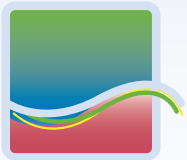




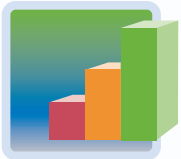
Airflow



Air Quality



Surfaces



Measurement

Changes in healthcare create a new opportunity to design safer hospitals.

Today's hospital leaders and administrators are facing one of the most challenging periods in healthcare history. Hospital-acquired infection rates are making headlines. New laws and new reporting requirements are emerging. Healthcare costs continue to rise. At the same time, an aging population, medical advances and new technologies have lead to an unprecedented building boom for hospitals which is expected to continue for years.

These converging trends are creating a once-in-a-lifetime opportunity to rethink how changes in hospital design and operations can improve patient safety, increase staff effectiveness and support a cleaner, greener, healthier, more energy-efficient indoor environment – an opportunity that can be seized with the help of Ingenuity IEQ.

Ingenuity IEQ offers a suite of the best available technologies to improve indoor environmental quality by optimizing airflow and air quality, minimizing microbial contamination and precisely monitoring indoor environments to maximize health, comfort, safety and energy efficiency.

Our experience indicates that many healthcare administrators are not aware of how these new technologies can be incorporated into their current construction and retrofit projects to meet the demands of the 21st century for clinical excellence, cost containment and environmental sustainability.

We want to change that.



Why indoor environmental quality counts.

Your clinical outcomes are not a secret anymore. Prospective patients and clinical staff can consult many sources, such as HealthGrades[†], to evaluate your performance, including patient safety and hospital-acquired infection rates. In many states, hospitals are required to post infection rates in their lobbies for all to see.

The report found more than *200,000 additional hospital days and nearly 1,500 additional deaths* associated with hospital-acquired infections in one state in one year.

Although Pennsylvania has taken a leadership role in reporting HAI data, these cost and quality issues are not unique to one state.

Nor is it a secret that hospitals are battling fiercer microbes and treating more seriously ill and immuno-suppressed patients using the same infection control processes and tools they've always used – disinfectants, sanitizers and cooling tower biocides. Unfortunately, these methods are not getting the job done – and hospitals are seeing increasing consequences, in both human and financial terms.

Patient Safety Report Card

Patient Safety Indicator

- Lack of infections acquired at hospital. ✓
- Avoidance of severe infection following surgery. ✓
- Prevention of death in procedures where mortality is usually very low. ✓

Some of the best data on this topic comes from the state of Pennsylvania, in a series of reports issued by the Pennsylvania Health Care Cost Containment Council (PHC4).

According to a PHC4 report issued in November 2005, based on data reported and confirmed by Pennsylvania hospitals, there were 7.5 hospital-acquired infections (HAIs) per 1,000 hospital admissions in 2004. This amounted to 11,668 HAIs and an additional \$2 billion in hospital charges compared with hospitalizations of patients who did not have HAIs.

U.S. Data

\$30 billion
cost of hospital/health care infections annually.

1.7 million
patients get health care associated infections.

100,000
annual deaths from hospital infections.

The U.S. Centers for Disease Control & Prevention estimates that 100,000 Americans die of hospital-bred infections annually. Nearly 2 million patients get hospital infections (of a total 35 million stays),

and two-thirds of them have infections that resist at least one drug.

Fortunately, there is a solution.

At Ingenuity IEQ, we combine decades of indoor environmental expertise with a portfolio of the best available technologies to control and measure airflow, air quality and microbial contamination throughout healthcare facilities. We can demonstrate proven results linked to:

- Improved clinical outcomes
- Enhanced patient and staff comfort and safety
- Lower building maintenance costs
- Significant energy savings, year after year

Pennsylvania Data

For each payor category, the hospital admissions related to the 11,668 hospital-acquired infections reported in 2004 were associated with an *additional*:

	Deaths	Hospital Days	Hospital Charges
Medicare	978	114,546	\$1,010,377,544
Medicaid	152	30,229	\$ 371,630,059
Commercial	308	54,452	\$ 603,827,742
Uninsured	6	850	\$ 9,789,207

[†] HealthGrades is the leading healthcare ratings organization, providing ratings and profiles of hospitals, nursing homes and physicians to consumers, corporations, health plans and hospitals.



Stop microbes in their tracks.



Surfaces

Hand washing, disinfectants and UV lights are critical components of any infection control plan, but they're not the whole answer. By applying the broad spectrum antimicrobial surface treatment available exclusively from Ingenuity IEQ for healthcare facilities, you can increase the overall effectiveness of your plan by destroying both bacteria and fungi on contact, including:

- Aspergillus
- Black mold
- Candida
- Dermatophytic mycoses
- Legionella
- Staphylococcus aureus, including MRSA
- Streptococcus
- Tuberculosis
- VRE

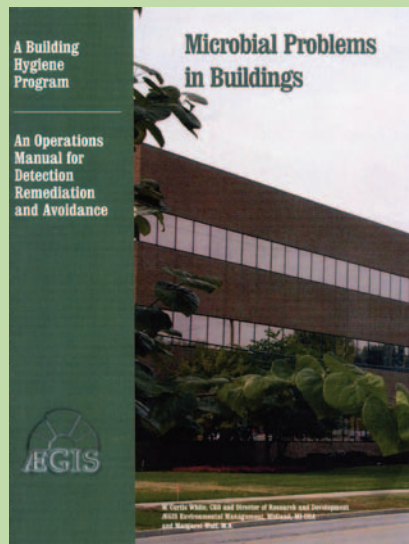
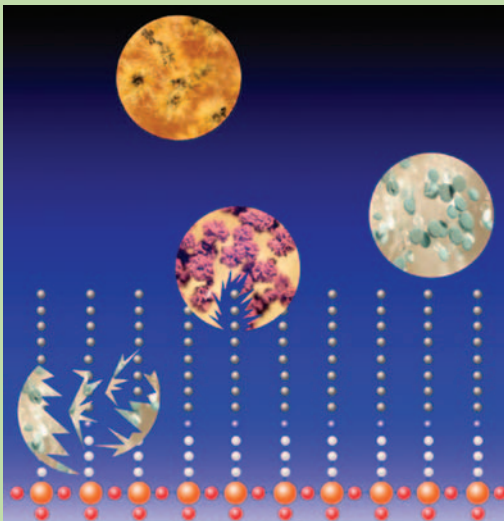
These durable antimicrobial treatments are applied directly to all interior hospital surfaces, to reduce human and material exposure to the dose of these contaminants to the most practical standard known: "ALARA," or "as low as reasonably attainable." In most cases, we are able to attain microbial levels near zero.

$$\text{Dose} + \text{susceptibility} + \text{virulence} = \text{risk of infection.}$$

Antimicrobial treatments from Ingenuity IEQ provide practical and affordable control of the *only* aspect of infection control that can be managed by your healthcare system: *Dose*.

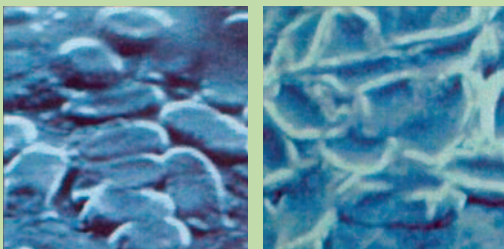
By effectively reducing dose to the lowest attainable levels, you not only protect susceptible patients, visitors and staff from increasingly virulent microbes, you also protect your capital investment from out-of-control microbes and molds that cause staining, deterioration, odors and serious operational problems. Equally important, you protect your hospital from legal negligence issues, as well as from the economic costs associated with extended stays of patients with hospital-acquired infections.

Figure 1



Our long-lasting antimicrobial treatment explodes and destroys microbes on contact, as shown conceptually in Figure 1 and in actual electron microscope photos in Figure 2. A single surface treatment provides years of protection against multiple fungal and bacterial organisms. To view a video on this technology, or to obtain ordering information for "Microbial Problems in Buildings, An Operations Manual for Detection, Remediation and Avoidance," visit our web site at ingenuityieq.com.

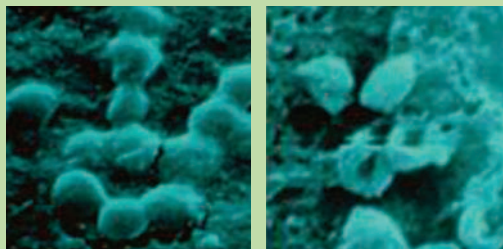
Figure 2
Escherichia coli



Untreated

Treated

Staphylococcus aureus

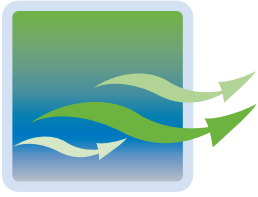


Untreated

Treated

Electron microscope photos courtesy of AEGIS Environments

Increase patient safety and cut energy costs.

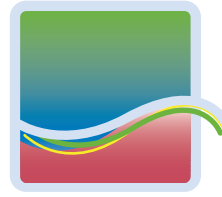


Airflow

In hospital laboratories, pharmacies, isolation rooms, procedure rooms, patient rooms, operating rooms and other critical healthcare environments, directional airflow and room pressurization control is essential to minimize dangerous contaminants and prevent the spread of airborne infections.

Ingenuity IEQ can provide expert engineering to assure proper room pressurization and airflow, using the world's most advanced airflow control and exhaust systems. These systems, customized to your facility's requirements, greatly improve air quality and occupant comfort, while significantly reducing energy cost by eliminating over-ventilation.

They also give hospitals the ability to quickly reconfigure rooms into isolation suites in the event of contagious outbreaks or pandemic disease events.



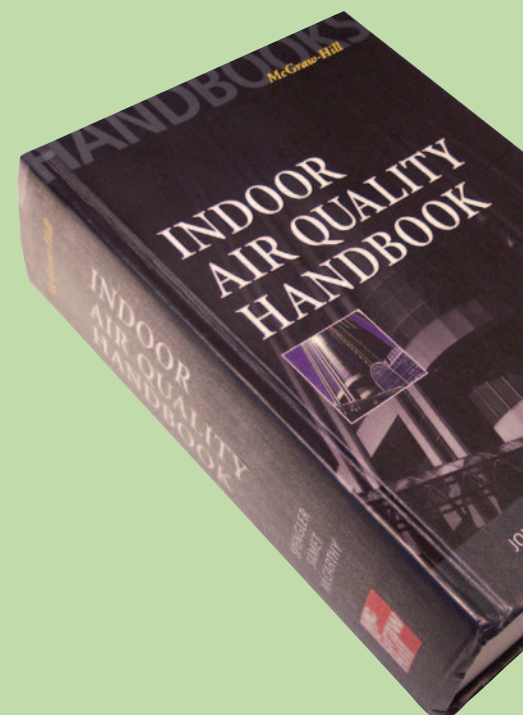
Air Quality

Indoor air purity is also crucial to your mission. That's a good reason to consider the best technology on the market, available exclusively from Ingenuity IEQ. This revolutionary technology cleans, deodorizes and disinfects the air, removing pollen, mold spores, mildew, ragweed, dust mites, pet dander and many other

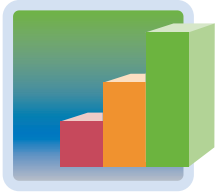
irritants. It also converts organic vapors to benign carbon dioxide and water, providing protection from both expected and unexpected threats to air purity.

This proven technology creates a safer, healthier, more comfortable and productive environment for everyone who enters your hospital – and provides protection from airborne substances that could threaten your patients, your staff, your buildings and your budget.

The Indoor Air Quality Handbook specifies optimal levels for air cleanliness, pollutants and comfort, all of which can be precisely measured and controlled, using state-of-the-art monitoring equipment from Ingenuity IEQ.



Keep track of what matters.



Measurement

When you decide to invest in the best available indoor environmental quality technologies, you will want to know exactly how clean your environment is at all times. With monitoring technology available from Ingenuity IEQ, you can monitor air particles, pH, humidity, carbon monoxide, carbon dioxide,

other medical gases and volatile organic compounds and integrate the results with your building control system for optimal environmental quality and energy savings.

These advanced systems deliver real time data that allows you to:

- Measure, validate and optimize HVAC and other building systems
- Provide ongoing reporting that proves your systems are protecting patient health
- Meet Green/LEED™ program objectives
- Reduce energy consumption and costs

All our systems are covered under a regular recalibration program to ensure their accuracy.

The bottom line is the bottom line.

Whether you're in the planning stages or near completion on a major construction project, facing a current environmental problem or looking ahead to solutions for future challenges, managing costs will always be a top priority. That's why we think you'll be interested in learning more about the economic advantages of our integrated solutions.

Based on decades of real world experience, we can provide data that will allow you to objectively evaluate the net impact that reduced energy, maintenance and liability costs and

enhanced indoor environmental performance can provide for patients, staff and your facilities.

A customized solution from Ingenuity IEQ will help you achieve a level of operational excellence unavailable by any other means. You'll also gain an important differentiator in the intensely competitive healthcare field. Review the checklist on the back of this brochure to identify those areas of greatest importance to your organization.

Recommended Guidelines

Comfort and Ventilation	
CO ² (ppm)	< 1100
Temperature (°F)	68 - 78
Relative Humidity (%)	20 - 60
CFM (outdoor air PP)	> 15
Air Cleanliness	
PM 10 (µg/m ³)	< 40
PM 2.5 (µg/m ³)	< 20
TVOC (index)	< 35
Building Pollutants	
CO (ppm)	< 9
Radon (pCi/l)	< 4
Ozone (ppm)	< 0.1

What's your hospital's IEQ?

To find out more about Ingenuity IEQ and what we can do to help improve patient clinical outcomes and competitive advantage for your hospital, call for an appointment today at 1-800-669-9726 or visit our web site, www.ingenuityieq.com/healthcare.



JOHN D. SPENGLER, JONATHAN M. SMET,
JOHN F. MCCARTHY

Let's talk about what is important to your institution:

- Patient safety
- Patient clinical outcomes
- Verifiable infection control
- Hospital-acquired infections
- Ability to respond quickly to contagious outbreaks
- HealthGrades ratings
- Workplace comfort and productivity
- Employee absenteeism
- Minimal operational problems
- Maintenance cost
- Legal liability
- LEED™ certification
- Productive medical and clinical staff
- Public image



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