

# Community Networks – Building Community Capacity, Reducing Rates of Child and Family Problems

## Trends among Washington State Counties from 1998 to 2006

### EXECUTIVE SUMMARY AND TECHNICAL PAPER

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#### Executive Summary

For the past 10 years Family Policy Council Community Networks (Community Networks) have worked collaboratively with families, community-based organizations, and state managers to develop higher levels of community capacity and to reduce the rates of major social problems:

- Domestic violence
- Youth violence
- Youth suicide
- Infant mortality
- School dropouts
- Youth substance abuse
- Child abuse
- Teen pregnancy
- Child out-of-home placement

Communities vary greatly in the number and severity of problems they face and in the resources available to solve them. Problem severity – having many problems with rates that fall in the worst quartile of rates statewide – can complicate community work to improve the lives of children and families because problems are interrelated,<sup>1</sup> multigenerational, and can seem overwhelming. Community Networks increase community capacity to help families thrive. The Family Policy Council index of community capacity, assessed every two years, includes four dimensions that both research and practice suggest are most important:

FOCUS: A strategic, shared, result-based focus

LEADERSHIP: Collaborative leadership with whole community, leveraged resources, & sustainable efforts

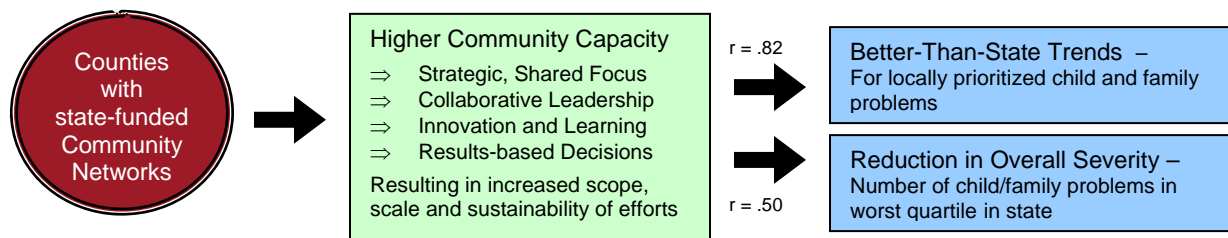
LEARNING: Innovation and learning from changing conditions and experiences

RESULTS: Careful attention to measured “risks” and results-based decisions

Recent studies on successful public health interventions indicate that building community capacity increases the scope of interventions, the effectiveness of evidence based programs and extends the scale of efforts in a sustainable way so that they can actually reduce community-wide rates of children and family problems.

#### THREE MAJOR FINDINGS emerged from a statistical analysis of trends in Washington communities:

1. **Among counties with state-funded Community Networks, overall severity of problems decreased or remained stable while they worsened for those counties without state-funded Community Networks.**
2. **Among counties with state-funded Community Networks, the higher the average community capacity, the larger the number of better-than-state trends in rates of locally prioritized child and family problems, like child abuse, youth substance abuse and dropping out of school.**
3. **Counties that achieved more improvements in community capacity during this period achieved greater reductions in the overall severity of child/family problems by the end of this period.**



These findings support the conclusion that the Family Policy Council Community Networks build community capacity that is a powerful means for reducing targeted rates of child and family problems and, eventually, for making these problems less severe, even in communities challenged by demographic changes, poverty and poor economic conditions. It has important policy implications for the future as the state faces economic downturns and budget cuts in social and health services.

<sup>1</sup>Sharkova, Estee, Kohlenberg with Porter and Longhi, *Interrelatedness of Community Indicators of Youth and Family Problems: Preliminary Analysis of the Geographic Distributions by School District Locales and Zip Code Tabulations Areas*, DSHS: PPA|RDA, April 16, 2008.

## Summary of Definitions and Methods

**MEASUREMENT** – This study used the best indicators, available yearly, for children and family problems and computed indexes for three types of variables for all 39 counties in Washington State for the 1998-2006 period.

**Independent Variable:** A Community Capacity Index

**Dependent Variables:** A Severity Index of Children and Family Problems and  
An Index of the Number of Better-than-State Trends in Rate Reductions

**Control Variables:** Community Conditions - Social, Economic and Demographic Characteristics

**Capacity** - Community capacity was rated every other year by a set of external reviewers based on reports submitted to the Family Policy Council. A *community capacity index* was computed by averaging the independent ratings of the different reviewers across the four dimensions listed on the first page of this report. An analysis of recent ratings showed good inter-rater reliability among the reviewers. Two summary measures were also computed:

- A ten year average capacity measure, averaging the past five capacity indexes - used to calculate the correlation of overall community capacity achieved with the number of better-than-state trends from 1998 to 2006.
- A capacity change measure, computed by comparing the average capacity achieved in the first six years (1997 to 2003) with the average achieved in the last four years (2003 to 2007). This change measure was used to correlate improvements in community capacity with overall reductions in severity of child and family problems

**Severity** - A *severity index* was built using 15 indicators of rates of child and family problems of concern to the Family Policy Council. Three year rolling averages were computed to increase the stability of rates for each indicator. The indicators that were readily available for counties across the state for each year from 1998 to 2006 were the following:

- Safety related – Injury hospitalizations (birth to 17), out-of-home placements, terminations of parental rights, filing for juvenile offence, youth arrests for violent crime and weapons incidents at school
- Health related – Low birth weight, infant mortality, no third trimester care, teen mothers and teen suicide attempts
- Development related – Arrests for alcohol and arrests for drugs
- Learning related – Low performance on Grade 4 WASL and High School dropout (yearly average dropout and freshman to senior dropout rates)

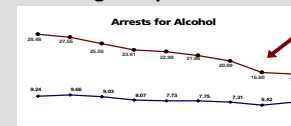
For each county, the severity index increased by one for every problem indicator that fell in the worst quartile of the distribution of rates for all counties in the state. High severity for a particular county means that the county has a “pile-up” of severe problems (for example, rates in the worst quartile for child out-of-home placements, plus youth drug addiction, plus dropping out of school would result in a severity index or “pile-up” of 3).

Decreasing or increasing severity over the past eight years was determined by comparing the number of severe problems in 1998 with the number of severe problems in 2006.

**Trends** - *Better-than-state trends* were defined to include the following:

1. **Closing a gap** between the county and state - the county line starting much higher than the state line (worse) and then getting closer to the state line in more recent years (better).
2. **Doing better than the state** in recent years compared to earlier years – the trend lines actually crossing each other through time. The county average starts with rates above the state average (worse) and ends with rates below the state average (better).
3. **Improving upon success** – the county line beginning below the state line (better), remaining below the state one and actually getting lower in recent years (much better).

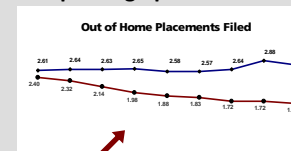
### 1. Closing a Gap



### 2. Better than the state



### 3. Improving upon success



**METHODS** –Statistical modelling (multivariate regression) was used

- To test for the statistical significance of the major findings and
- To determine whether other measurable changes in community conditions - *poverty, poor economic conditions, pervasive criminality, population changes, minority racial/ethnic origin, and marital instability*, could account for the changes in the rates of children and family problems among the thirty nine counties in the State of Washington

# Community Networks - Building Community Capacity, Reducing Rates of Child and Family Problems

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**TECHNICAL PAPER**

## TABLE OF CONTENTS

<b>INTRODUCTION</b> .....	PAGE 4
<b>STUDY PURPOSES</b> .....	PAGE 5
<b>THE CONTEXT</b>	
<b>The Theoretical Context</b> .....	PAGE 5
<b>The Research Context</b> .....	PAGE 6
<b>STUDY METHODS - Three Measurement Challenges</b>	
<b>Independent Variable: Measuring Community Capacity</b> .....	PAGE 8
<b>Dependent Variables: Indexes of Children and Family Problems</b> .....	PAGE 14
<b>Control Variables: Social, Economic and Demographic Characteristics</b> .....	PAGE 16
<b>THREE QUESTIONS, STUDY DESIGN AND FINDINGS</b>	
<b>Question 1:</b> <b>Does Family Policy Council (FPC) funding make a difference     in the severity, or pile-up, of children and family problems?</b> .....	PAGE 18
<b>Question 2:</b> <b>Are higher levels of community capacity associated     with better-than-state trends in the reductions of rates of children     and family problems among counties with FPC funding?</b> .....	PAGE 21
<b>Question 3:</b> <b>Can we find early evidence that changes in     community capacity are associated with changes in severity     (or pile-ups) of problems?</b> .....	PAGE 28
<b>CONCLUSIONS</b>	
<b>Discussion of Findings</b> .....	PAGE 29
<b>Study Limitations and Next Steps</b> .....	PAGE 30
<b>REFERENCES</b> .....	PAGE 31
<b>ADDENDUM: ANSWERS TO REVIEWERS' QUESTIONS</b> .....	PAGE 32

### NOTE

This report is written for a diverse audience: local researchers at Family Policy Council Community Public Health and Safety Networks; prevention professionals; researchers at state agencies and policy analysts with state government. With this audience in mind, we describe the thinking process that led to our research strategy, and we explain the meaning of our statistical tests.

## INTRODUCTION

### **The funding, organizational structure and overlapping efforts to reduce child and family social and health problems in Washington State**

Many different public organizations have been funded to focus on reducing specific child and family problems. Between 1989 and 1994 Washington State legislation proposed and established an approach to begin reducing not one but seven child and family problems through a single state entity: The Washington State Family Policy Council. The problems identified in this legislation are: teen pregnancy, teen suicide, substance abuse, dropping out of school, violence, child abuse/neglect (out-of-home placements) and domestic violence (RCW 70:190). According to a 2001 report by the Washington State Institute for Public Policy, total annual funding for 'prevention' in Washington State was 81 million dollars in the 1999 -2001 biennium. Funding levels have decreased since then, probably by half, due to both federal and state funding cuts, and further decreases to all state funding have been proposed due to the current recession and state fiscal crisis.

#### ***Many specialized agencies with 94-96 percent of the funding***

In spite of funding cuts, prevention and family support structures have remained basically the same since 1994. Almost all organizations are separately-funded programs with specialized focus on one or two of the seven problems listed in the 1994 legislation. The Institute's report included 27 funding recipients in eight different state agencies: the Departments of Health, Social and Health Services, Community, Trade and Economic Development, the Office of the Superintendent of Public Instruction, and various boards, councils and commissions. All have central offices. Some have community offices, contractors or county block grant staff at the local level. Many require separate 'community coalitions' as local decision making entities. Accountability, data collection and reporting remain separate.

In summary, funding is specialized and organizations are separate, situated in different state agencies both at headquarters and at the local level. Increasing effectiveness is sought mainly through implementing more evidence-based programs and providing better technical assistance in implementing them, and through competitive grants and pilot programs. Many, in practice, develop local networks and alliances in order to coordinate their specialized efforts with other local interventions, but seldom, if ever, are efforts centrally coordinated.

#### ***One agency, charged with building community capacity, local social-infrastructures and strategies for reducing all seven problem behaviors, with 4-6 percent of funding***

The only large organization charged with taking a holistic, systemic, epidemiological approach to reduce all seven child and family problems is the Family Policy Council. However, the Family Policy Council received only 4 to 6 percent of all funding, only \$4.37 million annually in the 1999-2001 biennium studied by the Institute for Public Policy.

This statewide council is set up to have representatives from five major state agencies (and 2 ad hoc state agencies), four state legislators -two from each party and a staff person from the Governor's office. It was tasked with supporting local community-based learning centers that could become magnates of change. There are currently 42 Community Public Health and Safety Networks (often referred to as 'Community Networks') in 29 of the 39 counties in Washington State (ten county Community Networks were defunded when funding cuts occurred in the 2001-03 biennium).

The local boards of the Community Networks include members of the public and major local public and private agency representatives. They include about 800 board members statewide. The Networks are expected to:

- Focus on what works to achieve long term outcomes
- Study what could be done better
- Reach a common collaborative plan for reducing locally pressing sets of problems
- Be innovative in strategies depending on unique community strengths, and
- Partner with other local entities, leverage other public, private and local resources

Local boards have the power to recommend 'decategorization' of state and federal public funding and propose new organizational structures in order to achieve better outcomes after an appropriate 'review' process.

Few Community Network boards have attempted decategorization. Most boards have concentrated on blending or braiding local funds and building strong local 'social infrastructures' composed of a collaborative network of partners, with a common strategic focus. They include local state agency representatives. They aim to increase their community capacity to facilitate and contribute to the local success of diverse specialized organizations in commonly pursued goals. They focus on the evolution of community capacity and practice in local contexts – supporting the engagement, networking and learning of local leaders and partners, the participatory-research-based development and implementation of local innovations, the formulation of systemic strategies based on the interrelatedness of health problems and on unique community strengths, and, finally, leveraging local and private resources to complement scarce and costly publicly funded professional ones. Thus Community Network boards increase the scale and sustainability of local efforts.

## STUDY PURPOSES

**This study had three main purposes:**

1. First, to see whether FPC funding made a difference in the severity, or pile-up, of children and family problems in the period between 1998 and 2006.
2. Second, to find out whether higher levels of community capacity in localities with FPC funding were associated with reduction of rates of specific children and family problems between 1998 and 2006. This involved various steps
  - Testing whether differential local community capacity, built as 'social infrastructure' over the past ten years, actually impacted local performance in reducing *each* of the seven child and family problems identified in the 1994 Washington State legislation
  - Testing whether better performance was *interrelated*, as we expected, due to local long-term, sustainable, system strategies, made possible by strong local 'social infrastructures,' that contributed to reducing all seven problem behaviors.
  - Testing whether community capacity had a *threshold* or *tipping point* above which problem reductions escalated geometrically, also as expected, due to strong local 'social infrastructure' of collaborative partners that had multiplier effects, related to leveraging extra resources and collaborating on strategically chosen common goals.
3. Third, to examine whether we could find early evidence that changes in community capacity were associated with changes in overall severity (or pile-up) of problems.

## THE THEORETICAL CONTEXT

**Are there common approaches to preventing social and health problems in Washington State?**

### ***The public health approach and its research underpinnings***

It is not easy to assess the degree of agreement existing among academic experts and 'prevention' professionals in Washington State who specialize in different behavioral health fields: child abuse and neglect, infant/toddler development disabilities, domestic violence, substance abuse, early childhood education and school drop-outs, maternity and child health and mental health. A recent initiative brought many of these experts and professionals together - to develop a prevention-oriented mental health system, previously lacking in our state, as part of a federally funded Mental Health Transformation Grant. The "white paper" that was produced in December of 2007 provides us with a sense of congruence in thinking and theoretical approach.

We wish to briefly highlight and quote some of the main points.

*A 'system' approach—Public health policy often relies on the social-ecological model as a framework for a multi-level approach. This model recognizes complex links between individual health and the health of a population. An intervention aimed at changing behavior or health outcomes for the individual only is less likely to be successful than an intervention that changes the family, community, and society to support individual change (p.17) ... (and is) more likely to be sustainable if many levels of society change to support individuals (p.18).*

*Adverse Childhood Experiences (ACEs)—Specific types of child maltreatment alter the brain... increased ACE scores were associated with poorer outcomes related to physical, emotional, and behavioral health... The ACE's study provides information about risk and protective factors for mental disorders because the study shows relationships between specific experiences and later outcomes (p.25-27).*

*Prevention Work Focusing on Reducing Risk and Strengthening Protective Factors—An intervention is more likely to be successful if it is able to make organizational or societal changes to support risk and protective factor changes for a whole segment of the population. Public health interventions tend to be population based, rather than targeted at specific individuals... so individuals do not have to fight against the norms to make important health changes... (These interventions) can result in effective prevention for multiple conditions (p17-30).*

In summary, agreement seems to exist on the increased effectiveness and sustainability of a prevention system built upon a public health approach which is multi-level, guided by research on common ACE root causes for many behavioral health problems, and focused on important risk and protection factors for specific populations or communities.

The white paper goes on to provide examples of already existing infrastructures in the State of Washington supporting such an approach:

- The Public Health System
- Family Policy Council
- Children's Trust of Washington
- Division of Alcohol and Substance Abuse
- Office of Superintendent of Public Instruction
- And the Governor's Council on Substance Abuse (Community Mobilization)

## **THE RESEARCH CONTEXT**

### **What are the findings from empirical research relating capacity to "prevention effectiveness"?**

Washington State, as other states, has been impacted by both the public and the federal government's demands for greater accountability on the performance of state programs. A Governor-led review of performance has been set up for all state agencies. The Washington Institute for Public Policy, an independent research institute that responds to many legislative demands, has published studies on what "research based programs" (RBPs) have been shown to be most cost effective in prevention. Many state agencies, including the Family Policy Council—when funding such programs, have moved to implement more of these RBPs with the objective of improving effectiveness.

The perceived benefits of these programs are two-fold.

- The ease of making improvements in effectiveness if the same new programs are implemented across communities, with the advantages of common training, standard procedures and monitoring
- The attraction of defending continued funding of programs based on the fact that they are increasingly 'science based'

However, two divergent models exist in the field of public health related to prevention.

### ***Model 1: The research- to-practice model (RTP)***

The Research-to-Practice (RTP) model is an adoption of RBP in which the interventions reported in research studies based in one community and published in peer-reviewed journals are recommended for adoption in other communities. This model has occurred not only in “treatment” type services but also in prevention programs. A recent article (February 2008 by Flaspohler and others) on prevention programs describes this Research-to-Practice model as the “*dominant intervention science paradigm.*”

Based on previously published writings by Wandersman, Flaspohler goes on to note that the “RTP model is based on a biomedical approach developed at the National Institutes of Health.” It requires moving from accurate descriptions (epidemiology), to experimentation (efficacy trials), to generalizability (effectiveness trials) and then practitioner utilization. Both academic institutions and the business market support and reward developing innovative and more effective programs. The practitioner is seen as a rather passive actor to whom the new “technology” is transferred through training and technical assistance often demanding “perfect replication,” implementing the innovations with fidelity.

### ***Model 2: Community-centered model (CC)***

Flaspohler contrasts the RTP model with the Community-centered (CC) model. The CC model “begin(s) with the community and ask(s) what it needs in terms of scientific information and capacity building in order to produce effective interventions.”

The emphasis here is on participatory research. Active collaboration between practitioners and researchers results in co-creation of innovations and improvements in change strategies. It also guarantees attention to cultural differences and the complex reality of communities. “At their core, CC models are focused on the evolution of practice in local contexts.” Since practitioners are directly involved, “readiness” to change is enhanced, continued learning is encouraged and dependence on scarce professionals and their costs are often minimized.

### ***Capacity is an important element in the theory of both models***

According to the recent review by Flaspohler, both RTP and CC models require the influence of capacity building to be effective. They differentiate capacity into three levels -- individual, organizational, and community.

- Among individuals – the importance of individual understanding, skills and buy-in in accepting, carrying out, and disseminating innovations
- For organizations – the importance of the strength of leaders, organizational structure/ management style, system readiness, resources and staff expertise and partner networks providing external supports
- For communities – the importance of: trust, relationships, and connections at the individual level; networking of partners with relevant skills and resources at the organizational level; and shared focus, community leadership, participation and sense of community at the ‘cultural’ level.

### ***Summary of findings from published studies***

Many studies have been conducted to show empirical support for the importance of individual and organizational capacity, few studies for the importance of community capacity. Flaspohler makes the following points in his review:

*“Lempa, et al. (in press) and Chinman, et al. (2005) note that the important elements of community capacity so far identified come from the anecdotal evidence of experts engaged in capacity building rather than empirical study. This is not surprising considering the fact that the majority of these conceptualizations have been developed within the past 10 years.*”

... Research on social capital and collective efficacy suggests that communities with high levels of these qualities are likely to have better outcomes (Lochner et al. 1999, Sampson et al. 1997)

... In theory, communities with greater capacity should be better able to support and maintain a prevention delivery system. Such a community would likely include organizations that are able to implement prevention innovations and that have the support of the community to do so. The findings of Feinberg et al. (2005) provide some empirical evidence in support of this assertion, though more research in this area is clearly needed." (Flaspohler et al. p.192)

### **Recent Washington State studies**

A recent empirical study on community-wide outcomes of substance abuse prevention in the State of Washington provides empirical support for the importance of elements of community mobilization and engagement (Longhi et al., 2006). This study was the result of the evaluation of the first State Incentive Grant (SIG) awarded from 1998 to 2001 to the State of Washington, funded by SAMHSA. The grant was aimed at testing the implementation of SAMHSA's new strategic prevention framework, which promotes a public health approach and has five components:

- 1 Collect data and assess local/unique risk and protective factors.
- 2 Build local leadership capacity - to mobilize key stakeholders, create partnerships and engage community groups in implementing prevention interventions.
- 3 Develop a data-driven strategic plan.
- 4 Implement evidence based practices.
- 5 Monitor effectiveness.

Eighteen communities were selected and funded; only four were found to be successful in reducing risks, increasing protective factors and ultimately reducing substance use among the youth in their communities. Three of these were small rural/cultural communities that, in the short period of time available – only a few months, had managed to mobilize their leaders and to engage their communities.

The lessons learned from this evaluation have led to modifications in the implementation of the second State Incentive Grant received by Washington State since 2007. These changes include:

- An assessment of 'community readiness' for prevention
- More time allotted to allow community coalitions to form and partner, and
- More technical assistance to enhance local understanding of risk and protection challenges and to build organizational skills

Even more recent case studies (August 2008 by Clegg and Associates) in four very different communities in Washington State have shown the community capacity factors operating to successfully reduce rates of school-dropouts.

## **STUDY METHODS - The First Measurement Challenge**

### **Independent Variable: Measuring Community Capacity**

#### **How does the Family Policy Council Index Measure Community Capacity?**

Every two years the Family Policy Council contracts with external raters recruited from prevention and state agency professionals to assess community capacity for each of the Community Networks using the following criteria:

## **LEADERSHIP**

- Efforts are clearly linked to Network strategic plan.
- The body of work reflects meaningful collaboration at the community level.
- Network provides leadership in the community as demonstrated by community involvement in strategic planning, implementing the plan or leveraging resources.
- The Network is able to leverage resources. That is, the Network increases the resources available to the community through its partnerships, grants, and/or selection of pilot programs which are subsequently funded or replicated by others.
- Efforts show signs of being either replicable or institutionalized within the community or efforts result in the resolution of a defined community issue.
- The community demonstrates support for or favorable response to Network efforts (Board membership, participation in community events, program evaluation, etc.).

## **FOCUS**

- The Network reports a body of work or strategic effort rather than single project(s).
- Measurable results, as defined by contract, are reported and verifiable.
- Results are tied to community values or intentions as demonstrated by the link to the Network comprehensive plan and/or collaboration around the work being considered.
- Network can demonstrate a logical link between current results and long-term reduction of one or more of the seven problem behaviors.

## **LEARNING**

- Network demonstrates and can articulate its own learning, for example, by analyzing data, describing failures and corrective actions, or modifying future plans based on experience.
- Network draws a connection between proposed actions or projects and knowledge or research related to problem behaviors and/or related risk and protective asset or resiliency factors.

## **RESULTS**

- Intermediate and long term outcomes are stated clearly in writing, outcome measurement methodology improves over time, and results are useful and credible for helping the community develop strategic system and program improvements.
- The community tracks indicators of “at risk” behavior rate indicators, and engages in public dialogue about how to reduce the rates of “at risk behaviors” .

The following protocol was followed to collect the data for this analysis: four raters scored each of the four components for each Community Network on a scale of 1 (low) to 5 (high). Scoring was based on information from written standard reports submitted every two years by the Community Network boards. These reports described the changing local community situation and its public health and safety challenges, what they had learned, how they had come to decide on the work that they and their community partners would focus on and how they monitored the results of their efforts.

The score for each community was calculated by first adding the scores across each of the four dimensions for each rater and then averaging the scores across the four raters. The resulting scores across the various Community Networks ranged from a low of 8 to a high of 19 with a mean or median of about 14.

The inter-rater reliability was estimated by calculating correlations of scores across the various sets of raters and the average score. Only 3 of the 16 correlations fell below .60, with most averaging around .80.

We then tested whether differences in standards of scoring among raters would change the results. This was done by eliminating the lowest of the four rater scores and averaging the other three, and eliminating the highest of the four rater scores and averaging the other three. We then checked whether the results would be different from those obtained by averaging all four rater scores. We found almost no differences: the inter-correlations for scorings obtained by these different methods were extremely high, around .95. The communities that appeared in the lowest or highest quartile were almost the same regardless of method used; overall rankings changed very little.

Two summary measures of community capacity were computed:

### ***Overall Community Capacity***

A ten-year average capacity measure, averaging the past five capacity indexes - used to calculate the correlation of community capacity with reduction in rates of children and family problems.

### ***Change in Capacity***

A capacity change measure, computed by comparing the average capacity achieved in the first six years (1997 to 2003) with the average achieved in the last four years (2003 to 2007). Small changes occurring around the mean (from 1/2 standard deviation below the mean to 1/2 standard deviation above the mean) were scored as a zero change. Each increase in 1/2 standard deviation increased the score by one. This capacity change measure was used to correlate larger improvements in community capacity with overall reductions in severity of child and family problems.

### **Congruence of this index with the results of the best quantitative study: a factorial analysis of a national sample of community-based initiatives**

We are aware of only one quantitative study. Lempa, Goodman, Rice and Becker (in press) conducted a pioneer study on the major underlying components of community capacity based on

- “local, community-based efforts for community improvement”
- “that addressed a wide variety of health concerns.”

This research work was funded by a grant from the Centers for Disease Control and Prevention.

The authors collected 702 surveys representing 291 health-related, community-based initiatives across the nation in 2002-03. They interviewed both leaders and non leaders, based on a set of questions derived from in depth interviews of core members of eight community initiatives they had conducted in 2000. They carefully transformed the in-depth interviews into a set of structured questions.

They used principal component and exploratory factor analysis to discover the “latent factor structures” -- the key underlying dimensions. They were able to reduce the number of questions from an initial pool of 160 to a final instrument that contained only 60 questions, 44 for leaders of the initiatives and 38 for non leaders, with 22 items in common.

The empirical analysis revealed only a handful of dimensions, much smaller than the list of 10-12 conceptually distinct ones discussed by various experts in the literature. The other major finding is that one single underlying dimension, the one the authors labeled “leadership,” accounted for a majority of the overall variance, more than all of the remaining four or five dimensions combined.

The leadership dimension contained the following aspects:

- Clear vision
- Agreed upon vision
- Spelling out principles and values
- Members' support for principles and values
- Trust
- Compassion
- Motivated to help
- Listening to ideas of others
- Developing agreement in group decision making
- Committed
- But able to compromise
- Follows through
- Does all that is possible

We believe it is quite clear that there is a high degree of congruence between the above list of 'leadership' aspects and the ones scored by the Family Policy Council's raters under the first two of the four dimensions: Focus and Leadership (See Figure 1 on page 14). The aspects listed above include

- Vision and principles/values that are supported by community members,
- The qualities associated with collaborative leaders: altruism, empathy, ability to enter into trusting relationships, to listen and develop consensus and then to lead to action with partners and sustainable efforts.

It is important to note that

- Lempa et al. explain half or more of the variance of what constitutes 'community capacity' by their broad 'leadership' dimension, and
- The Family Policy Council index weighs half of the overall scoring of 'community capacity' on the aspects of Focus and Leadership.

Two other dimensions identified by Lempa and others to be empirically important are:

- Networking with partners, internal and external to the particular health initiative.
- Ability and commitment to develop organized action.

In the experiences of the Community Networks across the years, these dimensions fall mainly into what we call the process of community Learning and Innovation. From single focused health initiatives, Community Networks often moved to multiple focused health initiatives, involving more local partners. In doing so they had to deal with more in depth root causes and creative new ways of integrating practices, coming up with more flexible funding and new 'system' thinking and approaches to generate long-term changes. These innovations take a lot of organizational skill and a lot of work with partners.

The remaining dimensions identified empirically by Lempa and others are:

- Communication with community members
- Resources and sustainability (including a process of self-assessment)

These dimensions are captured partly by ratings of Community Networks putting in place a way of monitoring conditions and results. These are then communicated to various local boards and partners so that they know what is happening in the various projects, make good decisions, adapt to changing conditions, improve results and sustain leadership and funding. Community Networks were created to optimally function as local "incubators" for innovative change, local instigators of community wide thinking or Research and Development (R&D) units, not service providers. They were designed to leverage and redesign the use of resources working through their local partners.

## **Congruence of this index with the results of the best qualitative self-assessment tool**

In September of 2005 the Public Health Agency of Canada published their *Community Capacity Building Tool: A tool for planning, building and reflecting on community capacity in community based health projects*. It was “developed through a research project that drew on the expertise of practitioners and researchers from across Canada.” The project was a “participatory research” project where the practitioners interested in building community capacity partnered with researchers that could use their expertise in measurement and in conceptualizing different dimensions of capacity.

Community capacity was defined as: “*sustainable skill, organizational structures, resources, and commitment to health improvement in health and other sectors, to prolong and multiply gains many times over.*”

The tool understands capacity building as a journey, often not a linear one, but a circular, spiral, moving back and forth, where level of success is not permanent, but needs to be organically maintained. The overall result of the tool is a snapshot, providing one’s current location on the journey. So ratings of the various dimensions of capacity are assessed as four mapping points: *Just started, On the Road, Nearly there, and We’re there*. The self-assessment tool is intended for a team of local community persons, often composed of project coordinators, community partners in related organizations, members of the target population and the community at large.

What we wish to discuss here is the congruence of the nine features of this Canadian tool with the Family Policy Council (FPC) index in Washington State. We have rearranged the sequence of the tool features to better illustrate the points of congruence (See Figure 1 on page 13).

The FPC index of ‘strategic and shared focus’ corresponds best to

- ‘*Asking why*’ that uncovers the root causes of community health issues and promotes solutions, ...reflecting community needs
- ‘*Sense of community*’ building trust... come together... confidence to act and courage to feel hopeful about change

The FPC index of ‘leadership’ corresponds best to

- ‘*Leadership*’ ...effective leaders... that encourage community member’s voices, share leadership, and facilitate networks to build on community resources... bring people with diverse skill sets together ... strategic vision for the future
- ‘*Linking with others*’ creating partnerships or linking with network and coalitions
- ‘*Obtaining resources*’ time, money, leadership, volunteers, information, and facilities

The FPC index of ‘Learning and innovation’ corresponds best to

- ‘*Skills, knowledge and learning*’ fostered among leaders, members of the target population and the community at large
- ‘*Participation*’ active involvement of people in improving their own and their community’s health and well-being

The FPC index of ‘Results-based decisions/changing community conditions’ corresponds best to

- ‘*Community structures*’ give the community a chance to express views and exchange information
- ‘*External supports*’ providing contacts, research, best practices, and new tools ... evaluation support ... organizational support

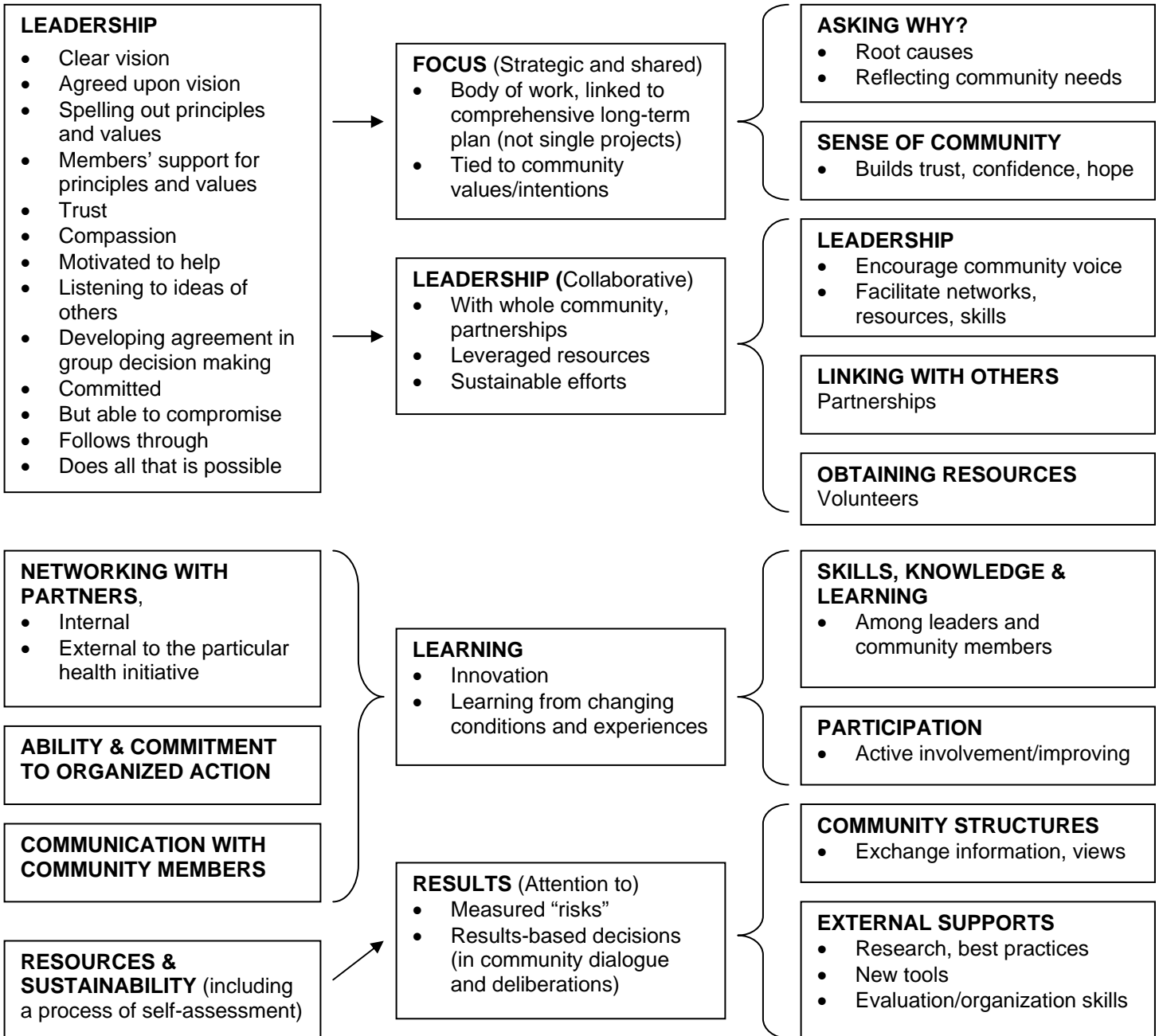
What is noteworthy is the number of features in the tool that best correspond to the FPC index’s focus and leadership ones: five of the total of nine. This suggests that the scoring of the FPC index is weighted relatively well across the features identified in the Canadian assessment tool.

**Figure 1**  
**Congruence of Dimensions of Community Capacity**  
**Measured Empirically**

Quantitative Study  
 "Factorial Structure"  
 (Lempa et al.)

FPC Study  
 Index of Capacity  
 (Longhi, Porter et al.)

Qualitative Tool  
 Self-assessment Tool  
 (Public Health Division of Canada)



## STUDY METHODS - The Second Measurement Challenge

### Dependent Variables: Indexes of Children and Family Problems

#### *How has the Family Policy Council measured the accumulation of many severe children and family problems in different communities in Washington State?*

**Severity Index** - An index was built using 15 indicators of rates of child and family problems of concern to the Family Policy Council. Three year rolling averages were computed to increase the stability of rates for each indicator. The indicators that were readily available for counties across the state for each year from 1998 to 2006 were the following:

- Safety related – Injury hospitalizations (birth to 17), out-of-home placements, terminations of parental rights, filing for juvenile offence, youth arrests for violent crime and weapons incidents at school. (note: no good measure of domestic violence was available)
- Health related – Low birth weight, infant mortality, no third trimester care, teen mothers and teen suicide attempts
- Development related – Arrests for alcohol and arrests for drugs
- Learning related – Low performance on Grade 4 WASL and High School dropout (yearly average dropout and freshman to senior dropout rates)

For each county, the severity index increased by one for every problem indicator that fell in the worst quartile of the distribution of rates for all counties in the state. High severity for a particular county means that the county has a “pile-up” of severe problems (for example, rates in the worse quartile for child out-of-home placements, plus youth drug addiction, plus dropping out of school would result in a severity index or “pile-up” of 3).

The most commonly used way of constructing indexes of this kind is to use standard deviations and adding up the standard scores for each indicator used - in our case 15 indicators. There were two problems in using this procedure in our case.

- With only a small number of cases at our disposal, 39 counties, one or two extreme values on a particular indicator made the standard deviations very large and unrepresentative of the actual distribution. When we tried this standardized approach it generated sometimes very few ‘severe’ counties, sometimes many more ‘severe’ counties for any given indicator. The weight of each indicator on the index depended on the sometimes skewed distributions on one or more of the 15 indicators. Using quartiles, instead of standard scores, eliminated this problem.
- Summing standardized scores meant that the final index represented the average of all 15 scores: some positive, some negative. A particular county may have had two very severe problems, the rates being positive, but due to the rates in one or two other problems being very low -these standardized scores being negative, the sum of positive and negative scores would generate a middle level total value on the index. This middle level index value would give the appearance that that county had only average problems, none severe.

One should note that for several counties, the severity index is based on very large populations and/ or large geographical areas. The county severity index value is an average for the whole county and may very well hide pockets and subpopulations with much higher severity of child and family problems. We have been aware of this for some time and have actually produced preliminary analyses of the geographical distribution of severe child and family problems using ‘locales’ – combinations of school districts and zip-code areas.

We compared the geographical distribution of severity of problems using the methods used in this study – an index based on problem ‘pile-up’ and based on counties, and the method used in the preliminary study – an index based on standard deviation scores and based on ‘locales’ and zip codes. The results were surprisingly similar.

We plan to replicate this study in the future using smaller geographical units than counties. However, we anticipate that the results may not be very different. We may simply increase the precision of estimates of both capacity and severity for smaller geographical areas. This increase in precision often increases the magnitude of statistical effects. The greater number of geographical units will increase the statistical power of multivariate models to detect statistically significant effects.

**Severity Change Index** - Decreasing or increasing severity over the past eight years was determined by comparing the number of severe problems in 1998 with the number of severe problems in 2006. The change index was defined simply as the difference between the two severity indexes – the 2006 index minus the 1998 index. A positive value on the change index means the number of severe problems increased, while a negative value means they were reduced. A change index of zero means the number of problems remained the same.

One should remember that the 1998 and 2006 indexes represent three-year rolling averages. So the change index actually represents the difference between the ‘average’ index at the end of the period (2004-5-6) and the ‘average’ index at the beginning of the period (1997-8-9). This procedure was adopted in order to decrease year to year variability in measurement and increase the stability/validity of the measurement of change over the study period.

Severity is measured relative to the state average rate at both time periods, at the beginning and at the end of the time period. So change in severity for a particular county takes into account changes in statewide rates of various child and family problems in this period. For example, let us take the case of substance abuse being a ‘severe’ problem in a particular county at the beginning of the study period - falling in the top quartile in 1998. If the rate of substance abuse decreases equally in that county as in the state as a whole, the county will still have a severe problem at the end of the study period, falling in the top quartile in 2006. Severity will only decrease in a particular county over this time period if the county change from 1998 to 2006 is better than the state change.

**How has the Family Policy Council monitored changes in overall rates of children and family problems in different communities in Washington State?**

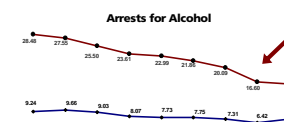
**Number of Better-than-state Trends** – The severity index is made up of 15 indicators. Each of the indicators was measured for each county, and for the state as a whole, every year from 1997 to 2006. At any point in time, an individual county could have done better, equal, or worse than the state as a whole. We were interested in comparing the trends over time for each indicator and each county compared to the state. Finally, for each county, we added up the number of indicators for which the county was “better than the state trend” over the ten-year period.

Better-than-state trends were defined to include the following:

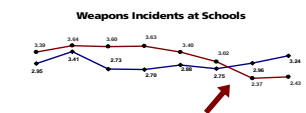
- 1 **Closing a gap** between the county and state - the county line starting much higher than the state line (worse) and then getting closer to the state line in more recent years (better).
- 2 **Doing better than the state** in recent years compared to earlier years – the trend lines actually crossing each other through time. The county average starts with rates above the state average (worse) and ends with rates below the state average (better).
- 3 **Improving upon success** – the county line beginning below the state line (better), remaining below the state one and actually getting lower in recent years (much better).

*Note: In the graphs the county trend is depicted in red, the state trend in blue.*

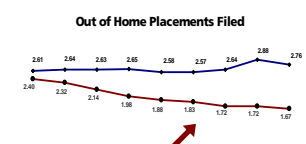
**1. Closing a Gap**



**2. Better than the state**



**3. Improving upon success**



These trend data were collected by Family Policy Council staff based on published agency reports and databases in September of 2008 and shared back with Community Networks. Networks had to respond back and confirm “*how the network was a catalyst for, architect of, or otherwise had a significant influencing role in implementing strategy employed in the community that corresponds with a positive trend in a rate.*”

Confirmed trends were simply added up and represented the number of ‘better-than state’ trends for each county.

## **STUDY METHODS - The Third Measurement Challenge**

### **Control Variables: Social, Economic and Demographic Characteristics...**

We chose the following factors as control variables for this study:

*Poverty, poor economic conditions, pervasive criminality, population changes, minority racial/ethnic origin, and marital instability*

Public health models do not usually consider these factors as *causing* children and family problems, but they often see them as correlates, complicating factors, added stressors or obstacles to the reduction of children and family problems. The research on Adverse Childhood Experiences (ACEs) argues that ACEs may be distributed with significant equivalence among diverse populations and geographies, but persons with ACEs often become unemployed or poor due to the physical and behavioral consequences of having such experiences.

Empirical studies have shown that changes in these factors are often correlated with changes (an increase or reduction) of specific rates of children and family problems and therefore are likely to be correlated with a measure of overall severity of children and family problems.

We collected indicators for each of these factors:

***Poverty***– Percent of the population receiving food stamps; Percent receiving ‘welfare’ grants

***Poor economic conditions***–Percent unemployed

***Pervasive criminality***–Percent of adults arrested

***Population changes***–Net population change (in- migration, minus out- migration, plus natural growth)

***Minority Racial/ethnic origin***–Percent of the population identified as Black, Hispanic and American Indian (Asian origin was excluded since it is not correlated with higher rates of most children and family problems)

***Marital Instability***–Divorce rate

In order to evaluate whether indicators were adequate measures of the underlying factors, we examined whether the indicators within each factor were inter-correlated as expected. This is considered a type of validity test: construct or theoretical validity.

The correlation matrix in Table 1 shows the inter-correlation of these indicators among the counties in the State of Washington at the beginning of the study period, in 1998. We find that

- The indicators of poverty and poor economic conditions are highly correlated (around .70)
- The indicators of criminality and minority status are moderately correlated, but with statistical significance, with poverty and poor economic conditions (around .30)
- The indicator of marital instability shows low correlations with other indicators, but in an expected pattern.

The correlation matrix also shows the correlations of these factors with the severity index.

- Almost all indicators are correlated moderately with the severity index as expected, with the exception of the divorce rate which shows no correlation. Divorce rate may be a poor indicator of family instability, but it is the only indicator we had available.
- It is interesting to note that population change is negatively correlated with problem severity. Decreases (or small/no changes) in population are correlated with increases in severity of child and family problems. This is probably due to the fact that decreases or slow growth in populations occur more among counties with more unemployment and more poverty - where also more racially/ethnically diverse people live. A multivariate regression analysis was conducted with all the indicators as independent variables and the severity index as a dependent variable. Findings from this multivariate analysis supported this explanation: the effect of population change on the severity index becomes statistically non-significant when the effects of unemployment, poverty and minority status are accounted for.

A change variable was created for each of the control variables by comparing the values in 1998 and 2006. We subtracted the 1998 value from the 2006 value, thus creating variables to measure changes in poverty, unemployment, and minority composition for all Washington state counties in our study period.

**Table 1**  
**Correlations Among Social & Economic Characteristics & Problem Severity**  
**At the beginning of the study period, 1998**  
 (All 39 Counties in Washington State)

		Poverty		Economy	Pop. Change	Criminality	Pop. Comp.	Fam. Stab.	Prob. Sev.
		% Food Stamps	% Welfare	% Unemp	Net Po. Change	% Adult Crime	% Race / Ethnicity	% Divorce	Severity Index
Poverty	% Food Stamps	1.00	0.93	0.76	-0.50	0.32	0.31	0.13	0.58
		-	0.00	0.00	0.00	0.02	0.03	0.22	0.00
Economy	% Welfare		1.00	0.62	-0.38	0.33	0.18	0.20	0.53
			-	0.00	0.01	0.02	0.14	0.11	0.00
Pop. Chg	% Unemp			1.00	-0.42	0.31	0.40	-0.09	0.49
				-	0.00	0.03	0.01	0.29	0.00
Criminality	Net Pop. Change				1.00	-0.05	-0.49	0.05	-0.32
					-	0.37	0.00	0.38	0.02
Pop. Comp.	% Adult Crime					1.00	-0.20	0.41	0.47
						-	0.11	0.01	0.00
Fam. Stab.	% Race/Ethnicity						1.00	0.01	0.41
							-	0.48	0.01
Prob. Sev.	% Divorce							1.00	0.01
								-	0.48
	Severity Index								1.00
									-

### THREE QUESTIONS, STUDY DESIGN AND FINDINGS

#### Question 1: Does FPC funding make a difference in the severity, or pile-up, of children and family problems?

##### *Study Design - A natural experiment*

In 2001, conditions were created in the state of Washington for a 'natural experiment': a way to test the effects of FPC funding on whether the number of severe problems decreased (or stayed the same) in funded counties compared to non-funded counties. This comparison had not been possible before since all counties had been encouraged to establish Community Networks in 1997-98 and almost all localities (including many Native American Tribes) had applied and received funding. In other words, there was no 'comparison group' of unfunded counties to compare with funded counties.

In 2001, in response to very large budget cuts, the Family Policy Council defunded some of the Community Networks. The Council made this hard decision because they concluded that a large cut across all existing Community Networks would mean that each locality would not have sufficient resources to continue being productive. The Council cut the funding for Community Networks that had not 'performed' - had not yet built a minimum level of community capacity by 2001. This cut affected about a quarter of the counties in the State of Washington: ten counties were defunded among the thirty nine counties in the State.

##### *Finding – A good comparison group*

We tested whether the two sets of counties - the 29 funded and the 10 unfunded were similar enough in their initial characteristics in 1998 and in the changes they experienced between 1998 and 2006 to warrant a quasi-experimental design.

We found that they were very similar on all social, economic and population characteristics. The differences were all small and statistically insignificant. Even the severity index measuring the pile-up of children and family problems was similar for both groups of counties - similar means and similar standard deviations; the difference between the means was not statistically significant. (*See Table 2*)

**Table 2**  
**Differences in Social & Economic Conditions in 1998**  
**Between FPC Funded and Unfunded Counties**  
 (Funded Counties = 29, Unfunded Counties = 10)

	FPC Funded		Unfunded		Sig. of Difference
	Mean	St. Dev.	Mean	St. Dev.	
FPC Severity Index	3.86	2.57	4.10	2.69	<b>0.69</b>
Food Stamps	109.16	37.43	141.62	51.02	<b>0.23</b>
Welfare Grants	130.07	47.17	159.68	59.72	<b>0.34</b>
Unemployment	5.96	1.98	7.69	2.84	<b>0.30</b>
Pop. Change	12.20	7.76	7.51	11.57	<b>0.18</b>
Adult Crime	1.75	0.73	1.52	0.72	<b>0.57</b>
Race/Ethnicity	14.14	10.43	13.25	10.19	<b>0.99</b>
Divorce Rate	5.99	1.08	5.93	0.99	<b>0.25</b>

We also tested whether social, economic and population factors had changed in different ways for one group, but not the other group of counties, in the period from 1998 to 2006. If they improved more among funded counties, and got worse in unfunded counties, these factors may have accounted for the differences in pile-ups of problems.

We found that the two groups of counties had very similar changes on almost all social, economic and population characteristics between 1998 and 2006. The small differences were all statistically insignificant, except for one. Changes in welfare grants decreased significantly less in funded counties, the welfare situation seemingly not improving for funded counties as much as it had for unfunded ones. (See Table 3)

**Table 3**  
**Difference in Changes in Social & Economic Conditions**  
**In the Study Period 1998 to 2006**  
**Between FPC Funded and Unfunded Counties**  
(Funded Counties = 29, Unfunded Counties = 10)

	<b>FPC Funded</b>		<b>Unfunded</b>		<b>Sig. of Difference</b>
	Mean	St. Dev.	Mean	St. Dev.	
Food Stamps Change	26.57	18.14	21.07	27.17	<b>0.14</b>
Welfare Change	-22.02	20.73	-41.65	43.95	<b>0.02</b>
Unemployment Change	0.25	1.37	-0.42	1.58	<b>0.89</b>
Change in Pop.Change	-0.36	8.89	-1.70	11.22	<b>0.46</b>
Adult Crime Change	-0.16	0.52	-0.11	0.66	<b>0.48</b>
Race/Ethnicity Change	5.30	3.00	2.77	6.23	<b>0.27</b>
Divorce Rate Change	-0.87	0.56	-0.90	0.30	<b>0.27</b>

So, we conclude from the tests of significance of differences in means between the funded and unfunded counties reported in Tables 2 and 3 that the two groups were very similar in both initial conditions and in the ways conditions changed between 1998 and 2006.

***Finding – In FPC funded counties, the average severity of problems decreased, while in unfunded counties, the average severity of problems increased between 1998 and 2006.***

We first ran regression models (simulating analysis of variance) to statistically test whether the level of pile-ups had changed significantly in the 1998-2006 period between FPC funded and unfunded counties.

We found that counties that had FPC funded Networks had decreases in pile-ups of problems between 1998 and 2006 –almost a half a problem on average (-0.41 in the FPC severity index). Severe problems increased in counties that had been unfunded –an increase of one problem on average (+1.00 in the FPC severity index).

This meant that 72 percent of the FPC-funded counties had the same or reduced levels of severity, while 70 percent of the unfunded counties had increased levels of severity.

The difference in the severity index between funded and unfunded counties was -1.41, which we found to be statistically significant. The significance level was .02, indicating a 95 percent or better statistical confidence that this result was not due to chance. See Table 4, Zero Order Model.



The next step was to analyze whether community capacity had played a role in this. The general question we needed to answer was the following:

**Question 2: Are higher levels of community capacity associated with better-than-state trends in the reductions of rates of children and family problems among counties with FPC funding?**

***Study Design – Multivariate regression analysis, factor analysis and test for curvilinear relations***

**First**, we had to statistically test whether differential local community capacity, built as ‘social infrastructure’ over the past ten years, actually was correlated with local performance in reducing each of the seven children and family problems identified in the 1994 Washington State legislation.

Then we had to control for the effects of social, economic and demographic conditions in a multivariate regression analysis to see whether these conditions accounted for the effects of community capacity on each of these reductions.

**Second**, we had to test whether better performance was interrelated since we theoretically expected that local long-term, sustainable, system strategies, made possible by strong local ‘social infrastructures,’ would contribute to reducing all seven problem behaviors. This entailed conducting a statistical factor analysis that would reveal whether there was a common underlying factor to all these reductions or whether different reductions clustered on different factors.

**Third**, we needed to test whether community capacity that reached a threshold or tipping point level would be correlated with a geometric increase in the number of children and family problems that had been simultaneously reduced (producing many better-than-state trends). The theoretical reason was the presumed effects of a strong local ‘social infrastructure’ of collaborative partners that had multiplier effects:

- Affecting simultaneously problems that were interrelated
- Leveraging extra resources and
- Being more effective due to collaboration on strategically chosen common goals.

This entailed statistically testing for a curvilinear relation, instead of a linear relation, between increases in community capacity and

- A higher value on the underlying common factor across the various better-than-state trends and
- In the actual index of number of better-than-state trends

**Fourth** and finally, we needed to control once again for the changes in social, economic and demographic conditions to see whether they affected the curvilinear relation between community capacity and better-than-state trends.

## Does community capacity help reduce each of the seven problem behaviors?

The first research task was to ascertain whether there was a correlation between 'community capacity' and achieving 'better-than-state trends' for each of the seven problem behaviors.

There are two major reasons for expecting such a correlation. Local boards with higher community capacity would be better able to:

1. Strategically help choose which sets of 'evidence based' programs to implement locally based on their knowledge of community conditions, readiness and strengths
2. Bring together and engage community partners to implement programs more effectively and make them sustainable in spite of fluctuations through time of different funding streams.

### Finding

***There is a positive correlation between community capacity and better than-state-local trends for all seven child and family problems.***

Correlations vary from a high of .68 to a low of .31. Five are statistically significant (less than .05); two constitute significant trends (between .05 and .10).

See bar charts on this right hand side of this page

*Each bar represents the number of better-than-state trends for four different groups of counties: those in the first, second, third and fourth quartile of level of community capacity. The bars on the far right represent counties with the highest community capacity.*

*The bar charts show that the number of better-than-state trends generally increase as levels of community capacity increase, from left to right*

*The number of better-than-state trends tend to cluster among counties in the top quartile of community capacity, the bars to the far right, indicating the presence of a curvilinear or threshold type relation.*

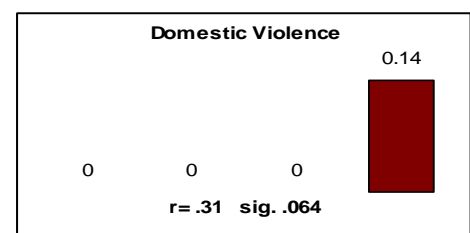
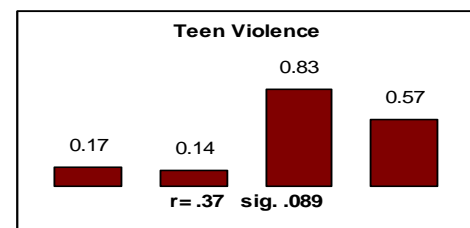
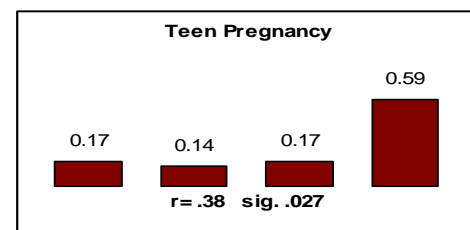
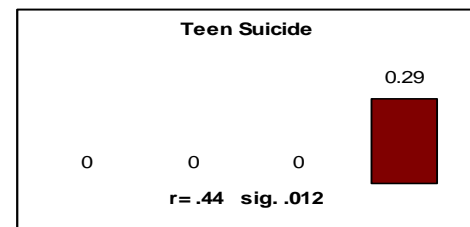
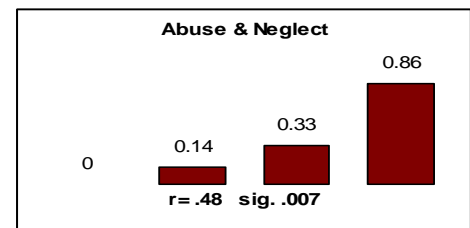
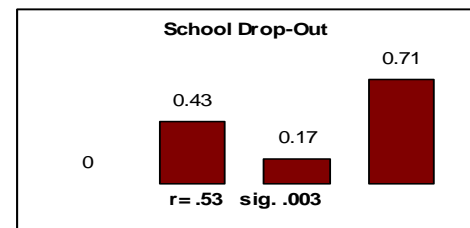
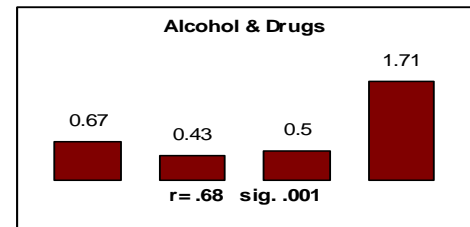
Correlation coefficients are shown on the bottom of each chart.

*Both parametric and non parametric correlations were calculated and compared. Similar results were obtained. Parametric correlations presented under bar charts are for curvilinear and 'threshold' relations between the two variables: community capacity and number of better-than- state trends.*

## Distribution of Better-Than-State Trends by Quartile Level of Community Capacity

Low to High: 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup> quartile

Correlation Coefficient & Stat. Significance



**The second research task** was to test whether the correlations between local community capacity and better-than state trends for each of the problems were simply a function of diverse social, economic and demographic factors among the twenty six counties under study or whether they were due to independent effects of community capacity.

The 'research-to-practice' public health approach tends to consider local differences in overall outcomes of their efforts as due to variations in 'local circumstances'. This is because:

- Barriers to success are attributed to higher severity of local child and family problems often compounded by higher levels of poverty, unemployment, criminality, marital instability, prevalence of racial and ethnic minorities and changes in populations.
- Furthermore community capacity, in this perspective, is often seen as developing more easily in less harsh circumstances. Thus, community capacity tends to be considered helpful in implementing evidence based programs, but not having an independent effect on outcomes. Community capacity basically reinforces better trends where local conditions are more favorable.

The 'community-centered' public health approach instead focuses on the development and support of community capacity even in local communities with severe child and family problems and 'harsh local circumstances'. The data show that:

- Local capacity is *not* significantly correlated with degree of problem severity and, as reported in a previous report, capacity improved in the last ten year period even in counties experiencing higher problem severity.
- Local capacity is *not* related to levels of poverty, welfare, racial/ethnic composition and changes in population
- Surprisingly higher community capacity levels were achieved in counties with high adult crime rates, increasing poverty and divorce rates - a facilitating factor was low unemployment and increasing employment rates in the period under study

So, this approach expects that the effects of community capacity will remain independent and significant across communities with different conditions.

This study ran two series of statistical models. The first model examined the effects (standardized regression coefficients and unique proportion of the variance explained) for community capacity alone on each of the seven problem behaviors. The second set examined the same effects after accounting for initial local circumstances in 1998 and changes in those conditions from 1998 to 2006.

## **Findings**

1. ***The effects of community capacity in reducing the rates of child and family problems remain strong and statistically significant even after accounting for initial and changing local circumstances for six of the seven child and family problems.*** See effect sizes and significance levels in table 5.

The one exception is domestic violence. This exception is most likely due to statistical difficulties in separating effects when only one county had a better-than-state trend in domestic violence.

2. ***Community capacity still explains a significant proportion of the variance in trends of reductions in six of the seven problem behaviors, after accounting for the effects of differences in initial and changing local circumstances.*** See the sizes of the unique variances explained ( $R^2$ ) compared to the variances explained by community capacity alone in table 5.

- A slightly larger variance in one case – teen pregnancy
- Slightly smaller variances in three cases – school drop-out, teen suicide, and teen violence
- Reduced but still strong and significant variances in two cases – substance abuse (alcohol and drug related arrests) and abuse and neglect (rate of dependencies and terminations)

Only in one case does the unique variance explained by community capacity become non-significant, for domestic violence, probably a statistical artifact as already mentioned.

**Table 5**  
**Effect Sizes (Regression Coefficients) of Community Capacity**  
**On Each of Seven Children and Family Problems**  
**Alone & After Controlling for Other Community Conditions**

	Capacity Alone			With Other Conditions		
	Effect Size	Sig.	R <sup>2</sup>	Effect Size	Sig.	R <sup>2</sup>
Alcohol & Drug	2.69	0.003	0.47	2.75	0.003	0.27
School Dropout	0.53	0.003	0.28	0.56	0.012	0.23
Abuse & Neglect	0.48	0.007	0.23	0.36	0.040	0.11
Teen Suicide	0.44	0.012	0.20	0.60	0.013	0.18
Teen Pregnancy	0.38	0.027	0.15	0.50	0.006	0.22
Teen Violence	0.89	0.049	0.14	0.85	0.047	0.12
Domestic Violence	0.31	0.064	0.09	0.15	0.220	0.02

**Note on statistical methods**

Both linear and logistic regression statistical models were run. They provided similar overall results.

**Is there an underlying common factor contributing to reductions in all seven problem behaviors and does community capacity help address this underlying factor?**

The ‘community-centered’ approach has fostered learning among local community leaders on

- Root causes of many child and family problems, i.e. their interrelatedness, based on breakthrough brain development research conducted at Harvard University on the effects of maltreatment on Developmental BioPsychiatry and the evidence published by the Center for Disease Control (CDC) on the consequences of types of adverse childhood experiences(CDCs) on various problem behaviors.
- System theory on how community wide changes can be attained by modifying reinforcing negative loops that affect different problem behaviors by focusing on small changes on key leverage points in the loops.

So, the ‘community centered’ approach sees community capacity as helping develop strategies that not only choose and implement better ‘evidence-based practices’ to reduce community specific severe problems, but also

1. Start by making small changes that are likely to succeed, help create trust, a network of partners and greater community engagement and have multiplier effects across different problems in the long run.
2. Create focused consensus among community partners on particular root causes, unique to the community.
3. Start addressing underlying interrelated problems, so that reducing one or more can help reduce others in ‘reinforcing loops’.
4. Leverage private, county and federal funding and volunteers so that more resources become available.

If, in fact, child and family problems are interrelated, have common root causes, and if system strategies developed in communities with high levels of community capacity are successful, we should see many of the better-than-state trends having a common underlying pattern. Empirically uncovering the existence of such an underlying pattern is statistically possible with principal component factor analysis.

**Findings**

The results of the factor analyses confirm this expectation

- **All seven problem behavior trends load heavily with significant equivalence on one common factor** - six of the seven factor loadings are .45 or higher. See the figures in the first column of table 6.

- We conducted a second factor analysis that also included the community capacity index. *See the results in the second column of table 6.* This second factor analysis shows that **community capacity loads very heavily on this common factor** - at a .87 level.

**Table 6**  
**Factor Analysis Results**

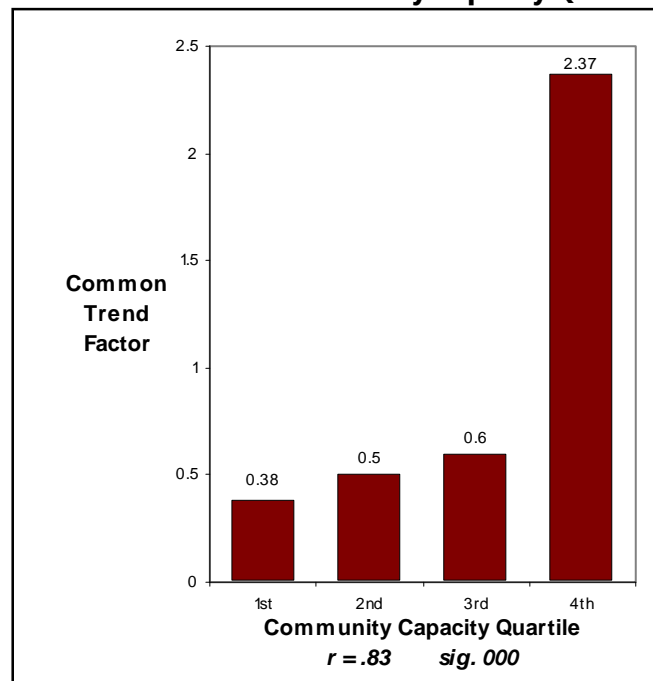
Better than State Trends	Problem Behavior Trends Loading Highly on Common Underlying Factor	
Alcohol & Drug	0.71	0.67
School Dropout	0.46	0.49
Abuse & Neglect	0.46	0.52
Teen Suicide	0.58	0.51
Teen Pregnancy	0.23	0.29
Teen Violence	0.64	0.59
Domestic Violence	0.45	0.39
Community Capacity		0.87

The final empirical test was to see whether community capacity is correlated with the common factor identified in the first factor analysis, and whether there is evidence of multiplier effects in communities with high capacity.

The results of regression analyses showed that

- ***The higher the community capacity the higher the values of the common trend factor.***
- ***The relation between capacity and the common trend factor was curvilinear: the common trend factor values geometrically increase as top quartile levels of capacity were reached.*** This provides empirical support for the existence of a threshold above which capacity has multiplier effects on root causes. *See the bar chart and curvilinear/threshold type relation in Figure 2 below.*

**Figure 2**  
**Common Trend Factor Value by Capacity Quartile**



Finally, we repeated the analysis of the correlation of community capacity with better-than state trends using not the common trend factor, but the number of better-than-state trends achieved among FPC funded counties.

We conducted multivariate regression analyses that statistically estimated the strength of the correlation between the overall community capacity built in the period from 1997 to 2007 and the number of better-than-state trends achieved by FPC funded counties. We controlled once again for the effects of social and economic conditions that could have improved and contributed to making the trends possible for particular FPC funded counties.

***Finding – There was a strong correlation, a curvilinear one, between the level of community capacity attained and the number of better-than state trends achieved, even after controlling for changes in social, economic and demographic factors.***

The statistical results are:

- A strong linear correlation of .73 - community capacity explaining half of the variance in the number of trends that funded counties achieved (See Table 7 - under Linear Model)
- A stronger curvilinear correlation of .82 - community capacity explaining almost two thirds of the variance in the number of trends (See Table 7 - under Curvilinear Model)
- Changes in social and economic conditions had no statistically significant effects; and the variance explained when they were added increased slightly from .65 to .68. (See Table 7 under Full Curvilinear Model and Figure 3 on the next page at the end of this section)

**Table 7**  
**Relation between Comm. Capacity and # Better-than-State Trends**

Average Community Capacity from 1997 to 2007 & Better-than-State Trends from 1998 to 2006  
(26 FPC Funded Counties\*)

Multivariate Regression Models	Linear Model		Curvilinear Model		Full Curv. Model	
	Effect	Sign	Effect	Sign	Effect	Sign
Variables in the Models						
Overall Capacity 97-07	1.23	0.000	-2.40	0.048	-3.36	0.024
Overall Capacity 97-07 Squared			0.72	0.004**	0.93	0.003**
Change in Food Stamps					-0.03	0.06
Change in Welfare Grants					0.00	0.77
Change in Unemployment					-0.16	0.40
Change in Pop. Change					-0.05	0.13
Change in Adult Crime					0.22	,66
Change in Race/Ethnicity					-0.02	,88
Change in Divorce					-0.76	,12
Intercept Coefficient	-0.46	0.485	3.23	0.019	4.25	0.035

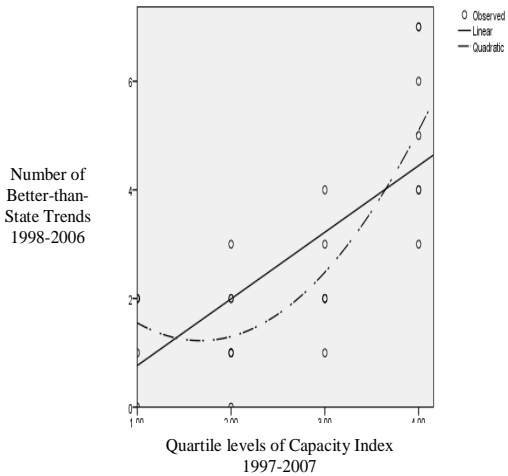
R squared	0.73	,82	0.89
Adjusted R squared	0.51	0.65	0.68

\*Note: Excludes King County that has four separate Community Networks and two counties that were 'outliers'  
An "outlier" was defined as a county that had any indicator value three standard deviations from the mean

\*\*Note: The best fit of a curvilinear relation is tested by the statistical significance of this squared term.

The evidence shows that the curvilinear relationship is significantly better than the linear one (see the statistically significant effect of the squared term of capacity in the model). This curvilinear relation supports the ‘tipping point’ theory in the literature of processes of change. It proposes that efforts at change produce few small results at first, but many more, larger ones later as a community reaches a certain ‘saturation or multiplier’ point. In our case, more social and health problems are reduced simultaneously as community capacity reaches higher levels.

**Figure 3**  
**Statistical Tests of Linear versus Curvilinear**  
**Relationship Between Capacity Index &**  
**Number of Better-Than-State Trends**



***The problem of lagged effects of better-than-state trends in reducing overall severity of problems***

We found that, in the short time period of our study, there was a low correlation between the number of better-than-state trends and changes in the severity of problems. The reason may be that better-than-state trends do not immediately affect overall reductions in pile-ups under the following conditions:

- If better than state trends are in problem behaviors not directly related to problems identified as severe or ‘piling-up’ (for example, a county with severe problems of neglect and abuse, but with capacity to reduce other indicators such as substance abuse and school dropouts that are not severe).
- If better-than-state trends are in problem areas identified as severe, but the rates are among the worst in the top quartile, so improvements only occur within the top quartile and do not change the severity index (for example, a county with high teenage pregnancy rates may reduce those rates significantly but may not change the severity change index).

In the long run, one would expect that improvements in a number of trends would eventually affect the number of pile-ups since problems are often interrelated. The time period of this study, however, was not long enough to allow us to easily detect the effects of these patterns. What we could do was examine the effects of substantial changes in community capacity, ones more likely to affect the extent of overall severity of problems.

So, we turned to the following question.



## CONCLUSIONS: Discussion of Findings

### ***THREE MAJOR FINDINGS emerged from the statistical analysis of trends in Washington communities:***

1. Among counties with state-funded Community Networks, overall severity of problems decreased or remained stable while they worsened for those counties without state-funded Community Networks.
2. Among counties with state-funded Community Networks, the higher the average community capacity, the larger the number of better-than-state trends in rates of locally prioritized child and family problems.
  - Levels of local community capacity, built as 'social infrastructure' over the past ten years, actually impacted local performance in reducing *each of the seven child and family problems* identified in the 1994 Washington State legislation.
  - When communities developed high levels of community capacity, above a certain *threshold or tipping point*, the number of children and family problems reduced increased geometrically. This is likely due to
    - The interrelated nature of the children and family problems, tied to root causes - Adverse Childhood Experiences (ACEs) that higher capacity communities are better at targeting,
    - The multiplier effects of strong local 'social infrastructure' of collaborative partners and
    - The adoption of long-term, sustainable, systemic strategies possible at higher levels of community capacity.
3. Counties that achieved more improvements in community capacity during this period achieved reductions in the overall severity of child/family problems by the end of this period.

It is hoped that this study will encourage both community leaders and state public health agency professionals to focus on how to better build 'community capacity' in the State of Washington. This study provides strong empirical evidence to support the qualitative evidence of success of past efforts, often pioneering ones, by local leaders of Community Networks. It is aimed at providing professionals with empirical evidence of the 'critical' role of effective community capacity that is now quantifiable.

This study showed that social, economic and demographic conditions did not significantly affect the outcomes of community capacity. It indicates that reductions in children and family problems are possible in various communities, even those challenged by poor economies, poverty, crime, demographic changes and experiencing more severe problems.

This study is being published at a time when the state faces deep budget cuts, and when parts of our state still suffer from large pile-ups of child and family problems. Community Networks may be one answer to helping the state build resiliency in hard times, and through collaboration between state agencies and local networks overcome obstacles and become more effective.

As Michelle Bell wrote in a recent editorial for the Northwest Bulletin: Family Child Health (summer 2008): *"Local and state health agencies play a critical role in building community networks by providing leadership; technical skills, such as data compilation and analysis; and financial and in-kind resources. Perhaps most importantly, public health agencies and professionals are critical to the sustainability of community networks, because networking is such a central part of what they do."*

## CONCLUSIONS: Study Advantages, Limitations and Next Steps

The analyses in this study took advantage of the fact that, due to previous budget cuts in 2000-2001, some counties in our state were no longer funded by the Family Policy Council. This created the conditions for a natural experiment: an unbiased method to determine the effectiveness of efforts in funded counties compared to those in unfunded counties.

This study also took advantage of data collected over the past ten years by the Family Policy Council and by many local and state entities, including the Division of Research and Data Analysis in DSHS. This enabled us to provide, for the first time, quantitative statistical evidence of the role of higher levels of community capacity in reducing rates of child and family problems.

It is clear, however, that improvements need to be made to overcome the limitations of this study.

1. The units of analysis for this study were counties – This means that our sample of cases is relatively small impairing the power of statistical analyses to detect smaller differences or smaller effects as significant. This also means we had to ignore all kinds of outcomes of more locally focused efforts at the level of neighborhoods and smaller communities within counties.

We clearly need to replicate this study with smaller geographical units (like ‘locales’ - combination of school districts, or zip codes - aggregated in meaningful ways to reflect more real ‘community’ boundaries).

2. The severity index and the ‘better-than-state’ trends are based on readily available indicators of child and family problems –We had no reliable measure of other problems such as domestic violence. Some of our indicators are approximate measures, relatively valid, but with known biases and measurement noise.

We need to develop a better set of indicators. Next year, for the first time in the State of Washington, we will have measures of Adverse Childhood Experiences (ACEs), based on questions developed by the Centers for Disease Control (CDC) and collected in a yearly survey of adults conducted by the Department of Health.

3. The community capacity index is based on ratings of reports –The rating procedures were unbiased, but the raters had to rely on what was reported.

A study on how to efficiently collect information on community capacity directly from communities is being developed by the Family Policy Council. This will also serve as an occasion for local learning on how to improve community capacity since the plan is to engage communities in a process of appreciative inquiry, of participant collaborative research, without decreasing the reliability and validity of the findings.

4. This study did not describe the ways that ‘community capacity’ tends to produce unique, comprehensive, systemic and strategic *efforts* at reducing certain child and health problems –consequent to the shared vision and goals of a ‘community-centered’ public health model as described by Flaspohler.

This is best done by a combination of quantitatively and qualitatively based case studies. Some have been produced recently by Clegg and Associates focusing on community centered successful ways to reduce school drop-out. More are needed in order to diffuse effective innovations particularly among counties that have fewer resources and are challenged by large pile-ups of child and family problems.

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Additional copies of this paper may be obtained from [www.fpc.wa.gov](http://www.fpc.wa.gov).



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## ADDENDUM: ANSWERS TO REVIEWERS' QUESTIONS

### **Question: Which children and family problems improved more in FPC funded counties than in unfunded counties, in the ten year period covered by this study? How many problems improved?**

This study has presented evidence that FPC funding made a difference in reducing the overall severity, or pile-up, of children and family problems compared to unfunded counties. What the study did not do was analyze which individual problems improved in FPC funded counties compared to unfunded counties. The expectation is that FPC Community Networks improved many interrelated problems due to local efforts associated with building community capacity.

#### **Methods**

**Indicators** - For each of the 39 counties we used yearly indicators for six of the seven children and family problems that the Family Policy Council is legislatively mandated to try and reduce: teen pregnancy, teen suicide, substance abuse, dropping out of school, violence and child abuse/neglect (out-of-home placements) (RCW 70:190).

The missing indicator is for domestic violence, since no one reliable indicator is currently available for assessing its prevalence across all counties in the state. Hospitalization rates of women due to injury or accident is considered the best indicator, but it is still an unreliable measure in many counties.

We added two early child health indicators - infant mortality rates and rates of 'no 3<sup>rd</sup> trimester maternity care', in order to add a missing health dimension to the legislatively mandated list of mainly teen problems.

**Differences in degree of change between two groups of counties** - We compared the degree of change in rates for each of the indicators of children and family problems, from the baseline year (1998), to the end of the study period (2006), for two groups of counties:

- The 28 counties that had FPC funded Public Health and Safety Community networks (excluding King county that had various Community Networks, some funded, some unfunded)
- The 10 counties that had funding withdrawn from their Community Networks due to statewide budget cuts in 2001 and their inability to reach minimum levels of community capacity

Because rates fluctuate from year to year, we calculated three year averages at the beginning and at the end of the period in order to create stable baseline and end of period rates necessary to reliably measure rates of change across time. If we had taken any one year at the beginning and at the end of the study period we may have misrepresented the real overall trend over this period.

- For baseline we averaged rates across 1997, 1998 and 1999.
- For the end of the period we averaged rates across 2004, 2005 and 2006

Thus, we generated more reliable, stable starting and ending average rates and still allowed for change to occur over a brief, but reasonable amount of time, in the intervening years, from 1999 to 2004.

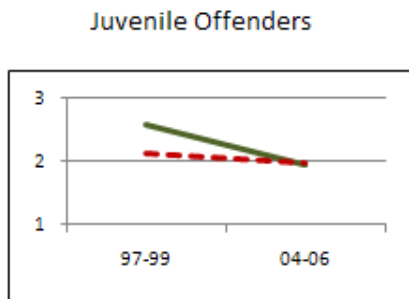
#### **Findings**

**All problems showed greater improvements in FPC funded counties than in unfunded ones.**

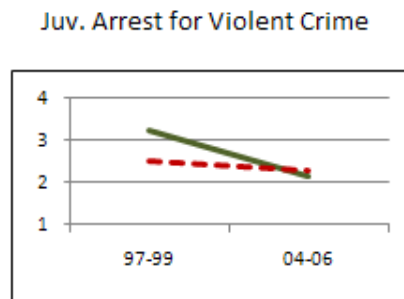
- Some problems decreased at greater rates (See charts on page 33)
- Other problems increased at lower rates (See charts on page 34)

**Improvements for five of six children and family problem behaviors were statistically significant (< .05):** violence, dropping out of school, abuse/neglect (out-of-home placements), teen pregnancy and teen suicide. Statistical significance levels were close to .05 for alcohol and drug arrests (.09 and .14). Teen pregnancy and suicide had significant changes in rates in larger counties with more stable rates. Changes in infant mortality and 'No 3<sup>rd</sup> Trimester Maternity Care' showed significant trends (.09 and .10).

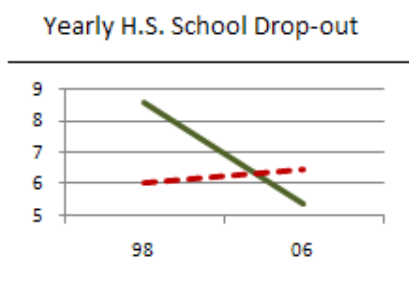
## 1997-2006 Change in Rates of Youth & Family Problems among Teens FPC Funded Counties versus Unfunded Counties



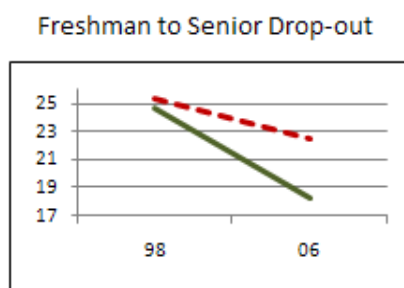
*Difference in slopes sig .019*



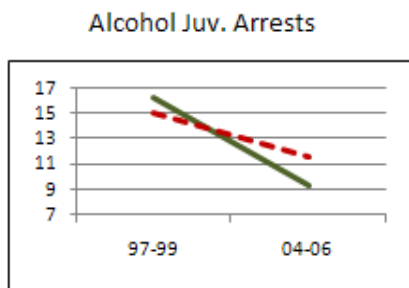
*Difference in slopes sig .023*



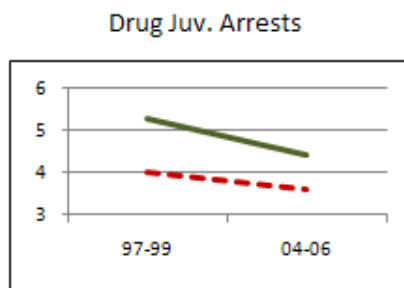
*Difference in slopes sig .030*



*Difference in slopes sig .046*

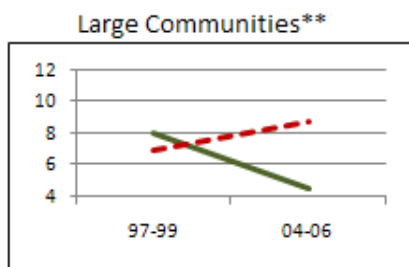


*Difference in slopes sig trend .088*

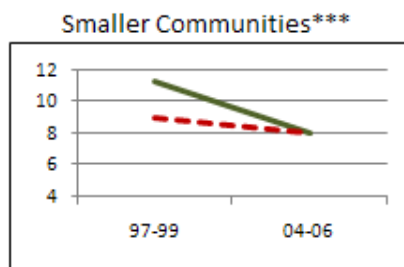


*Difference in slopes not sig (.143)*

### Births to Teen Mothers



*Difference in slopes sig at <.001 (t=5.27)*



*Difference in slopes not sig (t=0.35)*

\*\*10-17 population greater than 25,000  
(Yakima versus Pierce, Snohomish,  
Spokane, Clark, Kitsap, & Thurston.)

\*\*\*10-17 population 3,000 to 25,000

— FPC Funded\* (n=28)  
- - - Unfunded\* (n=10)

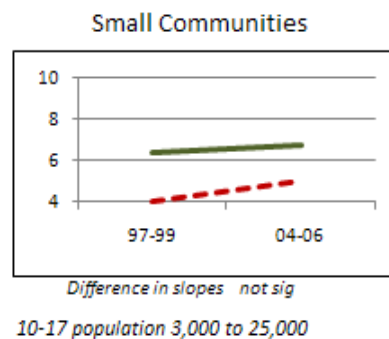
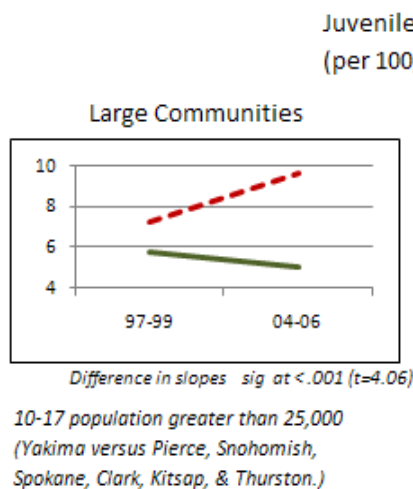
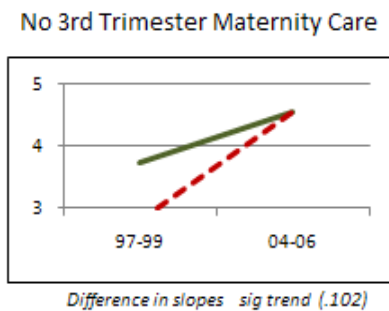
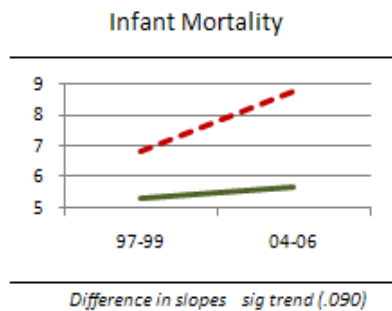
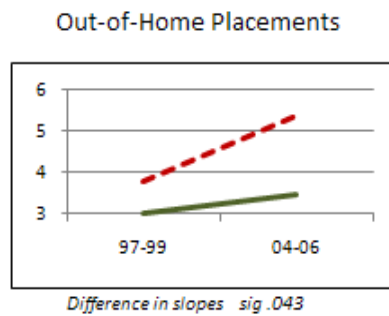
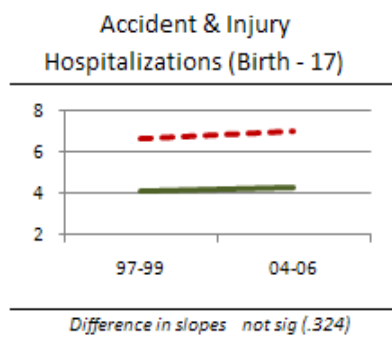
\*excluding King County (partially funded & unfunded)

Teen Violence,  
H.S. Drop-out,  
Alcohol & Drug Problems,  
& Births to Teen Mothers  
**decreased at greater rates**  
in FPC funded  
than unfunded counties.

Note  
Statistically significant (< .05)  
larger decreases are for :  
- Teen Violence  
- H.S. Drop-out  
- Births to Mothers  
in large counties

Statistical 'trend' level of  
significance (.05 to .10) is for:  
- Alcohol Juvenile Arrests

## 1997-2006 Change in Rates of Children & Family Health & Safety Issues FPC Funded Counties versus Unfunded Counties



— FPC Funded\* (n=28)  
- - - Unfunded\* (n=10)  
 \*excluding King County (partially funded & unfunded)

Abuse & Neglect,  
Early Child Health , &  
Juvenile Suicide  
**increased at a lower rate**  
in FPC funded  
than unfunded counties.

Notes  
Statistically significant (<.05)  
lower increases are for:  
- Out-of-Home Placements  
- Juvenile Suicide  
in large counties

Statistical 'trend' level of  
significance (.05 to .10) are:  
- Infant Mortality &  
- No 3rd Trimester Care

**Questions: What do Community Networks actually do? What kind of activities? With whom (program participants, parents, neighborhood residents, professionals, organizations)?**

The Family Policy Council is not an advisory board, nor does it directly administer prevention programs, nor is it simply involved in community organization. The FPC business model is quite unique, combining a consolidated structure for accountability, planning, and review with a dynamic and expansive community-centered function of capacity building in and across diverse conditions. This design is informed by *Family Policy Principles* which were developed by 50 focus groups across Washington State between 1990 and 1992 and are applied by Community Networks since their establishment in 1994. The adaptability of this model to a variety of contexts prompted reviewers to inquire what specific activities Community Networks engage in.

A quick survey was conducted in February 2009 to gather such information from Community Networks. The survey was prompted by the need to respond to an urgent legislative request to provide up-to-date data on activities performed. Sample data were analyzed and findings were projected to the state as a whole. The following statewide findings were reported:

***128,380 individuals, families and organizations are affected by Community Network activities, services, tools and other mission-critical supports.*** Specifically:

- 39,643 children and youth participate in various customer-focused, evidence-based practices (85%) and promising prevention programs (15%);
- 29,070 parents, foster parents and family units gain specific skills in customer-focused, evidence-based practices (85%) and promising programs (15%);
- 47,647 volunteers receive tools and benefit from systems that make their helping possible;
- 10,502 professionals get training that improves performance, innovation and results;
- 1,518 public and private organizations gain tools and investments that promote employee empowerment and assure trust and accountability for working better/differently together.

These data generated further questions on how community capacity was related to these activities.

**Questions: Do the number and type of activities differ with higher levels of community capacity? Does this help explain how higher community capacity reduces more community wide problem behaviors?**

***Methods***

We took the activity data gathered by the survey of the Community Networks and analyzed how the number of persons/organizations involved in different type of activities differed by level of community capacity (See table on page 35).

***Findings***

***There are large differences in the prevalence of type of activities by level of community capacity.***

- ***Communities at beginning levels of building community capacity involve many children and youth as participants in specific prevention programs and then in skill building for many parents and families.*** (See lower right cells in the table)
- ***Communities at higher levels of capacity still engage in these activities, but also manage to train more professionals and volunteers, engage more people in community education and finally get many organizations to work differently and together.*** (See upper left cells in the table)

Highlighted in the table below are the cells with the highest frequency in each column. These indicate which communities, at what level of capacity, are engaging the most number of people/organizations by type of activity.

**Numbers of Organizations/ Persons Engaged in Five Different Types of Activities  
By Quartile Level of Community Capacity**

(Survey sample results for each level of community capacity - excluding King County Community Networks and Tribal Networks;  
Including all activities reported in statewide findings, plus community education ones involving neighborhoods and community leaders)

Community Capacity Quartile	Organizations Working Differently	People Engaged in Community Education	Professionals and Volunteers Trained	Parents/Families Reached (Skill Building and Supports)	Children/Youth Participating in Prevention Programs
4 <sup>th</sup> – Highest	<b>747</b>	<b>30,519</b>	1,518	1,789	7,953
3 <sup>rd</sup>	350	961	<b>2,674</b>	1,423	626
2 <sup>nd</sup>	121	866	494	<b>9,688</b>	3,152
1 <sup>st</sup> – Lowest	0	198	36	510	<b>8,659</b>

**Specific Activities included**

Organizations Working Differently	<ul style="list-style-type: none"> <li>Improving policies/ practices of organizations with Adverse Childhood Experiences training</li> <li>Formal working teams doing business differently</li> </ul>
People Engaged in Community Education	<ul style="list-style-type: none"> <li>Changing neighborhood norms</li> <li>Recruiting and training leaders</li> </ul>
Professionals and Volunteers Trained	<ul style="list-style-type: none"> <li>ACE training</li> <li>New protocols for abuse/neglect</li> <li>Substance abuse and bullying prevention education</li> <li>Health care improvement training</li> <li>Juvenile Court training</li> </ul>
Parents and Families Reached by Specific Skill Building and Support Services	<ul style="list-style-type: none"> <li>Parenting skills</li> <li>Family support</li> <li>Problem prevention (suicide, domestic violence, dating violence, abuse and neglect)</li> <li>Workforce development</li> <li>Relative and foster parenting</li> </ul>
Children/Youth Participating in Specific Prevention Programs	<ul style="list-style-type: none"> <li>Substance abuse</li> <li>Life skills for youth</li> <li>School achievement</li> <li>Mentorships</li> <li>Safe foster care placements</li> </ul>

These findings support the ‘community-centered’ model, as outlined in the study, that sees community capacity as helping develop strategies that not only choose and implement better ‘evidence-based practices’ to reduce community specific severe problems, but also

1. Start by making small changes that are likely to succeed, help create trust, a network of partners and greater community engagement and have multiplier effects across different problems in the long run.
2. Create focused consensus among community partners on particular root causes, unique to the community.
3. Start addressing underlying interrelated problems, so that reducing one or more can help reduce others in ‘reinforcing loops’.
4. Leverage private, county and federal funding and volunteers so that more resources become available.