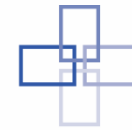


IHEA

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SUPPORTING HEALTH FACILITIES MANAGEMENT

IHEA Research Project

Operating theatre ventilation and validation
standards

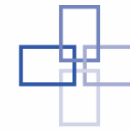


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Introduction

- This IHEA funded study is investigating current cleanroom validation practices. The objective is to create a standardised methodology for the maintenance of operating room ventilation systems enabling the creation of standardised maintenance guidelines.
- The study has created significant interest and has been expanded in scope to include theatre design



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Objectives

- To design a methodology to quantify acceptable levels of non viable particle counts from various theatre types and create an analogue to existing Australian Standards for cleanrooms.
- To review a number of theatres to assess their current air quality parameters against their design intention and to establish whether annual auditing will yield positive benefits for early problem solving.



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Objectives

- Assess the parameters mentioned above giving consideration to the theatre design and the overall development of standard testing criteria and benchmarks for each parameter.
- Extrapolate data to create a guideline for air quality in operating rooms using existing Australian Standards.
- Make collected data freely available to assist engineers in future theatre design.

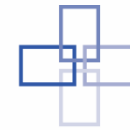


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Methodology

- Collect data from hospital operating rooms to;
 - Quantify non viable particle counts from various theatre types and configurations. This differs from current practice of only validating the HEPA filter
 - Quantify pressure differentials between clean and dirty areas for various theatre types and configurations.
 - Quantify air change rates for various theatre types and configurations.
 - Quantify HEPA filter integrity for various theatre types and configurations.



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Methodology

- Quantify non viable particle counts from various theatre types and correlate with;
 - ISO 14644 series - Cleanrooms
 - AS/NZS ISO 14644.1- Classification and air cleanliness
 - AS 1386 - Cleanrooms
 - AS 1807 series - Cleanroom test methodology

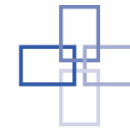


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Results to Date

- Testing is confirming initial estimates of theatre performance
- Most theatres tested are falling into the Class 7 and some into Class 6 cleanroom categories – Class 6 being the anticipated standard for ultra clean theatres
- We have confirmed that with careful design and attention to detail these classes can be easily achieved



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How you can contribute

- We need hospitals to be involved in the data collection
- This involves the validation of the theatre by Australian Air Science or your contractor using the projects test methodology



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Still to come

- Bassett Applied Research have agreed to sponsor the project by providing CFD modelling and professional services up to \$20k and will be co-authors
- The second stage will be challenging current design practice. This will involve researching the fundamental principles of theatre design to produce a set of solid performance standards hopefully aligned with the cleanroom standards