



ROLE OF PHARMACIST IN MANAGEMENT & TREATMENT OF VARIOUS COMMUNICABLE AND NON-COMMUNICABLE DISEASES

Dr. Manali Milind Bhide* and Dr. Sachin A. Nitave

Anil Alias Pintu Magdum Memorial Pharmacy College, Dharangutti.

Tal. Shirol, Dist. Kolhapur, Maharashtra.

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***Corresponding Author**

Dr. Manali Milind Bhide

Anil Alias Pintu Magdum
Memorial Pharmacy
College, Dharangutti.
Tal. Shirol, Dist. Kolhapur,
Maharashtra.

ABSTRACT

According to WHO, noncommunicable diseases (NCDs), also referred to chronic diseases, are diseases of long duration and are the result of a combination of genetic, physiological, environmental and behavioural factors. The menace of Noncommunicable diseases (NCDs) such as cancers, diabetes, cardiovascular diseases and chronic respiratory diseases. Communicable diseases are illnesses that spread from one person to another or from an animal to a person, or from a surface or a food. Diseases can be transmitted from air, direct contact with a sick person, respiratory droplet spread from a sick person sneezing or coughing. Infectious disease during an emergency condition can raise the death rate 60 times in comparison to other causes including trauma.

An epidemic, or outbreak, can occur when several aspects of the agent (pathogen), population (hosts), and the environment create an ideal situation for spread. Overcrowding, poor regional design and hygiene due to poverty, dirty drinking water, rapid climate changes, and natural disasters, can lead to conditions that allow easier transmission of disease. This paper aims to highlight some key areas where pharmacists across the globe can play significant role in combatting NCDs through both preventive measures and pharmacological/ non-pharmacological interventions. The Role of pharmacist in the control of communicable disease consists of an awareness of the natural history of communicable disease in both the individual and the community, referral of patients to proper medical care facilities when so required and public education about disease.

KEYWORDS: Noncommunicable diseases, Chronic diseases, Communicable diseases, Preventive measures, Pharmacological & Non-pharmacological intervention.

INTRODUCTION

According to WHO, Noncommunicable diseases (NCDs), also referred to as chronic diseases, are long duration diseases and are the result of combination of genetic, physiological, environmental and behavioural factors. The main types of NCDs are cancer, diabetes, cardiovascular diseases (heart attacks stroke, and congestive heart failure), and chronic respiratory diseases (such as asthma and chronic obstructive pulmonary disease). These diseases disproportionately affect people in low and middle-income countries where more than three quarters of global NCD deaths occur.^[1]

According to the World Health Organization (WHO), more than 36 million people die annually from non-communicable diseases (NCDs), representing over 60% of deaths worldwide, 15 million of which occur before the age of 70 years.^[2]

The epidemic of NCDs poses devastating health consequences for individuals, families and communities, and threatens to overwhelm health systems. The socioeconomic costs associated with NCDs make the prevention and control of these diseases a major development imperative for the 21st century.

WHO's mission is to provide leadership and the evidence base for international action on surveillance, prevention and control of NCDs. Urgent government action is needed to meet global targets to reduce the burden of NCDs.^[3]

Pharmacists throughout the world are one of the most accessible health care providers and are often the first health professional individuals seek for care. With many pharmacies open 24 hours a day with no appointment necessary, pharmacists are uniquely positioned across communities to provide care and advice, especially for vulnerable populations in limited resource settings. In developed countries, pharmacists are increasingly recognized and engaged in public health activities such as disease prevention and control programs, policy development, and emergency preparedness among others. Organizations such as the Centers for Disease Control and Prevention (CDC), Public Health England, and the World Health Organization (WHO) are encouraging community organizations and other health care professionals to partner with pharmacists for the effective planning of public health services.

In developing countries though, there has not been a comparable endorsement or utilization of pharmacists in public health efforts.^[4]

Role of Pharmacists in NCD

The effective use of pharmacists' knowledge and skills has been shown to improve healthcare services delivery. In recent times, the role of pharmacists has expanded beyond traditional compounding, dispensing and packaging medicines. In many developed countries including some developing countries, pharmacists are actively involved in many facets of healthcare delivery ensuring safe and quality use of medicines, promoting public health, providing primary healthcare services and providing palliative care. Pharmacists can contribute by screening and monitoring NCDs, patient counselling on medication adherence, providing medication therapy management services, promoting public health, and improved access to quality and affordable medicines. Some of the potential areas where pharmacists can contribute substantially in combatting NCDs are discussed below.

Screening and monitoring NCDs

Pharmacists are already making significant contribution to the healthcare system by screening and monitoring the progression of NCDs in patients. Studies in many countries show that community pharmacists are adequately capable and ideally placed to screen for different conditions including diabetes, cardiovascular diseases, asthma, COPD, breast cancer, bowel cancer among many others. There is sufficient evidence that pharmacist operated monitoring programs contribute to the prevention and management of NCDs. Pharmacists have been actively involved in monitoring blood pressure, blood lipid profile, blood glucose level, lung function and anticoagulant therapy.^[5]



Medication Therapy management (MTM)

This is professional care provided by pharmacists with the aim of optimizing drug therapy and improve therapeutic outcomes for patients, often in collaboration with other healthcare professionals. MTM includes five core components: a medication therapy review (MTR), personal medication record (PMR), medication related action plan (MAP), intervention and/or referral, and documentation and follow-up. MTR is a systematic process of collecting patient medication related information which occurs during the pharmacist patient encounter. It is followed by the preparation of a personal medication record for each patient. From the PMR, pharmacists identify medication related problems and develop action plans. Pharmacists may interact with patients independently (e.g. adherence counselling and addition of non-prescription medicines) or may refer them to suitable healthcare professionals (if an intervention is out of the pharmacist's scope of expertise). MTM in case of NCDs can provide patient specific-tailored service which may improve the response of patients towards their treatment plan. MTM is practiced in many countries and requires highly trained and skilled pharmacists. The recent shift in pharmacists' interests towards community pharmacy services can help to promote pharmacist-led MTM services in developing countries.^[6]

Patients counselling on medication adherence: One of the best ways to improve medication adherence for NCDs patients is patient medication counselling/education, which is an important means for achieving pharmaceutical care. It is defined as providing medication related information orally, in written form or using other reasonable demonstration tools to patients or caregivers, on topics like direction of use, advice on side effects, precautions, and storage conditions, diet and life style modifications.^[7]



Public health and health promotion

Health promotion is the process of enabling people to increase control over and to improve their health & is emerging as a critical domain of public health. The pharmacists being widely accessible, and trustworthy professionals as perceived by the public can serve as channels for promoting public health. Pharmacists are regarded as good health educators by the public. There are many models of health promotion by pharmacists. Pharmacists can organize mass education on lifestyle modification, screening of breast cancer, blood pressure, tobacco cessation program and diabetic education program are few examples of health promotion activities that pharmacists can be actively involved and will make serious impact in the control of NCDs both prevention and treatment.^[8]



Improved access to quality and affordable medicines

In recent decades, novel medicines have not only improved survival rates and quality of life for many patients around the world, they have also changed the natural history of diseases such as HIV and certain cancers. Anti-retroviral therapies have transformed HIV from a terminal illness to a manageable chronic disease, while the once-daily single tablet regimen has simplified the daily lives of patients. The pharmacists can play a pivotal role in providing quality medicines for NCDs patients from industrial point of view through continue research and developments into special needs of NCDs patients. These may include technologies for customizing their medication in order to suite special need for an individual patient. On the other hand, pharmacists also can play key role as middlemen between pharmaceutical industries and patients with NCDs ensuring that their medicines are not out of stock and are being kept under suitable storage conditions such as insulin.^[9]

Rational use of medication

Improper medication use is a US\$500 billion problem worldwide with pharmacists positioned to be part of the solution given their medication expertise. More than half of this cost is due to medication adherence issues which pharmacists can address through techniques such as motivational interviewing. A recent meta-analysis of self-medication use in developing countries estimates that over 38% of patients self-diagnose and treat contributing to the growing global burden of antimicrobial resistance. Pharmacists can address this by developing optimal treatment regimens based on available resources, providing appropriate patient medication education, and conducting medication reviews to help improve health outcomes. Pharmacists can contribute towards improving medication use and other global health issues at both an individual and systems level. According to an IMS Institute for Healthcare Informatics report on advancing the responsible use of medicines, providing a greater role for pharmacists to own the medication use process was a top five recommendation for ministries of health in order to improve medication use, reduce health care costs, and improve health outcomes. The rational use of medications will be essential in helping address the double disease burden of both communicable and non-communicable diseases in developing countries.^[10]

Role of Pharmacist in Communicable Diseases

Pharmacist plays an important role in prevention and control of communicable diseases in public health by bringing awareness through welfare programmes, giving appropriate immunization vaccines & by educating patients in appropriate preventive measures in control of communicable diseases. The responsibility of the pharmacist to inform patients and other customers of alternative prevention strategies (eg: hand washing, disinfecting, nasal mist vaccine) and treatment options are briefly discussed.

Examples of communicable diseases are:-Tuberculosis, Hepatitis, Typhoid, Amebiasis, Malaria, Leprosy, Syphilis, Gonorrhoea, AIDS.

Tuberculosis: It is an infectious bacterial disease characterized by the growth of nodules (tubercles) in the tissues especially the lungs.

Preventive Measures: - Pharmacist should educate peoples about following things

- Avoid drinking alcohol- it can add to the risk of liver damage from some of the drugs used to treat your T.B.

- Limit refined products like sugar, white breads and white rice.
- Avoid high fat, high cholesterol red meat and instead food upon protein Sources like poultry, beans, tofu and fish.
- The social factors propagating the disease include poor quality of life, poor housing, overcrowding, population explosion, under nutrition, lack of education, large families, early marriages & lack of awareness about causes of illness. All these factors contribute to occurrence & spread of disease. Pharmacists have to reflect understanding of these social factors in counselling of patients.
- They provide pharmaceutical care based on patients need by identifying and resolving problems associated with the use of medicines, while actively seeking to motivate and engage patients to accept responsibility for their own health.
- Pharmacist can assist other public & private health care providers by ensuring rational use of anti TB medicines & contributing to preventing emergence of drug resistance.^[11]

Influenza– There are various types of influenza such as Avian-Flu, H1N1 (Swine Flu), SARS, MERS, COVID 19 etc. Prevention of swine influenza has three components: prevention in swine, prevention of transmission to humans and prevention of its spread among humans. In swine methods of preventing the spread of influenza among swine include facility management, herd management, and vaccination. Because much of the illness and death associated with swine flu involves secondary infection by other pathogens, control strategies that rely on vaccination may be insufficient. The transmission from swine to humans is believed to occur mainly in swine farms, where farmers are in close contact with live pigs. Although strains of swine influenza are usually not able to infect humans, this may occasionally happen, so farmers and veterinarians are encouraged to use face masks when dealing with infected animals. The use of vaccines on swine to prevent their infection is a major method of limiting swine to human transmission include smoking and, especially, not wearing gloves when working with sick animals, thereby increasing the likelihood of subsequent hand to eye, hand to nose or hand to mouth transmission.

Influenza spreads between humans when infected people cough or sneeze, then other people breath in the virus or touch something with the virus on it and then touch their own face. Avoid touching your eyes, nose or mouth. The standard infection control which includes frequent washing of hands with soap and water or with alcohol- based hand sanitizers, especially after being out in public. Chance of transmission is also reduced by disinfecting

household surfaces, which can be done effectively with a diluted chlorine bleach solution. To protect our self and surrounding other people the best thing is to follow good hygiene practices. These will help to slow the spread of the virus and will be the single most effective thing that will protect from infection. When you cough or sneeze it is especially important to follow the rules of good hygiene to prevent the spread of germs.

Always carry tissues

- Use clean tissues to cover your mouth and nose when you cough and sneeze.
- Bin the tissues after one use.
- Wash your hands with soap and hot water or a sanitizer gel often

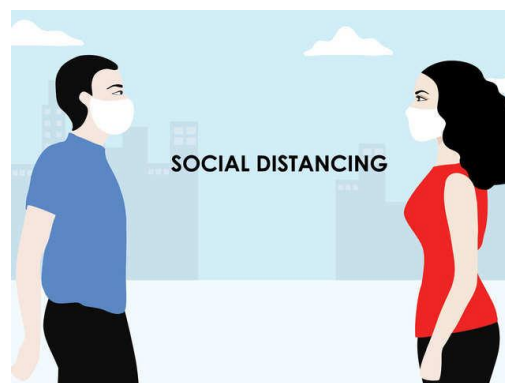
As the most accessible health care professional, pharmacists have an important role to play on planning communications to the public in the event of pandemic. It is important that the pharmacist convey concise and up- to- date information to the public. Pharmacists will also play a role in alerting public health officials of potential outbreaks.

Pharmacists will play an integral role in ensuring that the ‘sick’ stay away from the healthy in order to prevent the spread and transmission of the virus. One of the most important roles of pharmacist will be top manage patients with mild illness so that they do not need to access the overburdened acute care settings. Pharmacists will be required to counsel and educate on signs and symptoms their identification, supportive management and when and where to seek medical assistance. Pharmacists may be involved in conducting mass vaccination clinics and may be called upon to assist at non- traditional sites. Pharmacists may be asked to participate in the distribution and storage of vaccines and various other pharmaceuticals. Provide the leaflets or any sort of poster which will give information about the swine flu its occurrence, signs and symptoms and other related preventive parameters.^[12]

COVID 19 - Pharmacist should counsel peoples about following preventive measures-

- Avoid close contact with sick persons
- Avoiding touching your eyes, nose & mouth with unwashed hands.
- Wash your hands with soap & water at least for 20 seconds. Use alcohol based
- sanitizer that contains 60% alcohol, if soap is not available.
- Follow social distancing in public places.
- Use mask to avoid contamination by virus.
- Get vaccinated

- Avoid crowds & poorly ventilated spaces
- Highly touched surfaces should be cleaned & disinfect regularly.^[13]



Chicken Pox - Pharmacist should instruct the infected person about following things –

- Isolate for a week after rashes appear.
- He/she immunize the healthy person who is in contact with the infected person.
- He/she recommend the routine childhood MMR vaccination.
- Adult should be instructed to get at least one dose of MMR if they feel that their immunity is low.
- One can help to prevent spread of chicken pox by practicing good hygiene & washing hands frequently.
- Cutting nails short or wearing gloves may prevent scratching & minimize risk of secondary infection.
- Reduce your exposure to people who have chickenpox.
- Disinfect articles used by patient.^[14]

Whooping cough (Pertussis) - Active immunization by DPT vaccine is the effective way of controlling pertussis. Contraindications of pertussis vaccine is strong family history of epilepsy. Isolating contacts & cases Treating with erythromycin.^[15]

HIV/AIDS

- Prevention: It includes two components:
- Education – Education about avoiding indiscriminate sex, use of condoms is suggested. Use of shared razors & tooth brushes should be avoided. Intravenous drug users should be informed that sharing of needles & syringes is risky. Women suffering from AIDS should avoid pregnancy. Educational material & guidelines should be readily made available to

public. All mass media channels should be involved in educating people on AIDS, its nature, transmission & prevention.

- Prevention of blood borne HIV transmission- People in high risk groups should be urged to refrain from donating blood, body organs, sperm or other tissues. All blood samples should be screened for HIV1 & HIV2 before transmission. Strict sterilization practices should be preferred. Infections should be avoided.
- Antiretroviral treatment- Three kinds of antiretroviral drugs are available. They are – Nucleoside analogs, protease inhibitors & non-nucleoside reverse transcriptase inhibitors (NNRTIs).^[16]
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CONCLUSION

Pharmacists play a significant role in prevention of both Non-communicable & communicable diseases. The role of pharmacists in combatting NCDs can never be overemphasized. Pharmacists can actively play dual roles in this direction, through both prevention and treatment of NCDs. As the most accessible health care provider, pharmacists provide recommendations for and administer vaccinations, disseminate evidence-based advice regarding disease transmission and contribute to reducing the spread of disease in their communities and health care settings. Pharmacist should actively involve in monitoring blood pressure, blood lipid profile, blood glucose level & lung function.

REFERENCES

1. Khalid Garba Mohammed Department of Pharmaceutical Sciences, Università degli Studi di Milano, via G. Colombo, 71 – 20133 Milan, Italy, THE NIGERIA JOURNAL OF PHARMACY VOLUME, 2018; 52(1).
2. Beating non-communicable disease in primary healthcare: The contribution of pharmacists and guidance from FIP to support WHO goals, ELSEVIER, 7, July 2020; 16: 974 – 977.
3. Major Outcomes of the 71st Session of the World Health Assembly of WHO: https://www.southcentre.int/pcontent/uploads/2018/07/PB49_Major-Outcomes-of-the-71stSession-of-the-World-HealthAssembly-of-WHO_EN.pdf accessed, August 15, 2018.
4. David R Steeb & Rohit Ramaswamy, Recognizing and engaging pharmacists in global public health in limited resource settings, doi: 10.7189/jogh.09.010318, June 2019; 9(1): 010318.
5. Analyses. Med Care. 48:923-933. 6. Khanal S, Nissen L, Veerman L, Hollingworth S Pharmacy workforce to prevent and manage non-communicable diseases in developing nations: The case of Nepal: Research in social and administrative pharmacy. RSAP., 2016; 12(4): 655-9.
6. Kumanan R, Sudha S and Jayaveera KN Can a pharmacist improve life of diabetes patient? An overview. Research Journal of Pharmaceutical Biological and Chemical Sciences, 2010; 1(3): 5-11.
7. Beena Jimmy and Jimmy Jose, Patient Medication Adherence: Measures in Daily Practice, Oman Medical Journal, 2011 May; 26(3): 155-159.
8. Sanghamitra Pati, Abhimanyu Singh Chauhan, Health promotion: An integral discipline of public health, South East Asia Journal of Public Health, 2012; 2(1): 3-7.
9. <http://www.oecd.org>.
10. S.V.Chordiya* Principal, Gangamai Institute of Pharmacy, Nagaon, Dhule, Maharashtra, India, Role of pharmacist in rational drug therapy, IP Journal of Surgery and Allied Sciences, January-March 2019; 1(1): 5-7.
11. <https://www.fip.org>: Pharmacist in TB control: Their current role.
12. Dipti Phadtare, Rajashri Kulkarni, Swine Flu and Role of Pharmacist to prevent it, Research J. Pharmacology & Pharmacodynamics, 2016; 8(2): 86 – 88. doi: 10.5958/2321-5836.2016.00016.1.
13. Ali Elbeddini et al, Pharmacists and COVID-19, Journal of Pharmaceutical policy and Practice, 2020; 13: 36. Published in 19 June 2020.

14. Jennifer Gershman, PharmD, Cph, PACS, What Pharmacists Should Know About the Chickenpox Party Trend, Published in Oct 24, 2018.
15. Haley Armstrong, Lydia Suchecki, Sarah Lipperman, Whooping Cough: A Pharmacist's Role in an Emerging Endemic, Pharmacy and wellness review, 5(1): 8.
16. Dr. S. B. Bhise & Mrs. M. S. Bhise, Nirali Prakashan, Text book of Social Pharmacy.
17. Dr. Virendra Kumar & Dr.Prafulla P. Adkarpatil, Thakur Publication PVT. LTD., Social Pharmacy.