



PERCEPTION OF HEALTH CARE PROVIDERS ON THE ROLE OF CLINICAL PHARMACISTS IN PATIENT CARE: NARRATIVE REVIEW

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Abstract:

Background: Pharmacy departments in large acute hospitals play a crucial role in ensuring timely and efficient medication delivery to patients. The evolution of clinical pharmacy in the UK over the past three decades has emphasized the importance of pharmacists in optimizing drug therapy outcomes and patient care. However, the practice of clinical pharmacy varies across hospitals, leading to inconsistencies in service delivery and patient benefits. The concept of pharmaceutical care has emerged as a patient-centered approach to pharmacy practice, focusing on achieving specific therapeutic outcomes to improve patient quality of life. Despite the adoption of pharmaceutical care principles in the UK, challenges such as service diversity, lack of central direction, and limited dissemination of service improvements persist in hospital pharmacy settings. **Objective:** This review aims to evaluate the impact of clinical pharmacy services on patient outcomes in hospital settings, assess the effectiveness of pharmacist interventions in enhancing medication safety and adherence, explore the role of clinical pharmacists in multidisciplinary healthcare teams, investigate challenges faced by clinical pharmacists in delivering optimal pharmaceutical care, and identify opportunities for expanding and enhancing clinical pharmacy services to meet evolving patient and healthcare provider needs. **Conclusion:** The research article underscores the importance of advancing pharmaceutical care in hospital settings through evidence-based practices and consistent service delivery. Challenges such as pharmacist recruitment and the need for enhanced research in pharmacy practice in secondary care are highlighted. Recommendations include strengthening interprofessional collaboration, developing frameworks for integrated pharmaceutical care, and focusing on patient-centered outcomes to drive advancements in pharmacy practice. Overall, the article emphasizes the significance of systematic and evidence-based approaches to meet the evolving needs of patients and healthcare providers in clinical pharmacy services.

Keywords: Clinical pharmacy, Definition, Education, Training, challenges, pharmacist role.

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Introduction:

In the realm of healthcare, all major acute hospitals are equipped with an in-house pharmacy department that plays a pivotal role in ensuring the timely and accurate dispensing of medications to patients through a cost-effective and efficient system. In contemporary times, pharmacists increasingly acknowledge a broader responsibility in leveraging their pharmaceutical expertise to enhance the effectiveness of drug therapy and mitigate potential adverse effects [1]. This evolving focus on patient outcomes, particularly evident in the evolution of clinical pharmacy practices in the UK over the past three decades, underscores the emergence of pharmaceutical care as a defining aspect of the pharmacist's involvement in patient well-being.

The practice of clinical pharmacy exhibits a degree of variability across different hospitals in the UK, mirroring the diverse landscape of pharmacy services within these institutions. The level of pharmacist involvement in patient care varies significantly; while some hospitals boast dedicated ward-based pharmacists who actively contribute as integral members of the clinical team, others rely on periodic pharmacist visits to review medication charts and advocate for formulary adherence [2]. This disparity in practice extends beyond clinical pharmacy to encompass a wide array of pharmaceutical services, including intravenous additive services, discharge planning initiatives, and various other facets of pharmacy operations.

The absence of a centralized directive from both the pharmacy profession and the Department of Health has fostered this culture of diversity and autonomy in service provision within hospitals. Individual hospital pharmacy services have organically evolved based on the preferences and priorities of their pharmacy staff, with influential leaders shaping distinct service models ranging from supply-centric to patient-centered approaches. Oftentimes, these leaders prioritize internal promotion of pharmacy services over the dissemination of best practices to their peers, resulting in a fragmented landscape where innovative service improvements in one hospital may not promptly benefit patients in other settings [3].

To expedite the implementation of evidence-based advancements in pharmacy practice, a more collaborative and transparent approach to sharing and promoting innovations within the pharmacy community is warranted. By fostering a culture of

open communication and knowledge exchange among pharmacists, the realization of patient-centric service enhancements across diverse hospital settings can be accelerated, ultimately enhancing the quality and efficacy of pharmaceutical care delivery.

Objectives:

The main objectives of this review are:

1. To assess the impact of clinical pharmacy services on patient outcomes in a hospital setting.
2. To evaluate the effectiveness of pharmacist interventions in improving medication safety and adherence.
3. To investigate the role of clinical pharmacists in multidisciplinary healthcare teams and their contribution to patient care.
4. To explore the challenges and barriers faced by clinical pharmacists in delivering optimal pharmaceutical care in a hospital setting.
5. To identify opportunities for expanding and enhancing clinical pharmacy services to meet the evolving needs of patients and healthcare providers.

Pharmaceutical care:

Pharmaceutical care, a term that gained prominence in Pharmacy circles during the early nineties, was coined in the US by Heppler and Strand. They defined pharmaceutical care as the responsible provision of drug therapy aimed at achieving specific outcomes that enhance the quality of life for patients [4]. This approach involves pharmacists collaborating with patients and other healthcare professionals to design, implement, and monitor a therapeutic plan that will lead to desired therapeutic outcomes.

The concept of pharmaceutical care revolutionized the role of pharmacists, shifting the focus from process to outcomes in clinical pharmacy practice. In the UK, pharmaceutical care was quickly embraced by pharmacists and the Royal Pharmaceutical Society, with little debate on its relevance to UK practice. The term "clinical pharmacy" was soon replaced by "pharmaceutical care" to describe the work of hospital pharmacists, although the practice itself did not undergo radical changes [5].

The contribution of pharmacist in pharmaceutical care:

Pharmacists are often viewed as the initial point of contact between patients and the healthcare system, being accessible, trustworthy, and having frequent interactions with patients due to prescription

dispensing schedules [6]. Situated within the community, pharmacists can participate in various health promotion activities and services. The role of clinical pharmacists in healthcare settings has gained recognition, especially in ensuring the safe and effective use of medications in hospitalized patients. One significant contribution of clinical pharmacists is educating nurses about drug-food interactions, which can impact medication absorption, metabolism, or excretion, potentially leading to adverse effects or reduced efficacy. In patients with chronic pain, pharmacists can provide pain education and promote self-management strategies to reduce reliance on medication. By closely interacting with patients, pharmacists can identify barriers affecting treatment outcomes and recommend referrals to other healthcare providers [7].

In community pharmacy, pharmacists play a unique role in providing self-care to patients across all aspects of self-care. They educate patients on responsible use, which is the seventh pillar of self-care [8]. Pharmacists ensure the safe use of over-the-counter products to maximize benefits and minimize risks. Their role in addressing self-care needs aligns with the World Health Organization's definition of self-care. Community pharmacists are known as one of the most accessible healthcare professionals [9].

Therapeutic drug and biochemical parameter monitoring in clinical pharmacy:

Several studies have highlighted the advantages of utilizing plasma drug concentrations or biochemical parameters in conjunction with pharmacodynamic and pharmacokinetic analysis to establish optimized dosage regimens. This type of service has been proven beneficial in hospital settings, particularly with medications such as anticonvulsants, digoxin, theophylline, and aminoglycosides [10]. While these studies primarily focused on in-patient populations shortly after admission, they underscore the necessity for similar services in primary care environments. The potential for therapeutic drug monitoring by Community Pharmacists was emphasized in a report titled 'Pharmaceutical care: The future for Community Pharmacy.' Notably, theophylline has been a key focus in demonstrating the need for such services in primary care, with other studies showcasing the feasibility of providing similar services for monitoring biochemical concentrations [11].

A study conducted in a Belfast Community Pharmacy assessed 26 patients with asthma and

chronic obstructive pulmonary disease (COPD) to evaluate the value of pharmacokinetic interpretation following the measurement of plasma theophylline concentrations. The findings revealed an increase in the number of patients with therapeutic plasma theophylline levels and improvements in peak expiratory flow rates at 3 and 12 months post-dosage optimization. Immediate dosage recommendations based on serum theophylline concentrations and Bayesian interpretation were demonstrated by Lowen et al. [12, 13]. While this study was conducted in an outpatient setting, the potential for extending such services to Community Pharmacies was highlighted.

Hawksworth & Chrystyn further explored the accuracy of measuring plasma concentrations of carbamazepine, digoxin, phenytoin, theophylline, as well as creatinine, potassium, and urea in Community Pharmacies compared to hospital biochemistry departments [14]. Their method involved integrating Bayesian pharmacokinetic interpretation with pharmacodynamic endpoints to optimize dosages for individual patients. Results indicated that dosage adjustments were necessary for a significant percentage of patients prescribed carbamazepine, digoxin, phenytoin, and theophylline. Additionally, changes in therapeutic management were required for patients with abnormal plasma potassium and creatinine levels [15].

The studies suggest that the necessary technology and assay skills are available in primary healthcare settings, with General Practitioners requiring support for comprehensive therapeutic management. While the availability of these measurements in primary care is unlikely, leveraging local hospital resources for measurements can allow more focus on interpreting results and recommending optimal dosing for patients requiring monitoring. This approach, integrated into pharmaceutical care services, could be extended to include other medications such as warfarin and lithium [16].

Challenges to progress:

The stage is now set for the consolidation of clinical pharmacy services within secondary care facilities. Efforts are underway to establish a coherent philosophy and a model for service delivery in this setting. Several postgraduate training programs have been implemented, and there is backing from policymakers in the National Health Service (NHS) [17].

However, there are still obstacles hindering the continuous advancement of hospital-based clinical pharmacy services. One major challenge is the recruitment of qualified pharmacists for secondary care roles. Hospital pharmacists represent a small professional cohort; out of the 40,000 registered pharmacists, only around 5,000 are employed in hospitals, in contrast to the over 400,000 nurses and 50,000 doctors. To prevent a shortage of skilled manpower from impeding the progress of clinical pharmacy in secondary care, there may be a necessity for pharmacists to transition between primary and secondary care settings. This transition could be facilitated through collaborative initiatives between pharmacists in primary care and secondary care, aimed at offering pharmaceutical care support to general practitioners in primary care. Such collaborations would leverage the expertise of pharmacists from both sectors for the benefit of the NHS [18].

Enhancing the quality and breadth of research in pharmacy practice within secondary care is crucial for the continued growth and sustainability of these services across all hospital departments. Strong connections already exist between pharmacy schools and hospital practices, particularly concerning the delivery of postgraduate educational programs. The involvement of exemplary pharmacists as 'role models' has played a significant role in fostering the development of exceptional clinical skills among postgraduates and in elevating practice standards. Nevertheless, there is room for improvement in fostering stronger ties between academic pharmacy units and hospital departments in the realm of research. Collaboration among practicing pharmacists, their clinical counterparts, and academic institutions is vital for undertaking the necessary research to support service advancement. Future research endeavors should focus more on assessing the impact of pharmacy practice developments on patient outcomes, rather than solely on the economic benefits, as has been the trend in previous studies [19].

Advices to Strengthen Integrated, Evidence-Based Pharmaceutical Care:

Many factors impact the quality of integrated, evidence-based pharmaceutical care. Nurses need to communicate clearly on how they can and do contribute to integrated pharmaceutical care. They also need to extend the available evidence on how they can contribute to improvement of clinical practice. As interprofessional collaboration in

pharmaceutical is so fundamental to the quality of integrated, people-centred care and patient outcomes, research should continue to focus on facilitators of high-quality interprofessional pharmaceutical care [20] and the barriers to bringing this into practice. A framework should be developed and co-designed as a collaboration between all disciplines involved in pharmaceutical care. The goals are optimum care quality and patient outcomes, allowing for contextual factors, such as expertise, treatment availability and costs. Knowledge gained from implementation science models, such as the Context-Intervention-Context-Intervention CICI framework, can be harnessed to improve the usability of such frameworks and uncover and address any challenges in implementing the framework [21].

Conclusion:

In conclusion, this research article highlights the evolving role of pharmacists in providing pharmaceutical care in hospital settings. The focus on patient outcomes and the need for consistent, evidence-based practices in clinical pharmacy services are emphasized. Challenges such as recruitment of qualified pharmacists and the need for improved research into pharmacy practice in secondary care are identified. Recommendations include strengthening interprofessional collaboration, developing frameworks for integrated pharmaceutical care, and focusing on patient-centered outcomes in pharmacy practice. Overall, the article underscores the importance of advancing pharmaceutical care to meet the evolving needs of patients and healthcare providers in a systematic and evidence-based manner.

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