

PHARMACISTS' ROLE IN COMMUNITY HEALTH AND DISEASE PREVENTION

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1.2 Abstract

The role of the pharmacist in community health and disease prevention is rapidly evolving. Pharmacists find themselves being pulled away from their traditional roles and instead assisting patients with an increased emphasis on health and disease prevention. This focus is partly a result of soaring healthcare costs and an overwhelming shift towards self-care across the world (Steeb, 2017). Though this is encouraging news in efforts to improve the overall health of patients, particularly in less affluent communities around the world, it also brings attention to the importance of pharmacists' training and expertise. The purpose of this article is to explore the innovative roles that pharmacists are taking on in community health and disease prevention. Historically, the role of the pharmacist has focused around product-centered services such as compounding and dispensing medications. For many years, the question of how to find a role for pharmacists in public health seemed rhetorical, with the common belief that pharmacists could not leave their pharmacies due to ethical and legal reasons. However, recently more attention has been given to what the role of the pharmacist could be within public health. The World Health Organization identifies the following components of public health: health condition, health promotion, health protection, preventive health, and health services. These components are accomplished through the work of health departments and can be broken down into a set of ten essential public health services. At least some of these services are easily adaptable to the pharmacist's understanding and expertise of medications and their use. In many developed

countries, pharmacy services have evolved to incorporate elements of public health and have been utilizing pharmacists to promote health in their communities.

1.3 Keywords

Community Pharmacy-Based Health Promotion and Disease Prevention Services in Shanghai, China

Keywords: community health, daily-life health, practice, public health, pharmacy

Introduction

Health is a fundamental human right and an essential ingredient for social justice (Steeb, 2017). The World Health Organization (WHO) defined health as a state of complete physical, mental, and social well-being and not merely the absence of disease and infirmity. Health promotion and disease prevention therefore play an important role in both of daily-life health and public health. “Health promotion focuses on the development of individual and group activities that are directed toward achieve better daily-life health”. The aim of health promotion is to help people increase the control over health and improve basic daily-living conditions.

According to the concept of community empowerment, local residents can learn health-promotion knowledge, how to identify their needs, and how to take actions to improve their health by professional team. “Community empowerment provides a theoretical framework for the process by which individuals and groups learn to formulate their own interests, articulate their needs, and identify strategies to take the issue to the policy-making table”. “The mass media, group education, health education, health promotion, and models of community-oriented care are offered as ways in which to empower communities to take control of health”. “The WHO strategies for health focuses on intersectoral action and healthy cities and the district model for primary health care”. The daily-life health of local residents is a concept based on Shanghai environment. Special attention should be paid to community-based health promotion activities and disease prevention services, as pharmacies in China cannot dispense drug without a prescription but there are no such restrictions on over-the-counter (OTC) medications.

1.4 1. Introduction to Pharmacists in Community Health

A growing number of professional organizations are focusing efforts to increase the role of pharmacists in community health and prevention of disease. This adds to the continued search for strategies to reduce healthcare costs. A part of the strategy to reduce healthcare costs needs to focus on keeping people healthy. A small proportion of patients can comprise the majority of healthcare costs. They can also have difficulty maintaining and improving their level of healthcare. There is a growing body of evidence that the group of medication-related problems most frequently discovered is related to adherence. Community pharmacists are perfectly positioned to monitor these adherence-associated problems (Steeb, 2017). It has been well established that pharmacists can affect the medication-taking behavior of patients. With respect to improving the public health of communities, pharmacists are found in key locations for early detection and monitoring of communicable diseases. It is out of great benefit to increase the number of pharmacists; which could improve adherence in large patient populations.

Pharmacists have long realized the potential to expand their role in the health of their communities. Actively working to become a more visible and accountable member of the healthcare team has placed a spotlight on the prevention and early detection of disease. The current division of healthcare providers is not in a prime position for early detection. As the most accessible healthcare provider, community pharmacists will begin to work in a more preventative manner. Programs that provide free lipid, blood pressure, and blood sugar screenings are already being offered at pharmacies across the country. These three screenings are the gold-standard to screen for the top three leading causes of death in the US. However, most pharmacies are not currently taking active steps to provide counseling based upon the results of the screenings. Starting a medication therapy management (MTM) program based on screening results would promote the early detection of major health complications. This beginning of an MTM program has led to a dramatic increase in the number of doctor's visits by those same patients who were screened in the pharmacy.

1.5 2. The Importance of Community Health Initiatives

Pharmacists are among the most reachable and trusted healthcare providers in most communities and are able to both further public health aims and tailor services to the specific needs of a population center. As policy-makers look for cost-effective ways to promote health, especially in public health, there are opportunities for pharmacists for multidrug-resistance tuberculosis (MDR-TB) treatment and palliative care for cancer patients. There are a wide variety of initiatives an organization might consider to improve the health of a community.

One of the most common interventions that can lower morbidity and mortality rates among the population is providing immunizations. Although traditionally not a major role of pharmacists in Tanzania, in other settings pharmacists have a national footprint, especially in developing countries. Even in situations where there is not a national commitment to regularly promote access to immunization, there are typically a number of for-profit immunization centers in major cities. These pharmacies often give a wider range of vaccines than do public health centers and many provide adult vaccines as well (Steeb, 2017).

Nutrition and exercise are also important tools pharmacists can use to prevent disease and improve well-being. Community pharmacies in the United States are already well-known for offering services like blood pressure monitoring and weight management, but there is growing potential in low and middle-income countries. Services can be as simple as diet and exercise counseling or as structured as group classes at the satellite pharmacy in a rural community center. As pertains to noncommunicable diseases (NCDs), pharmacists are in a good position to provide low-cost, effective services to improve the health of populations centering on education: hypertension screening and feedback, drugs compliance, and tobacco cessation. Each of these was the focus of a recent intervention for improving public health in a northern Tanzanian community and the methods and results are analyzed.

1.6 3. Pharmacists as Healthcare Providers

As the pharmacist profession has shifted its attention outside of the pharmacist and into patients and the community, more focus has been put on what the role of the pharmacist could be within the realm of public health. In recent years, pharmacists have been granted the authority to vaccinate

in countries like the United States, United Kingdom, and Canada in order to promote primary prevention of disease (Steeb, 2017). Furthermore, well known tobacco cessation counseling and lifestyle change recommendations were already services provided by pharmacists that can be considered to be within the realm of public health as well. Today, many of the patient-centered services most frequently delivered by the pharmacist are considered to be micro-level public health activities, such as health screenings, drug information services, and patient counseling sessions. Community pharmacists can design accessible health screening programs in the retail setting to help detect community gaps in care such as undiagnosed diabetes, hypertension, abnormal cholesterol levels, undiagnosed osteoporosis, and undiagnosed influenza cases. Furthermore, community pharmacists have the opportunity to collaborate with local social workers in order to detect and eliminate barriers to care within a community such as language or transportation barriers. As front line healthcare providers accessible to the entire population, pharmacists are capable of contributing to the detection and management of community and population-wide infectious disease outbreaks. As a profession with direct access to all communities across the globe, pharmacists have the potential to be engaged at a higher level within the essential public health services in order improve the health of populations throughout the broader community.

3.1. Clinical Services Offered by Pharmacists

Medication use is a key component of the health of individuals globally. From community health in low and middle income countries to disease prevention and medication management to a healthier, high income nation, pharmacists are on the forefront of securing a healthier world. There is a shift in the focus of pharmacists, from drug-centered services to a more public health focus, acknowledging the skill and readiness of pharmacists to make beneficial public health contributions. As the valuable health professionals in the pharmacy, pharmacists are in a unique position to detect, screen, and manage diseases and health conditions. While public health is the field of preventing diseases, promoting health, and prolonging life by managing organized efforts and informed choices of society or organizations, the pharmacists, whose education and expertise focused in medications, can also contribute to public health in a dominantly positive character.

Community pharmacists are well-positioned to provide disease screening, education and management, as well as to refer patients for care. Medication expertise is utilized to venture in disease and health condition prevention, as well as medication management. This text seeks to define pharmacists' role in public health and key global health efforts, as well as to discover and describe global public health opportunities. While based in the United States, information and experiences which have a global application are used. Although interventions and efforts differ by country and context, the public health and global dialogue are becoming increasingly important.

3.2. Pharmacists' Role in Medication Management

Introduction

Community pharmacists have a special responsibility for dispensing medicines safely to outpatients and supporting their safe use (Kallio et al., 2020). In many countries, the most common form of pharmacist-patient interaction is at community pharmacies when patients collect their medicines that have been prescribed to them. Community pharmacists dispense, amongst other

duties, check the safety, and provide advice on the good use of medicines. Dispensing medicines is, primarily in older people with multiple medications, a particularly high-risk process because it includes double-checking doses, identifying harmful interactions and other medication-related risks. In routine dispensing, the pharmacist is the last health profession who sees it and many medication-related risks are left unhandled. The multifaceted nature of risking and its management makes it even harder to grasp the differential responsibilities of the various actors of the chain of safety within the highly complex setting of the practice in community pharmacy. The numbers of reports on medication errors and near misses are profuse. It is suggested, however, that a large chunk of these unintentional events goes unnoticed, as reporting them is typically voluntary.

Background

Community pharmacists can and should take action to reduce medication-related harm in community pharmacies, not just taking part in systematic medication review interventions. The results suggest that the interventions made could reduce medication-related risks and doses not ingested and increase adherence at least in the short term in older adults. Time spent listening to a patient's medication history and likes can be considered medication risk management. However, experiences suggest that people taking care of their prescribing are time-restricted. It was of interest to look for medication risk management actions taken in addition to the dispensing process in view of the lack of published data on this issue. The goals of this study were to investigate the presented contributions of community pharmacists to medication risk management in Finland and, more closely, to clarify what actions are taken in addition to the dispensing process as part of the routine dispensing in community pharmacy.

1.7 4. Disease Prevention Strategies

As healthcare professionals, pharmacists are educated in the epidemiology of diseases, their mode of transmission, recommended preventive interventions, and the data and analyses that substantiate their efficacy. They are, in addition, the most accessible health professionals to most of the public and are highly trusted. Pharmacists are therefore in an ideal position to provide patients with evidence-based advice on how to prevent diseases, whether by immunization, behavioral changes, use of preventive medicines, or other interventions. This chapter will outline the evidence for the effectiveness of a variety of disease prevention strategies, most of which involve advice from or intervention by pharmacists. Specifically, the effectiveness of pharmacotherapy and lifestyle or behavior intervention for preventing or delaying cardiovascular diseases, diabetes, cancers, and osteoporosis will be reviewed. As health professionals who are well-trained in the dispensing of medications, as well as medication safety, pharmacists have a responsibility to their customers to assist them with their medication regimens. Medication therapy management is a comprehensive treatment program that ensures that patients are effectively managing their medications and disease states. It is a useful service as an effort to improve the quality of patient care and the medication use process.

4.1. Immunization Services

Pharmacy and pharmaceutical procedures store settings in which charity technologists and aides denude medication to patients over corner manners. Medication abutting comes within the

background of pharmaceutical wariness and attends to diverse estimateians into datasets and circumstances such as regulating makes regulating dictator medications, and jobs theory as the pharmacist's aide. The hospitals section is use a precise barring pliable makes of natubarring such as regulations, deliberates, policies, and guidelines in fitting the meds sector approvely. Subscribed med section proceduress contribute for the despatch of medications into settings in which to despatch, steps for despatch, and the ways into support medications despatch in anonymous or precaucasting environments. Pharmacists mitigate the signification environs in which a dead medication can be exposed or transplopped to. Pharmacists have bailout plaing, volunteers areas or clinic personells procedures in each in armory with additional cacophony preventions into barricades such as play time sires that contribute a moment oration limitation to dead medication despatch. Pharmacists, the signactivism mint of care staff, and trited in patient care, medicines management, and parapedical makes, are now involved in a poor-over of health care, despatching medications at numerous points in the medication journey; from regulations department bar windows, to nursing coy sequences and on congressionally pilings. Predominantly conjused in the consig to models ward medication process by the dissection conundrum are harmful drug events which occur as a outcome of the asperity depression of one kind of medication for another.

4.2. Screening and Early Detection

Early detection and treatment may help reduce the impact of certain diseases on patient life. A pharmacist or drugstore intern may operate in coordination with other healthcare providers to deliver health screening services to pharmacy consumers. These services are particularly helpful for groups for whom routine checkups are unreliable or who do not understand the requirement for routine screening. Many community pharmacies have evolved their practices to include other clinical services such as health screening as a result of reinvention and initiative.

The pharmacist has detailed information about medications and diseases as an approachable healthcare professional. Medication counseling by the pharmacist has demonstrated a significant impact on various results, like therapy adherence, condition control, and patient satisfaction. Pharmacists typically discuss the medication and the side effects and restrictions to relieve the patient's concerns. Conversation offers the chance to give constant health advice. Besides pharmacotherapeutics knowledge, pharmacists may even advise general health advice. A network of pharmacists dispensing medications is more conveniently placed to offer medication outcomes monitoring. Professional pharmacists retail a broader selection of drugs to a wider range of disorders than any other sector. In their everyday practice, a pharmacist will see a great element of patient drug usage and illness scenario, like drug interactions and side effects. Community pharmacists have offered pharmacy care interventions like checking drug efficacy, drug interaction, pharmacokinetics, and disease management via direct patient contact. Pharmacists' expertise and prospects have not been completely released and utilized. They have the potential to substantially contribute to community welfare by delivering knowledge of health monitoring and early symptom recognition. The pharmacist should be integrated into the public primary care health screening system. Early detection can be facilitated by conducting screening exams with patients at high risk of a certain disease. Moreover, some widespread diseases will come out

entirely asymptomatic in the initial stages, and it can be detected only by screening. Ease of passage to the general population and proximity to care places are some of the factors that render the pharmacy a perfect place for community-based screening. A solid referral network and organized records of patients' medication purchases make it conveniently feasible to refer consumers to other health care suppliers. After screening, consumers' outcomes even can be monitored via medicine sales data even though they do not attend the follow-up doctor. Treatments can also be prescribed by a network supplier for consumers who screen with a confirmed disease. Major health issues may be anticipated and prevented by encouraging health screening in the community. Vaccination is one of the earliest and most effective techniques to prevent the spread of infectious disease before symptoms appear. Pharmacies may be designated to deliver clinical services such as vaccination owing to their ease of reach and versatility of the infrastructure. Known medicinal product vaccinations are generally secure and therefore can be easily dispensed by qualified pharmacists.

A portion of community pharmacists in many developed and emerging nations have established care practices that offer clinical services and programs separate from traditional medication dispensing. Clinical services typically include disease management, wound care, information regarding smoking or drug withdrawal, health education, urban health promotion, counseling, or referral. Disease management includes interventions for preventing diseases, monitoring the disease, and possibly furthering the effect of the disorder. Prevention is meant to hold a disorder at bay in healthy people. Screening is one of the activities that may be carried out in such a matter to allow early treatment, if necessary. Oncology is a department of medicine dedicated to exploring cancer reasons and evolving treatments. Cancers are medical conditions that arise when the growth and spread of the body of cells cannot be controlled. Early identification of cancer could contribute essential benefits. The successful identification and management of a malignant tumor prior to any symptoms or festering signs are widely known as early screening and treatment. Early identification is important in minimizing morbidity and maximizing the chances for long-term healing. Evidence shows that discovering a tumor on the earliest level is the national cancer prevention policy. Additional research analyzing cost-effectiveness and the advantages of early detection programs have been released. Most patients are identified with a tumor that is localized or a nearby phase, have a higher chance of surviving than those whose disorders may have spread too far. Locally restricted or nearby cancer conditions may almost always be treated on-the-spot or with fundamental therapies. Like in breast, lung, prostate, and uterine cervix tumors, early screening is one of the methods to minimize malignancy. Schools of thought vary, but much evidence demonstrates enormous clinical gains when tumors are discovered and treated until they are detectable by clinical exploration. As it is not frequent in the first stages, community pharmacies have the ability and potential to fill the gap. Community pharmacists engaging in primary health practice may play a significant part in feeding local communities with sufficient measures to deal with likely ailments. Local inhabitants are all around and generally have the best experience with local protection and health issues that may have developed in any singular individual. The community pharmacist's drug prescribing practice always involves assessing signs

and adverse effects of medications used in pharmaceutical treatment. However, these signs and symptoms may also be a result of malignancy, suggesting that they may discover any beginning indicators of a probable malignancy earlier than they appear to be. Additionally, senior trained pharmacists with a range of healthcare professionals will further consolidate preventive objectives and present educational suites to spread awareness of the significance of early symptoms in cancer and to attend routine health exams. Community pharmacist-led interaction and collaboration with healthcare providers such as general practitioner clinics and local tissue or blood test centers are essential to addressing wellness implications. Thus, whenever the principal caregiver for a significant medical query feel a probable danger, nurse practitioners and healthy workers should refer the client to another form of health care provider as prescribed in the treatment guide. This can also include physical referral via booklets or e-mails, as several pharmacies are affiliated with local healthcare providers.

1.8 5. Pharmacists in Public Health Campaigns

While pharmacists are skilled at interacting with patients and are experts in the medication needs of their communities, continued resistance in communities across the United States has limited the breadth with which pharmacists are utilized in public health campaigns. In the last decade, American pharmacies have greatly expanded their health services to include patient education, immunization, screening, and chronic care management. This has allowed them to apply their skills in new contexts, but still within a patient-centered framework. However, public health activities are community or population-centered, and a broader application may have a more substantial impact on disease spread and prevention than current strategies. It is useful, then, to consider what recommendations might be made to better position pharmacists to engage in disease prevention and public health campaigns. This includes the organization of campaigns, the skills pharmacists may need to develop, and potential challenges to implementation.

In more limited resource communities, especially in low and middle income countries, pharmacists are not widely utilized in public health efforts, nor are their contributions well recognized. As such, there is a need for pharmacists to be incorporated across key global health areas. Pharmacists are well positioned for such an application of public health services. They are able to apply their medication expertise to fill existing gaps in care that align well with major global health efforts. Moreover, these prior efforts to define the role pharmacists can take in broader public health campaigns in limited resource communities can establish them as a key public health provider and offer opportunities for increased health service provision. In many high-income regions, there is evidence of a robust understanding and integration of public health campaigns within pharmacy services. This understanding is more acute in nations with developed public health infrastructure, healthcare systems with clear division of health sectors, and embedded pharmacy services within public health frameworks. Across various high-income regions, there exist models of pharmacy services that have emerged as important avenues for public health promotion. Pharmacists are as a consequence increasingly seen as important contributors towards public health objectives. With respect to American pharmacies collaboration with local health departments, the use of technology in delivering care and reporting patient outcomes, and pharmacists specialized in working with

physicians to improve medication management are all exemplars of this broader vision. Despite such momentum existing across the industrial world, broader public health efforts within pharmacy services appear less developed in other regions. However, a growing body of evidence suggests that pharmacy-led programs can deliver public health benefits.

5.1. Collaborations with Health Organizations

Patients need to understand, too. They need to understand how pharmacists can assist them in managing their conditions through coaching and medication therapy management (MTM), which involves several components that the pharmacy profession is uniquely qualified to provide. Pharmacists provide coaching every day in their practice, helping asthmatics perfect their inhaler use, teaching diabetics how to use glucose monitors, and explaining the safest way to take antibiotics.

This partner has received numerous inquiries in the past several years from organizations across the country wanting to partner with pharmacies to assist in the prevention and control of chronic diseases. For many individuals, pharmacists are the easiest health care professionals to access. They are often the first point of care for patient questions. In rural communities, a pharmacist might only be a few blocks away. Business is being directed to an organization's local pharmacy, so why not facilitate coordination to ensure that patient is better off? The philosophical obligations to care for one's patient are fundamental throughout the medical field, not necessarily unique to one's educational bent (Center for Chronic Disease Prevention and Health Promotion (U.S.), 1970).

Those who have chosen to join the ranks of pharmacy are specially trained, but more importantly are frequently the most accessible of all healthcare providers. The average adult fills about 12 prescriptions a year; following the age of 65, the average is more than 30 a year. Physicians and pharmacists are increasingly joining forces. In a model cited in, some of the country's largest physician groups are creating collaborations with some of the country's largest retail drugstore chains. This trend emulates the successful Maryland Pharmacist Program's P3 Program model. The P3 Program is a partnership among the Maryland Department of Health and Mental Hygiene, the Maryland Pharmacists Association, the Maryland Society of Eye Physicians and Surgeons, the Maryland Optometric Association, and the Mid-Atlantic Association of Community Health Centers, Inc, exemplifying a partnership template that may be useful to a number of organizations throughout the country.

5.2. Community Outreach Programs

In African American and underresourced urban communities, there are multiple barriers to acquiring health care. To address unmet clinical and social needs in these priority populations, community-clinical linkages have potential benefits. Community-clinical linkages are defined as connections between community and clinical sectors to improve population health by evidence-based services or programs provided in clinical settings and those provided in community settings. Established benefits from community-clinical linkages include increased provision and access to clinical preventive services, implementation of evidence-based disease management programs, and improved control of chronic disease and health outcomes. Support for community-clinical

linkages to improve the prevention and management of chronic disease are also included in a priority initiative which prioritizes six clinical preventive services not widely covered by health insurance providers for rapid implementation over 18 months as part of high-need community-clinical linkages. This priority initiative is aimed at increasing the number of individuals receiving clinical preventive services. African American communities are particularly at risk for a multitude of chronic conditions placing them at higher risk for poor COVID-19 outcomes. Additionally, community-based pharmacists are well positioned to implement the strategy and in response implemented a novel community-based pharmacist navigation program. On diverse community engagement and stakeholder advisory groups, the local health department and graduate school of public health are hosted. Additionally, feedback from community members and multisector partners is continually gathered to improve goals and objectives. Between January 2019 and January 2021, eight community listening sessions have been completed with individuals in marginalized communities of color to gather feedback and input on the necessary goals and objectives. To advocate for and support the needs of these communities, an Issues Brief has been distributed. Between May 2016 and August 2021, seven annual partner meetings have been held where both the community listening session feedback and Issues Brief are discussed and further explored how the initiative can meet community needs and priorities. Together, the listening sessions, Issues Brief, and bi-annual partner meetings have allowed the initiative to refine specific goals and strategies to address the priority areas and to build trust with partners and community members and hold the initiative accountable for taking actionable steps to address the necessary goals and objectives. Given department budget cuts and limitations on scope and services delivered under a previous administration, recommendations are anticipated to shift how the initiative interjects in community-led partnerships and uses institutional relationships to gain access to decision-makers and policy changes in the local area and aligns the multi-institutional partnership for sustained community-engaged health equity-focused research, education, service, and leadership.

1.9 6. Patient Education and Counseling

Patient counseling is an important component of patient-centered care to ensure safe and rational use of medicines by the community. Counseling refers to communication between the pharmacist and a patient or caregiver that is designed to produce better understanding and to aid in the proper administration of prescribed drugs, medical devices, and other help for the treatment of illness or maintenance of health and quality of life. There are five mandates to be followed in the implementation of patient counseling in the community such as 1) Patient education, 2) Assurance of accuracy, 3) Offer to counsel, 4) Proper follow-up with pharmacists, and 5) Privacy. Patient counseling should be started with the information regarding the use of medication. It also includes directions for use, precautions for intake, common side-effects, and special considerations. The majority of the respondents had chosen 'dose and frequency' as the key points in patient counseling. More than two-thirds of the respondents felt that drug's name, purpose including dose and frequency were important. Patient counseling should be done to every patient who has a new prescription. To assess the effectiveness of counseling, it is important to ask the patient if they

have additional questions or concerns with their medicine(s). Seasonal diseases should be prevented and cured as well as offer treatment. This helps to increase the health status and quality of life of the community. It helps to decrease the incidence of morbidity from diseases (Alshakka et al., 2018). Patients prefer counseling with the pharmacist by one to one method and face to face counseling in a private place. They prefer counseling in community pharmacy with no consultative room rather than counseling area private with the pharmacist. Older pharmacy personnel (≥ 40 years) tend not to seek that patients have time to adequately counsel the pharmacy with the pharmacist. Most of the respondents had been counseling with < 10 patients per day. However, fewer than six participants had confidence in the continuance of pharmacy personnel regularly teaching their patients as a drug-related problem or question. In contrast, more than half had no confidence in the continuance of pharmacy personnel regularly educating about their patient's disease. In most cases, patients are hesitant to discuss their problems in public, which reduces the effectiveness of the counseling.

6.1. Promoting Healthy Lifestyles

Pharmacists can influence community health and disease prevention more than ever thought before due to their broader role in health care. Pharmacists are in a unique position to promote healthy lifestyles to patients. In Minneapolis, pharmacies offered participants 18 episodes of intervention: six individualized health risk appraisals (HRAs) with corresponding educational sessions, two travel clinics, and quarterly follow-up mailings and blood pressure monitoring (L. Lenz et al., 2010). Hamilton Health Associates Pharmacy in Franklin, Massachusetts, implemented the Heart To Health program which included multiple in-store community awareness and education strategies targeting heart disease risk factors. Key components of the program included free blood pressure screenings, information on the therapeutic and physiologic benefits of pet ownership, and interactive CD-ROM stations. The Heart To Health program demonstrated success in raising awareness and encouraging the purchase of directly related self-care products.

Disease prevention can take many forms including the use of self-monitoring devices, patient education, medication therapy management (MTM) services, health and wellness programs, and the promotion of a healthy lifestyle. Managed care organizations often contract services out to managed care pharmacists to focus on certain diseases and specific services. However, these clinical services always center on a medication rather than being a lifestyle issue. While pharmacy literature has stated that MTM services to patients with hypertension, dyslipidemia, and/or diabetes have improved drug therapy outcomes and drug therapy problems, no prescription compliance or persistence was addressed. A study involving managed care where pharmacists are at arm's length distance from the patient developed a business at a Walgreens for diabetes services that included pharmacy diabetic classes, telephonic disease management, MTM services, and self-monitoring of blood glucose. Results again showed only that services were associated with drug therapy improvement and not with lifestyle improvement including diet and exercise.

6.2. Chronic Disease Management Education

Chronic Disease Management Education Community pharmacists have the potential to improve medication adherence and overall disease management through patient counseling and education.

Medication adherence is defined as the degree to which patients take medications as directed. Poor medication adherence is estimated to cost some \$100 billion annually in avoidable health care costs, and data estimates that half of all patients do not adhere to their prescription medication regimens, leading to an additional \$33.4 to \$54.7 billion yearly in hospital related costs. Medication non-adherence has a dramatic impact on both the quality and length of life. Making concerted efforts to improve adherence to antihypertensive treatment could prevent approximately 89,000 premature deaths annually.

Action needs to be taken on several fronts to promote better patient understanding of the need for medication, learn up-to-date information on drugs and lifestyle modification, build relationships with trusted health care providers to assist in the monitoring and management of their chronic diseases, and improve tracking of their own medical status. The expanding area of patient-focused research is unlocking a treasure trove of information about what patients are learning and understanding about their medical conditions and their treatments. Basing public health campaigns on this information, and on an effective collaboration of public health experts and pharmacists, will strike a responsive chord among patients of all ages. Medical and pharmaceutical-care experts have recently defined medication therapy management (MTM) as a specialty, in which pharmacists use their clinical expertise to optimize drug therapy in individuals who have multiple co-morbidities (chronic diseases), and are taking multiple medications (polypharmacy) for a single (mono-therapy) or more chronic conditions. These patients are at high risk for poor health outcomes that are directly related to their drug regimens. The overall objective of MTM is to assist the patient in achieving therapeutic goals, and to prevent or eliminate medication-related problems ((Center for Chronic Disease Prevention and Health Promotion (U.S.), 1970)).

In recognition of the fact that pharmacists are among the most accessible health care providers and have strong relationships with their patients, an important educational initiative aimed at patients at risk for, or already diagnosed with, preventable chronic disease has been launched. This initiative seeks to improve medication adherence and overall disease management through counseling and the distribution of educational material provided by trained pharmacists, and where it is feasible, with follow-up provided by public health workers. The objectives are to encourage patients to engage in healthy behaviors that can prevent and control high blood pressure and type 2 diabetes, especially because these conditions significantly increase the risk for heart disease, related cardiovascular events, and stroke. Pharmacies offer a strategic advantage over other types of health care facilities in this type of education campaign. Millions of people visit their community pharmacies each week, and nearly all of Americans (97%) live within five miles—it follows that pharmacies are easily accessible, especially when compared to clinics. In addition, it is likely that the vast majority of individuals who get prescriptions filled at drug stores are already taking medications for a diagnosed health condition, and lead to community pharmacies potentially serving a double win for public health. Participation with drug stores can set up convenient opportunities for disease management consultation, patient counseling services, and medication-based advice, all of which can be purposefully aimed to promote general wellness.

1.10 7. Access to Healthcare Services

Access to healthcare services and the increased utilization of pharmacy services are a focus of several Healthy People 2010 objectives. Access to affordable medicines, monitoring of prescribed and over-the-counter medications, public health campaigns, and prevention strategies can be fostered through community pharmacist involvement. Pharmacists are educated to understand the rational use of medications and dispensing practices. They are also considered one of the most accessible health care professionals and have the potential to provide timely and continuous care. The significance of a community-based, well-equipped and adequately staffed pharmacy in providing better healthcare facilities was universally recognized.

Pharmacists can actively take on roles in health screening for various diseases and immunization against diseases. The pharmacist can identify individuals who have a modifiable risk factor such as an elevated high density lipoprotein-cholesterol ratio, which is a risk factor for chronic diseases, ectopic fat deposition, and body fat distribution, and refer these people to the general practitioner. Landing fees for medical consultation was waived for those referred by the pharmacists. This implies that the pharmacist performed risk factor screening previously missed by GPs, and that alteree management based on this screening may have had an impact on GPs' workload (Steeb, 2017).

Community pharmacies strive to improve public health through increased access to resources in disease prevention.

Medication expertise provides an avenue for pharmacists to contribute to public health areas, including access to essential medicines, maternal and child health, infectious disease, noncommunicable diseases, and health service access initiatives. Pharmacists have worked on providing continuity of care between various community health workers and primary care centers, have trained volunteer groups and traditional birth attendants, and have provided point-of-care tests. Pharmacists have also trained teachers to deliver first aid relief, have run urban-based health campaigns to increase knowledge of disease transmission, have initiated the development of tobacco cessation guidelines, and have provided education on childhood and maternal nutrition to traditional birth attendants.

7.1. Pharmacists in Underserved Communities

Pharmacists play an important role in advanced primary care, contributing recommendations on drug regimens and improving the ratio of care to care recipients. In medically underserved communities, pharmacists have extensive experience in caring for patients. In underserved regions, it's common for low-income households to buy necessary goods with borrowed money. Before borrowing any money, it's common to "document" with relatives and guarantee payments. As well as valuable personal possessions, community health is often exchanged and used to borrow money, which exacerbates health problems. It is important for primary health care staff to understand these issues (Steeb, 2017). With many years of experience in community-based interventions for underserved communities, pharmacists can contribute to the effectiveness of health financing programs and the health insurance system and contribute to primary care. One strong point of the current insurance system is the use of the unique identification number system

for all insured individuals. Careful construction and maintenance of the comprehensive, real-time information system is expected to have a significant impact on improving the efficiency of care, as insurers are prevented from excessively charging insurance charges. Routinely checking prescriptions for hemorrhage, it would be effective to collect a minimal amount of data as a basis for self-management. Pharmacists have accumulated a record of successful self-management in medical centers and health clinics, and pharmacists can play an important role in implementing and improving self-management services in provinces.

With the expansion of the WHO/World Bank report, it is expected that in the future, it will be necessary to promote the more effective use of often limited financial resources for medical treatment and medical treatment. In addition to waiting for the discourses of stakeholders, it can be seen that the focus is on how to secure the provision of quality drugs, invested equipment, and medical treatment. Since the introduction of the “essential” drug system, pharmacies have been the most common way for households to contact the health sector in developing countries, both on a fee-for-service basis. Recent studies have suggested that despite the various problems present in many pharmacies, they can play an important role in preventing diseases.

7.2. Telepharmacy and Remote Services

Telepharmacy, which is the provision of all standard pharmacy services at a distance, can be provided through use of direct interaction with patients or patients' caregiver, dispensing prescriptions, products or advice. Other supporting services on telepharmacy business can be prescription review and verification remotely, transmitting the prescription electronically to remote pharmacist, gathering patient information remotely before serving patient, preparing medication for delivery, and scheduling for later delivery. Beyond telepharmacy, there are multiple advance applications in pharmacy to deliver services at a distance, such as acquisition of auxiliary pharmaceutical devices, blocking of unauthorized pharmaceutical devices, active personal data management or choosing telepharmacy services in drug supply.

Telehealth offers major opportunities for the evolution of the pharmacist's profession and the improvement of patient care. The regulatory framework is evolving towards an extension of the teleconsultation to multidisciplinary health professional teleconsultations in which pharmacists can participate. Several medically advanced applications allowing to carry out a pharmacy act at a distance are taken up, including the telemedicine medico-pharmaceutical consultation. Two projects led by pharmacists are mentioned: a telepharmacy medication interview as part of continuity of care after hospitalization by a community pharmacy and a multidisciplinary teleconsultation in diabetes. These projects make it possible to identify levers facilitating the implementation by pharmacists of a telepharmacy practice of quality and rich in interpretation. Two points of vigilance are also identified to facilitate the dialogue with patients and the cooperation with other professionals, and to integrate the telepharmacy practice into the organization and management of the pharmacy.

1.11 8. Addressing Mental Health

With stress, the sleep, frequency of drug utilization or the number of disease episodes also increased. In addition, it was found that 33% of whose participants had sleep problems had mental

disorders. This shows that persons with mental disorders may face sleep disorders similarly because fear of being infected, the situation of persons who are infected or died was found as the most stressing factor with increased stress levels. Counterintuitively, those working not, or only occasionally outside their homes (standpoint only), were exposed to higher stress levels. This may be attributed to the psychological effect of stress, the stress of coming into contact with the external environment and the necessity to look after the cleaning and purification of the environment (Samorinha et al., 2022). These findings may also be linked to the increased predisposition to infectious diseases, shared stress sources with mental health and the excluded variance effect. Additionally, since COVID-19 was new, its transmission ways were not known. And these situations showed that underground stressors were the most triggering factor for stress in any case. Since these results are related to health, certain subsets are inserted for related health conditions: Stressful workload outside the home, comprise the highest variance of mental conditions, general stress and sleep disorders.

Pharmacists have daily direct contact with the population, making this a good practice to detect those who may have or 49.0% believe they have mental health problems. A mental health check may incorporate a few keywords with targeted open-ended questions about a person's well-being or, conversationally, ask for any other question about a person's state of health. Furthermore, especially for prescriptions of mental health issues, pharmacists can monitor drug changes or if the person is a new patient. And in case they recognize such situation, it is a duty of pharmacists to collaborate with the prescriber. Correspondingly, special pharmaceutical services related to psychoactive drugs can also commence arm in arm. Nevertheless, pharmacists must study the begin, adjustment and side effects of these medications to better explain the situation to clients. Pharmacies can advertise for Anxiety Prescription Interpretation (APC) for these offers. Also, frontline staff and students should be educated properly in order to have the required background, to reduce mental health stigma, to understand patients, how to draw multidisciplinary collaboration boundaries to refer and familiarity with the patient support, the FTA or Memory.

8.1. Pharmacists' Role in Mental Health Support

Community pharmacists are being looked to increasingly for the early detection, treatment, and prevention of many minor illnesses and the promotion of healthy living between the public. There is evidence that community pharmacists' involvement in vaccines within the community environment increases the trial rates of pneumococcal vaccines, and suggest that carrying vaccines should not be limited to GPs, so supporting the notion that pharmacists should be allowed to vaccinate against Covid-19 at a community level. Pharmacists are the most available and frequently consulted healthcare provider in a community pharmacy. They will promote many aspects of healthy life as a result of their special skills, such as health monitoring, medication review, physical activity, and nutritional guidance, while collaborating with the primary care network. They share the long hours in regular touch with friends, family, carers, and other formal caregivers and clinicians. Particularly valuable in farm-based settings, some pharmacists can deliver a series of consultation-related services by appointment. Little access to the client's best data reduces the chance to give more tailored guidance or to have a greater therapeutic effect by

coordinating health care. There is currently no program for informal training on community-based care methods as part of postgraduate training. With a new and efficient use of resources, the evidence to support professional training for pharmacists is increased. Most importantly, the need to mainstream and provide functional services, helping them to offer to optimize the monitoring and surveillance of care, is recognized. There is a broad consensus that mental wellbeing is needed and this pandemic has a negative impact on mental health, leading to poor mental wellbeing symptom control and relapse rates. However, there are few resources available to resolve these issues. Still, pharmacists are confident of contributing positively to mental health support. Although the results showed some weak areas of human resource and infrastructure issues, it has shown a high degree of collaboration between pharmacists. A nationally controlled and coordinated commitment to the integration of pharmacists into mental health care has been recommended with the right policies, training, and financing. Account should be taken of community-based settings. Because of the high bid, the inclusion of the pharmacy in a multi-disciplinary service can be seen as an economic use of drugs. Such services are primarily shared by them in medical environments, for example, in a criminal setting, with a positive impact.

8.2. Substance Use Disorder Interventions

Pharmacists have significant roles in promoting public health and curbing diseases by presenting behavior that addresses both community health and environmental factors. Public health draws on specific determinants of health and focuses on the community, with the ultimate goal being to enhance the health of people through preventive measures. Social problems such as substance abuse are recognized as a public health issue, offering pharmacists opportunities to contribute. Community pharmacies are the primary place for most people to access healthcare services; thus, an exploration about disease prevention efforts against substance use, a critical component of health promotion, was needed. Referring to the role of community pharmacists in curbing substance use disorder (SUD), the following six behaviors need examination: characteristics of the remaining health services, network characteristics, indices about promotive behavior, brief interventions during consultation, and reasons pharmacists doubt consideration of substance use issues. This provides the impetus for interventions that enhance compassion for SUD patients; actions and strategies can serve as the catalyst for promoting prevention and intervention of SUD upstream, which are pharmacists' current opportunities and challenges. Actions fall into eight groups: establishing guidelines and training, advocating policy development, enhancing the professional role of pharmacists, technological development, meetings and workshops, public health campaigns, reminding service plans, and raising awareness among peers as opinion leaders in the healthcare setting (Rotimi et al., 2022).

1.12 9. Research and Evidence-Based Practices

Pharmacists' role in community health and disease prevention is crucial. Community pharmacists could help to maintain the rational use of drugs, provide pharmaceutical care to patients, and improve health services. Unfortunately, the public perceive the pharmacist's role as only dispensing drugs. Changing the public perception and the role of the pharmacist in society requires further education on the part of both pharmacists and other health providers towards the

community. Furthermore, steps should be taken to permit pharmacists to practice the knowledge gained from this education. Some pharmacists and their associations have taken steps in this direction, but the strong support of governments and the affiliation of pharmacist organizations is crucial.

The steps for evidence-based pharmacy practice are as follows: (1) identification of the problem; (2) evaluating the evidence to choose the appropriate treatment for the patient; (3) personalization of the therapy for the specific patient in regard to the experiences and patient preferences; (4) decision-making to initiate the treatment. The focus of the pharmacist's interventions today is to prescribe drugs and to verify the correctness of them. Nevertheless, the pharmacist can do more than this. Given the economic benefits, the use of non-medical treatment in minor conditions such as flu might also increase. For major conditions (e.g. hypertension, diabetes and heart disease), the public's compliance with the treatment can be improved through education and explanation. Patient-counseling services can be provided at any given time without an appointment at the pharmacy, while access to a doctor is limited. Additionally, the public prefer to go to the pharmacist because the pharmacist gives sufficient time for each patient while the doctor does not. But most importantly, the pharmacist is a healthcare professional who specializes in pharmaceuticals and drugs and in the combined reasons behind drug consumption (Zerrin Toklu, 2015). All this information find results for SKU's in their context and provides the public with a sensible understanding of the same.

9.1. Impact of Pharmacist-Led Initiatives

Since community pharmacists are easily accessible and a trusted member of the community, their scope of practice should continue to evolve to further impact community health. Aside from dispensing medications, pharmacists can play a significant role by improving health outcomes, increasing patient compliance with medication regimens, and promoting healthy lifestyles. The development of stronger collaboration between pharmacists and other healthcare providers should enhance community health. Also, the design of a health plan for the community, as well as its evaluation, monitoring and adjustment, are roles in which pharmacists have only recently begun to participate.

When pharmacists have taken a more active role in community health, positive results have been shown. For example, pharmaceutical care provided by pharmacists to diabetic patients improved the patients' health significantly and decreased medical costs significantly compared to diabetes patients that did not receive pharmaceutical care in the form of patient education, treatment monitoring, and medication review. Also, a community-based service led by pharmacists improved the effectiveness of a project implementing best practices for the control of tuberculosis and pediatric asthma in a rural area. Such service included the development of public health educational materials to broadcast on local radio, distribution of educational pamphlets to patients and provision of training sessions for caregivers in the community.

There is an opportunity for further growth in pharmacists' role in community-based public health programs worldwide including both developed and developing countries. Community pharmacy is the first point of call in the health system, providing easy access to professional advice away

from the primary health center where there are usually long waiting times. In communities with a physician to population ratio that is below the minimum standard, community pharmacists often become the default health service providers.

9.2. Case Studies and Success Stories

In addition to the continued information and background on the pharmacist's expanded provider law, the report provides four case studies of specific practices and their successes. Each case concludes with a final/debriefing discussion that elaborates on the particular mode of practice in that case and its replicability elsewhere. Another goal is to support pharmacists', pharmacy residents', and pharmacy faculty members' pursuit of innovative and new practice sites. In offering a range of models, some of which may be creative or novel, particular models are identified to be encouraged and recommended for expansion.

In an era when improved outcomes are demanded for improved cost, the report describes existing, accepted, and successful models of health care delivery and patient care using pharmacists as health care providers. Community pharmacists, or pharmacists in the retail setting, often come into contact with patients more frequently and at more locations than other health care providers; thus, they are in a unique position to provide ongoing education, monitoring, and adjustment of therapy. There are long traditions of this type of care, namely in the management of insulin, warfarin, and other medications requiring dose adjustment based on therapeutic monitoring. In 1970, a demonstration project showed improvement in blood pressure control among patients with hypertension cared for by pharmacists, and a mechanism for continuous follow-up was successful. Over the years, various models of care have been investigated and implemented, including the last documented impact on treatment of hypercholesterolemia (Center for Chronic Disease Prevention and Health Promotion (U.S.), 1970). Some, but not all, of these types of care delivery in pharmacy models are detailed here.

1.13 10. Challenges Facing Pharmacists

While roles of pharmacists have diversified globally, community pharmacists worldwide face similar challenges. This profession's scope has expanded far beyond mere medication dispensing to consultation, education, chemical analysis, novel drug research, medical trials, health advocacy, disease prevention, consumer protection, etc. In rural areas of some developing nations, pharmacists function as primary care providers.

This text critically analyzes the potential challenges faced by community pharmacists worldwide; some pharmacists' initiatives, methods, and feedbacks to overcome their challenges are explored. These are personal medication advice; health education and promotion; safe medication disposal; natural product explanation; regular medicine check up; safe sex and birth control education; advice on caring for elderly relatives; selling medical products that involve purchase only with a prescription, clinical experience, or competency; avoiding selling tobacco, betel, ecstasy, steroids, weight loss products, or supplements shown to have 'no approved therapeutic claim' or no scientific medical merit but with possible health risks. This analysis could assist health policy makers and community pharmacists in developing future strategies for public health intervention.

10.1. Regulatory Barriers

With the global burden of diseases rapidly changing, it necessitates an increase in the role of pharmacists in community health especially in prevention, screening and/or disease state management services. Concurrently, with the global rise of the internet and mHealth, barriers to such preventative health care provision are addressed. Action can be taken to empower pharmacists to work together to overcome these global barriers through a review of cases detailing their successful implementation. However, in practice, the term is more narrowly associated with text messaging services like health tips and medication reminders. This narrower concept of mHealth proliferation has happened in parallel with the internet's expansion to both developing and developed countries. It allows for easier access to health information and has given rise to telemedicine services that can reach patients with limited access to care like those in rural communities. Telemedicine pairs an electronic means of communication, most commonly a video conference, with a care provider. Although research in developing countries around mHealth is in its infancy, a study finds that Africa contains just 1% of all digital health workers. On the other hand, Asia accounts for half the projected US\$ 813 million in mHealth services that will globally exist in 2020. Oceania and Africa are excluded from mHealth adoption by an argument citing challenges like policy support lack, high costs, poor networks, and inadequate power supply. Contrary to this belief, however, (Steeb, 2017)'s study reports the Kenyan government promoting mHealth, as well as private sector involvement in pilot programs launched in tandem with the ubiquitous M-Pesa phone based service. Meanwhile, reports on an Indian government effort to create mHealth applications that can inform patients where to best obtain medicine, as well as what type of medicine to take. Akin to the other aforementioned examples, these services are available to those with phones that have basic capabilities and/or an SMS functioning mode.

10.2. Public Perception and Awareness

The public does not consistently fully appreciate the role of pharmacists as the most accessible and one of the most trusted health care professionals. It is thought that patients see the pharmacist as solely a dispenser of medication, not as someone clinically aware of the patient and their therapy. Consequently, there is a significant lack of awareness of the range of health-related services that pharmacists can provide, especially preventative care and other public health services (Steeb, 2017). Many people are unaware that pharmacists can vaccinate, and are not fully aware of the role of the pharmacist in smoking cessation, safe disposal of sharps and medication, and care of minor wounds. Older individuals may not fully appreciate pharmacists' role in health screening services (detection of high blood pressure, high cholesterol levels, and excessive blood glucose levels as well as consultations on sexual health), identified by 38% of under 45s, compared to only 19% of those over 45. It is unfortunate that those with the potential most to benefit from these services have the least awareness of them, since most of the other issues are more evident in older respondents. Consumers are concerned about the implications of the new ownership rules for pharmacy, since they value and trust the existing pharmacist-patient relationship. The recognized level of trust reflects research into attitudes to professionals which finds that, after doctors, pharmacists are the most trusted group of healthcare professionals. There is evidence suggesting

that trust directly influences health-seeking behavior, with the public more likely to disclose more personal and sensitive information with those they trust. It is generally acknowledged that the pharmacist is well-placed to be in tune with the community and observe aspects of a patient's behavior, physiology, and adherence to prescribed therapy that may be missed by other healthcare professionals. Pharmacists may be the first to notice changes and abnormalities in a patient's condition, and has estimated that GPs pick up 2% of adverse drug reactions and hospital doctors 10%, compared to 80% picked up by hospital pharmacists. There is ongoing debate within healthcare education, research, and practice about how pharmacist-patient interactions can best be classified and characterized. Pharmacist training and practice has arguably moved from a dispenser/pharmaceutical care model to a service-led patient-oriented model where the emphasis is on the relationship with the patient and provision of information and advice. Moving away from this was the need to recognize the public health beyond secondary prevention. Initial work conceptualized the role of the general practitioner in four distinct levels: of cases, of the family or social group, the community, and population health. There has since been debate about whether a differentiation of 'macro', 'meso', and 'micro' may require adaptation before it could be applied to pharmacists. Since some public health authorities define public health as having the key concerns of the 'health of the population' and the 'prevention of ill-health', the pharmacist's role in public health could be set at the population level. Originally working with others, it was identified that whilst pharmacists are involved in public health initiatives, the data collected by their screening programs are only passed onto the health authority to provide services at the primary care trust level, hence at a scale well below the community level. Widening the focus, it has been examined what gap may exist in the services offered by pharmacists independent of a healthcare professional or institution that might be able to utilize and provide a link between the unmet need and the resources of the community or social group. Such a service could contribute to efforts at the community level to monitor health status and solve community health problems.

1.14 11. Future Directions for Pharmacists in Community Health

This review article was designed to explore the potential expansions of pharmacists into public health with the main focus being the community level. Article searches for articles regarding the potential moves by organized groups of pharmacists or individual pharmacists into public health. An overriding issue is the currency of articles found in different databases. Some of the most recent local articles were not available, but have been included where they provide valuable perspectives. Most of the 19 articles available focus on the role of the pharmacist in developed countries. Opportunities in private pharmacies include hypertension screening. Healthy heart checks will be performed in the future. Direct mail campaigns for cholesterol and blood pressure monitoring are also an option. Healthy heart checks for undiagnosed hypertensives and dyslipidaemic were also provided, as was feedback to their doctors (Steeb, 2017).

In the future, private pharmacists should be allowed to mix or carry out the final check on methadone preparations, according to one medical practitioner. Pharmacist advocacy to legalise the supervised prescribing of pharmaceuticals by pharmacists is another opportunity. Other pharmacy-based opportunities include immunizations through community pharmacies and

symptom management prescribing. Providing medication information sessions to elderly consumers is also needed, as are education and film nights on relevant health topics. Pharmacist medication counselling to cholesterol lowering clinics commenced in 2015. Opportunities to extend this service to other disease states, and to other health professional clinics exists. Community pharmacists could intervene by encouraging safe medication disposal by consumers, through leaflets and posters in pharmacies, and through the provision of medication disposal envelopes (Hazelet et al., 2019). Pharmacist interventions could include offering to return out-of-date or unwanted medicines to the pharmacy for appropriate disposal, or suggesting alternatives such as returning medicines to the hospital.

11.1. Expanding Roles in Health Care

Historically, the role of the pharmacist has mainly been to provide medications and instructions to patients. Today, pharmacists are more involved in clinical practice, information management, medication therapy management, preventive care, and health education services. Pharmacists are trained to work collaboratively with other health care providers in designing, implementing, monitoring, and modifying therapeutic plans for the effective treatment and prevention of diseases. The pharmacist is responsible for ensuring that the patient's medication therapy is correct, appropriate, safe and effectual (Steeb, 2017). Pharmacists have been actively involved in the provision of care to achieve evidence-based therapeutic outcomes. The participation of pharmacists in interdisciplinary teams is also becoming more common.

In addition to the usual consultation on the proper use of medication, the task of the pharmacist is to detect, through questions, whether there are symptoms that may require more urgent care from the family doctor or an immediate visit to a health care provider. In addition, anticipating possible situations in advance such as climate change contamination, etc., can be prevented, which makes pharmacists a primary agent of public health at the community pharmacies. As a provider of primary care services or a professional in close contact with patients, pharmacists are spontaneously involved in community health services. Industrial developments, such as increased capability to provide vaccinations, will enable applications aimed at monitoring individual and public health in community pharmacy in an economical and reliable way. Pharmacies are the most widespread medical and health outlets able to provide the public with a maximum range of health services.

11.2. Innovations in Community Pharmacy

Background and Objectives: There is a global shift in community-based pharmacy from a dispensing retail to a health care provider practice. Community pharmacists currently provide several services in a practice that requires innovation, including pharmaceutical care, medication therapy management, and medication synchronization, as well as a variety of services related to medication optimization. In the United States, the provision of expanded pharmacy services requires the community-based pharmacist practitioner to possess a doctor of pharmacy degree with additional advanced training and experience. The objectives of this narrative review are to: (1) inform readers about the substantial progress made by pharmacy colleagues in other countries through specific innovations in practice; and (2) identify and describe current examples of

community-based pharmacist practitioner practice innovation in the United States, which can serve as practice models for innovative pharmacists.

Pharmacists in Australia, Canada, England, Netherlands, and Scotland have made substantial progress in expanding the role of the community-based pharmacist. Examples of services related to medication optimization provided by community pharmacists in these countries include providing emergency refills, renewing or extending prescriptions, changing drug dosage or formulation, and making therapeutic substitution. Community pharmacists in Canada and the United Kingdom offer comprehensive minor ailment services or treatments. Examples of additional pharmacy-based services offered to the public in a practice that enhances medication safety and improves health outcomes include adverse drug reaction monitoring, anticoagulation clinic management, education and counseling for patients with mental health disorders, medication adherence strategies for the clients of psychiatric practices, and Hepatitis C treatment initiation and monitoring. Programs for tobacco cessation have been implemented by community pharmacists in Australia, England, and Scotland. Pharmacists in the United Arab Emirates are implementing numerous and varied pharmacy-based services and initiatives since 2011 to allow expansion of the role of the community pharmacist. The expansion of the role of the community-based pharmacist, consistent with the need and the practice innovations described elsewhere, began later with some experimenting. More recently in Asia, some modest steps to move the traditional dispensing role to that of health assessment, health promotion, and medication use reviews in the community setting have been attempted. The principal professional organization of community pharmacists in the US does not offer a similar visionary related document.

1.15 12. Policy Implications and Advocacy

There are multiple opportunities for pharmacies and pharmacists to engage in public health practices, including disease prevention and health promotion. In the community setting, pharmacists are in a prime position to render health services. Pharmacists can screen for diseases, give immunizations, educate patients about symptoms and drug therapy management, treat common ailments and refer to a health care provider when needed. In the policy arena, pharmacists and their professional associations can encourage elected officials to adopt best practices as laws and regulations. These practices include the utilization of evidence-based guidance to inform legislative and regulatory programs. For example, pharmacists in this community and their state association may wish to press state senators and representatives to adopt a new drug disposal program similar to (Steeb, 2017). This initiative is but one of the recommendations outlined in a report provided to public officials, which urges elected officials to work with pharmacies, the pharmaceutical industry, non-profit regional poison centers' "1-800" numbers, environmental organizations, and solid and hazardous waste agencies to address the safe disposal of drugs post-consumer (Steeb, 2017).

12.1. Advocating for Pharmacist Inclusion in Health Policies

A new role by definition is unfamiliar because it has never been encountered or experienced before. Historically, advocates of organized pharmacy have been successful in lobbying to have pharmacists included in legislative acts that limit the provision of medical services to certain health

professionals, including pharmacists. The “Physician Dispensing” movement in the 1970's and 1980's sought to exclude pharmacists from being able to package, label, and dispense field trials. In the 1990s, the Kentucky system of “Presport” was amended to once again allow pharmacists to repackage medications into a unit dose with certain restrictions. Regrettably, advocacy is too often based on reaction to the pressure of exclusion rather than the expansion of an expanded role. The expanded role of pharmacists in the rapidly changing delivery system of healthcare is advancing throughout the world. As healthcare reform efforts expand in the United States, the role of the pharmacist in community health and disease prevention is increasing. Examples of expanded functions in health agencies are easy to identify. High-diversity treatment and laboratory tests are coordinated with primary care physicians. Despite the emerging global promotion of preventative medicine and health maintenance in pharmacy curricula, there are few such initiatives in the United States. The function of the pharmacist is responsible for understanding drug therapy, maximizing dosing safety, and enhancing compliance with the treatment regimen. There is no allusion to preventative medicine in this otherwise prophetic paper. Long after this discussion, the pharmacy profession created a situation where the average pharmacist was not responsible for pharmacotherapy any more than a nurse was responsible for cures or a dentist responsible for immortality. The success or failure of the pharmacists is assessed by using unexpectedly well-designed client simulation skills tests. Since most people seek medical help from pharmacists rather than other health professionals, U.S. pharmacy schools could find it advantageous to look at pharmacy schools in such arbitrary areas. Evaluations of preventive medical initiatives or health promotion campaigns by pharmacists are easily found, but in a typical U.S. pharmacy journal there is an almost exclusive interest in prescription medications. The inclusion of the “hospital pharmacy” practice model in developing economies similar to the most industrialized nations is advocated. Given the high cost of medical care, particularly medicines, and the low number of physicians and pharmacists, these nations are compelled to find ways to train mid-level health practitioners. Industry and training on a two-year course qualifies workers for the distribution and dispensing of drugs using a list of essential drugs. In the most industrialized nations, particularly the United States, the idea of a second-level distribution system of drugs is completely dissonant to the aversion to loss of income, power, or prestige. If a population of pharmacists qualified to administer the expanded function was established, then the pharmacists that should be set up as authorities by encouraging wholesale super drugs-users are simply a “time bomb.”

12.2. Role of Professional Organizations

Professional pharmacy organizations have recognized the importance of preventing disease and promoting health within communities. suggest and comment on the opportunities and mechanisms typically utilized for pharmacists to be routinely and significantly involved in preventing disease and promoting health at community and population levels in the U.S. Unique opportunities relevant to disease prevention and health promotion are also discussed. Rise in national health care expenditures and disease prevalence create an opportunity and medical inequality may create a professional obligation. It is suggested that pharmacists organize traditional, federally qualified, or accountable care communities pharmacies into the largest applicable, organized health system

structure. Used in specific ways, such pharmacies may proactively and routinely impact the health status of their communities. The advent of community preventive pharmacy services may direct further public health research, scholarship and practice. Opportunities for improved pharmacist training, innovative professional service reimbursement, federal grants, and philanthropic initiatives are recognized. Similar trends currently exist within pharmacy practice abroad. In this time of healthcare and reimbursement reform, the existence of untapped opportunities which serve the public's health and pharmacists' professional standing is worthy of the profession's examination (Steeb, 2017). The need for partnerships between a nation's public health system and its pharmacists is highlighted. Almost 26% U.S. residents die each year from preventable and mostly chronic diseases. A marked and uneven rise in health care expenditures is recurrently observed.

1.16 13. Conclusion

Pharmacists have expanded their role and are now providing important services beyond medication dispensing. These services have included patient counseling, medication management services, health screenings, immunizations, and health education. While such services are more established in high income-resource rich countries, low- and middle-income countries are also beginning to recognize the contributions that pharmacists can make to public health. The concept of essential public health services is designed to increase the quality of health care facilities and expand the range of services that can meet people's health needs. These services are a minimum set of services that must be provided to significantly elevate public health services provided in low-resource settings (Steeb, 2017). Regardless of their economic status, all countries are expected to provide a level of essential services in times of peace or war. However, further work is needed to translate this vision into real public health services and, most importantly, to recognize the opportunities for pharmacists across areas of global health.

Pharmacists have the unique ability to engage their patients while providing them medications or counseling, making it easier to reach a much larger number of people in a shorter amount of time compared to other medical personnel. As increasing consumer demands for information about their medications grew alongside rapid technological advancements, there was a demand for pharmacists to transition from product-focused activities to patient-centered services. Assumingly, one of the reasons pharmacists in some countries have the ability to independently vaccinate is their location; by the United Kingdom, Canada, or the United States, where pharmacists can perform the role of primary prevention. An analysis of services provided in the US has shown that many patient-centered services provided by pharmacists are activities related to public health at a micro-level, meaning they are based on expertise and informality and easily integrated into the activities of managing and serving medications. Pharmacies can design screening or testing programs that can detect gaps in contagious immunizations, as well as provide the most fertile educational activities for customers. Furthermore, pharmacists can both refer the patient and set up a dialogue with the social worker to detect barriers associated with care that would have otherwise gone unnoticed and dislodged the patient from the health care system. With adequate training in public health, pharmacists have the ability to be engaged at a higher level, organizing

deserving services and partnering with others in the community to perform essential public health services.

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