Health problem addressed
Surgical lights provide lighting in surgical suites and are designed to illuminate the surgical site for optimal visualization of small, low-contrast objects at varying depths in incisions and body cavities.

Product description
A setup consists of a single- or multiple-lighthead assembly attached to a suspension arm. The surgical lighting fixture can be either mounted at a fixed point on a ceiling or wall or positioned along a ceiling-mounted track. Types of lamps include tungsten, quartz, and/or xenon halogens and light-emitting diodes (LEDs). Sterilizable handles allow the surgeon to easily adjust the light’s position. Many models can accommodate a mounted camera, and some newer models contain an integrated camera. Integration into the operating room (OR) infrastructure and control system may be possible.

Principles of operation
Surgical lights are designed to operate for extended periods of time without radiating excessive heat. For ceiling-mounted lights, one or more transformers are located either above the finished ceiling or in a remote-control box mounted on the wall to convert incoming line voltage to the lower voltage required for most lights. Conventional lamps are typically gas-filled incandescent lamps containing a certain proportion of halogen in an inert gas with a pressure exceeding 3 atmospheres (atm). Some gas-discharge xenon-halogen lamps emit light by passing electric current through a gas. LED surgical lights consist of pods, or modules, which are essentially small semiconductors that emit a narrow spectrum of light when excited by an electrical circuit.

Operating steps
- Light is switched on and optimally positioned for surgical procedure.
- Light features (e.g., positioning, color temperature, field size) typically can be adjusted during surgery to meet surgeon’s lighting needs.
- In case of light failure during surgery, some models come with a reserve lamp that automatically switches into uses when the primary lamp fails.

Reported problems
Patients were reportedly burned by lights in which heat-protection filters were removed. Burns were reported when multiple surgical lights operated at or near maximum intensity were focused on the same field. Bumping lights can create cracks or fractures that may cause the support mechanism to break or paint chips to fall into the surgical field. Dirt or fingerprints on a quartz-halogen lamp can cause the bulb to fail prematurely, become discolored, or explode. Other reported problems include disconnection and/or falling of fixture components.