

The Microbial Menace

The Return of Infectious Disease and What It Means to our Indoor Environment

In 1958, when I was taking an advanced microbial metabolism course in graduate school, I came across an interesting photomicrograph. In it, two bacteria of very different strains had formed a common bridge and were sharing genetic material. When I showed it to my instructor he said “the bugs are smarter than we are.”¹

For more than half a century scientists have known that during conjugation, microbes of different species can exchange genetic material. This leads to all kinds of possibilities.

One such is hybrid vigor. Over a period of time, genetic variations can, and do, become immune to antibiotics. This problem is particularly obvious in hospitals. Nobel Laureate Joshua Lederberg warns us that “patients are dying because we no longer, in many cases, have antibiotics that work.”²

The Environmental Protection Agency (EPA) estimates that 90% of our time is spent indoors. Concentration of many air pollutants are frequently higher indoors than outdoors. Bioaerosols (fungi, fungal spores, bacteria, viruses, pollen, etc.) are major indoor air pollutants.

Water damaged carpets or ceiling tiles can enhance the growth of microbes (fungi, bacteria, viruses, etc.). A contaminated heating, ventilation and air conditioning (HVAC) system can distribute millions of microbes into offices and laboratories, as well as residential dwellings.

Some microbes cause diseases. Others cause allergic reactions and weaken human immunity, so that our bodies are more susceptible to microbial disease and toxicity.

In the past decade we have witnessed the return of infectious disease. A combination of the weakening of vaccination regimens, poverty and poor sanitary conditions, improper use of antibiotics and the natural selection process has resulted in outbreaks of diseases believed to be conquered and the production of new and particularly virulent strains of diseases-causing microorganisms.

In subsequent issues we will discuss in more detail:

- * Water intrusion into buildings and the fight against fungal growth.
- * The return of infectious diseases and what it means to our indoor environment.

1. Prof. M. Belsky, Biology Dept., Brooklyn College, 1958

2. *Microbial Threats to Health*, Lederberg, et al., 2004

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Reprinted from *TECH TO TECH*, Shelly Mendlinger, Managing Editor

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