

**Review article****PHYSICIAN PHARMACIST COLLABORATIVE MANAGEMENT: AN INTER-DISCIPLINARY & INTER-PROFESSIONAL PATIENT CARE APPROACH****Patel Chintankumar*, Bhatt Sandipkumar***Department of Pharmacy Practice, K.B. Institute of Pharmaceutical Education and Research, Kadi Sarva Vishwavidyalaya, Gandhinagar, Gujarat, India***Abstract**

With advancement in healthcare and pharmaceutical industry, a team based patient centered approach is must. The presence of pharmacists in the inter-professional care team imparts positive impact on patient's recovery, healthcare cost and selection of regimens especially with chronic diseases. "Physician pharmacist co-operative management" model in primary care settings shown better efficacy with chronic diseases like asthma, hypertension and type 2 diabetes mellitus. A collaborative healthcare approach demands sharing of responsibility amongst individuals, quick decision making, data access rights, coordinated planning and interventions according to necessity in each clinical care cycle. The pharmacist's as a healthcare professionals take care of safe, suitable and economical consumption of medications.

The interdependency arises from common ground and goal in physician pharmacist collaboration is focusing a motto of "healthier patient need." India with more than 6th of the world's population is observing rapid epidemiological change towards chronic non-communicable diseases, together with socio-economic development. India's National Health Policy aims to decrease the premature mortality of non-communicable disease by one-third by 2030. Clinical pharmacists working in clinical setups of India shown efficacy in reducing mortality, morbidity, and adverse drug events health care costs.

The qualified pharmacist in collaboration with healthcare team helps in preventing disease progression and monitoring use of medication so as to ensure safe and effective drug treatment usage. Few challenges such as Insufficient access to basic healthcare services, unavailability of medical professionals, quality assurance system and health funding affect the implementation of collaborative care approach.

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Introduction

The Physician pharmacist collaborative management (PPCM) has been well documented since the time of pharmacists and has continued for the past 10 years. As healthcare and business economics progressed, the concept of a team, patient approach to healthcare became more important, and support in primary care was adopted as a way to implement group therapy models. The primary role of the pharmacist is evolving from the simple dispensing of medicines to a more important role, supporting the effective use of medicines through clinical collaboration. Pharmacists are involved in clinical care that requires collaboration in treatment, such as reviewing medication regimens, coordinating and reviewing medication histories, and identifying medication compliance issues [1,2].

Various studies have shown that incorporating the PPCM model into primary care may be beneficial for many disease states such as hypertension [3,4,5], type 2 diabetes [6,7,8] and asthma [9,10,11], demonstrating the effectiveness of various care methods. It has a constructive effect on the quality of drug treatment, reduces the risk of drug-related side effects, therefore decreases the extent of visits to the doctor and has a positive effect. Many studies have shown that pharmacists have a positive effect on blood pressure (BP) and blood sugar level (BSL), suggesting that this effect may extend to other chronic diseases too [3-11].

The World Health Organization (WHO) explains collaborative practice as a multidisciplinary effort in which healthcare professionals work together with patients, families, caregivers and communities to provide best-in-class care. Interprofessional collaboration is also defined as the practice and training in which people from two or more professional backgrounds meet, discuss, learn, and practice together with clients in a clinical setting. It is recognized as a pivotal strategy that can achieve better health outcomes. The presence of pharmacists in collaborative care teams would have a positive impact on patients' recovery; including reduction in the cost of prescription drugs and an improvement in quality of care amongst patients with chronic diseases. However, the role of pharmacists in this multidisciplinary group remains understudied and unexplored in Indian settings [12].

In this review, we explore the basic concepts of collaborative care, the impact of PPCM on patient care, challenges in implementation and strategies for creating physician collaborations.

- **Basic fundamental concepts of Inter-professional & Inter-disciplinary collaborative care**

In socialized culture, our lives are always set in collective environments where every individual in one or other way is in constant interaction with others.

These different types of interactions are collectively known as collaboration. The word collaboration conveys the idea of sharing and expresses mutual goals of harmony and trust, especially in the context of experts. So, collaboration is about working together to achieve a common goal. When people work with many professionals in an organization, they exchange knowledge, skills and consensus develops. Achieving consensus requires a coordinated, professional, effective and mutually agreed-upon mission to achieve the stated goals.

Collaboration is sometimes described as a dynamic process as it needs to focus on several philosophical approaches or concepts such as sharing, power, process, interdependency and partnership in the view of better patient care [13]. A collaborative approach in healthcare should be considered before individuals share responsibilities, make rapid decisions, allow only individuals access to information text, and coordinate the planning and interventions required for each cycle of care. In multidisciplinary healthcare, interprofessional or interdisciplinary collaborative care supports all team members to assist patients with medical decisions at a central level [14]. Keeping this in mind, many authors associate this relationship with "Power" as decision making of treatment lies with treating physician in most of clinical settings in Indian scenario.

Profession vs. Discipline

The key terminologies named "profession" and "discipline" need to be clear based on which other terms evolved like inter-professional and inter-disciplinary. Both are used interchangeably and carry ambiguity in using it appropriately. In fact, both of it has different meaning even though they are interrelated. To some extent, it demands clarity with collaborative care.

The first word, "discipline", is specific to an academia refers to a branch of learning, a section of learning or a field of knowledge. Discipline is often academically related and refers to areas of knowledge, departments or branches of study [15]. Shermis demonstrated criterion on discipline. In contrast, the other word, "Profession" is behavioural expertise based on research or knowledge of the subject and the ability to do it well. Profession involves autonomy and independence, as well as integrity and accountability to the professional community. Therefore, it is to acquire knowledge and learn [16].

Flexner developed a formula to define profession in 1915 and published the following four concepts [17].

- Profession is based on intellectual skill and personal responsibility.
- Practice of a profession is based on knowledge; motivation and its members work to understand the benefits of people.

- Practical applications go beyond theoretical components and convey important concepts.
- Professional degrees are available for applied fields, not basic research.

Multi-disciplinary vs. Inter-disciplinary vs. Trans-disciplinary team

Collaboration between disciplines or profession most frequently found were of three types either multi-, inter-, and trans- profession/ discipline viz. inter-professional, inter-discipline, trans-discipline etc. In fact, discipline is termed as a foundation of a profession hence they are always discussed together for ensuring its impact.

Aforementioned terms explore degree of collaboration in a team. On the professional scale of spectrum, on one end professionals are intervening solely with broad range of responsibilities autonomous while on other spectrum, professional in collaboration have defined and narrow margin autonomy and responsibility but as a team in collaboration is more collective autonomous with better integrity to achieve common goal.

In the word "multidisciplinary team", the prefix "multi-" means "many". A collaborative team is a group of diverse professionals working independently or together on the same task/task/project. The team consists of a healthcare team from a variety of areas of expertise, skills, abilities and experience. They cooperate and collaborate in their work to create unity.

Another term, "inter-disciplinary team", means more collaboration between team members. Prefix is inter-refers cohesion in work with shared rights rather. Inter-disciplinary team involves an integrated effort by shared professionals. This team is based on integration of expertise, knowledge and skills so common decision making and goal-oriented solution to common to complex problem. Team member are integrated in knowledge and skill, so on one hand they flexibly work while on other hand difficult to define professional work boundary.

Last one is trans-disciplinary team. It refers to a type of professional practice that aims to find a positive and open professional experience. Sharing of roles across disciplinary boundaries sharpens effective communication, negotiation and collaboration among stakeholders. As a result, boundaries are shifting or disappearing, and collective groups are characterized by exchanges of knowledge, skills, funding, analysis, more beneficial collaboration and wisdom that go beyond traditional teaching [18].

Concept of collaboration

Collaboration is an integrated process consists of dynamic and interactive processes, adaptive processes, individual processes or integration models. The collaboration process may be based on specific steps, such as discussion and mediation or joint planning and

intervention in decision-making. Therefore, professional boundaries need to be defined; otherwise, the lines beyond the border can be explained. If all doctors in the border region put forward their skills, good results can be achieved together. Implementation of a coordinated care process for patients in the medical field should be planned step by step before the execution. (Table 1)

Our net concept word is interdependency. All are with some limitation and have to depend on other. Interdependency implies mutual dependence. In this context, experts in their own disciplines need to trust each other in collaboration, knowledge and skills. Therefore, no one can be called "perfect" all the time. Collaboration requires professionals to work together rather than independently. This collaboration is inspired by the environment and the brand's slogan "Healthier Patient Needs." [19,20].

• **Impact of PPCM in Indian scenario**

In the last few years, the focus has been on collaborative practice amongst physician and pharmacists in health care to implement the inter-disciplinary model [21]. Integration is needed due to the burden of chronic diseases, an aging population, the proliferation of complex medical systems, and rapidly increasing medical costs [22]. With the legislation set out in the 2015 Pharmacy Practice Regulations, the role of the pharmacist has changed, shifting the role and responsibility from clearly bringing it together and coordinating with patient care. This fresh approach has been defined as pharmaceutical care [23].

Pharmaceutical care philosophy

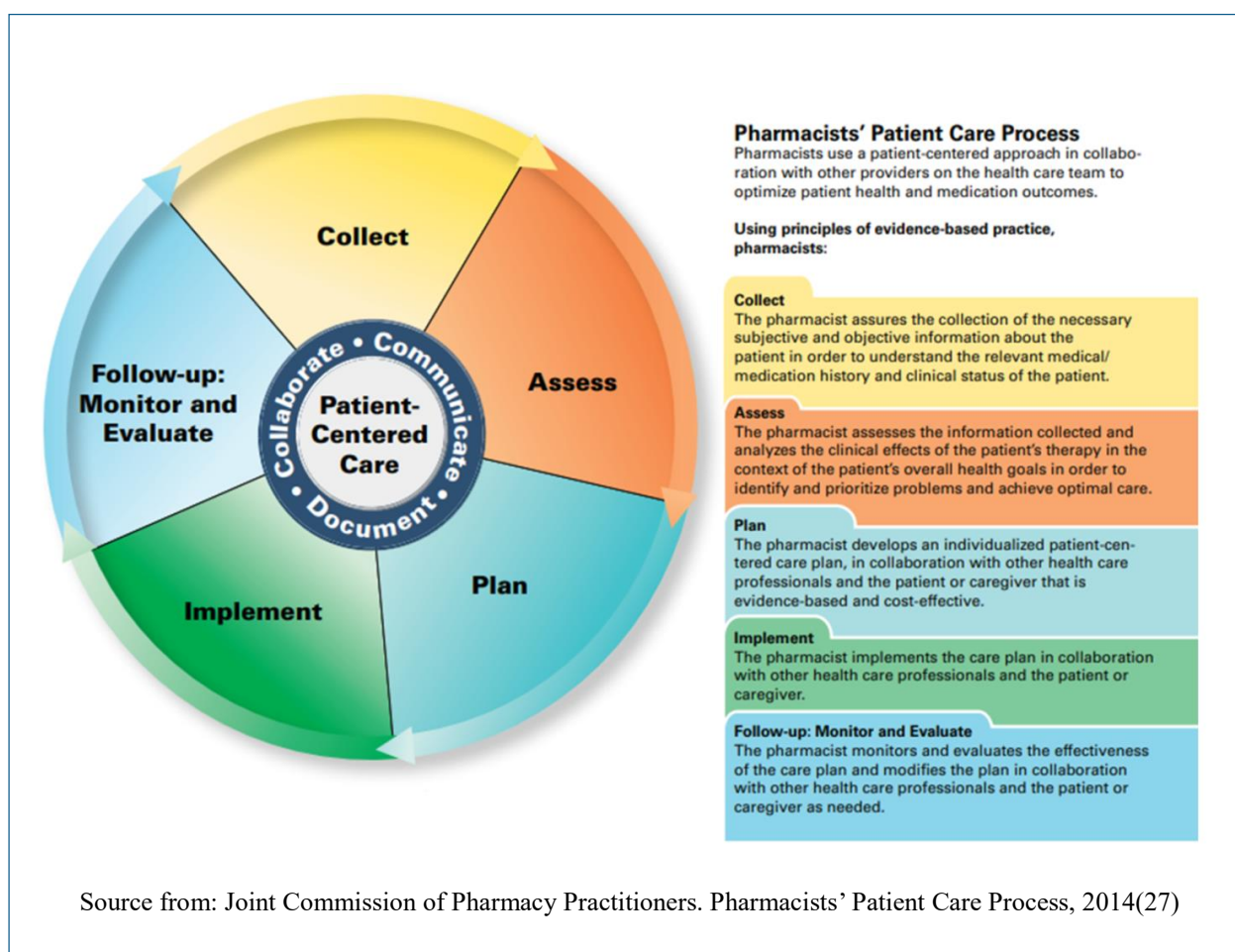
Pharmaceutical care, is a philosophy of practice in which pharmacists work directly with other physicians and patients to enhance medication use by identifying, resolving, and preventing medication complications [24]. Pharmaceutical care is a provision responsible for drug therapy to achieve positive results in improving the quality of life of patients. Pharmaceutical care implies a shift in practice from patient-centered medicine to achieving tangible results that improve patients' quality of life. To accomplish pharmaceutical care, the pharmacist must play the role of an auditor, communicator, teacher, researcher, learner, life leader, and leader who will help the individual provide care [25].

Pharmacists are not designed to replace physicians, nurses, or other members of the healthcare team, but rather to provide new patient care inside the health care system. As drug use has increased, so has the risk of drug misuse and other drug-related issues. Pharmacists are medical professionals responsible for the effective, appropriate, and cost-effective use of pharmaceuticals. [26,27] (Figure 1).

Table 1: Steps to implement “collaborative care planning” in healthcare

As a primary care practice explores implementing a Collaborative Care Planning process for their patient, consider the following steps:

1. Discuss the values of collaborative care planning with the team. Explain its importance to all members of the team.
2. Engage a team member to defined task. The task needs timely updates, team education, and problem-solving behaviour.
3. Select and prioritise the populations for the initial work. Consider the populations with chronic conditions such as asthma or hypertension that are important to all on the primary healthcare team.
4. Define the process for collaborative care planning includes identifying specific roles (e.g. primary care clinicians, care manager or both) to initiate the process and specific skills for success.
5. Discuss how to integrate collaboration in routine practice. This may include a defined collaborative care plan for each member of the team.
6. Provide effective resources for collaborative care planning. Prioritise patient goals and action steps accessible to all healthcare team. Develop and update resources as needed to ensure they are valued by the patient and efficient for the team.
7. Define the team's measure of success for the work of implementing collaborative care planning. Use SMART goals. Review the goals, progress, and challenges on a regular basis.

Figure 1: Pharmacist’s patient care process in collaboration with other healthcare providers

Pharmacists are responsible for the effective, appropriate, and cost-effective use of pharmaceuticals. [26,27] (Figure 1).

Pharmaceutical care philosophy

Pharmaceutical care is a concept of practice in which chemists engage directly with other physicians and patients to improve prescription use by diagnosing, addressing, and preventing medication problems[24]. Pharmaceutical care is a provision responsible for drug therapy to achieve positive results in improving the quality of life of patients. Pharmaceutical care implies a shift in practice from patient-centred medicine to achieving tangible results that improve patients' value of life. To achieve pharmaceutical care, the pharmacist must play the task of an auditor, communicator, decision maker, researcher, teacher, learner, life leader, and leader who will help the individual provide care [25].

Pharmacists in the health care team are not designed to replace physicians, nurses, or other members of the healthcare team, but rather to provide new patient care within the health care team. With the increase in drug use, the risk of drug abuse and other drug-related problems has also increased. As medical professionals, pharmacists are responsible for the effective, appropriate and cost-effective use of medicines [26,27] (Figure 1).

In 1997, the World Health Organization recommended that all healthcare facilities, including community pharmacies and hospitals, should comply with good practice and these guidelines refer to these provisions of pharmaceutical services. The presence of pharmacists in collaborative care teams would have a positive impact on patients' recovery includes helping in reducing the cost of prescription drugs and improving the quality of care for patients with chronic diseases. However, currently the role of pharmacists in this group has not been explored and completed in the Indian settings [28].

Pharmacist in Inter-disciplinary care

With advancement in medical research, after post independent era, complexity and time demands new responsibility and expertise professionals in health care team. Generally the ward is staffed by attending physicians, nurses and other medical professionals such as physiotherapists, dietitians, fire medics and now pharmacists are evident at ward. It depends on personal involvement, discipline and work in treatment strategy. When the role of each individuals are fulfilled, the total impact will be greater than the impact of each health care professionals. Health care team-work is becoming increasingly effective and prominent in the literature and clinical practice. In fact, collaboration is essential to achieving good health, and teamwork is an essential element in providing collaborative, patient-centred care. In the team healthcare approach, this interdependence leads to synergy.

As mentioned earlier, collaborative working refers to the practice in which two or more professionals meet, discuss, learn and practice together with patients in the healthcare service department. Interprofessional collaboration is recognized as a strategy that can achieve good health outcomes. Patients requiring long-term care, acute care, geriatric care, and end-of-life care require effective teamwork due to the complexity of their needs. Different models and settings for the delivery of care, such as managed care, community care, clinics, and critical systems, are increasing and require the team to collaborate to achieve the necessary collaboration [29] (Table 2).

The collaborative teams agreed to improve research quality and reduce research costs. Identifying or adding members in accordance with complex treatment protocols for both physicians and patients has improved outcomes for many conditions. It also shows that the relationship between pharmacists in the intensive care unit (ICU) may reduce risk-adjusted length of stay and medication errors [30]. However, further research is needed to investigate the collaborative care impact on patient outcomes and costs, as well as its effectiveness on external pain in the treatment settings.

PPCM in Indian scenario

Chronic or non-communicable diseases are increasing globally and are responsible for 73% of all deaths. In India, NCDs account for 53% of all deaths and 44% of disability-adjusted life years (DALYs) lost. India is base for more than 1/6th of the world's population and is experiencing a rapid change to non-communicable diseases as a result of increasing socio-economic status. According to the International Diabetes Federation (IDF), approximately 77 million diabetics live in India and this number is expected to reach 134 million by 2045. India dies from premature heart disease accounting for one-third of all deaths. The prevalence of hypertension is rising in both rural and urban areas of India. India's National Health Policy intends to reduce premature mortality from noncommunicable diseases (NCDs) by one-third by 2030, according to the Improved Quality Mission [31].

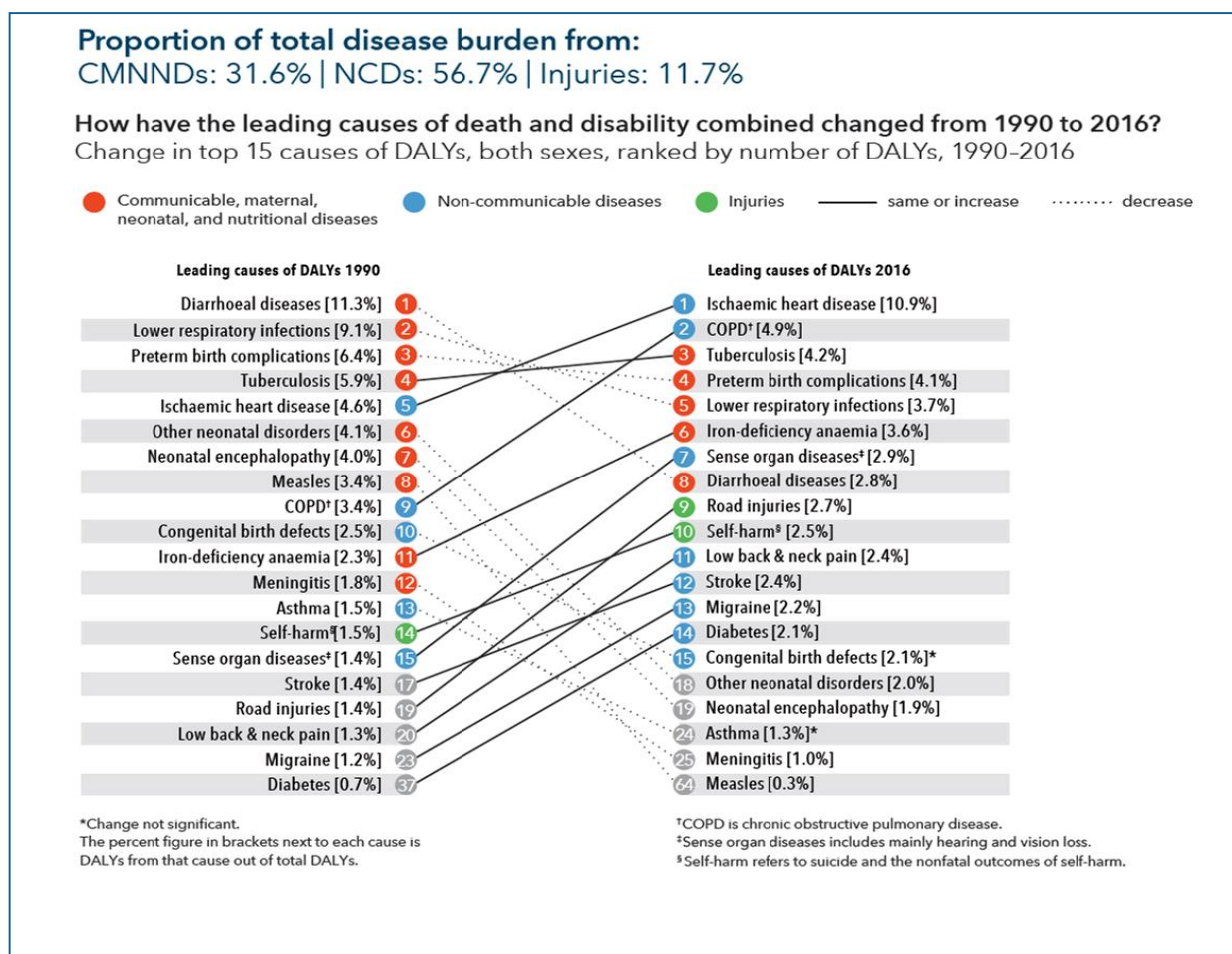
The India State-Level Disease Burden Initiative was launched in October 2015 with the interests of experts from the Indian Council of Medical Research (ICMR), Public Health Foundation of India (PHFI), Institute of Health Metrics and Evaluation (IHME), and nearly 100 affiliated organisations Partnership across India; unprecedented measure and a complete list of the leading causes of premature death and disease across the country, the risk factors contributing to this burden, ranging from The Global Disease Survey 2016 evaluated the burden of 333 illnesses, injuries, and 84 risk factors for each Indian state[32] (Figure 2).

Table 2: General practices followed by pharmacist in collaborative care management

The general practices followed by pharmacist in collaborative care management as per WHO. (29)

1. Collecting and arranging specific information about patients.
2. Identifying the probable medication therapy problems.
3. Enlisting patient's health care needs.
4. Specifying Pharmacotherapeutics goals.
5. Designing the drug therapy regimen.
6. Preparing a specific monitoring plan.
7. Developing a specific drug therapy regimen in coordination with patient and other health care team members.
8. Monitoring the aspects of drug therapy regimens.
9. Redesigning and monitoring the drug therapy regimens and plans.
10. Recommending the physician in selecting the right drug.

Figure 2: Proportion of disease burden of CMNNDs, NCDs and other injuries in Gujarat state
(CMNNDs: Communicable, maternal, neonatal, and nutritional diseases, NCD: Non-communicable diseases, DALY: Disability- adjusted life years, COPD: Chronic Obstructive Pulmonary Disease)



Source from: Gujarat: Disease Burden Profile, 1990 to 2016 – a part of Nations within a nation: variations in epidemiological transition across the states of India, 1990–2016 in the Global Burden of Disease Study [32,33].

Pharmacists in hospitals have proved the ability to improve care by lowering mortality and morbidity, adverse medication reactions, and health-care costs. However, community engagement is more difficult, particularly in India [34]. India established a Doctor of Medicine (Pharm.D.) program in 2008, encouraging comprehensive discussions of the roles and responsibilities of doctors in the country. Before the launch of the study program (i.e. Pharm.D.), the responsibility of a pharmacist was to dispense/manufacture/market the drugs and clinical pharmacy education was mostly given under the study program of Master of Pharmacy (M. Pharm) (Pharmacy Practice/Clinical Pharmacy) [35]. Hospital pharmacists can provide patients with information on continuing care to ensure continuity of medication, interactive communication of specific problems, suitable medication monitoring, and minimization of side effects. The pharmacist can give advice/instruction to the patient on the following points regarding the medicine [36,23] (Table 3)

Table 3: General points covered by pharmacist in patient counselling

- Generic name, brand name of the drug.
- Dosage.
- Indications/benefits of the medicine and expected action.
- Proper storage.
- How to take the medication?
- When and how long to take medication?
- Information about ceased/new medication.
- Special precautions about the drug.
- Common adverse drug events.
- Action to be taken when a dose is missed.
- Drugs and/or foods to be avoided.

Community pharmacists working in pharmacies/drug store can also improve patient care in a variety of ways, including medication management, patient counselling, and health education. Unfortunately, pharmacies and drug stores are more visible in the area where pharmacists' business practices hinder collaboration. Qualified pharmacists work with the healthcare team to review, monitor, initiate and modify medication use to prevent disease and ensure safety and effectiveness. Indian pharmacists are not working as expected in this regard, unlike the standards in developed countries. Today, polypharmacy, i.e. using too many pills is a common practice in terms of health and causes drug interactions and similar issues. In order to prevent this situation and solve the issues, Indian emergency hospitals need to establish medicine services [37].

Various factors have been found to influence the implementation of PPCM. These factors can be broadly

related to either (i) Pharmacist, (ii) Healthcare professionals' or (iii) Hospital management.

A basic understanding of all possibilities is crucial for the effective implementation of PPCM.

i) *Pharmacist related factors:*

Inadequate medical knowledge, high attrition rate, negligence (lack of self-regulation), dissatisfaction and lack of trust in meetings with doctors, lack of commitment, poor communication were the most common aspects reported by the pharmacists.

ii) *Health care professionals' related factors:*

Lack of understanding about pharmacy services, poor attitude, not accepting pharmacists included in the treatment team, lack of appropriate communication, etc. were among the factors that deleteriously contributed to the progress of the service.

iii) *Hospital management related factors:*

Lack of clarity with responsibilities at job/practice, incentives and absence of additional benefits, absence of appropriate care and monitoring, absence of data standards, poor hospital management, absence of appropriate service being centralized and predetermined in the hospital, lack of procedures etc. [38].

In the last two years, healthcare has focused on innovation and technology and about 80% of Indian healthcare systems plan to increase investment in the digital medical devices in the upcoming five years. Challenges such as doctor shortage, lack of quality insurance, insufficient health expenditures and inadequate use of basic health services affect the implementation of collaborative care approach. In addition, the lack of preventive care for the rural population, lack of medical research, lack of clear teaching, shortage of doctors and resources affect the Indian health sector and can become a hurdle in implementing collaborative healthcare practice too [39].

Electronic medical records are used in many primary care hospitals to provide pharmacists with access to patients' medical records. Following these guidelines can facilitate safe and effective patient delivery and improve collaboration with healthcare providers. To prevent this change in information management, doctors and nurses need to learn how to use electronic devices for effective communication. (40) The World Health Organization has stated that collaborative learning (IPE) is an important strategy for professional education so that healthcare professionals learn how to work in a collaborative team and are trained together to have the skills to do so. Providing IPE opportunities for doctors and pharmacists, as well as undergraduate and postgraduate students in medicine and pharmacy, in the context of continuing professional development (CPD) can help improve the pharmacist-physician working relationship. (41, 42)

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Conflicts of interest

There are no financial conflicts of interest to disclose.

Conclusion

The chemist serves as both a team member and an individual practitioner in a health care system, ensuring that the public receives quality health care services. It is a chemist's job to comprehend his shifting role as a health care provider beyond simply dispensing drugs in a hospital, as pharmaceutical care is patient-centered rather than product- or profit-driven. It is a clinical outcome-based service in which chemists may correctly optimise pharmacological therapy to ensure safe and effective patient care. To improve the pharmacist-practitioner connection, continuing professional development (CPD) and interdisciplinary education (IPE) should be implemented.

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