Surveys and Analysis

Environmental surveys provide healthcare organizations with validation and documentation of a safe, effective environment. If problems are uncovered, TSP can pinpoint the cause and work to develop solutions.

TSP surveys cover key areas in the healthcare environment.

- **Environmental Waste Gas**

  The Occupational Safety & Health Administration (OSHA) in the *Anesthetic Gases: Guidelines for Workplace Exposures* requires the institution to perform routine inspection and maintenance of equipment and establish a system of monitoring to measure gas levels. The [National Institute for Occupational Safety and Health](https://www.niosh.gov) recommends routine monitoring according to [Publication 2007-151](https://www.cdc.gov/niosh/topics/gases/). TSP monitors environmental gases commonly found in operating rooms, laboratories, central sterile supply departments and cancer centers. TSP monitors exposure in real time with a Miran Infrared Spectrometer and with exposure badges.

- **Electromagnetic Interference**

  The use of wireless technology has expanded exponentially in healthcare. Electromagnetic compatibility (EMC) management in hospitals requires knowing and understanding radio frequency radiators, managing equipment to prevent incidental radiation and inference, and surveying the electromagnetic environment. The [Federal Communications Commission (FCC)](https://www.fcc.gov) regulates wireless and wired communications. TSP services include surveys utilizing sophisticated spectrum analyzers and other test equipment, investigation, analysis and resolution of existing EMI problems, radio frequency coordination assistance including documentation of radiators internal and external to the hospital, electromagnetic spectrum planning assistance, and new device EMC planning and evaluation.
Protect patients and staff with proactive assessments of your healthcare environment

- **Electrical Power Quality**

  Alternating current (AC) electrical power is required by most medical devices and systems. AC power is subject to loss, brownouts, voltage spikes, phase issues and other problems that affect medical equipment operation. Complex medical devices such as CT scanners, clinical laboratory analyzers, and other computerized equipment are sensitive to power problems. Through the use of a recording electrical power analyzer, TSP can monitor, analyze and record electrical power parameters and analyze the data to produce a report on your electrical power status. This service can identify or eliminate the power system as a cause of equipment problems. The analyzer is capable of connection to single and three phase power systems producing a broad range of voltages.

- **Acoustic/Noise**

  The [Occupational Safety & Health Administration (OSHA)](https://www.osha.gov) indicates that noise is one of the most common health problems in the workplace. In healthcare, excessive noise not only negatively affects hospital staff, but also decreases patient care quality, satisfaction and can interfere with clinical staff hearing critical alarms. The [Environmental Protection Agency and the American Academy of Pediatrics](https://www.epa.gov) recommends a maximum noise level of 45dB during the day and 35dB at night for patient comfort. According to OSHA standard 1910.95, occupational noise exposure is limited to 85dB over an 8 hour period. Noise levels in the clinical laboratory are the most frequently cited CAP deficiency. Clinical alarm vulnerabilities have been identified as the top health technology hazard by the [ECRI Institute](https://www.ecri.org). Environmental noise can lead to alarms not being heard by clinical staff. A noise survey can identify and reduce noise sources interfering with alarm sounds.

  TSP provides services including surveys, data recording analysis and resolution of problems, and assistance in meeting OSHA and other requirements.