

The Center for State Child Welfare Data

Principles, Language, and Shared Meaning: Toward a Common Understanding of CQI in Child Welfare

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Dear Colleagues,

I am pleased to introduce *Principles, Language, and Shared Meaning: Toward a Common Understanding of CQI in Child Welfare*, a new publication by The Center for State Child Welfare Data at Chapin Hall.

In recent years, the field of child welfare has become more comfortable with the notion that data should inform the way we work. However, as director of the Illinois child welfare system, I learned firsthand that data alone do not provide the insight needed to guide our work; rather, it is the meaning we make out of those data that points the way forward. The discipline of meaning making—the transformation of data into evidence—provides insight into the effectiveness of our work, the quality of our practice, and the relationship between the two. The continuous quality improvement (CQI) process calls on us to use that insight to drive the next innovation toward bringing about the change we want to see.

Today, much of the national conversation around building capacity for CQI in child welfare centers on the implementation of multi-component CQI systems. While the structure of these systems will vary from state to state, all of them will be responsible for supporting the same basic CQI process—an ongoing cycle of analysis and decision making supported by evidence. As such, our field needs a common language for talking about what the CQI process is and what it entails. We believe the clarity and shared understanding that results from a common vocabulary will promote the communication and accountability that are essential to CQI's sustainability and effectiveness.

With this in mind, we hope you find this latest report useful as you go about the work of improving the well-being of children and families touched by the child welfare system.

Sincerely,



Bryan Samuels
Executive Director

The language of CQI and the need for shared meaning

In the prologue to his translation of Martin Buber's *I and Thou*, the philosopher Walter Kaufmann writes, "Men love jargon. It is so palpable, tangible, visible, audible; it makes so obvious what one has learned; it satisfies the craving for results. It is impressive for the uninitiated. It makes one feel that one belongs. Jargon divides men into Us and Them."¹

On its surface, jargon appears useful; after all, we need shared words in order to communicate with one another. In child welfare, as in any field, without common terms to describe our work and its conceptual underpinnings, we cannot explain our strategies, share our experiences, or recognize the role that our individual efforts play in the achievement of the child welfare system's larger aspirations.

But as Kaufmann also explains, jargon's seductive lure has pitfalls. Its exclusivity necessarily leaves some people out of the conversation and, even when we are inside those circles of the initiated, we sometimes use jargon in the place of accountability, relying on it more as a tool for gaining acceptance, more as a method for satisfying our desire to point to results, and less as a mechanism for expressing what we actually know.

Luckily, there is an antidote to jargon, and it's more than just shared words; it's shared meaning. Cultivating shared meaning requires us to set two critical standards for our vocabulary: precision and transcendence. In this paper we attempt to meet these standards as we endeavor to establish a common language for understanding Continuous Quality Improvement (CQI) in child welfare.

The definitions of the words we use to understand CQI have to be precise, unchanging, and accepted by the diverse group of professionals who use them. This is not to say that the child welfare community should settle on a hard and fast vocabulary at the expense of addressing the unique norms and needs of individual jurisdictions. On the contrary, we want to accommodate those idiosyncrasies by developing a language of CQI that is fundamental enough to be reliable across contexts. This is where transcendence comes in—a task made easier by the fact that CQI is already a transcendent process. In the pages that follow, the basic CQI model on which we grow our terminology — Plan-Do-Study-Act — is borrowed gratefully from the seminal twentieth century literature on quality management in manufacturing.² Since its appearance, this model has been the bedrock of protocols designed to effect improvements in industry, health care, business, and now in child welfare. The model's ubiquity makes it an ideal foundation for developing a language that all child welfare professionals — regardless of their role in the system — can use to target, craft, implement, and evaluate efforts to improve outcomes for children and families.

In child welfare, doing our job well requires collaboration throughout agency hierarchies and across sectors. It requires clear, shared understanding of defensible, strategic plans and shared commitment to executing those plans with fidelity and rigor. We believe a common CQI language promotes that clarity and accountability by cultivating shared meaning—by fostering a community in which, when people sit down to work, the distinction between initiated and uninitiated ceases to exist.

1 Buber, M. (1970). *I and Thou* (Walter Kaufmann, Trans.) (p. 15). New York: Scribner. (Original work published 1937)

2 Best, M., & Neuhauser, D. (2006). Walter A. Shewhart, 1924, and the Hawthorne factory. *Quality and Safety in Health Care*, 15(2), 142-143.

CQI as a process versus CQI systems

Today, child welfare agencies are taking stock of their capacity for CQI and considering the investments they will make in order to build that capacity. This is especially true for public child welfare systems as they respond to federal guidance and expectations regarding quality improvement activities at the state level. These directives have focused on structural and functional capacities required to sustain CQI; however, they have not gone into particular detail regarding the analytic and decision making tasks inherent to the CQI process or what it looks like when those tasks are executed well. Therefore, in establishing a language of CQI, we start by distinguishing the **process of CQI** from what we will call a **CQI system**.

CQI is a cyclical process of problem solving activities that requires the deliberate use of evidence.

The cycle has stages during which various analytic and decision making tasks are executed: identify the problem; hypothesize as to its cause; develop, implement, and test a solution; and make decisions about future investments based on the results of those tests.

Each stage of the process must be informed by evidence. **Evidence** is information that is used to support an observation, claim, hypothesis, or decision. Evidence may be qualitative or quantitative and can be found in or derived from a number of sources. For example, child welfare agencies may generate evidence themselves through the analysis of administrative data, case record reviews, or systematic focus groups or interviews. Agencies can also acquire evidence generated by others by reading peer-reviewed research articles, reviewing program evaluations, accessing information clearinghouses, or drawing on statistics compiled by government and other organizations. The most reliable evidence is usually that which is generated through the process of research — scientific data collection and analytic procedures that are objective, systematic, and open to scrutiny;³ this type of evidence is often referred to as **research evidence**. In this paper, we discuss best practices for generating evidence and outline the types of evidence that are germane to each stage of the CQI process.

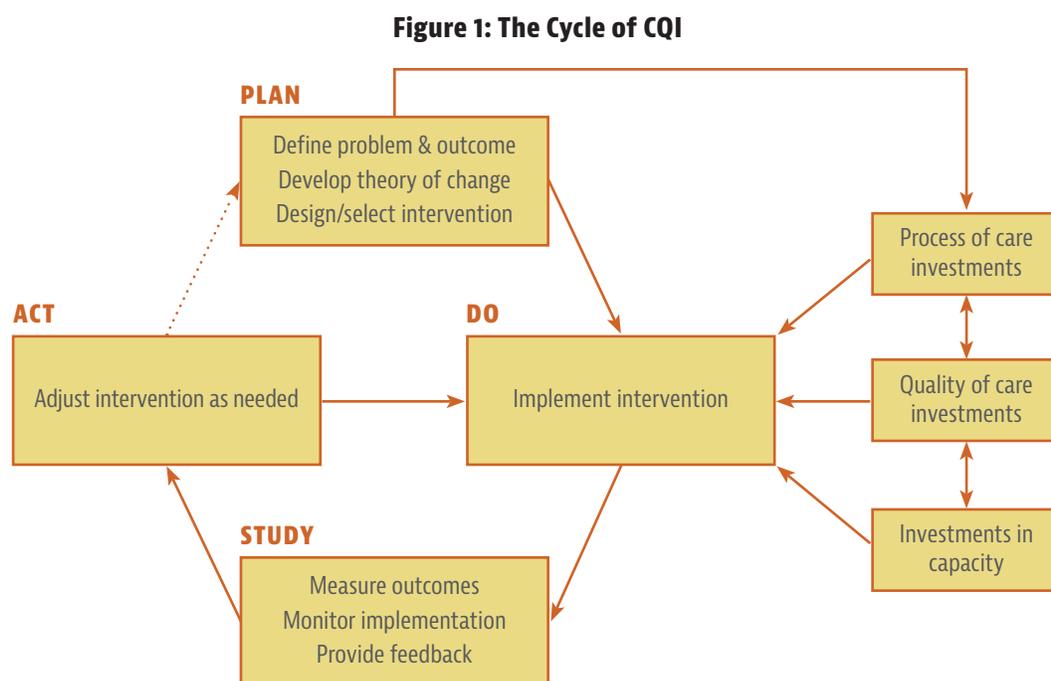
A **CQI system** is a coherent set of structures, functions, policies, and procedures that facilitate the CQI process. It is the interactive collection of agency departments, oversight procedures, data collection and analytic tools, reporting protocols, feedback mechanisms, and overarching agency culture that enable staff in various roles to conduct CQI activities. In other words, a CQI system is the supportive context inside which the CQI process runs.

Given these definitions, a **high-quality CQI process** is one that incorporates the rigorous use of evidence at each stage; a **high-quality CQI system** is one that is sufficiently resourced and organized to sustain a high-quality CQI process. The primary purpose of this paper is to put forth a vocabulary for describing what a high-quality CQI process entails. Toward the end of the paper we discuss briefly how agencies can approach building systems that support such work.

3 Davies, H. T. O., & Nutley, S. M. (2008). *Learning more about how research-based knowledge gets used: guidance in the development of new empirical research*. William T. Grant Foundation, New York, NY.

The CQI process

CQI has been applied formally across fields for nearly a century. As a result, a number of different models exist that describe the process.⁴ All of them, however, boil down to a cycle that contains the same four fundamental phases: Plan, Do, Study, and Act (PDSA). In a child welfare context, these stages unfold as follows:



Plan. The CQI cycle begins when the agency defines the problem it wishes to solve by observing baseline performance on an outcome of interest. Next, the agency identifies an intervention that is expected to improve that outcome and sets targets for improvement. Among other considerations, the choice/design of the intervention should be supported by research evidence that demonstrates its effectiveness. At the very least, the intervention must be grounded in a theory of change that addresses the causes driving the baseline performance and clarifies the mechanisms by which the intervention is expected to improve the outcome.

Do. Implementing a new intervention requires the agency to invest in three major areas: the quality of services to be delivered, the processes by which they are delivered, and the capacity of the agency to deliver them with fidelity. Quality and process refer to the “what” and “how” of intervention. Capacity investments are the resources that the agency will allocate to ensure that the intervention is implemented according to process and quality standards.

Study. Over the course of the implementation period, the agency conducts process evaluation to monitor the extent to which the intervention is being implemented with fidelity to its design. After an established period of time, the agency measures the outcome of interest again to determine whether the intervention has had its intended effect.

4 e.g., Pyzdek, T., & Keller, P. A. (2003). *The Six Sigma handbook: A complete guide for green belts, black belts, and managers at all levels*. New York: McGraw-Hill; Rubin, J. (2009). Front-line Practice: Define, Assess, Plan, Implement and Monitor. *Policy & Practice, December 2009*, 11-13.

Act. Finally, the agency uses findings from the process and outcome evaluations to make decisions about its future investments. At this stage, the agency must answer a number of questions: To what extent does the original performance problem still exist? Does the degree of progress made toward the target outcome support the theory of change underlying the intervention? Are adjustments to the intervention (i.e., the agency's process, quality, and capacity investments) required? The answers to these questions may lead the agency to continue with the selected intervention, modify or discontinue it, or revisit the original conceptualization of the problem. From there the cycle begins again.

Core principles underlying the CQI process

PDSA provides a framework for organizing the analytic and decision making tasks that make up the CQI cycle. These tasks are rooted in five core CQI principles, each of which is described below.

1. Developing and testing hypotheses that are rooted in theories of change

Embedded in the CQI cycle is an iterative practice of **hypothesis development** and **hypothesis testing**: We identify a problem, we hypothesize as to its cause, we hypothesize that a given intervention will rectify the problem, and after implementing the intervention we test whether our hypotheses were correct by measuring the extent to which the problem has been solved. The practice of hypothesis development in CQI requires one to make four essential claims, summarized by the following template:

I observe that [there is a specific problem]. **I think it is because** [of this reason]. **So I plan to** [implement some intervention], **which I think will result in** [the desired outcome].

These four claims reflect what we know and what we expect based on our knowledge about the system. They become a coherent **plan** when they are held together by a unifying theory of change. A **theory of change** is a statement that describes the mechanisms by which the thing we propose to do is expected to produce the change we want to see. A theory of change is often expressed most clearly through a **logic model** — a graphic representation of the process by which an intervention is expected to influence an outcome of interest.

A CLOSER LOOK

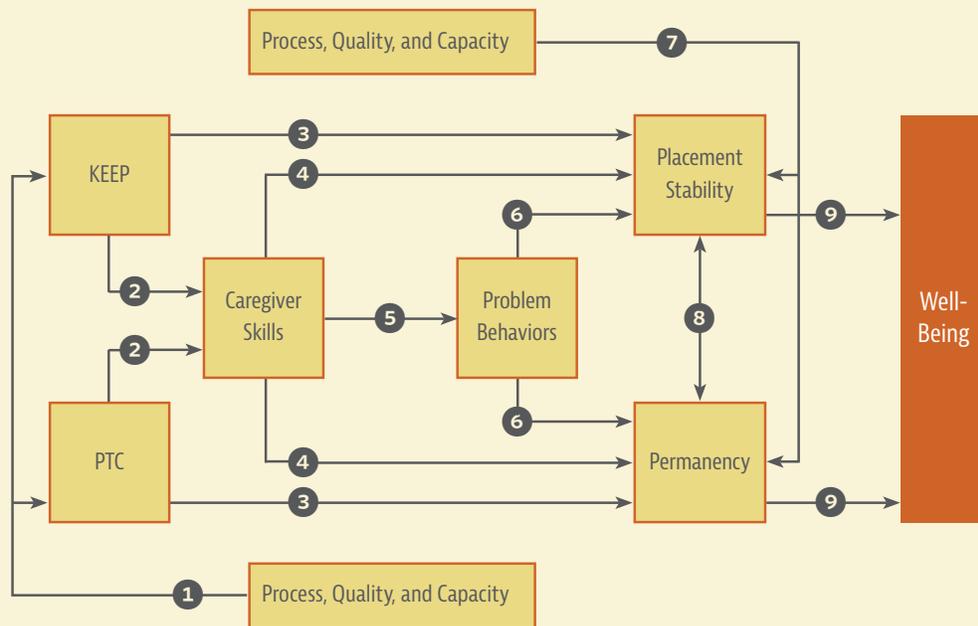
Theory of Change: Articulating a Logic Model

When a child welfare agency implements a new intervention it makes one or more changes to its usual way of doing business. These may be changes to the process of care (how the work is done), the quality of care (how well the work is done), and/or the capacity to deliver care (the resources the agency devotes to the work). The hypothesis is that altering business as usual will lead to an improvement in the outcome of interest; the purpose of a logic model is to express how those changes are linked to the intended outcome.

Consider a child welfare agency that wants to improve the well-being of children in foster care. Given that research has established an association between placement stability, permanency, and child well-being, the agency sets out to implement an intervention that promotes those placement outcomes. It identifies two

evidence-based practices to implement with children and their caregivers. The first is Parenting through Change (PTC) — a training and coaching program that provides parents with a structured opportunity to practice parenting skills with help from a trained agency staff member. The second is Project KEEP — a training program for foster parents that builds caregivers' skills in managing children's behavior. By improving caregivers' skills, these two programs are expected to reduce children's problem behaviors. In turn, fewer problem behaviors improve placement stability and promote permanency. All of these proximal outcomes are expected to lead to improved child well-being, which is conceptualized to include health and general welfare, social emotional stability, and a functional lifestyle in adulthood, among others.

Specifically, as depicted in the logic model below, there are nine basic pathways by which the agency anticipates the intervention to have an effect:



Path 1 shows the changes to process, quality, and care capacity that KEEP and PTC require (i.e., the manualized time use instructions that make up the interventions). Fidelity is assessed by measuring the degree to which the process, quality, and capacity requirements are fulfilled.

Path 2 speaks to the impact of KEEP and PTC on caregiver skills; the programs are expected to improve caregivers' ability to manage children's behavior. Path 3 anticipates direct, separate effects of KEEP and PTC on stability and permanency; this path reflects the possibility that, as a result of improved practice, decisions about where children should live may happen at a different pace and yield a different result. Similarly, Path 4 depicts a separate effect of caregiver skills on permanency and stability due to what might be called spillover effects; that is, as caregiver skills change, there may be generalized improvements in expectations on the part of caseworkers and other personnel within the system such as the courts.

The principal influence on children's behavior is improved caregiving — Path 5. Fewer problems behaviors is what, more than anything else, allows for better foster care outcomes (lower disruption rates and earlier permanency), which is depicted in Path 6.

Path 7 raises the possibility that operational reforms external to the intervention, when present, could have their own direct effect on placement outcomes. For example, imagine that, concurrent to implementing KEEP and PTC, the agency also enacted a policy that reduced child/worker ratios. Operational changes would be interpreted in the same way as the changes made through KEEP and PTC — as a set of process, quality, and capacity changes that alter business as usual.

Path 8 acknowledges that placement stability and permanency are inextricably linked; children who live stable lives are more likely to find permanency and children in permanent situations are less likely to move from one home to another. The last pathway, Path 9, speaks to the distal well-being outcomes. It reflects the expectation that, in general, stability and permanency lead to improved well-being, regardless of whether the mechanisms that promote stability and permanency are specifically articulated in this logic model.

2. Converting data to evidence

A prominent theme in child welfare's movement toward CQI is the notion that policy and practice should be "data driven." The phrase refers to an agency's obligation to use data to inform its decisions. However, to be precise, it is not data, *per se*, that drives the CQI process. Data alone do not have an inherent meaning; that is, data do not possess the narrative needed to formulate or drive action. Evidence, on the other hand, has an inherent narrative — a storyline that ignites the problem solving process.

Data are the individual pieces of information that a child welfare system collects about the children and families it serves. Data are converted to **evidence** through the process of **analysis**. As such, selecting the correct type of analysis is critical — the analytic method implemented is what gives evidence its meaning. In other words, there is a discipline to converting data into evidence. The cornerstone of that discipline is matching the analysis with the data to produce the evidence needed to support an observation, a claim, a hypothesis, or decision at hand.

Analytic discipline is required throughout the CQI cycle, but is perhaps most important at the very beginning of the Plan phase — defining the problem. As outlined above, the CQI process starts with an observation. Analysis is a mirror that we hold up to the child welfare system in order to observe the system's status. To make a correct observation, that mirror has to reflect an accurate image. For instance, if I want to decrease length of stay of children in foster care and I rely on a baseline observation that does not accurately represent how long children in my system stay in care, I will not start in the right place to develop a strategy for reducing length of stay, and the solution I do develop may be ineffective or even harmful.

Simply put, one cannot solve a problem that one has not observed correctly and what you see depends on how you look. As such, whether one analyzes data oneself or consumes the analysis of others, becoming skilled in "how to look" — the discipline of converting data to evidence — is essential.

A CLOSER LOOK

Converting Data to Evidence: The Denominator and its Implications for Understanding Performance

Making an accurate observation about an outcome that an agency is trying to prevent or promote requires an analysis that accounts for all of the children at risk of experiencing that outcome. Mathematically speaking, this **risk set** is the denominator of the calculation.

There are three popular denominators in foster care data analysis: a **point-in-time** sample, which includes all children in care on a particular day; an **exit cohort**, which includes all children who left care during a specific time period; and an **entry cohort**, which includes all children who entered care during a specific time period. A simple analysis of median length of stay in foster care highlights the implications of using each. Consider the table below, which shows findings from a real state:

Research question	Denominator	Median length of stay
Point-in-time: Of all children who were in care on 1/1/2010, what was their median length of stay as of that day?	All children who were in foster care on 1/1/2010	28.2 months
Exit cohort: Of all children who exited foster care in 2010, what was their median length of stay?	All children who exited foster care in 2010	8.13 months
Entry cohort: Of all children who entered foster care in 2010, what was their median length of stay?	All children who entered foster care in 2010	7.63 months

The utility of these figures for CQI purposes lies in their generalizability. Neither exit cohort nor point-in-time analyses provide fully representative information. Point-in-time samples capture the experience of children in care on a given day, but ignore all the children who entered and exited care before that date. As a result, these analyses tend to over-represent the experience of long stayers. Exit cohort samples capture the experience of children who have left care, but ignore children who are still in care. For that reason, exit cohorts may over-represent the experience of short stayers and are likely to contain a mix of children who vary greatly with regard to the length of their exposure to foster care. In most cases, the best way to summarize the typical experience of children in foster care is to use an entry cohort sample because an entry cohort includes all the children at risk of experiencing the outcome being measured.

In the end, the sample drawn has to fit the question being asked and, in some cases, an exit or point-in-time sample may be appropriate. However, when it comes to understanding what happens to children who are placed, it is almost always best to examine all the children who were placed as opposed to restricting one's view to those who left or those who are still in care.

3. Variation

The CQI process begins when we observe a problem. But how can we determine that the outcome we observe requires further attention? Part of that determination lies in our ability to frame the observation

explicitly as a statement of comparison between the reality we see and something that we can characterize as “better.”

When we can compare one group’s outcomes to another’s, we are observing variation in the system. In a child welfare context, the term **variation** refers to the simple fact that in any system different groups of children experience different outcomes. Outcomes vary by geography and business unit (e.g., state, county, office, service provider, etc.), by child and family characteristics (e.g., age, race/ethnicity, presenting problems, etc.), by service type (e.g., foster home placement, kinship care, congregate care, etc.), and over time (e.g., from cohort to cohort).

Observing variation is not only essential to defining the problem to be solved (“I observe that...”); it also informs our pursuit of the solution. A statement about variation is the launch pad for asking the next question in the CQI process: Why does variation exist? When we have evidence about why an outcome varies (“I think it is because...”), we can use that evidence to implement targeted interventions (“So I plan to...”) where they have the most potential to create the change we want to see (“...which I think will result in...”).⁵

So, why do child and family outcomes vary and why does the answer matter for CQI decision making? Child welfare outcomes vary for two general reasons. First, outcomes can vary because of characteristics of children and families themselves. For example, consider a state in which counties vary widely on their use of congregate care placements for children in foster care. It may be that in high-use counties, children coming into care are more likely to have serious mental health needs that cannot be managed in a family setting. Those counties might argue that group care placement is appropriate because that level of care is required to meet children’s needs. When variation exists because of the unique needs of children and families, we want to preserve the heterogeneity of service delivery. Setting aside whether group care is the best or only way to meet the needs of children with serious mental health issues, the point here is to note that when a system delivers different care to different groups of children because different groups of children need different kinds of care in order to achieve the same success, the next step from a CQI perspective is to support a nimble system that is prepared to tailor its services (and, for that matter, prepared to ask the next question about variation: Why do children in some counties have more mental health needs than in others?).

Second, outcomes can vary because jurisdictions differ in the way they treat the same kinds of children. Pushing forward the example above, perhaps there is no county-to-county variability in the mental health needs of children entering care, but there is a real difference in each county’s service array. Maybe the variation we observe in group care use is due to the fact that the high-use counties have large emergency shelters and struggle with a lack of foster homes, while the low-use counties have more foster homes and effective protocols for searching for kinship caregivers. In this case, variation in group care use has little to do with differences in children’s needs and more to do with differences in individual counties’ policies and practices. When variation exists because jurisdictions treat the same kinds of children differently—that is, those jurisdictions differ in the process of care, the quality of care, and the resources they devote

5 An important topic not discussed in detail in this paper is the science of identifying and implementing effective interventions. The recent movement toward evidence-based practices has highlighted the need for child welfare decision makers to be savvy consumers of research and program evaluations. Choosing and implementing the “right” intervention also requires decision makers to examine that literature alongside their own agencies’ historical performance, population dynamics, and population demographics.

to delivering care — we want to minimize the heterogeneity of service delivery. In these cases, the next step from a CQI perspective is to identify the policies and practices that bring about the best outcomes and encourage those behaviors throughout the system.

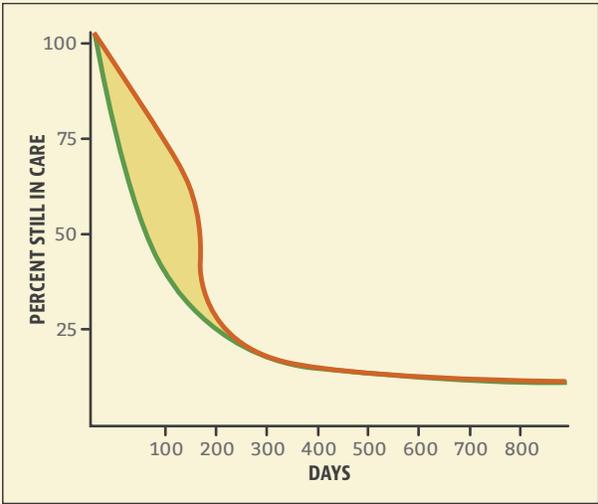
Determining how much variation is due to differences in children versus how much is due to differences in service delivery is a complex task, but it is a critical one because it points the way to targeted interventions. In other words, understanding how outcomes vary and why strengthens an agency’s **hypothesis** about which interventions are likely to bring about which improvements for whom.

A CLOSER LOOK

Variation: Length of Stay Variation and the Title IV-E Waiver

The Title IV-E waiver provides a state with a capped allocation based on the state’s historical expenditures on foster care (i.e., care days). The challenge under a waiver is to select service alternatives (e.g., evidence-based interventions) that have a favorable return on investment in the context of that capped allocation. In other words, the key to identifying an appropriate intervention is to explore opportunities for reducing time spent in out-of-home care. Finding those opportunities requires an examination of how length of stay varies across subpopulations.

The graph below shows how length of stay varies between two counties. [Note, this graph could as easily be about any two populations in the same jurisdiction (e.g., younger vs. older children, children placed with kin vs. those places with non-kin, etc.).] In the green county, children leave care fairly quickly over the first 250 days, after which the rate of exit tapers off. In contrast, in the orange county, children exit more slowly at first followed by a rapid increase in exits around the 200-day mark, but then the exit rate also flattens out after about 250 days. In both jurisdictions, after 250 days, children are leaving care at about the same rate; in fact, children in both counties seem to languish in care.



The space between the orange and green counties’ curves (shaded in yellow) represents the county length of stay difference and potentially savable care days; it is the quantity of care days we could save if we were able to make the exit rate in the orange county comparable to the exit rate in the green county. Put differently, the shaded area represents the care days we could save if we **minimized the variation** between these two counties in exit rate before 250 days.

Findings like these are the starting point for discussions about developing waiver-

supported interventions and calculating the return on investment that they potentially offer. The care days shaded in yellow have a monetary value; selecting interventions to implement under a waiver is a matter of weighing the value of service alternatives against the value of those care days.

4. Implementation: Process, quality, and capacity investments and the BTA

CQI presumes that a change in business as usual can improve outcomes. In the parlance of CQI, the change in business as usual is the **intervention**. Implementing an intervention requires an agency to adjust one or more of three kinds of investments. Process investments are those that shape how the work is done (e.g., implementing a new well-being assessment instrument within 30 days of a child's entry into foster care and using the results of those assessments to inform child and family service referrals). Quality investments are those that influence how well the work is done (e.g., an effort to ensure that workers complete well-being assessments accurately, timely, and in accordance with instrument instructions). Capacity investments are the tangible and human capital resources that the agency devotes to implementing the intervention (e.g., developing an online assessment form; hiring trainers to teach the new tool to staff). Process, quality, and capacity investments must be justified by the intervention's underlying theory of change; that is, what the agency plans to do differently on the ground is the practical manifestation of its theory about why the intervention is expected to produce change.

It is important at this point to clarify what classifies as a child welfare intervention. Given the field's growing focus on evidence-based practices, the call to consider innovative CQI interventions leads most people to think immediately of clinical and casework practices that have been shown by research to be effective. Those are two major types of interventions, but there is an erroneous impression in the field that CQI can only be applied to the development and testing of frontline efforts with children and families. Widening the definition of "intervention" reveals a variety of ways in which an agency can change business as usual in an effort to improve child and family outcomes. These can include:

- **Clinical interventions:** Therapeutic practices and methods implemented directly with children in foster care and/or their families. Clinical interventions may be designed to improve child and family well-being or prevent problems from worsening or recurring. They can be interventions that agencies implement themselves or services outside the agency to which clients are referred.
- **Casework interventions:** Practices or methods of case management or case planning that are intended to improve child and family outcomes by improving the process or quality of casework.
- **Fiscal interventions:** Policies or practices that are designed to improve child and family outcomes through the management of agency expenditures. Performance-based contracting is one example of a fiscal intervention. The Title IV-E waiver is an example of a fiscal intervention at the federal level.
- **Administrative interventions:** Policies or practices designed to improve child and family outcomes through a change in agency operating procedures. Examples include implementation of CQI activities, creation or reassignment of agency roles/departments, and changes to policies regarding paperwork, supervision, or reporting, among others.

Moreover, a child welfare intervention does not have to be aimed toward an improvement in safety, permanence, or well-being. Consider the following iterations of the CQI hypothesis development template:

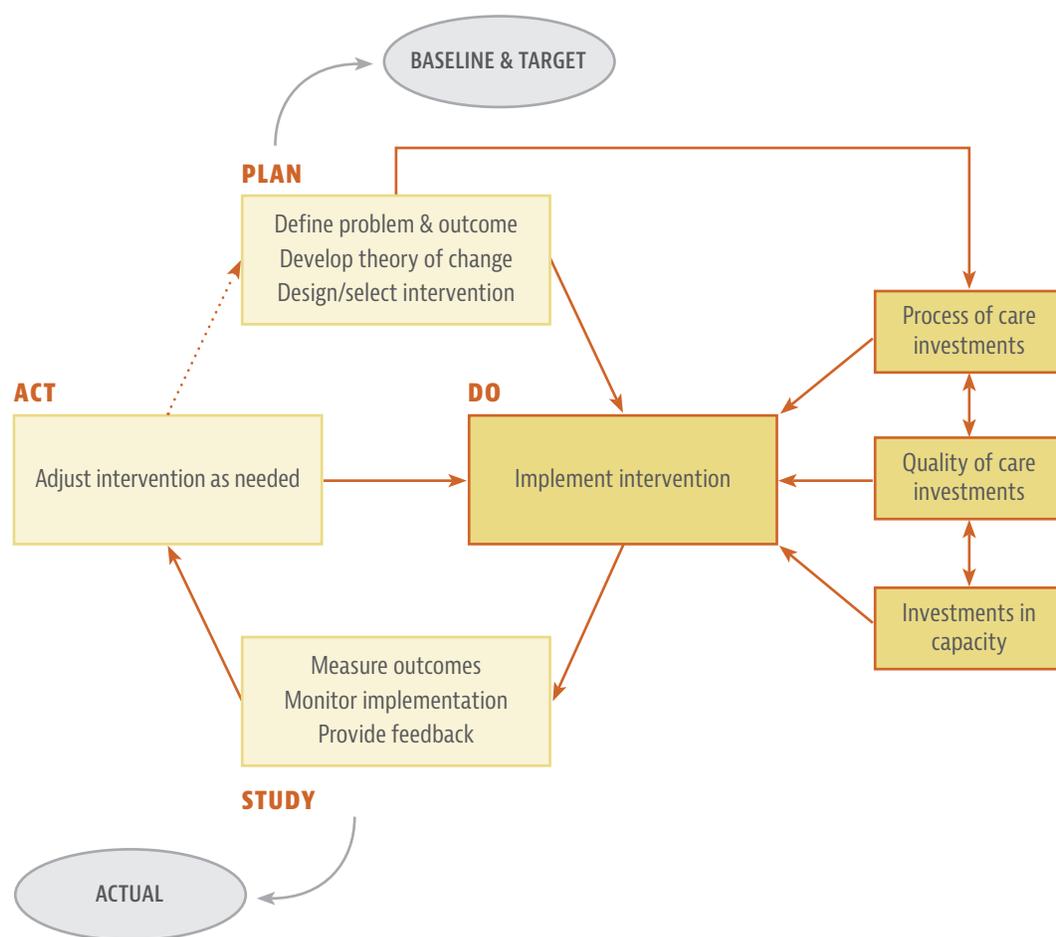
- I observe that my agency's electronic database shows duplicate children. I think it's because of a specific form that sometimes gets submitted twice at intake. So I plan to streamline the process for submitting that form, which I think will result in a reduced number of duplicate children in the system.
- I observe that many caseworkers in my office do not submit their progress notes within the required timeframe. I think it's because they have to submit narrative notes through a system that is separate

from the system where they enter the rest of case related information. So I plan to upgrade the data entry system to accommodate the entry of progress notes, which I think will result in more timely submission of those notes.

- I observe that my agency's program directors do not regularly use evidence to support their policy and practice decisions. I think it's because those directors do not have the CQI knowledge and skills required to do so. So I plan to provide them with CQI training and coaching, which I think will result in their increased use of evidence to support their work.

Regardless of the intervention or the goal it is trying to accomplish, measuring the impact of an intervention requires an analytic structure for establishing baseline performance, setting performance targets, and measuring actual performance against those benchmarks after a specified period of time. We refer to this structure as the **BTA (Baseline-Target-Actual)**. **Baseline** performance is established by the initial observation of variation in the outcome of interest. **Targets** should be set prior to implementation based on historical performance and supporting evidence about the degree of change we can expect for whom over what length of time. **Actual** performance is measured after the performance window to determine the effect of the intervention.⁶

Figure 2: Using the BTA to Measure the Effect of an Intervention



6 For detail on calculating the BTA, see Wulczyn, F. (2007). *Monitoring Child Welfare Programs: Performance Improvement in a CQI Context*. Chicago: Chapin Hall at the University of Chicago.

A CLOSER LOOK

Implementation: Performance Based Contracting in Tennessee

In 2005, Tennessee's Department of Children Services was confronted with the fact that its reimbursement mechanism for private foster care providers created incentives for providers that ran counter to the Department's permanency goals for children in care. Specifically, because private agencies' revenue was tied to the number of days children spent in their care, there was little incentive for them to move children quickly to permanency. The formula was simple: improve outcomes for children and lose the revenue needed to sustain quality programs.

In an effort to reverse the existing incentive structure and expedite safe permanency for children in care, the state engaged The Center for State Child Welfare Data to help build a prospective payment system that paid agencies for success. Through this work, Tennessee developed a performance-based contract (PBC) that offered private agencies a new deal — if a provider was able to achieve permanency for children at a rate demonstrably better than its own past performance, the state would preserve for the provider a portion of the funds the provider would have otherwise lost under the old way of doing business.

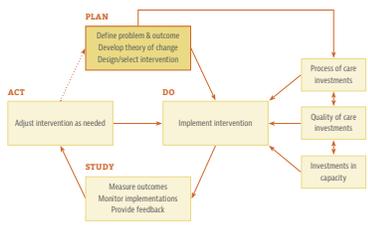
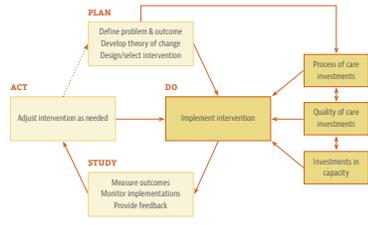
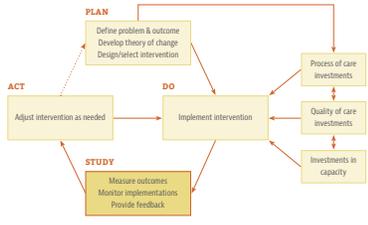
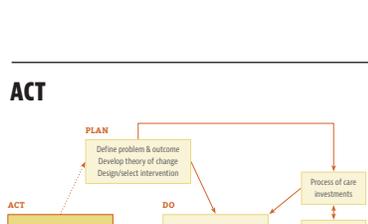
Under the new contract, baseline and target performance was set for each individual provider for a set of outcomes related to permanency and re-entry. To allow for differences in the service populations, each provider's baseline and targets were risk-adjusted using child characteristics related to age and time spent in foster care. For providers able to reach their targets, the Department offered a modest but important return on the provider's investment in doing better work; when providers fell below their baselines, they incurred a financial penalty.

Implementing the new contract required the state to make a number of new investments. To track provider performance over time, the Department had to invest in developing a BTA reporting structure linked to a longitudinal database. It also had to devote resources to improving staff's skill at interpreting and applying the findings in those reports. Additionally, the Department leadership had to assure the provider community that the PBC was designed to support the providers financially as they adapted to the Department's renewed focus on serving children within their own families and communities. To do this, the state leveraged the provider-specific information it gained out of its newfound capacity to analyze performance at the provider level. It was this evidence that enabled the state leadership to sit with individual providers and ask: How can the Department work with your agency to improve outcomes for the children and families you serve?

5. Evidence use at every juncture

Having reviewed the discipline of converting data into evidence and the analytic principles that underlie the CQI process, we can return to the individual stages of the Plan-Do-Study-Act cycle and identify which types of evidence are needed during each. Figure 3 outlines the hypothesis development and testing activities that take place at each stage of the cycle and the call for evidence to support each activity.

Figure 3: Evidence Use throughout the CQI Process

CQI Phase	Hypothesis Development/Testing	Evidence Use
<p>PLAN</p> 	<p>Define the problem. ("I observe that...")</p> <p>Hypothesize as to the cause of the problem. ("I think it's because...")</p> <p>Identify a solution. ("So I plan to...")</p> <p>Set a performance target. ("...which I think will result in...")</p>	<p>What evidence supports this observation?</p> <p>What evidence supports this theory of change?</p> <p>What evidence supports the hypothesis that this intervention will have the intended effect on the target population?</p> <p>Collect data required for an analysis of intervention effectiveness and analysis of implementation fidelity</p>
<p>DO</p> 	<p>Implement the intervention.</p>	<p>Collect data required for an analysis of intervention effectiveness and analysis of implementation fidelity.</p>
<p>STUDY</p> 	<p>Measure progress toward the target outcome.</p> <p>Monitor implementation.</p> <p>Provide feedback to relevant stakeholders and decision makers.</p>	<p>What evidence is there that the intervention was effective (or not effective)?</p> <p>What evidence is there that the intervention was (or was not) implemented with fidelity?</p> <p>Transmit evidence regarding outcomes and fidelity to those who will interpret the findings and make decisions accordingly.</p>
<p>ACT</p> 	<p>Determine the extent to which the problem still exists.</p> <p>Confirm or refute the theory of change.</p> <p>Adjust the intervention as needed.</p>	<p>What evidence supports this observation?</p> <p>What evidence supports this claim?</p> <p>What evidence supports the decision to continue, modify, or discontinue the intervention?</p>

Building CQI system capacity

The specific system an agency puts in place to support the CQI process will vary from jurisdiction to jurisdiction, depending on organizational needs and resources. That said, state CQI systems will share common features. Many of these are already being promoted by federal guidance and federally supported technical assistance and training programs.⁷ Briefly, core elements of a high-quality CQI system include the following:

- **Leadership and culture.** Shared meaning is a defining characteristic of culture. Agency leaders must use a consistent language that establishes the work of Plan-Do-Study-Act as the norm and expectation throughout the agency. Leaders should also promote a willingness to experiment and an understanding that not all efforts to improve quality will work the first time.
- **Data collection and analytic capacity.** Agencies must be able to collect, store, and analyze the quantitative and qualitative data needed to monitor performance and test the effects of interventions. This includes creating and maintaining high-performance datasets that can provide timely information to the Plan-Do-Study-Act cycle. Analysts must be trained in and held accountable to the discipline of converting data to evidence. Staff should be familiar with the agency's data resources.
- **CQI knowledge and skill building throughout the agency hierarchy.** Agencies should provide role-specific training and technical assistance to staff on what the CQI process is, why it is relevant in a child welfare context, and how to conduct CQI activities. This includes educating staff about the core principles underlying the CQI process as laid out in this paper and improving their skills for using evidence to inform their work.
- **Supportive administrative structures and functions.** Agencies must develop organizational structures and functions that facilitate an evidence-driven CQI process. This includes establishing policies and procedures for executing CQI activities consistently throughout the agency and oversight mechanisms to ensure adherence to those standards.

As agencies work to build these capacities, the challenge will be to maintain a persistent connection between the CQI system and the logical and enduring steps of the CQI process. Each stage of the Plan-Do-Study-Act cycle has its own requirements for evidence and presents a different type of opportunity for using evidence to drive action. A strong CQI system is sensitive to those requirements and opportunities and supports the use of evidence at each step. A successful agency will use its CQI system as a means to an end rather than develop CQI capacity as an end unto itself; strong CQI systems support agencies to bring evidence to bear on the CQI process; an evidence-driven CQI process reveals opportunities for improving the work; and improved work leads to better outcomes for children and families.

⁷ Administration for Children and Families. (2012). *Establishing and Maintaining Continuous Quality Improvement (CQI) Systems in State Child Welfare Agencies* [ACYF-CB-IM-12-07].

Acknowledgments

One of the goals in writing this paper was to summarize the philosophies underlying a body of work pertaining to Continuous Quality Improvement that The Center for State Child Welfare Data has developed in depth, particularly in the last ten years. The content reflects the Center's longstanding approach to child welfare research, technical assistance to child welfare agencies, and the development of analytic tools to support the CQI process. Importantly, the paper also expresses concepts, principles, and teachings refined over the years through development and dissemination of the Center's *Advanced Analytics for Child Welfare Administration* curriculum. Taken together, this body of work represents the collective effort of all the Center staff who, in addition to the authors, include Kristen Hislop, Jianyu Wang, Lijun Chen, Sara Wolf Feldman, Nancy Neumann, Xiaomeng Zhou, Kerry Price, Emily Rhodes, Scott Huhr, Christian Verhulst, Zach Martinez, Laura Packard Tucker, and Rosemary Gill.

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Appendix: Key terms defined

Analysis: The process of converting data to evidence. The most rigorous types of methods and analyses are those that classify as research.

Capacity investments: The financial, human capital, technological, infrastructural, and other tangible resources an agency allocates in order to implement an intervention with fidelity to implementation guidelines and process and quality standards.

Continuous Quality Improvement (CQI): A cyclical process of problem solving activities that requires the deliberate use of evidence. The cycle has stages during which various analytic and decision making tasks are executed: problems are identified; causes are hypothesized; solutions are developed, implemented, and tested; and decisions about future investments are made based on the results of those tests.

CQI system: A coherent set of structures, functions, policies, and procedures that facilitate the CQI process.

Data: Individual pieces of information that a child welfare system collects about the children and families it serves. Data may be quantitative or qualitative.

Evidence: Information that is used to support an observation, claim, hypothesis, or decision. The most reliable evidence is that which classifies as research evidence.

Evidence-based intervention: An intervention that has been shown by scientific research to be effective.

Hypothesis: "A tentative assumption made in order to draw out and test its logical or empirical

consequences.”⁸ In a child welfare CQI context, a hypothesis is a testable claim made about the relationship between a given outcome and its supposed causes or the relationship between a proposed intervention and its expected effects.

Intervention: A change to business as usual designed to bring about change in a specific outcome. In a child welfare CQI context, interventions may be changes in clinical practice, casework practice, administrative strategies, or fiscal strategies.

Logic model: A graphic representation of a theory of change. “Effective logic models make an explicit, often visual, statement of the activities that will bring about change and the results you expect to see for the community and its people.”⁹

Process investments: Investments made as part of an intervention that are designed to improve the process of service delivery (i.e., how services are delivered).

Quality investments: Investments made as part of an intervention that are designed to improve the quality of service delivery (i.e., how well services are delivered).

Research: Scientific methods that are objective, systematic, and open to scrutiny.¹⁰

Research Evidence: Information produced as a result of research that is used to support an observation, claim, hypothesis, or decision.¹¹

Theory of change: A statement that describes the mechanisms by which a proposed intervention is expected to produce the desired change.

Variation: Observed differences in a given outcome across subpopulations.

8 Hypothesis. (n.d.). Merriam-Webster.com. Retrieved February 17, 2014, from <http://www.merriam-webster.com/dictionary/hypothesis>

9 Community Tool Box. (n.d.). What is a logic model? Retrieved February 17, 2014 from <http://ctb.ku.edu/en/table-of-contents/overview/models-for-community-health-and-development/logic-model-development/main>

10 Adapted from Davies, H. T. O., & Nutley, S. M. (2008). *Learning more about how research-based knowledge gets used: guidance in the development of new empirical research*. William T. Grant Foundation, New York, NY.

11 *Ibid.*