC disinfection guidelines
- CDC factsheet on disinfection
- CDC guidance for pharmacies
- CDC disinfecting your facility
- WHO Cleaning and disinfection of environmental surfaces in the context of COVID-19
- WHO guidelines on hand hygiene in health care
- WHO infographic "How to Handwash?"
- WHO guide to local preparation of hand rub formulations
- E-bug educational programme
- Global Hygiene Council educational resources

10 Summary of key points

10.1 Sore throat

- Sore throat is a common condition that is usually self-limiting, and pharmacists play an important role in the screening and identification of symptoms and subsequent management.
- Causes for sore throat are varied, and it is therefore important to identify and treat the underlying cause or reduce exposure to the cause.
- Screening for red flag symptoms of sore throat is a key point to consider as referral for further investigations may warrant the prescription of antibiotics or other prescription-only medicines.
- As the treatment of sore throat is one of the main causes of unjustified antibiotics use, pharmacists are essential in adequately screening for cases which may truly require antibiotics treatment.
- Community pharmacies can play a role in utilising point of care tests to detect “strep throat” and therefore contribute to more adequately utilising and allocating healthcare resources.
- Pharmacological indications for sore throat are usually anti-inflammatory or analgesic medicines that help to reduce symptoms. Other medicines may be necessary to treat underlying causes of sore throat, such as gastric reflux or allergies.
- Non-pharmacological management is equally important to soothe the affected area and provide enough time for the area to recover.

10.2 Gastrointestinal complaints

- Gastrointestinal (GI) conditions can be heavily influenced by lifestyle factors. It is therefore important for pharmacists to adequately assess and consider such factors when collecting data from the patient and recommending management options.
- Effective history taking of symptoms is essential to make differential diagnoses.
- Chronic diarrhoea needs to be investigated by a medical practitioner, particularly if weight loss or blood in stool are present
- Referral for screening and testing for the presence of *Helicobacter pylori* can be important for people with recurrent GI issues.
- Different non-prescription (over the counter) medicines are available to treat symptoms related to upper GI complaints, and pharmacists can play an important supportive role in providing relief and care to people suffering from these conditions.
- Nutritional and lifestyle advice is a key aspect in controlling GI complaints.

10.3 Musculoskeletal pain

- Musculoskeletal pain is a prevalent condition, with back pain being the most common presentation. Pharmacists should consider occupational aspects when assessing the origin and characteristics of the pain.
- Triage of musculoskeletal pain requires simple questioning about duration of early-morning pain and stiffness, among other characteristics.
- Different medicines and formulations are available as non-prescription treatment options when considering the individual’s preferences, type of pain, occupation and lifestyle.
- Lifestyle factors, such as maintaining an adequate weight and performing sufficient physical exercise, can be important factors in the prevention and management of musculoskeletal pain.

10.4 Children's fever

- Children's fever is a condition that pharmacists can frequently face in their daily practice. Pharmacists' role in managing this condition includes providing relief for the child, but also reassuring their parents and caregivers.
- The child's age, recent complaints, and response to stimuli are important to determine the most appropriate management options.
- The most frequently used non-prescription (over the counter) medicines for fever are paracetamol (acetaminophen) and ibuprofen.
- Pharmacists can provide advice on the correct method of temperature measurement, maintenance of hydration, and non-pharmacological options.

10.5 Sexual health

- Sexual health encompasses different conditions and situations that vary according to different factors, such as gender and age. Pharmacists must be sufficiently trained to carry out comprehensive counselling and productive communication to provide services in those topics with the privacy and discretion they require.
- Screening services and testing for sexually transmitted infections can represent major roles for pharmacies, considering their accessibility and proximity.
- Knowledge of community services and resources as well as specialised centres within the community is important for the pharmacy workforce to adequately support patients who require further screening options or specialised follow up.
- Pharmacists can use the range of products and services available at the pharmacy to promote sexual health and safer sex practices.
- Pharmacists' duty of care means that they must refer patients to other practitioners and services in situations where their own beliefs preclude the provision of certain services.

10.6 Disinfection and the pharmacy

- Disinfection is a key aspect for the prevention of transmissible diseases and should be routinely practised, especially, but not only, during pandemics and during peak seasons of other communicable diseases.
- To promote disinfection in the pharmacy, frequently encountered surfaces, devices and other materials should be regularly disinfected.
- Hand-washing is an important aspect that should be an integral part in the daily routine of all members of the pharmacy team to prevent the transmission of diseases.
- Pharmacists possess the knowledge and skills to develop different disinfection solutions as well as create awareness materials and educate patients on the importance of disinfection.
- Education is a key feature in disinfection and should target individuals from all age groups.

11 Conclusion

This handbook aims to provide an overview of the importance of self-care for both pharmacists and patients, including conceptual frameworks on self-care, considerations regarding current trends and barriers, and relevant information on different self-care conditions.

Self-care is not without risks. It bears the potential for unnecessary testing, inaccurate diagnoses, untimely consultations, and inadequate treatment and management options. However, increasing healthcare spending and foreseeable healthcare worker shortages underscore the need for sustainable, cost-effective measures. Moreover, responsible engagement in self-care is perceived as a direct contributor to achieving universal health coverage. It is, therefore, imperative that advocating and engaging in self-care go together with ensuring thorough education, improving and maintaining health literacy, and facilitating access to the necessary tools and resources. Furthermore, regulatory frameworks, multi-level stakeholder participation and policy interventions surrounding the availability of medicines, screening, and testing supplies, in addition to the expansion of the scope of pharmacy practice, should be well established and should focus on the promotion of self-care.

Pharmacists are medicines experts and, when working in the community, are accessible, reliable, front-line healthcare professionals. They are, therefore, essential players in educating and empowering patients and their communities to engage in self-care, ultimately contributing to optimising healthcare resource utilisation and expenditure as well as improving outcomes for patients and for healthcare systems.

12 References

1. Bell J, Dziekan G, Pollack C et al. Self-Care in the Twenty First Century: A Vital Role for the Pharmacist. Advances in Therapy. 2016;33(10):1691-703. [Cited: 15 July 2021]. Available at: https://doi.org/10.1007/s12325-016-0395-5.

2. El-Osta A. The self-care matrix: A unifying framework for self-care. SelfCare. 2019;10:38-56. [Cited: 14 July 2021]. Available at: https://selfcarejournal.com/article/the-self-care-matrix-a-unifying-framework-for-self-care/.

3. World Health Organization. Self care for health. WHO Regional Office for South-East Asia: 2014. updated 2020. [accessed: 13 July 2021]. Available at: https://apps.who.int/iris/handle/10665/205887.

4. World Health Organization. What do we mean by self-care? : 2021. updated 2021. [accessed: 13 July 2021]. Available at: https://www.who.int/reproductivehealth/self-care-interventions/definitions/en/.

5. World Health Organization. Social determinants of health [Internet]. WHO; 2021. updated 2022. [accessed: 31 January 2022]. Available at: https://www.who.int/health-topics/social-determinants-of-health#tab=tab_1.

6. Walker RJ, Gebregziabher M, Martin-Harris B et al. Independent effects of socioeconomic and psychological social determinants of health on self-care and outcomes in Type 2 diabetes. Gen Hosp Psychiatry. 2014;36(6):662-8. [Cited: 22 November 2021]. Available at: https://pubmed.ncbi.nlm.nih.gov/25103544/.

7. Manolakis PG, Skelton JB. Pharmacists' contributions to primary care in the United States collaborating to address unmet patient care needs: the emerging role for pharmacists to address the shortage of primary care providers. Am J Pharm Educ. 2010;74(10):S7. [Cited: 14 July 2021]. Available at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3058447/.

8. McCallian DJ, Cheigh NH. The pharmacist's role in self-care. J Am Pharm Assoc (Wash). 2002;42(5 Suppl 1):S40-1. [Cited: 24 July 2021]. Available at: https://pubmed.ncbi.nlm.nih.gov/12296549/.

9. World Health Organization. Classification of self-care interventions for health: a shared language to describe the uses of self-care interventions. Geneva: [Internet]. 2021. [Cited: 10 January 2022]. Available at: https://www.who.int/publications/i/item/9789240039469.

10. Global Self-Care Federation. Self-Care Readiness Index. [Internet]. 2021. [Cited: 11 November 2021]. Available at: https://selfcarepromise.org/self-care-readiness-index/.

11. International Self Care Foundation. The Seven Pillars of Self-Care Framework: 2018. updated 2018. [accessed: 14 July 2021]. Available at: https://isfglobal.org/practise-self-care/the-seven-pillars-of-self-care/.

12. Self-Care Forum UK. The Self Care Continuum. What do we mean by self care and why is it good for people? : 2010. updated 2020. [accessed: 14 July 2021]. Available at: https://www.selfcareforum.org/about-us/what-do-we-mean-by-self-care-and-why-is-good-for-people/.

13. Dineen-Griffin S, Garcia-Cardenas V, Williams K et al. Helping patients help themselves: A systematic review of self-management support strategies in primary health care practice. PLoS One. 2019;14(8):e0220116. [Cited: 6 December 2021]. Available at: https://pubmed.ncbi.nlm.nih.gov/31369582/.

14. Webber D, Guo Z, Mann S. Self-care in health: We can define it, but should we also measure it? . SelfCare. 2013;4:101-6. [Cited: 14 July 2021]. Available at: https://selfcarejournal.com/wp-content/uploads/2015/09/Webber-45.101-106-.pdf.

15. Riegel B, Jaarsma T, Strömberg A. A middle-range theory of self-care of chronic illness. ANS Adv Nurs Sci. 2012;35(3):194-204. [Cited: 14 July 2021]. Available at: https://pubmed.ncbi.nlm.nih.gov/22739426/.

16. Michie S, van Stralen MM, West R. The behaviour change wheel: A new method for characterising and designing behaviour change interventions. Implementation Science. 2011;6(1):42. [Cited: 14 July 2021]. Available at: https://doi.org/10.1186/1748-5908-6-42.

17. World Health Organization. Integrated care models: an overview. [Internet]. 2016. [Cited: 14 July 2021]. Available at: https://www.euro.who.int/__data/assets/pdf_file/0005/322475/Integrated-care-models-overview.pdf.

18. World Health Organization. Self-care interventions for health: 2021. updated 2021. [accessed: 14 July 2021]. Available at: https://www.who.int/news-room/fact-sheets/detail/self-care-health-interventions.

19. Coons SJ. The pharmacist's role in promoting and supporting self-care. Holistic Nursing Practice. 1990;4(2):37-44. [Cited: 14 July 2021]. Available at: https://journals.lww.com/hnpjournal/Fulltext/1990/02000/The_pharmacist_s_role_in_promoting_and_supporting.8.aspx.

20. Rutter P. Role of community pharmacists in patients' self-care and self-medication. Integr Pharm Res Pract. 2015;4:57-65. [Cited: 14 July 2021]. Available at: https://pubmed.ncbi.nlm.nih.gov/29354520.

21. Coulter A, Oldham J. Person-centred care: what is it and how do we get there? Future Hosp J. 2016;3(2):114-6. [Cited: 14 July 2021]. Available at: https://pubmed.ncbi.nlm.nih.gov/31098200.

22. IQVIA. e-Pharmacy and the New Consumer Whitepaper: 2020. updated 2020. [accessed: 14 July 2021]. Available at: https://www.iqvia.com/library/white-papers/e-pharmacy-and-the-new-consumer-whitepaper.

23. World Health Organization. Universal health coverage (UHC): 2021. updated 2021. [accessed: 15 July 2021]. Available at: https://www.who.int/news-room/fact-sheets/detail/universal-health-coverage-(uhc).

24. Global Self-Care Federation. The Role of Self-Care in Universal Health Coverage: 2019. updated 2019. [accessed: 15 July 2021]. Available at: https://www.selfcarefederation.org/sites/default/files/media/documents/2019-09/Self-Care%20and%20UHC_FINAL.pdf.

25. UHC2030. Taking action for universal health coverage [Internet]. 2021. updated 2021. [accessed: 20 December 2021]. Available at: www.uhc2030.org.

26. Wheeler JR, Janz NK, Dodge JA. Can a disease self-management program reduce health care costs? The case of older women with heart disease. Med Care. 2003;41(6):706-15. [Cited: 15 July 2021]. Available at: https://pubmed.ncbi.nlm.nih.gov/12773836/.

27. Richardson G, Gravelle H, Weatherly H et al. Cost-effectiveness of interventions to support self-care: a systematic review. Int J Technol Assess Health Care. 2005;21(4):423-32. [Cited: 15 July 2021]. Available at: https://pubmed.ncbi.nlm.nih.gov/16262964/.

28. World Health Organization. Q+A About Self-Care: 2019. updated 2019. [accessed: 15 July 2021]. Available at: https://www.who.int/reproductivehealth/self-care-interventions/questions-answers-self-care.pdf?ua=1.

29. World Health Organization. A healthy lifestyle [Internet]. 2021. updated 2021. [accessed: 16 November 2021]. Available at: https://www.euro.who.int/en/health-topics/disease-prevention/nutrition/a-healthy-lifestyle.

30. Johnson JL, Moser L, Garwood CL. Health literacy: A primer for pharmacists. American Journal of Health-System Pharmacy. 2013;70(11):949-55. [Cited: 16 November 2021]. Available at: https://doi.org/10.2146/ajhp120306.

31. Adiel Kaplan, Vicky Nguyen, Mary Godie. Overworked, understaffed: Pharmacists say industry in crisis puts patient safety at risk [Internet]. 2021. updated 16 March 2021. [accessed: 15 July 2021]. Available at: https://www.nbcnews.com/health/health-care/overworked-understaffed-pharmacists-say-industry-crisis-puts-patient-safety-risk-n1261151.

32. Abousheishaa AA, Sulaiman AH, Huri HZ et al. Global Scope of Hospital Pharmacy Practice: A Scoping Review. Healthcare (Basel). 2020;8(2):143. [Cited: 15 July 2021]. Available at: https://pubmed.ncbi.nlm.nih.gov/32466229.

33. Keyvanara M, Shaarbafchizadeh N, Jangi M et al. Evaluating Self-care Barriers in Prevention of Covid-19 According to Healthcare Experts and Laypersons: A Mixed Study. Journal of Mazandaran University of

Medical Sciences. 2020;30(189):117-25. [Cited: 15 July 2021]. Available at: http://jmums.mazums.ac.ir/article-1-15030-en.html.

34. Santana S, Brach C, Harris L et al. Updating Health Literacy for Healthy People 2030: Defining Its Importance for a New Decade in Public Health. J Public Health Manag Pract. 2021. [Cited: 15 July 2021]. Available at: https://pubmed.ncbi.nlm.nih.gov/33729194/.

35. UNESCO. Literacy [Internet]. 2021. updated 2021. [accessed: 15 July 2021]. Available at: http://uis.unesco.org/en/topic/literacy.

36. Griffey RT, Kennedy SK, D'Agostino McGowan L et al. Is low health literacy associated with increased emergency department utilization and recidivism? Acad Emerg Med. 2014;21(10):1109-15. [Cited: 20 December 2021]. Available at: https://pubmed.ncbi.nlm.nih.gov/25308133.

37. Giua C, Paoletti G, Minerba L et al. Community pharmacist's professional adaptation amid Covid-19 emergency: a national survey on Italian pharmacists. International Journal of Clinical Pharmacy. 2021;43(3):708-15. [Cited: 1 February 2022]. Available at: https://doi.org/10.1007/s11096-020-01228-5.

38. GlaxoSmithKline (GSK). Standing with Pharmacists in the Age of Self-Care. [Internet]. 2021. [Cited: 9 November 2021]. Available at: https://www.selfcarefederation.org/sites/default/files/media/documents/2021-10/EXPERT%20Pharmacy%20Roundtable_Report_FINAL%20%28002%29.pdf.

39. Gregory PA, Austin Z. How do patients develop trust in community pharmacists? Res Social Adm Pharm. 2021;17(5):911-20. [Cited: 15 July 2021]. Available at: https://pubmed.ncbi.nlm.nih.gov/32814664/.

40. International Pharmacists Federation (FIP). Community pharmacists have a crucial role to play in responsible over-thecounter pain management [Internet]. 2021. updated 5 July 2021. [accessed: 19 July 2021]. Available at: https://www.fip.org/file/5007.

41. Alliance for Home Health Quality and Innovation. Improving Care Transitions Between Hospital and Home Health: A Home Health Model of Care Transitions [Internet]. 2014. updated 2020. [accessed: 19 July 2021]. Available at: http://ahhqi.org/images/uploads/AHHQI_Care_Transitions_Tools_Kit_r011314.pd.

42. World Health Organization. Health literacy: The solid facts. Denmark: WHO Regional Office for Europe [Internet]. 2013. [Cited: 15 July 2021]. Available at: https://apps.who.int/iris/bitstream/handle/10665/128703/e96854.pdf.

43. Ngoh LN. Health literacy: a barrier to pharmacist-patient communication and medication adherence. J Am Pharm Assoc (2003). 2009;49(5):e132-46; quiz e47-9. [Cited: 15 July 2021]. Available at: https://pubmed.ncbi.nlm.nih.gov/19748861/.

44. Evangelista LS, Shinnick MA. What do we know about adherence and self-care? J Cardiovasc Nurs. 2008;23(3):250-7. [Cited: 6 September 2021]. Available at: https://pubmed.ncbi.nlm.nih.gov/18437067.

45. Dunn P, Hazzard E. Technology approaches to digital health literacy. Int J Cardiol. 2019;293:294-6. [Cited: 15 July 2021]. Available at: https://pubmed.ncbi.nlm.nih.gov/31350037/.

46. Bosse N, Machado M, Mistry A. Efficacy of an over-the-counter intervention follow-up program in community pharmacies. J Am Pharm Assoc (2003). 2012;52(4):535-40, 5 p following 40. [Cited: 3 September 2021]. Available at: https://pubmed.ncbi.nlm.nih.gov/22825235/.

47. International Pharmaceutical Federation. Vision 2020-2025 - Pharmacists at the heart of our communities. The Hague, Netherlands: [Internet]. 2020. [Cited: 19 November 2021]. Available at: https://www.fip.org/files/CPS_vision_FINAL.pdf.

48. Stewart EH, Davis B, Clemans-Taylor BL et al. Rapid antigen group A streptococcus test to diagnose pharyngitis: a systematic review and meta-analysis. PloS one. 2014;9(11):e111727-e. [Cited: 22 July 2021]. Available at: https://pubmed.ncbi.nlm.nih.gov/25369170.

49. Centers for Disease Control and Prevention. Sore throat [Internet]. 2021. updated 7 May 2021. [accessed: 22 July 2021]. Available at: https://www.cdc.gov/antibiotic-use/sore-throat.html.

50. Mayo Clinic. Sore throat [Internet]. 2021. updated 10 June 2021. [accessed: 22 July 2021]. Available at: https://www.mayoclinic.org/diseases-conditions/sore-throat/symptoms-causes/syc-20351635.

51. Shapiro DJ, King LM, Fleming-Dutra KE et al. Association between use of diagnostic tests and antibiotic prescribing for pharyngitis in the United States. Infection Control & Hospital Epidemiology. 2020;41(4):479-81. [Cited: 22 July 2021]. Available at: https://www.cambridge.org/core/article/association-between-use-of-diagnostic-tests-and-antibiotic-prescribing-for-pharyngitis-in-the-united-states/1E97BB71C7BEB37B12D1D5274C56E972.

52. Cohen JF, Pauchard JY, Hjelm N et al. Efficacy and safety of rapid tests to guide antibiotic prescriptions for sore throat. Cochrane Database Syst Rev. 2020;6(6):Cd012431. [Cited: 22 July 2021]. Available at: https://pubmed.ncbi.nlm.nih.gov/32497279/.

53. Robert M. Centor. Avoiding Sore Throat Morbidity and Mortality: When Is It Not "Just a Sore Throat?" [Internet]. 2011. updated Jan 2021. [accessed: 30 August 2021]. Available at: https://www.aafp.org/afp/2011/0101/p26.html.

54. Mantzourani E, Evans A, Cannings-John R et al. Impact of a pilot NHS-funded sore throat test and treat service in community pharmacies on provision and quality of patient care. BMJ Open Quality. 2020;9(1):e000833. [Cited: 22 July 2021]. Available at: http://bmjopenquality.bmj.com/content/9/1/e000833.abstract.

55. Coutinho G, Duerden M, Sessa A et al. Worldwide comparison of treatment guidelines for sore throat. International Journal of Clinical Practice. 2021;75(5):e13879. [Cited: 22 July 2021]. Available at: https://onlinelibrary.wiley.com/doi/abs/10.1111/ijcp.13879.

56. Thornley T, Marshall G, Howard P et al. A feasibility service evaluation of screening and treatment of group A streptococcal pharyngitis in community pharmacies. Journal of Antimicrobial Chemotherapy. 2016;71(11):3293-9. [Cited: 24 August 2021]. Available at: https://doi.org/10.1093/jac/dkw264.

57. Willis BH, Coomar D, Baragilly M. Comparison of Centor and McIsaac scores in primary care: a meta-analysis over multiple thresholds. Br J Gen Pract. 2020;70(693):e245-e54. [Cited: 6 December 2021]. Available at: https://pubmed.ncbi.nlm.nih.gov/32152041.

58. de Looze F, Shephard A, Smith AB. Locally Delivered Flurbiprofen 8.75 mg for Treatment and Prevention of Sore Throat: A Narrative Review of Clinical Studies. J Pain Res. 2019;12:3477-509. [Cited: 22 July 2021]. Available at: https://pubmed.ncbi.nlm.nih.gov/31920372.

59. Sylvester D, Karkos P, Vaughan C et al. Chronic Cough, Reflux, Postnasal Drip Syndrome, and the Otolaryngologist. International journal of otolaryngology. 2012;2012:564852. [Cited: 2 September 2021]. Available at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3332192/.

60. National Health System United Kingdom (NHS). Paracetamol for adults [Internet]. 2019. updated 23 May 2019. [accessed: 16 November 2021]. Available at: https://www.nhs.uk/medicines/paracetamol-for-adults/.

61. national Health System United Kingdom. Ibuprofen for adults (including Nurofen) [Internet]. 2018. updated 7 December 2018. [accessed: 16 November 2021]. Available at: https://www.nhs.uk/medicines/ibuprofen-for-adults/.

62. Medscape. Benzocaine (OTC) [Internet]. 2021. updated August 2021. [accessed: 18 November 2021]. Available at: https://reference.medscape.com/drug/benzocaine-343361.

63. Greenwood-Van Meerveld B, Johnson AC, Grundy D. Gastrointestinal Physiology and Function. Handb Exp Pharmacol. 2017;239:1-16. [Cited: 22 July 2021]. Available at: https://pubmed.ncbi.nlm.nih.gov/28176047/.

64. American College of Gastroenterology. Common GI symptoms [Internet]. 2021. updated 2021. [accessed: 30 August 2021]. Available at: https://gi.org/topics/common-gi-symptoms/.

65. El-Serag H. The association between obesity and GERD: a review of the epidemiological evidence. Dig Dis Sci. 2008;53(9):2307-12. [Cited: 22 July 2021]. Available at: https://pubmed.ncbi.nlm.nih.gov/18651221/.

66. Kim SY, Kim H-J, Lim H et al. Bidirectional association between gastroesophageal reflux disease and depression: Two different nested case-control studies using a national sample cohort. Scientific Reports. 2018;8(1):11748. [Cited: 22 July 2021]. Available at: https://doi.org/10.1038/s41598-018-29629-7.

67. International Foundation for GI disorders. GI disorders [Internet]. 2021. updated 2021. [accessed: 22 December 2021]. Available at: https://iffgd.org/gi-disorders/.

68. Lanas A, Chan FKL. Peptic ulcer disease. The Lancet. 2017;390(10094):613-24. [Cited: 30 August 2021]. Available at: https://doi.org/10.1016/S0140-6736(16)32404-7.

69. Parkman HP. Upper GI Disorders: Pathophysiology and Current Therapeutic Approaches. Handb Exp Pharmacol. 2017;239:17-37. [Cited: 30 August 2021]. Available at: https://pubmed.ncbi.nlm.nih.gov/28105529/.

70. Channel BH. Diarrhoea [Internet]. 2015. updated 2015. [accessed: 22 December 2021]. Available at: https://www.betterhealth.vic.gov.au/health/conditionsandtreatments/diarrhoea.

71. Mayo Clinic. Constipation [Internet]. 2021. updated 2021. [accessed: 22 December 2021]. Available at: https://www.mayoclinic.org/diseases-conditions/constipation/symptoms-causes/syc-20354253.

72. Mehuys E, Bortel L, De Bolle L et al. Self-Medication of Upper Gastrointestinal Symptoms: A Community Pharmacy Study. The Annals of pharmacotherapy. 2009;43:890-8. [Cited: 26 July 2021]. Available at: https://pubmed.ncbi.nlm.nih.gov/19417113/.

73. Felice C, Leccese P, Scudeller L et al. Red flags for appropriate referral to the gastroenterologist and the rheumatologist of patients with inflammatory bowel disease and spondyloarthritis. Clinical & Experimental Immunology. 2019;196(1):123-38. [Cited: 2021/11/16]. Available at: https://doi.org/10.1111/cei.13246.

74. Dağlı Ü, Kalkan İ H. Treatment of reflux disease during pregnancy and lactation. Turk J Gastroenterol. 2017;28(Suppl 1):S53-s6. [Cited: 1 September 2021]. Available at: https://pubmed.ncbi.nlm.nih.gov/29199169/.

75. Holle LM, Levine J, Buckley T et al. Pharmacist intervention in colorectal cancer screening initiative. J Am Pharm Assoc (2003). 2020;60(4):e109-e16. [Cited: 10 November 2021]. Available at: https://pubmed.ncbi.nlm.nih.gov/32197754/.

76. Santolaya M, Aldea M, Grau J et al. Evaluating the appropriateness of a community pharmacy model for a colorectal cancer screening program in Catalonia (Spain). J Oncol Pharm Pract. 2017;23(1):26-32. [Cited: 16 November 2021]. Available at: https://pubmed.ncbi.nlm.nih.gov/26563130/.

77. Mehuys E, Van Bortel L, De Bolle L et al. Self-medication of upper gastrointestinal symptoms: a community pharmacy study. Ann Pharmacother. 2009;43(5):890-8. [Cited: 16 November 2021]. Available at: https://pubmed.ncbi.nlm.nih.gov/19417113/.

78. MacFarlane B. Management of gastroesophageal reflux disease in adults: a pharmacist's perspective. Integr Pharm Res Pract. 2018;7:41-52. [Cited: Available at: https://pubmed.ncbi.nlm.nih.gov/29892570.

79. García-Rayado G, Navarro M, Lanas A. NSAID induced gastrointestinal damage and designing GI-sparing NSAIDs. Expert Rev Clin Pharmacol. 2018;11(10):1031-43. [Cited: 22 July 2021]. Available at: https://pubmed.ncbi.nlm.nih.gov/30139288/.

80. Maton PN, Burton ME. Antacids revisited: a review of their clinical pharmacology and recommended therapeutic use. Drugs. 1999;57(6):855-70. [Cited: 30 August 2021]. Available at: https://pubmed.ncbi.nlm.nih.gov/10400401/.

81. Hunt R, Armstrong D, Katelaris P et al. World Gastroenterology Organisation Global Guidelines: GERD Global Perspective on Gastroesophageal Reflux Disease. Journal of Clinical Gastroenterology. 2017;51(6):467-78. [Cited: 22 July 2021]. Available at: https://journals.lww.com/jcge/Fulltext/2017/07000/World_Gastroenterology_Organisation_Global.5.aspx.

82. Boardman HF, Heeley G. The role of the pharmacist in the selection and use of over-the-counter proton-pump inhibitors. Int J Clin Pharm. 2015;37(5):709-16. [Cited: Available at: https://pubmed.ncbi.nlm.nih.gov/26100836.

83. National Health System United Kingdom. Antacids [Internet]. 2021. updated 13 November 2019. [accessed: 10 October 2021] Available at: https://www.nhs.uk/conditions/antacids/.

84. Medline Plus. Famotidine [Internet]. 2017. updated 15 November 2021. [accessed: 22 November 2021]. Available at: https://medlineplus.gov/druginfo/meds/a687011.html.

85. Medline Plus. Proton Pump Inhibitors [Internet]. 2021. updated 22 April 2021. [accessed: 18 November 2021]. Available at: https://medlineplus.gov/ency/patientinstructions/000381.htm.

86. National Health System United Kingdom. Loperamide [Internet]. 2021. updated 2021. [accessed: 22 December 2021]. Available at: https://www.nhs.uk/medicines/loperamide/.

87. National Health System United Kingdom. Laxatives [Internet]. 2021. updated 2021. [accessed: 22 December 2021]. Available at: https://www.nhs.uk/conditions/laxatives/.

88. Valussi M. Functional foods with digestion-enhancing properties. International Journal of Food Sciences and Nutrition. 2012;63(sup1):82-9. [Cited: 20 December 2021]. Available at: https://doi.org/10.3109/09637486.2011.627841.

89. World Health Organization. Musculoskeletal conditions: 2021. updated 2021. [accessed: 15 July 2021]. Available at: https://www.who.int/news-room/fact-sheets/detail/musculoskeletal-conditions.

90. Cieza A, Causey K, Kamenov K et al. Global estimates of the need for rehabilitation based on the Global Burden of Disease study 2019: a systematic analysis for the Global Burden of Disease Study 2019. Lancet. 2021;396(10267):2006-17. [Cited: 16 July 2021]. Available at: https://pubmed.ncbi.nlm.nih.gov/33275908/.

91. Walsh TP, Arnold JB, Evans AM et al. The association between body fat and musculoskeletal pain: a systematic review and meta-analysis. BMC Musculoskeletal Disorders. 2018;19(1):233. [Cited: 16 July 2021]. Available at: https://doi.org/10.1186/s12891-018-2137-0.

92. Godziuk K, Prado CM, Woodhouse LJ et al. The impact of sarcopenic obesity on knee and hip osteoarthritis: a scoping review. BMC Musculoskelet Disord. 2018;19(1):271. [Cited: 16 July 2021]. Available at: https://pubmed.ncbi.nlm.nih.gov/30055599/.

93. International Association for the Study of Pain. Musculoskeletal Pain Fact Sheet: 2017. updated 2017. [accessed: 15 July 2021]. Available at: https://s3.amazonaws.com/rdcms-iasp/files/production/public/Content/ContentFolders/GlobalYearAgainstPain2/20092010MusculoskeletalPain/1.%20Musculoskeletal%20Pain%20Fact%20Sheet%20Revised%202017.pdf.

94. Hartvigsen J, Hancock MJ, Kongsted A et al. What low back pain is and why we need to pay attention. Lancet. 2018;391(10137):2356-67. [Cited: 16 July 2021]. Available at: https://pubmed.ncbi.nlm.nih.gov/29573870/.

95. Leino-Arjas P, Rajaleid K, Mekuria G et al. Trajectories of musculoskeletal pain from adolescence to middle age: the role of early depressive symptoms, a 27-year follow-up of the Northern Swedish Cohort. PAIN. 2018;159(1):67-74. [Cited: 16 July 2021]. Available at: https://journals.lww.com/pain/Fulltext/2018/01000/Trajectories_of_musculoskeletal_pain_from.11.aspx

96. Treede R-D, Rief W, Barke A et al. A classification of chronic pain for ICD-11. PAIN. 2015;156(6):1003-7. [Cited: 19 July 2020]. Available at: https://journals.lww.com/pain/Fulltext/2015/06000/A_classification_of_chronic_pain_for_ICD_11.6.aspx

97. Arendt-Nielsen L, Fernández-de-Las-Peñas C, Graven-Nielsen T. Basic aspects of musculoskeletal pain: from acute to chronic pain. J Man Manip Ther. 2011;19(4):186-93. [Cited: 16 July 2021]. Available at: https://pubmed.ncbi.nlm.nih.gov/23115471.

98. Blyth FM, Noguchi N. Chronic musculoskeletal pain and its impact on older people. Best Practice & Research Clinical Rheumatology. 2017;31(2):160-8. [Cited: 16 July 2021]. Available at: https://www.sciencedirect.com/science/article/pii/S1521694217300372.

99. Cleveland Clinic. Musculoskeletal Pain [Internet]. 2021. updated 2021. [accessed: 17 November 2021]. Available at: https://my.clevelandclinic.org/health/diseases/14526-musculoskeletal-pain.

100. GO Littlejohn. Musculoskeletal pain. J R Coll Physicians Edinb. 2005;35:340-4. [Cited: 17 November 2021]. Available at: https://www.rcpe.ac.uk/journal/issue/journal_35_4/Littlejohn.pdf.

101. Xu Y, Bach E, Orhede E. Work environment and low back pain: the influence of occupational activities. Occupational and Environmental Medicine. 1997;54(10):741. [Cited: Available at: http://oem.bmj.com/content/54/10/741.abstract.

102. International Association for the Study of Pain. ASP interprofessional pain curriculum outline [Internet]. 2018. updated 2018. [accessed: 19 July 2021]. Available at: https://www.iasp-pain.org/Education/CurriculumDetail.aspx?ItemNumber=2057

103. National Institute for Health and Care Excellence. Clinical knowledge summaries: analgesia — mild-to-moderate pain [Internet]. 2015. updated [accessed: 19 July 2021]. Available at: https://cks.nice.org.uk/analgesia-mild-to-moderate-pain#!scenarioRecommendation:1

104. Babatunde OO, Jordan JL, Van der Windt DA et al. Effective treatment options for musculoskeletal pain in primary care: A systematic overview of current evidence. PLoS One. 2017;12(6):e0178621. [Cited: 19 July 2021]. Available at: https://pubmed.ncbi.nlm.nih.gov/28640822/.

105. El-Tallawy SN, Nalamasu R, Salem GI et al. Management of Musculoskeletal Pain: An Update with Emphasis on Chronic Musculoskeletal Pain. Pain Ther. 2021;10(1):181-209. [Cited: 19 July 2021]. Available at: https://pubmed.ncbi.nlm.nih.gov/33575952/.

106. Peppin JF, Albrecht PJ, Argoff C et al. Skin Matters: A Review of Topical Treatments for Chronic Pain. Part Two: Treatments and Applications. Pain and therapy. 2015;4(1):33-50. [Cited: 19 July 2021]. Available at: https://pubmed.ncbi.nlm.nih.gov/25630651

107. World Health Organization. Cancer pain relief. Geneva, Switzerland: [Internet]. 1986. [Cited: 19 July 2021]. Available at: https://apps.who.int/iris/bitstream/handle/10665/43944/9241561009_eng.pdf.

108. Moore RA, Wiffen PJ, Derry S et al. Non-prescription (OTC) oral analgesics for acute pain - an overview of Cochrane reviews. Cochrane Database Syst Rev. 2015;2015(11). [Cited: 19 July 2021]. Available at: https://pubmed.ncbi.nlm.nih.gov/26544675/.

109. Aviram J, Samuelly-Leichtag G. Efficacy of Cannabis-Based Medicines for Pain Management: A Systematic Review and Meta-Analysis of Randomized Controlled Trials. Pain Physician. 2017;20(6):E755-E96. [Cited: 19 July 2021]. Available at: http://europepmc.org/abstract/MED/28934780.

110. Schmitz N, Richert L. Pharmacists and the future of cannabis medicine. Journal of the American Pharmacists Association. 2020;60(1):207-11. [Cited: 19 July 2021]. Available at: https://www.sciencedirect.com/science/article/pii/S1544319119305138.

111. National Institute of Health and Care Excellence. Chronic pain (primary and secondary) in over 16s: assessment of all chronic pain and management of chronic primary pain [Internet]. 2021. updated 2021. [accessed: 19 July 2021]. Available at: https://www.nice.org.uk/guidance/ng193.

112. Geneen LJ, Moore RA, Clarke C et al. Physical activity and exercise for chronic pain in adults: an overview of Cochrane Reviews. Cochrane Database Syst Rev. 2017;1(1):Cd011279. [Cited: 21 July 2021]. Available at: https://pubmed.ncbi.nlm.nih.gov/28087891/.

113. Kress H-G, Aldington D, Alon E et al. A holistic approach to chronic pain management that involves all stakeholders: change is needed. Current Medical Research and Opinion. 2015;31(9):1743-54. [Cited: 21 July 2021]. Available at: https://doi.org/10.1185/03007995.2015.1072088.

114. Erwin J, Edwards K, Woolf A et al. Better arthritis care: Patients' expectations and priorities, the competencies that community-based health professionals need to improve their care of people with arthritis? Musculoskeletal Care. 2018;16(1):60-6. [Cited: 21 July 2021]. Available at: https://pubmed.ncbi.nlm.nih.gov/28730727/.

115. Christensen R, Bartels EM, Astrup A et al. Effect of weight reduction in obese patients diagnosed with knee osteoarthritis: a systematic review and meta-analysis. Ann Rheum Dis. 2007;66(4):433-9. [Cited: 21 July 2021]. Available at: https://pubmed.ncbi.nlm.nih.gov/17204567/.

116. Cooper L, Ells L, Ryan C et al. Perceptions of adults with overweight/obesity and chronic musculoskeletal pain: An interpretative phenomenological analysis. Journal of Clinical Nursing. 2018;27(5-6):e776-e86. [Cited: 21 July 2021]. Available at: https://onlinelibrary.wiley.com/doi/abs/10.1111/jocn.14178.

117. Wing R, Dor MR, McQuilkin PA. Fever in the Pediatric Patient. Emergency Medicine Clinics of North America. 2013;31(4):1073-96. [Cited: 1 September 2021]. Available at: https://www.sciencedirect.com/science/article/pii/S0733862713000722.

118. Craig JV, Lancaster GA, Taylor S et al. Infrared ear thermometry compared with rectal thermometry in children: a systematic review. The Lancet. 2002;360(9333):603-9. [Cited: 1 September 2021]. Available at: https://www.sciencedirect.com/science/article/pii/S0140673602097830.

119. Mayo Clinic. Fever: First aid [Internet]. updated 2021. [accessed: 3 September 2021]. Available at: https://www.mayoclinic.org/first-aid/first-aid-fever/basics/art-20056685.

120. Lee GM, Fleisher GR, Harper MB. Management of Febrile Children in the Age of the Conjugate Pneumococcal Vaccine: A Cost-Effectiveness Analysis. Pediatrics. 2001;108(4):835. [Cited: 1 September 2021]. Available at: http://pediatrics.aappublications.org/content/108/4/835.abstract.

121. Slater M, Krug SE. Evaluation of the infant with fever without source: an evidence based approach. Emergency Medicine Clinics of North America. 1999;17(1):97-126. [Cited: 2 September 2021]. Available at: https://www.sciencedirect.com/science/article/pii/S0733862705700493.

122. National Health System United Kingdom. Treat yourself better without antibiotics [Internet]. 2021. updated 2021. [accessed: 17 November 2021]. Available at: http://www.cpwy.org/doc/479.pdf.

123. Bertille N, Fournier-Charrière E, Pons G et al. Managing Fever in Children: A National Survey of Parents' Knowledge and Practices in France. PLOS ONE. 2014;8(12):e83469. [Cited: 3 September 2021]. Available at: https://doi.org/10.1371/journal.pone.0083469.

124. National Institute for Health and Care Excellence. Traffic light system for identifying risk of serious illness [Internet]. 2021. updated 2021. [accessed: 21 December 2021]. Available at: https://www.nice.org.uk/guidance/ng143/chapter/recommendations#imported-infections.

125. Sullivan JE, Farrar HC, the Section on Clinical P et al. Fever and Antipyretic Use in Children. Pediatrics. 2011;127(3):580. [Cited: 30 August 2021]. Available at: http://pediatrics.aappublications.org/content/127/3/580.abstract.

126. Lesko SM, Mitchell AA. The Safety of Acetaminophen and Ibuprofen Among Children Younger Than Two Years Old. Pediatrics. 1999;104(4):e39. [Cited: 2 September 2021]. Available at: http://pediatrics.aappublications.org/content/104/4/e39.abstract.

127. National Institute for Health and Care Excellence. Antipyretic interventions [Internet]. 2021. updated 2021. [accessed: 21 December 2021]. Available at: https://www.nice.org.uk/guidance/ng143/chapter/recommendations#antipyretic-interventions.

128. Schrör K. Aspirin and Reye Syndrome. Pediatric Drugs. 2007;9(3):195-204. [Cited: 30 July 2021]. Available at: https://doi.org/10.2165/00148581-200709030-00008.

129. World Health Organization. Sexual Health [Internet]. 2021. updated 2021. [accessed: 23 July 2021]. Available at: https://www.who.int/health-topics/sexual-health#tab=tab_1.

130. Lee CK. Are pharmacists prepared to be sexual/reproductive health educators? American journal of pharmaceutical education. 2010;74(10):193i-i. [Cited: 23 July 2021]. Available at: https://pubmed.ncbi.nlm.nih.gov/21436942.

131. Gauly J, Ross J, Hall I et al. Pharmacy-based sexual health services: a systematic review of experiences and attitudes of pharmacy users and pharmacy staff. Sexually Transmitted Infections. 2019;95(7):488. [Cited: 23 July 2021]. Available at: http://sti.bmj.com/content/95/7/488.abstract.

132. National Health System United Kingdom (NHS). Sexual health [Internet]. 2018. updated 2018. [accessed: 10 December 2021]. Available at: https://www.nhs.uk/live-well/sexual-health/.

133. Centre for pharmacy postgraduate and education. Sexual health in pharmacies: developing your service. [Internet]. 2010. [Cited: 17 November 2021]. Available at: https://www.cppe.ac.uk/learningdocuments/pdfs/sexual_health_ol.pdf.

134. Navarrete J, Yuksel N, Schindel TJ et al. Sexual and reproductive health services provided by community pharmacists: a scoping review. BMJ Open. 2021;11(7):e047034. [Cited: 2 September 2021]. Available at: http://bmjopen.bmj.com/content/11/7/e047034.abstract.

135. Teeter BS, Mosley C, Thomas JL et al. Improving HPV vaccination using implementation strategies in community pharmacies: Pilot study protocol. Res Social Adm Pharm. 2020;16(3):336-41. [Cited: 17 November 2021]. Available at: https://pubmed.ncbi.nlm.nih.gov/31174950/.

136. Hattingh HL, Emmerton L, Ng Cheong Tin P et al. Utilization of community pharmacy space to enhance privacy: a qualitative study. Health Expect. 2016;19(5):1098-110. [Cited: 3 September 2021]. Available at: https://pubmed.ncbi.nlm.nih.gov/26332335.

137. Lu S, Rafie S, Hamper J et al. Characterizing pharmacist-prescribed hormonal contraception services and users in California and Oregon pharmacies. Contraception. 2019;99(4):239-43. [Cited: 3 September 2021]. Available at: https://www.sciencedirect.com/science/article/pii/S0010782418305250.

138. Edwardson J, Jamshidi R. The contraceptive vaginal ring. Semin Reprod Med. 2010;28(2):133-9. [Cited: 3 September 2021]. Available at: https://pubmed.ncbi.nlm.nih.gov/20352563/.

139. Rafie S, Stone RH, Wilkinson TA et al. Role of the community pharmacist in emergency contraception counseling and delivery in the United States: current trends and future prospects. Integr Pharm Res Pract. 2017;6:99-108. [Cited: 1 September 2021]. Available at: https://pubmed.ncbi.nlm.nih.gov/29354556.

140. Gainer E, Kenfack B, Mboudou E et al. Menstrual bleeding patterns following levonorgestrel emergency contraception. Contraception. 2006;74(2):118-24. [Cited: 3 September 2021]. Available at: https://pubmed.ncbi.nlm.nih.gov/16860049.

141. Rubin N, Wylie K. Should sildenafil be available over the counter? British Medical Bulletin. 2009;90(1):53-62. [Cited: 2/11/2022]. Available at: https://doi.org/10.1093/bmb/ldp001.

142. van Asselt A, te Giffel M. 19 - Pathogen resistance and adaptation to disinfectants and sanitisers. In: Griffiths M, editor. Understanding Pathogen Behaviour: Woodhead Publishing; 2005. p. 484-506.

143. Centers for Disease Control and Prevention. Guideline for Disinfection and Sterilization in Healthcare Facilities (2008) [Internet]. 2008. updated 2021. [accessed: 21 July 2021]. Available at: https://www.cdc.gov/infectioncontrol/guidelines/disinfection/disinfection-methods/index.html.

144. Pittet D, Allegranzi B, Storr J et al. 'Clean Care is Safer Care': the Global Patient Safety Challenge 2005-2006. Int J Infect Dis. 2006;10(6):419-24. [Cited: 21 July 2021]. Available at: https://pubmed.ncbi.nlm.nih.gov/16914344/.

145. Lin Q, Lim JYC, Xue K et al. Sanitizing agents for virus inactivation and disinfection. View. 2020:e16. [Cited: 10 July 2021]. Available at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7267133/.

146. Maillard J-Y, Bloomfield SF, Courvalin P et al. Reducing antibiotic prescribing and addressing the global problem of antibiotic resistance by targeted hygiene in the home and everyday life settings: A position paper. American Journal of Infection Control. 2020;48(9):1090-9. [Cited: Available at: https://www.sciencedirect.com/science/article/pii/S0196655320302091.

147. American Society of Health-System Pharmacists. ASHP Statement on the Pharmacist's Role in Antimicrobial Stewardship and Infection Prevention and Control. American Journal of Health-System Pharmacy. 2010;67(7):575-7. [Cited: 10/25/2021]. Available at: https://doi.org/10.2146/sp100001.

148. Merks P, Jakubowska M, Drelich E et al. The legal extension of the role of pharmacists in light of the COVID-19 global pandemic. Res Social Adm Pharm. 2021;17(1):1807-12. [Cited: 18 July 2021]. Available at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7289723/.

149. Baye AM, Ababu A, Bayisa R et al. Perspectives of compounding pharmacists on alcohol-based hand sanitizer production and utilization for COVID-19 prevention in Addis Ababa, Ethiopia: A descriptive phenomenology study. PLoS One. 2021;16(4):e0250020. [Cited: 1 September 2021]. Available at: https://pubmed.ncbi.nlm.nih.gov/33914768/.

150. Sum ZZ, Ow CJW. Community pharmacy response to infection control during COVID-19. A cross-sectional survey. Res Social Adm Pharm. 2021;17(1):1845-52. [Cited: 15 July 2021]. Available at: https://pubmed.ncbi.nlm.nih.gov/33317763/.

151. World Health Organization. Cleaning and disinfection of environmental surfaces in the context of COVID-19. Geneva, Switzerland: [Internet]. 2020. [Cited: 21 July 2021]. Available at: https://www.who.int/publications/i/item/cleaning-and-disinfection-of-environmental-surfaces-inthe-context-of-covid-19.

152. International Pharmacists Federation. COVID-19: Guidelines for pharmacists and the pharmacy workforce. The Hague: [Internet]. 2020. [Cited: 16 November 2021]. Available at: https://www.fip.org/files/content/priority-areas/coronavirus/COVID-19-Guidelines-for-pharmacists-and-the-pharmacy-workforce.pdf.

153. Godoy P, Castilla J, Delgado-Rodríguez M et al. Effectiveness of hand hygiene and provision of information in preventing influenza cases requiring hospitalization. Prev Med. 2012;54(6):434-9. [Cited: 27 July 2021]. Available at: https://pubmed.ncbi.nlm.nih.gov/22548868/.

154. World Health Organization. WHO guidelines on hand hygiene in health care. Geneva, Switzerland: [Internet]. 2009. [Cited: 21 July 2021]. Available at: https://www.who.int/publications/i/item/9789241597906.

155. Centers for Disease Control and Prevention. When and How to Wash Your Hands [Internet]. 2021. updated 2021. [accessed: 25 October 2021]. Available at: https://www.cdc.gov/handwashing/when-how-handwashing.html.

156. McNulty CAM, Lecky DM, Farrell D et al. Overview of e-Bug: an antibiotic and hygiene educational resource for schools. Journal of Antimicrobial Chemotherapy. 2011;66(suppl_5):v3-v12. [Cited: 10/25/2021]. Available at: https://doi.org/10.1093/jac/dkr119.

157. Public Health England. e-Bug: Meet the bugs [Internet]. 2020. updated 2020. [accessed: 15 October 2021]. Available at: https://www.e-bug.eu/page.php?name=beat-the-bugs.

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