Developing a Poly-Chronic Care Network

An Engineered, Community-Wide Approach to Disease Management

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Preface

Kenji's Dilemma

Kenji was frustrated. It should have been so much easier, so much faster. The changes he expected to see weren't there. He found himself trying more and more often to prove to his boss that his efforts were, or perhaps would, have an impact on the bottom line. Though he could see, even sense, the change that had taken place, the CFO couldn't count it, so it might as well not be happening.

It had been almost three years since the dream he had while sleeping in a metal chair in an emergency department (ED) waiting room rattled his cage. That dream, that nightmare, had stirred something deep inside him that made him leave the world he'd known since college, his manufacturing comfort zone, and step out into a whole new world of healthcare. The work was different, very different, from anything he'd seen in a factory. The intense work of analysis, the preaching, teaching, begging, and arguing for every minor incremental improvement, all seemed worth it when he started. But now he was beginning to wonder.

His son, the reason for his late-night visit to the crowded ED on that fateful rainy night, was so proud of him when he announced that he was leaving the Toyota plant that had been so good to him and his family. Toyota treated its employees well, and there was never any real threat of unionization in this traditional Southern town with its ingrained work ethic.

It was therefore a tough choice—one that would see a cut in his pay, benefits, and career progress—but one he never questioned.

Though healthcare was new and very different, what he'd seen made him initially believe that it was a world he could fix. Change was to have come easily and swiftly, given how broken the system seemed to be. He'd suspected that even small improvements should show up as huge benefits. His long history of change management in manufacturing assured him that he could lead his new employer to a higher level of sophistication and productivity.

His new job at the local hospital, secured by interviews set up through well-connected neighbors in his subdivision, was to "fix it." "It," as it turns out, was just about everything. The emergency department was "broken," which was apparently hospital lingo for "completely and totally dysfunctional." The operating room (OR) was mostly run, or rather lorded over, by a small cadre of politically powerful surgeons who seemed to hold the chief executive officer (CEO) in the palms of their hands. What they asked for they generally received. What they didn't like generally did not happen. And they didn't like Kenji's ideas.

In his manufacturing days, if the paint line was slowed down, it impacted everything upstream. This was both intolerable and quickly fixed. Kaizen teams would descend on the problem area like gulls to a clam, picking at it until the problem was solved. The upstream work cells would be as demanding as the downstream bottleneck cell, since everyone's compensation and/or bonus was, in some way, tied to the productivity of the whole plant, not just their particular cell. All worked together as a unified army, bent on the absolute annihilation of any and all waste and inefficiency, no matter where the root cause lay.

Kenji sat at his desk in his stark, windowless basement office, just down the hall from his hospital's purchasing department and linen services. Here, surrounded by whiteboard

covered with scatterings of ideas and process maps, he thought about his "good old days." He smiled wryly as he thought back to the project one of his teams had undertaken at Toyota to ensure that the men's room near section 45 was cleaned more regularly. Within a few hours of working with the janitorial staff, they had literally value-stream mapped the entire bathroom cleaning process, 5S'd the cleaning carts, and scheduled the workload to allow the janitors to clean the bathrooms when it would do the most good. Quick work, quick solution, even if to a very minor problem. The janitors were, at first, too shell-shocked to argue, and frankly didn't care much about it until they realized how much easier their work actually had become. They walked less, accomplished more in the same amount of time, and were even given the incentive of an extra thirty minutes of break time at lunch if "customer satisfaction" (i.e., men's room users) scores remained high. Ironic, he thought, that similar results on a similar project at the hospital might take months to come to fruition. And, as Kenji thought back, he was pretty darned sure that his old boss never challenged the financial significance of *that* project. It was never about the finances. It was about the workers—his friends, neighbors, and fellow citizens—at the plant.

He snapped back out of his stroll down memory lane to look around his office. Value-stream maps of the ED. A Kaizen event that planned for discharge processing. A 5S in the cardiac care unit (CCU). It struck him again, as it had months before—that both the problem and the solution lay in these many projects. It wasn't the projects themselves that were the problem. Had this been his factory, these would lead to improvements, to some degree. They had potential to do the same at his hospital, too. Here, though, the projects were all *individual, isolated* projects that would likely not lead to the massive, systemic improvements his boss wanted. Rather, they would lead to siloed impacts that often created more problems than they solved, assuming they actually solved anything substantial. Oh sure, he could fix ED triage, as long as there

was physician capacity to see more patients when the boluses arrived into the main ED from the triage area. Those were the simple projects. But the downstream, external department silos—well, that's another story.

The silos. Hah! More like fortresses! They were fortresses armed with archers and cannons and boiling oil to ward off any change agents who might try to enter from another, equally hardened fortress. Worse, each silo had its own internal issues that made changing one risk negatively impacting another. This made the second throw up its defenses against any changes within *and* without. Even if he could penetrate them all at once, as he'd been trying to do for the past three years, he wasn't sure that he could piece together the entire system into a coherent picture and a systemic, quantifiable goal. It changed so much from day to day, week to week, month to seasonal month. This constant change and the constant battles between fortresses made him feel like a man in a huge field chasing rabbits. The minute he got close to one, it would dive into a hole and pop up somewhere else in the field. He could never catch up. All his Lean training did not prepare him for such a crazy, chaotic world.

Not that he wasn't trying everything he knew to try. To help with grasping and analyzing the complexity of the system he was trying to fix, he'd put in a purchase request for a simulation tool that he'd seen at a healthcare conference. He'd seen a presentation by another management engineer who'd used a simulation software package called Arena to replicate the flow of a patient through the entire hospital. Wouldn't *that* be cool, he'd thought. He researched the simulation vendors, and chose the most popular one on the market, in part because they were so supportive of the industrial engineering schools and societies, and in part because it was used by the presenter's team. Alas, however, his Arena software purchase request was buried somewhere on his boss' desk awaiting next year's budget cycle. Maybe he'd see a license in eleven or so months. Like a carpenter without a good hammer, he'd have to find

a way to make progress without the right tools. He scoffed, maybe if one of the orthopedists would make the request, it would be on his desk by Friday!

He shook his head and vowed, as he did every day, to march on. Just as he was about to leave for a 10.30 a.m. meeting with the nursing director on 4-west, the phone rang. It was his wife. A shiver went up his spine, just like every other time she called now that her mother was back at home instead of in the nursing home. Was today the day he'd get "the call?" The thought itself turned his stomach queasy as he reached for the phone. "Hi, baby. How are you? Can't chat but a minute or I'll be late for a meeting with Janet Savage. What's up?" he asked, hoping for a good answer.

"It's mom, honey. She's taken another turn for the worse. And I cannot get Dr. Goodall on the phone. He's off today or something. The answering service picks up every time."

"What's the problem?" he asked, while simultaneously looking at his watch and feeling guilty for doing so.

"Her weight is up another few pounds since last week. Her breathing seems more labored. At least I think, I can't remember. She says it's not, but I think it is. She doesn't look well, and she says her chest is still 'cramping,' whatever that means. I might have to take her back to the emergency department if Dr. Goodall cannot see her right away. I'll bet that's what he tells me to do anyway, if he calls back today. I think he's off. I certainly cannot figure out what's going on, and I'm no doctor."

Great, he thought. Just what his ED and Nana (as the family called her) don't need—yet another trip the ED for her chronic obstructive pulmonary disease (COPD). Or was it her asthma, or her two bum knees, or the chest pains that put her there last time? It's not like we don't know what she has! Yeah, he recalled, she was just admitted to the hospital, what, a few weeks ago for her COPD. And now she might have to go back? Is there a revolving door on this place?

Kenji knew Dr. Goodall. He was a caring physician with a soul of gold. He was very near retirement (assuming, he routinely joked, the government lets him and his portfolio doesn't hit zero). But he was still seeing a full load of patients. He worked "the old fashioned way," the way a lot of docs still do—a lot of hours, a lot of rounding and phone calls after hours, a lot of early mornings and long weekends. He was one of those who had medicine in his blood since he was a kid. And, good or bad, he was still a believer that medicine was 70 percent art and 30 percent science. In other words, this was not a doc who would be using a computer-based algorithm to help create a care plan.

Yet, for all his commitment, the system wasn't supporting him well. His small office staff was a dedicated group that worked hard to take care of his patients. But they too struggled. Both their antiquated computer systems and the latest software gave them regular fits. Dr. Goodall chased specialists for opinions, while the specialists chased down results of someone else's last lab orders. Kenji's mother-in-law was not well, so she saw a lot of doctors in the community, and was a classic example of the complexities of disjointed care delivery. None of them seemed to communicate with each other, at least not readily or easily. It seemed such a struggle just to get a coherent set of instructions for one of her conditions, let alone all of them. Worst of all, he thought, they always seem to take time off when Nana gets sick.

Of course, his mother-in-law was often her own worst enemy. Compliance was a foreign word, one that meant little or nothing. Inconsistency and stubbornness were more characteristic than following directions. She was just not a good patient. She cancelled as many appointments as she kept, which meant her care was sporadic at best. Small wonder her conditions were so hard to treat, or that one of her specialists had threatened to stop seeing her.

And talk about fortresses! There were so many it was hard to count them all—the specialists, the offices, the hospital,

the clinics, Medicaid. How many phone calls had his wife made from her office, during breaks or her lunch hour, to try to get answers that should be readily available?

Perhaps most concerning about Dr. Goodall was his imminent retirement. It was a mystery where his patients, especially Nana, would go when he left his practice at year's end. None of the other docs in the area were taking new Medicaid patients, which meant his wife's beloved mother might not have a primary care physician (PCP). Without Dr. Goodall's tender and forgiving spirit, who would put up with Nana and her crazy attitude?

"Should I just go ahead and take her in, honey? She's not going to get better sitting at home alone. And I can't take off work tomorrow because I have a board meeting to attend. Today is the only day I have to wait in the ED. She's got no one else, and nowhere else to go." And wait she would, he thought. If only his employee status could jump her to the front of the ED line, like a Platinum Club membership on an airline. She was, after all, a frequent user! "I dunno. What's she like?"

"Alone. Confused. Stubborn. Just like every other day. Baby, I just don't see that I have a choice. How bad is the wait today?"

He wished he could tell her, and he should be able to, but he didn't have the first clue. "What else *can* you do, baby? Take her in, I guess. I just wish the doc would see her first."

Kenji left for his meeting with the unit manager, knowing where Nana would be within the next eight hours—probably on Janet's unit. Then, back out of the hospital to cycle back through again. There had to be a better way, he thought.

As he walked the long hallways and climbed the stairs to the fourth floor of the aging facility, he passed a window that looked out onto the center of his small town. He paused there and thought about his Nana, who was only one of many elderly in the area. She was blessed to have him and his wife to help tend to her needs. Many were not so fortunate, yet he had a suspicion that there was more that could be done.

As he walked on after his short pause at the window, he thought of the folks in this community. The entrenched organizations, like the local Elks, the Lions club, and the small YMCA that had just been renovated. Seems there was a church for every ten residents around here. And a lot of health problems occurred every hour of every day that his hospital would never see or know about, probably because his hospital was its own fortress. Certainly, new ideas could not penetrate its hardened walls. He knew that, with his siloed focus on the individual fortresses within this hospital he'd never even begin to understand all the complexities that lay just outside the doors in the surrounding medical community. He wondered, is it as chaotic and inefficient there as it is here? Surely it's better out there. Yet, based on Nana's experience, he knew otherwise.

He began to consider the problems his community faced. People like Nana, with nowhere to turn but his ED and hospital, maybe a PCP if they were lucky. The problems he was facing in his hospital seemed to pale when he thought about his hospital as only a piece of the larger puzzle. An important piece, mind you, but a seemingly small piece when he considered all the care that was delivered outside these walls. Probably a thousand office visits and consults for every ED arrival. There, he thought, is a much bigger conundrum.

He began to wonder how much his hospital might actually contribute to the problem, and whether or not the hospital leadership even realized how they interact with the rest of the community. Suddenly, the problem with ED triage wait times and discharge processing began to take on a whole new meaning, one with a broader implication than just the ever-precious Press-Ganey scores. His departmental problems spilled out into the community, to Nana and everyone else in his little town. It was like a dead canary in a coal mine—a warning of the cause and effect of the issues around him that he could not yet see or impact.

As he leaned against the pale yellow concrete walls of the old hallway outside Janet's office, he realized that this was going to be far harder, and infinitely larger, than he'd ever suspected. What on earth had he gotten himself into? Was there any way to heal Nana from a hospital bed when she couldn't, or wouldn't, see her PCP when she gets back out? Suddenly, the hospital felt very small and insignificant to him.

Acknowledgments

As was stated in the first book of this series, I do not profess to have solved the world's healthcare problems. I can only humbly use the gifts with which God has seen fit to bless me to give what I can to a country and a people I care deeply about. To Him always goes the greatest gratitude, and so I thank Him for this small accomplishment.

It is also appropriate to thank the parents and family who raised and nurtured me; the friends, both near and far, who supported me; the many acquaintances who shaped my thoughts and ideas; and the enemies who curse me. From my mother, father, and brother to my good friends Phil, David, and Andrew, I have a supportive group that offers both encouragement and brutal honesty when either is required. Special thanks go out to my dearest of friends, Heather, who has been nothing short of a true blessing in my life. Through their love and support, they give me the strength and passion to carry on, just as scoffers and detractors offer me constant motivation to achieve new heights and bolder visions.

Introduction

Taming the Tail: A Focus on the Few to Benefit the Many

This is the second book in a series of publications designed to dramatically change the healthcare system in the United States and perhaps across the globe. The first, *Dynamic Capacity Management for Healthcare: Advanced Methods and Tools for Optimization* (CRC Press, 2010), was focused on developing new ways to increase, optimize, and sustain hospital capacity. In that book, the capacity of a hospital to see patients and serve its community was seen in the context of the dynamism, patterns, and outliers of communal demand. The text challenged readers to change their thinking about everything from patient flow to staffing to cost and quality, and to think *dynamically* about the systems in which they work. The premise is that, by doing so, we can more dynamically manage the capacity required to meet the ever-changing, dynamic demand from the communities we serve. This is the basis of DCAMM, or dynamic capacity analysis, matching, and management.

The first book was positively accepted by thought leaders in the industry. According to some who have read it, it is a "breath of fresh air in a room made stagnant with 'industrial' methodologies like Lean and Six Sigma." As executives and consultants realize that traditional industrial methodologies lack the necessary components to optimize complex

healthcare systems, readers have seen DCAMM as an additional and powerful "tool in the bag."

Indeed, the DCAMM concepts are slowly making their way into the thinking of hospital executives and consultants who see the need for tremendous leaps in performance. More and more hospitals are beginning to adopt a dynamic view of their demand and capacity, helping them to better understand how to optimize the latter for the service of the former. Consultants, using different terminology but similar tools and concepts, are beginning to push the DCAMM concepts through their offerings. This process is indeed slow, moving only as fast as the most advanced healthcare systems can move the entire industry. But the turn is visible.

However, as powerful as the DCAMM concepts are, there is a large piece of the puzzle still missing. This was recognized and pointed out in the first book and is the reason for the need for this treatise. While DCAMM can apply to any highly variable and interdependent system, it is necessarily narrowly focused on what is, in reality, only one element in a much larger healthcare system: the hospital. But simply optimizing the performance of the hospital is, in the grander scheme of things, like optimizing the performance of the emergency department while neglecting the rest of the intrahospital system, such as inpatient bed flow. Therefore, the missing element, and the key to solving the larger and more complex issues of healthcare delivery, actually lies outside the four walls of the hospital.

Seeing the Future

Though the concepts for this current effort were initiated before 2008, even as the first book took shape, the knowledge of the need for such solutions was not new. The knowledge of the problem of systemic failure of capacity for chronic disease management certainly precedes this text. But while much has been written on the subject of chronic

disease management, I have not yet encountered a specific "how to" guide for implementing a system such as the one described herein, nor have I seen a methodology quite as explicitly expressed.

For instance, in 2010, some two years after this text was initiated, the U.S. Department of Health and Human Services published its *Multiple Chronic Conditions: A Strategic Framework*,[1] which outlines concepts similar to those described herein. Indeed, when I finally ran across this publication after having completed this text, I was both amused and enthused by its direction. Though, like other such efforts, it still lacks the specifics and detailed vision of this publication, it makes clear the notion that there were and are similar thoughts in the marketplace. In fact, much of what is described in the *Strategic Framework* was already more thoroughly and specifically designed here and in the first DCAMM book. Therefore, it is with this tacit approval for the concepts described that I offer this publication as a means to advance the general discussion via a more detailed and visionary description of the future state of care delivery.

A Broken Model

The U.S. healthcare system is facing some very grim numbers, many of which have come to the forefront as the healthcare reform debate has raged on. These numbers range from the percentage of the population soon to be tapping into government-run healthcare payment systems; the percentage of Americans who are or soon will be obese; the shrinking percentage of taxpayers who will shoulder the burden of the government's massively expanding healthcare responsibility; the shrinking numbers of critical healthcare professionals, such as nurses, primary care physicians (PCPs), and other physicians; the growing costs of these same resources; the increasing demands for quality and access; and the growing

percentage of patients with chronic diseases, many of which are brought on by decades of bad living, bad habits, complacency, dependency, and entitlement.

There is much wrong with the current U.S. healthcare system. Our insurance and reimbursement systems push patients into expensive care settings, hide the true costs of care and delivery, and encourage the overuse of resources. The government-instilled fee-for-service model creates perverse incentives and has been the cause of much of the system's excesses. Insurance now completely shields the ultimate user (the patient) from the true costs of the delivery of care (if it is even known, which most often is not the case), leaving patients with a false sense of a "money tree" from which all payments will flow. Government intrusion into the insurance markets has also created an environment wherein "insurance" against unexpected high costs now involves more *cost spreading* for even the most predictable of personal health choices (e.g., birth control). This in turn yields *cost shifting* from those who cannot pay or pay little to those who are forced to pay much more. Also, the legal environment adds to cost as it promotes excessive utilization and the overuse of testing, procedures, and utilization (aka "defensive medicine," which is said to use up billions each year in unnecessary costs).[2]

Furthermore, our resource costs are much higher than the rest of the world's (which makes international comparisons to our "excessive" healthcare costs somewhat of a folly). U.S. nursing salaries are the highest in the world, even without accounting for overtime pay, benefit packages, and artificial cost escalation through union-demanded nurse–patient ratios and unionized workforces. The average U.S. nurse salary is 40 percent higher than in Germany, 50 percent higher than in France, and 10 times higher than in Thailand.[3] These dramatic differences are reflected in the costs/salaries of other healthcare resources, such as technicians and pharmacists.

Likewise, our physicians (the best in the world, mind you) are the best paid in the world. Using the general practitioner

as a proxy, U.S. salaries are almost 300 percent higher than in France, and again, some 10 times higher than Southeast Asia.[4]

Additionally, the traditional models of care are constructed in a sort of triangular relationship among physicians, hospitals and clinics, and the patient (assuming that the patient is even considered part of the system). This is perhaps the most expensive way to deliver care, since the bulk of the care is dependent upon the most expensive resources in the system: the hospital (with its own high resource costs) and the physician. Of course, there are outpatient settings wherein patients can receive some care. Yet these too remain largely dependent on expensive resources, and thus only change the venue of the care delivery but not the constraint or much of the cost. Perhaps the closest thing we've seen to altering this construct is the doc-in-a-box concept, in which a PCP, nurse practitioner, or similar resource sees patients in a retail setting. I've seen these in airports and large retail stores, as a quicker and less expensive alternative to the traditional physician office visit. Clever in concept, these are the beginning of the realities of the changes necessary for the future sustainability of the system. However, even these creative solutions don't deal with the most costly patients in the system, thus providing more convenience than significant cost reduction. Certainly they don't begin to tap into the vast pools of resources often readily available in the community. And it is here, within the unnoticed and untapped potential, that we will find solutions.

Importantly for this text, there is a tremendous disparity in the way healthcare funds are spent. The top ten chronic disease patients use roughly 70 percent of the healthcare spending. Indeed, the reasons that the optimization of the health system writ large is so important have much to do with the trends, costs, and financial constraints facing the U.S. and world economies vis-a-vis chronic diseases. Chronic diseases are not only painful and terrible ailments; they are stunningly expensive to treat. Cures are often simply unavailable, so patients are not expected to actually recover. One doesn't

just "get over" chronic obstructive pulmonary disease (COPD). Often, the best one can hope for is to live (and die) less painfully, in better condition, and less expensively. At worst, these patients will continue to tap the system for extraordinary and rapidly growing costs and resource consumption.

It's bad enough that the U.S. baby boomers, who gave us the productivity and economic expansion of the last several decades, will soon stop working and become "wards of the state." But too many of these Americans will enter the tax-payer's care in poor and worsening health. Obesity, smoking, sedentary lifestyles, and generally poor care of the bodies they were given have led to a generally unhealthy populace. These retirees will tax the system as never before, as they are pre-dicted to generate far greater demands for care and costs than have previously been estimated.

Furthermore, our young people are also in dangerously bad health. Childhood obesity is at an all-time high[5] and continues an ugly trend toward future unnecessary health demands. The percentage of Americans smoking seems stubbornly stuck at the 20–22 percent level, despite the billions spent on cessa-tion and education. Look around and you'll see that the young smoke more than we'd like. This means that our youth are not going to slow the pace of care demand as they age since the likelihood of long-term chronic disease is increasing rather than decreasing. Unfortunately, genetics aren't helping, espe-cially with minority communities.[6]

As citizens, we face the growing costs with a deep-seated, if unspoken, knowledge that we might not be able to pay for it all. Literally trillions of dollars of healthcare-related financial commitments await us in the next 10 to 40 years, even with the rosiest of projections. Those who established Medicare and Medicaid (and the National Health Service [NHS] and other similar systems) might not have seen the crisis coming 50 to 60 years in advance, but recent generations of analysts know and speak the numbers regularly enough. At the risk of getting political, decades of national leaders have kicked

many a can down the proverbial road, refusing to reform the system while it was still only mildly painful. Votes and power seemed more important than doing what was right, as if being elected and powerful gave our leaders the right to pass the buck to the next generation rather than take the responsibility to fix a vexing issue. Those brave yet isolated souls who tried to change the system, even nominally, were either voted into submission by their legislative colleagues or voted out of office by their self-serving constituents. Thus, we have brought the nation to the financial brink through an unwillingness to stomach the changes necessary or to elect those who would.

Perhaps no other piece of legislation has done more to shine a light on the realities of the issues facing us than the Patient Protection and Affordable Care Act (PPACA) of 2010 (aka ObamaCare). If it does nothing else, it has yet again revealed what we should have already known: (1) the government-run healthcare systems, Medicare and Medicaid, are financially unfeasible in their current forms; and (2) the government is likely no place to find a solution, due to the politically incorrect and unpalatable decisions that must now be made. Like teens without the assistance of parental control, neither the legislative nor the executive branches show the willingness to make tough, yet very rational, choices. Even now, our elected officials dabble in minor tweaks to a broken system, constantly kicking at the can to see how much farther down the road it can be pushed.

Ironically, perhaps fortunately, the solutions proposed in this book are truly bipartisan (if there is such a thing). Since I began developing the concept some four years ago, I have been struck by the way it mingles common right-wing themes like personal responsibility, integrity, concern for the least among us, and faith-based resources with common left-wing themes such as communal responsibility, equality, centralized control systems, and concern for the least among us (yes, both share this latter attribute but with different approaches).

Thus, it is my hope that the concept can be spared the usual political wrangling and become at least part of the solution discussion.

Furthermore, as with the first text, this book seeks to "blow up" traditional business and delivery models, re-creating some of them entirely from the ground up. It will not be enough to simply nip at the edges of the current system constructs. Our traditional models must be literally ripped apart and reconstructed in order to meet an entirely new demand paradigm. And this will require a reconstruction of not just the hospital's systems (as the first book depicted) but the creation of an entirely new care system focused on the most challenging patients in our populations. This broad, deep, and intense revamp will create what is actually only a subsystem within a broader healthcare delivery system. Like the body of a patient who receives a new heart, the entire system will benefit. Thus, the new model will take the traditional healthcare delivery model, tear open a gaping hole, and place the functionality that will save the entire system within that hole.

I cannot address the legal system, nor propose a way to whack nursing and physician salaries to reduce the cost of care. But I can propose a solution that focuses on a broader application of dynamic capacity management, taking it from the hospital into an entire *community of care*. The community of care and all the sundry resources therein make up a much larger number of patient "touches," and offer us tremendous value if knitted together and used appropriately. Indeed, if properly developed and managed, DCAMM applied to the broader community could hold the key to simultaneously solving the main issues facing healthcare today: cost, quality, resource constraints, access, and capacity.

Thus, this book will look beyond the four walls of the hospital and reach well outside the traditional healthcare business models to develop an entirely new and very different care model from which can flow the solutions to the "healthcare crisis."

A Caveat to the Contents of This Text

The poly-chronic care network (PCCN) is meant to be a very flexible business and care model. Your iteration may be small or large, sweeping or narrowly focused. You might start with one iteration and develop an entirely different one later on. Your technology and governance structures may differ dramatically from that of other PCCNs. However, in order to offer as broad a view and as deep an understanding as possible, all the major components of a PCCN are described in this text. You might need a few, or only one or two of these components. Therefore, when reading this text, don't be alarmed if you anticipate that your community would not support a massive technology and governance implementation. It need not. Likewise, you should not expect to have to deploy the entire infrastructure at once, nor will your participating population go from zero to 100 percent overnight.

Take what you read here, and if you feel it is valid, apply the necessary components to your specific community and its needs and capabilities. As your PCCN grows, expands, or even contracts over time, amend the blend to account for the size, scale, scope, and population of the community and patients you wish to serve. Take what you need from what is listed, but don't think you have to have it all.

Conclusion

It is my humble opinion that if a solution is to be found, it will be the private sector that will innovate our way to it. The powers that be in our state and national capitals will not amass the vision to develop the solution. Neither Washington nor our state capitals are truly innovative places. If anything, the innovations that will be developed by the private sector (including and especially this one) might be killed by the bureaucracies, politics, and power trappings of government.