MEDICAL GAS ANALYZER

Below, an anesthiologist is scanning a display of data on the gases inhaled and exhaled by a patient during surgery at Wishard Memorial Hospital, Indianapolis, Indiana. The display unit is part of the hospital's Remote Monitoring System (RMS), whose principal component was originally developed for spacecraft use. The RMS is manufactured by Perkin-Elmer Corporation, Norwalk, Connecticut, a leading NASA contractor for space systems.

At Wishard Memorial, the RMS is used in operating rooms for analysis of anesthetic gases and measurement of oxygen, carbon dioxide and nitrogen concentrations. It assures that a patient undergoing surgery has the proper breathing environment—that he has enough oxygen, that the carbon dioxide is properly removed and that the mixture of oxygen and nitrous oxide is correct. Heart of the system is a fully automatic gas analyzer developed by Perkin-Elmer to monitor astronauts' respiratory gases in NASA's Gemini and Apollo programs. A small amount of gas drawn from the patient's inspired and expired breath is transmitted through a line to an inlet selector valve that delivers the gas to the analyzer. The system can monitor as many as 16 patients, with displays of six gases at a central station and within each operating room. RMS provides an alarm if the concentrations of gases are too high or too low. At Wishard Memorial, the system is not only helping to save lives but it is also providing substantial savings as a replacement for earlier, gas-wasteful monitors.

About 50 hospitals and research facilities are now using RMS for various purposes. The bottom photo illustrates an example: it shows a central control station at Kaiser Foundation Hospital, Los Angeles, California, where the RMS monitors patients in the Intensive Care Unit.



