



Anant Biomedical

KNOWLEDGE OF CLINICAL ENGINEERING AND ITS IMPORTANCE IN THE SUPPLY CHAIN OF MEDICAL EQUIPMENT AND ITS CONSUMABLES

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INTRODUCTION



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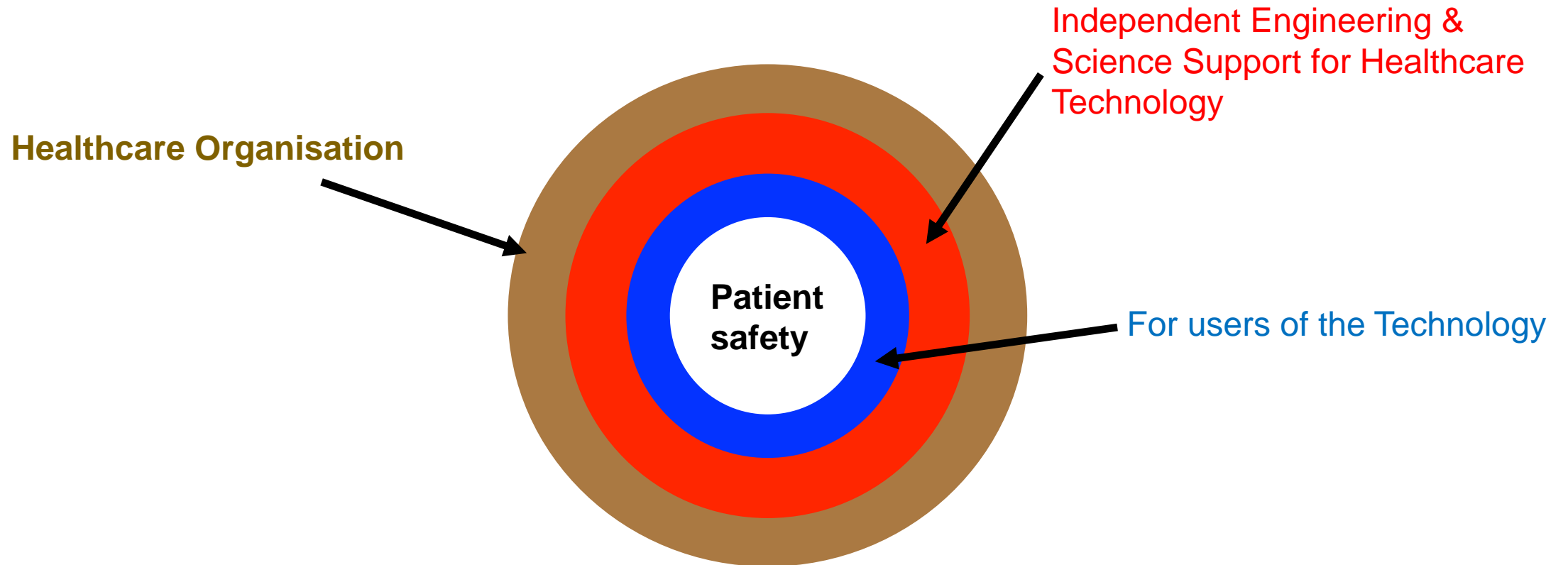
WES Top 50 Women in Engineering
2022|Biomedical Engineer|Founder...





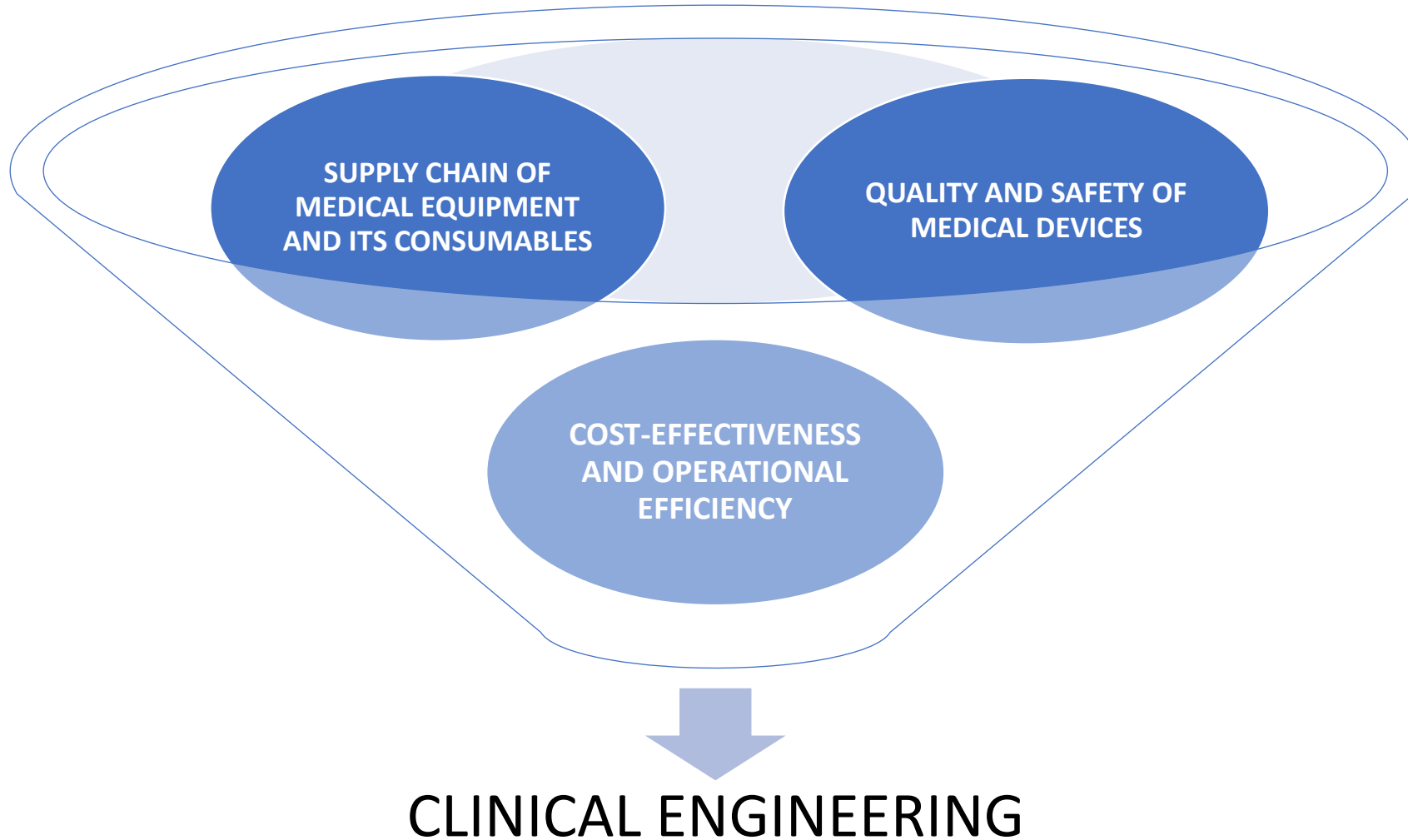
LET'S GET STARTED!

IMPORTANCE OF CLINICAL ENGINEERING (CE) IN THE HEALTHCARE INDUSTRY





OBJECTIVES





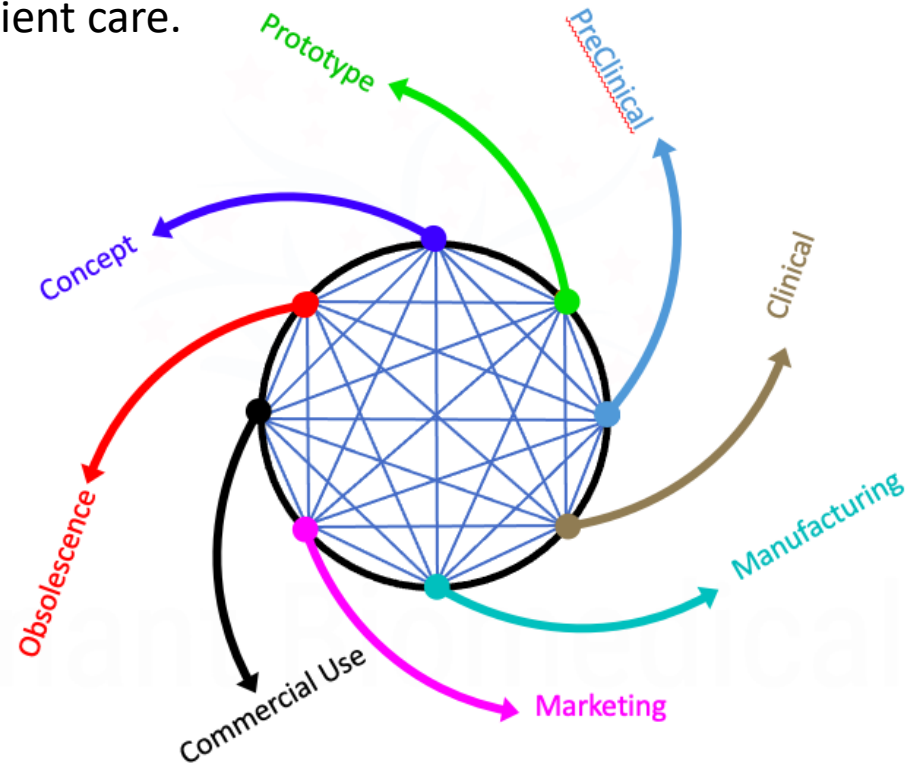
CLINICAL ENGINEERING OVERVIEW

WHAT IS CE – CLINICAL ENGINEERING?

- Clinical engineering is a multidisciplinary field that combines engineering principles with healthcare knowledge to ensure the safe, effective, and efficient use of medical equipment and technologies in healthcare settings
- It involves the application of engineering principles, such as maintenance, quality assurance, and risk management, to support the delivery of high-quality patient care.

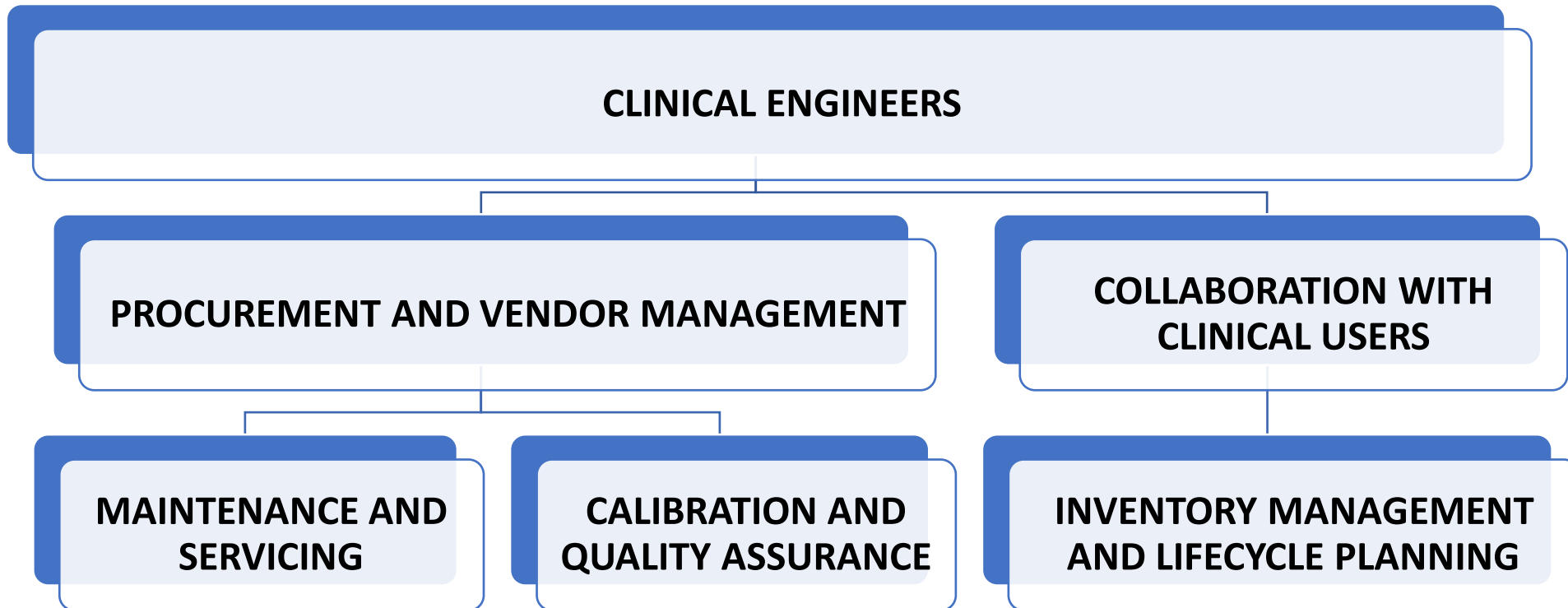
SCOPE OF CE

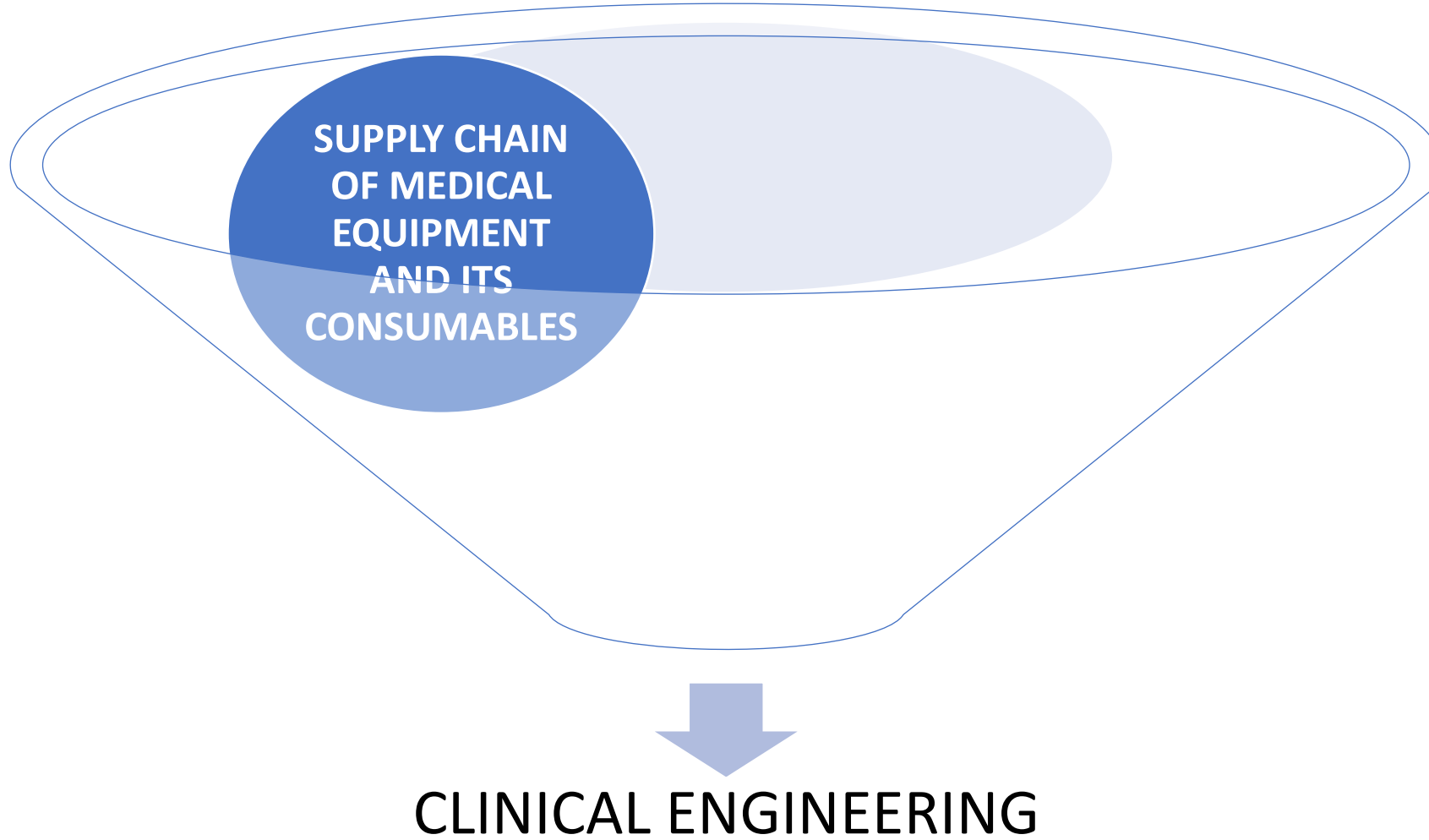
- Medical Equipment Management
- Safety, Compliance and Governance
- Technology Assessment and Integration





RESPONSIBILITIES OF CLINICAL ENGINEERS



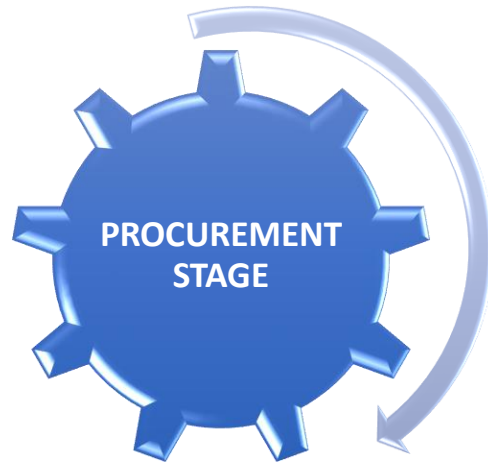




Anant Biomedical SUPPLY CHAIN OF MEDICAL EQUIPMENT AND CONSUMABLES

PROCUREMENT STAGE

- Identification of equipment needs based on clinical requirements and organizational goals.
- Vendor selection and evaluation, considering factors such as quality, pricing, and reliability.
- Negotiation and contract management to ensure favourable terms and conditions.
- Purchase order creation and processing to initiate the acquisition of medical equipment and consumables.





Anant Biomedical SUPPLY CHAIN OF MEDICAL EQUIPMENT AND CONSUMABLES

INVENTORY MANAGEMENT STAGE

- Receipt and inspection of incoming equipment and consumables to verify quality and quantity.
- Inventory tracking and management using specialized software or systems to monitor stock levels.
- Implementing inventory control measures, including barcode scanning, expiration date tracking, and first-in, first-out (FIFO) principles.
- Regular cycle counts, audits, and reconciliations to maintain accurate inventory records and identify discrepancies.



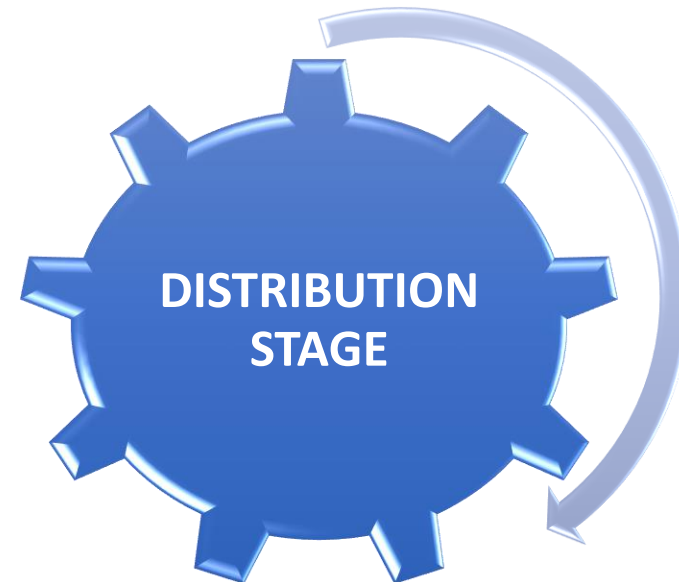


SUPPLY CHAIN OF MEDICAL EQUIPMENT AND CONSUMABLES

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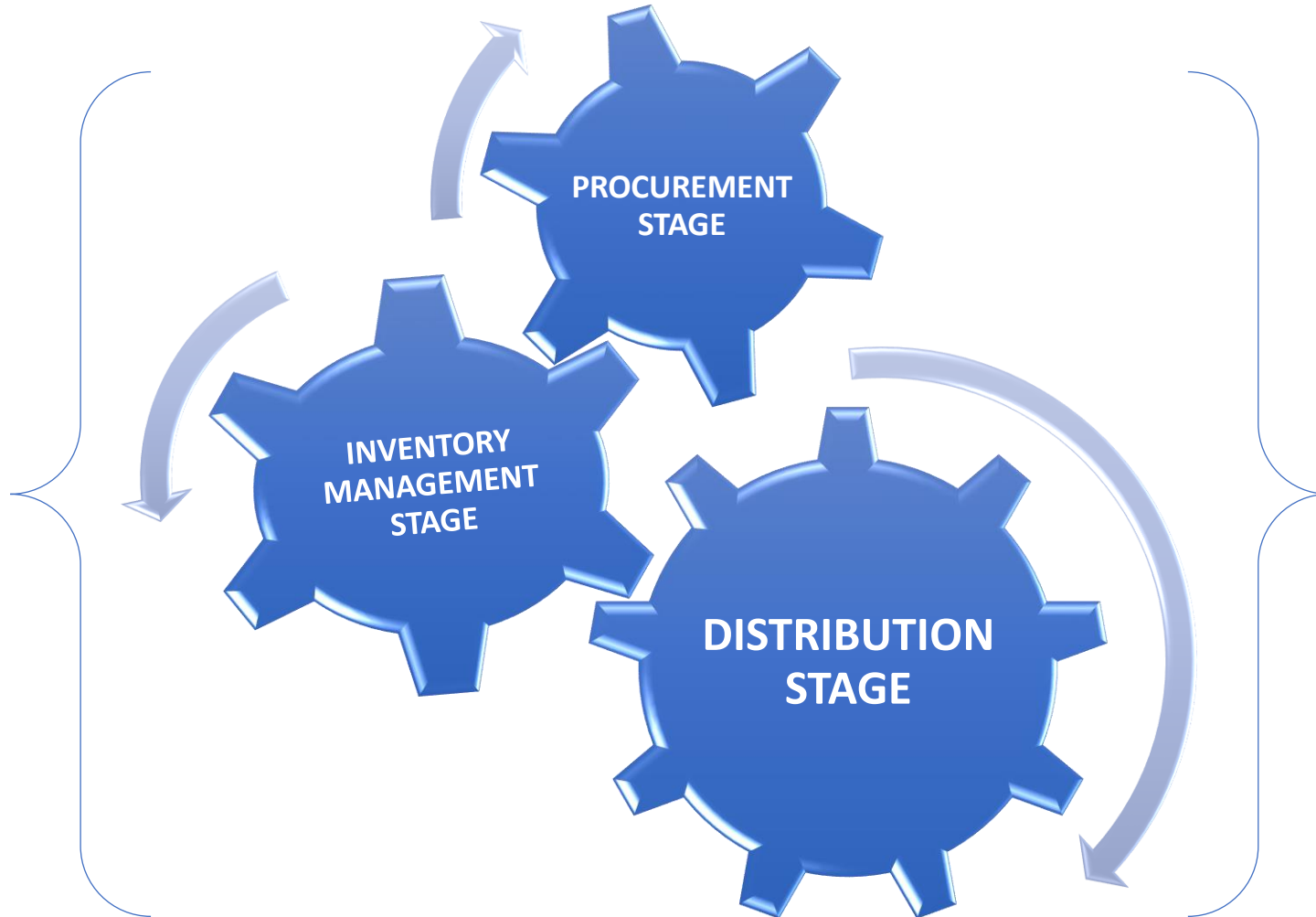
DISTRIBUTION STAGE

- Allocation and assignment of medical equipment and consumables to different departments or units based on demand and usage patterns.
- Ensuring proper storage and handling of equipment to maintain its integrity and prevent damage or deterioration.
- Establishing distribution channels and procedures to deliver equipment and consumables to the point of use efficiently.
- Developing protocols for equipment retrieval, return, and redistribution to optimize resource utilization.





SUPPLY CHAIN OF MEDICAL EQUIPMENT AND CONSUMABLES



CRITICAL ROLE OF
CLINICAL ENGINEERING
IN EACH STAGE OF SUPPLY
CHAIN



CRITICAL ROLE OF CLINICAL ENGINEERING IN EACH STAGE OF SUPPLY CHAIN

PROCUREMENT STAGE

- Clinical engineering expertise ensures the selection of appropriate medical equipment and consumables based on clinical requirements, safety considerations, and compatibility with existing infrastructure.
- Clinical engineers evaluate vendors and their offerings, considering factors such as quality, reliability, serviceability, and long-term support.
- They collaborate with procurement teams to negotiate favourable terms and conditions, ensuring cost-effective acquisitions without compromising quality or patient safety.
- Clinical engineers contribute their technical knowledge to review equipment specifications, regulatory compliance, and compatibility with existing systems.



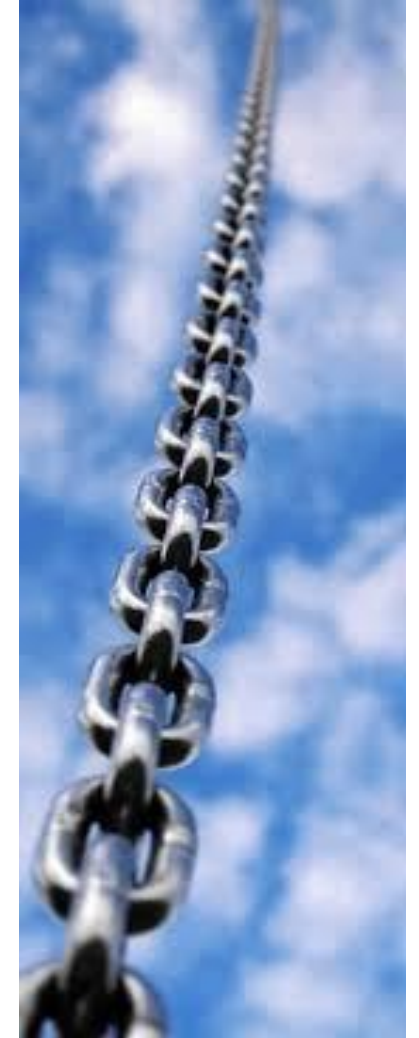


CRITICAL ROLE OF CLINICAL ENGINEERING IN EACH STAGE OF SUPPLY CHAIN

Continued...

INVENTORY MANAGEMENT STAGE

- Clinical engineers play a key role in inventory management by categorizing and tracking medical equipment and consumables, ensuring adequate stock levels to meet patient care needs.
- They develop and implement inventory control measures, such as establishing par levels, implementing expiration date tracking systems, and optimizing storage conditions.
- Clinical engineers conduct regular equipment inspections, maintenance, and calibration to ensure accurate inventory records and reduce equipment downtime.
- They collaborate with healthcare staff to understand usage patterns, anticipate demand, and align inventory levels accordingly.



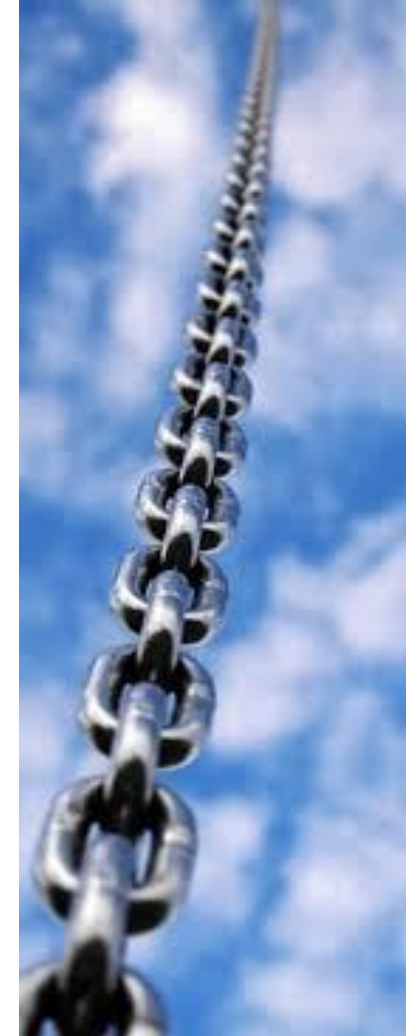


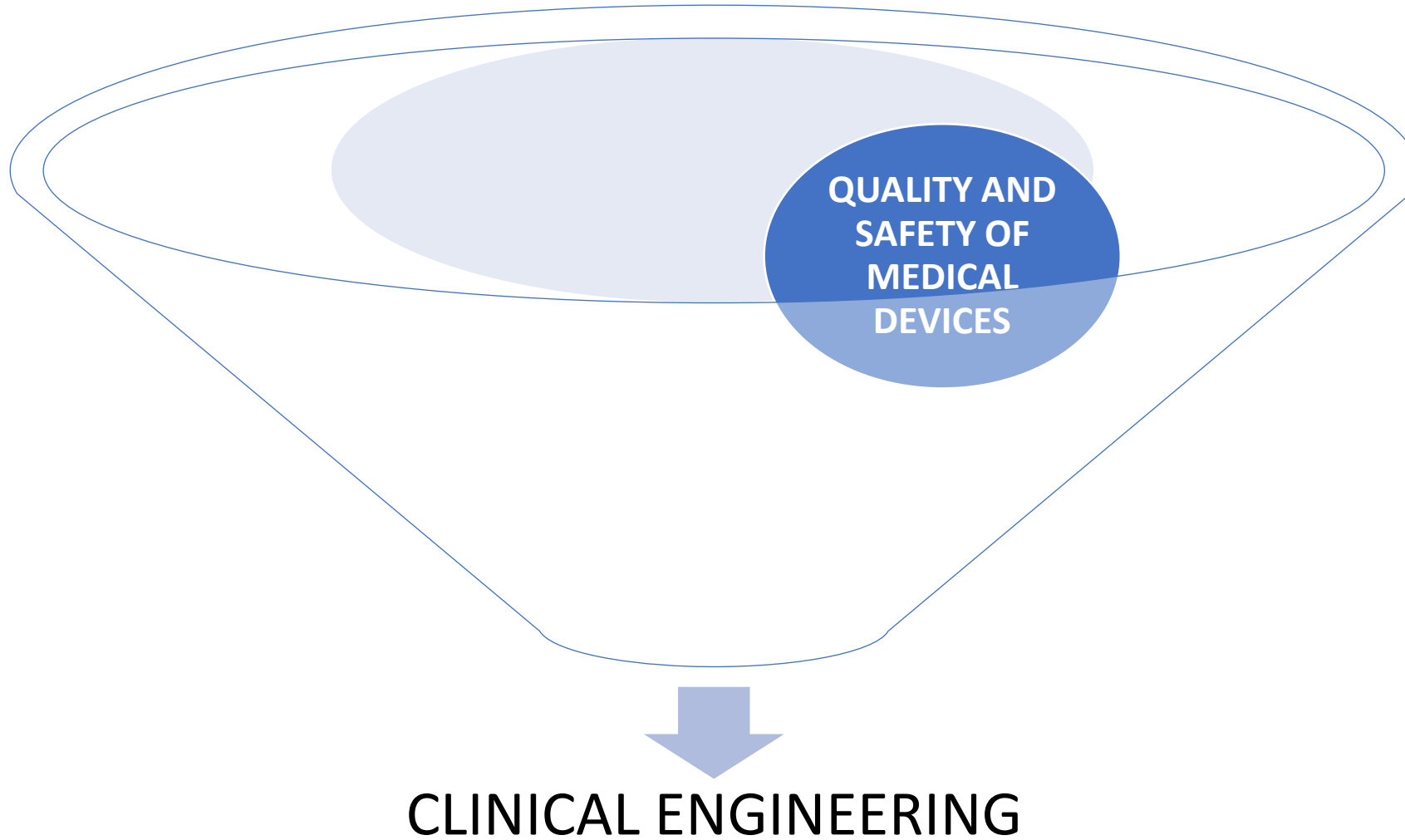
CRITICAL ROLE OF CLINICAL ENGINEERING IN EACH STAGE OF SUPPLY CHAIN

Continued...

DISTRIBUTION STAGE

- Clinical engineers ensure the efficient distribution of medical equipment and consumables to the point of use, taking into account clinical priorities, equipment availability, and patient needs.
- They contribute to the development of standardized distribution protocols and workflows, optimizing the delivery process and minimizing delays or disruptions.
- Clinical engineers ensure that equipment is properly prepared, labelled, and documented for distribution, reducing errors and improving traceability.
- They provide technical guidance and support to healthcare staff during equipment setup, ensuring proper installation and configuration for safe and effective use.







QUALITY ASSURANCE & SAFETY/ TRAINING





TRAINING AND EDUCATION

CLINICAL ENGINEERING AS A TRAINING RESOURCE

- Clinical engineers serve as valuable resources for training healthcare staff on the safe and effective use of medical equipment.
- They possess in-depth knowledge of equipment operation, maintenance, and troubleshooting, making them well-suited to provide comprehensive training sessions.

TRAINING ON EQUIPMENT OPERATION

- Clinical engineers conduct training programs to familiarize healthcare staff with the proper operation and functionality of medical equipment.
- They educate staff on equipment features, controls, and settings, ensuring that healthcare professionals can use the equipment correctly and efficiently.



TRAINING AND EDUCATION

SAFETY AND BEST PRACTICES

- Clinical engineers emphasize safety protocols and best practices during training sessions to minimize the risks associated with medical equipment.
- They educate healthcare staff on infection control measures, proper handling of equipment, and adherence to safety guidelines to ensure patient and staff safety.

ONGOING SUPPORT AND UPDATES

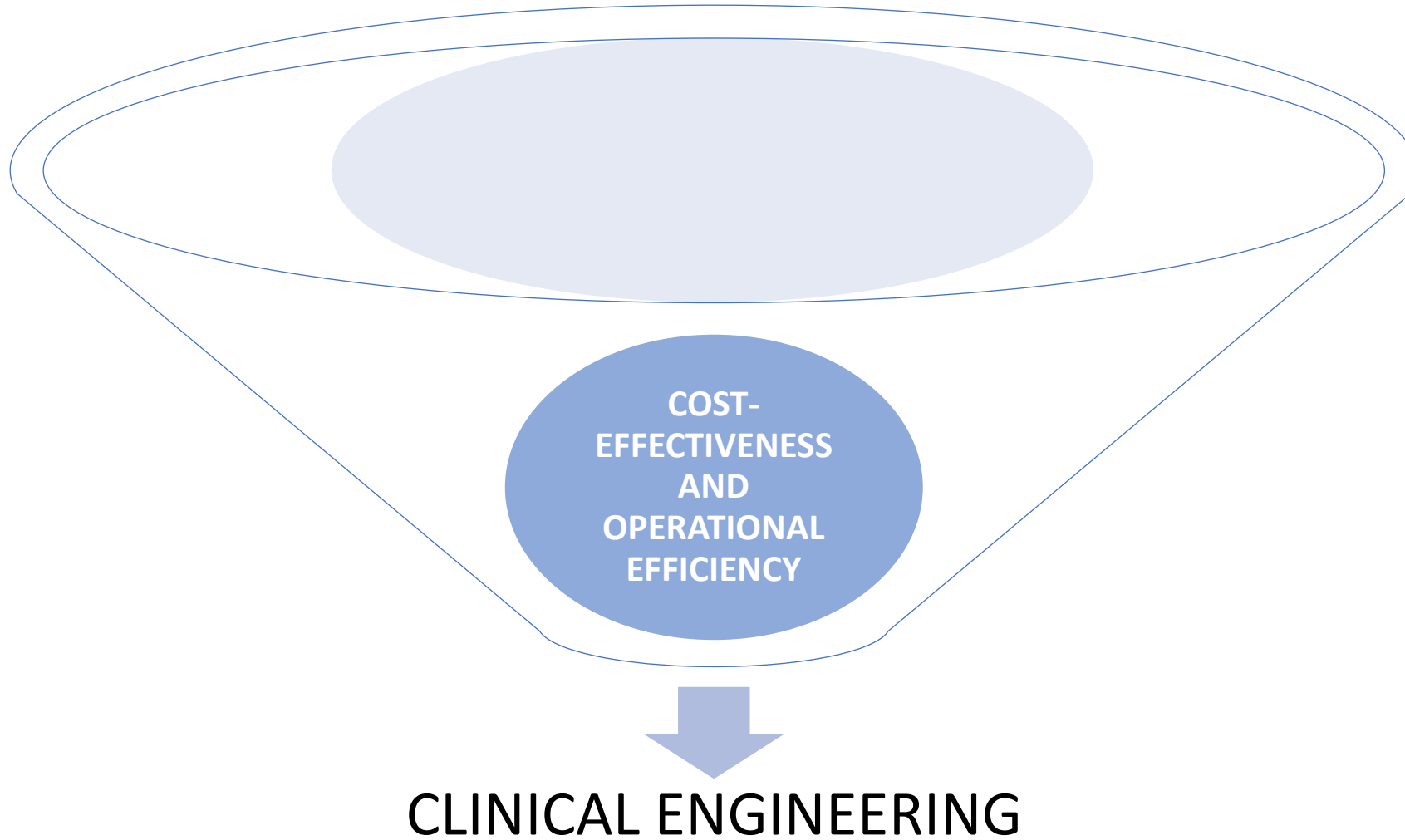
- Clinical engineers provide ongoing support and updates to healthcare staff, keeping them informed about any changes or updates related to the medical equipment they use.
- They conduct refresher training sessions or provide training materials to ensure that staff members are up to date with the latest guidelines and best practices.



TRAINING AND EDUCATION

BENEFITS OF PROPER TRAINING

- Proper training enhances the safe and effective use of medical equipment, reducing the risk of errors, equipment misuse, and adverse events.
- It boosts healthcare staff confidence, improving their competence in operating equipment and promoting better patient care outcomes.
- Well-trained staff can identify and address equipment issues promptly, ensuring equipment reliability, minimizing downtime, and improving overall workflow efficiency.





COST-EFFECTIVENESS AND OPERATIONAL EFFICIENCY

EQUIPMENT PROCUREMENT

- Clinical engineering knowledge allows for informed decision-making during equipment procurement by evaluating the total cost of ownership (TCO) rather than solely focusing on upfront costs.
- Clinical engineers consider factors such as maintenance requirements, availability of spare parts, and the expected lifespan of equipment to select cost-effective options that offer long-term value.

MAINTENANCE AND LIFECYCLE MANAGEMENT

- Clinical engineering expertise helps optimize equipment maintenance schedules, ensuring that preventive maintenance is performed at appropriate intervals, reducing the likelihood of costly breakdowns.
- By actively managing the lifecycle of equipment, clinical engineers can identify the most cost-effective time to replace or upgrade equipment, taking into account factors such as technological advancements, depreciation, and maintenance costs.



COST-EFFECTIVENESS AND OPERATIONAL EFFICIENCY

Continued...

EQUIPMENT UTILIZATION AND EFFICIENCY

- Clinical engineers analyze equipment utilization rates and identify areas of underutilization or overutilization, allowing for cost-effective allocation of resources.
- They conduct equipment performance assessments to identify inefficiencies or bottlenecks, recommending process improvements that can lead to cost savings and improved productivity.

INVENTORY MANAGEMENT

- Clinical engineering knowledge contributes to effective inventory management practices, reducing unnecessary stockpiling of equipment and consumables, which can tie up capital and lead to wastage.
- By implementing inventory control measures and optimizing stock levels, clinical engineers can minimize excess inventory, avoid stockouts, and reduce carrying costs.



COST-EFFECTIVENESS AND OPERATIONAL EFFICIENCY

Continued...

CLINICAL ENGINEERING AS A TRAINING RESOURCE

- Clinical engineering expertise allows for the evaluation and integration of new technologies, ensuring that investments in equipment align with organizational goals and deliver cost-effective solutions.
- Clinical engineers assess the potential benefits, costs, and risks associated with adopting new technologies, enabling informed decision-making that balances innovation with cost considerations.



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CONCLUSION



Medical Equipment



In-House Maintenance



Outsourced Maintenance



Support user training



Asset Management





CONCLUSION

Investing in clinical engineering expertise is not just a wise decision; it is a crucial imperative for healthcare organizations, as it ensures the **quality, safety, and cost-effectiveness** of medical equipment and consumables, ultimately leading to **improved patient outcomes and organizational success**.

In an ever-evolving healthcare landscape, the significance of investing in clinical engineering expertise cannot be overstated. It is the key to unlocking

optimized supply chain management

enhanced patient safety

strategic decision-making

ultimately positioning healthcare organizations at the forefront of excellence and innovation.



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Thank you

Questions?

Contact Information For Collaboration Opportunities



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