Foreword: The Story of ACE

Acute Care for Elders (ACE): A Model for Interdisciplinary Care tells how to improve the effectiveness, and efficiency, and outcomes of care for acutely ill elders with the ACE model. I will tell the story behind ACE, the story of how Bob Palmer, Denise Kresevic, and I invented ACE.

I tell the story behind ACE not only to inform your understanding of ACE, however but I explain the story to illustrate what I have learned might help you in your path to discover, implement, and disseminate ways to improve care for patients, especially the most vulnerable. I highlight six themes of learning from this story:

1. Context is key—the context is both you and your environment.
2. Prepare your mind.
3. Seek a culture of support and respect.
4. Be curious, be rigorous, persist.
5. Be open to serendipity.

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In the fall of 1989, a woman called and introduced herself, “My name is Donna Regenstreif. I am the Senior Program Officer at the John A. Hartford Foundation in New York, and I would like to come talk with you. One of our trustees came out of the hospital much worse than he was when he went in. This experience resonated with our trustees and they are concerned about what happens to older people in the hospital—they call it ‘hospitalitis.’ We wonder, Can you help us?”

I was 37, an academic general internist in my fourth year as an Assistant Professor at Case Western Reserve University School of Medicine and University Hospitals of Cleveland. My family and I had settled in Cleveland, where I grew up, and we loved it. My wife was a dermatology resident, we liked writing together, and our 4-year old son, John, was thriving in his second year in “Betty’s School,” a Montessori preschool founded by a remarkable teacher, Betty Hisson. I liked my work. My Division Chief and Department Chair were supportive. I had my first grant to develop and test an intervention to prevent bleeding during anticoagulant therapy in
older people. The President of the hospital had allocated funds for me to develop a program that would build knowledge to improve clinical care. Life was good and I was open to every good opportunity. The context of my work, with my interests, made the invention of ACE possible.

When Donna Regenstreif spoke about “hospitalitis,” she captured my attention. I loved hospitals. My earliest memory was of being wheeled in a crib through the sub-basement of University Hospitals on my way to the operating room. As an intern, resident, and chief resident at UCSF, I loved caring for my patients in every part of the hospital. Also, I knew that bad things happened in hospitals unintentionally and often we didn’t know why. Sometimes it was a drug side-effect like anticoagulant-related bleeding or a fall or a surgical misadventure or an error, but often it was not. Older people in particular sometimes came to the hospital walking and talking before their acute illness, and they left bedridden and confused, even when the acute illness itself was treated appropriately and resolved.

I wanted to make things better. I saw as a resident and attending physician on wards and in ICUs that we often fail to do every time with every patient what we know needs to be done. This was certainly the case with anticoagulant therapy, which rarely caused bleeding when managed well and often caused bleeding when the INR wasn’t controlled after a patient left the hospital or changed diet or was prescribed an antibiotic, or when a NSAID was prescribed without remembering its prohemorrhagic effect, or when a patient fell. I had chosen to train in clinical epidemiology and patient-based research rather than laboratory investigation in nephrology because I wanted to improve our approaches to diagnosis, prognosis, and treatment in clinical medicine. And with my experience in practice and research in academic hospitals, I knew I could make things happen in a hospital. And I knew that doctors and nurses could transform how healthcare systems worked. In the 1840s, Ignaz Semmelweiss reduced maternal mortality on the First Obstetrical Clinic at Vienna General Hospital from 18 to 2 % by convincing doctors and medical students to wash their hands before assisting in delivery. In the 1850s, Florence Nightingale was credited with reducing mortality rates from 42 to 2 % in British army hospitals in the Crimean War. In 1916, EA Codman established the principle that the results of surgery could and should be determined systematically and reported to the public. Fifty years ago, Sidney Katz developed the index of independence in activities of daily living (ADL) and applied it in studies to improve care for people with chronic disease. When I was deciding between research training in nephrology (which then meant doing membrane biology) and clinical epidemiology, I chose the latter because it was the basic tool for answering clinical questions about how to take better care of patients.

In inventing Acute Care for Elders, three things enriched my clinical and research experience. First, I worked in an interdisciplinary team with wonderful colleagues in Geriatrics (Bob Palmer, MD, MPH) and Geriatric Nursing (Denise Kresevic, RN, GCNS). Together we developed and wove together the ideas and practices that created ACE.

Second, I knew the literature well enough to know what was known, what was not, and what needed to be done. For example, Larry Rubenstein and his colleagues
had developed inpatient Geriatric Evaluation and Management (GEM) and showed that it reduced mortality and nursing home stays in veterans aged 65 years or older who stabilized after 1 week in the hospital. GEM was used in only 4% of hospitalized elders, however. We believed that all hospitalized elders were at risk for preventable functional decline, that the cascade of deleterious effects of hospitalization often began on admission, and that an approach was needed to improve care and outcomes for all older patients from admission. In other pioneering work, Harvey Cohen and his team had studied state-of-the-art geriatric consultation to improve care and outcomes for hospitalized elders. In a randomized trial, they showed the limits of consultation when they found no effect of geriatric consultation on outcomes. They suggested, and we agreed, that advice alone was inadequate to improve care and that direct control of care to assure provision of preventive or restorative services might be necessary.

Third, the social sciences informed my thinking. I had read Erving Goffman’s concept of the total institution in his book *Asylums*, and this concept stayed in the back of my mind through medical training. A total institution is a residence that dictates the behavior of a group of people with a specific purpose, such as healing, education, reformation or protection of society. He described asylums, orphanages, nursing homes, prisons, and boarding schools as total institutions. The methods total institutions use to control behaviors often have unintended consequences that thwart the ultimate stated goal. Although Goffman did not classify acute hospitals as total institutions, they struck me as having many features of total institutions insofar as the methods used to control behaviors and events, which may not be controllable, often have unintended consequences that thwart the ultimate stated goal. For example, in caring for frail elders, we wish to avoid falls and related injuries and, therefore, we may prescribe bedrest and restraints, yet these interventions may themselves increase the risk for debility and injury. Thus, efforts to achieve the main goal, such as returning an older person safely to her home after an acute illness, might be informed by redesigning hospital policies and procedures that may have unintended adverse effects.

With our son in Montessori preschool, I was learning from Betty, the founder and lead teacher, about Maria Montessori’s approach to education. Three of her insights especially struck me: children want to learn, a physical and social environment prepared for learning promotes learning, and the teacher’s role is to prepare and maintain the environment. These principles are directly applicable to hospital care, I thought. Patients want to get better and return home, not go to a nursing home or die. An environment prepared for getting better and regaining mobility will help patients get home. Doctors and nurses can and should prepare and manage the hospital environment, not treat the disease alone. Giving the right antibiotic to a frail older person with pneumonia will not help them get home nearly as much as giving the right antibiotic and making sure they maintain their nutrition, strength, and mobility and don’t become delirious or depressed.

My mind was prepared for thinking about the adverse outcomes of hospitalization, and I was curious to learn how we might reduce their frequency. Thus, when I spent a Saturday writing a draft of a proposal to the Hartford Foundation, I built on my
clinical experience and the insights of Goffman and Montessori, to suggest that hospitalization-as-usual can lead to what I called “The Dysfunctional Syndrome”: hospitalization could promote the transition of a functional older person to one who was “dysfunctional” in the sense of being unable to perform the Activity of Daily Living (ADL) she could perform before the acute illness. Figure 1 from the original proposal illustrates the process leading to the Dysfunctional Syndrome. A functional older person develops an acute illness, such as pneumonia, and may lose ability to perform one or more ADL before hospitalization. In the hospital, this person finds a hostile and depersonalizing environment: the person is stripped and covered in a gown that is chilly and immodest, her clothes are taken away, her glasses and hearing aid may be misplaced, and she is put in a bed that may require gymnastics to get up to the bathroom or a chair. Like a casino, there may be no clock or other orienting information. If the patient is able to get out of bed to go to the bathroom or walk, she may be tethered to the bed by catheters to administer oxygen, fluids, and medicines and to drain the bladder, and when she breaks free of the bed, she may find a ward that limits her independence. The toilet is so low that she can’t rise without help, the polished linoleum floors may appear slippery to someone with cataracts, the hall is so cluttered with carts and paraphernalia that she can neither navigate the hallway nor use the handrail on the wall to assist her walking. Sleep deprivation may result from noise and light streaming into her room, and from middle-of-the-night wakening for 1 a.m. vital signs and at 5 a.m. for morning medicines. Her physicians may have ordered bedrest, which rapidly leads to deconditioning.
and loss of muscle and postural tone. The patient may starve not only because her appetite is diminished but also because she misses meals for tests and procedures off the ward and the usual social cues for eating are lost. Medicines may be administered in doses that are too high for a frail older person and some medicines, such as sedative-hypnotics, may be ordered for convenience even when they can have unintended adverse effects. Procedures are undertaken that may leave the patient immobilized or volume depleted. The net effect during hospitalization can be a depressed mood, negative expectations that death or nursing home placement is likely, and physical impairment, which together prevent recovery of ability to perform ADL and may further compromise their independent performance. Many elders have lost their bounce, and the hospital may accentuate this loss of resilience.

We proposed the Unit for Acute Care of Elderly (ACE) as the site to deliver what we then called the “Prehab Program for Patient-Centered Care,” which was designed to prevent the unintended consequences of hospitalization (see Fig. 2). The value of a unit rather than a dispersed approach lies in the fact that it is easier to shape the culture and practice of a single unit than a whole hospital. Moreover, a unit provides the opportunity for monitoring and sustaining an intervention that might otherwise dissipate over time.

In this original model (Fig. 2), a prepared environment would promote patients in their quest to retain or regain independence in ADL. We chose hospital beds that could go low enough for patients to get out of bed and that had soft night lights to make nighttime arousal less frightening and to help people get to the bathroom. Toilet seats were elevated. Floors were carpeted to eliminate the glare and to make walking more inviting. Clutter was removed from halls and wallcovering was selected to make it easier for a patient to find her own room. Interdisciplinary collaborative care, multidimensional assessment, and nonpharmacologic prescription constituted patient-centered care that focused doctors and nurses on working together, along with social workers and physical and occupational therapists to advance each patient towards independence and returning home if possible. Each patient underwent geriatric assessment to identify barriers to independence for which specific interventions were prescribed. Care routines were changed so that nurses could drive things for which doctors were conventionally responsible and tended to forget, like removing urinary catheters, assuring nutrition (e.g., with snacks and food available around the clock), eliminating restraints, and promoting mobility. A room for activities and socializing was provided in the ACE Unit, and patients were encouraged to dress and use the room for activities and meals. Night routines were changed to reduce ambient light and noise, to eliminate unnecessary waking at night, and to promote sleep with soft music, warm milk, and gentle massage rather than sedative-hypnotic drugs. Medical review entailed geriatric consultation, discussion of recommendations with housestaff caring for the patient, and daily follow up. Planning to go home began the day of admission with identification of the patient’s informal support network and elucidation of possible barriers to returning home to live independently. Each day, the team of the patient’s doctor, nurse, and social worker worked with the patient and family to assess and prepare the actions that would help the patient go home and stay there. We encouraged a focus on planning to go home, with congruent language, rather than a focus on
discharge planning. Discharge planning connotes the patient is leaving as a “discharge,” the final step in the hospital’s excretory function, which is critical to the hospital’s “throughput.” With a focus on “discharge,” the actions that will be necessary for a patient to leave the hospital are often not considered until the medical team decides the patient should leave, and this last minute planning often extends hospitalization and misses opportunities to prepare the home for the patient. Moreover, considering a person to be a “discharge” further depersonalizes the patient, raising the question of how a patient compares to other discharges, which are generally malodorous and purulent. As the last part of ACE, we suggested that formal transitional care of medical and other services in the home would help the

Fig. 2 Conceptual model for the beneficial effects of the unit for the acute care of elderly (ACE) and its Prehab Program for Patient-Centered Care. From a grant submitted to the John A. Hartford Foundation, Inc. (The Dysfunctional Syndrome: Characterization and Prevention. Grant #88277-3G)
patient reenter the home and stay there. (Transitional care was not incorporated in the initial ACE interventions because of insufficient resources.)

With this conceptual framework, and with the ambition that more acutely ill elders would go home from the hospital and do well there, University Hospitals of Cleveland developed the first ACE Unit and the John A. Hartford Foundation funded the grant to determine the effects of ACE. This work had two effects. First it demonstrated the effectiveness of ACE in improving functional outcomes and increasing the proportion of patients discharged home as opposed to a nursing home. Second, the initial studies of ACE provided the foundation for its dissemination and for further development and application of the concept in ACE Tracker, in Mobile ACE, and in other innovations in acute care for elders, such as “e-Geriatrician model”.

I highlight six themes of learning in the story of ACE.

1. Context is key. The context of your work—you, your environment, and the relationships between you and your environment—shapes its possibilities. The opportunity to develop ACE arouse because the senior program officer of a foundation interested in the problem identified me based on what she learned from others, and because the President of my hospital was interested in innovation and had the resources to support it. I brought to this opportunity relevant clinical experience, a passion for the topic, and ideas from other disciplines. My clinical and academic environment provided colleagues with complementary interests and abilities, and together we could do what none of us could do alone.

2. Prepare your mind. I sought clinical experience that gave me the practical knowledge for understanding hospitals and changing how they worked, and I obtained first-rate training in the science of evaluating diagnosis, prognosis, and therapy. Although I did not prepare my mind to develop or test ACE specifically, and I did not start my career asking, What do I need to know and be able to do to develop new ways to improve outcomes for older people in the hospital?, I knew that I wanted to be prepared to improve care and to demonstrate what worked and what didn’t. Thus, I was grounded in the practical and scientific knowledge that informed the development and implementation of ACE and allowed me to test it.

3. Seek a culture of support and respect. Work is easier and more fun in a culture that supports one and respects one’s values and interests. I was fortunate that University Hospitals of Cleveland and Case Western Reserve University provided such a culture, one with the mix of respect and support I needed at that time in my career.

4. Be curious, be rigorous, persist. In my view, curiosity, with compassion and competence, drives everything good in medicine. Curiosity leads one to seek to understand each patient, her circumstances and predicament, and this understanding leads to both diagnosis and empathy. Similarly, curiosity drives one to ask questions like, Why do bad things happen to people in the hospital even though we have remarkable resources? How can we make health care better? How can we make improvements that are sustainable and lasting? Getting answers to these questions that will stand the test of time requires rigor and persistence. No field demonstrates the combination of curiosity, rigor, and persistence in answering such complex questions better than geriatrics, which has
developed and evaluated interventions such as geriatric assessment, consultation, falls prevention, and transitions management. In the case of ACE, curiosity drove its invention and rigor and persistence allowed my colleagues, me, and others to learn its effects in different settings.

5. Be open to serendipity. Serendipity creates opportunities to look at old problems in new ways. For me, in thinking about functional decline of elders in the hospital, the understanding and ideas that came together to create ACE came from reading in sociology, learning about Montessori education in my son’s school, my clinical experiences, and listening to the experiences of others.

6. Build sustainability and disseminate what is important. When we undertake an intervention, it is prudent to ask from the beginning, How will we sustain what works?, just as we ask from the beginning of hospitalization, Where will this patient go and how will she do there? In my initial work with ACE, my colleagues and I did not ask at the beginning about the sustainability of the team at the core of the intervention and how new members would succeed the original members. Similarly, we did not think early on about how to disseminate ACE might have accelerated its uptake by other hospitals. Early attention to sustainability and dissemination could have accelerated the uptake of ACE and the spread of its benefits.

The invention of ACE and the further development and application of its core concepts have transformed the care of hospitalized elders across the country. Moreover, the invention and subsequent development, as described in Acute Care for Elders—A Model for Interdisciplinary Care, illustrate how geriatricians, nurses, and other acute care clinicians demonstrate that our creativity, learning, and work have good effects for our patients.

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Preface: “Waking Us Up- to Better Care”

“I flew across the Atlantic Ocean seventy times” said my patient when he introduced himself to me. His name was Will. I met him in our clinic office. He wore a suit and was accompanied by his wonderful wife and his patient son. His son had heard the same line dozens of times. I knew this patient was going to be special. He was strong at age 90; he wanted me to know he was special. He went on to tell me that he had been the CEO of a mining company and that he had several patents for drilling pieces. I could only imagine what he had done in his career. Now, he was frail. He wanted me to know him as a person. I enjoyed the clinic visits and each time I heard the same story. I smiled and glanced at his son, who gave me an understanding wink.

Will was admitted to the hospital on a Sunday, late afternoon. He had pain to his right hand from cellulitis that had become complicated. His pain was expressed as delirium. His wife was upset; his son was away on business. Will’s confusion led to agitation. His wife and the hospital nurses tried to calm him. This didn’t work. His “on-call” physician ordered haloperidol. This did not work. The dosage was repeated and Will slept … until Friday.

I saw my patient on Monday morning. He was not arousable. His wife and son were at his bedside. I explained the circumstances: delirium in a frail, oldest old man who had baseline dementia, and kidney disease. I described the situation to them, then treated my patient’s cellulitis, and managed his pain. I was distraught. I thought, “How could this have happened?” How could our best efforts to help this man have led to a cascade of complications? I re-examined my patient daily and kept his wife and son abreast of his progress.

As my patient slept, I pressed for a better way forward. I spoke with our hospital librarian to ask for a literature search of models of hospital care which would address the needs of vulnerable older patients. I prayed for Will and for the wisdom to be able to find a better/safer method of caring for older persons who were acutely ill.

As I walked down the hallway towards my patient, a resident physician came out of an adjoining unit. The unit had been ‘moth-balled’ to accommodate resident physician on-call rooms. I caught the doors and went into the unused nursing unit.
I looked around and thought, “what if we used this area to take care of older, acutely ill patients like Will”. I snooped around and began to see more than what was in front of me. I saw an answer to frustration in usual care. I saw an Acute Care for Elders unit, which could address our challenges in providing excellent care.

We took really good care of Will and paid meticulous attention to his needs. Will woke up several days later and needed lots more help to transfer out of bed. His wife was at his side daily and helped get him settled back at an assisted living center (down the hallway from their apartment).

I told Will’s story to my geriatrics partners, to my nursing colleagues, our hospital chief executive officer, and to the Wisconsin Freemasons (a fraternal organization that had given financial support to our geriatric programs). We started on a compelling journey towards improving care for folks like Will. We initially thought that the Acute Care for Elders unit would be the answer to the problem addressing the needs of vulnerable, acutely ill older persons. In fact, Acute Care for Elders was simply the beginning of a long journey towards improvement.

My colleagues, Drs. Elizabeth A. Capezuti and Robert M. Palmer, and I present in this book, our best description of a better/safer way forward. We are pleased to serve older individuals (like Will) and their caregivers with a holistic, person-centered approach towards helping their recovery.

Thanks to all of our colleagues who have contributed to improving care for acutely ill older persons.

My patient, Will, may have slept from Sunday to Friday, but he woke us up to pursue this journey to better health, and to a better healthcare system.

Milwaukee, WI, USA

Michael L. Malone
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Dr. Malone has devoted his career to improve the care of vulnerable older persons in American hospitals. He led the development of the first Acute Care for Elders unit in Wisconsin. He and his colleagues have developed innovative strategies to disseminate geriatrics models of care including the ACE Tracker software to identify vulnerable hospitalized elders, and the e-Geriatrician telemedicine program to bring geriatrics expertise to rural hospitals with no geriatrician on staff. Dr. Malone has developed innovative teaching tools including: ACE pocket cards, an ACE NICHE app for Android phones, and the Geriatrics Fellows’ Most Difficult Case conference. He joined Elizabeth A. Capezuti, Paul Katz, and Mathy Mezey as editor of The Encyclopedia of Elder Care - The Comprehensive Resource on Geriatric and Social Care, third edition, Springer Publishing Company.
Elizabeth A. Capezuti, PhD, RN, FAAN is the William Randolph Hearst Chair in Gerontology and Professor at Hunter College of the City University of New York (CUNY). From 2003 through 2013 she was the Director of NICHE (Nurses Improving Care of Health System Elders), a program of New York University College of Nursing. NICHE provides the principles and tools to stimulate a change in the culture of healthcare facilities to achieve patient-centered care for older adults. Dr. Capezuti is known for her work in improving the care of older adults by interventions and models that positively influence healthcare provider’s knowledge and work environment. Dr. Capezuti has published extensively in the areas of fall prevention, restraint and side rail elimination, APN (advanced practice nurse) facilitated models, and geriatric nursing work environment. Dr. Capezuti is the 2001 recipient of the Otsuka/American Geriatrics Society Outstanding Scientific Achievement for Clinical Investigation Award and in 2013 received the American Academy of Nursing Nurse Leader in Aging Award.
Robert M. Palmer, MD, MPH is Director of the Glennan Center for Geriatrics and Gerontology at Eastern Virginia Medical School, where he is also Professor of Medicine. Dr. Palmer attended medical school at the University of Michigan and completed residency training in Internal Medicine at the Los Angeles County-University of Southern California Medical Center. He obtained a Master in Public Health degree at the University of California, Los Angeles, where he later completed a fellowship in Geriatric Medicine.

Dr. Palmer has attained international attention for his research focused on improving the functional outcomes of hospitalization, patient safety and quality of care. Dr. Palmer was Principal Investigator of a grant from the John A. Hartford Foundation that established the effectiveness of a medical unit for acute care of elders (ACE Unit).

He is the author of numerous publications including research articles, geriatric textbooks, book chapters, and scientific reviews; and is Associate Editor of the Journal of the American Geriatrics Society.