Dissertation Report

On

"A Study on Understanding Strategic and Operational Framework for Establishing a Regional Trauma Centre at Kims-Uaims Hospital, Sangli, Maharashtra"

At

IIHMR Delhi

(16th March – 15thJune, 2026)

By

Name: Ms. Kalyani

Enrol No.: PG/24/127

Under the guidance of

Dr. Nidhi Yadav

PGDM (Hospital & Health Management) 2024-26



International Institute of Health Management Research, New Delhi

Dissertation Report

On

"A Study on Understanding Strategic and Operational Framework for Establishing a Regional Trauma Centre at Kims-Uaims Hospital, Sangli, Maharashtra"

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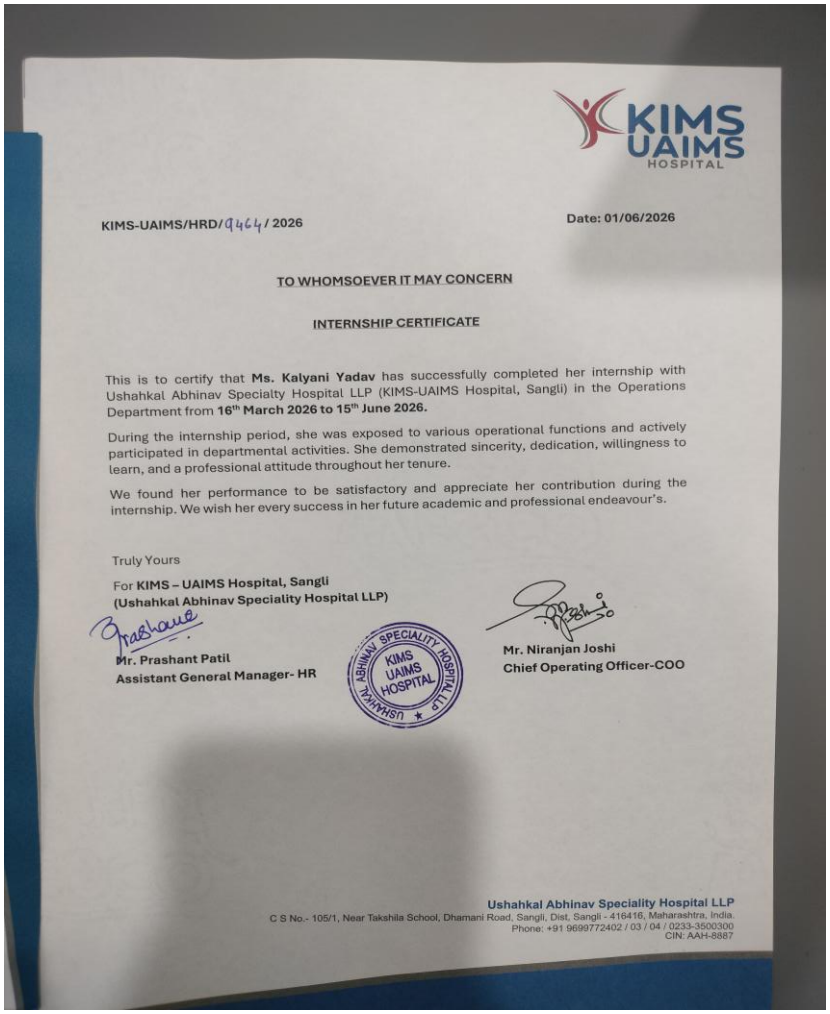
Under the guidance of

Dr. Nidhi Yadav

PGDM (Hospital & Health Management) 2024-26

International Institute of Health Management Research, New Delhi

Certificate of completion of Dissertation



KIMS UAIMS HOSPITAL

KIMS-UAIMS/HRD/9464/2026

Date: 01/06/2026

TO WHOMSOEVER IT MAY CONCERN

INTERNSHIP CERTIFICATE

This is to certify that **Ms. Kalyani Yadav** has successfully completed her internship with Ushahkal Abhinav Specialty Hospital LLP (KIMS-UAIMS Hospital, Sangli) in the Operations Department from **16th March 2026 to 15th June 2026.**

During the internship period, she was exposed to various operational functions and actively participated in departmental activities. She demonstrated sincerity, dedication, willingness to learn, and a professional attitude throughout her tenure.

We found her performance to be satisfactory and appreciate her contribution during the internship. We wish her every success in her future academic and professional endeavour's.

Truly Yours

For **KIMS – UAIMS Hospital, Sangli**
(Ushahkal Abhinav Speciality Hospital LLP)

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Certificate issued by KIMS-UAIMS Hospital (Ushahkal Abhinav Speciality Hospital LLP), Sangli, certifying that Ms. Kalyani Yadav successfully completed her internship in the Operations Department from 16th March 2026 to 15th June 2026.

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This is to certify that **Ms. Kalyani** student of PGDM (Hospital & Health Management) from International Institute of Health Management Research, New Delhi has undergone internship training at **KIMS Hospital Sangli, Maharashtra** from **16/03/2026** to **16/06/2026**. The Candidate has successfully carried out the project designated to her during internship training and her approach to the study has been sincere, scientific and analytical. The Internship is in fulfilment of the course requirements.

I wish her all success in all his future endeavours.

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The following dissertation titled "**A study on understanding Strategic and Operational Framework for establishing Regional Trauma Centre at Krishna Institute of Medical Sciences (KIMS) hospital**" at **KIMS Hospital Sangli, Maharashtra** is hereby approved as a certified study in management, carried out and presented in a manner that is satisfactory enough to accept it as a requirement for the award of the **PGDM (Hospital & Health Management)** degree. This approval does not mean the undersigned necessarily endorse every statement, opinion or conclusion in the dissertation - it means the dissertation is approved for the purpose it was submitted for.

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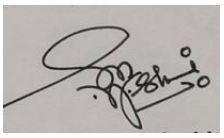


Certificate from Dissertation Advisory Committee

This is to certify that **Ms. Kalyani**, a student of the PGDM (Hospital & Health Management) programme, has worked under our guidance and supervision. She is submitting this dissertation titled "**A study on understanding Strategic and Operational Framework for establishing Regional Trauma Centre at Krishna Institute of Medical Sciences (KIMS) hospital**" at IIHMR Delhi in partial fulfilment of the requirements for the award of the **PGDM (Hospital & Health Management).**

This dissertation meets the requisite academic standard, and to the best of our knowledge, no part of it has been reproduced from any other dissertation, monograph, report or book.





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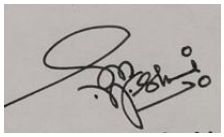
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Suggestions for Improvement: Could work on gaining more practical/field exposure to complement her strong technical, financial and analytical skills

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I would like to thank IIHMR, Delhi for the wonderful opportunity for completing this dissertation as a part of the PGDM (Hospital & Health Management) programme. The institution not only enhanced my skills but also equipped me with practical, operational, as well as managerial skills which have helped in my professional growth and understanding of the industry.

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Kalyani Yadav

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ABSTRACT

Trauma is the leading cause of death, disability and mortality in India, imposing a major burden on the healthcare delivery system, families, and our national economy. We get patients requiring emergency admissions at our hospital with Road traffic injuries, falls, occupational injuries, and assaults in very large numbers on daily basis. There is always an emphasis on The “Golden Hour” in which the patient can undergo definitive treatment and have much better prognosis with much lesser morbidity but the current Indian setup in the form of traumatic care still lies very much unorganized and fragmented, more so in the semi urban and rural areas.

This dissertation provides an operational and strategic plan to implement the concept of a Regional Trauma Centre at KIMS-UAIMS Hospital, Sangli, Maharashtra.

KIMS-UAIMS hospital, the tertiary level hospital of KIMS health group has an accommodation of 356 beds, including more than 100 ICU beds, 15 sophisticated Operation Theatres, a well-equipped emergency department which works round the clock, expertise in the fields of orthopaedics, neurosurgery, advanced Radiology and has all the supports of a blood bank and laboratories. However, KIMS-UAIMS hospital does not have a organized Trauma Centre; managed trauma teams and trauma registries. This is descriptive and exploratory study that uses secondary information and literature, WHO recommendations for trauma care, Ministry of Health and Family Welfare, guidelines and recommendations, hospital observations, NABH standards for accreditation, strategic frameworks for planning, SWOT and Gap analysis of KIMS-UAIMS hospital and makes an action plan for Hospital leadership which can be realistically implemented. Key findings The result and discussions showed that the hospital has an existing capacity to serve the function of Regional Trauma centre, which needs enhancement in the dedicated space with resuscitation bays, organization of well-defined trauma team activation

protocol, Trauma registry and quality monitoring parameters, organized and regular training of the trauma team members, efficient referral pathways with the other concerned centres.

Conclusion It is recommended that KIMS-UAIMS Hospital Sangli, with its robust clinical and infrastructure facilities, can effectively function as the Regional Trauma centre for Sangli district and other adjoining districts with the proposed implementation strategy over twenty-four months through different phases including space requirements, administrative guidelines, team formation and skill development and quality assessment and assurance measures.

Keywords: Trauma Centre, Regional Trauma System, KIMS-UAIMS Hospital, Sangli, Emergency Care, SWOT Analysis, Gap Analysis, NABH, Operational Framework

EXECUTIVE SUMMARY

This dissertation presents a strategic and operational plan for the development of a Regional Trauma Centre at KIMS-UAIMS Hospital, Sangli, Maharashtra. This PGDM project was undertaken as an internship in the KIMS-UAIMS Hospital from March 2026 to June 2026. In India the incidence of traumatic injuries has one of the highest rates in the world.

Road traffic injuries, industrial accidents, falls, violence result in the loss of hundred thousands of lives and millions of disabilities annually.

International studies show that organized trauma systems significantly reduce trauma related mortality and morbidity in the long-term and optimize resource utilization. This has not yet been adequately addressed in India till now, except for a few of mega cities. There are no designated trauma centres in the Sangli region including the surroundings which houses about more than 4 million people. KIMS-UAIMS Hospital (formerly Ushahkal Abhinav Institute of Medical Sciences and Hospital) located in Sangli is a well-established tertiary care hospital which cater to the Sangli and adjoining areas.

Mission of the hospital “Patient oriented care, clinical excellence, and affordable treatment to all.

Providing healthcare with human care and compassion, dignity and respect”. The hospital provides healthcare facilities through its 356 bed, >100 Intensive Care beds,15 operation rooms and 80 consultants in various disciplines. KIMS-UAIMS Hospital have sophisticated and up-to-date equipment’s including, modern investigative facilities and various services required for building of Trauma Care.

Existing infrastructure was reviewed and found some lacunas which can be addressed by development of Trauma centre. Gap Analysis identified the major gaps between ‘what

we have' and 'what we should have'. SWOT analysis indicated the missing specific Trauma facilities, trauma team activation protocol and integrated trauma registry are major weaknesses, thus presenting opportunities to enhance capabilities through Trauma centre.

Detailed human resource planning was carried out and need was found for: Trauma Medical Director, Trauma Surgeons, Emergency Physicians, Orthopaedics, Neurosurgeons, Trauma Nurse Coordinator, Paramedics and Support Staff.

A detailed cost analysis was conducted and initial capital cost is projected in the range of 8-12 crore. Initial operating loss is estimated to be offset within 3-4 years of operation. The estimated costs for operating a Trauma centre at KIMS-UAIMS will vary depending on the trauma volumes and case mix, but is estimated to be around INR20-30 crore annually for operating costs (excluding physician compensation). Proposed implementation strategy has three phases spread over a period of 24 months.

Phase 1 (0-6 months): Conceptualization, strategy formation, and governance.

Phase 2 (6-18 months): Infrastructure preparation, human resource recruitment & training.

Phase 3 (18-24 months): Operations initiation, system stabilization and evaluation of the trauma system. Conclusion, Establishment of a Trauma Centre at KIMS-UAIMS Hospital, Sangli, is strategically justified, operationally feasible and beneficial for the patients of this large catchment area, in improving the overall trauma care for Sangli and the surrounding regions.

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CHAPTER 1: INTRODUCTION

1.1 Introduction to Trauma Care

Trauma represents the global leading cause of morbidity, disability and mortality and it has emerged as a growing and important issue of concern for public health, accounting for significant loss to individuals, society, and economic productivity. The word 'trauma' applies to physical injuries acquired from various accidents, falls, road traffic crashes (RTCs), occupational hazards, domestic violence, burns and various disasters. The most commonly affected group of the population is working age group (15-45 yrs), which results in loss of workforce and economic productivity. Each year worldwide over 4.4 million people are lost due to injuries.

The greatest burden of trauma, i.e., the high prevalence of mortality, morbidity and permanent disability caused due to the trauma occurs in low- and middle-income countries due to rapid growth rate, increasing motorisation and inefficient emergency care system. To provide effective trauma care, which include a planned, organised and systematic provision of care at pre hospital, at hospital level (Emergency Dept., Ortho/Surgery-Dept., OT, ICU, Rehabilitation centre, etc.) and long-term support at the level of primary health centre will be the logical requirement for better management of trauma victims. "Golden Hour concept" of optimum delivery of care from time of injury up to one hour for optimal survival and minimize morbidity from traumatic injury and the development of trauma system as an integral component of the overall health infrastructure are critical.

1.2 Background of the study

India currently carries an immensely high burden of trauma. The growth of population and vehicle traffic have enhanced incidence of trauma. In addition to it, industrialisation, and increase of roads networks have made further contribution to it. Road traffic accidents

contribute approximately 1.5 lakh of deaths each year and are major cause of emergency admissions in hospital, majority being young adults.

Although modern healthcare system of India is at the advanced stage, care facilities of trauma are poor and mostly neglected in rural and semi-urban area i.e. KIMS-UAIMS Hospital.

High mortality and long term morbidity are due to delayed transport, poor pre- hospital care, shortages of trauma specialists, inadequate trauma facility and equipment, lack of formal protocols for the referral for the victims of trauma etc.

National Trauma care Programme and MoHFW guidelines on establishment of Trauma Care centres, efforts are being undertaken by the Govt. Of India to improve trauma care system in the country yet access to trauma care has remained inequitable, especially in remote and rural areas.

1.3 Burden of trauma in India

A global health problem of epidemic proportion trauma affects millions of people annually resulting into death, irreversible physical and mental disability and significant loss to the nation. Trauma places tremendous strain on the individual, family, community and society, as it contributes in loss of person power especially between 15 to 45year of age group in any population, resulting in decreased productivity and also economic loss to the nation.

Cost of managing trauma includes expenditure on hospitals services (e.g. Direct medical costs, rehabilitation), productivity lost to individuals and economy (e.g. Wage loss for injuries and temporary or permanent disability) and expenditure on public and social services.

1.4 The need for Regional Trauma Centres

It provides a focal point for organised trauma care that is tailored, coordinated and evidence based and it acts as a centre for referring major trauma. This ensures the most severely injured are transported to a facility that can manage complex multi-trauma and which can in turn support other facilities by providing protocols, training and support to help quality improvement. Regional trauma centres can help improve trauma outcomes for up to a 40% reduction in mortality rates when compared to unorganised care delivery.

Key functions: trauma resuscitation; trauma surgery; critical care support; formal trauma team activation; blood banking support; advanced imaging services; formal rehabilitation input; trauma registry; quality improvement process and quality assurance programmes; trauma research and education. Setting up regional centres in existing tertiary hospitals is the cheapest route to a significant enhancement of emergency care.

Cause of Trauma	Approximate % Share	Primary Age Group Affected
Road Traffic Accidents	45-50%	15-45 years
Falls	20-25%	Elderly & Children
Industrial/Occupational	10-12%	20-50 years
Violence & Assault	8-10%	18-40 years
Burns	5-8%	All age groups
Other (Sports, Misc.)	5-7%	All age groups

Table 1.1: Distribution of Trauma Causes in India (Approximate)

1.5 Problem Statement

Though KIMS-UAIMS hospital possesses well equipped facility with bed capacities in emergency, critically care, and surgical care, it does not have Regional Trauma Centre in place. The hospital caters a significant number of trauma patients from the district and neighbouring areas to its existing emergency department; however, the emergency trauma care is not streamlined with defined trauma care protocols, adequate designated trauma facility, proper governance, and information system. In addition to it the hospital has no dedicated trauma bay in the emergency.

It lacks formal trauma team activation protocol, informal trauma governance committee, formal trauma registry, standardised triage protocol, informal linkages with the formally established referral pathway and quality metrics. Therefore, a planned strategy is necessary for establishing a Regional Trauma Centre at KIMS-UAIMS.

1.6. OBJECTIVES OF THE STUDY

Main Objective:

- To develop operational and strategic framework to establishment of a Regional Trauma Centre in KIMS-UAIMS Hospital, Sangli Maharashtra. Secondary Objectives: To evaluate existing infrastructure available in the KIMS-UAIMS Hospital.
- To estimate the human resources requirement of the Trauma Centre.
- To define the operational needs in terms of process and protocols. To develop SWOT analysis for the establishment of Trauma Centre.
- To analyse the existing needs of Trauma centre with the set of identified benchmarks by carrying out gap analysis using WHO Guidelines on the Task Force on Trauma, Pain, Emergency, Intensive and Critical Care Services and NABH standards.
- To define the operational processes for the Trauma Centre. To propose the roadmap for the implementation of the Regional Trauma Centre. To develop the guidelines/recommendations to achieving accreditation and quality standards.
- To assess the financial sustainability and feasibility of the Trauma Centre

1.7. SCOPE AND LIMITATIONS

The scope of the present study is on all strategic and operational aspects involved in establishing a Trauma Centre, including, infrastructure, human resources, processes, governance, information, quality, financing and implementation plan. The study is based

on information from desk study and from interviews and observations within the KIMS-UAIMS Hospital. The study does not deal with primary data collection of patients and their outcomes, and their subsequent management. The approach of this study is descriptive.

CHAPTER 2: ABOUT THE ORGANIZATION



2.1 KIMS-UAIMS Hospital Overview:

KIMS-UAIMS Hospital, previously designated as Ushahkal Abhinav Speciality Hospital LLP, is an advanced, multidisciplinary tertiary care centre. Situated in Sangli, Maharashtra, KIMS-UAIMS was founded on the principle of making advanced medical care accessible and affordable for the inhabitants of Sangli and the entire Konkan-Deccan belt of Maharashtra. KIMS-UAIMS is among the top tier, most equipped healthcare institutions in western Maharashtra, ranking alongside Pune and Mumbai.

2.2 Geographic Setting and Area Coverage:

The KIMS-UAIMS hospital is in Sangli, an important economic, commercial, and agricultural town in the southern parts of western Maharashtra. Sangli is flanked by kolhapur, satara, solapur,

and miraj, a nexus that makes the town a regional referral centre for numerous districts. The surrounding region accommodates a four-million plus population, a blend of industrial and agricultural economies with inherent vulnerability to trauma cases. The existence of the NH 48 national highway and several state highways traverse through the area of concern, significantly increasing the incidence of road traffic accidents and resulting trauma admissions.2.3 Vision, Mission, and Core Values

Element	Statement
Vision	To be the most preferred healthcare services brand by providing accessible and quality patient care with best possible outcomes and the best possible place to work for our Doctors and Staff.
Mission	Offer cost-effective quality care through person-centred systems and processes, support for modern medical innovation, research, and the pursuit of academiaa .
Core Values	Commitment, Respect, Accountability, Excellent Service, and Compassion (CRAEC)

Table 2.1: KIMS-UAIMS Hospital Vision, Mission, and Core Values

2.3 Infrastructure and Capabilities

KIMS-UAIMS Hospital has developed into a comprehensive tertiary care centre with the following key infrastructure elements that provide the foundation for Regional Traumaa Centre development:

Infrastructure Component	Specification	Trauma Relevance
Bed Capacity	356 beds (total)	High – supports traumaa admissions
ICU Beds	100+ beds across specialties	Critical – traumaa ICU requirement
Operation Theatres	15 modular OTs (24x7 emergency OT)	High – emergency surgical capacity
Emergency Department	24x7 fully equipped	Core – traumaa entry point
Radiology	CT Scanner, MRI, X-Ray, DSA, Fluoroscopyy	High – traumaa imaging

Infrastructure Component	Specification	Trauma Relevance
Blood Bank	Fully licensed, component therapy	Critical – damage control
Laboratory	24x7 pathology & biochemistry	High – traumaa workup
Orthopaedics	Full-time specialists, Traumaa implants	High – skeletal traumaa
Neurosurgery	Available 24x7	High – TBI management
Ambulance	Equipped ambulances, GPS-tracked	High – pre-hospital care
Consultants	80+ specialists acrosss disciplines	High – multi-trauma coverage

Table 2.2: KIMS-UAIMS Hospital Infrastructure Assessment for Trauma Care

2.4 Organizational Structure

KIMS-UAIMS Hospital operates under the management of Ushahkal Abhinav Speciality Hospital LLP. The Chief Operating Officer (COO) leads operational management, supported by the Head of Clinical Services, Medical Superintendent, Department Heads, and administrative leadership teams. The hospital employs more than 500 staff including clinical, nursing, technical, and administrative personnel. The governance structure follows standard Indian tertiary care hospital management frameworks aligned with NABH accreditation requirements.

2.5 Current Emergency Services

The existing Emergency and Casualty Department at KIMS-UAIMS Hospital operates on a 24x7 basis and currently receives a significant daily volume of emergency patients, including trauma cases. Emergency services include immediate triage, resuscitation bays, emergency surgical access, critical care escalation, and diagnostic imaging. However, the current emergency framework is not specifically structured as a trauma system, lacking formal trauma bay designation, Trauma team composition, trauma team activation criteria, and trauma-specific quality monitoring.

CHAPTER 3: LITERATURE REVIEW

3.1 Evolution of Trauma Systems

The concept of a trauma system is relatively new. It was initially established in USA in the early 1970s, and later on, was proposed by R Adams Cowley at the Maryland Institute of Emergency Medical Services. In the 1970s, the ACS established trauma centre classes from Level I to Level IV. Since then, organised trauma systems have been implemented in developed countries, with a proven 15-40 per cent reduction in mortality rates for those treated in organised trauma systems when compared with those who did not receive such care. Later, the WHO issued Guidelines for Essential Trauma Care (2004) which is designed as a blueprint that may be used in developing countries or other settings which do not have the resources of the developed world and suggests ten components of essential trauma care for such systems: airway management, control of external haemorrhage, treatment of hypovolaemic shock, basic management of common fractures and joint dislocations, basic management of head injury, basic management of burns, referral management, training, emergency care database and prevention information.

3.2 Trauma Burden in India: Evidence from Literature

Evidence from Literature The issue of the burden of trauma in India is one which is well-established from the literature. Global Status Report on Road Safety (WHO, 2023) shows India as one of the leading countries in terms of road trauma deaths per million population per year globally. Evidence from several Indian cities such as the study done in AIIMS New Delhi, PGIMER Chandigarh and trauma registries from multiple state/region in India have repeatedly showed that road traffic accidents constitute 45 to 55% of all trauma admissions in tertiary hospitals, with fall related Traumaa , industrial injury and interpersonal violence as the remaining significant categories of trauma. The study by

Aggarwal et al. Published in National Medical Journal of India and some similar studies published in the Indian Journal of Surgery highlight the fact that much of the trauma burden in India is preventable and that up to 45% of the trauma deaths could potentially be prevented with the correct implementation of comprehensive care and appropriate facilities. Organized trauma system and trauma registry implementation have thus been rightly recommended.

3.3 WHO and NABH Standards for Trauma Centres

WHO Guidelines for Essential Trauma Care define, in a tiered manner (e.g. Level I, Level II, Level III centres), standards for facilities at different levels of health system: human resources, physical infrastructure, medicines and equipment, organizational and administrative mechanisms, and quality improvement mechanisms. The WHO guideline for Level I trauma centre specifies: "Should provide a comprehensive trauma response: availability of 24 hr. Trauma Team; including anaesthesiology and resuscitation skills, critical care, ortho, general surgery, neuro-surgery, plastic surgery, rehabilitation; dedicated operating and intensive care areas; availability of a registry of all injured trauma admissions; provision of trauma research activities; provision of an outreach program and community education on trauma ". India has been progressively working on the concept of a trauma care system, and in order to define the standards for hospital-based trauma care system, the National Accreditation Board for Hospitals and Healthcare Providers (NABH) have developed standards for "Accreditation Standards for NABH for Emergency and Trauma care", which lays down the criteria that the hospitals need to meet to qualify for accreditation. This includes formal patient identification and triage systems, mass casualty management, treatment protocols, mass resuscitation protocol, emergency medical procedures, etc.

3.4 Trauma Centre Levels and Functions

Level	Designation	Core Functions	Requirement
Level I	Regional Trauma Centre	Full-spectrum trauma care, research, education, trauma registry	Population > 1 million, 24x7 all specialists
Level II	Area Trauma Centre	Major trauma management, some subspecialty	24x7 key specialists, OR availability
Level III	Community Trauma Centre	Resuscitation, stabilization, transfer	24x7 emergency physician, basic OR
Level IV	Trauma Facility	Basic stabilization and transfer	Available physician, basic equipment

Table 3.1: Trauma Centre Level Classification (ACS/WHO Framework)

3.5 Evidence on Outcomes with Organized Trauma Systems

The international evidence base consistently confirms the value of organized trauma systems from a clinical and public health perspective. For example, a systematic review conducted by MacKenzie et al. (2006) found that patients treated at Level I trauma centres had a 25 percent reduction in their risk of mortality compared with patients treated at non-trauma centres. Similarly, studies conducted in Australia, UK, and Canada reported evidence of improved long-term disability and functional outcomes, and reduced hospital stay lengths. Studies from trauma centre in India including at AIIMS, New Delhi, and PGIMER Chandigarh suggest that well-organized trauma systems comprising designated trauma bays, dedicated trauma teams and established trauma protocols are crucial to enhancing the accuracy of triage decisions, optimizing treatment times and enhancing survival rates among patients. Given its large population and significant burden of trauma, the Sangli region is one such area of high priority where a formally structured trauma centre and system would significantly help address the current gap.

3.6 Trauma Registries and Quality Improvement

A trauma registry is a central tool of a functional trauma system. It systematically collects patient demographics, trauma mechanism, severity scores, management procedures, and outcomes data. Internally, major such registry initiative in US and UK-MTOS and TARN respectively- have highlighted how registries inform improvements in trauma care, identify opportunities for preventing fatalities, and guide strategic decisions regarding resources and further research. The recent efforts to establish a National Trauma Registry through various AIIMS facilities are set to contribute significantly to Indian trauma system development evidence base.

CHAPTER 4: RESEARCH METHODOLOGY

4.1 Study Design

This study has a descriptive and exploratory research design approach. A descriptive approach would be used to describe the infrastructure and capacity of KIMS-UAIMS Hospital and identifying gaps that are in place in its infrastructure and capabilities. An exploratory approach will be used to explore major infrastructure, capacity building and strategic needs for establishing the trauma centre considering the Indian healthcare scenario by comparing it against a frame and model that fits KIMS-UAIMS framework for establishment of centre. The research being descriptive, documentary and institutional would not be required to collect any patient level data.

4.2 Data Sources

Data Source	Type	Purpose
WHO Guidelines for Essential Trauma Care	Secondary – International	Benchmark trauma care standards
ACS Verification for Level I/II Trauma Centres	Secondary – International	Trauma centre designation criteria
NABH Accreditation Standards for Hospitals	Secondary – National	Quality and compliance framework
Ministry of Health and Family Welfare Guidelines	Secondary – National	Indian policy and regulatory context
Hospital Observations (KIMS-UAIMS)	Primary – Institutional	Current infrastructure and workflow assessment
Peer-reviewed published literature	Secondary – Academic	Evidence base for recommendations
National Traumaa Registry data (AIIMS)	Secondary – National	Indian trauma epidemiology data
Road transport and accident statistics (MORT&H)	Secondary – Government	Regional trauma burden estimation

Table 4.1: Data Sources and Their Application

4.3 Analytical Methods

The present research has been conducted using following analytical frameworks so as to achieve the research objectives: SWOT Analysis –This was used for a systemic review of Strengths, Weaknesses, Opportunities and Threats for Trauma centre establishment at KIMS-UAIMS Hospital. Gap Analysis –This framework provided a comparison between the existing hospitals' structure, system, human resource and information system of KIMS-UAIMS Hospital against the WHO standards of Essential Trauma care and NABH, thus identification of a specific gaps and scope for improvement. Operational Framework Development - Structured developmental study on operational design of trauma centre including work flows, teams, activation procedures, etc and key performance indicators. Financial Feasibility Analysis The financial cost (initial for construction/ modification of new structure, operational including staff cost, consumables, maintenance, electricity, etc), estimated revenue and break-even point of the proposed Trauma centre was determined.

Table 4.1 : SWOT analysis for Trauma centre establishment in KIMS-UAIMS Hospital Category Strengths Weaknesses Opportunities Threats

4.4 Ethical Considerations

This study did not involve human subject research. Data were gathered from secondary sources such as published guidelines, institutional observations, and publicly available documentation. No patient files, clinical data, or personally identifiable data were utilized in this study. Ethical approval was obtained for undertaking observational internships by the KIMS-UAIMS Hospital management.

CHAPTER 5: RESULTS AND ANALYSIS

5.1 Infrastructure Assessment

A systematic assessment of KIMS-UAIMS Hospital's current infrastructure was conducted to determine the extent to which existing facilities support trauma centre development. The assessment evaluated physical space, equipment, information systems, and support services against WHO and NABH trauma care benchmarks.

5.1.1 Emergency Department Assessment

Parameter	Current Status	Required for Trauma Centre	Gap
ED Area (sq ft)	Adequate for general ED	Dedicated trauma zone (1500+ sq ft)	Moderate
Trauma Bays	Not designated	Minimum 2 dedicated bays	Significant
Resuscitation Equipment	Present, general ED	Trauma-specific setup	Moderate
Trauma Team Workspace	Not available	Dedicated trauma team area	Significant
Negative Pressure Rooms	Limited	Isolation for infectious trauma	Minor
24x7 Physician Cover	Available	Trauma-trained physicians	Moderate
FAST Machine in ED	Not confirmed	Dedicated FAST in trauma bay	Moderate
Trauma Triage System	General triage only	Formal trauma triage protocol	Significant

Table 5.1: Emergency Department Gap Assessment

5.1.2 Operation Theatre Assessment

Parameter	Current Status	Trauma Requirement	Gap Level
Total OTs	15 modular OTs	1 dedicated trauma OT	Organizational
Emergency OT availability	Present	24x7 trauma OT access guaranteed	Protocol-based
OT turnaround time	Not standardized for trauma	< 30 min for damage control	Moderate
C-arm/Fluoroscopy in OT	Available	Trauma OT specific C-arm	Minor
Cell Saver	Not available	Recommended for major trauma	Moderate
Trauma instrument sets	General surgical	Trauma-specific implant inventory	Moderate

Table 5.2: Operation Theatre Assessment for Trauma

5.2 SWOT Analysis

The following SWOT matrix presents the comprehensive analysis of strategic factors relevant to Regional Trauma Centre establishment at KIMS-UAIMS Hospital, Sangli:

STRENGTHS	WEAKNESSES
Well-run 356 bedded hospital with various medical specialties More than 100 beds in Intensive Care Units to meet every specialty requirement. 15 fully equipped modular Operation Theatres for the various procedures and specializations. Dedicated 24x7 Emergency and Casualty with support system for any such exigencies available Orthopaedics and Neurosurgery services already functional Comprehensive facilities under radiology, namely CT, MRI, and DSA Fully equipped blood bank and laboratory along with latest testing facilities A well-organized ambulance service along with GPS tracking facility for proper tracking of every unit is functional More than 80 consultants with diverse specialties NABH accreditation framework has been completed.	• No dedicated trauma bays or traumaa zone • Absence of formal trauma team protocols • No traumaa registry system • Limited trauma-specific governance • No formal trauma scoring systems in use • Insufficient traumaa-trained nursing staff • No standardized mass casualty plan • Limited dedicated traumaa operation theatre • No traumaa data collection system • Absence of trauma quality indicators
OPPORTUNITIES	**THREATS**
• High trauma burden in Sangli & districts • Govt. support for trauma centre development • No existing Level I trauma centre in region • Potential for academic & research growth • Insurance & cashless services expansion • Public-Private Partnership opportunities • Training centre for trauma professionals • Referral network development potential • Technology integration opportunities • Growing demand for specialized trauma care	• Competition from Kolhapur & Pune centres • High capital investment requirements • Recruitment of trauma-specialized staff • Risk of staff burnout in trauma settings • Delayed government policy implementation • Limited awareness of trauma centre services • Possible funding constraints • NABH re-accreditation requirements • Medico-legal complications in trauma • Seasonal variation in trauma volume

Figure 5.1: SWOT Analysis of Regional Trauma Centre Establishment at KIMS-UAIMS Hospital

5.3 Gap Analysis

The gap analysis benchmarks KIMS-UAIMS Hospital's current capabilities against WHO Essential Trauma Care Guidelines and NABH standards. Gaps are categorized by domain and priority level:

Domain	Current Capability	Required Standard	Gap Level	Priority
Dedicated Trauma Zone	Not available	Designated trauma bay areaa	High	Immediate
Trauma Team Protocol	Not formalized	Defined team composition & roles	High	Immediatee
Trauma Team Activation	No formall criteria	ISS-based activation criteria	High	Immediate
Trauma Registry	Not established	Electronic trauma data system	High	Short-term
Trauma Triage System	General triagee	START/SALT triage protocol	High	Immediate
Trauma Nurse Specialists	Not designated	Minimum 4 trained trauma nurses	High	Short-term
FAST Ultrasound Protocol	Not standardized	24x7 FAST in ED	Moderate	Short-term
Mass Casualty Plan (MCI)	Basic plan exists	Trauma-specific MCI plan	Moderate	Short-term
Traumaa Scoring (ISS, GCS, TRISS)	Informal use	Standardized at admission	High	Short-term
Damage Control Protocol	Informall	Formal DCS protocoll	High	Short-term
Traumaa Medical Director	Not appointed	Designated Trauma Director	High	Immediatee

Domain	Current Capability	Required Standard	Gap Level	Priority
Traumaa Quality Indicators	Not defined	10+ formal KPIs tracked	Highh	Short-term
Trauma ICU	General ICU available	Designated trauma ICU beds (8-10)	Moderatee	Medium-term
Rehabilitation Integration	Available but not linked	Trauma rehab pathway	Moderatee	Medium-term
Referrall Network	Informal	Formal MoUs with 10+ facilities	Moderate	Medium-term
Training Programme	General CME	ATLS, trauma nursing training	High	Short-term

Table 5.3: Comprehensive Gap Analysis – KIMS-UAIMS Hospital vs. WHO/NABH Trauma Standards

5.4 Human Resource Planning

Establishing a Regional Trauma Centre requires a dedicated and trained multidisciplinary team. The following table outlines the minimum human resource requirements for the proposed trauma centre at KIMS-UAIMS Hospital, accounting for 24x7 coverage across all shifts:

Role	Minimum Required	Qualification	Current Status
Trauma Medical Director	1	General Surgery/Emergency Med, Fellowship/experience in Traumaa	Not available
Trauma Surgeons	3 (24x7 coverage)	General Surgery with trauma training	Available (partial)
Emergency Medicine Physicians	4 (shift-based)	Trained in ATLS/emergency trauma	Available (partial)
Orthopaedic Traumaa Specialists	3	Orthopaedic surgery, trauma experience	Available
Neurosurgeons	2	Neurosurgery on-call	Available
Trauma Nurse Coordinator	1	Senior nurse, traumaa certification	Not available

Role	Minimum Required	Qualification	Current Status
Trained Trauma Nurses (ED)	8+	Trauma nursing training, TNCC preferred	Not available
Trauma Anaesthesiologists	3	Emergency anaesthesia trained	Available (partial)
Trauma Paramedics/EMTs	4+	BEMS certified, traumaa response	Available (partial)
Traumaa Registrar	1	Data management, health informatics	Not available
Trauma Social Worker	1	Medical social work	Not available
Trauma Rehabilitation Team	2 (Physiotherapist + OT)	Trauma rehabilitation experiencee	Available (partial)

Table 5.4: Human Resource Requirements for Regional Trauma Centre

5.5 Equipment and Technology Planning

The following equipment list represents the minimum requirements for a functional Regional Trauma Centre at KIMS-UAIMS Hospital. Items are prioritized based on clinical necessity and impact on trauma outcomes:

Equipment Category	Specific Item	Quantity	Priority
Trauma Resuscitation	Traumaa bay resuscitation trolley	2	Immediatee
Trauma Resuscitation	Rapid infuser (Level 1 and equivalent)	2	Immediate
Imaging	Dedicated FAST ultrasound machine (trauma bay)	1	Immediatee
Imaging	Portable X-Ray (traumaa bay)	1	Short-term
Airway Management	Video laryngoscope set	2	Immediate
Airway Management	Surgical airway kit	4	Immediate
Monitoring	Multi-parameter bedside monitors (trauma bay)	4	Immediatee

Equipment Category	Specific Item	Quantity	Priority
Orthopaedic Trauma	External fixator sets	5+	Short-term
Orthopaedic Trauma	Intramedullary nail system (complete)	Complete set	Short-term
Critical Care	Designated trauma ICU ventilators	6-8	Short-term
Blood Bank	Thromboelastography (TEG/ROTEM)	1	Medium-term
Information System	Trauma registry software	1 system	Short-term
Communication	Dedicated trauma hotline system	1	Immediate
Mass Casualty	MCI equipment packs	5 sets	Short-term

Table 5.5: Equipment Requirements for Regional Trauma Centre

5.6 Clinical Workflows and Operational Protocols

5.6.1 Trauma Team Activation Protocol

A formal Trauma Team Activation (TTA) protocol is a cornerstone of any Regional Trauma Centre. The proposed activation criteria for KIMS-UAIMS Trauma Centre are based on pre-hospital physiological parameters, mechanism of injury, and anatomical criteria aligned with ACS and WHO guidelines:

Activation Level	Criteria	Team Response
Level I (Full Team)	Penetrating thorax/abdomen, GCS <10, BP <90, amputation, massive haemorrhage	All trauma team members within 5 minutes
Level II (Partial Team)	MVC rollover, fall >3m, pedestrian struck, MOI with risk	Key trauma team within 10 minutes
Level III (Standby)	Mechanism of injury only, stable vitals	Trauma physician and nurse

Table 5.6: Trauma Team Activation Levels and Criteria

5.6.2 Trauma Patient Flow Pathway

The flow of the trauma patients in KIMS-UAIMS Trauma Centre has been devised with a view of reducing time to treatment and ensuring thorough clinical evaluation:

- Pre-hospital notification; the trauma team is alerted 10 to 15 minutes prior to the patient arrival by the ambulance. Trauma bay ready for use.
- Triage and reception; upon arrival of patient the initial primary survey by the leader of trauma team; (A B C D E). Primary survey should not take more than 2 to 5 minutes with trauma score charted.
- Primary survey; FAST scanning, ECG and blood samples for trauma work-up collected simultaneously with monitorings of vitals.
- Resuscitation; achieved at the earliest with IV access, infusion of blood products, securing airway as appropriate and blood volume replacement according to damage control concept.
- Imaging; CT-Pan-scan or X-rays as per clinical condition. Results available within 30 minutes.
- Decision; with thorough examination definitive management identified: Surgery (Emergency O T), ICU transfer,Ward or ICU with subsequent decision making process after imaging studies.
- Patients disposition: IC U (Trauma), NC U, OT Surgery, or Ward according to the injures.
- Data entry; All trauma activations recorded in Trauma registry within 24 hours.5.6.3 Quality Indicators for Trauma Centre

Indicator	Definition	Target
Trauma Team Activation Rate	% of eligible patients receiving TTA	> 90%
Door-to-CT timee	Time from arrival to CT completion	< 30 minutes
Door-to-OR time (urgent)	Time from arrival to emergencyy surgery	< 60 minutes
Mortality Rate (ISS > 15)	Deaths among severe trauma patients	< Regional benchmark
Preventable Death Rate	% traumaa deaths deemed preventable	< 5%
Trauma Registry Completeness	% of trauma patients entered in registry	> 95%
FAST Utilization Ratee	% of Level I/II activations receiving FAST	> 95%
Blood Bank Turnaround	Time to first unit of blood in MTP	< 10 minutes
Trauma Team Response Time	Timee from activation to team assembly	< 5 min Level I
Unplanned ICU Readmission	% readmissions within 48 hours	< 3%

Table 5.7: Key Performance Indicators for KIMS-UAIMS Regional Trauma Centre

5.7 Financial Feasibility Analysis

A preliminary financial feasibility assessment was conducted to estimate the capital and operational costs of establishing the Regional Trauma Centre and projecting revenue scenarios.

Capital Expenditure Item	Estimated Cost (INR Lakhs)
Trauma Bay Construction and Renovation	80-120
Medical Equipment (Traumaa-specific)	150-200
IT and Trauma Registry System	20-30
Staff Recruitment and Training (initial)	25-35
Mass Casualty Equipmentt	15-20
Communication Systems	10-15
Signage, Logistics, Misc.	10-15

Capital Expenditure Item	Estimated Cost (INR Lakhs)
TOTAL ESTIMATED CAPEX	310-435 (INR 3.1 - 4.35 Crore)

Table 5.8: Estimated Capital Expenditure for Regional Trauma Centre

Annual Operational Cost Item	Estimated Cost (INR Lakhs/year)
Additional Staff Salaries (Trauma team)	120-150
Medical Consumables and Implants	80-100
Equipment Maintenance	20-25
Training and CME	15-20
Trauma Registry Operations	5-8
Quality and Accreditation	10-15
TOTAL ANNUAL OPEX	250-318 (INR 2.5 - 3.18 Crore)

Table 5.9: Estimated Annual Operational Expenditure

Revenue projections are based on projected traumaa admission volumes of 300-500 cases per month at an average revenue per case of INR 25,000-50,000 (varying by complexity and payer mix). This projects annual revenue of INR 9-30 crore from traumaa services. Break-even analysis suggests operational profitability within 2-3 years, with full capital recovery expected within 5-7 years assuming conservative volume projections.

CHAPTER 6: DISCUSSION

6.1 Strategic Feasibility

There is a high degree of strategic feasibility to establish a Regional Trauma Centre at KIMS-UAIMS Hospital. This assertion is strongly supported by the existing infrastructure, specialist capacity, and organizational vision of KIMS-UAIMS Hospital. The absence of any other designated Regional Trauma Centre within 100 kilometres of Sangli makes a golden opportunity for KIMS-UAIMS to become a dominant player in regional trauma care. A consistent and rising trend in road trauma, seen in the road traffic accident statistics of National Highway 48, and district injury data suggests a significant and growing need for specialized trauma services. The hospital's advantageous location on a major transport artery and existing provision of emergency ambulance services provide it with a ready, natural referral patient base, which can be organized and formalised into an organised trauma system on commencement of trauma care facility. With alignment to national priorities for trauma care development outlined by the Government of India and through National Health Mission policies, there are ample prospects of securing financial and other support to ensure quality trauma care development.

6.2. Operational Readiness

KIMS-UAIMS Hospital possesses a fair to good degree of operational readiness. An operational trauma centre comprises of a strong back end support system with well-equipped Emergency Room(s) with dedicated bays for trauma patients, operation theaters ready for major surgery, Intensive Care unit facilities, and a well-coordinated group of surgeons. Given the existing set up KIMS has a solid clinical backbone in these domains. The gaps in the operationalization of trauma services at KIMS-UAIMS are addressable.

Strategic allocation of physical resources and organizational mechanisms, recruitment and training of trauma staff and implementation of information systems are key. The initial requirements to implement a phased Trauma centre development plan will entail setting up specific trauma bay(s), creating a trauma governing committee, establishing a position for the Trauma Medical Director, developing trauma activation protocols and commencing a trauma registry operation. These are attainable within the first 6 months without any major capital investment. KIMS-UAIMS Hospital's already existing facilities for trauma patients with blood bank, radiology facilities and the specialist manpower available with expertise in neurosurgery and orthopaedic are significant advantages that can significantly reduce costs and streamline the operations for developing specialized services. Strengthened 24x7 accessibility and dedicated protocols for emergency surgery, critical care services with enhanced management protocols and trauma resuscitation with all possible supports, blood supply in availability will bring up in an organized manner for the trauma care set up.

6.3. Alignment with WHO and NABH Standards

Analysis of the capabilities of KIMS-UAIMS Hospital against WHO guidelines for essential trauma care and NABH accreditation guidelines shows a good degree of alignment, close to 60-70 percent, required for becoming a Regional Trauma Centre. The balance, about 30-40 percent, can be easily achieved through a structured approach to implementation. Many centres, particularly in India, that have successfully established trauma centres, have achieved this through similar staggered phased implementation. Strengths that are directly in line with the WHO Guidelines for trauma care include emergency surgery capabilities, intensive care infrastructure, availability of imaging and laboratory facilities, Blood Bank, and availability of specialist doctors with necessary skills and experience for critical cases. Gap in requirements related to formalized governance of trauma, trauma team activation, training programs for different cadres of

healthcare providers, development of clinical practice guidelines/protocols and the establishment of a Trauma Registry are addressable within a planned intervention. In order to receive NABH accreditation for trauma services the hospital has to work on the detailed documentation of various protocols and procedures, training registry, mass casualty management plan, equipment purchase and maintenance records etc.

6.4. Regional Healthcare Impact

The establishment of KIMS-UAIMS Hospital as the Regional Trauma Centre for Sangli will have a transformative impact on trauma outcomes in the region. A formal linkage with the district hospitals and the primary health centres will be forged and will extend well beyond Sangli, Kolhapur, Satara and Miraj. Establishment of a structured trauma referral system that can channel patients to the appropriate facility depending on their needs through memoranda of understanding between various healthcare facilities of the region would decrease the chances of inappropriate patient transfer and over-utilization of resources, thereby providing efficient and optimal utilization of a referral hospital such as KIMS. Improvement of pre-hospital trauma care through training and establishing trauma team notification protocols will also maximize its benefit. The data on injury epidemiology generated from the Trauma registry will facilitate targeted public health interventions related to injury prevention and road safety measures. It can also become a central resource for raising awareness and driving policy advocacy at the community, district and state levels.

6.5. Challenges and Risk Mitigation

Key challenges foreseen during development and operationalization of the trauma centre at KIMS-UAIMS hospital are related to maintaining motivation of trauma team personnel and filling vacancies in the specialty departments of neurosurgery and orthopedic for 24x7 trauma coverage, consistent investment in trauma system operations, managing the

volume and complexity of trauma cases, ensuring sustained quality of care amidst operational pressures, and the need for robust collaboration and coordination between the hospital, police authorities and the district health authorities.

Risk	Impact	Mitigation Strategy
Staff recruitment difficulty	High	A competitive remuneration package, in house ATLS certification, research options, and teaching in addition to our excellent in-house ATLS facilities.
Financial sustainability	High	Phased investment, revenue diversification, insurance partnerships
Increased operational volume	Medium	Staffing ramp-up with volume, capacity planning in Phase 2-3
Staff burnout in traumaa setting	Medium	Rotation schedules, wellness programmess, counselling support
Delayed regulatory approvals	Low	Early engagement with NABH, MoHFW, and state health dept
Medico-legal complications	Medium	Legal orientation for trauma team, MLC protocol documentationn
Equipment downtime	Medium	AMC contracts, critical equipment backup, preventive maintenancee

Table 6.1: Risk Assessment and Mitigation for Trauma Centre Development

CHAPTER 7: RECOMMENDATIONS AN IMPLEMENTATION ROADMAP

7.1 Strategic Recommendations

Based on the findings of this study, the following strategic recommendations are made for the establishment of a Regional Trauma Centre at KIMS-UAIMS Hospital, Sangli:

- Formal Leadership Commitment: Obtain normal institutional commitment from hospital management and ownership is trauma centre development, including a board-level resolution and dedicated budget allocation.
- Appoint Trauma Medical Director: Recruit or designate an experienced trauma/emergency medicine physician for trauma Medical Director to lead governance, protocols, training, and quality improvement.
- Establish Trauma Governance Committee: Form a multidisciplinary Trauma Committee including surgeons, emergency physicians, nursing leadership, administration, and quality management to oversee the trauma centre activities.
- Engage Regulatory Authorities: Initiate early engagement with NABH, State Health Department, and Ministry of Health and Family Welfare for trauma centre designation, accreditation pathways, and possible government support.
- Develop Academic Partnerships: Formalize partnerships with IIHMR Delhi and other academic institutions for research, training programme development, and student placements to strengthen the academic component.

7.2 Operational Recommendations

- Designate and Equip Traumaa Bays: Allocate and renovate a minimum of two dedicated trauma bays within or adjacent to the Emergency Department with standardized equipment, monitoring, and resuscitation infrastructure.
- Develop and Implement Traumaa Protocols: Create written protocols for trauma team activation, primary and secondary survey, damage control resuscitation, massive transfusion, head injury management, paediatric trauma, and mass casualty incidents.
- Implement Traumaa Triage System: Introduce the START triage system for mass casualty events and a formal trauma scoring approach (ISS, GCS, RTS) for all trauma admissions.
- Establish Trauma Registry: Implement an electronic trauma registry system capturing demographics, injury mechanism, scoring, interventions, and outcomes for all trauma activations.
- Develop Referral Network: Establish formal memoranda of understanding with district hospitals, primary health centres, and community health centres for trauma referral protocols and feedback mechanisms.
- Launch Training Programme: Initiate ATLS certification for trauma surgeons, trauma nursing training (TNCC), and emergency medical technician trauma training within the first year of operations.

7.3 Phased Implementation Roadmap

A three-phase implementation roadmap of 24 months is proposed:

Phase	Timeline	Key Activities	Expected Milestone
Phase 1: Foundation	0-6 Months	Governance structure, Trauma Director appointment, Protocol development, Trauma-bay planning, Staff training initiation, Registry vendor selection	Trauma-Governance Committee operational; Core protocols drafted; Trauma bays designed
Phase 2: Development	6-18 Months	Trauma bay construction, Equipment procurement, Staff recruitment, ATLS training, Trauma registry go-live, Referral MoUs, Quality KPI baseline	Trauma bays operational; 50% of target staff trained; Registry capturing data; 5+ referral MoUs signed
Phase 3: Maturation	18-24 Months	Full traumaa team operational, NABH accreditation application, Research initiation, Quality review cycle, Training centre development, Community outreach	NABH application submitted; Traumaa registry data mature; All KPIs monitored; Training centre active

Table 7.1: Three-Phase Implementation Roadmap for Regional Trauma Centre

7.4 Governance Structure Recommendation

The proposed governance structure for the KIMS-UAIMS Regional Trauma Centre:

Position	Role	Responsibility
Hospital CEO/COO	Executive Sponsor	Strategic direction, resource allocation, external engagement
Trauma Medical Director	Clinical Lead	Protocol governance, clinical quality, accreditation
Trauma Committee	Multidisciplinary oversight	Policy review, quality monitoring, incident review
Head of Emergency	Operational Lead	Day-to-day traumaa service management
Trauma Nurse Coordinator	Nursing Lead	Traumaa nursing protocols, staff training, registry
Trauma Quality Officer	Quality Lead	KPI monitoring, NABH compliance, audit
Trauma Registrar	Data Lead	Registry management, data analysis, reporting

Table 7.2: Proposed Governance Structure for KIMS-UAIMS Regional Trauma Centre

7.5 Training and Education Programme

Programme	Target Audience	Frequency	Certification
Advanced Trauma Life Support (ATLS)	Trauma surgeons, Emergency physicians	Annual	ACS-ATLS
Trauma Nursing Core Course (TNCC)	Trauma and ED nurses	Annual	Emergency Nurses Association
Basic Emergency Medical Services (BEMS)	Paramedics and EMTs	Annual	NAS certified
Paediatric Advanced Life Support (PALS)	Paediatric and trauma physicians	2-yearly	AAP/AHA
Trauma Team Training (TTT)	Full trauma team	Quarterly simulation drills	Internal certification

Programme	Target Audience	Frequency	Certification
Mass Casualty Incident Management	All traumaa and emergency staff	Bi-annual drill	Internal/NDMA
FAST Training	Emergency and traumaa physicians	Initial + annual refresher	Internal

Table 7.3: Proposed Training and Education Programme

CHAPTER 8: CONCLUSION

This dissertation has conducted a comprehensive strategic and operational analysis to understand the feasibility and requirements to establish a Regional Trauma Centre at KIMS-UAIMS Hospital, Sangli, Maharashtra. Various aspects including institutional preparedness, infrastructure needs, human resource requirements, design of patient flow, financial viability and implementation strategy have been assessed, and evidence-based conclusions are drawn.

It is my central conclusion that KIMS-UAIMS Hospital is well placed strategically and has the requisite capabilities (clinical services, physical infrastructure, specialist manpower and institutional ambition) to successfully establish and operate a Regional Trauma Centre that will significantly improve the outcomes for victims of trauma across the Sangli region and its adjoining areas. The gaps in capability that have been identified are significant, but they can be systematically addressed through a carefully phased, resource-realistic, and actionable implementation plan.

SWOT analysis indicates that the strengths of infrastructure, specialist availability and institutional will at KIMS-UAIMS are strong enough to act as an anchor, whereas weaknesses in trauma-specific governance, protocols and systems can be addressed proactively. Significant opportunities are presented by high traumaa burden, government support, and academic development, while the identified threats of competition, recruitment challenges and financial costs can be managed.

The gap analysis identifies that the KIMS-UAIMS Hospital fulfills some 60-70% of WHO/NABH standards currently required to operate a regional trauma centre, with key areas to address during the first phase comprising development of dedicated trauma space, operationalization of trauma team activation, specific trauma nursing expertise, patient registry, and formal trauma governance structures. The financial feasibility

shows that while initial capital investment of around INR 3 to 4.5 crore and annual operating expenses around INR 2.5 to 3 crore would be needed, the centre would be financially self-sustainable and achieve recovery of investment within 5-7 years on the basis of projected volumes.

The proposed 3-phased and 24-month implementation roadmap provides a logical and stepwise plan for development of KIMS-UAIMS Hospital into an operational and eventually NABH-accredited Regional Trauma Centre. The roadmap emphasizes establishment of a formal governance structure, protocol development and basic staff training in the first phase, followed by development of dedicated infrastructure and registry activation in the second phase, with the final phase focusing on optimizing care quality and gaining formal accreditation.

Establishment of a Regional Trauma Centre at KIMS-UAIMS Hospital is far more than an institutional goal; it is an investment in public health for western Maharashtra which can have a profound impact in reducing deaths and disability related to injuries. The creation of such a centre will significantly enhance the chances of survival and timely recovery of injured individuals within the golden hour, delivering a service with considerable social and economic value.

I recommend the KIMS-UAIMS leadership to move forward to operationalize the framework, with an immediate start by appointing a Trauma Medical Director and forming a Trauma Governance Committee. The opportunity to create a state-of-the-art Regional Trauma Centre in Sangli is significant and opportune.

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