INTRODUCTION: Around 50% of lifetime mental health conditions emerge by the mid-teens and 75% by the mid-20s (Kessler, et al., 2007). Developmentally, childhood and adolescence are potential intervention points to address emerging and future mental health needs. The social determinants of health, or the social and economic factors shaping the environments youth inhabit, as well as their life experiences impact the expression and nature of mental health needs (Allen, et al., 2014). Consequently, the challenges to identify and meet the needs of youth are complex – often extending beyond the boundaries of any one system, organization, or profession, as well as contextually situated with unique considerations based on population or community.

Collaboration between practitioners, policymakers, community members, and service users and their families is necessary to improve youth mental health outcomes. In 2001, the National Advisory Mental Health Council identified the insularity between disciplines involved in youth mental health research, as well as fragmentation of service systems, which translate research into practice, as significant barriers to meaningfully meeting the mental health needs of youth (National Institute of Mental Health, 2001). Some 20 years later, these barriers continue to undermine progress. However, by collaboratively engaging in early intervention approaches and practices, there are new and expanded opportunities to co-create service systems to improve mental health outcomes for youth.

The National Center for Youth Opportunity and Justice’s (NCYOJ’s) experiences in youth mental health have been integrated with literature to offer solution-oriented strategies for facilitating interdisciplinary teams focused on achieving optimal youth mental health outcomes. Merging collective action and improvement science frameworks serves as the basis for the strategies that follow.
Gaps in Youth Service Systems and Supports

Significant mental health service disparities exist between urban, suburban, and rural communities. In rural communities, youth are 20% less likely to visit a mental health provider compared to youth living in urban communities (Lenardson, et al., 2010) due to scarcity of services, distance to available services, and related transportation needs. Racial and ethnic disparities in diagnoses, access, and utilization are also well documented; and research points to worsening trends due to provider and institutional racism, discrimination, and stigma. For example, suicide rates among Black girls (ages 13-19) doubled between 2001 and 2017, and for Black boys it increased by 60% (Alegria, et al., 2015).

Many youth service systems (e.g., education, courts) fail to identify mental health needs (Jensen, et al., 2011; Rossen & Cowan, 2015). These youth systems may lack adequate services and providers to meet identified youth mental health needs (Doulas & Lurigio, 2010). While most youth attend school and engage in the education system, lack of educator knowledge combined with lack of school processes for identifying youth with mental health needs can often mean that youth go into crises before a need is identified or addressed (Jensen, et al., 2011). In public schools, access to mental health professionals is limited by their ability to provide services to students, and inadequate funding for mental health services (Wang, et al., 2020).

Fragmentation within and across youth-serving systems exacerbates these challenges (de Voursney & Huang, 2016). Lengthy wait periods for services and inaccurate or unreliable information are endemic resulting in stigmatizing and destabilizing experiences for youth and families (Liegghio, 2017). Accordingly, some youth and families believe there is a need for improved coordination and collaboration in the delivery of mental health services (e.g., Rumping, et al., 2019; Schraeder, et al., 2018). As practitioners, policymakers, and community members, service users and their family members seek to intervene earlier and more effectively in the lives of youth, new models of care that integrate and coordinate across systems and organizations are being developed and implemented (e.g., Halsall, et al., 2019; McGorry & Mei, 2018; Settipani, et al., 2019).
Collective Impact and Improvement Science as Guiding Frameworks

Collective impact is instructive for those seeking to establish systems-level coordination and collaboration within localized contexts. Such frameworks emphasize fostering relationships among providers and families, coordinating activities, and constructing a seamless network of youth-serving organizations and systems. However, these frameworks provide little guidance for how to elevate relationships from simply coordinating and collaborating to that of collectively co-learning and co-creating, which could sustain higher magnitude impacts. Improvement science – an organizational learning framework – could potentially enhance collective impact initiatives. Improvement science offers practitioners established cross-system collaboratives guidance that can transform them into dynamic and evolving entities able to meet the complexity of the factors shaping youth mental health needs.

Collective Impact

Kania and Kramer introduced the concept of “collective impact” in 2011, emphasizing that the demands of many social issues – such as youth mental health – require coordinated impact across multiple siloed organizations and systems. Collective impact is a structured form of collaboration and partnership that brings together multiple collaborators across sectors to achieve desired social change (Kania & Kramer, 2011). In collective impact, the backbone organization facilitates and nurtures the work and activities of the collaborators. The backbone organization is a necessary

CASE EXAMPLE: BACKBONE ORGANIZATION

As part of the NCYOJ School Safety Study, funded by the National Institute of Justice Comprehensive School Safety Initiative from 2017 to 2021, participating schools were provided guidance, technical assistance, and support around cross-systems partnership, bringing together school personnel, community behavioral health, law enforcement, courts, families, and youth to establish SRMs. These representatives convened to create a behavioral health response as an alternative to exclusionary school discipline and arrest for students with unidentified, unmet, or undermet behavioral health needs. To further the success of this approach as a collective impact initiative, a centralized infrastructure and backbone organization could have facilitated the cross-systems work. Backbone organizations (Turner, et al., 2012):

- Guide vision and strategy
- Support aligned activities
- Establish shared measurement practices
- Build public will
- Advance policy
- Mobilize funding

These organizations have community presence, and therefore ought to be local. The schools themselves were not appropriate backbone organizations. Backbone organizations have dedicated labor force with the skills and expertise to accomplish the six items noted above. These can be outside of the scope of school services and administrator and educator substantive expertise. When engaging in collective impact initiatives, an appropriate organization with the capacity, skills, and knowledge to serve as a backbone is a necessity. Though, instead of identifying one organization with expertise in all of the backbone tasks (Klempin, 2016), schools and partner organizations may benefit from investigating what existing collaborations may lend themselves to identifying sources for backbone functions, such as Communities in Schools, university partnerships, and Positive Behavioral Interventions and Supports (PBIS) or Interconnected Systems Framework (ISF) teams.
condition in collective impact efforts. Communication is essential as it facilitates the development of a shared goal, aim, or agenda, and remains ongoing throughout the work of the initiative.

Development of a shared goal guides identification of mutually reinforcing activities to achieve the goal, and shared measures to track progress. Stakeholders then engage in plan, do, study and act (PDSA) cycles. The outcomes of these cycles are tracked according to the shared measures. Ultimately, the PDSA cycles shift the theory of action and influence the activities undertaken by the initiative. A new cycle is initiated and repeated as collaborators move closer to their ultimate goal. Collaboration and partnership between organizations abounds in the human and social services. Collective impact pushes for the more ambitious goals of “centralized infrastructure, a dedicated staff, and a structured process that leads to a common agenda, shared measurement, continuous communication, and mutually reinforcing activities among all participants” (Kania & Kramer, 2011, p. 37).

Intangible factors such as a sense of mutual respect, trust, and support among collaborators involved in the initiative are instrumental (Nooteboom, et al., 2021). The relational element is often the difference between success or failure (Carmeli, et al., 2009). According to empirical studies of collaborative initiatives, it is necessary for those involved to develop a relationship in which information can be freely exchanged and where opportunities to learn together are plentiful (Nooteboom, et al., 2021; Ryan, et al., 2001).

Applications of Collective Impact with Youth Serving Systems
Collective impact provides a framework that individual communities can adapt to meet its unique needs. People dedicated to addressing youth mental health in the United States and around the world have drawn on the collective impact framework in systems-level reforms and approaches for youth mental health (Ball, et al., 2021). Examples include the Collective Impact Teams within the Office of Children's Mental Health in Wisconsin, the Rural Ottawa Youth Mental Health Collective in Ottawa, Canada, and the Lifehack Initiative in New Zealand.

CASE EXAMPLE: CONVENING TRAINING
In the NCYOJ School Safety Study, school sites experienced difficulties with creating opportunities for cross-systems collaborative teams to learn together. Teams received training on adolescent development, trauma-informed school mental health, school climate and culture, and restorative practices as part of strategic planning process. In the subsequent years of the study, there were limited opportunities facilitated by NCYOJ for teams to learn together. One site attempted to schedule Adolescent Mental Health Training for School Resource Officers and Educators for their team, however, it was challenging to convene all participants for a 1.5-day training course. Similarly, attempting to schedule a restorative approaches training led to several cancellations among anticipated participants. It can be challenging to create shared learning opportunities, particularly across sectors. This emphasizes the value of the backbone organization in guiding vision and strategy to secure buy-in from cross-systems collaborative partners, elevating the social issue as a shared priority. By doing so, there may be opportunities for transforming existing practices and policies to accommodate training events and other opportunities for shared learning, and to institute standard operating procedures to facilitate this shared learning. This also highlights the value of engaging in a district initiative, or multi-district initiative (Gaines & Mohammed, 2013), to support partnership, reducing the burden on any one school.
Applications of collective impact for youth mental health are in their infancy and a thorough evaluation of outcomes is ongoing. The challenges and barriers to planning and implementing are significant given these initiatives require individuals, organizations, and systems to work together in novel ways. Differences involving focus, policies and procedures, and systems culture prove formidable and can often result in disconnection and fragmentation that undermines coordinated response (Nooteboom, et al., 2021). Initiatives tend to benefit from concrete goals and parameters for collaboration, involvement of all necessary individuals, organizations, and systems from the onset of the project, and continuous information sharing (Nooteboom, et al., 2021).

While the collective impact framework provides useful guidance for the work of building coordinating and communicating structures — which are necessary to bring together collaborators that have often never worked together —, little attention is devoted to the collective learning that must occur to address issues where few standard solutions exist. These issues require significant innovation, which only comes about with intentional collective learning. To innovate is to experiment – to try, fail, and try again. Collaborators come together from across organizations and systems with each bringing insight into the dynamics driving unmet needs. Stitching together a collective understanding likely requires new structures and language systems. The ability to collectively learn for innovation should not be assumed.

While the collective impact framework identifies essential structural elements for the individuals to organize into a collective, it provides little instruction to members about how to innovate. A secondary framework, *improvement science*, can fill this gap.

### Improvement Science

Improvement science is about accelerating collective learning by putting ideas into action. Learning to improve necessitates shifting from thinking of improvement as the endpoint of intervention to investing in continuous formalized methods to achieve it. Improvement science offers a process for co-creating solutions to persistent and complex problems of practice within an organization or system. It combines practitioner or stakeholder knowledge with a disciplined, iterative process for inquiry and change management. Stakeholders come together to develop a consensus or understanding of the dynamics, and magnitude and importance of an issue (Lewis, 2015). Collectively, collaborators map the drivers of an issue and how different courses of action may change those drivers (Lewis, 2015). Improvement science is the practice of translating interventions into action and learning to improve.

*Improvement science involves six principles (See next page).*

PDSA is of particular import to those endeavoring to address complex problems through collective impact. PDSA is a four-step process for problem-solving designed to create change and then improve upon it. In this cycle, the Carnegie Foundation lays out three key questions stakeholders must ask:

- What specifically are we trying to accomplish?
- What changes might we introduce and why?
- How will we know that a change is an improvement?

Collaborators proceed through each PDSA cycle, treating it like a brief experiment. First, **plan** or identify a change and hypothesize the outcomes. Second, **execute** the change or **do** and document what happened. Third, **study** what was predicted to happen and current results. Finally, decide what to do
## Improvement Science Involves Six Principles:

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<tr>
<td><strong>1. MAKE THE WORK PROBLEM-SPECIFIC AND USER-CENTERED.</strong></td>
<td><strong>SRM Case Examples:</strong></td>
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<td>It starts with a single question: “What specifically is the problem we are trying to solve?” It enlivens a co-development orientation: engage key participants early and often.</td>
<td>For SRM implementation, the primary social problem schools and partners are trying to solve is that students with unidentified, unmet, or undermet behavioral health needs are disproportionately suspended, expelled, or arrested for behaviors that are directly and indirectly a result of their behavioral health status.</td>
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<td><strong>2. VARIATION IN PERFORMANCE IS THE CORE PROBLEM TO ADDRESS.</strong></td>
<td>Behavioral health responses may work well in some schools, but not as well in others. There is variability in the implementation of frameworks like SRM.</td>
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<td>The critical issue is not what works, but rather what works, for whom and under what set of conditions. Aim to advance efficacy reliably at scale.</td>
<td>Seeing how local conditions shape processes for alternatives to exclusionary discipline, visiting and having discussions with school faculty and staff, families and caregivers, youth, and youth-serving organizations in the community can identify what is working and what is not, to support students with behavioral health conditions.</td>
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<td><strong>3. SEE THE SYSTEM THAT PRODUCES THE CURRENT OUTCOMES.</strong></td>
<td>Data collection and sharing are integral to SRM success. Without understanding the prevalence of exclusionary discipline among students with behavioral health conditions, for example, it is impossible to quantify the problem and to assess for improvements. Measurement is essential for outcomes related to the problem being solved and to the process of SRM implementation. Measurement can go beyond discipline data and include attendance data, school climate survey results, student visits to specialists (e.g., social workers, counselors), calls to community crisis or calls to law enforcement.</td>
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<td>It is hard to improve what you do not fully understand. Go and see how local conditions (such as policy and resource constraints and the needs of the population) shape work processes. Make your hypotheses for change public and clear.</td>
<td>SRMs try to reduce the number referrals to law enforcement that result from school-based incidents involving students with behavioral health conditions. This is accomplished by reducing reliance on exclusionary discipline, implementing a behavioral health response, codifying policies and practices pertaining to the SRM, and collaborating with families, youth, and cross-systems partners in the planning, implementation, and evaluation of the SRM. This process ought to be iterative, with teams planning for how to address law enforcement referrals, implementing the plan, investigating whether the plan worked or how to improve the process or outcomes, and determining what to do next to achieve the goal of the SRM.</td>
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<td><strong>4. WE CANNOT IMPROVE AT SCALE WHAT WE CANNOT MEASURE.</strong></td>
<td>Improvement science assumes that knowledge about solutions exists within the people and organizations/systems involved. PDSA cycles can occur within organizations or in more sophisticated forms within networked improvement communities (NICs). A NIC is a professional learning community except NICs – like collective impact initiatives – organize around a directed goal or aim. Unlike collective impact initiatives, NICs are more diffused and attempt to harness the power of multiple communities to distill learning across local contexts and drawn on the knowledge of a broader group. A NIC rallied around SRM would, for example, harness the learning from multiple SRM schools, districts, and states to distill the learning for how to best achieve the SRM goal and solve the problem of the disproportionate discipline experienced by students with behavioral health conditions.</td>
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<td>Embed measures of key outcomes and processes to track if change is an improvement. We intervene in complex organizations. Anticipate unintended consequences and measure these too.</td>
<td>Please note, the six core principles of improvement are from the Carnegie Foundation (n.d.), without modification.</td>
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<td><strong>5. ANCHOR PRACTICE IMPROVEMENT IN DISCIPLINED INQUIRY.</strong></td>
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<td>Engage rapid cycles of Plan, Do, Study, Act (PDSA) to learn fast, fail fast, and improve quickly. That failures may occur is not the problem; that we fail to learn from them is.</td>
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<td><strong>6. ACCELERATE IMPROVEMENTS THROUGH NETWORKED COMMUNITIES.</strong></td>
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<td>Embrace the wisdom of crowds. We can accomplish more together than even the best of us can accomplish alone.</td>
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or how to act next based on learnings. Differences or variation in performance or outcomes are key to learning. Multiple PDSA experiments function like a scientist experimenting in the lab. Using NICs to distill learning across local contexts and draw on the knowledge of a broader group allows cross-systems partners, collectively, to learn something about how they understand a complex problem and approaches to addressing or mitigating its effects.

Combined with the structure outlined by the collective impact framework, improvement science can be a powerful tool to facilitate collective learning.

**Applications of Improvement Science in Practice with Children & Youth Organizations**

Application of improvement science is most robust in the health and medical sciences where it has been used to improve patient outcomes, though it is also prominent in education (K-12 and post-secondary) to primarily improve student academic performance and outcomes (e.g., Peterson, 2016). Application to mental health systems is emerging. For example, McLeod and co-authors (2021) described the “learning school systems,” which draws on the improvement science framework for the implementation of evidence-based practices for addressing youth mental health within the school system. The process of collecting and analyzing data was an effective approach to identifying, implementing, and continuously improving evidence-based practices in schools.

**Joining Collective Impact and Improvement Science Frameworks for Youth Mental Health**

Movement toward collaboration and coordination offers promise but requires stakeholders, organizations, and systems to work together in novel ways. Frameworks abound to inform and direct these undertakings. Collective impact offers stakeholders the elements necessary to organize resources and activities around a defined, shared, and measurable goal. Though collective impact emphasizes shared measurement as essential to evaluating the progress of the collaborative initiative in achieving its aims, it neglects to specify the process by which learning must occur for the initiative to close the gap between goal and reality.

Improvement science – especially as exemplified in NICs as hubs for learning – shares similar theoretical underpinnings as collective impact; however, improvement science’s PDSA cycles provide a disciplined and systemized way to build collective knowledge. Combining these frameworks may maximize potential impacts.
References


Recommended Citation, APA Style:

About
The National Center for Youth Opportunity and Justice aims to improve life opportunities for youth by advancing policy and practice improvements that ensure the well-being of youth, families, and communities.

Disclaimer
This project was supported by Award No. 2016-CK-BX-0010, awarded by the National Institute of Justice, Office of Justice Programs, U.S. Department of Justice. The opinions, findings, and conclusions or recommendations expressed in this publication/program/exhibition are those of the author(s) and do not necessarily reflect those of the Department of Justice.

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