

# ONE YEAR POST-TREATMENT TESTING REPORT

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TEXAS RANGERS LOCKER ROOM & CONDITIONING FACILITY

BEYOND™

BY AERUS

# One year post-treatment testing of contaminants in the air and on surfaces inside the Texas Rangers Locker Room and Conditioning Facility

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Date of Report ..... March 25, 2015

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## EXECUTIVE SUMMARY

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To evaluate and measure the continued efficacy of the Beyond by Aerus Process, one year post-treatment field samples of air and surface areas were collected from the Texas Rangers Baseball Stadium Locker Room and Conditioning Facility. The purpose of the study was to determine if, and to what degree, bacteria and fungi (including mold and yeast), air particles and MRSA exist within this environment one year post-treatment.

The **one year post-treatment** testing results indicated the continued **virtual elimination** of contaminants in the areas of the Texas Rangers Locker Room and Conditioning Facility which were treated with the Beyond by Aerus patent pending solution. **Bacteria**, including **MRSA**, in most instances remained reduced to zero, as was **fungi**. **Air quality** and purity continued to be **massively improved**.

When used as suggested the Beyond by Aerus treatment maintains its effectiveness which results in several **significant benefits** including:

- **Reduction** in the number of common **cold** and **flu** outbreaks and **sick days** due to illness
- **Protection** from **allergy and asthma** triggering contaminants and the resulting illness this can cause
- **Reduction** in **respiratory issues** which may lead to additional health problems
- **Protection** from **MRSA** and **E. coli**
- **Improved productivity** from healthier, cleaner air and surfaces
- **Protection** from **illness** causing bacteria and viruses

# ONE YEAR POST-TREATMENT

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## PROTOCOLS, METHODS, AND TEST RESULTS

To evaluate and measure the specific risks and levels of contaminants, 10 individual surface locations inside the Texas Rangers Baseball Stadium Locker Room and Conditioning Facility in Arlington, Texas were selected for sample collection. The selected locations focused on areas where players, coaches, trainers and other staff routinely make contact and have significant risks of contamination. In addition to testing surface areas, air quality sampling was performed in 25 locations throughout the facility including the locker rooms, meeting space and conditioning space. Sampled areas were selected to provide the best overall representation of bacteria and fungi conditions on surfaces and air particulate counts in the facility.

Each surface sample was collected according to appropriate protocols established by the Antimicrobial Testing Laboratory to prevent contamination of the samples. The Antimicrobial Testing Laboratory is an independent, third party laboratory located in Round Rock, Texas. The samples were collected by and under the direction of Andy Eide, Vice President of Product Development and Research at Beyond by Aerus, who was trained by the testing lab on proper sampling and preservation techniques. For each individual sample, a sterile swab was inserted into a sterile wetting agent; the swab was then applied to the selected surface area and moved in an overlapping "S" pattern over the surface covering a 3" x 3" area. The swab was then placed in a tube containing a solution of a dilute (1:10) neutralizer broth of Dey Engley (D/E) broth to keep the bacteria and fungi alive but in a state of suspended animation while in transit to the lab. Each collected sample was marked with a unique identifier for the testing lab.

After collecting surface samples from the 10 selected areas, the samples were placed in a cooler and packed with freezer packs to keep the samples cold, but not to the point of freezing. This is done in order to preserve the live cultures in the samples. All of the samples were then shipped overnight to the lab for analysis.

Upon arrival at the Antimicrobial Testing Laboratory, microbiologists immediately unpacked and prepared the samples for testing. Tubes were vortex mixed for 30 seconds, then plated to the appropriate growth agar. For bacteria, Tryptic Soy Agar was used. For fungi, Potato Dextrose Agar was used. All plates were then incubated at 30°C (86°F) for 48± 4 hours. Incubated plates were then removed and the number of Colony Forming Units (CFU) was determined and recorded. CFU is used to determine the number of viable bacteria or fungi cells in a sample. It indicates the degree of contamination in the sample that could perpetuate indefinitely and possibly create a health risk. However, except for MRSA specific samples, the CFUs found in each sample were recorded but not the type of bacteria or fungi.

Air samples were collected in real time in 25 separate locations within the Locker Room and Conditioning Facility. The air samples were collected and analyzed using an environmental laser particle counter specifically designed for counting air particles as scientifically calibrated by the manufacturer. The laser counter also determined the particle size as it passed through the laser. The sample air particle count, which is based on an average over six seconds, was stabilized and then recorded on an air particulate sample form. The particulate counter does not determine the type of contaminate contained in the particles, only the presence of particles.

# ONE YEAR POST-TREATMENT TEST RESULTS

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## SUMMARY

## Bacteria and Fungi

The testing of selected surfaces revealed the **continued decreased** presence of bacteria and fungi at Colony Forming Unit (CFU) levels in the majority of the treated areas.

## MRSA

Select areas were also specifically tested for MRSA. **The One Year Post-Treatment testing results showed continued non-existent levels of MRSA** on the tested surfaces.

## Airborne Particulates

Testing of the 25 air samples found particle counts that continued to be at **exceptionally pure levels** which ranged from 1,000 to 4,000 at 1.0um or smaller per cubic feet of air. One of the 25 areas showed increased air particulate levels due to the Beyond Guardian Air having been turned off by the facility.



## ONE YEAR POST-TREATMENT TEST RESULTS

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GRAPHS

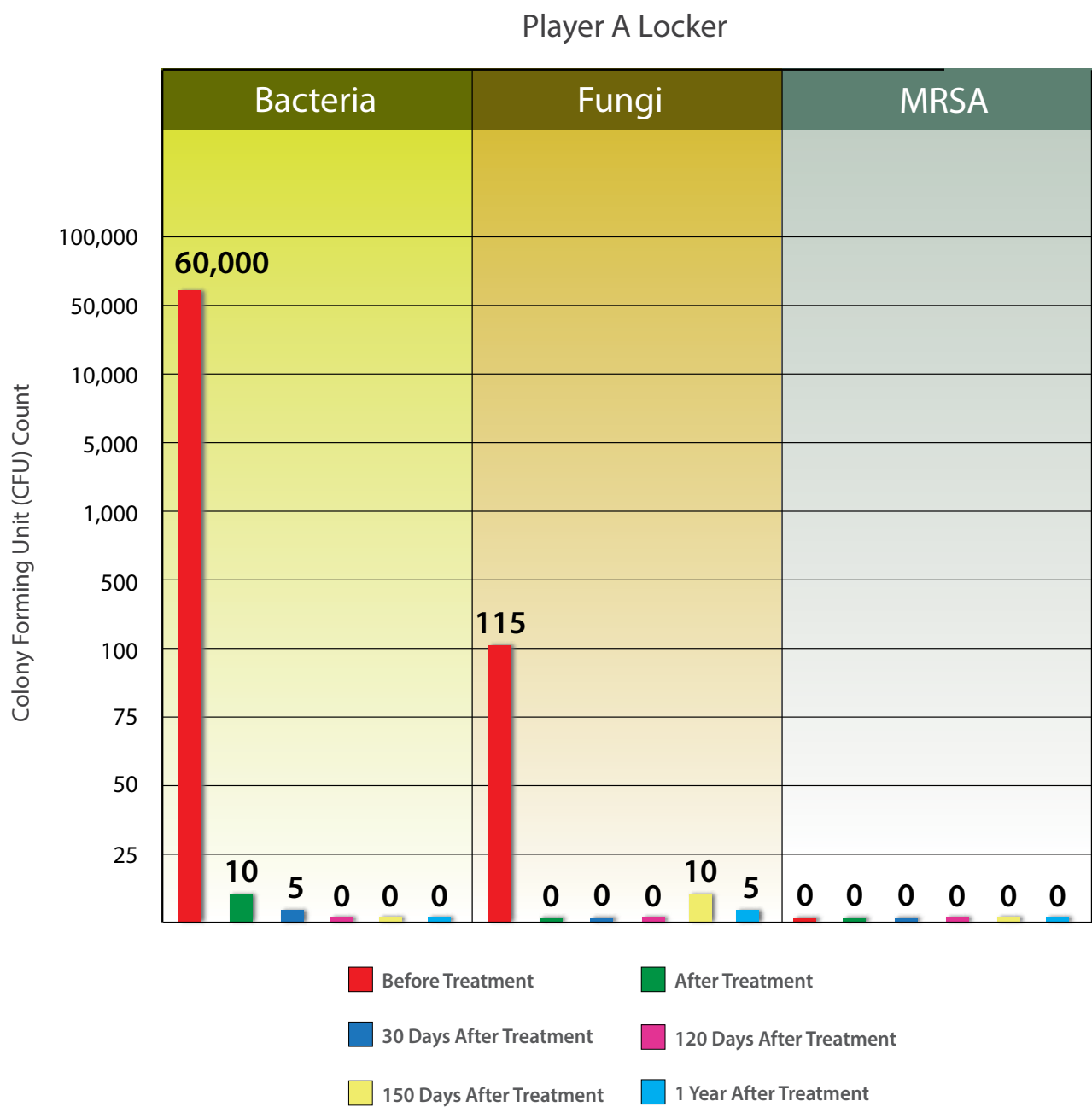
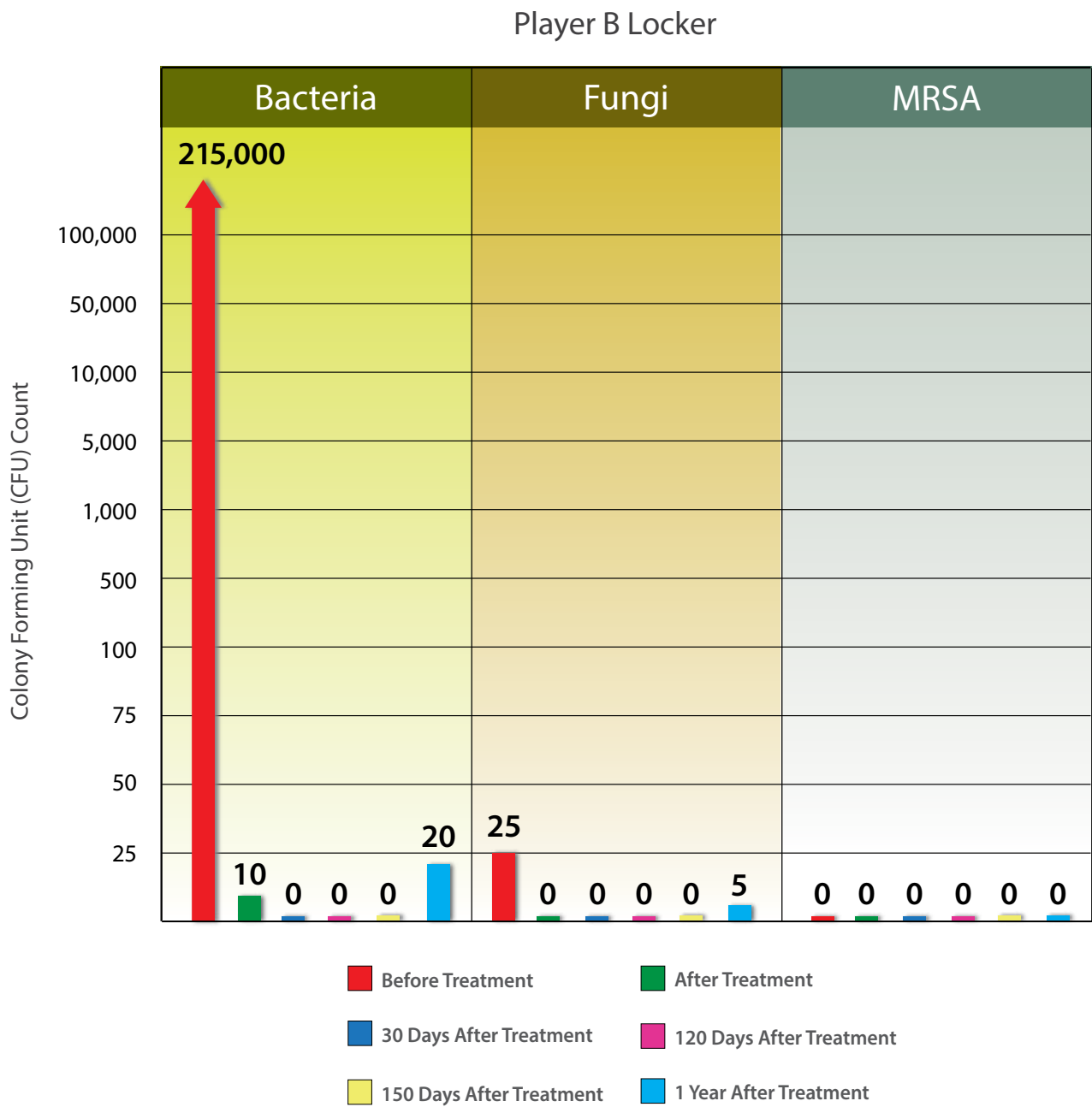


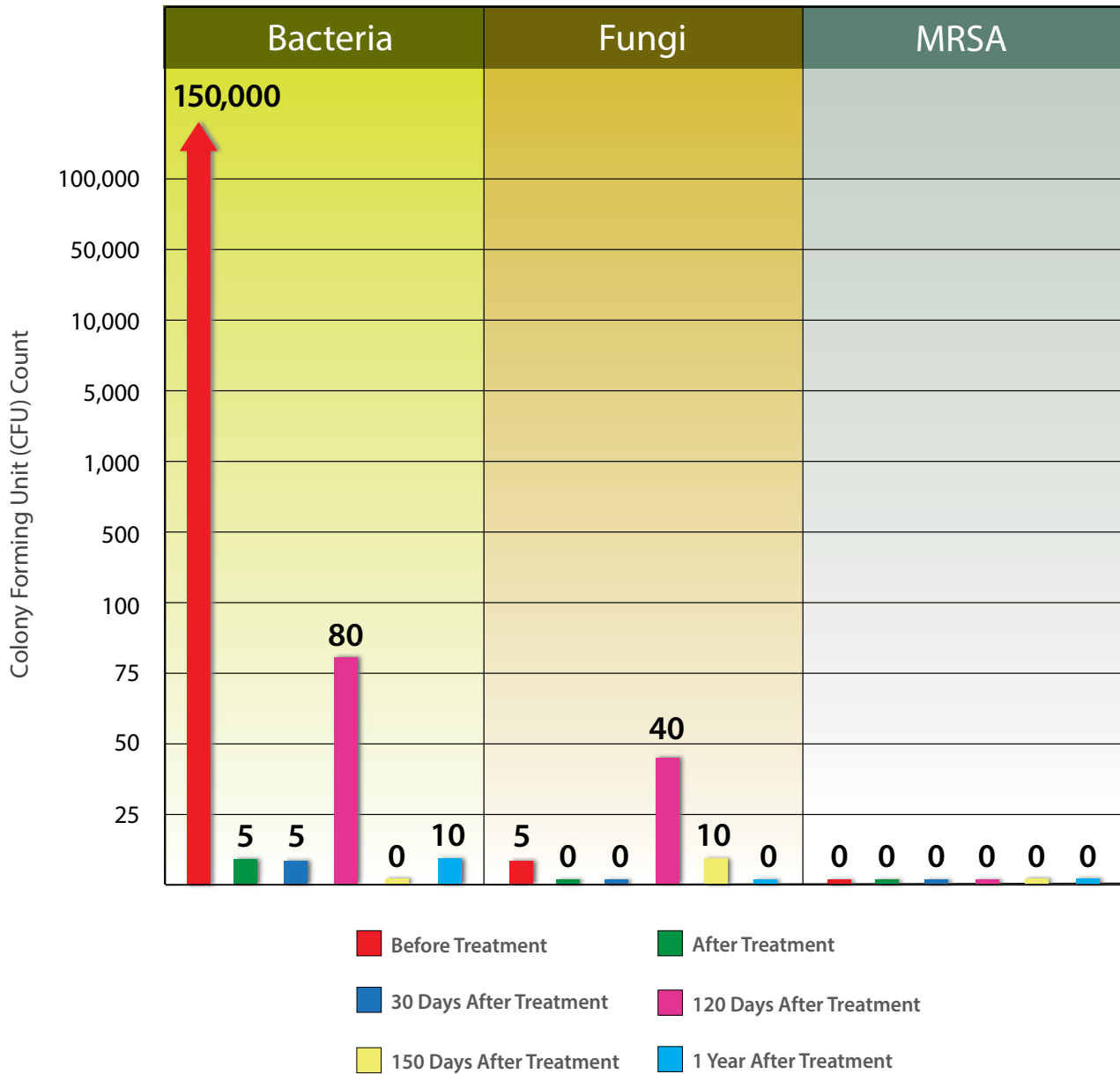
Figure 1



↑ INDICATES VALUE OUTSIDE OF CHART RANGE

Figure 2

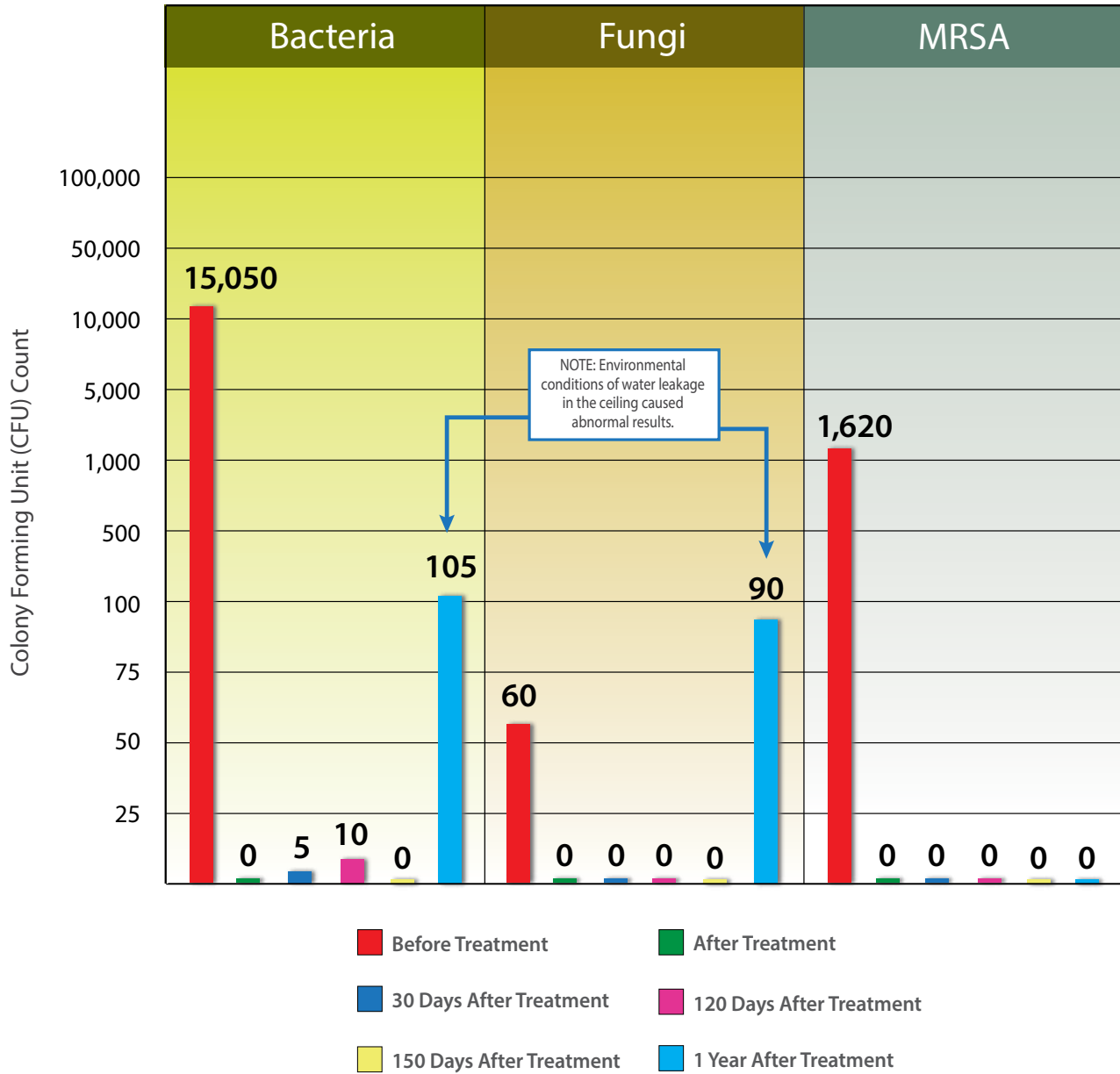
### Carpet In Locker Room



▲ INDICATES VALUE OUTSIDE OF CHART RANGE

Figure 3

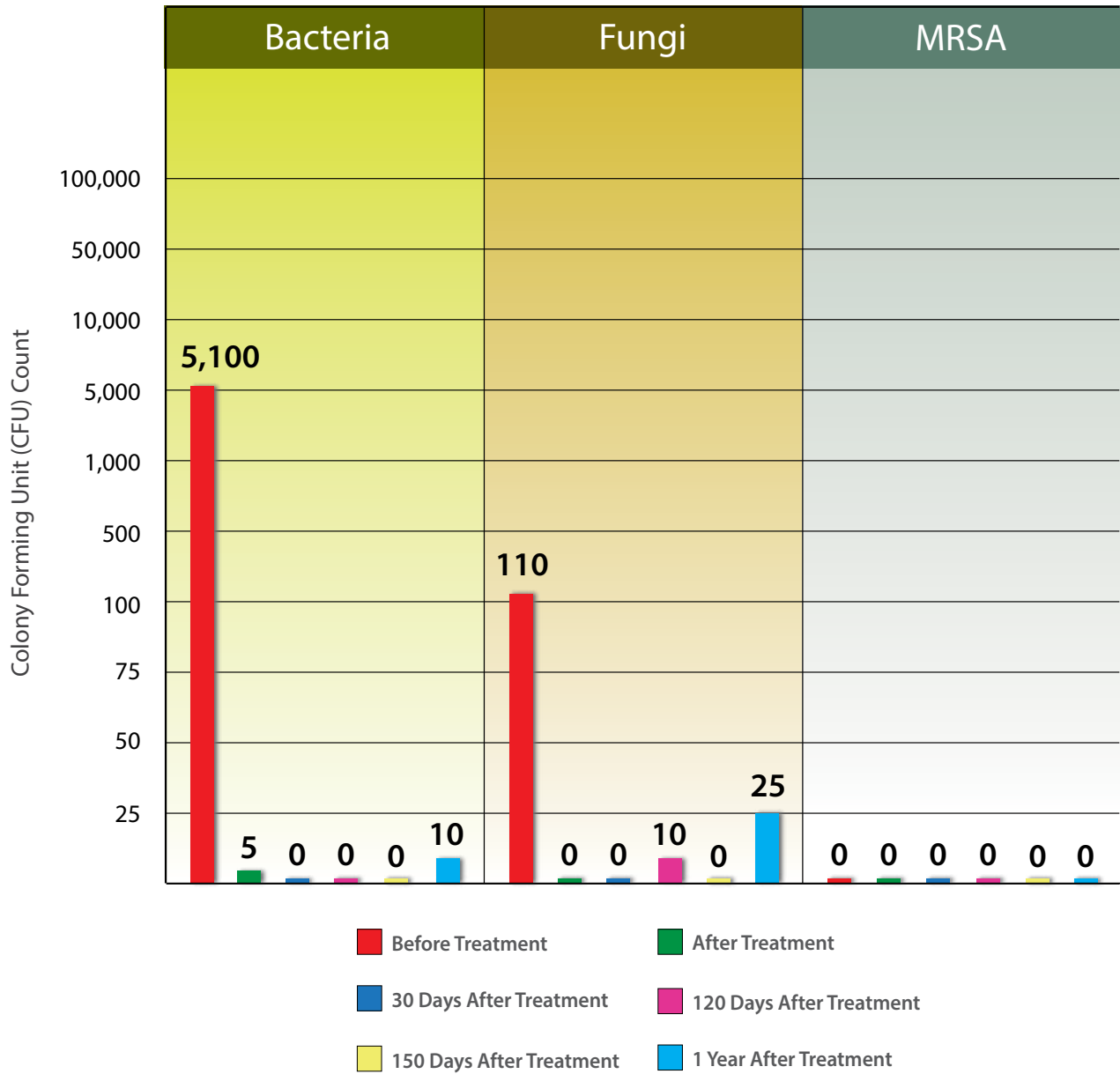
## Sofa In Locker Room



↑ INDICATES VALUE OUTSIDE OF CHART RANGE

Figure 4

## Coach's Locker



↑ INDICATES VALUE OUTSIDE OF CHART RANGE

Figure 5

### Chair in Alternate Meeting Room

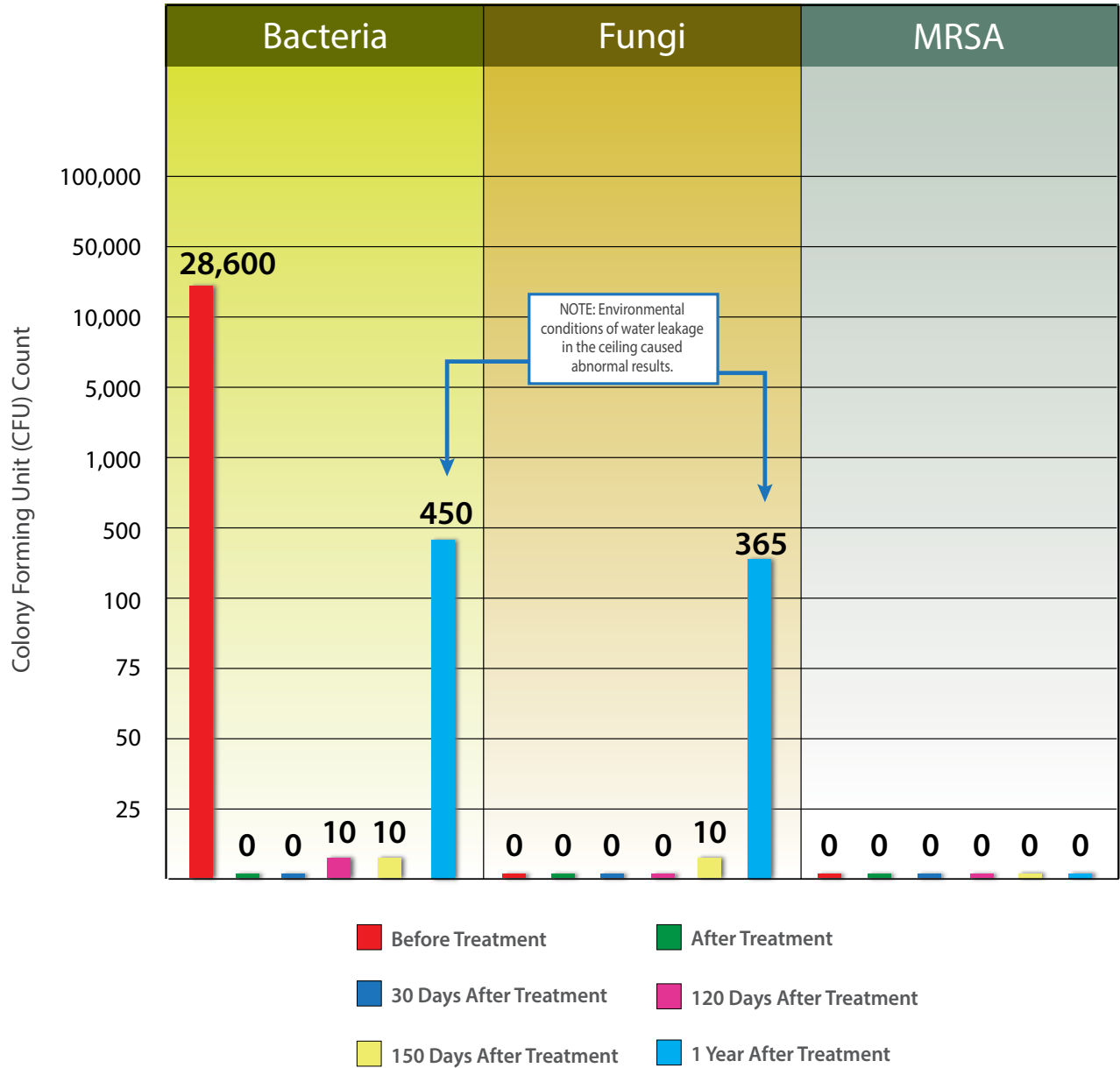


Figure 6

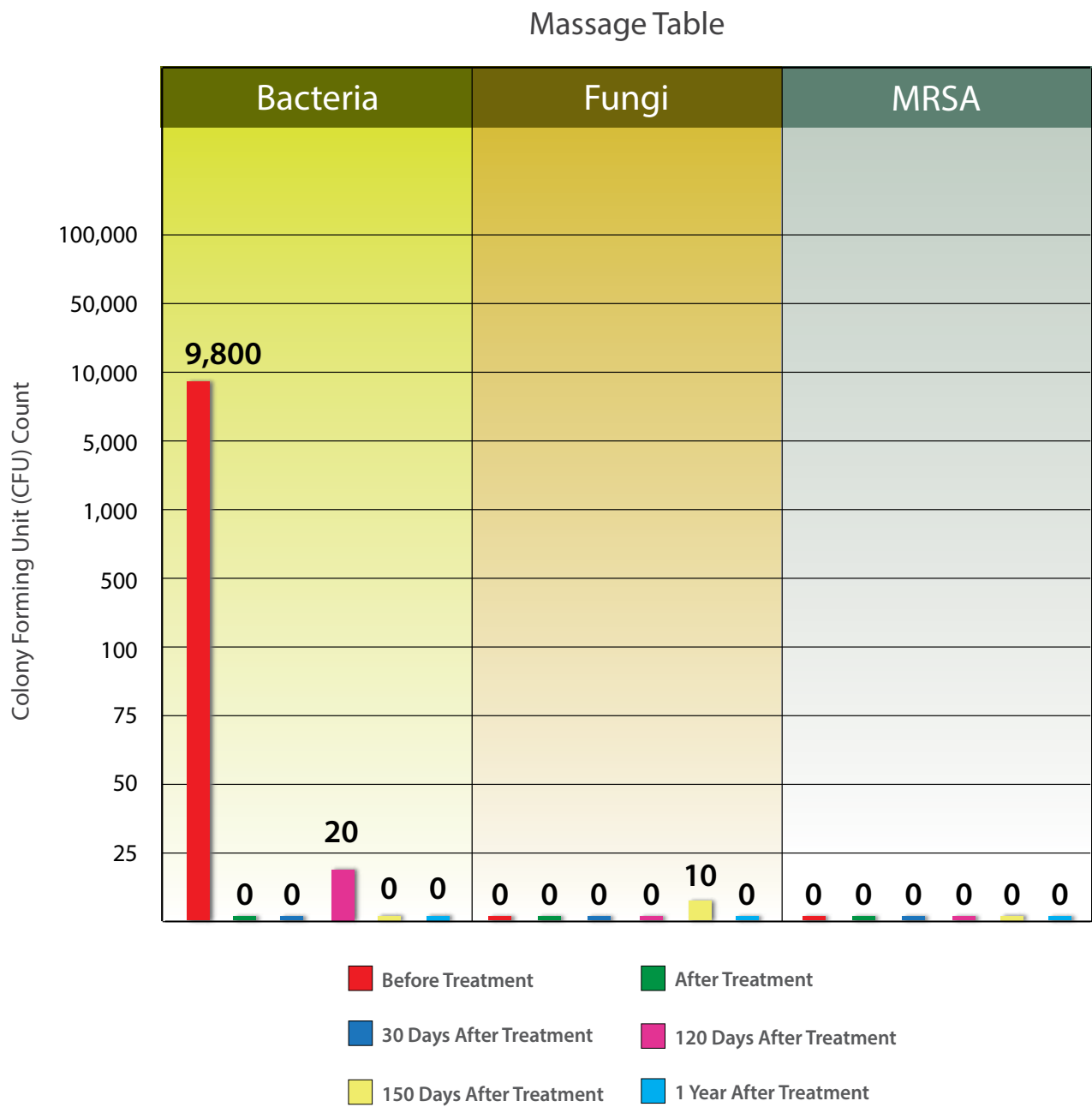


Figure 7



### 35# Dumbbell

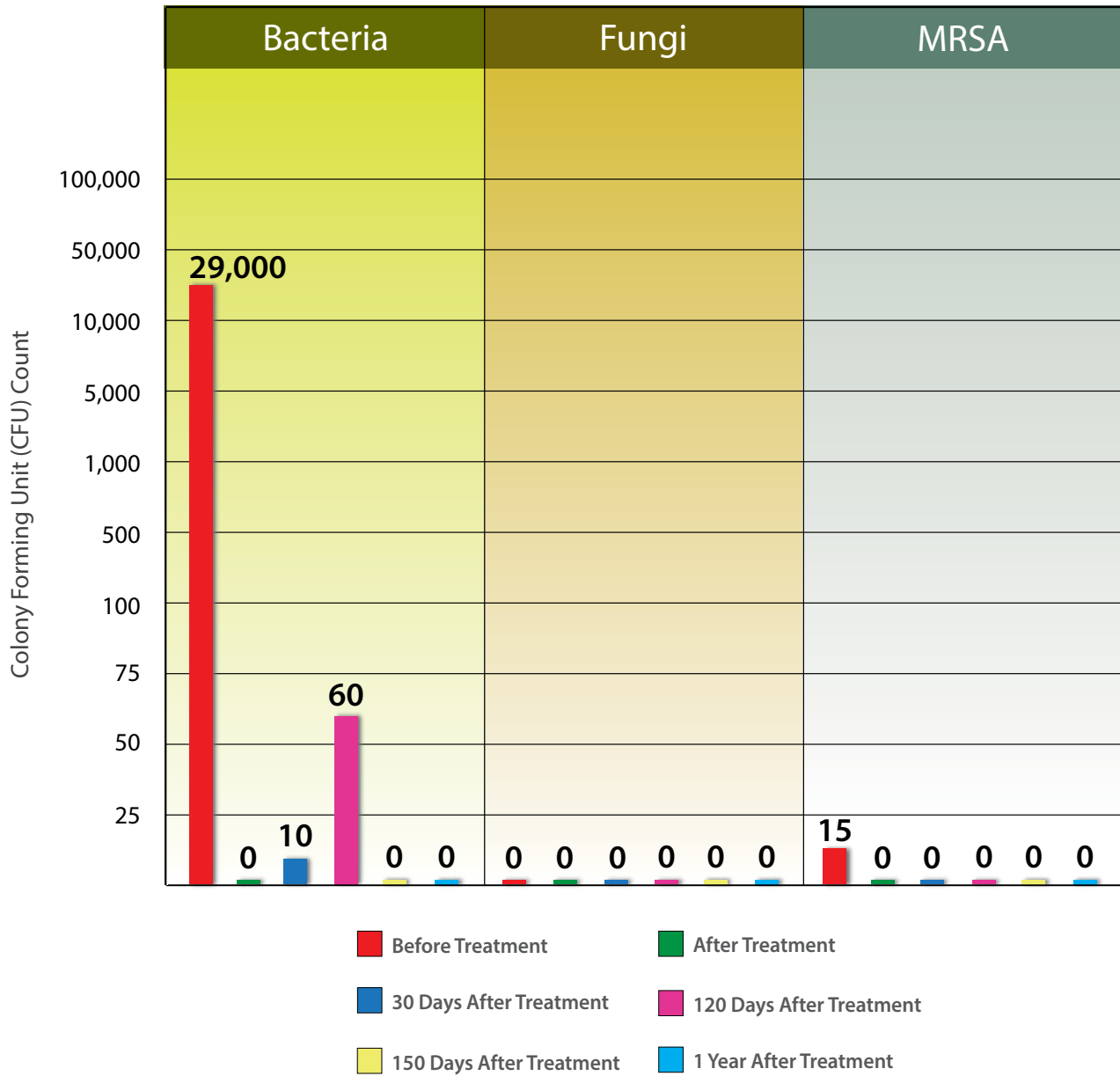


Figure 8

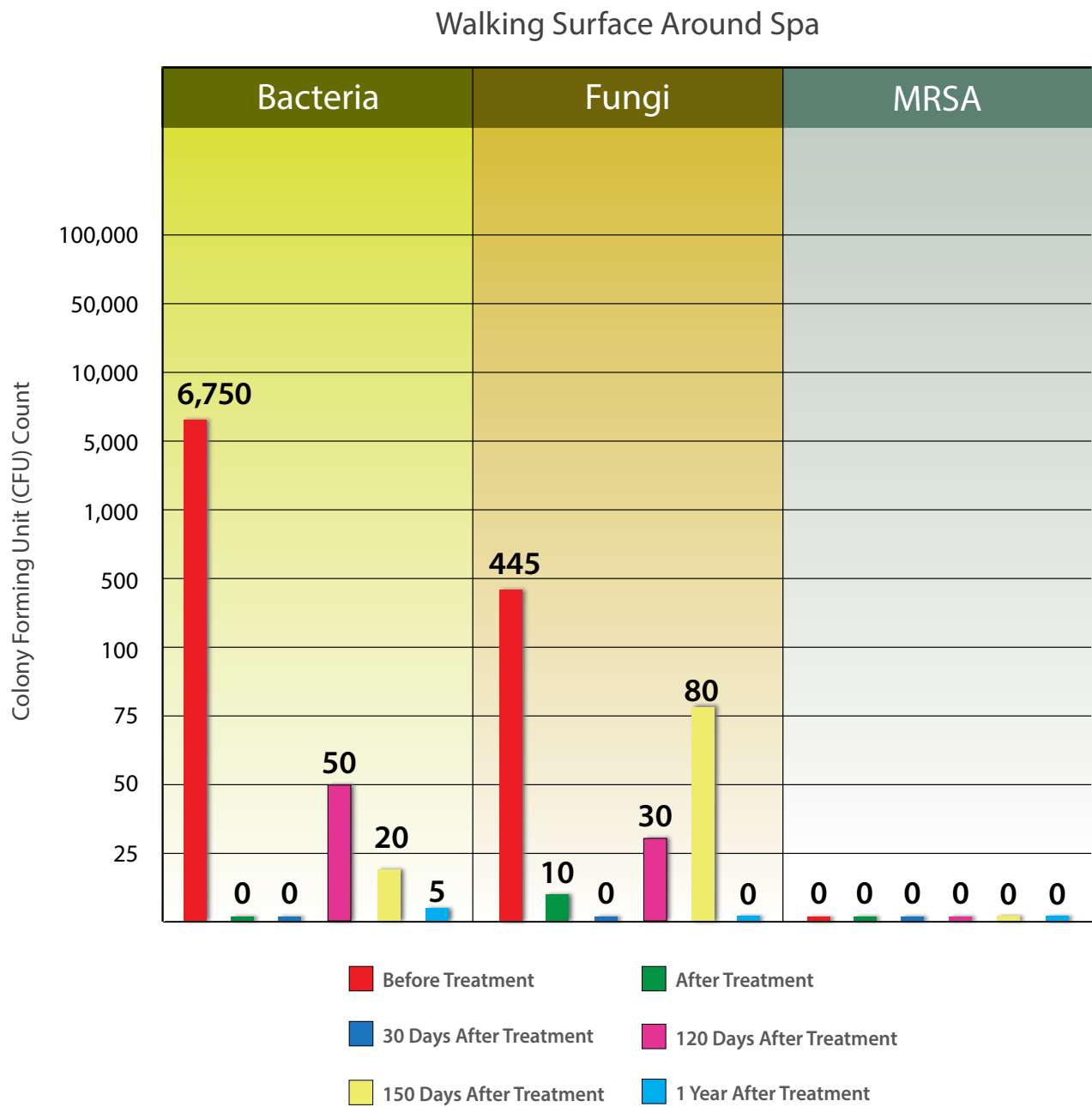
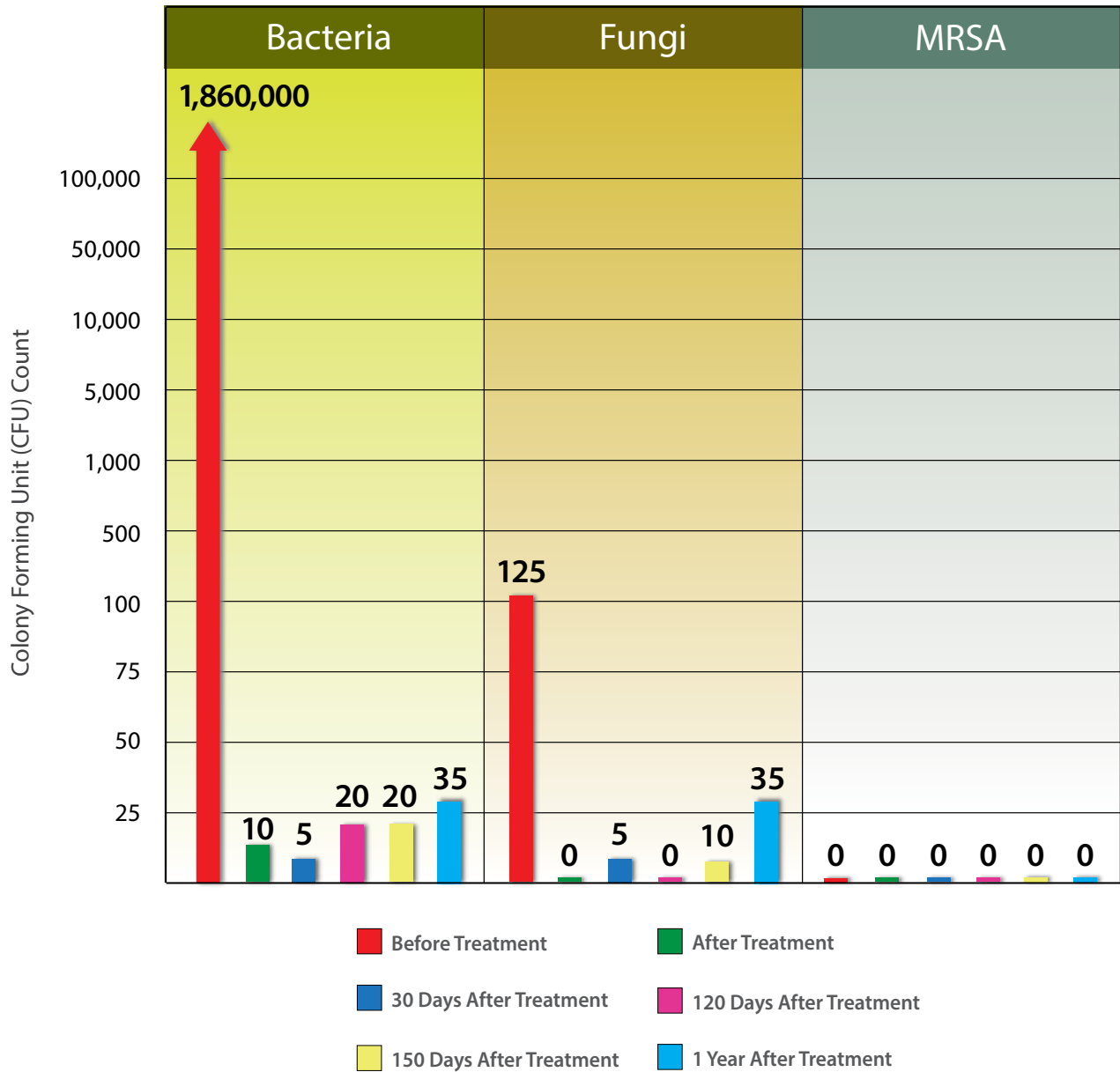


Figure 9

# Bunk Room Door Handle



↑ INDICATES VALUE OUTSIDE OF CHART RANGE

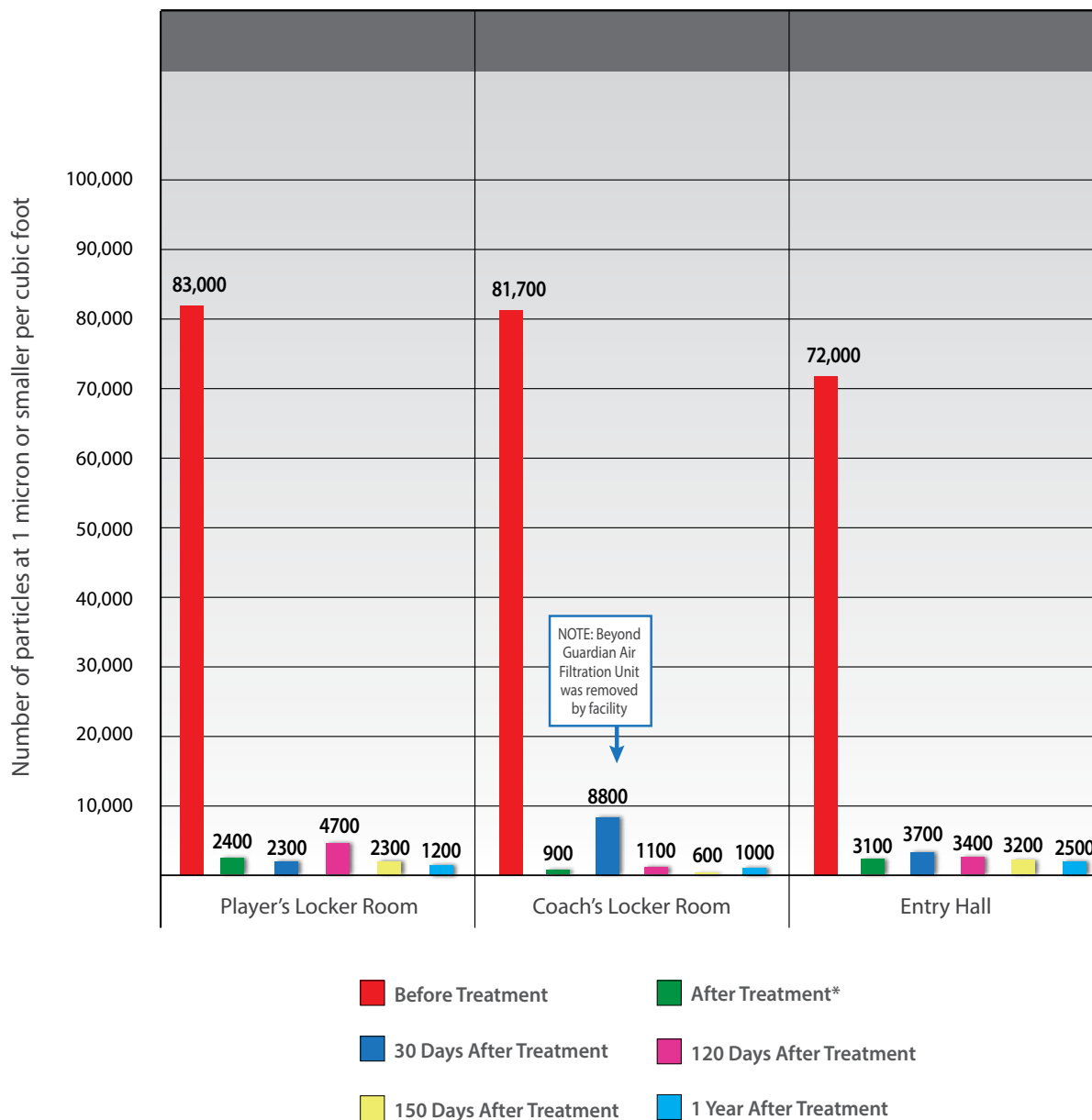
Figure 10

# AIR PARTICLE COUNTS

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ONE YEAR POST-TREATMENT TESTING RESULTS

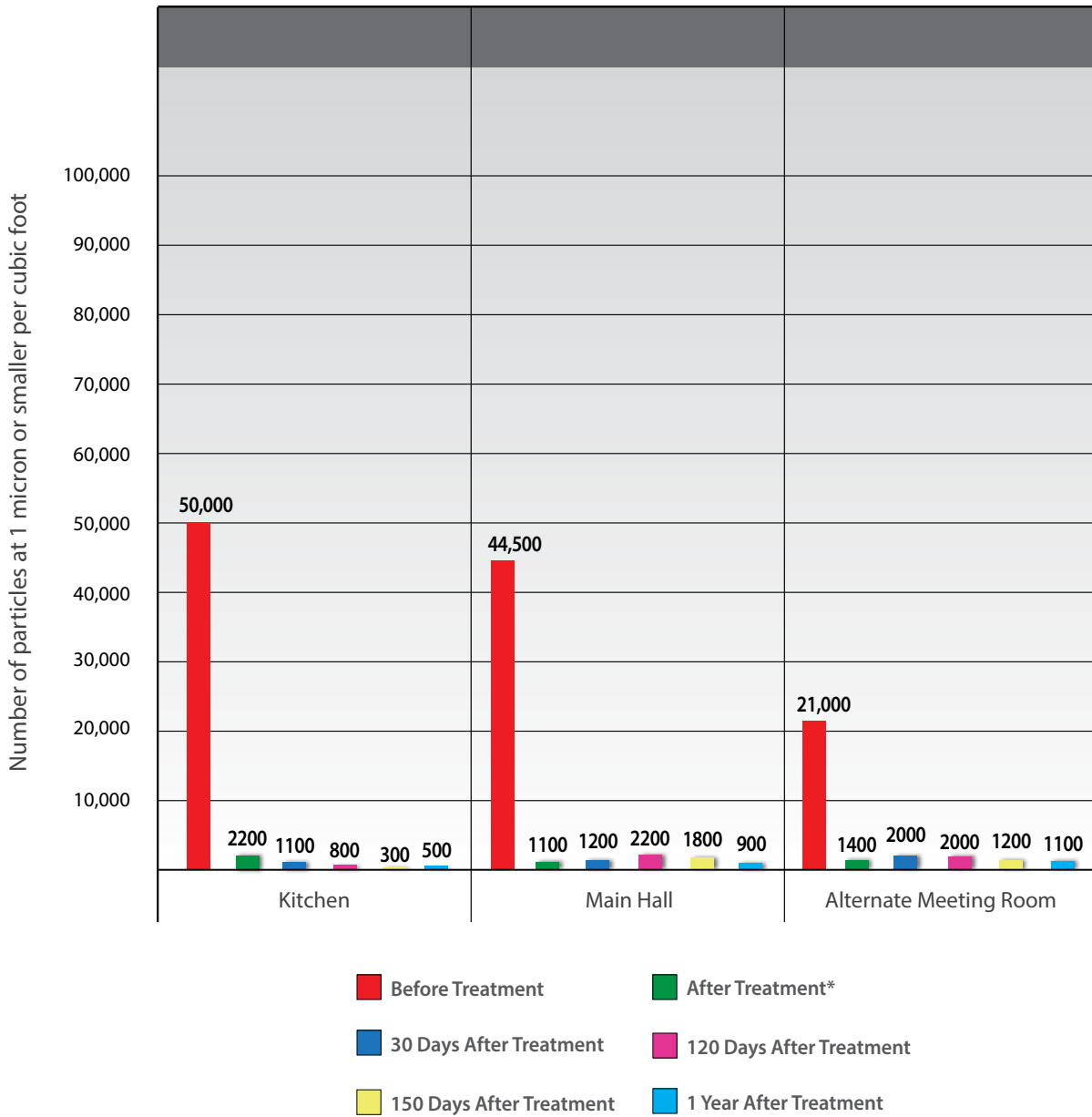
## Air Particle Count : Home Clubhouse



\*Air particle tests performed 24 hours after Beyond by Aerus process was completed

Figure 11

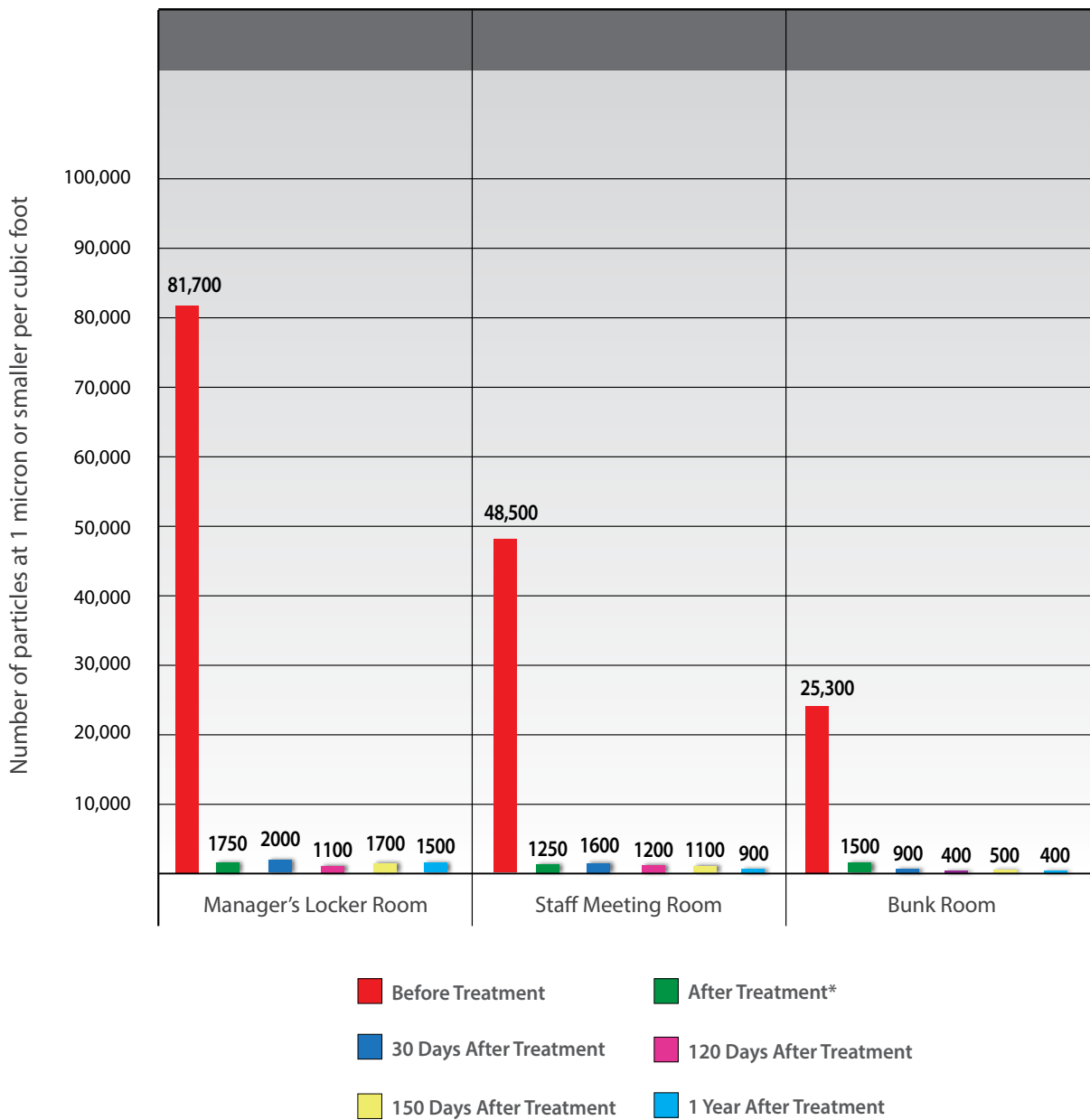
## Air Particle Count : Home Clubhouse (continued)



\*Air particle tests performed 24 hours after Beyond by Aerus process was completed

Figure 12

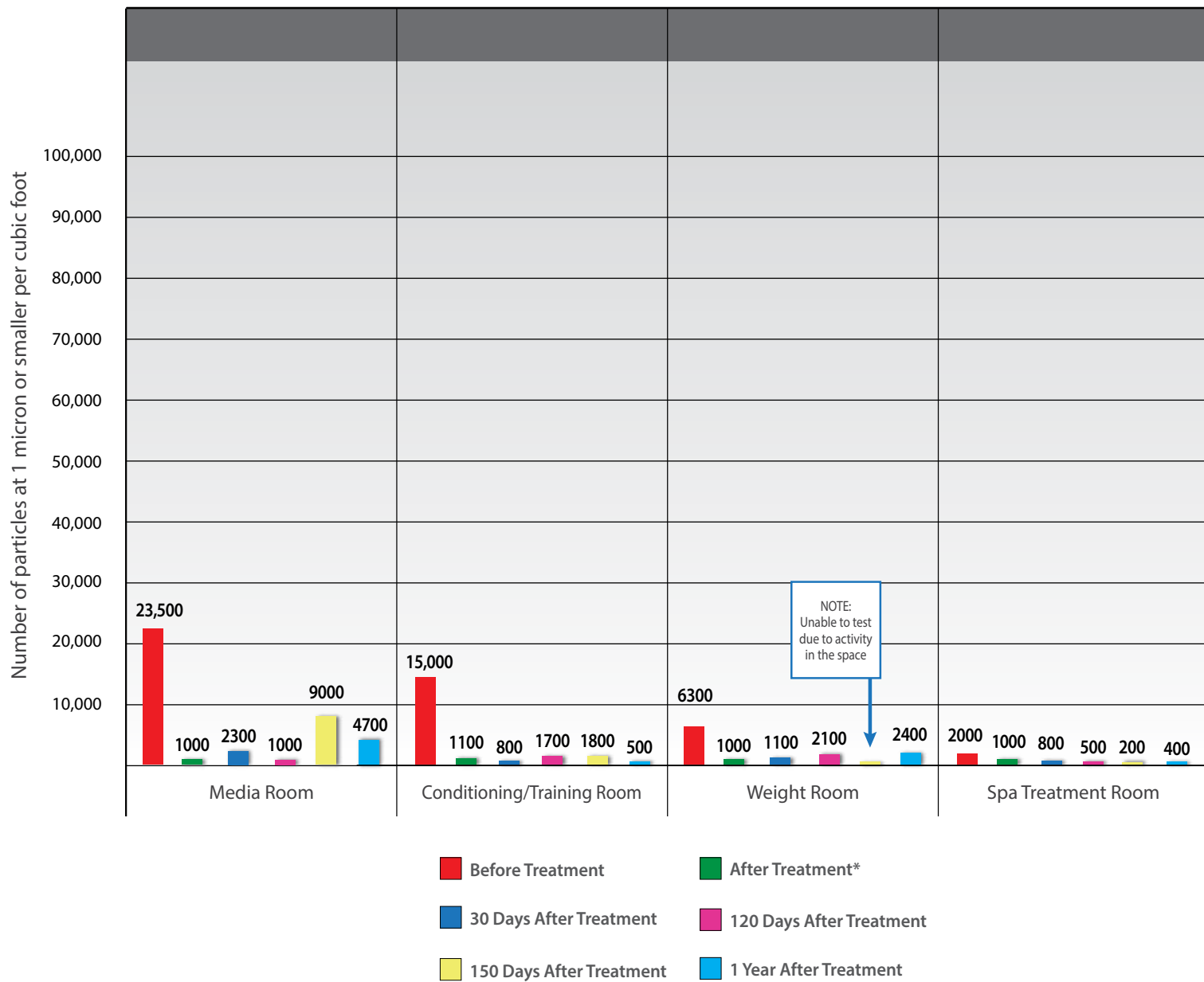
### Air Particle Count : Home Clubhouse (continued)



\*Air particle tests performed 24 hours after Beyond by Aerus process was completed

Figure 13

### Air Particle Count : Home Clubhouse (continued)

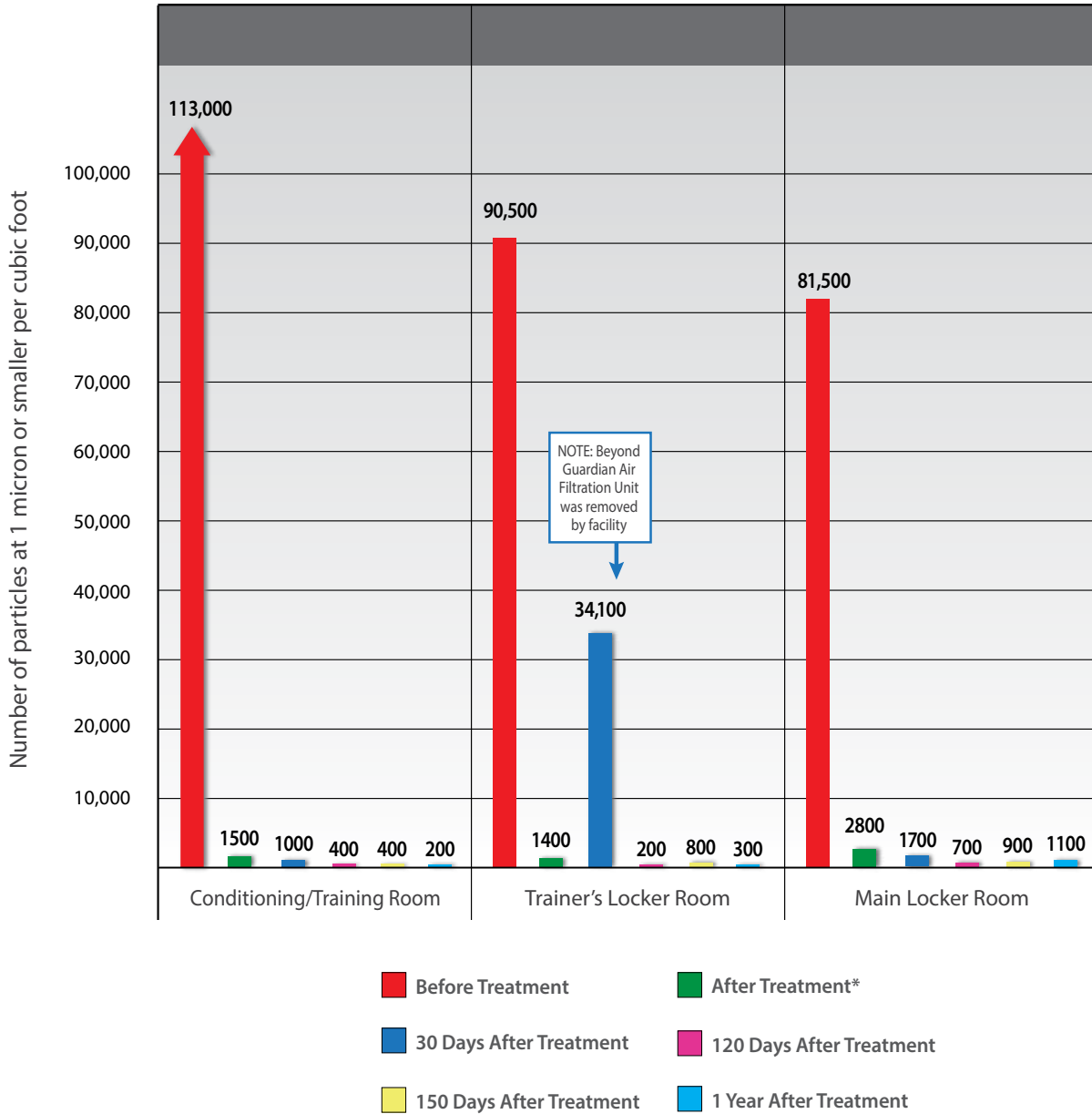


\*Air particle tests performed 24 hours after Beyond by Aerus process was completed

Figure 14



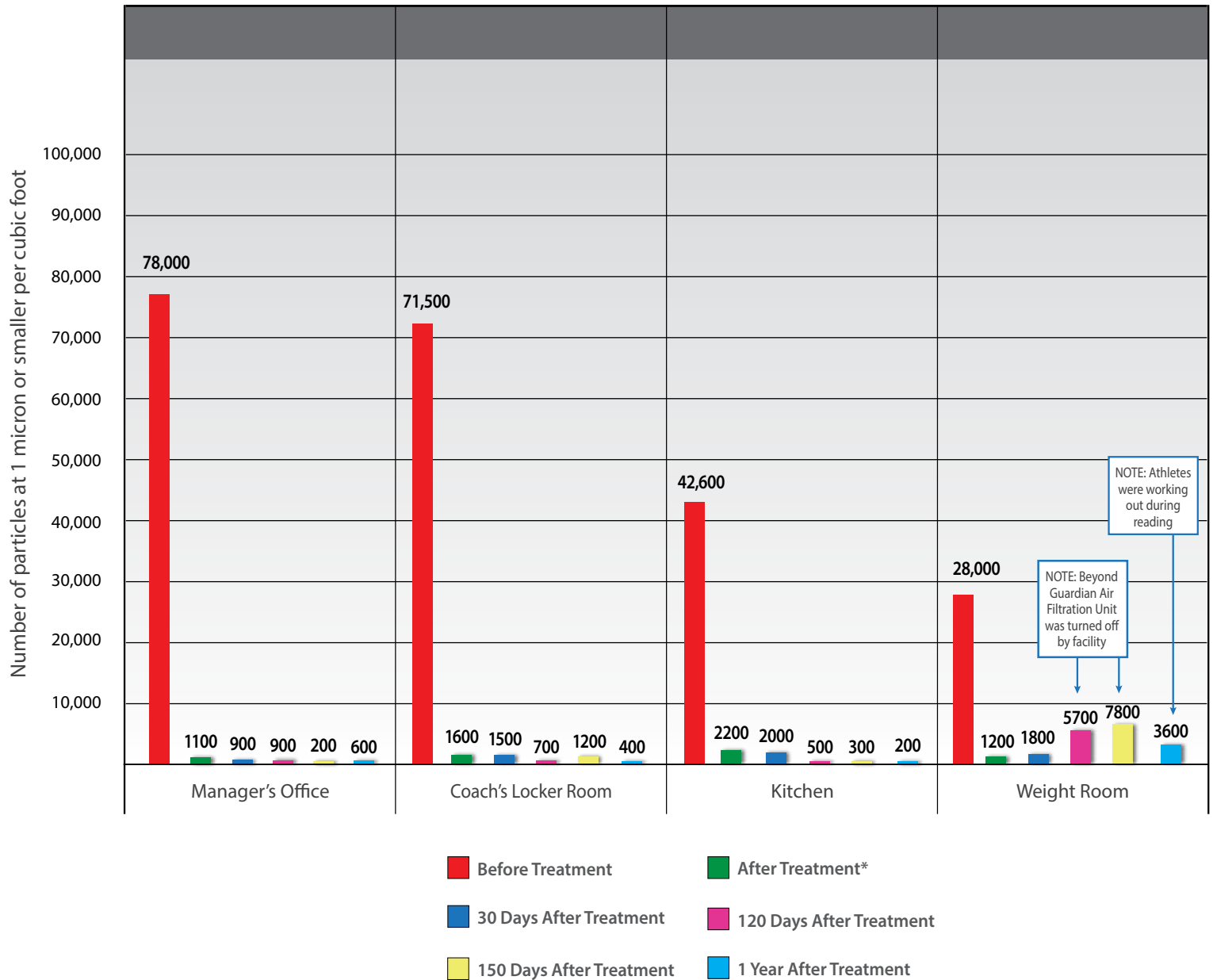
## Air Particle Count : Visitor Clubhouse



\*Air particle tests performed 24 hours after Beyond by Aerus process was completed

Figure 15

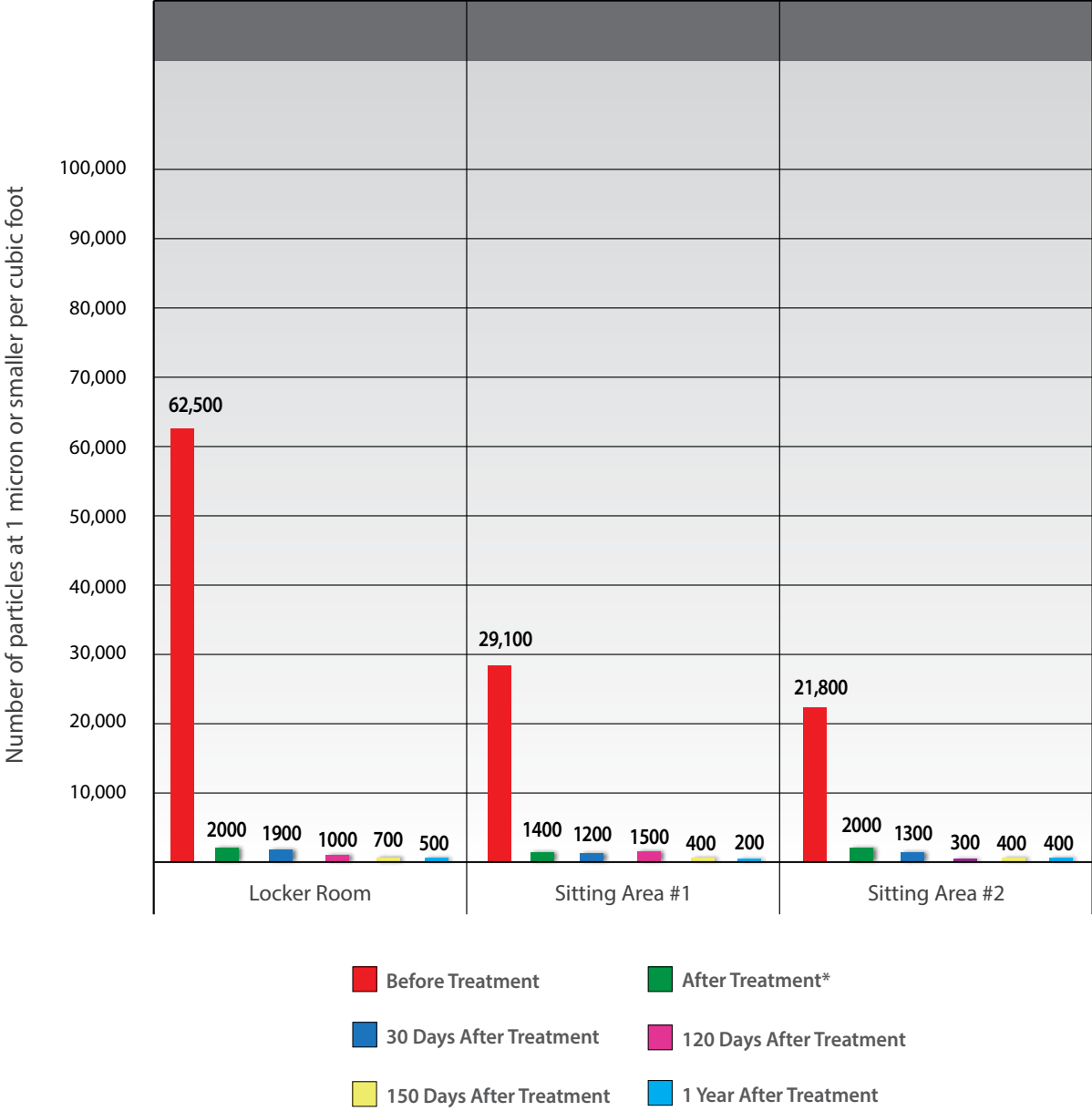
## Air Particle Count : Visitor Clubhouse (continued)



\*Air particle tests performed 24 hours after Beyond by Aerus process was completed

Figure 16

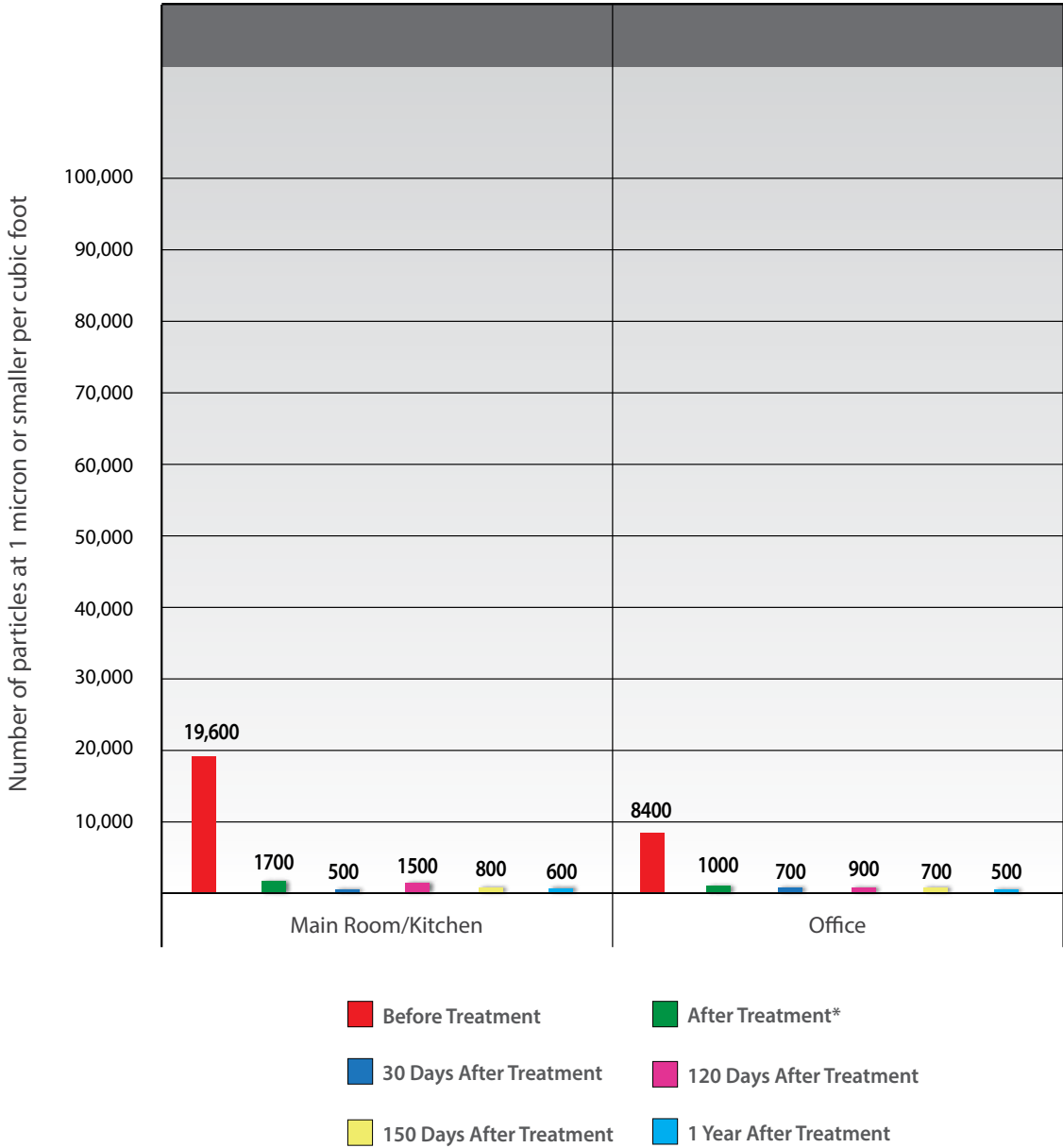
# Air Particle Count : Umpire Clubhouse



\*Air particle tests performed 24 hours after Beyond by Aerus process was completed

Figure 17

Air Particle Count : Umpire Clubhouse (continued)



\*Air particle tests performed 24 hours after Beyond by Aerus process was completed

Figure 18

## CONCLUSION & PLAYER AND STAFF BENEFITS

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## Conclusion

The one year post-treatment testing indicates the **ongoing virtual elimination of contaminants** in the areas of the Texas Rangers Locker Room and Conditioning Facility which were treated with the Beyond by Aerus patent pending solution. **Bacteria**, including **MRSA**, in most instances **remained near zero**, as did fungi. **Air quality and purity continued to be exceptionally improved**. The Beyond by Aerus solution continues to kill bacteria and fungi upon contact on all surfaces, as well as provide ongoing protection of the surfaces and air against future contamination.

Additionally, the installation of multiple, technology-based air purification systems is critical to continuing the elimination of surface contaminants and lowering airborne contaminants, which provides continued protection to the athletes and staff.

## Player and Staff Benefits

The ongoing testing and treatment of the Texas Rangers Clubhouse, Visiting Team and Umpire Facilities provides increased benefits for the health, safety and productivity of players and staff.

Beyond by Aerus Benefits include:

- **Reduction** in the number of common **cold and flu** outbreaks and **sick days** due to illness
- **Protection** from **allergy and asthma** triggering contaminants and the resulting illness this can cause
- **Reduction** in **respiratory issues** which may lead to additional health problems
- **Protection** from **MRSA** and **E. coli**
- **Improved productivity** from healthier, cleaner air and surfaces
- **Protection** from **illness**-causing bacteria and viruses

In order to maintain optimal health and benefits from the Beyond by Aerus Treatment we **recommend** that **players at risk use** a Beyond Guardian Air **at home** and a FreshAir To Go **when traveling**. We especially suggest this for those with allergies or other respiratory risks or with weaker immune systems.

## POST-TREATMENT MAINTENANCE

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While no one can guarantee the health of your players, we believe that our multi-step process combined with our post-treatment maintenance can materially reduce or eliminate risks posed by contaminants in your facility. Beyond by Aerus has demonstrated that their technology creates a healthier and safer environment.

## Daily

Texas Rangers staff should thoroughly vacuum using the Beyond by Aerus vacuum cleaner.

*We recommend the following be performed by Beyond by Aerus Staff:*

## Ongoing / Monthly Post-Treatment Maintenance

- ☐ Clean and service each installed air unit
- ☐ Check vacuums for proper function (belts, filters and bags)
- ☐ Retreat highly used touch points such as door handles, light switches
- ☐ Inspect air vents and treat if needed
- ☐ Particle air test
- ☐ Spot test selected surfaces for continuing assurance

## 60 Day Post-Treatment Maintenance

- ☐ Monthly maintenance plus disinfect and AllerGuard Shield weight rooms

## 90 Day Post-Treatment Maintenance

- ☐ Monthly maintenance plus HEPA Vacuum and 5-step carpet treatment in main traffic areas



## CONTACT INFORMATION

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