Title
Provision of High Risk Medical Care in a Newly Opened Pediatric Subacute Care Nursing Home

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Principle
Reduction of authority gradient, adapt to the working environment, risk awareness, problem solving

Situation
Profoundly handicapped children who depend on technology for life to the degree they may suddenly die can still play and develop if kept safe. They are too handicapped and dependent on technology to live with their parents but not sick enough to stay in the hospital. We opened a new pediatric subacute care facility (SCF), a type of nursing home, with the goal of providing safe care in a high risk environment where children can play and develop.

Because of the high risk of death or serious complication to these children, SCFs are closely scrutinized by state regulators with rapid investigations and fines quickly assessed for complications of care or the possibility of such a complication. Penalties for consequential errors range from notices of deficiency to large fines to closure of the facility.

Newly hired nursing staff (Licensed Vocational Nurses, LVN, and Certified Nurse Assistants, NA) had no experience with high risk medical care and the newly hired respiratory care practitioners (RCPs) came from the acute care and critical care areas of the attached hospital.

Policies for this type of care did not exist. Staff either came from nursing homes with patients who do not change over months and little physician presence or the acute and critical care hospital where patients can change in minutes and physical presence of a physician.

We had the situation of bringing together caregivers with little or no experience in this care in a tightly regulated environment for high risk medical care in a manner that would help children play and develop.

Methods of implementation
The three authors used personal experience to plan, model, and mentor in the new SCF. Two authors (JA and GW) came from a SCF where the medical director used HRO methods and the third author (LS) drew upon a long career in nursing care including critical care.

The SCF developed policies by asking nurses to evaluate sample policies, describe what they are doing, what works, and what does not work. Because policies must function in the working environment and make sense to staff, all policies were vetted and adapted in this manner.
Nurses were new to the higher demands of this care. The nursing author (LS) made herself freely available by phone for questions and kept an open door policy. Other clinical administrators criticized her for this phone availability and for the first two years nurses routinely called 24 hours each day. After two years the number of calls dropped significantly as staff began teaching each other. Offered an office in the administrative area, LS chose her office in the middle of the patient care area and had an open door policy. This was, literally, an open door that people could enter at their convenience to talk and ask questions. The open door also allowed LS to monitor activity and tension levels in the facility by the voices coming through the door.

The hospital administration had difficulty understanding the hybrid care needed for these children. In the adult SCF lab studies and x-rays could wait for 6-8 hours while in the pediatric SCF the child could die in that time.

Respiratory care had a different problem as RCPs commonly worked in the intensive care unit (ICU) where patients had damage to lung tissue. The majority of decisions were made by the physician with use of laboratory values and x-rays. In the pediatric SCF the child’s lung tissue was usually good but neuromuscular problems interfered with breathing. The SCF did not have continuous physician presence necessitating migration of authority, within legal limits, to the bedside RCPs. The different environment needed different behaviors.

New RCPs would change the settings of the ventilator to reach a normal value of blood gas, a standard which comes from acute or critical care, and they viewed the ventilator as the enemy to be weaned off by decreasing the ventilator rate. The two RCP authors (JA and GW) brought the concept that the ventilator can enhance life and enable children to smile, laugh, and interact. To do this, they had to change the approach to one where they treated air hunger and shortness of breath rather than a blood gas which enabled the child to become more aware of the surroundings and begin smiling. This required use of higher ventilator breathing rates than the RCPs were accustomed to. Rates to adjust for CO2 was biggest problem – normal CO2 gave agitation and high heart rate. They saw the result and followed that.

The new RCPs also used volume for the ventilator but in the child with a large air leak around the tracheostomy tube this caused lower ventilation effectiveness and retention of carbon dioxide. The large air leak served the purpose of reducing erosion in the lining of the airway and allowed speech. The problem was that the hospital has a policy and protocol for use of pressure controlled ventilation which requires that a physician closely monitor the patient. New protocols, addressing the risk of standard intensive care unit ventilation in the SCF, had to be written and accepted by critical care healthcare givers with limited experience in long term ventilation.

The new RCPs were initially cautious as there was no readily available and knowledgeable physician to assist. Because agitation was an emergency (the child could disconnect from the ventilator and die) the RCPs would hand ventilate to comfort and call the physician for new ventilator orders. The authors let them learn by problem solving and risk awareness rather than imposing a new manner of work. Recognition of signs of air hunger (risk awareness of the nature of using conventional care) helped with this. The patient showed signs of respiratory distress or failure, predicted by the authors who also demonstrated what the kids would look like if
RCPs used this new approach. They also demonstrated the hazards vs. benefits by observation, explained the physiology, and introduced the concept air hunger which is a sensation and the third measure of respiratory function. Don’t tell what not to do but also tell them what to do.

**Results**
The call policy gave teaching in real time with the result that after two years the calls dropped significantly. The child was more aware with these settings, this was affected by the RCP so the RCP saw that it was their action / problem solving that caused the improvement. RCP became more aware of the child’s condition. The number of emergency transfers decreased and the percentage of referrals from the intensive care unit increased.

**Conclusion**
High Reliability enabled this SCF to become fully operational, providing safe care to high risk children in the austere environment with the goal of making a profoundly handicapped child smile.