

infectious isolation, HEPA filters should be used on the return air if air is being recirculated or exhausted near public areas or air intakes. Controlling sources of contamination inside the rooms or in spaces around the rooms (ceilings) and controlling colonization of the patients also must be given attention.

An alternative approach to the use of tracer gases involves the use of particle generators with measurement of the distribution and mixing of air by means of particle counters. The advantage of this approach versus tracer gases is that it is possible to produce particles of defined sizes, which permits not only the dispersal of particles but the assessment of the efficiency of filtration. This technology routinely is used to test and rate air in clean rooms for industrial use, and it was used by the author in testing a ventilation filtration unit designed specifically for respiratory isolation rooms.<sup>6</sup>

It should be noted that it is possible to measure the volume and direction of airflow in rooms directly with equipment designed for this purpose. Smoke sticks and other visual systems may have some usefulness as well in assessing the direction of air flow.

Risk factors for transmission of infection include not only the concentration of bacteria in the air but also the duration of exposure (length of surgical procedure or duration of immunosuppression) and susceptibility of the host (patients and staff).

Finally, with respect to infectious isolation, it should be noted that protection of patients and staff depends on a hierarchy of controls, including in

order of importance, identification and treatment of patients, isolation of patients, and use of protective devices by staff.<sup>5</sup>

These considerations suggest that protection of patients and staff must include a broad set of considerations, with reduction of all risk factors and implementation of effective and redundant control systems.

It is likely that the primary application of new methodologies using tracer gas for measurement of ventilation and ventilation efficiency near term will be in the design of more effective infectious (respiratory) isolation facilities.

## REFERENCES

1. Marshall JW, Vincent JH, Keuhn TH, Brosseau LM. Studies of ventilation efficiency in a protective isolation room by use of a scale model. *Infect Control Hosp Epidemiol* 1996;17:5-10.
2. Lagus PL, Grot RA. Application of tracer gas analysis to the prevention of tuberculosis transmission in healthcare facilities. *Industrial Hygiene News* September 1994.
3. American Society for Testing and Materials. *Test Method for Determining Air Change Rate in Single Zone by Means of Tracer Gas, ASTM Standard E741-93*. Philadelphia, PA: ASTM; 1993.
4. The American Institute of Architects Committee on Architecture for Health. In: *1992-93 Guidelines for Construction and Equipment of Hospital and Medical Facilities*. Washington, DC: ALA Press; 1992:52-54.
5. Centers for Disease Control. Guidelines for preventing the transmission of tuberculosis in health-care settings, with special focus on HIV-related issues. *MMWR* 1990;39 (No. RR-17):1-29.
6. Marier RL, Nelson T. A ventilation filtration unit for respiratory isolation. *Infect Control Hosp Epidemiol* 1993;14:700-705.

---

## Educational Blitz in Texas

by **Gina Pugliese, RN, MS**  
**Medical News Editor**

The Texas Department of Health's Division on Infectious Disease Epidemiology and Surveillance (IDEAS) recently initiated an educational program for Texas public health professionals. The two major

components of the new program are continuing medical education (CME) and a biweekly newsletter, *Disease Prevention News*. The IDEAS Division CME staff sponsor quarterly conferences at state, regional, and local health departments. The newsletter, produced in cooperation with the CDC, is sent to nearly 9,500 profes-

sionals in the state and also is available on the Internet's World Wide Web. For further information on the CME program or newsletter, contact Julie Rawlings, IDEAS Division, Texas Department of Health, (512) 458-7228.

FROM: IDEA Place. *CDC/NCID Focus*. 1995;5(10):8.