

Human Resource Management Strategies in Clinical Laboratories: Addressing Workforce Challenges and Enhancing Performance - A Review

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Abstract

This review explored human resources management (HRM) strategies in addressing workforce challenges and enhancing performance in clinical laboratories. Extensive literature reviews were conducted on all the thematic areas of the study, spanning HRM, clinical laboratories, and other ancillary topics. The review examined the five primary areas of human resources management, including recruitment and selection, training and development, compensation and benefits, employee relations, and compliance, to address workforce challenges and enhance performance in clinical laboratories. The findings were explicitly in favour of applying the tools to resolve the conundrum of workforce challenges and performance enhancement. Adopting these approaches could resolve many inherent internal and external factors that militate against the efficiency and productivity of clinical laboratories. This study has contributed valuable insights into improving HRM practices as they affect the clinical laboratory ecosystem, and in extension, the entire medical industry.

Keywords: Clinical laboratory, human resources management, recruitment and selection, training and development, compensation and benefits, employee relations, and compliance.

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1. Introduction

Human resource management (HRM) is a vital function for businesses, involving the management of people to achieve organizational goals. Personnel management, employee development, labour relations, performance management, and strategy planning are just a few of the activities included in human resource management (Dixit, 2024). At its core, HRM is about managing people as human capital and recognizing that they are the most important asset of any organization. To ensure compliance with employment rules and regulations, manage employee performance, and promote a healthy work environment, HR experts are responsible (Dixit, 2024).

Understanding the basics of HRM is essential for new professionals, business leaders, and anyone interested in managing people. By knowing the basics of HRM, one can build a strong foundation in managing people and aligning people and business strategies for success. The field of HRM is anchored on five main areas: recruitment and selection, training and development, compensation and benefits, employee relations, and compliance. These five main areas of HR are critical for business and government leaders to build and maintain a successful and productive organization or enterprise.

Through the development and application of effective recruitment strategies, providing employee development opportunities, offering competitive compensation and benefits packages, fostering positive workplace relationships, and ensuring legal compliance, businesses can attract and keep their top employees, improve employee engagement, and achieve their organizational goals (Leonard and Main, 2024).

The clinical laboratories are the repositories for the generation of laboratory results used for the diagnosis of diseases and the effective management of patients. It is estimated that 70% of all medical decision-making by primary care facilities now depends on the results from clinical laboratories (Marzinke *et al.*, 2022). This high expectation requires enormous efforts and technical know-how to sustain. As a component of the medical industry, it is also faced with similar work-associated strains occasioned by external and internal factors. These workplace strains and challenges could be mitigated by the effective application of HR elements as announced above.

The healthcare ecosystem is made of various departments and services, of which clinical laboratories form the core in disease diagnosis, management, and surveillance. Clinical laboratories are healthcare facilities providing



a wide range of laboratory procedures that aid clinicians in diagnosing, treating, and managing patients (Plebani, 1999). These laboratories are manned by scientists trained to perform and analyze tests on samples of biological specimens collected from patients. The construct, clinical laboratories, is used interchangeably with medical laboratories, and the usage varies from continent to continent and country to country.

The major practitioners and operators of clinical laboratories are the clinical laboratory scientists or medical laboratory scientists. In some climes, the nomenclature, biomedical scientists or medical technologists are employed (Scanlan *et al.*, 2013).

2. Addressing Workforce Challenges and Enhancing Performance Using HRM Elements

Clinical laboratories are indispensable in modern healthcare systems. The demand for timely, accurate, and high-quality diagnostic services has intensified, yet the workforce that supports these services faces numerous challenges. This review explores how HRM areas and strategies can be harnessed to mitigate workforce-related challenges and improve performance outcomes in clinical laboratories.



5 major areas of HR



Figure 1: Five Major Areas of HR

Adapted from Zoho People (2024).

a. Impact of Recruitment and Selection on Clinical Laboratories

The evolution of selection methods can be traced back to the early 20th century, with the advent of scientific management principles introduced by Frederick Taylor. Over the decades, selection methods have evolved significantly, influenced by advancements in psychology, technology, and management theories (Dubey, 2019). Early methods were primarily focused on basic aptitude and intelligence tests. However, as the understanding of human behavior and organizational dynamics deepened, more sophisticated methods such as structured interviews, psychometric testing, and assessment centers emerged (Dubey, 2019).

Recruitment and selection are the orifices through which an organisation hires staff, inclusive of the clinical laboratory scientists and other cadres of clinical laboratory staff. The gateway to addressing workforce challenges and enhancing performance begins with the recruitment and selection of competent staff, an essential tool of human resource management. Studies have linked flawed recruitment and selection exercises to the engagement of incompetent employees, which is always injurious to the corporate growth of an organization (Vosloban, 2012; Agbo, 2020).

Over the past few decades, there have been significant changes in employee selection in clinical laboratories. The style of employee selection has evolved over the years, taking into account cultural, environmental, and governmental trends. Clinical research centers aim to provide proper patient care through competent and cost-effective laboratory operations.

In recruitment and selection, a criterion-based job description is key to the successful employment of the right person. A criterion-based job description is the standard against which candidates are measured to determine



whether they have the qualifications to perform the job (Switasarra, and Astanti, 2021). Selection criteria are developed from the knowledge, skills, and abilities identified in the job analysis and stated in the job description. A criterion-based job description is a clear and comprehensive format of the expectations the employer sets for potential employees (Megel, 1983)

The five common criteria of job descriptions are job position, minimum skills and qualifications required, job responsibilities, accountability and responsibilities, and work relationships. These set criteria must be strictly adhered to for the recruitment of a potential employee. Immediately, employment recruitment and selection exercises are flawed, and the engagement of incompetent staff becomes inevitable.

Recruitment and selection are the gateway into addressing workforce challenges and enhancing performance. Most unpatriotic and deviant employees get into the employ of an organization, creating toxicity as a result of flawed recruitment. An effective, unbiased recruitment system could sieve out unpatriotic employees. These factors outlined above could also be applied in the recruitment and selection of clinical laboratory professionals. A methodological and unbiased approach in recruitment will lead to the engagement of the right professionals who can even surpass the set goals of the organization. Addressing workforce challenges and enhancing performance begins with an effective and unbiased recruitment and selection system.

b. Impact of Training and Development on Clinical Laboratories

Training and development an essential human resource management tools in addressing workforce challenges and enhancing performance (Abeba, 2015; Anwar, 2015). Training and Development is the continuous process of improving skills, gaining knowledge, clarifying concepts, and changing attitudes through structured and planned education by which the productivity and performance of employees can be enhanced (Armstrong, 2018; Berge, 2002; Biswas, 2006; Butler, 2002). Training and Development emphasize the improvement of the performance of individuals as well as groups through a proper system within the organization, which focuses on the skills, methodology, and content required to achieve the objective. Good and efficient training of employees helps in their skills & knowledge development, which eventually helps a company improve its productivity, leading to overall growth (Tanuja and Sharma 2023). The steps required for training and development processes are stated in the figure below;



Figure 2: Training and Development Process Steps
Adapted from MBA Skool Team (2025).



In the clinical laboratories, the concept of training and development is generalized as professional development. Professional development is important and necessary in clinical or medical laboratories where accuracy and precision are paramount. Methods of Professional Development in clinical laboratories include workshops and seminars, continuing education courses, and mentorship programs.

These professional developments are generalized as continuous professional development (CPD) and are criteria for annual licensure in some professional bodies, such as the Medical Laboratory Science Council of Nigeria (MLSCN). Continuous professional development is any learning outside undergraduate and postgraduate education and is an essential component of the health service, as it provides support to healthcare workers to keep up to date with best practices and helps to address deficits in their knowledge and practice (Al-Ismail *et al.*, 2022; Forsetlund *et al.*, 2009).

The following are the benefits derived from CPD;

Increased Knowledge and Skill Levels: One of the primary benefits of professional development in clinical laboratories is the opportunity for staff to increase their knowledge and skill levels. Through workshops, seminars, and continuing education courses, laboratory professionals can stay up-to-date on the latest advancements in technology and testing procedures. This ongoing learning process can help staff members improve their abilities and perform their duties with greater precision and accuracy.

Improved Accuracy and Efficiency: Professional development can also lead to improved accuracy and efficiency in laboratory testing procedures. By learning new techniques and best practices, staff members can streamline their workflow and reduce the likelihood of errors. This can ultimately result in quicker turnaround times for test results and better overall quality control in the laboratory.

Enhanced Patient Care and Outcomes: Ultimately, professional development in clinical laboratories can have a direct impact on patient care and outcomes. When laboratory staff are well-trained and knowledgeable, they are better equipped to provide accurate and reliable test results to healthcare providers. This, in turn, can lead to more timely diagnoses, appropriate treatment plans, and improved patient outcomes (Magwenya *et al.*, 2022).

c. The Impact of Compensation and Benefits on the Clinical Laboratories

Compensation and benefits are crucial functions of human resource management and a major tool of HR in addressing workforce challenges and enhancing Performance. A rewarding compensation and benefits plan attracts high-performing candidates and helps foster staff motivation, retention, and a positive workplace experience (Onuorah *et al.*, 2019). Compensation is the financial value that a team member receives in exchange for their services. This monetary value can include wages, salary, commissions, and bonuses. Benefits are nonmonetary, additional perks or rewards that a company provides for a team member. Certain benefits may have a financial value, even though a team member receives no cash. Examples of benefits with a monetary value include equity, stock options, health insurance, and retirement savings plans. Nonmonetary benefits may be a flexible working schedule, paid time off, or learning and development opportunities

Compensation and benefits are fundamental components of human resource management (HRM) that significantly influence employee satisfaction, retention, and performance, particularly in clinical laboratories where staff shortages and burnout are prevalent (Ali, 2009). Clinical laboratories are essential to healthcare diagnostics, yet they face increasing operational pressures, ranging from rising testing volumes to workforce attrition. While much focus is placed on technological advancement and automation, less attention is given to compensation and benefits, which are critical determinants of workforce stability (Al-Qathmi and Zedan, 2021). This gap could be addressed by an effective reward system as applied in other industrial facets (Akter and Moazzam, 2016).

The components of compensation and benefits include direct and indirect. Direct Compensation includes: basic salary, performance bonuses, incentives, and overtime Pay. In a similar vein, indirect Compensation includes health insurance, retirement and pension plans, and paid time off (PTO). Also, non-monetary benefits such as recognition programs, professional development opportunities, flexible work schedules, and wellness programs could in no measure enhance work performance (Boamah, 2018).



Organizations that offer strong benefits and incentives to employees reduce the likelihood of turnover by 26% and increase retention by 14% (Chepchumba and Kimuta, 2018; Benslimane and Khalifa, 2016). Studies have shown that incentive programs, such as pay-for-performance (P4P) schemes, enhance motivation and retention. P4P is a value-based payment system that provides financial incentives based on the attainment of pre-set targets (Kovacs et al., 2020). P4P ties reimbursement to metric-driven outcomes, patient satisfaction, and proven best practices, aligning payment with quality and value of service. Studies have shown varying levels of effectiveness of this incentive method (Kovacs et al., 2020). This concept, when applied in the clinical laboratories, will enhance work performance and, in turn, improve productivity and generate more revenue.

The impact of compensation and benefits can be analyzed through several HRM and motivational theories: Herzberg's Two-Factor Theory, Equity Theory, and Maslow's Hierarchy of Needs. These theories are effective in addressing workforce challenges and enhancing performance through the concept of benefits and remuneration.

Compensation and benefits significantly influence the productivity, harmonious work, healthy competition, stability, efficiency, and morale of clinical laboratory personnel. In an era where healthcare demands continue to rise, investing in equitable and competitive compensation structures is not just a cost, but a strategic enabler of clinical excellence. Laboratories must adopt innovative, flexible, and data-driven compensation models to ensure sustainable workforce performance (WHO, 2020).

d. Impact of Employee Relations on Clinical Laboratories

Employee relations refers to a company's efforts to develop a positive relationship with its employees. Building community and a positive sense of place within an organization is a key function of employee relations. These initiatives are typically housed within a company's human resources department and include issues such as working conditions, compensation and benefits, workplace and employee safety, incentives, reward and recognition programs, work-life balance, conflict resolution, and boosting employee morale.

A solid employee relations strategy will increase morale and engagement. It will also offer frequent opportunities for employees to provide feedback about employer initiatives. The application of systems of acknowledging feedback from employees and involving same in policy making is a path to efficient corporate relationships and trust building. According to a 2024 PwC survey, over 40 percent of executives agree that failing to build trust leads to drops in employee productivity, followed by lower-quality products and services, reduced operational efficiency, and lower profitability (PwC, 2024).

A study on the factors influencing the quality of laboratory service in public and private healthcare facilities in Ethiopia found that lack of reliability or poor medical laboratory services compromises the quality of care and may lead to misdiagnosis or added financial expenditure (Mesfin *et al.*, 2017). Issues such as low motivation, inadequate equipment, poor communications, shortage of employees, and lack of internal quality control are cited as major barriers to quality laboratory services (Mendis, 2017). This could be curbed by enshrining an effective corporate relationship between the management and clinical laboratory scientists. Furthermore, building trust in the relationship will in no measure consolidate the efficiency of the corporate relationship, thereby enhancing performance and ameliorating workforce challenges.

Corporate relationships and trust building in an organization could be enhanced by processes such as: encouraging cross-team collaboration, offering mentorship opportunities, celebrating birthdays and work anniversaries, advocating a healthy work-life balance, and maintaining regular communication (Mardhiko *et al.*, 2025). These steps are known to enhance corporate relationships and trust-building in an organisation.

e. Impact of Compliance on Clinical Laboratories

The concept of Human Resources (HR) compliance goes beyond simply following rules; it involves upholding the laws, regulations, and policies governing employment practices within an organization (Jensen, 2015). This multifaceted approach requires an organization to carefully consider all aspects of the employer-employee relationship and operate within the legal and ethical standards of the jurisdiction and industry.

Human resource compliance is essential for organizations to operate legally and ethically. It requires implementing and enforcing policies and procedures that adhere to employment laws at the local, state, and federal levels. These laws cover various areas, such as labour, discrimination, workplace safety, and data protection. However, compliance goes beyond just meeting legal requirements. It also involves creating internal



policies that promote fairness, equity, and ethical business practices, demonstrating the organization's commitment to upholding these values (Deloitte, 2012; Ernst and Young, 2011).

Compliance is not just about following the laws; it is important for long-term success. Clinical labs are facing regulatory compliance issues in the dynamic healthcare industry, and it is leading to financial and reputation damage.

Clinical laboratories are one of the most highly regulated areas of medicine and are properly governed by the regulatory bodies. The multiple internationally recognised regulatory bodies that provide guidelines for clinical laboratories include, Clinical Laboratory Improvement Amendments, the US Food and Drugs Administration (FDA), and Good Laboratory Practices (GLP). However, in Nigeria, the role is played by the Medical Laboratory Science Council of Nigeria (MLSCN). These organizations ensure that the entire quality management system (QMS) is strictly followed for the sole purpose of generating accurate results for the betterment of the entire healthcare ecosystem.

Regulatory violations can lead to reputational damage, legal issues, and compromised results. Laboratory compliance management helps labs meet required standards, ensuring quality, traceability, and efficiency. Maintaining compliance in laboratories is essential for accuracy, safety, and regulatory adherence. Laboratory compliance management ensures that labs follow industry standards, such as ISO 17025, GLP, and FDA guidelines. By implementing automated systems, labs can reduce errors, enhance data security, and streamline audits (Portier and Dunne, 2006).

Key benefits of laboratory compliance management include ensuring regulatory adherence, improving data integrity and security, enhancing workflow efficiency, streamlining audits and inspections, and reducing risk and liability (Portierand and Dunne, 2006). These will in no measure build patient-client trust, resulting in more patronage and productivity.

The major issue in building and enforcing compliance in the clinical laboratory centres around monitoring and enforcement. This could be enshrined by investing in compliance software, training and retraining of clinical laboratory professionals, updating, monitoring, processing, and the use of data analytics.

Conclusion

The review has shown that human resource management strategies in clinical laboratories could effectively address workforce challenges and enhance performance by the applications of the five main areas of human resources management, such as recruitment and selection, training and development, compensation and benefits, employee relations, and compliance. Adopting these approaches could resolve a lot of inherent internal and external factors militating against the efficiency and productivity of the clinical laboratories.

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