The Texas Center for Infectious Disease (TCID) is a freestanding inpatient facility dedicated to the treatment and elimination of tuberculosis (TB). TCID, located in San Antonio, began operation in 1953 as a large inpatient hospital for patients with TB. In 2011, a uniquely designed, 75-bed specialty hospital with integrated air quality and security systems was opened by the Texas Department of State Health Services on the original South San Antonio campus. The entire facility has been designed to prevent TB transmission and enhance the patient experience during a prolonged hospital stay (from six months to two years). It is currently the only freestanding inpatient TB treatment facility in the United States. TCID is also affiliated with two major academic medical centers: The University of Texas Health Science Center at Tyler and its Heartland National TB Center, and the University of Texas Health Science Center at San Antonio.

The mission of TCID is to provide high-quality medical care and opportunities for research and professional education for providers of patients with hard-to-treat TB and complicating conditions. Health care and diagnostic services are provided to all referred patients aged sixteen and older, including those who are unable to pay, as part of the Department of State Health Services (DSHS) system supporting preventive and treatment services. Eighty percent of admissions are voluntary, but TCID also supports court-ordered treatment.

Because of its unique patient population, TCID has sophisticated mechanical and environmental controls in place, including electronic security, surveillance, and communication systems. Each private room/bath is large and can be air-isolated to twelve changes per hour. Indicators at doors to anterooms and patient rooms notify staff about the air control status in each space and have an alarm that sounds if the negative air flow malfunctions or if doors are left open for more than 15 seconds. Fences, electronic key systems, and gate control access are also in place, enhancing the secure environment.

In addition to these controls, TCID rigorously reinforces staff respiratory protections. TCID employees are individually fit tested with elastomeric half-mask respirators.

TCID selected the elastomeric respirator because they feel it provides a more reliable and comfortable fit, better respiratory protection, is cost efficient, and because it is less time consuming for fit testing. TCID recently switched to a new model of respirator, based on staff feedback that the facepiece on a previous model caused some facial bruising and was uncomfortable. The earlier model is now only used for employees with very large faces.

All persons in direct patient care receive an elastomeric half-mask respirator with N95 particulate filters. These cartridges are changed only when dirty, saturated with fluids, difficult to breathe through, or damaged.

Once a year the cartridges are changed during the employee annual mask fit testing. Staff also receives a shoulder carrying bag to keep the respirator with them at all times.
Staff from the cardiopulmonary (respiratory) department are available for respirator fit testing 7 days a week, 24 hours a day. Physicians, other contractors, and visitors to the facility must be fit tested and provided respirators by TCID. For individuals unable to wear half mask respirators, eight PAPRs are available on site, with four fully charged and ready to use at any given time.

Infection control and training specific to TCID policies and procedures as well as annual mask fit testing competence is provided to all new employees and on a continuing basis for existing staff to be sure all employees are fitted according to TCID policy and OSHA guidelines. The training includes negative and positive pressure seal checks, training on the proper use and wear of the particular respirator and advice on when to utilize the respirator, visual inspection, proper cleaning and storage, and any other concerns or questions that may arise.

Basic training and other courses are conducted by 1.5 FTE educators (RNs), the TCID-specific infection control practitioner, and environment of care specialists. Training materials are locally developed and provided by the Centers for Disease Control and Prevention (CDC). Because TCID patients are most often admitted with other infections in addition to TB, extensive training and precaution management is in place for other biologic infectious agents. TCID actively participates in the respiratory protection planning, implementation, and testing that is required of all of the Texas Department of State Health Services hospitals. TCID also participates in the emergency preparedness activities of the Southwest Texas Regional Advisory Council in San Antonio. These activities are designed to implement well-planned and coordinated regional disaster and emergency response systems. The campus-wide emergency management coordinator keeps 18 additional PAPRs available at two separate locations in the event of a disaster.

To evaluate their respiratory protection program, TCID tracks conversion to positive TB skin test or incidence of active TB or other airborne communicable infectious disease. Other activities include post-training and update testing, routine reinforcement of the use and importance of proper techniques, routine system and equipment checks, and regular sharing of the results in interdisciplinary meetings and workgroups. Staff are empowered to remind each other about PPE and encouraged to report any problems.

Persons who work at TCID understand the gravity of the types of diseases treated in their facility and the importance of careful attention to infection prevention and respiratory protection. TCID has not experienced an employee conversion in TB skin test in over a decade. TCID staff consistently leads in vaccinations, PPE use, demonstrations and checks, written testing of knowledge of infectious disease control techniques, and equipment use documentation. TCID has hosted visitors from around the world and has provided fit testing training and consulting for their affiliated academic medical centers, other area hospitals, and local public health and safety officers.
Based on evaluation and monitoring of measures, TCID reports a high level of compliance with their respiratory protection requirements. Many of the challenges facing other acute care hospitals when implementing their respiratory protection programs are not an issue at TCID. For example, there is no need to determine who should be fit tested and trained as all persons who must enter rooms that are in negative pressure are already fit tested and trained. They use their shoulder packs not only to carry their own respirators at all times, but also to keep other tools of their trade close at hand. There is no need to utilize respirator reminder systems. There has been no need to institute incentives or consequences for failing to adhere to respiratory protection program policies; as a culture, the need for respiratory protection is well understood and everyone is invested in protecting themselves. It appears that when the threat is real and ongoing, staff will comply with protocols put in place for their own protection.

This case study is excerpted from: Implementing Hospital Respiratory Protection Programs: Strategies from the Field, a monograph from The Joint Commission. The entire piece can be found at: http://www.jointcommission.org/implementing_hospital_respiratory_protection_programs_strategies_from_the_field/