

# Trauma-Informed Care: Laying the Groundwork for Investment by Healthcare Systems

The Illinois  
ACEs Response  
Collaborative

Health & Medicine  
POLICY RESEARCH GROUP

## Introduction

By the late 1990s and early 2000s, Harris and Fallot, Bloom and others began to articulate the importance of organizational context in the delivery of services to individuals who have experienced significant traumatic life events. Trauma-informed care (TIC) is an organizational change process and approach to healthcare, and other high stress environments, intended to promote healing and reduce the risk of re-traumatization for patients and staff.<sup>1,2</sup>

Innovations in care can be a double-edged sword for healthcare managers: they have the potential to improve patient and staff outcomes and eventually lead to greater efficiency; but the prospect of needing to retrain staff, perhaps invest in new technology, or retool existing systems may be very costly.

Healthcare managers may be appropriately leery of such innovations and want to proceed carefully to ensure TIC is not just a costly fad.

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This report will provide key background information about:

- The science behind TIC
- How provider and staff knowledge about trauma plus trauma-informed skills can improve patient health outcomes
- The economics of TIC, particularly for complex patients; both in the current fee-for-service environment versus under accountable care (global payment)
- New understanding of the impact of secondary trauma on provider burnout and the relationship to staff absenteeism, injury, and retention

In conclusion, we will consider the important potential contribution of TIC as a cornerstone to achieving the Quadruple Aim.\*

## The Science of Trauma and its Impact on Health

Until the past two decades, the healthcare sector's recognition of trauma has been mostly limited to three areas:

- Physical trauma from blunt force trauma (vehicle accidents, interpersonal conflict, falls), penetrating trauma (gunshot wounds, knife injuries), and burns
- Child abuse
- Post-Traumatic Stress Disorder (PTSD), originally attributed to exposure to combat and war

These types of trauma result in lengthy hospital stays, high resource utilization, increased involvement with law enforcement and child welfare, increased need for ongoing physical and mental

\* The Quadruple Aim adds a 4th goal of improving work life of health care providers to the original "Triple Aim" -improving

population health, enhancing patient experience and reducing costs.<sup>1</sup>

health services, and often significant morbidity and mortality. These trauma patients are more likely to be uninsured or underinsured. Therefore, healthcare investment in trauma care requires a careful balance between mission and fiscal viability for most organizations.

Recent new scientific developments have led to the recognition that **emotional trauma is an important driver of physical, psychological, and social health outcomes**; is much more prevalent than physical trauma; and may in fact result in behaviors that increase risk of physical trauma or enduring health problems. This research includes:

- The Adverse Childhood Experiences (ACE) study showing that adversity during child development has a profound effect on the prevalence of all major physical and emotional diseases
- Transformative advances in neuroscience
- Explosion of basic science research. Basic science remains the foundation of clinical practice. Recent trauma research has demonstrated the deep interconnection of core physiologic processes with brain-mediated inflammation. This inflammation is significantly related to toxic stress from accumulation of adverse experiences and appears to be a common denominator for the major chronic illnesses including cardiovascular disease, cancer, and autoimmune diseases as well as many others.

**Trauma:** A distressing experience of threat or harm to self or others<sup>2</sup>

**Trauma-Informed Care (TIC):** TIC integrates knowledge of the widespread impact of trauma into healthcare policies, culture, environment, and care processes.<sup>3</sup>

### The ACE Study

In 1998, Felitti, Anda, and colleagues published the Adverse Childhood Experiences (ACE) Study.<sup>4</sup> This visionary research, cosponsored by the Center for Disease Control (CDC) and Kaiser-Permanente,

demonstrated that major adversity in childhood can result in up to a 600% increased risk of chronic illness and 400% increased risk of addiction. Most profound of all, having six or more ACEs can shorten the average lifespan by 20 years. This research has now been replicated by more than 100 studies worldwide.

The ACE Study was visionary and made a profound contribution to medicine's understanding of the origins of chronic illness. However, twenty years later, there remain at least three dilemmas:

1. Despite extensive research showing the strong, additive relationship between childhood adversities and subsequent health outcomes, very little has been done to incorporate this basic research into clinical practice. The work of restructuring medical science and care provision accordingly remains to be completed.
2. The original Kaiser-CDC research design chose 10 types of adversity which the researchers felt were measurable and likely to have significant impact on health. These adversities were emotional and physical neglect, emotional, physical and sexual abuse, parental divorce, mental illness or substance abuse in the home, violence against the mother, or incarceration of a household member.  
  
These 10 categories of adversity are important – but an incomplete list. Subsequent studies have demonstrated other factors with equal or greater adverse impact on health including poverty, the experience of discrimination, community violence, bullying, and more.
3. The catastrophic impact of racism is one area receiving more study in the past 10 years. An individual's experience of what is called "Every Discrimination" has been shown to increase metabolic illness (obesity, diabetes), cancer risk, birth outcomes, and mental health challenges.<sup>5</sup> There is growing confirmation that racial, ethnic, and gender discrimination are likely the major contributing factors to health inequalities.
4. The original ACE study asked only about the presence or absence of specific adversities.

Subsequent studies have demonstrated not only the presence of adversity but that the severity, timing, and frequency of adversity make a critical difference in child brain development.<sup>6,7</sup>

### Neuroscience: Transformative Advances

- Over the past twenty years, there is evolving recognition that the central nervous system, immune, and endocrine systems are in fact one system, continuously communicating through “crosstalk” of signals coming from the brain to the body, and vice-versa.
- In contrast to earlier thinking, there is now incontrovertible evidence that the brain and nervous system can change. This is called “neuroplasticity.” The brain is most changeable in the early years of life but neuroplasticity remains until death. This inborn ability to change makes it possible for us to identify how adversity affects the brain. The recognition of neuroplasticity makes it possible for researchers to identify the mechanisms through which traumatic experience becomes “embodied” – how the body’s physiologic functions and actual physical structures are changed through experience.
- Also, recognition of neuroplasticity provides hope that the impact of traumatic experience can be reversed. This is leading to research showing how therapies can yield clinical, cognitive, and functional improvement.
- One very promising research approach to childhood adversity/trauma is the NeuroSequential Model of Therapeutics (NMT) developed by Dr. Bruce Perry and the Child Trauma Academy.<sup>8</sup> Instead of focusing just on a client’s current physical-emotional status and assigning diagnoses, NMT reviews the health

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history from prenatal through current, identifying developmental challenges plus relational support.

When added to current assessments, NMT allows clinicians to create a brain map and identify neuro-developmental gaps. Then a personalized therapeutic plan can be designed to address that individual’s functional gaps.<sup>9</sup>

### New research: Inflammation as Key Pathway for Major Chronic Diseases

Recent rapid advances in basic science are making important inroads to uncover interactions between a person’s experience (both positive and negative), brain function, and coordination of the neurologic, immune, and endocrine systems. Meanwhile, other basic research is revealing that inflammation appears to be a common denominator in the pathway to many chronic illnesses. We are learning how disruptions of these systems, through overwhelming adverse experience and trauma, causes inflammation resulting in acute and chronic illness and even early death.

Diseases implicated in the trauma-inflammation pathway include but are not limited to:

- Asthma<sup>10</sup>
- Autoimmune Disease
- Cancer<sup>11</sup>
- Cardiovascular Disease<sup>12</sup>
- Diabetes<sup>14</sup>
- Obesity<sup>15</sup>
- Perinatal morbidity and mortality including the occurrence of pre-eclampsia, premature birth, low birth weight, and infant mortality<sup>16</sup>

As basic science and clinical research solidify these links, the potential impact for the theory and practice of medicine is profound and calls for a new framework of medical science. However, building that framework will take time.

### Implications of New Trauma Science for Healthcare Organizations

As deep connections are revealed between child development, trauma, neurobiology, and disease, all healthcare organizations and clinical academics will be called on to make changes.

Those changes will be driven by:

1. Mission – commitment by the healthcare organization to its patients that its clinical staff can provide the most effective diagnostic and therapeutic modalities.
2. The need to remain competitive – the practice of medicine is constantly evolving, and healthcare organizations must incorporate those changes to stay competitive. Examples of major theoretical and technological changes in the past ten years in American medicine include the addition of genetic testing and immunotherapy to cancer treatment, the introduction of robotic surgery, and the expansion of alternative medicine (chiropractic, acupuncture, massage, craniosacral therapy) particularly in pain management to minimize the use of opioids.

### **Provider and Staff Knowledge About Trauma and Trauma-Informed Skills to Improve Health Outcomes**

In this new landscape, training for clinicians and support staff will need to include:

- Training in core trauma science and neurobiology and pathophysiology which can provide compelling evidence that trauma can change the brain, and therefore brain-body physiology, thus precipitating the appearance of disease.
- Application of trauma science to individual patient care including learning how to partner with patients to identify history of trauma, explore complex social-emotional issues, identify triggers leading to disease, and co-create healing regimens.
- Developing trauma-informed treatment protocols which pair the gains from disease management (i.e. management of hypertension, diabetes, asthma, heart failure, and cancer treatment) with therapies that help the patient get to the root causes and mitigate physiologic dysregulation. Many of these therapies are currently outside of conventional medical theory and practice.

As of today, there is only emerging evidence about how to proceed on any of these steps.

In reality, despite the enormous amount of basic science research proving the links between trauma

and disease, the curriculum of most medical and clinical training programs currently includes only cursory exposure. As the recognition of inflammation and the relationship of neuro-dysregulation to inflammation as the driver of disease, disability and early death gains traction, medical specialties are evolving the theoretical background supporting recommended therapies.

**Despite these gaps, healthcare organizations should not simply sit back and wait for medical sciences to catch up. There are many incentives for organization to start training staff and leadership on trauma and revising protocols now.**

### **The Business Case: Trauma-Informed Care of Complex Patients**

One universal theme for all healthcare organizations is the challenge of caring for patients with multiple complex diseases. A significant portion of patients with complex disease are remarkably disabled at a prematurely young age, are often permanently unable to work, and therefore have health insurance coverage via Medicare and/or Medicaid. (Such patients are referred to as being “dual eligible” as they are eligible for both Medicare and Medicaid.)

Using a Population Health lens, these high complexity patients also bear the burden of a very high proportion of negative social determinants of health or ACEs. They experience more poverty, more difficulties in housing and transportation, as well as increased challenges in nutrition or just in coordinating care. Not surprisingly, high complexity patients are more likely to have a very high burden of adversity, both as children and as adults. These patients with complex medical and psychosocial needs are the most costly patients to any payer or healthcare system and are also the patients with the worst health outcomes (as a group).

In spite of these statistics, the upside of the new science of trauma and disease is that we are now pointed toward genuine opportunities for prevention – not just early detection of disease.

## Complex Care and Fee-For-Service Healthcare Reimbursement

As the name implies, fee-for-service (FFS) uses a conventional economic model: the provider offers a service, and the payer (patient, insurance or government) reimburses the provider a set fee. Ideally, a free market FFS is the optimal reimbursement paradigm for providers, and in a pure FFS environment, complex seriously ill patients would be an ideal revenue source for healthcare. Because of this, aside from mission or patient outcomes, there is minimal economic incentive for a pure FFS system to try to get to the root of disease.

In reality, FFS has been shown over the past seventy years to lead to rapid price escalation. Higher healthcare prices have rarely been connected to higher quality services or even effective care. Therefore since the 1960's, government and insurance have tried various cost containment strategies, mostly by setting price schedules of the maximum to be paid for a particular service, limiting which providers can provide which service, and setting up barriers to expensive care. Medicaid, by definition, provides coverage for the poor and chronically ill. Medicaid is underfunded, and providers may wait a year to receive any payment and then only at a fraction of the original agreed fee. Hence independent providers tend to limit access to care by Medicaid patients, and these very sick, very complicated patients end up at community or academic medical centers.

## Complex Care Under Global Reimbursement (Accountable Care)

One major financial innovation (also almost 50 years old) is global reimbursement for all care for a particular patient. This system has been called managed care, HMO's, capitated care – and now accountable care. The idea is the same for all these reimbursement systems: a patient chooses a provider system to provide and coordinate their care. The payer reimburses the provider system a fixed amount per month (adjusted by age and gender).

Accountable care flips the financial incentives as compared to FFS. The accountable care organization's own financial future completely

depends on early identification of complex patients and timely, tightly coordinated care management. The provider system has to provide all the patient's care within that fixed (global) payment, regardless of severity of illness or cost of care.

Because a history of adversity and its ongoing physical-mental-social ramifications are at the root of many common diseases and costly care, training staff to work closely with patients and families and coordinate comprehensive care is imperative. Accountable care (or similar reimbursement arrangements) is widely touted to control costs while improving or at least maintaining quality standards. Global reimbursement systems are likely to become increasingly common – which provides a major incentive for healthcare systems to adopt a trauma-informed care methodology, which includes multi-disciplinary and multi-sector collaboration and is an ongoing process taking time, not a quick fix.

## Health Care Worker Burnout: The Role of Personal Trauma and Secondary Trauma

As discussions have expanded about the impact of emotional trauma on health, we have also realized that providers are not immune to their own personal history of adversity. Additionally, all healthcare providers experience exposure to traumatic images as well as hearing the painful stories of severely traumatized patients.

**Personal Trauma:** Numerous studies have shown that persons with their own history of childhood adversity are more likely to choose “helping professions” as a career. Without training and time to process this trauma, these staff are at risk for suffering the same physical and mental health consequences of their patients with complex trauma.

**Secondary Trauma:** All healthcare providers and first responders have an extremely high risk of secondary (vicarious) trauma. Secondary trauma is the emotional stress that results when an individual hears about or witnesses the firsthand traumatic experiences of another.

Healthcare providers and first responders often witness tragic and visually horrific injuries. Listening

to patients and families can include painful stories, including sexual assault of children, intentional physical abuse of children or family members, details of terrifying nightmares, and more. These visual images and stories can “stick” with the provider as flashbacks or intrusive memories and nightmares. Unless they have been working in behavioral-mental health (and sometimes even there), the vast majority of healthcare providers have had no training on how to debrief from such experiences and lack ongoing opportunities to debrief. Instead they are expected to “soldier on.”

## The Quadruple Aim and Trauma-Informed Care

In 2008, Dr. Don Berwick and colleagues at the Institute for Healthcare Improvement (IHI) introduced the Triple Aim: improving population health, enhancing patient experience and reducing costs.<sup>2</sup>

As a result of a 2012 survey which found widespread burnout among emergency physicians, neurologists, and primary care physicians,<sup>17</sup> Bodenheimer and Sinsky<sup>3</sup> proposed expanding the Triple Aim into the Quadruple Aim in 2014 by adding the goal of improving the work life of healthcare providers as an essential, not peripheral, part of any plan to improve patient care and cut healthcare costs. Several studies have shown that approximately 60% of nurses, clerical staff, and other clinical staff consistently experience burnout. Such high provider distress is indicative of a healthcare system with significant barriers to high-quality care. Clearly something is wrong.

A major focus for improving the provider experience has been to balance provider workload, streamline onerous tasks (particularly the ever-escalating demands of the electronic medical record), and provide adequate resources (particularly for primary care). These goals are all crucial for provider satisfaction, retention, and both the providers’ and the patients’ health. Unfortunately, the typical outline of the Quadruple Aim leaves out three important factors related to trauma-informed care:

- The new, expanded scientific foundation to explain chronic physical and mental illness based on recent neurobiological advances incorporating the role of trauma and inflammation. Knowledge of this scientific foundation will allow providers to have a deeper understanding of their clients’ illnesses.
- Training in new approaches for assessment, treatment planning, and outcomes measurement.
- Policies, training, and practices that support healthcare staff in prevention, early identification, and treatment of their own primary trauma as well as secondary trauma they experience on the job.

Currently, the Center for Health Care Strategies, supported by the Robert Wood Johnson Foundation, and the National Council on Behavioral Health, supported by the Kaiser Health Foundation, have convened health care organizations—from primary care clinics to hospitals and health departments from around the country—to learn together and implement a trauma-informed approach in their organizations. From this work, the Center for Health Care Strategies and the National Council are developing recommendations for standardized screening and assessment tools, evidence-based clinical interventions, implementation processes, relevant and replicable outcome measures, and policy changes.<sup>18, 19</sup>

**Secondary Trauma:** The emotional stress resulting from hearing about or witnessing the firsthand trauma experiences of another. Secondary trauma can cause physical or emotional symptoms in the health care provider/care-giver.

Recent related trauma-informed healthcare work has demonstrated promising outcomes. A primary care clinic in Pueblo, Colorado educated and screened residents, clinicians, and patients about childhood adversity and resilience and then connected vulnerable families with necessary services. Clinicians and patients were both satisfied with the process and want it to continue. The clinic

also experienced improvements in emergency room utilization and appointment no-shows.<sup>20</sup> Additionally, an Illinois hospital implemented stress management strategies for its employees, and had a 7% decrease in employee turnover over a two year period and saved close to \$800,000.<sup>21</sup> Finally, in a study of almost 300 direct service providers, organizational, supervisor, and peer support, as well as trauma-informed care-giver development, decreased the risk of burnout, secondary trauma, and compassion fatigue.<sup>22</sup>

Without including a trauma-informed approach, the Quadruple Aim will remain elusive and unachievable. Both patients and health care staff will continue to suffer, and we will continue to waste precious health care dollars on downstream effects rather than upstream root causes of disease.

and improve provider satisfaction and well-being. We urge all clinicians and healthcare organizations to learn more and adopt trauma-informed care.

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### About Health & Medicine Policy Research Group

Health & Medicine is a Chicago based non-profit working to improve the health of all people in Illinois by promoting health equity. Founded in 1981 by Dr. Quentin Young, it was formed as an action-oriented policy center—nimble, independent, and focused on regional health issues. Health & Medicine’s mission is to promote social justice and challenge inequities in health and health care. It conducts research, educates and collaborates with other groups to advocate policies and impact health systems to improve the health status of all people. Health & Medicine has successfully developed health policy recommendations and implementation strategies for different public and private entities, earning the trust of the legislature, advocates, the media, researchers and policymakers at all levels of government in Illinois to become the region’s “honest broker” on healthcare policy matters. Learn more at [www.hmprg.org](http://www.hmprg.org).

### About the Illinois ACEs Response Collaborative

Established in 2011, the [Illinois ACEs Response Collaborative](#) (the Collaborative) represents a broad range of organizations and agencies committed to expanding and deepening the understanding of the impact of childhood trauma and ACEs on the health and well-being of Illinois families and communities. The Collaborative works to develop education, policies, and responses to assist those who have experienced a high level of adversity, while simultaneously developing strategies to reduce the frequency and impact of ACEs as well as preventing their transmission to the next generation.

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## Conclusion

Scientifically grounded, trauma-informed care is not only the healthcare of the future, it is the healthcare we need today.<sup>23</sup> Based on emerging data, a trauma-informed approach appears to improve patient outcomes, enhance patient experience, reduce costs,

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