"Going solid" - DTU Orbit (11/02/2019)

*Going solid*: a model of system dynamics and consequences for patient safety

Rather than being a static property of hospitals and other healthcare facilities, safety is dynamic and often on short time scales. In the past most healthcare delivery systems were loosely coupled - that is, activities and conditions in one part of the system had only limited effect on those elsewhere. Loose coupling allowed the system to buffer many conditions such as short term surges in demand. Modern management techniques and information systems have allowed facilities to reduce inefficiencies in operation. One side effect is the loss of buffers that previously accommodated demand surges. As a result, situations occur in which activities in one area of the hospital become critically dependent on seemingly insignificant events in seemingly distant areas. This tight coupling condition is called "going solid". Rasmussen's dynamic model of risk and safety can be used to formulate a model of patient safety dynamics that includes "going solid" and its consequences. Because the model addresses the dynamic aspects of safety, it is particularly suited to understanding current conditions in modern healthcare delivery and the way these conditions may lead to accidents.

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