

THE CHALLENGE ASSOCIATED WITH THE INTRODUCTION OF NEW SURGICAL SERVICES IN A RURAL HOSPITAL IN TRINIDAD & TOBAGO

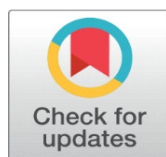
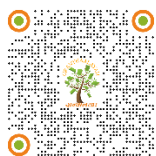
Israel Kevin Dowlat ^{1,3,4} , Shariful Islam ^{2,4}  

¹ Trinidad and Tobago Defence Force, Assistant Chief Staff Officer Medical, Trinidad and Tobago

² San Fernando General Hospital, San Fernando, Trinidad and Tobago

³ Point Fortin General Hospital, Trinidad and Tobago

⁴ Department of Clinical Surgical Science, University of the West Indies, St. Augustine, Trinidad and Tobago



Received 05 November 2023

Accepted 05 December 2023

Published 31 December 2023

Corresponding Author

Shariful Islam,
shar_islam7@hotmail.com

DOI

[10.29121/granthaalayah.v11.i12.2023.5414](https://doi.org/10.29121/granthaalayah.v11.i12.2023.5414)

Funding: This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

Copyright: © 2023 The Author(s). This work is licensed under a [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/).

With the license CC-BY, authors retain the copyright, allowing anyone to download, reuse, re-print, modify, distribute, and/or copy their contribution. The work must be properly attributed to its author.



ABSTRACT

The introduction of new services at any institution requires significant input from a myriad of departments and specialties. This paper will explore the various challenges that arose with the implementation of an orthopaedic surgical service at the Point Fortin Hospital in Trinidad and Tobago. It identifies the obstacles faced in terms of resource allocation, infrastructure development, staffing, and collaboration. Additionally, it proposes effective strategies and solutions to overcome these challenges, thus ensuring the successful establishment of a sustainable orthopaedic surgical service at Point Fortin Hospital.

Keywords: Challenges in Opening of New Service, Opening an Orthopedics Service, Sterilization and Disinfection, Operating Room, Infection Control, Surgical Safety

1. INTRODUCTION

The Point Fortin Hospital is a one hundred (100) bed institution located in south Trinidad and services a community of approximately one hundred thousand (100,000) individuals who have traditionally worked in the Oil and Gas sector and Fishing industry. It was officially opened in July 2020 and initially envisioned to offer Accident and Emergency, General Surgery, Adult Medicine, Paediatrics and

Plastic Surgery (Burns Unit). However, due to the geographic location (it is 2 hours away from a tertiary centre which offers Orthopaedics and Trauma Services) and the nature of employment of residents, a decision was taken to introduce Orthopaedic services at the institution.

Orthopaedic surgical services are essential for providing specialized care to patients with musculoskeletal conditions and injuries. However, starting an orthopaedic surgical service in any hospital can be demanding, requiring careful planning, resource allocation, and overcoming numerous challenges. This article aims to outline the challenges associated with starting such a service and propose a methodology to overcome them, ensuring the successful implementation and sustainability of the service.

2. METHODOLOGY

To identify and analyze the challenges associated with the introduction of orthopaedic surgical services at the Point Fortin Hospital, a comprehensive research approach was undertaken. Firstly, a literature review was conducted to gather relevant information on the challenges faced during the implementation of orthopaedic surgical services in similar healthcare settings. This involved analyzing scholarly articles, case studies, and reports from reputable sources. Additionally, interviews were conducted with key stakeholders, including hospital administrators, orthopaedic surgeons, nursing staff, and patients. These interviews aimed to gain insights into the specific challenges faced by the Point Fortin Hospital in introducing orthopaedic surgical services. The data gathered from the literature review and interviews were thoroughly analyzed, categorized, and compared to identify common themes and challenges. Furthermore, an assessment of the hospital's infrastructure, resources, and capacity was conducted. This evaluation provided valuable information on the existing facilities, equipment, staff, and training requirements necessary for the successful integration of orthopaedic surgical services. By combining qualitative and quantitative data, a comprehensive understanding of the challenges associated with the introduction of orthopaedic surgical services at the Point Fortin Hospital was achieved.

3. DISCUSSION

• Challenges

1) Resource Allocation:

Public healthcare in Trinidad and Tobago is a service accessible free of charge. It is funded by government revenue through the Ministry of Health. Recurrent expenditures in the health sector amount to approximately TT\$5.5 billion (US\$813 million) annually, equating to just under 10% of the total National Budget [National Clinical Programme in Surgery \(NCPS\) \(2013\)](#), [Irish Institute of Trauma and Orthopaedic Surgery \(IITOS\) \(2009\)](#).

Within all healthcare systems is the necessity to prioritise limited resources across the wide range of needs. It is the responsibility of policy makers to engage in analytical economic strategies to allocate funding to where it is most needed and for which it results in the greatest overall benefit.

Encouraging patient awareness, increasing funding for prevention and research, and promoting cost-effective treatments for musculoskeletal conditions is crucial in addressing the effects of an aging population which exponentially increases the economic burden of such diseases. Several interconnected factors

affect the resource allocation to meet these growing needs. As a result, there is a greater emphasis for the implementation of economic evaluations to examine the cost and clinical effectiveness of orthopaedic interventions [Ahmed & Ahmad-Little \(2009\)](#), [BOA. \(2013/2014\)](#).

Starting an orthopaedic surgical service necessitates allocating adequate resources such as operating rooms, medical equipment, and skilled professionals. Assessing the current resources available and identifying any gaps that may impede the establishment of the service is an important component to the implementation of a new service.

At the time of launch of the Orthopaedic service at the Point Fortin Hospital, operating room access was limited as other factors as the availability of anaesthetic staff, operating room staff (nurses and attendants) and ward accommodation for patients were impeding the implementation of the provision of this new service.

Additionally, while there appeared to be an excess of some types of equipment at the Point Fortin Hospital, such as three tourniquet devices, other instruments were lacking such as appropriate scopes for arthroscopic procedures. This reflects misguided procurement practices undertaken without adequate consultation and advice from the users of the equipment. The net result can be attributed to inappropriate and inefficient use of funds expended on hardware and materials for orthopaedic services.

2) Staffing and Training:

Starting an orthopaedic surgical service requires recruiting and training skilled healthcare professionals. Ensuring the availability of orthopaedic surgeons, anaesthetists, nurses, and physiotherapists with the necessary expertise is vital. Inadequate staffing and a shortage of appropriately trained professionals could hinder the delivery of high-quality care and potentially compromise patient outcomes.

In terms of Orthopaedic Doctors, the Orthopaedic Team assigned to the serve the Point Fortin Hospital included one Consultant / Specialist Medical Officer (SMO), one Registrar / Tier 2 doctor and two House Officers / Tier 1 doctors. In addition, two Plaster Room Technicians were allocated to the facility. This group was assimilated alongside the existing complement of all other categories of staff at the hospital including nurses, anaesthetists, physiotherapists, radiographers and other supportive services. As a result, all stakeholders underwent a period of acclimatisation to orthopaedic practices within this framework.

The Consultant / Specialist Medical Officer is at the core of any independent orthopaedic surgical service like the one at the Point Fortin Hospital. Such expertise and experience is crucial to ensure safe and quality care delivery to the patients accessing the service. International recommendations such as from the National Clinical Programme for Trauma and Orthopaedic Surgery and the Irish Institute of Trauma and Orthopaedic Surgery suggests a ratio of one orthopaedic surgeon to every 24 000 of the population [National Clinical Programme in Surgery \(NCPS\) \(2013\)](#), [Irish Institute of Trauma and Orthopaedic Surgery \(IITOS\) \(2009\)](#) or approximately 4 per 100, 000 population. By this model, the catchment area served by the Point Fortin Hospital would require at least four Orthopaedic Consultants / Specialist Medical Offers to maintain an optimal standard of care. Additionally, one registrar to each consultant is the commonly practiced arrangement of surgical units in Trinidad and Tobago. However, considering the well-established financial constraints within the Health Sector and, in particular, Human Resource allocations,

a reasonable minimum requirement for the orthopaedic service at the Point Fortin Hospital should be a senior staff complement of four, consisting of at least one SMO and three registrars. The current one-in-one on-call rostering of the lone SMO and registrar is unsustainable and inadequate by any metric and allows absolutely no provision for vacation or leave without external bolstering at the expense of continuity of care.

Regarding the junior staffing of the department, there are only two assigned house officers which present further logistical challenges. As an alternative to a one-in-two rota for Orthopaedic on-call coverage, the house-officers of the existing General Surgery Department were integrated into a cross-coverage arrangement. This resulted in a one-in-four system in the first instance, in which officers were responsible for managing both General Surgery and Orthopaedic emergency referrals during a 24-hour period. General surgery officers with limited or no prior orthopaedic experience were required to assess and treat the unique complexity of musculoskeletal conditions and injuries now being directed to the Point Fortin Hospital. Similarly, the on-call clinical duty of the house-officers assigned to orthopaedics also entails the management of general surgery referrals and admissions, including emergency procedures and care for surgical in-patients. This arrangement is double the number of sessions contracted for by the Regional Health Authority. International benchmarks advocate that a bare minimum of 8 junior doctors be assigned to service a surgical department rostered for a 48 – hour work per week [Ahmed & Ahmad-Little \(2009\)](#). Under the existing circumstances described, deficiencies in patient care abound. Furthermore, both junior and senior doctors have added burdens on their workload resulting in added stress and deteriorating staff morale.

3) Plaster Room Technicians:

Plaster Room technicians are vital members of the team delivering Orthopaedic services. They are proficient in the various casting techniques utilised to treat musculoskeletal injuries and conditions and function alongside the orthopaedic doctors. They also assist in the management of the Plaster Room, its equipment and resources. The Orthopaedic Department at the Point Fortin Hospital currently includes two Plaster Room technicians. Their employment contracts allow for a 40 – hour work week which is divided such that at least one technician is present during a 12-hour period for most days of the week. At present, these are unqualified personnel requiring supervision by the orthopaedic doctor during whilst performing their roles to minimise the potentially serious complications of casting. To augment the service provided to clients in the Plaster Room, the recommendation is that technicians be certified and revalidated every two years and that Plaster room care should be available on a 24-hour basis [BOA. \(2013/2014\)](#). Minimum requirement would mandate at least 4 Plaster room technicians. Of these, at least one should possess qualifications equivalent to the certificate in casting techniques with the others pursuing such certification. In this way, the orthopaedic doctors would be confident in directing their attention to other clinical duties rather than supervision of the technicians' responsibilities.

4) Theatre Staff:

Orthopaedic surgery is unique and complex. It is imperative that the operating theatre staff is well-trained and competent in the various aspects of theatre management. As indicated previously, no other category of staff at the Point Fortin Hospital is specialised in the delivery of an orthopaedic service, as such, dedicated

training of theatre nurses and ancillary staff is necessary. They should possess a clear understanding of the agreed sterility protocols in the orthopaedic theatre. Such protocols are to be developed in conjunction with the orthopaedic surgeon, the theatre manager, the clinical nurse manager and the Infection Prevention Control Team [BOA. \(2006\)](#). Additionally, the diversity, complexity and volume of orthopaedic equipment necessitate the constant presence of staff familiar with its use and care. Staff at the CSSD responsible for the sterilisation and compilation of the multitude of instrument sets also requires a high level of expertise. The time required to sufficiently trained nurses and ancillary staff in orthopaedic surgery and the designated operating list must be considered by the theatre manager and hospital management when deciding the staffing requirement of the operating theatre.

5) Nursing and Supportive Services:

Nursing staff on the surgical wards must be trained in effective infection prevention strategies and in implementing stringent cross-contamination protocols for caring for orthopaedic patients. Its relevance is crucial to the current circumstances at the PFH where Orthopaedic patients, both elective and emergency admissions, share a ward with General Surgery patients who often suffer from conditions with an infectious aetiology. They must also be familiar with specialised devices and equipment used in orthopaedic practice.

In the outpatient clinic, similar competencies are required in caring for clients with varying levels of mobility and independence.

Other departments contributing to holistic orthopaedic care include those provided by radiology, pharmacy, physiotherapy, anaesthetics and medical social work, all of which must collaboratively tailor their services to meet the unique needs of the orthopaedic department.

- **Infrastructure Development:**

- 1) Ward:**

At the time of writing, the orthopaedic service at the Point Fortin Hospital shares a ward with the general surgery service. The ward consists of five suites, with each suite housing four beds. The orthopaedic service was assigned 1 of these suites to house patients. It is important to note that there are no dedicated male or female suites however males and females are never housed together in the same suite. This necessitated orthopaedic patients sharing one additional suite with general surgery patients. While this mitigates the issue of both genders being in the same suite, it also raises the possibility of cross-contamination as general surgeons frequently deal with patients with varying infections. To solve this issue it was agreed by the department heads that only non-infectious cases will be allowed to be housed together in the shared suite. In addition to this, we were assigned one isolation room.

This brings the maximum number of Orthopaedic inpatients that can be housed to seven. With the projected volume of patients, the hospital seeks to service; this has the potential to rapidly cause over-saturation of the surgical ward. Boarding patients on non-orthopaedic wards or even the emergency department may be necessary to mitigate this. This practice increases the average length of hospital stay, early readmission to the hospital, a lower standard of care provided, and insufficient thromboembolic prevention [National Clinical Programme in Surgery \(NCPS\) \(2013\)](#).

In addition to the challenge mentioned above, the beds on the ward are not outfitted with the appropriate apparatus to provide skin or skeletal traction if a patient requires such. The use of traction allows the practitioner to be resourceful in unexpected scenarios as well as is an important technique in pain management [Irish Institute of Trauma and Orthopaedic Surgery \(IITOS\) \(2009\)](#) thus allowing for the treatment of a wider variety of patients. This issue was raised with the relevant personnel and efforts were made for the acquisition of the required material.

2) Plaster room:

A dedicated plaster room was identified in the accident and emergency department. This room primarily focuses on the application of casts for patients referred by the emergency department but also serves to provide a space for clinical reviews for patients being followed up by the service. It is outfitted with two plaster beds, a workstation with a computer, and a telephone as well as storage spaces for consumables, equipment, and stationery.

The dimensions of the room as well as the sizes of the necessary equipment made navigating the room a challenge as such the plaster beds had to be re-oriented however this rendered the blinds useless which raised patient privacy concerns thus limiting the number of patients that can be seen by medical staff. The issues were noted and reported to the relevant department to arrange for the re-orientation of privacy blinds.

3) Operating theatres:

The Point Fortin Hospital boasts three operating theatres as well as an endoscopy suite. Theatre 1 is the only 1 of the 3 theatres which is lead-lined, so as to reduce the amount of residual radiation by use of the C-arm and as a result, it was given to the orthopaedic service for use as a dedicated Orthopaedic theatre. There are many essentials that must be present in an operating room that the Point Fortin hospital achieves such as adequate lighting, proper ventilation, proper machines for monitoring the patient, emergency drugs, separate entry and exit doors, and non-slippery floors to name a few [Ahmed & Ahmad-Little \(2009\)](#). However, while the lighting is adequate, we found that the overhead lights were situated lower than in standard for operating theatres which results in the physical portions of the lighting apparatus being very close to the surgeons head during surgery.

Another issue we found was that the operating theatre was smaller than average. This may cause significant issues when performing certain procedures requiring an additional table for the use of equipment such as a joint replacement or ones that require the use of the C-arm. Due to this the operating bed often must be re-oriented in order to maximize the space available to safely and comfortably accommodate the surgeons and assistants.

4) Central Sterile Supply Department:

The Central Sterile Supply Department (CSSD), outfitted at the Point Fortin Hospital currently boasts two steam sterilizers as well as one low-temperature formaldehyde sterilizer for items that cannot be steamed under pressure. Regular checks are performed on the machines by the technicians to ensure the proper functioning of these machines, thus ensuring a constant supply of sterile instruments for use by surgical staff in the operating theatre or on the wards.

4. MICROBIOLOGY

The laboratory at the Point Fortin Hospital also provides a myriad of services including haematology, biochemistry as well as microbiology, all very important facets of any hospital, however in certain instances, the microbiological aspect is paramount to the orthopaedic surgeon. A prime example of this is in the evaluation of periprosthetic joint infections in which the microbiological diagnosis plays a central role in confirming and determining the susceptibility of the pathogens to treatment [BOA. \(2013/2014\)](#). The Point Fortin Hospital's microbiology department is currently not outfitted with the equipment to identify pathogens from submitted cultures, therefore samples are presently sent to the San Fernando General Hospital's microbiology department for processing, some 36km away. This would evidently cause delays in a microbiological diagnosis as well as in administering culture-directed antibiotics. [Draft Estimates of Recurrent Expenditure for the Financial Year 2023 \(2022\)](#)

5. PHYSIOTHERAPY

The physiotherapy department plays a crucial role in the management of patients with various orthopaedic pathologies in both inpatients and outpatients setting. The department at the Point Fortin Hospital has one room for active physiotherapy management, outfitted with one treadmill, two stationary bikes, a balance board, monkey bars, and parallel bars. They are also outfitted with 3 beds in the entire department. The lack of space and equipment needed means that not only will privacy be an issue while treating these patients but they also run the risk of being overburdened by the number of patients they are expected to see on a daily basis given the physical limitations of the department. The patients will also be negatively impacted by long wait times and possibly even longer appointments being issued for follow-up, and lack of specialized equipment to meet their individual needs. [Weinstein \(2000-2010\)](#)

6. OUTPATIENT CLINIC

Outpatient clinics serve as a valuable tool in the continued care of orthopaedic patients. Due to the number of services available at Point Fortin Hospital, Monday was designated as the clinic day for the orthopaedic service. It commences at 11 am, in order to facilitate the paediatric clinic which takes place at 8 am on the same day. The clinic is located on the ground floor mere metres away from the main entrance to the hospital, making it easy to find and very accessible to those who may need adjuncts for ambulation such as crutches or wheelchairs. There is adequate space to accommodate, patients, doctors, and nursing staff within the clinics as well. However, a major challenge faced is the lack of access to X-ray studies on the hospital's computerized system as the computers in the clinic are not outfitted for such use. This therefore necessitates the physician walking to another area of the hospital to view these X-rays which decreases the efficiency of the running of the clinic. [Maniadakis & Gray \(2000\)](#)

7. COLLABORATION AND PARTNERSHIP

As it is in its infancy, collaboration, and partnership will be a vital part of the success of the orthopaedic service at the Point Fortin Hospital. This will entail drawing from the experience, knowledge, and policies of orthopaedic departments

at existing facilities, one such being the San Fernando General Hospital's Orthopaedic Department which has been in existence for more than 40 years. This can come in the form of the adoption of already existing SOPs (Standard operating procedure), the transfer of patients who are unable to get the required care at the Point Fortin Hospital due to staffing/infrastructural constraints, and even on occasion staffing to ensure continuity of surgical services. This partnership can even take the form of rotation of surgical staff in an effort to foster the academic growth of staff at the trainee level, foster mentorship, and provide a route for further education, all to the benefit of the Orthopaedic service at the Point Fortin Hospital. This collaboration can also be extended to other areas which impact the service such as the microbiology department at the San Fernando General Hospital which currently processes samples taken at the Point Fortin Hospital due to the lack of proper equipment. With time it is expected that the Point Fortin Hospital will outgrow the need for some of these measures however in the interim this partnership will be vital to ensure that the service is successful. [James et al. \(1996\)](#)

In addition to this, partnerships with local suppliers of medical equipment will be paramount as various surgical procedures will require specialized implants/tools. For instance, arthroplasties, both hemi, and total, require implants and tools as well as the appropriate staff knowledgeable in their use and function. This partnership will allow the department to provide a greater range of services to its intended population. It also opens up the door for the introduction of new and state-of-the-art systems which allows the Orthopaedic service to stay abreast with the latest developments with respect to implants and maintain and even uplift the standard of Orthopaedic care and widen the range of services provided. [Stowell et al. \(2013\)](#)

While collaborations with entities outside of the hospital are important, those with entities within the hospital are also vital. For the successful implementation of any surgical service, various medical disciplines such as the anaesthetic and internal medicine departments must also be on board in this endeavor. This can entail co-management of patients with medical issues outside of the purview of Orthopaedics, the assessment of fitness for possible surgical intervention, as well as the possibility of the provision of after-care in the postoperative period. These specialties in collaboration with the Orthopaedic service must work in tandem with the resources available at the institution to provide optimum patient care. [Choudhry et al. \(2020\)](#)

8. CONCLUSION

The Introduction of orthopaedic surgical services at the Point Fortin Hospital presents several challenges that must be addressed to ensure the provision of quality care to the community. Through our research, we have identified common challenges faced in similar settings, such as the need for specialized training, infrastructure upgrades, resource allocation, and patient education. Additionally, our interviews with stakeholders revealed specific challenges unique to the Point Fortin Hospital, allowing for a tailored approach to address these issues.

To overcome these challenges, it is crucial for the hospital administration to collaborate closely with orthopaedic surgeons, nursing staff, and other healthcare professionals. Adequate training programs should be implemented to ensure the staff's competency in orthopaedic care. Furthermore, investment in infrastructure and equipment upgrades is necessary to support the introduction of orthopaedic surgical services effectively. [Bali \(2021\)](#)

Moreover, community engagement and patient education programs should be developed to increase awareness and understanding of the benefits and expectations of orthopaedic surgical services. By involving patients in their own care, healthcare providers can enhance patient satisfaction and ensure a smoother transition for orthopaedic services at the Point Fortin Hospital. [Drago \(2019\)](#)

In conclusion, this paper has shed light on the challenges associated with the introduction of orthopaedic surgical services at the Point Fortin Hospital. By addressing these challenges proactively and adopting a collaborative and comprehensive approach, the hospital can successfully integrate orthopaedic care, improving the well-being and quality of life for patients in the community.

CONFLICT OF INTERESTS

None.

ACKNOWLEDGMENTS

None.

REFERENCES

- Ahmed, M., & Ahmad-Little, Y. (2009). Rota Design for 2009. Working Time Directive 2009 Publication Series. National Workforce Projects (Skills for Health), 39–40.
- BOA. (2006). British Orthopaedic Association. Primary Total Hip Replacement: A Guide to Good Practice. First Published by the British Orthopaedic Association, 1999, Revised August, 11.
- BOA. (2013/2014). British Orthopaedic Association. Compiled by the BOA Professional Practice Committee. The BOA Advisory Book. Helping Consultants get Things Right.
- Bali, R. K. (2021). Operating Room Protocols and Infection Control. *Oral and Maxillofacial Surgery for the Clinician*, 173–194. https://doi.org/10.1007/978-981-15-1346-6_9.
- Choudhry, B., Leung, B., Filips, E., & Dhaliwal, K. (2020). Keeping the Traction on in Orthopaedics. *Cureus*. <https://doi.org/10.7759/cureus.10034>.
- Draft Estimates of Recurrent Expenditure for the Financial Year 2023 (2022). Accessed September 27.
- Drago, L. (2019). The World Association against Infection in Orthopaedics and Trauma (WAIOT) Procedures for Microbiological Sampling and Processing for Periprosthetic Joint Infections (PJIs) and other Implant-Related Infections. *Journal of Clinical Medicine*.
- Irish Institute of Trauma and Orthopaedic Surgery (IITOS) (2009). Irish Institute of Trauma and Orthopaedic Surgery. Medical Manpower Document.
- James, M., St Leger, S., & Rowsell, K. V. (1996). Prioritising Elective Care: A Cost Utility Analysis of Orthopaedics in the North West of England. *Journal of Epidemiology and Community Health*, 50(2), 182–189. <https://doi.org/10.1136/jech.50.2.182>.
- Maniadakis, N., & Gray, A. (2000). Health Economics and Orthopaedics. *J Bone Joint Surg Br.*, 82, 2-8.
- National Clinical Programme in Surgery (NCPS) (2013). Health Service Executive. RCSI. National Clinical Programme in Surgery. Model of Care for Acute Surgery.

Stowell, A., Claret, P.-G., Sebbane, M., Bobbia, X., Boyard, C., Genre Grandpierre, R., Moreau, A., & de La Coussaye, J.-E. (2013). Hospital Out-Lying Through Lack of Beds and its Impact on Care and Patient Outcome. *Scandinavian Journal of Trauma, Resuscitation and Emergency Medicine*, 21(1). <https://doi.org/10.1186/1757-7241-21-17>.

Weinstein, S.L. (2000-2010). The Bone and Joint Decade. *J Bone Joint Surg Am.*, 82,1-3.