



## BIOQUELL | CASE STUDY

# Biological decontamination of clinical areas within a newly constructed hospital

Sidra Medicine, Doha, Qatar.



450 rooms totalling 56,000 cubic metres



100% success on independent air sampling results



Completed on schedule in tight 15-day timeframe

### Executive Overview

**A newly constructed world class hospital, Sidra Medicine in Doha, Qatar, required a high level of disinfection of key clinical areas in a short timeframe to be completed prior to its grand opening in early 2018. Bioquell was selected to perform a 6-log decontamination of identified areas consisting of 450 rooms totalling 56,000m<sup>3</sup>, including a suite of 12 Operating Theatres, sterile processing unit and wards/units for high risk patients. Working alongside numerous departments at Sidra Medicine, the project was successfully completed on schedule in a 15-day timeframe.**



The process was validated with Bioquell's 6-log *Geobacillus stearothermophilus* biological indicators as well as a third party air sampling procedure organised by Sidra Medicine. A 6-log reduction was achieved in all areas within the scope with 100% of the independent air sampling results being within the acceptable range. Sidra Medicine have also purchased multiple Bioquell BQ-50 Hydrogen Peroxide Vapour systems to perform regular decontamination cycles within the hospital and maintain this high level of sterility.

The team worked very well with our own and were very flexible in their approach. The planning prior to arriving made the work that much easier as we were able to ensure all the right people were in place to support the process.

Our infection control team were very pleased with the results, especially as we were able to get initial indications within 24 hours. We are now looking forward to having our own staff trained on the Bioquell BQ-50 machines purchased.

**Russell Gates**  
Office of the Vice Chairperson at Sidra Medicine

## Background

Sidra Medicine, a newly constructed world class hospital in Doha, Qatar required a high level of disinfection of key clinical areas within the hospital before its grand opening in early 2018. This included the sterile processing department, operating theatres, paediatric and neonatal intensive care units and other high risk patient areas such as the oncology and dialysis units.

## Challenge

**Timescales:** There was only a narrow window between the completion of the hospital construction and the facility's grand opening, therefore the disinfection of the key areas outlined had to be completed within a 3-week period.

**Efficacy:** A high level efficacy process which could be validated/proven was required by the client to remove any potential bioburden within the clinical areas being targeted.

**Documentation:** It was vital that the process was fully documented for auditing and regulatory inspections.

## Solution

Bioquell's RBDS was chosen amongst numerous global options by Sidra Medicine to establish a degree of sterility as high as practically possible within the key areas outlined. Bioquell's scientifically-proven Hydrogen Peroxide Vapour technology was selected due to its capacity to offer a scalable solution while maintaining a high efficacy standard. Large areas being targeted, such as intensive care units and the hospital's 12 Operating Theatre complex, were able to be treated as single, discrete decontamination zones. This minimised the risk of cross-contamination between rooms and corridors and allowed for the project to be completed in the tight 3-week timeframe.

The Hydrogen Peroxide Vapour technology offered by Bioquell's RBDS generates the highest level efficacy available on the market (6-log elimination of pathogens) and is validated against *Geobacillus stearothermophilus* biological indicators which are used to validate autoclave cycles in the pharmaceutical industry.

Full documentation is provided via a final report outlining all areas decontaminated including locations of biological indicators with incubation results displaying validated efficacy.

## Deployment

Consisting of 13 discrete target areas totalling c.56,000m<sup>3</sup>, Bioquell successfully decontaminated the facility over a 15-day period. The largest area to be treated as a single zone was the Operating Theatre complex, with a total volume of c.7,000m<sup>3</sup>. With Bioquell's unique technology this entire suite was decontaminated within 1 day.

In the largest areas, 32 of Bioquell's Hydrogen Peroxide Vapour generators were utilised simultaneously to provide effective decontamination. Distribution fans were also implemented to disperse the vapour within specified zones, whilst Bioquell's aeration units provided the capacity to quickly break down the vapour to complete the decontamination cycle rapidly.

Bioquell's 6-log *Geobacillus stearothermophilus* spore biological indicators were placed in challenging locations within each area, as well as proprietary Bioquell chemical indicators designed to give a real-time verification of a successful bio-decontamination process. Biological indicators can provide insight to the success of a cycle after a 24-hour incubation period, with final results available after 7 days.

All areas decontaminated strictly adhered to Bioquell safety protocols with all doors giving access to each target area sealed using Bioquell tape to prevent leaks, warning signs placed to prevent entry to the area during the cycle and calibrated low level sensors to continually monitor the perimeter of each area throughout the cycle. These sensors also ensure that the Hydrogen Peroxide Vapour concentration within each area had fallen below the safety limits after the cycle was complete.

## Results

**Bioquell used 800 biological indicators to confirm the efficacy of the process. Additionally, Sidra Medicine also arranged for third party air sampling tests in all of the areas decontaminated. All of the air sampling results in all areas were within the acceptable limits and were therefore successful.**

**As demonstrated by the full inactivation of biological indicators and successful air sampling results in all areas within the scope, the project was completed successfully, safely and within the required timeframe.**

**Following the successful delivery of this project, Sidra Medicine have purchased a number of suites of Bioquell equipment to perform regular decontamination cycles of single rooms and other small areas within the hospital.**



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