



Projects as Patients

What Can We Learn from the Medical Profession?

by Will Lichtig

When was the last time that you checked on the health of your project?

Over the past 25 years, projects have continued to grow more complex, but project outcomes have not really improved. Projects are routinely late and over budget. In real terms, construction productivity has declined, while nonfarm productivity has increased by more than 200 percent. Construction projects continue to result in 1,200 injuries and 4 fatalities each day. Is it any wonder that individuals continue to leave the design and construction professions and the industry is facing a labor crisis?

Whatever can be said of the role of management in the improvements seen in other industries, there is little to cheer about in design and construction. Successful projects—those that are delivered early, under budget, safely, profitably, with high owner satisfaction, and with participants who want to work together again—are few and far between. As my friend and colleague Hal Macomber often says, “project participants often come together as strangers and leave as enemies.” Is there something inherent in design and construction that makes this outcome inevitable? Or are we failing to properly diagnose and treat the illness that is producing these symptoms?

At the outset, let’s begin by focusing on defining the problem. Projects are temporary social organizations. On most projects, companies and individuals within each of those companies are thrown together without much courtship. The companies have typically become successful by mastering the rules of a traditional game where they seek to tightly define their responsibility based upon the available information, pretend that the future will unfold as described at the outset, and seek to hold others accountable when the future inevitably unfolds in a way that is different than predicted at the outset. It is a game of winners and losers—whether in the context of contractors versus designers or trade versus trade. The rules of engagement are well defined, both in the project documents and the rulebook published by the lawyers and insurance companies.

As the project unfolds, participants begin to look for excuses for their own inability to accurately predict the future, and look to blame others for not being prescient. The role of a manager is to prepare and execute on a strategy to preserve the profit margin and identify who is responsible for any cost and time overruns. This is how the traditional game is played and it is small wonder that it has produced unsatisfactory results and unsavory opinions or project participants. In this situation, lack of trust and poor communication is understood as the problem rather than a symptom.

There is a different future that can be created.

Project teams are like a patient. Individual team members are like different body parts that must all function together well in order for the system to function properly. If one part of the body is unhealthy, the rest of the body suffers.

Healthy teams are much more likely to navigate the inevitable uncertainty that will beset the project. They will be able, like a healthy immune system, to fight off the potential for illness brought about by changes, uncertainty, delays, and the like. Unhealthy teams, by contrast, are likely to have compromised immune systems and succumb to uncertainty and the resulting adversity. So what can be learned from the medical profession that might help managers diagnose threats to project health and help the patient heal?

For the moment, let’s focus on diagnosis. In general, the role of the physician is to identify disease and its symptoms; understand its mechanisms; and comprehend how to prevent, treat, or cure the disease. In turn, medical diagnosis involves understanding the context of the patient (individual history and social setting), observing the patient’s symptoms, examining the patient, performing tests, developing a hypothesis of the underlying disease, and implementing and monitoring a treatment plan. A proper diagnosis requires that the physician understand the characteristics of the healthy human in order to assess the patient’s condition.

Once the diagnosis is made, the physician develops and implements a treatment plan, followed by further monitoring to determine how the patient is progressing. Throughout treatment, the physician continues to assess progress and adjust the treatment plan to accommodate changes in the patient’s condition.

But how might we apply this to the design and construction industry? Bear with me for a bit more analogy.

For thousands of years, childbirth was the most common cause of death for young women and infants. Between 1930 and the mid-1950s, medical standardization and improvements in U.S. healthcare caused a decrease in maternal mortality from 1 in 150 to 1 in 2,000! During this same period, however, there was no improvement in infant mortality—1 in 30 infants died at birth. It took Virginia Apgar's revolutionary yet simple ideas to transform obstetrics and improve infant mortality.

Although Apgar was not an obstetrician, she attended many births as an anesthesiologist. Based on her observations of newborns, their visible indicators, and ultimate outcomes, she developed a scoring system that gave nurses a simple diagnostic tool to quickly assess a newborn's condition at 1 minute and 5 minutes after birth. According to the medical profession, it turned an intangible and impressionistic concept of a newborn's condition into discrete observations that could be recorded on a 0–2 scale. The scoring focused on heart rate, respiratory rate, reflex to stimulation, muscle tone, and color.

By collecting this data, it caused the profession to focus on observing, diagnosing, and treating newborns' conditions in an effort to improve their scores. The Apgar score remains part of common practice around the world and is widely credited with saving thousands of lives. As noted by Atul Gawande, "the Apgar score changed everything....[I]t gave clinicians at the bedside immediate information on how they were doing....The Apgar effect wasn't just a matter of giving clinicians a quick objective read of how they had done. The score also changed the choices they made about how to do better." (Atul Gawande, "The Score: How Childbirth Went Industrial," *The New Yorker*, October 9, 2006, http://www.newyorker.com/archive/2006/10/09/061009fa_fact [accessed November 12, 2007]).

So how do we begin to develop an Apgar score for our projects? Today, do we study only the equivalent of mortality statistics by focusing almost exclusively on profit and "burn rate"? What instead are the leading indicators that will help us diagnosis, develop a course of treatment, and then monitor a project's progress in returning to health? What are the positive characteristics that produce successful projects that we should monitor to identify illness? Let me offer a few suggestions:

1. *Collaborative planning.* John Wooden said that "failing to plan was planning to fail." Projects need a collaboratively developed set of nested plans in place for the long term (major upcoming phase), medium term (six-week look-ahead), and short term (weekly work plan). This does not mean a unilaterally developed master critical path method (CPM) schedule. It is not the plan itself that is paramount; rather it's the planning conversations of the team readying themselves for action. Assuring that planning is done collaboratively and the team is updating the plan weekly will require the team routinely to engage in these necessary planning conversations to create a network of intercompany and interpersonal commitments to support the project's overall promise.
2. *Reliable promising.* Healthy projects consistently have people doing what they say they are going to do when they say they are going to do it—meeting the expectations of their internal and external customers. Modern management theory is coming to embrace that projects are networks of commitment and that the role of management is to ensure that team members are making and securing reliable promises for performance. We all understand that on complex projects our ability to perform is usually dependent on others' performance. When others fail to perform as expected, it causes ripples throughout the project. It doesn't take long to think of a situation where someone else's failure to perform as promised caused us harm. If they had only told us they would not have been able to perform, we might have been able to come up with an alternate plan. We need to encourage performers to not overcommit, and to report early when circumstances will not allow them to complete as promised. This will allow the team to replan and adjust.
3. *Unaccounted-for foreseeable issues.* If we are going to steer to avoid the bumps in the road, then we need to know where the bumps are before we roll over them. In order for the planning effort and reliable promising to be successful, all team members must identify potential impediments or constraints on their ability to perform sufficiently in advance to allow another team member to make a reliable promise to clear that constraint. For example, if architects and engineers are expected to make reliable promises when they will furnish clarifications, the trades must all be planning their work to identify potential issues well in advance (six weeks). We need to know how many issues will need resolution in order to make sure that we have adequate resources to respond by the date promised. Nothing disrupts an architect's ability to fulfill its commitment more routinely than the interruption of a problem that has become "urgent" as a result of another party's failure to plan. Successful projects avoid the "tyranny of the urgent" by thoughtful team-wide planning.
4. *Safety.* Healthy projects are safe projects. Where workers have the information, tools, equipment, and materials they need when they get to the worksite, project safety improves. Where material rehandling is minimized, project safety improves. Injuries and near-misses often are indicators of failures in the planning system.
5. *Project mood.* Winning teams, whether in sports or in business, benefit from having a team spirit, a positive outlook, and a culture of learning in which all the performers feel appreciated. A recent Gallup study concluded that one of the primary distinguishing characteristics of high-performing teams was that team members were acknowledged at least once every seven days. In contrast, a primary reason for employee disaffection is feeling unappreciated or that their work lacked value. What happens to the work product when team morale is crushed by having to perform rework or feeling besieged by a barrage of "unfounded" questions? Assessing the mood of the primary team members will often be a telltale for the entire team. Is the team's outlook positive? Are members of the team overburdened or feeling overworked? Do people trust each other? Are they honest and

respectful with each other, or do the "real" conversations happen in private or after the meeting?

Using this diagnostic tool calls on each team member to pause from the daily grind and reflect on the project's health. Each member of the project's executive team should score the project separately on a monthly basis. The scores should then be shared among the executive team members at a meeting expressly for considering the project's health—diagnosing, developing a treatment plan, and monitoring the project's progress back to health. If the project's Apgar score is superb, then use this opportunity to focus on areas where the team's continuing health could be promoted by a "wellness program," further improving its resistance to disease.

The meetings' environment must be conducive to openness and honesty, recognizing that promoting project health is in the best interest of all parts of the "patient." The executive team should focus on developing a treatment plan, not on the symptoms. To the extent that the executive team identifies a particular team member that needs help to succeed, it should focus on what each team member can do to help restore health, not simply focus on the struggling team member and tell them what to do to heal themselves. Obviously, their immune system has been overcome and they are unlikely to recover without treatment. The project team must identify the disease's root cause, mobilize the project's immune system, and develop a systemic treatment plan that promotes full recovery!

Project Apgar Score

Category	2	1	0
Collaborative Planning	Phase, 6-week, and weekly work plan in place and updated weekly	One or more elements not in place or not updated weekly	Two or more elements not in place or not updated weekly
Reliable Promising	Plan promises completed (PPC) >80% and rising	PPC <80% or trending down for more than 1 week	PPC <60% or trending down for more than 3 weeks
Unaccounted-for Constraints	No foreseeable items arising that were not captured in the 6-week look-ahead plan	Foreseeable items arising, but not delaying activity	Foreseeable items arising and causing resource reallocation or delays
Safety	No reportable injuries; no near-misses; no unsafe conditions	Unsafe condition or near-miss	Reportable injury
Mood	Uniformly positive; honesty and trust evident; team learning and improving	Declining morale; partial openness or honesty; traditional silos developing; tempers short	Cooperation lacking; team uninterested in learning

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