1 Introduction

Globally, there have been significant changes in health care systems with respect to their quality and processes, and these have been specifically demonstrated in the practice of pharmacy. The traditional role of the pharmacist involves activities in the area of preparation, compounding and dispensing of medications. The advancement in technology and industrialization has led to the paradigm shift in which pharmacist no more involves in the activities like preparations, compounding and dispensing. This practice has been best described as product oriented, which signifies making of fixed dose combinations (FDC) for all patients ignoring the individual needs of the patients. The major drawback of FDCs is inappropriate dose which may influence the outcome and as well cost of the medicine. The burden of adverse drug reactions (ADR) due to inappropriate dosing is also against the FDC. It was realized that, there is a need for gauge the exact required dose and administer to the patients as they would differ in Pharmacokinetic and pharmaco-dynamic processing. Apart from this, the advent of information technology and its availability to the patient community has made them aware of patients’ rights. Now a day, patients ask for reasons regarding diagnosis, treatment and evaluates the appropriateness of cost and quality received against payment. The patient centric care is a new buzz word where every aspect of healthcare delivery focuses on patient friendly methods and treatments. It signifies shift of practice in pharmacy from drug product-oriented to patient-oriented. The new approach has been given the name as pharmaceutical care. The most generally accepted definition of this new approach is: “Pharmaceutical care is the responsible provision of drug therapy for the purpose of achieving definite outcomes that improve a patient’s quality of life (1)”. In adopting this definition in 1998, the International Pharmaceutical Federation (FIP) added
one significant amendment: “achieving definite outcomes that improve or maintain a patient’s quality of life”.

Pharmaceutical care is a systematic process designed to identify and resolve drug related problems (DRP), and individualize the pharmacotherapy, documentation and achieve economical, clinical, and humanistic outcomes while respecting sovereignty, confidentiality of the patient by pharmacists. In order to fulfill this obligation, the pharmacist has to assume many different roles and functions. The concept of the seven-star pharmacist, introduced by WHO and taken up by FIP in 2000 in its policy statement on Good Pharmacy Education Practice, visualizes the pharmacist as a caregiver, communicator, decision-maker, teacher, researcher, life-long learner, leader, and manager (2).

The pharmacotherapy has delivered at its best by team work of doctor, nurse and pharmacist. The assumed roles for doctors is to diagnose and prescribe, nurse for administering and nursing care delivery and pharmacist for patient education and pharmaceutical care. The pharmacist delivers services in clinical and community settings whereas doctor and nurse focus in clinics. The pharmacists are easily accessible to the patients and are popular as community pharmacists.

Patients need pharmacist’s services at various disease cycle including admissions, as in-patients, out-patients, ambulatory status and also continuous care. Successful pharmacotherapy needs inputs from all healthcare professionals who work in a team. It includes individual drug therapy decisions; reaching an agreement between the patient and the health care provider on the therapeutic outcome—cure of a disease, elimination or reduction of a patient’s symptoms, arresting or slowing a disease process or symptoms, and critical patient monitoring activities. For each individual patient’s drug treatment, the
A pharmacist develops a care plan together with the patient (3). A systematic approach to patient care is illustrated in Figure 1.

Pharmacists are well suited to identify and resolve medication-related problems related to transitional care and provide medication education to patients and their families to prepare them to manage medication therapy following discharge from hospitals. Such activities are fundamental to pharmaceutical care and are embodied in the 2015 goals of the American Society of Health-System Pharmacists (4). Redesigned discharge processes that incorporate pharmacists to address transitional care, leads to pharmacist-specific interventions such as medication reconciliation, patient counselling, follow-up telephone calls, which will result in identification and resolution of medication discrepancies, reduce the incidence of preventable adverse drug events (ADE) after discharge, and decrease the number of return visits to the emergency department, and to ensure the quality use of medicines and positive health outcomes (5).

The pharmaceutical care model (6) has clearly indicated the gap in healthcare and possibility of causalities due to the absence of team work of healthcare service providers. Pharmacists, being the expert in a matter of medicines, are in a unique position to think from a different angle than the physicians and nurses due to professional orientation and training. The healthcare services in developed countries are agreeably safe due to collaborative healthcare services by physicians, nurses, and pharmacists. The holistic approach and access of pharmacists, quality use of medicines, and evidence based medicine cannot happen in the absence of contributions of core healthcare team.

When a patient is experiencing or has the potential to experience an undesirable effect, which may be psychological, physiological, economic or social origin leading to drug-related problems (DRP), the pharmacist has to identify and prevent or resolve each of these (7). These are listed below:
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1. Needing pharmacotherapy, but not receiving it
2. Taking or receiving the wrong drug
3. Taking or receiving too little of the correct drug
4. Taking or receiving too much of correct drug
5. Experiencing an adverse drug reaction
7. Not taking or receiving the drug prescribed
8. Taking or receiving a drug for which there is valid medical indication

Pharmaceutical care is a prospective, patient specific, identifying and resolving the lacunae in the patients’ knowledge regarding drug, disease and lifestyle. This serves as a baseline for practice to build the patients’ knowledge base and motivate the patient to participate in his own healthcare with a goal of achieving self management of disease. This approach is very important to achieve the patient compliance and adherence to the treatment.

Table 1 summarizes the nine steps which have to be completed by a pharmacist for providing pharmaceutical care to a patient. The services offered by the pharmacist before or at the time of drug therapy decision are more helpful to avoid further DRP. The necessary information about patient’s clinical characteristics (age, sex, socio economic status, and biochemistry lab values) pharmacotherapy (allergy, recent, or past pharmacotherapy) and disease process (severity, prognoses) will be significant in the process of pharmaceutical care delivery. The patient being ignorant and may have several myths, which can act negatively for patients psyche and behavior. To keep the patient abreast with his condition will ensure to take vital decisions on the part of the treatment modality and also would save lot of efforts to convince the patient; regarding technical decisions taken by the healthcare team. The history of care process needs to be used as
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ready guide for healthcare team to avoid duplication of patient education. Hence a computerized patient documentation history is a felt need. The pharmacist can take this responsibility and make the documentation available to all healthcare team. Documentation of care process should include information needed to make and take decisions, records the decisions about individualized pharmacotherapy and pharmacist’s actions on outcomes of the therapy. Database of the pharmaceutical care process consists of patient details, drug, disease, drug choice, dose determinations, route of administration, procedures and standards of patient monitoring and patient outcomes in terms of efficacy, length of illness, side effects etc., which is an inherent protocol of care process (7)

Studies on pharmaceutical care in literature have demonstrated high value added leading to improvements in economic, clinical and humanistic outcomes. Continuous pharmaceutical care in community pharmacies in hypertension, diabetes, dyslipidemia, asthma, coronary artery diseases, and geriatric patients(8)(9-14) are the latest trend of pharmacy practice in developed countries.

Nowadays, pharmaceutical care has become a dominant form of practice for thousands of pharmacists all over the world. However, for the patients and pharmacists in India, this concept remains obscure because of lack of government support, ignorance by healthcare team, and patients. The conventional care consists of doctors assuming the responsibility of patient education and nurses advising the patients regarding medication in addition to their, designated responsibility. This increases the burden of healthcare delivery where doctors and nurses have to update the knowledge of drugs for the patients. The entry of the pharmacists would lead to filling the gap and allows the doctors and nurses to focus on their professional practice.

The pharmaceutical care goal is aimed to make the healthcare delivery flawless, rational and evidence-based pharmacotherapy, benefiting patient and society (15). Independent
pharmacies in developing nations can play an important role in reducing cost, causality, providing continuity of care, and improving life expectancy (16).

In India, pharmacists had a little role in the healthcare services. The management of patient’s therapy is managed by physicians with the help of nursing faculty thus leading to underutilization of services and knowledge of pharmacists. Physicians, who are unfamiliar with services of pharmacists, may be declined to give authority to less qualify as perceived. Provision of pharmaceutical care, complete documentation of pharmacotherapy process, and achieving cost effective use of resources ultimately lead to formation of a comprehensive health care system. A positive mutual relationship with all healthcare professionals is beneficial for patient’s outcomes (17).

India needs sustainable, high quality human resources for health with a variety of skills and who are adequately distributed in all states, particularly in rural areas (18). The public health system has a shortage of medical and para-medical personnel. Government estimates indicate that 16% are without a pharmacist. Hence, there is a need to develop a national human resource policy, which examines the creation and establishment of cadres of trained healthcare professionals who can provide leadership and direction to the health sector to meet global standards. It should also make use of available pharmacists and train them in the pharmaceutical care area leading to sustainable human resource for the health care.

Now, let us examine the data which will show why we need pharmaceutical care in Indian population. India, accounts for a substantial proportion of the global burden of the disease with 18% of death and 20% of the disability adjusted life years (DALYs). Of the estimated 10.3 million deaths that occurred in India in 2004, 5.2 millions were due to chronic conditions. Overall, age standardized mortality rates for chronic conditions were 769 and 602 per 100,000 men and women, respectively (19). Communicable diseases
account for 38% of the disease burden with large variations across states. Non-communicable diseases (NCDs) have evolved as major public health problems and accounted for 53% of all deaths in the age group 30–59 years in 2005. It is projected that by 2015 these numbers may increase to 59% of the total deaths in India (20). Indians were more prone to cardiovascular diseases (CVDs) especially coronary heart diseases (CHDs) at the early age than those people in high income countries (21). As India’s population ages during next 25 years, deaths caused by CVD, projected to reach 4 million in 2030 compared to 2.7 million in 2004(22). Tobacco is widely consumed and remains as the most important preventable risk factor with 47% of men and 15% of women being regular consumers of tobacco. Even though NCDs are usually expected to occur in the old age, their peak occurrence in India is a decade earlier than western countries. Hence, the issue is not only the burden, but also its prematurity and the resulting socioeconomic consequences (23).

India’s total expenditure on health was estimated to be 4.2% of GDP in 2009 of which public expenditure on health was estimated to be 1.10% (24). Out of pocket expenditure as a percentage of private expenditure on health in India is 74.4 (WHO-2010) which has great impact on livelihood of patients. In 2004–2005, about 14% of rural and 12% urban households spent more than 10% of their total expenditure on healthcare, leading to poverty. Thirty-nine million people (30.6 million in rural areas and 8.4 million in urban areas) fell into poverty as a result of out of pocket expenditure for health care needs in 2004–2005 and are increasing day-by-day (25).

Only about 10% of the Indian populations are covered by any form of social or voluntary health insurance, which is mainly offered through government schemes for selected employment groups in organized sector (e.g., State Employees Insurance) and private insurance companies account for 6.1% of health expenditures on insurance. Expenditure
on drugs has been increasing with time, and drug costs constitute a greater proportion of out of pocket expenditures for people who are poor than for those who are not. Inefficient control of drug prices, regulation of pharmaceutical market, and procurement and distribution mechanisms exacerbate inequitable access to affordable good quality drugs. Analysis of changes in drug prices has shown that the cost of the selected group of drugs rose by 40%, whereas essential drugs rose by 15% and for those which are not on the controlled list and not price controlled rose by 33% (26). Inadequate protection of financial risks against financial shocks that are associated with the cost of medical treatment (inpatient care, drugs, diagnostic test, and medical appliances) has worsened the poverty in many households (27)(28).

Common man in India has become aware regarding the quality of health care services and has begun to demand for quality services. The current system is burdened, and unable to sustain the service expectations. Issues like inappropriate use of medicines and exploitation of ignorance of patients have been questioned in consumer forums. The apex professional bodies like Medical Council of India are expected to act in the interest of patients rather than its own members. The doctors are needed to explain the treatment in detail to patients/patient party. The number of patient seen by physician is increasing to all time high leaving the little time to educate patients in the aspects of lifestyle modifications, use of medicines, and diseases. There are numerous opportunities for the pharmacist to assist the physicians in the hospitals and as well as retail pharmacies. Hence, Pharmaceutical care has become the need of the hour in India and pharmacist can play a vital role in health care system by providing his knowledge and skills in the usage of drugs and acts as provider of the care to the needy patient (17)

Hence, we decided to take up this project, which was novel, as it never tried in our country for the patients of myocardial infarction and unstable angina who underwent
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Angioplasty procedure. The patients when discharged from hospital were given pharmaceutical care and assess their clinical outcomes like their major adverse cardiac events, fasting lipid profile, body mass index and fasting blood sugar values; quality of life of the participants and quality adjusted life years along with incremental cost effectiveness ratio for the intervention.

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Figure 1: Systematic approach for pharmaceutical care (3)
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