

Infection Control Modular Operation Theatre Model-Across-the-Globe to Ensure Highest Patient Safety Undergoing any Surgical Procedure

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Abstract

The Indian healthcare industry has grown dramatically in the last few years, particularly during the Covid-19. The extraordinary participation of the Government, as well as advancements in technology and the digitalization of healthcare services. In the Indian healthcare sector, a number of trends have emerged that are employing cutting-edge technology to simplify and improve the patient care experience.

Keyword: Infection Control; hygiene; Sterilization; Healthcare.

INTRODUCTION

Looking at the future, it is quite sure that the healthcare system of the country will be under pressure to enhance the efficiency of care and quality and search for new ways to use systems, data and distributed provider networks focused more on disease prevention and wellness. As a result, healthcare systems will require to be more integrated, while using technology to enhance healthcare system.

With emerging technology, the medical industry is demanding regular operation theatres to modular operation theaters in India. This is not without reason. Modular operation theaters have a concise design, integrated functionality, level of cleanliness

that conventional operation theatres cannot match the standard. This is why more Hospitals and Healthcare institutions are investing in them with time.

Why modular operation theatre is required?

It is a compact and highly sterilized setup containing particular air filters (Filtration capacity – 0.25 – 0.5 microns) to control the airflow system in Operation Theatre. Some specific types of air conditioning for the safety of patient and Surgical Team.

Why hospitals prefer modular operation Theatre?

The main reason of modular operation theater for the patient safety and easier to install and the setup ensures that all the necessary surgical pieces of equipment are within an arm's reach. Every component of modular operation theatre is made from premium quality materials making them extremely durable.

Essential components that make operating a modular operation theatre easier

- Operation theatre central control panel
- Surgical scrubbing station
- X-Ray viewing screen

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- Ceiling mounted laminar flow with HEPA Filter
- OT control switches & control panel etc.

Today's scenario the Architecture of any hospital needs thorough planning, designing and analysis. The key purposes of establishing a Modular Operation Theater are efficiency, precision, safety and improved patient outcomes. Its main objective is to make the best use of available time and resources. There are many requirements from hermetic sealing, sound insulation, absolute flatness, vertical adjustment, ease of disassembly, non-inflammable materials, to adherence to all standard regulations like NABH (National Accreditation Board for Hospital and Healthcare Providers) & all.

Modular Operation Theatre helps in Stop the generation of bacteria, Standard occupancy of people and equipment load, Safety standards, Positive air pressure, Appropriate maintenance, Functional separation of spaces, Regulated traffic flow, Hygienic environment, Proper air ceiling system, Innovative medical workspaces, Special requirements for humidity and ambient temperature, Space for future devices and expansion, appropriate number of air change, helps in imaging and X-ray facilities during the ongoing operation thereby helping with quick analysis and informed decisions.

The safety of the patients is a top priority in the world of healthcare and with a well-equipped Modular Operating Theater a Doctors and team can quickly handle emergencies or complications.

In India, for setting up any Operation Theatre, operating rooms require and working like CSSD (Central Sterile Supply Department), Scrub zone, Pre & Post OT (Operation Theatre) Beds, is the most integrated function along with environment, safety of facilities, equipment, and devices. Besides, it should also ensure a comfortable working environment for the Surgeons, anesthesiology, OT (Operation Theatre) Nursing staffs, OT (Operation Theatre) Technicians etc.

Modular Operation Theatre is a breakthrough in the healthcare industry, satisfying all those conditions and incorporating all necessary functions. Over the last few decades Hospitals and medical institutions have been slowly shifting to Modular Operation Theatre to provide an operating environment with high work ability and solve or at least reduces the problem of infections and patient safety.

A Modular Operating Theatre is a prefabricated operating room built within the premises of a

surgical department of a hospital. It is based on a modern concept where all innovative and advanced technology is available to provide a sterile working environment and highest quality care to patients and less post operative infections.

A Modular Operation Theatre broadly involves use of prefabricated wall panel and ceiling with laminar flow system, hermetically sealed doors, anti-static flooring and much more. These advancements, not commonly seen in conventional OTs (Operation Theatre) make modular Operation Theatre a much-preferred option for hospitals or any medical institutions.

India's competitive market, advantage lies in its large pool of well-trained medical professionals. India is also cost competitive compared to its peers in Asia and western countries. The cost of surgery in India is about one-tenth of that in the United States or Western Europe. The low cost of medical services has resulted in a rise in the country's medical tourism, attracting patients from across the world. Moreover, India has emerged as a hub for R & D (Research & Development) activities for international players due to its relatively low cost of clinical research and surgeries.

The Indian medical tourism market was valued at US\$ 2.89 billion in 2020 and is expected to reach US\$ 13.42 billion by 2026. According to India Tourism Statistics at a Glance 2020 report, close to 697,300 foreign tourists came for medical treatment in India in FY19. India has been ranked 10th in the Medical Tourism Index (MTI) for 2020-21 out of 46 destinations by the Medical Tourism Association.

The e-health market size is estimated to reach US\$ 10.6 billion by 2025.



Fig. 1: Modular Operation Theatre



Fig. 2: Modular Operation Theatre

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