Public Health Improvement in Boulder County

Documenting the Plan Process
June 2008 to February 2013

Contents

Executive Summary: Public Health Improvement in Boulder County, 2008-2013

Boulder County's public health improvement process (PHIP) has allowed our public health system to identify key focus areas for population health improvement in our community. In our PHIP, Boulder County Public Health (BCPH) assessed current population health indicators and the capacity of our current public health system and then identified three health focus areas for improvement: promoting mental health, reducing substance abuse, and encouraging healthy eating and active living. This document describes the process from its inception in 2008 through early 2013, including the community health and system capacity assessment process, the community engagement and prioritization process, and the planning process. Moving forward, BCPH and our partners will build and implement a plan with specific strategies and responsible parties to improve Boulder County's health over the next five years.

Chapter 1 details PHIP background, as well as models and frameworks vital to the BCPH process.
Chapter 2 specifies structure, stakeholder involvement, and communication through PHIP phases.
Chapter 3 charts county context and health status assessment, further detailed in **Appendices A** and **C**.
Chapter 4 details formal health system capacity assessment, further detailed in **Appendix B**.
Chapter 5 describes prioritization of health issues and focus area selection based on assessment.
Chapter 6 details the work of setting goals, creating work plans, and informing strategies.
Chapter 7 outlines plans to evaluate and monitor progress.
Chapter 8 lays out system-wide coordination of Boulder County PHIP activities.
Chapter 9 addresses our research into resources and our steps toward resource development.

This document is the culmination of six years of effort on behalf of many individuals and organizations. These efforts began in 2008 and are documented here as of February 2013. The PHIP will continue to change over time, bringing shifts in structure, format, and strategies based on the needs of our community, current scientific research, and availability of resources. This Public Health Improvement Plan, therefore, should be considered a work in progress, expected to evolve in response to our context.

PHIP Background and Supporting Models

Chapter 1 details the background of the public health improvement process, the guiding Colorado Community Health Assessment Planning System (CHAPS), overlap with other public health improvement and planning efforts, and models and frameworks vital to the BCPH process.

In June 2008, the Colorado Public Health Act was passed to assure that core public health services are available to every person in Colorado with a consistent standard of quality. The State of Colorado developed a comprehensive public health plan outlining how quality public health services will be provided. Each local health department, including BCPH, must develop its own corresponding plan and:

- conduct assessments of community health status and the public health system.
- prepare a county public health plan on the basis of these assessments.
- set priorities (focus areas) for health improvement.
- ensure a core set of public health services are provided equitably.
- ensure processes are collaborative, consistent with state plans, and in alignment with resources.

While this state mandate incentivized BCPH to embark on the PHIP, our process also aligns with standard practice within the public health field. Such a process is recommended by the National Association of City and County Health Officials (NACCHO), is required for voluntary accreditation by the national Public Health Accreditation Board (PHAB), is linked to federal funding from the Centers for Disease Control and Prevention (CDC), and is prioritized in the BCPH agency-level strategic plan. The BCPH process also rests on models of population health, social determinants, and collective impact.

PHIP Structure, Stakeholder Involvement, and Communication

To accomplish PHIP goals, BCPH has custom-fit the structure of PHIP work and stakeholder involvement to best suit each of the four overlapping phases of PHIP work to date (listed at right). Additionally, evaluation will be prominent in all phases moving forward.

PHIP Phases, 2008-2013
Foundational Phase, began 2008
Assessment and Prioritization Phase, began 2010
Planning Phase, began 2011
Implementation Phase, began 2013

Chapter 2 details the PHIP structure in each phase; the extent and nature of internal and external stakeholder involvement; and communication efforts that link the structure, stakeholders, and work.

The current Implementation Phase began in early 2013. The structure for this phase consists of the Executive Steering Committee, a Public Health Improvement Process (PHIP) coordinator, implementation teams, and the internal (BCPH) Steering Committee, illustrated below. As in the past, this structure will likely evolve as we continuously seek the dynamic best supporting a common agenda, shared measurement systems, mutually reinforcing activities, continuous communication, and backbone support organizations.

PHIP Implementation Phase Structure, as of February 1, 2013

Executive Steering Committee: BCPH staff, invited external leaders, implementation team leaders
Role: Monitor PHIP process and outcome progress.
Provide guidance for PHIP coordinator.
Share lessons learned and air concerns for group problem-solving.
Provide guidance on communication, data, and resources.
Adhere to PHIP guiding principles.

Public Health Improvement Process Coordinator: Full-time BCPH employee
Role: Coordinate implementation effort.
Liaise between Executive Steering Committee and implementation teams.
Document and report on work and resource needs.

Internal (BCPH) Steering Committee
Role: Ensure BCPH, Executive Steering Committee, PHIP Coordinator, and implementation team alignment.

Implementation Teams (each with a leader): BCPH staff and community partners invited based on previous engagement and survey
Role: Oversee implementation of focus area work via evidence-based strategies in the community.
Document and report on work and resource needs.

Healthy Eating & Active Living Implementation Team
Role: Select and conduct strategies (with action area or strategy work groups, as needed).

Mental Health Implementation Team
Role: Select and conduct strategies (with action area or strategy work groups, as needed).

Substance Abuse Prevention Implementation Team
Role: Select and conduct strategies (with action area or strategy work groups, as needed).

Community Context and Health Status Assessment

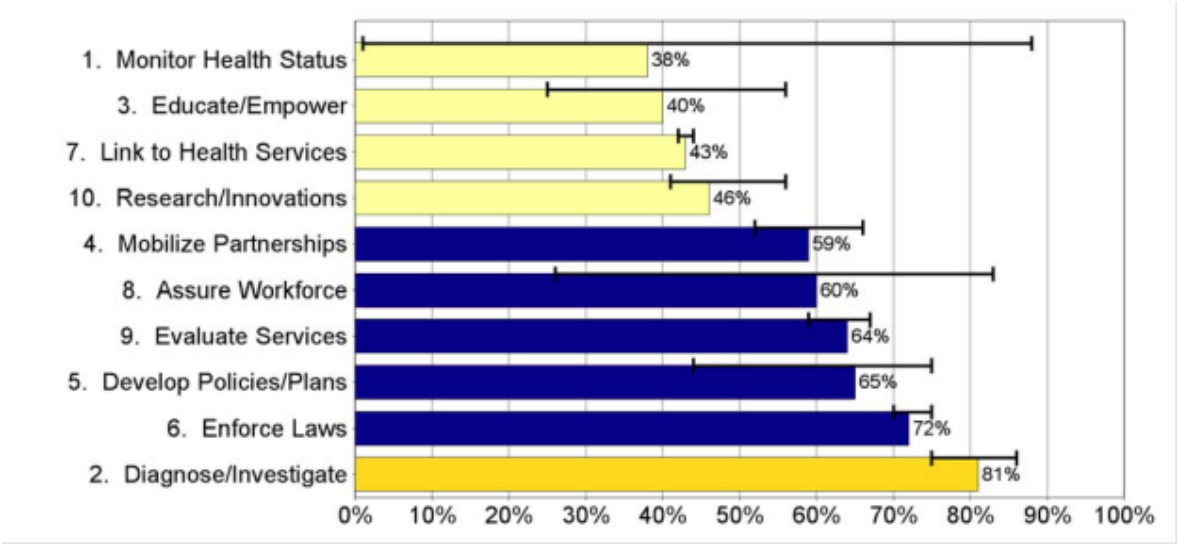
While our PHIP will align with state and national processes, BCPH also recognizes that Boulder County is unique in terms of its sociodemographic characteristics, resources, and challenges, outlined briefly in **Chapter 3**, which continues with a description of our community health status assessment. For the inaugural PHIP in Boulder County, no primary data collection was conducted; rather, efforts focused on the compilation and review of existing data. As characteristic of all Boulder County PHIP phases, the collection and review of data were participatory activities, in which both staff and community partners took part. To the leading causes of death and disability, many other indicators of health status were added for review. In all, over 300 indicators of health status were identified and reviewed. To consolidate these into a manageable number of issues upon which to focus community and staff dialogue and interest, these were grouped into 30 population health outcomes (i.e. diagnoses or direct causes of morbidity, mortality, poor quality of life, and/or shortened life expectancy). Synopses of background information assembled and reviewed in the prioritization phase that contributed to the selection of the three PHIP focus areas are provided in Chapter 3 and **Appendices A** and **C**, as well.

Health System Capacity Assessment

Chapter 4 and **Appendix B** detail the formal health system capacity assessment in Boulder County. This assessment was conducted with the help of Primetime Research & Evaluation through a series of ten 3-hour, facilitated focus groups with 6-10 invited participants. Each meeting focused on one of the Ten Essential Public Health Services. Participants' tasks were to review the National Public Health Performance Standards Program (NPHPSP) evaluation measures for that session's essential service, discuss our health system's capacity and performance of that public health function, come to consensus on a rating score of the current capacity, and provide recommendations for improvement.

Wide community participation in the NPHPSP assessment process allows us to report on the capacity of the broad public health system in Boulder County (including and surpassing BCPH) to conduct the Ten Essential Public Health Services. The highest ratings were achieved in Essential Services #2 (diagnosing and investigating) and #6 (enforcing laws). The lowest ratings were given in Essential Services #1 (monitoring and diagnosing) and #3 (informing, educating, and empowering). In the figure below, lines show the range of responses within each Essential Service. Colored bars refer to categories of performance activity. All ten Essential Services were scored as moderate, significant, or optimal.

Rank-Ordered Performance Scores for each Essential Service, by Level of Activity for the Public Health System in Boulder County



Prioritization of Health Issues and Focus Area Selection
The two assessments evidenced which local health issue areas and health system capacity areas are strengths, as well as where improvement is needed in our local public health system. This knowledge set the stage for prioritization of health issues and for focus area selection, described in **Chapter 5**. An internal BCPH team studied the assessment results, prioritized the issue areas, and selected three final focus areas on the basis of magnitude, severity, and actionability. The selected focus areas are to: 1) promote mental health, 2) reduce substance abuse, and 3) decrease obesity via healthy eating and active living.

Setting Goals, Creating Work Plans, Informing Strategies
Chapter 6 details the work of setting goals, creating work plans, and informing strategies. Once the focus areas were prioritized, we moved into the Planning Phase. As facilitated by Primetime and supported by the BCPH Steering Committee, task forces first identified 3-4 priority action areas within each focus area, yielding a total of 10 action areas. Within each action area, they selected potential indicators, totaling 19. Possible evidence-based strategies were also identified and slated for further evaluation in the subsequent implementation phase for alignment with available community resources.

PHIP Focus Areas & Action Areas

Promote Mental Health:	**Reduce Substance Abuse:**	**Encourage Healthy Eating & Active Living:**
Promote early childhood social and emotional development	Reduce risky alcohol use	Reduce obesity and overweight
Reduce postpartum depression	Reduce risky marijuana use	Improve access to healthy food
Prevent suicide	Reduce risky prescription drug use	Promote physical activity
		Increase active transportation

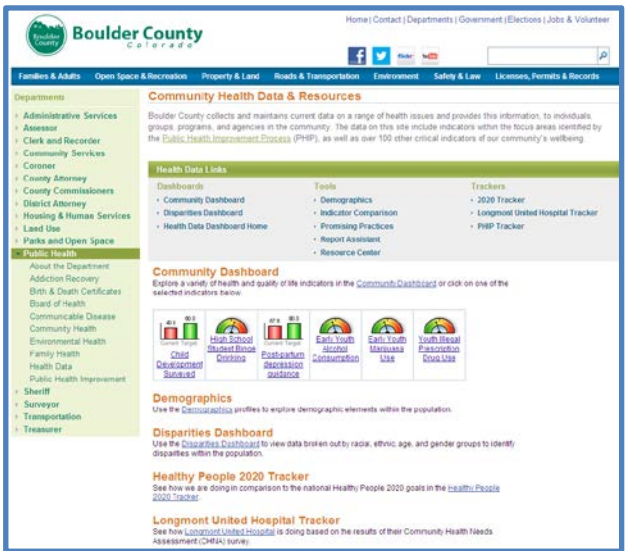
Between the end of the Planning Phase and the start of the Implementation Phase, BCPH updated indicators and targets based on the most recent, reliable data available. The table on the next page summarizes the focus and action areas, indicators, baselines, and targets as of February 1, 2013. Implementation teams will review recommendations from previous phases and research, such as the online resources, interest, and capacity survey completed by our community partners. They will then fill in final indicators, baselines, and targets, and create a structure and work dynamic that makes sense to them. Among their top priorities is to develop a Community Health Assessment and Planning System (CHAPS) Action Plan for each strategy identified to ensure collective impact on health focus areas.

Plans to Evaluate and Monitor Progress
Plans to evaluate and monitor progress are outlined in **Chapter 7**. The quality of the PHIP *process* has been and will continue to be evaluated via structured meeting evaluation forms; discussion in BCPH leadership forums including the PHIP Steering Committee and BCPH Management Team (i.e. BCPH directors and division managers) meetings; and now through the quality control function of the Executive Steering Committee. An evaluation plan will be developed to assess short- and long-term *progress* in addressing each of the three focus areas and the action areas therein in order to improve the health of our community.

In the meantime, BCPH has developed two public websites to display and monitor our PHIP process, our local data, and our progress on improving health in our community. To communicate our *process*, we established www.HealthyBoulderCounty.org. To communicate our data and track our *progress*, we contracted with Healthy Communities Institute for a web-based "dashboard," located at www.BoulderCountyHealthData.org. Screenshots of these two websites appear on the next page.

BCPH Websites Detailing PHIP Process and Progress

www.HealthyBoulderCounty.org www.BoulderCountyHealthData.org



System-wide Coordination

System-wide coordination of Boulder County PHIP activities, outlined in **Chapter 8**, is facilitated by our collective impact approach and occurs simultaneously on agency, county, state, and national levels.

Financial Resources

BCPH recognizes the need for committed resources to help oversee and coordinate PHIP. Our resource goal is to ensure sufficient support to improve health in our PHIP focus areas, while continuing to ensure provision of Colorado core services. To meet this goal, we researched resources and then embarked on resource development, an activity described in **Chapter 9**.

Board of Health Review

In July 2012, the Boulder County Board of Health reviewed the PHIP structure, plan components, and process for implementation. Documentation of this review will be submitted to the state.

Lessons Learned

We have learned a variety of lessons over the past six years that shape our process moving forward.

- The PHIP format and structure may evolve over time to meet changing needs and shifting involvement from internal and external partners.
- Participation of members from across the organization is integral to creating a relevant plan.
- Staff time and resources are necessary and the amount of work required to manage the process is easily underestimated.
- Communication with internal and external partners on an ongoing basis facilitates long-term buy-in and support from partners into the process.
- While PHIP is a community process, it is necessary for the local public health agency to provide very structured frameworks within which data and strategies are examined, selected, and conducted.

We've made progress!

Our public health improvement process has already progressed beyond this document.
Please visit www.HealthyBoulderCounty.org for Boulder County PHIP updates.
Please visit www.BoulderCountyHealthData.org for current Boulder County data.

Public Health Improvement Process Plan for Boulder County (as of February 1, 2013)

Focus & Action Area	Core Indicator	Baseline	2017 Target
Promote Mental Health			
1 Promote Early Childhood Social and Emotional Development	Percentage of parents of 1- to 5-year olds whose health care providers asked them to fill out a survey regarding their child's social and emotional development	43.8%	60.0%
2 Reduce Postpartum Depression	Percentage of mothers whose health care providers talked to them about what to do if they felt depressed during pregnancy/after delivery	67.6%	80.0%
3 Prevent Suicide	Age-adjusted suicide rate in Boulder County, all ages (per 100,000)	19.2%	17.3%
	Prevalence rate among Boulder County high school students who attempted suicide in the past 12 months	6.7%	5.0%
	Prevalence rate of Boulder County high school students identifying as lesbian, gay, bisexual, or questioning (LGBQ) who had attempted suicide in the past 12 months	31.8%	12.2%
Reduce Substance Abuse			
4 Reduce Risky Alcohol Use	Prevalence rate of Boulder County high school students who engaged in binge drinking in the 30 days prior to survey	25.0%	23.8%
	Prevalence rate of Boulder County high school students who initiated use of alcohol before age 13	19.0%	14.8%
	Prevalence rate of Boulder County high school students reporting that their parents would disapprove of them drinking alcohol	86.2%	88.0%
	Percentage of adults who engaged in binge drinking in the last 30 days	12.8%	12.2%
5 Reduce Risky Marijuana Use	Prevalence rate of Boulder County 9th grade students who used marijuana on 1+ days in the 30 days prior to survey	11.9%	10.6%
	Prevalence rate of Boulder County high school students who had initiated use of marijuana before age 13	7.8%	6.5%
	"Per capita" medical marijuana certificates issued for Boulder County residents	TBD	TBD
6 Reduce Risky Prescription Drug Use	Overall controlled prescriptions written in Boulder County	TBD	TBD
	Prevalence rate of Boulder County high school students who had ever used a prescription drug without a prescription	18.4%	17.5%
Encourage Healthy Eating & Active Living			
7 Reduce Obesity and Overweight	Percentage of 2- to 5-year olds who are ≥ 85% Body Mass Index	TBD	TBD
	Percent of children who were breastfed for 6+ months	61.2%	65.0%
8 Increase Access to Healthy Food	Existence of healthy food access baseline measurement	Non-existent	Existent
9 Promote Physical Activity	Prevalence of high school students who had engaged in vigorous physical activity for at least 60 minutes 3+ times a week	73.8%	75.0%
10 Increase Active Transportation	Percentage of commute trips that were by transit and non-motorized transportation	13.9%	15.9%

Chapter 1. Introduction to the Public Health Improvement Process in Boulder County

Public Health Improvement Process (PHIP) Background and Value[1]

Colorado Public Health Act Requirements and Timeline

In 2008, the Colorado Public Health Act (SB 08-194) was signed into law to assure that core public health services are available to every person in Colorado with a consistent standard of quality. The State of Colorado developed a comprehensive public health plan that outlines how quality public health services will be provided. Each local health department must conduct a community health assessment and develop its own corresponding plan. Boulder County Public Health (BCPH) must:

- conduct assessments of community health status and the public health system.
- prepare a county public health plan on the basis of these assessments.
- set priorities (focus areas) for health improvement.
- ensure a core set of public health services are provided equitably.
- ensure processes are collaborative, consistent with state plans, and in alignment with resources.

The Act requires that a comprehensive statewide public health improvement plan be developed every five years, followed by local public health improvement plans. The first statewide plan was completed in 2009. All local plans should be completed by 2013 to inform the next statewide plan in 2014.

Community-wide Public Health Improvement Planning

The public health system is larger than the local public health agency, as many community businesses and organizations have the capacity to impact health. When a public health agency convenes a community-wide process that considers health and environmental data, service capacity, and how to best address an issue, and then uses that information to develop a plan, community alignment of health priorities and directed resources ensues. Such inclusive, strategic processes ultimately promote health.

Public health improvement planning has become a standard practice within the public health field, recommended by the National Association of City and County Health Officials (NACCHO), mandated by Colorado's Public Health Act, required for voluntary accreditation by the national Public Health Accreditation Board (PHAB), and linked to federal funding from the Centers for Disease Control and Prevention (CDC).

Value of a Public Health Improvement Process

- It provides a baseline by which to monitor change by answering the question, "What are the recent trends and current conditions?"
- It identifies emerging issues by answering the questions, "What has changed since the last assessment?" and "What new concerns do community members have?"
- It helps the community set health priorities and focus resources by answering the questions, "What are the leading causes of disease, disability and death?" "Who is most impacted?" and "What are the best ways to address these issues?"
- It provides facts upon which to base programmatic or organizational decisions by answering the question, "What are the current service levels, and where are the unmet needs?"
- It helps partners to plan effective, collaborative interventions by answering the questions, "What is the best strategy to address this issue?" "Who should be leading this effort?" and "How can we support them?"

[1] Content in this section is paraphrased from http://www.chd.dphe.state.co.us/CHAPS/phases.aspx?phaseID=gettingStarted.

- It increases the ability to secure new funding by answering the questions, "What are our greatest public health needs?" "How do we best address these?" and "What is the level of community support?"
- It supports advocacy for policy changes because it communicates, "Here are the facts. We need things to be different. We are working together to make these changes."

PHIP, as Outlined by the Community Health Assessment Planning System (CHAPS)[2]

CHAPS Process and Phases

The Colorado Health Assessment and Planning System (CHAPS) provides a standard mechanism for assisting local public health agencies and the Colorado Department of Public Health and Environment (CDPHE) in meeting assessment and planning requirements of the Public Health Act of 2008. CHAPS will also help agencies in preparing for voluntary accreditation by the national Public Health Accreditation Board because many of its processes meet national standards. The public health improvement process of assessing, prioritizing, planning, implementing, and evaluating is laid out in CHAPS as phases, with stakeholders engaged in nearly every step. The Act requires that state and local public health improvement plans be developed based on a community health assessment and capacity assessment every five years. These processes are included in CHAPS, each with its own phase. The Act also requires that state and local public health improvement plans be in alignment with one another. Therefore, the 2009 statewide plan will inform development of the new local plans, which will then inform the next statewide plan in 2014. The seven CHAPS phases are:

1. Plan the process.
2. Engage stakeholders.
3. Assess community health and capacity.
4. Prioritize issues.
5. Create a local health plan.
6. Implement, monitor, and communicate the plan.
7. Inform the statewide plan.

Components of a Local Public Health Improvement Plan

The public health improvement plan is a systematic road map that illustrates county or regional public health needs, describes priorities for health improvement, names the partners to be involved, documents the steps to get there, and provides a method for evaluating progress. The plan is for the entire community, including leaders, system partners, public health staff, and boards of health. It can help to generate excitement about community health improvement activities, and provide an easy-to-use point of reference for monitoring and communicating health improvement activities. Developing a public health plan is a best practice in the field of public health and a prerequisite for accreditation.

The Public Health Act of 2008 states that the local public health plan shall not be inconsistent with the statewide public health improvement plan and that, at a minimum, each local plan shall:

- examine data about health status and risk factors in the local community.
- assess the capacity and performance of the county or district public health system.
- identify goals and strategies for improving the health of the local community.
- describe how representatives of the local community develop and implement the local plan.
- address how local public health agencies coordinate with the state department and others in the public health system to accomplish goals and priorities identified in the statewide plan.
- identify financial resources available to meet needs and provide core public health services.

[2] Content in this section is paraphrased from http://www.chd.dphe.state.co.us/CHAPS/phases.aspx?phaseID=gettingStarted.

According to the Act, the local public health plan shall be submitted to the local board of health for review. A summary of each local public health plan will then be reported to the Colorado Board of Health using a standard form provided by the CDPHE Office of Planning and Partnerships (OPP).

A local public health improvement plan differs from an agency strategic plan. Both types of plans usually include goals, strategies, evaluation measures, and timeframes; however, a local public health improvement plan involves the entire public health system, including organizations and individuals outside of the public health agency. By contrast, a local public health agency's strategic plan is specific to that agency's staff and resources. It is a good practice for a local public health agency (LPHA) to incorporate relevant parts of the local PHIP plan into its strategic plan in order to hold itself accountable for implementation and to measure progress. The agency-level strategic plan, like the public health improvement plan, meets a PHAB standard and is a requirement for voluntary national accreditation.

Overlap with Agency Strategic Planning

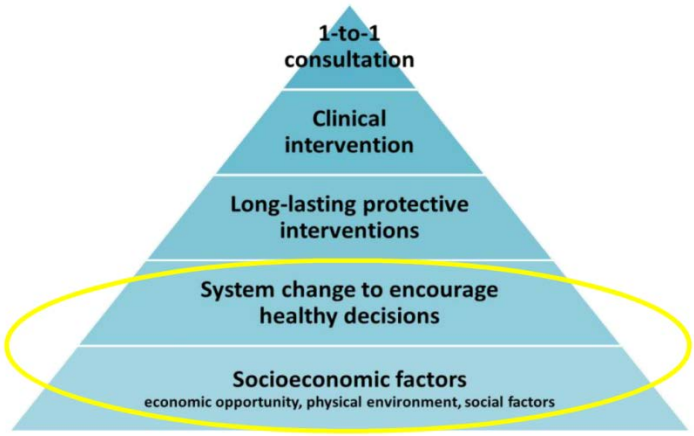
BCPH is in the midst of developing an agency-level strategic plan to establish our department's future direction for assuring improved health in our community. By guiding decisions about our agency's role, direction, resource allocation, priorities, and strategies over the next five years (2013-2017), our strategic plan will also help to ensure that BCPH is well positioned to support the community-wide public health improvement process. Additionally, our strategic plan will help to create the foundation of our future work, ensure the highest quality of public health programming, maximize the positive impact we make to the largest number of people, and help to identify resources and supports needed.

Guiding Frameworks

BCPH has drawn on and adapted a number of models and frameworks to guide PHIP and BCPH health improvement efforts in general.

Population Health Pyramid[3]

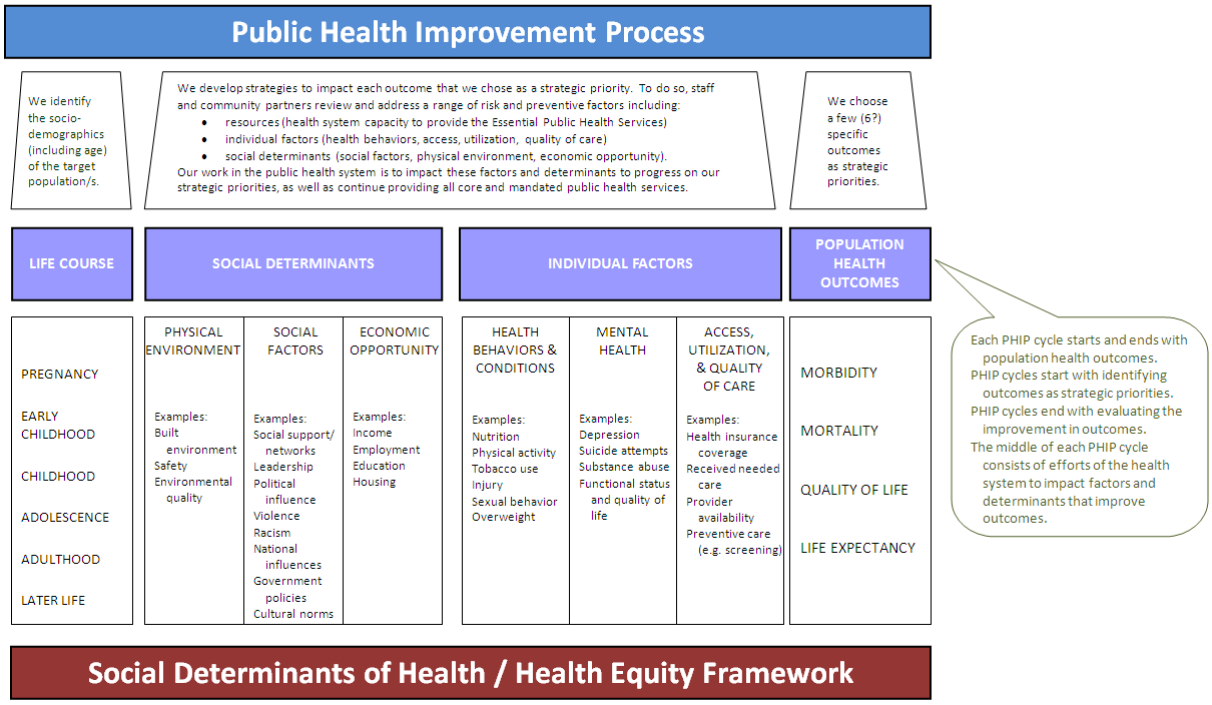
A population health orientation helps us to focus on where we can make the biggest impact. The population health pyramid emphasizes the value of addressing the social and contextual roots of health and illness. These appear at the base of the structure.



[3] Visual from Frieden, Thomas R. 2010. "A Framework for Public Health Action: The Health Impact Pyramid." *American Journal of Public Health,* April 2010, 100(4).

Social Determinants of Health / Health Equity Framework[4]

Both the Colorado and the Boulder County PHIP are based on the social determinants of health (aka health equity) conceptual framework. This framework integrates all individual factors (e.g. access to care, health behaviors, etc.) and social determinants (e.g. physical environment, income, etc.) impacting health outcomes. The life course perspective is key, as effects of social determinants are cumulative.



Collective Impact Framework[5]

Recent research shows that instead of isolated intervention on behalf of individual organizations, broad cross-sector coordination is more effective at producing large-scale social change. As Kania & Kramer (2011, 2013) assert, "Substantially greater progress could be made in alleviating many of our most serious and complex social problems if nonprofits, governments, businesses, and the public were brought together around a common agenda to create collective impact." This collective impact framework and the five conditions outlined in the table above undergird the Boulder County PHIP.

The Five Conditions of Collective Impact	
Common Agenda	All participants have a shared vision for change including a common understanding of the problem and a joint approach to solving it through agreed upon actions.
Shared Measurement	Collecting data and measuring results consistently across all participants ensures efforts remain aligned and participants hold each other accountable.
Mutually Reinforcing Activities	Participant activities must be differentiated while still being coordinated through a mutually reinforcing plan of action.
Continuous Communication	Consistent and open communication is needed across the many players to build trust, assure mutual objectives, and create common motivation.
Backbone Support	Creating and managing collective impact requires a separate organization(s) with staff and a specific set of skills to serve as the backbone for the entire initiative and coordinate participating organizations and agencies.

[4] Framework adapted from the Colorado Department of Public Health and Environment Social Determinants of Health Workgroup visual at http://www.chd.dphe.state.co.us/HealthIndicators/Documents/Resources/Social%20Determinants%20of%20Health%20Packet.pdf.

[5] Article from *Stanford Social Innovation Review,* Winter 2011.
Visual from http://www.ssireview.org/blog/entry/embracing_emergence_how_collective_impact_addresses_complexity, pdf at http://www.ssireview.org/pdf/Embracing_Emergence_PDF.pdf.

Chapter 2. Structure and Stakeholder Involvement

Public Health Improvement Process (PHIP) Structure Phases
To accomplish PHIP goals, Boulder County Public Health (BCPH) custom-fit structure and stakeholder involvement to best suit each of the four overlapping phases of PHIP work to date:

I. Foundational Phase, which began in 2008
II. Assessment and Prioritization Phase, which began in 2010
III. Planning Phase, which began in 2011
IV. Implementation Phase, which began in 2013

This chapter details the PHIP structure in each of the above phases, as well as the extent and nature of internal and external stakeholder involvement. The results and/or deliverables of each phase are detailed in other chapters, as indicated. Evaluation will be prominent in all phases moving forward.

I. Foundational Phase
Work started in 2008 and set the foundation for subsequent PHIP activities. This groundwork consisted of convening and informing an internal BCPH team, engaging BCPH leadership in PHIP, and integrating Boulder County efforts with state PHIP efforts. Stakeholders involved in this initial phase of the nascent PHIP included BCPH staff and state partners focused on launching the PHIP initiative across Colorado.

BCPH MAPP Core Team Development
In 2008, an ad-hoc group of BCPH staff (representing all six BCPH divisions and including program staff through directors) began to meet monthly to discuss local public health assessment, planning, action, and evaluation needs and potential models to structure the process. This Foundational Phase was largely dedicated to educating ourselves through research on models, guidance from online and on-site National Association of City and County Health Officials (NACCHO) training, and community leader input regarding strategic planning. The Mobilizing for Action through Planning and Partnerships (MAPP) framework was selected from a variety of models, and this ad-hoc group became known as the MAPP Core Team. The MAPP Core Team self-divided into 2-3 person groups, each of which focused on one component of the MAPP process (e.g. health status assessment, system capacity assessment, etc.).

Transition to BCPH PHIP Core Team and Merger with BCPH Management Team
The value of this initiative grew, and its structure formalized with the impetus to comply with the Public Health Act of 2008 (see Chapter 1). MAPP Core Team membership was expanded to better overlap with the BCPH Management Team and to include the BCPH communications manager. With this transition came a switch in name from MAPP Core Team to PHIP Core Team, which then remained in place up to the Assessment Phase. Much PHIP Core Team work was conducted in smaller groups. For instance, budget, communication, and education tools were developed by subsets of the PHIP Core Team.

Integration with the State
Interaction between the BCPH PHIP Core Team and the state increased in this period. A CDPHE Office of Planning & Partnership (OPP) representative attended PHIP Core Team meetings, while Core Team members participated in meetings and committees dedicated to the statewide PHIP. BCPH Core Team members eventually served on committees for PHIP planning and assessment, indicators, finances, communication, and public health standards. Further, the BCPH executive director took a leading role on the Colorado PHIP Steering Committee (PHISC). (See Chapter 8 for details on state coordination.)

Selection as a PHIP Pilot Site

BCPH volunteered for and was selected as one of five original PHIP pilot sites across Colorado. This increased interaction with the state and expanded resources available to BCPH for PHIP, including data, technical support, interaction with peer communities, and grants used to contract out for administrative and consulting support. In return, BCPH shared tools, documents, lessons learned, experiences, and suggestions that were foundational in what would become Colorado's Community Health Assessment Planning System (CHAPS, see Chapter 1). The reciprocal relationship allowed BCPH to both ensure alignment with state requirements and processes, and to help define those requirements and processes.

Among the first requirements of the state – and coinciding with the MAPP process – were assessment and prioritization. Upon embarking on these tasks, our PHIP initiative entered a second phase.

II. Assessment and Prioritization Phase

The second PHIP phase began in 2010. It centered on community health status and health system capacity assessment, followed by prioritization of PHIP focus areas. Stakeholders engaged in this phase began with the internal PHIP Core Team and expanded to include all BCPH staff, as well as community partners. BCPH leadership facilitated broader involvement by allocating resources to contract consultants for PHIP work. Stakeholder involvement increased, consultants needed oversight, and task forces required support, so the PHIP Core Team became a more formal PHIP Steering Committee.

BCPH All-Staff Meeting

The PHIP Core Team leveraged the 2010 BCPH all-staff meeting as an opportunity to familiarize staff with example community health status assessment indicators, as well as the criteria for quality indicators. Staff members were then engaged in brainstorming indicators relevant to health and well-being in Boulder County. These were taken into consideration in the Boulder County assessment and were shared with CDPHE/OPP groups working on assessment and planning at the state level.

Partner Database Creation[1]

In anticipation of engaging community partners in PHIP, a sub-committee of the PHIP Core Team worked with BCPH staff to compile a spreadsheet of 270 BCPH partners. A *partner* is defined as an entity, group, or organization with which staff interacts regularly, and is involved in providing services, information, or support to the health system. A partner may also include a board of directors, committee, expert consultant, or advisory group. For each, the database included contact information, mission/core services, and partner affinity. The partner affinity refers to how the partnership "works":

- Funding partner, meaning there is a shared funding commitment with BCPH.
- Political partner, meaning that we interact with them and need representation in their forums.
- Potential partner, meaning that we share a mission, but have yet to formalize that partnership.
- Referral partner, meaning we refer people to them for services, information, or care.
- Collaborating partner, meaning we partner on projects, activities, and efforts toward a specific goal.

This database has since served as a mailing list, a source of potential participants, and an indicator of strengths and gaps in our local public health system.

Assessment and Prioritization Phase Consultants[2]

Thanks to BCPH leadership endorsement of PHIP, resources were allocated to hire consultants to facilitate assessment and prioritization activities. CDPHE also awarded BCPH a grant to support this

[1] From BCPH Partners Final 4.22.xls.
[2] From Health Improvement Project Manager CFP_22dec102.doc.

phase. Following a competitive search in January 2011, BCPH hired Primetime Research & Evaluation to facilitate and coordinate assessment and prioritization activities, as well as maintain communication between the BCPH PHIP Steering Committee, BCPH staff, and community partners.

Assessment and Prioritization Phase Staff, Consultant, and Stakeholder Involvement

For assessment and prioritization (see **Chapters 3, 4**, and **5**), the BCPH PHIP Core Team provided a list of 30 health issues to Primetime for initial prioritization by BCPH staff and community partners. To do so, Primetime conducted interviews with the BCPH PHIP Core Team, BCPH employees (during division leadership team meetings), and a variety of community stakeholders. As a result, seven issues areas were selected for exploration and prioritization by the BCPH PHIP Core Team, which selected three final focus areas for public health improvement: mental health, substance abuse, and obesity.

Overlapping with assessment of community health status data, the formal health system capacity assessment in Boulder County was conducted through a series of ten 3-hour focus group meetings held in May 2011 (see **Chapter 4**). These meetings were conducted as facilitated focus groups consisting of 6-10 invited participants (including BCPH staff and community members), who focused on one of the Ten Essential Public Health Services.

Community members, consultants, and staff alike praised BCPH for taking a process that is typically conducted by a handful of health department administrators and expanding it to include the direct input of hundreds of people and many institutions in a system-wide approach to a process of improvement. The following quotations[3], paraphrased by Primetime during assessment and prioritization interviews with community members and BCPH staff, underscore the call for stakeholder involvement in the PHIP process, as well as the key convening and facilitating role played by BCPH.

- *We should really be talking to, as much as possible, the community we are serving about what is important to them and get reflections on all data and where we think we are going with things.* (Community partner)
- *[We] need people who have not traditionally been at the table.* (Community partner)
- *[We] need to be really good in communication to partners who can't attend or who weren't invited. There will be a lot of work down the road engaging our partners. It's exciting, but overwhelming too.* (PHIP Core Team member)
- *Although we are moving closer, the challenge to our system is to assess together, prioritize together, and then evaluate together consistently.* (PHIP Core Team member)
- *We need to do something that the community cares about, even if it's not the most important data-wise….* (PHIP Core Team member)
- *The role of public health is not to focus on one area but to be the overall advocate for having the community understand what is cost-prohibitive, what we might do more for prevention, what are the kinds of things that make healthy living.* (Community partner)
- *It's a matter of ensuring that everybody understands the priorities and that they have a keeper of that vision and that that keeper of the vision keeps everyone in the organization focused on those priorities.* (Community partner)

These two assessments highlighted health issue and system capacity strengths, as well as gaps. The assessment process rested largely on community stakeholders, who subsequently recommended priority health issues to the PHIP Core Team. The PHIP Core Team then narrowed these to three focus areas. This set the stage for the next step in Boulder County's PHIP: planning for implementation.

[3] Quotes from PT Priority Presentation_25apr11.pptx.

Transition to PHIP Steering Committee for Planning Phase

To strengthen our PHIP organizational structure to best plan for how to address identified PHIP priorities, the PHIP Core Team transitioned to the PHIP Steering Committee, still consisting of BCPH staff. The PHIP Steering Committee was tasked with overseeing the Planning Phase consultants and, subsequently, three task forces organized around each focus area. Again, tasks between PHIP Steering Committee meetings were often accomplished by smaller work groups. For example, a sub-committee of four PHIP Steering Committee members took on the recruitment and selection of the consultants.

III. Planning Phase[4]

Late in 2011, planning activity marked the start of a third PHIP phase aimed at identification of action areas within each focus area, indicators of progress, baseline measurements, and target goals. This phase kicked off with a community meeting, followed by task force development, transition from the PHIP Core Team to the PHIP Steering Committee, contracting for facilitation, and a community survey.

Community Meeting and Subsequent Steps

Following assessment and prioritization of our three focus areas (improving mental health, reducing substance abuse, and addressing obesity), BCPH hosted a community meeting in September 2011. This meeting was well-attended by representatives of the Board of Health, Boulder County Commissioners, local school districts, CDPHE, OPP, and Primetime, as well as BCPH staff who had participated in and/or served on a PHIP-related team or committee. At the meeting, BCPH leadership reported on the health status and system capacity assessments, prioritization of focus areas, and next steps. These steps were aimed at structuring the Planning Phase; specifically, to form an internal (BCPH) steering committee, convene a task force for each focus area, and contract consultants to facilitate the task force work.

Planning Phase Task Force Development

Starting at the September 2011 community meeting and continuing via online posting and word of mouth, we asked for help to identify a pool of potential task force members.

Task force attributes sought were:

- a credible group to ensure buy-in among other partners who are not at the table.
- a mix of ground-level and system-level representation.
- a group geographically representative of Boulder County , especially communities more adversely affected by disparities in one of the focus areas.
- a mix of BCPH staff and system partners.

Individual attributes sought were:

- depth and breadth of expertise in focus area.
- detailed understanding of client- and/or system-level assets and needs in the specific focus area.
- ability and willingness to actively participate in group discussions.
- available to meet the time commitment.
- ability to provide an additional 4 hours per month outside of task force meetings.
- supervisor approval (for BCPH staff).
- commitment to improving the overall health status in Boulder County.
- ability and authority to represent their respective community and/or organization.

[4] From September 8, 2011, PHIP Community Meeting ppt at www.bouldercounty.org/doc/publichealth/phippreezcommmtg.pdf, www.bouldercounty.org/dept/publichealth/pages/phiphome.aspx, and http://www.bouldercounty.org/doc/publichealth/phipsow.pdf.

The BCPH Management Team reviewed invitations and interest forms submitted by staff and community members to choose task force participants who met the above attributes. Each task force had 10-12 participants; all were local experts in the focus area with solid knowledge of current community efforts to tackle the issue. Task force members represented community-based organizations, health/mental health care providers, government, and schools. Task forces aimed to: assess the focus area at a county and/or community level to identify a few specific action areas, define specific populations in need, create measureable benchmarks for improvement, and identify potential local strategies to improve health in these areas. In this work, task forces considered resources needed; individual factors (i.e. current behaviors, access to care, etc.); social circumstances (determinants) (i.e. physical environment, social factors, economic opportunity); and integrated services and approaches. Task forces worked together to share tools and resources and to identify overlap among focus areas. All three task forces gathered for an initial orientation meeting on October 24, 2011, when they learned about their role in PHIP planning, the national and state context, and sources of data and guidance. Thereafter, each task force met twice a month in the last quarter of 2011 and the first quarter of 2012.

Planning Phase Steering Committee Development

BCPH convened an internal Steering Committee to help ensure continued compliance with the Public Health Act. Further, this committee offered necessary guidance, data, and feedback for the task forces. Through this steering committee, BCPH also provided administrative support (e.g. scheduling meetings, confirming locations, and providing meeting minutes) to help task forces progress smoothly. This committee also obtained technical assistance from CDPHE, OPP, and peer counties. The Steering Committee provided ongoing support in efforts to secure resources to implement PHIP; it also played a vital role in connecting and leveraging current work throughout the county on PHIP focus areas.

Planning Phase Facilitator Selection

The Steering Committee sought and selected Primetime Research & Evaluation to facilitate the Planning Phase process while ensuring progress, consistency, and quality of task forces, and to liaise between the task forces and the Steering Committee to ensure collaboration where and when appropriate.

Ongoing Communication

Recognizing the value of staff and community participation, the Steering Committee worked to improve information flow and input opportunities between the task forces and those not participating firsthand on a task force. To help ensure open and timely communication as task forces identified action areas and researched potential objectives, we created an external website (www.HealthyBoulderCounty.org) and posted both background and updates on the process. Simultaneously, the facilitators used a virtual group worksite (www.Wiggio.com) as a forum for calendaring meetings, exchanging messages, storing resources, and encouraging interaction among task forces. Additionally, list serves were compiled and used to disseminate PHIP planning updates to any member of the staff or the public who were interested in one or more of the PHIP focus areas and/or the PHIP process in general.

Action Areas, Indicators, and Target Goals Identified

Facilitated by Primetime and supported by the Steering Committee, each task force identified 3-4 priority action areas within their focus area, yielding a total of 10 action areas. Within each action area, they selected a total of 19 indicators. Possible strategies were also identified and slated for further evaluation in the subsequent Implementation Phase for alignment with available community resources. PHIP focus and action areas, as well as corresponding core indicators and the baseline and five-year target measures, are summarized here and listed in more detail in the table in **Chapter 6**.

PHIP Focus Areas & Action Areas

Promote Mental Health:	**Reduce Substance Abuse:**	**Encourage Healthy Eating & Active Living:**
Promote early childhood social and emotional development	Reduce risky alcohol use	Reduce obesity and overweight
Reduce postpartum depression	Reduce risky marijuana use	Improve access to healthy food
Prevent suicide	Reduce risky prescription drug use	Increase physical activity
		Increase active transportation

Resources, Interests, and Capacity Survey and Stakeholder Involvement[5]

In May 2012, a survey was developed to take a snapshot of community engagement in each PHIP focus and action area. Surveys captured: contact information, PHIP-related current work and interests; program/activity objectives, strategies, and setting; target population; place of activity; annual budget; length of time for funding; and current and potential partners. There was one survey for each focus area. Each survey explored engagement in each of the action areas within that focus area. In total, 210 BCPH staff and community partners received surveys (1 for each focus area) via email with telephone follow-up. Of these, 94 people representing different programs submitted complete responses, such that 48 unique organizations (including BCPH) submitted complete responses. Institutions responding to the survey are listed below, showing the breadth of stakeholder input in the PHIP. **Chapter 6** includes survey results characterizing partner engagement and gaps in PHIP focus and action areas.

Alcoholics Anonymous, Boulder County Central Office
Alternatives for Youth
Boulder B-cycle
Boulder Community Hospital
Boulder County AIDS Project
Boulder County Area Agency on Aging
Boulder County Commissioners
Boulder County Head Start
Boulder County Housing & Human Services
Boulder County Movement for Children
Boulder County Public Health Board of Health and programs
Boulder County Transportation
Boulder County Community Justice System
Boulder Housing Partners
Boulder Municipal Court
Boulder Rotary Club
Boulder Shelter for the Homeless
Boulder Valley School District
Boulder Valley Women's Health Center
Boulder Youth Body Alliance
BVCAN
City of Boulder
City of Longmont
City of Longmont Recreation Services
Clinica Campesina
Colorado School of Public Health
CSU Extension, Boulder County
Early Childhood Council of Boulder County
El Centro AMISTAD
Epstein Neurosurgery Center, LLC
Foothills United Way
Healthy Youth Alliance
Imagine!
IMPACT
Intercambio Uniting Communities
iPN - integrated Physician Network
Lifemoves Counseling Services
LiveWell Longmont
Longmont Police Department
Longmont United Hospital
Longmont YMCA
Mental Health Partners
My Family Doctor, PLLC
Partners Mentoring Youth
People's Clinic
Private psychotherapist
Real Choices Pregnancy Care Center
Safe Shelter of St. Vrain Valley
Safehouse Progressive Alliance for Nonviolence
Sister Carmen Community Center
St Benedict Health and Healing Ministry
St. Vrain Valley School District
TEENS, Inc.
The Inn Between
Tiny Tim Center
University of Colorado, Boulder
Voices For Children CASA
Women's Wilderness Institute
WPM Consulting, LLC
YWCA

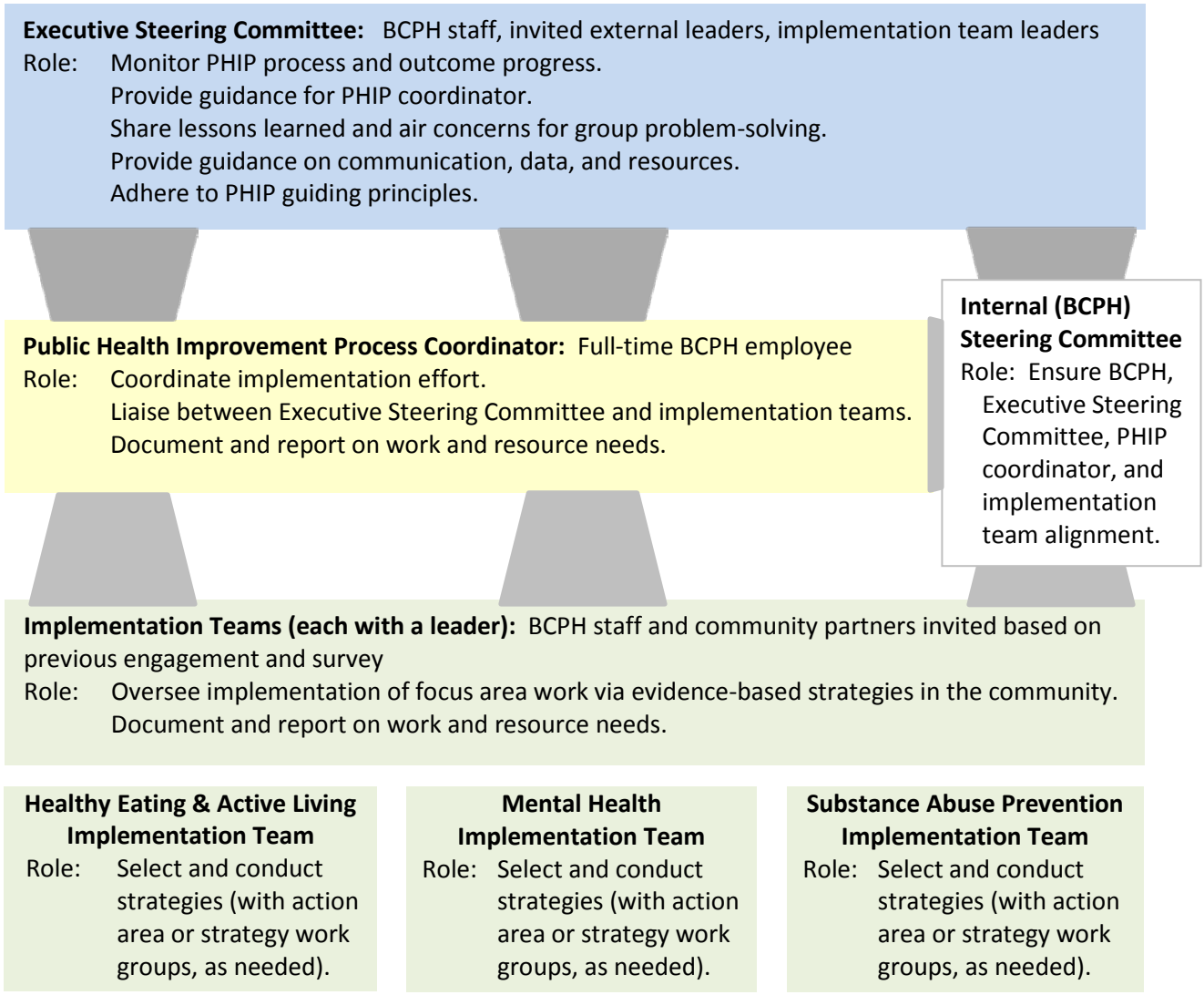
[5] Results from: G:\MAPP Core\Focus Area\3 Primary Focus Areas\Survey - Resources_Interest_Capacity_June 2012\PHIP Survey Results_Namino_10oct12.Docx.

With the identification of action areas, indicators, target goals, and an understanding of current resources, interest, and capacity in each focus and action area, both the planning task forces and the contracted facilitator completed their commitments. To celebrate completion of the PHIP Planning Phase, task force members, Primetime consultants, and PHIP Steering Committee members were all recognized for their hard work and contributions. While Planning Phase task forces were disbanded, members continued to be apprised of ongoing PHIP work via the distribution list mentioned above. Many expressed interest in participating in the subsequent Implementation Phase, and some did so.

IV. Implementation Phase

The BCPH Steering Committee dedicated fall 2012 to envisioning and then building a structure for developing and implementing PHIP work plans. By early 2013, the Implementation Phase, Phase IV, had begun. This structure consisted of the Executive Steering Committee, a Public Health Improvement Process coordinator, implementation teams, and the internal (BCPH) Steering Committee, as illustrated below.[6]

PHIP Implementation Phase Structure (as of February 1, 2013)



[6] Model adapted from 05-30-12 Framework Subcommittee Minutes.doc.

Board of Health Review

In July 2012, the Boulder County Board of Health reviewed the PHIP structure, plan components, and process for implementation. Documentation of this review will be submitted to the state.

Implementation Phase Executive Steering Committee Development

The Executive Steering Committee (ESC) was convened in September 2012 to help guide implementation, including helping to prioritize work and align local resources within each of the focus areas (Healthy Eating/Active Living, Mental Health, and Substance Abuse). The committee included:

- Bernadette Albanese, Director of Health Services, Boulder County Public Health
- Robin Bohannan, Director, Boulder County Community Services
- Jennifer Eads, Director, Self-Sufficiency and Community Support Division, Boulder County Housing and Human Services
- Heath Harmon, Director of Health Programs, Boulder County Public Health
- Pete Leibig, Executive Director, Clinica Campesina
- Jennifer Morse, Vice President of Development, Salud Family Health Center
- Deirdre Pilch, Assistant Superintendent for School Leadership, Boulder Valley School District
- Barbara Ryan, Chief Executive Director, Mental Health Partners
- Connie Syferd, Assistant Superintendent for Achievement, St. Vrain Valley School District
- Bobbie Watson, Executive Director, Early Childhood Council of Boulder County

The ESC was convened for the first time in October 2012 and established a monthly meeting schedule. The three initial meetings focused on ESC dynamics (membership, decision making, calendar); funding opportunities and proposals; PHIP coordinator and grant writer recruitment and hiring; implementation team formation and role; data (PHIP community survey, focus area data); and communication/interaction with BCPH, PHIP coordinator, and implementation teams.

Public Health Improvement Process Coordinator Recruitment and Hiring

In September 2012, BCPH recruited for and hired a full-time Public Health Improvement Process (PHIP) coordinator to coordinate ongoing PHIP organization and implementation. The PHIP coordinator will provide leadership in convening the implementation teams to develop a working plan that implements evidence-based strategies, leverages community actions or resources, monitors progress, and helps to identify ongoing funding sources to ensure sustainability of the PHIP. The position helps to align and represents Boulder County efforts with other local, state, and national public health improvement efforts. This position requires a professional individual with strong collaborative, organizational, health assessment, policy, analysis, research, planning, and communication skills.

PHIP coordinator duties and responsibilities include (but are not limited to):

- lead, plan, manage, and support the PHIP.
- serve as a liaison between the Executive Steering Committee and Implementation Teams.
- develop and maintain a sustainable health improvement implementation work plan, including specific strategies, milestones, timeline, and commitments from partnering organizations.
- convene and facilitate PHIP community meetings to develop a common agenda and metrics.
- ensure PHIP initiatives are population-based, proven, and effective for achieving desired outcomes.
- establish strong relationships with critical public health partners to ensure integrated activities.
- leverage resources and identify additional funding sources to help ensure sustainability of PHIP.
- establish a PHIP tracking process, including developing and implementing long-term evaluation.
- access and use population health data to inform and guide the PHIP, and identify data gaps.

- develop progress reports and planning materials necessary to achieve desired health outcomes.
- maintain knowledge of federal, state, and local activity and research to enhance the PHIP.

Implementation Teams

The Executive Steering Committee selected a team of subject-matter experts from local organizations to begin working on the healthy eating and active living (HEAL) focus area. This team served as a pilot for how to organize implementation team/s for mental health and substance abuse. The implementation teams are tasked with setting specific action steps and selecting evidence-based strategies and activities to accomplish these. Additionally, implementation teams must identify organizations responsible for the implementation of each strategy and activity, as well as a target completion date. In sum, the teams will complete the work plans (aka CHAPS Action Plan) required by the state, as outlined in **Chapter 6**.

Moving Forward to Achieve Collective Impact

As of February 1, 2013, the Implementation Phase structure remained in place. As it has before, this structure will likely continue to evolve. While the shape is not predictable, the process will follow the collective impact model described in **Chapter 1**. We will continuously seek the structure that best allows for common agenda, shared measurement systems, mutually reinforcing activities, continuous communication, and backbone support organizations. Stakeholder involvement, likewise, will assume the form of cascading levels of collaboration. Evaluation figures largely in upcoming work.

Stakeholder Communication[7]

One constant across all four PHIP phases is our commitment to a community-based, participatory process. From the start, the Boulder County PHIP has involved many stakeholders, which are listed below.

Internal BCPH groups:

- MAPP/PHIP steering committees and core teams
- Work groups
- Management Team
- Communications & marketing manager
- All staff
- Division leadership teams

External groups:

- Colorado Department of Public Health & Environment (CDPHE)
- CDPHE Office of Planning & Partnership (OPP)
- Community leaders
- Contractors
- Partner database
- Small group and community meetings
- Key informant interviews
- Planning Phase task forces
- Implementation Phase teams
- Websites
- Boulder County Board of Health
- Boulder County Board of County Commissioners

[7] From Boulder County PHIP CPHA ppt_Namino Glantz_18sep12.pptx.

Communication regarding PHIP with the variety of stakeholders mentioned above has been paramount. In fact, if realtors' mantra is, "location, location, location," then the PHIP mantra is, "communication, communication, communication." In approaching communication, we recognize that the only communication required by the Public Health Act is an actual written public health improvement plan. The direction that the plan provides is for the entire community, including leaders, system partners, public health staff, and boards of health. That said, the actual written plan is intended for submission to CDPHE and for use by the PHIP Steering Committee. Separate, tailored communication allows us to share the key and relevant portions of the plan and process with staff, partners, and the public.

In Boulder County, we have the advantage of having a communications and marketing manager, who ensures that we get the right message to the right audience at the right time – a smart investment. Tailored communication has taken on myriad forms and flowed through a variety of modes.

Our preferred format for information exchange is usually face-to-face conversations, often conducted in groups for efficiency. PHIP meetings – internal or external – are regularly scheduled, follow clear agendas, have a designated facilitator, and are followed by detailed meeting minutes with action steps.

For BCPH Core Team and Steering Committee members, we have sent monthly digests of PHIP-related information, created an intranet site, and utilized e-mail distribution lists.

For staff, we tried a blog (a lot of work for little engagement); brief, periodic emails to all staff from the BCPH Executive Director; presentations to our agency's management and leadership teams, as well as brown-bags and all-staff meetings. For instance, at site meetings in September and October 2012, the BCPH directors provided PHIP updates to staff, explained the process, detailed our vision moving forward, and discussed what this process means to them and to their programs. To follow up, e-mail updates were sent to staff to share PHIP information and encourage input.

During task force work in the Prioritization Phase and the Planning Phase, all task force members were provided with access and orientation to an online Wiggio interface. This site includes six basic toolsets:

- Calendar: a fairly simple shared calendar to manage group events
- Folder: a repository for documents and spreadsheets that members may up/download and edit
- Meeting: functions to facilitate in-person, conference call, and chat rooms for group members
- Poll: enables a quick consensus of group members
- Messages: allows group members to send and receive messages via text, email, and voicemail
- To-do: a means of creating lists of pending assignments for the group

For our partners and interested members of the public, we set up distribution lists through which people receive periodic PHIP updates; a PHIP website (www.HealthyBoulderCounty.org); and a data dashboard (www.BoulderCountyHealthData.org). (See **Chapter 2** for details of the online resources.) We have occasionally conducted community meetings open to the public. Presentations, for instance to the Board of Health, the Board of County Commissioners, and key partners, have proven to be valuable in spreading PHIP awareness and increasing PHIP engagement.

Custom-fitting the PHIP structure, stakeholder involvement, and communication characterize all phases of PHIP, described in detail in the following chapters.

Chapter 3. Community Health Status Assessment

Demographic Description of Boulder County[1]

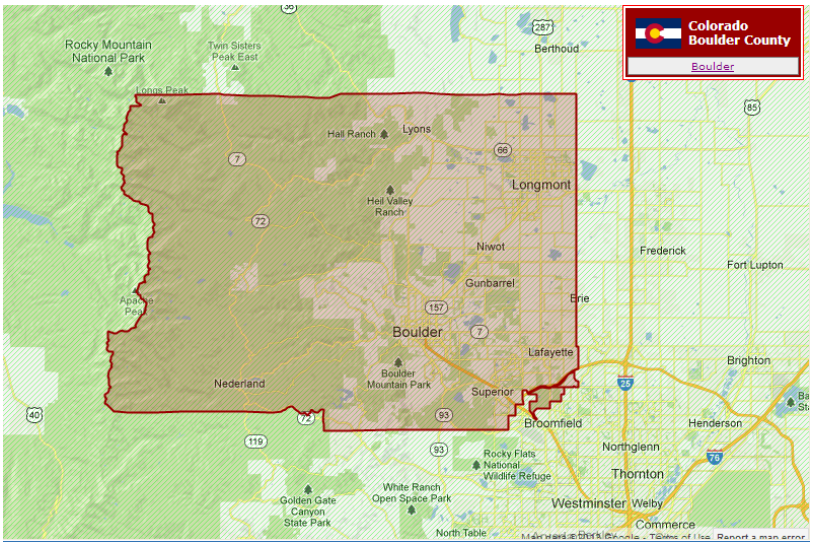
While the Boulder County public health improvement process (PHIP) will align with state and national processes, Boulder County Public Health (BCPH) recognizes that Boulder County is unique in terms of its sociodemographic characteristics, resources, and challenges, as outlined briefly below.

Geography

Located in north-central Colorado, northwest of Denver, Boulder County's landscape includes several dense urban centers surrounded by rural buffer zones and mountain communities, plus portions of Rocky Mountain National Park. Boulder County includes:

- 726 square miles (2010).
- the eastern slope of the Rocky Mountains.
- elevations ranging from approximately 5,000 to 14,000 feet.

Maps of Boulder County, Colorado[2]



Population

In 2010, Boulder County was the seventh most populous of the 64 counties in Colorado. The most populous municipality in the county is Boulder, which is the county seat. As of 2010, Boulder County's population was estimated to be 294,567 according to the U.S. Census Bureau and the state Demographer's Office estimates. The 2010 county population is about 1.1% bigger than it was in 2000. Compared to neighboring counties, such as Larimer, Adams, and Weld Counties, Boulder County's growth rate is low, likely due to land use policies limiting development, high cost of living, high resident turnover, and low unemployment. The county's population is concentrated in four cities, but it spreads to a number of mountain communities, as indicated below.

[1] Description of Boulder County content from: http://dola.colorado.gov/dlg/demog/2010censusdata.html, www.bouldercounty.org/gov/about/pages/about.aspx, http://en.wikipedia.org/wiki/Boulder_County,_Colorado, and www.commfound.org/trendsmagazine.

[2] Source: http://en.wikipedia.org/wiki/File:Map_of_Colorado_highlighting_Boulder_County.svg and http://colorado.hometownlocator.com/co/boulder/

- City of Boulder 97,385
- City of Longmont 86,270
- City of Lafayette 24,453
- City of Louisville 18,376
- Other towns and communities* 68,083

* Includes towns of Erie, Jamestown, Lyons, Nederland, Superior, and Ward, as well as unincorporated areas, including the communities of Allenspark, Eldorado Springs, Gunbarrel, and Niwot.

In 2010, the county's 294,567 people lived in a total of 119,300 households and occupied 93.9% of the 127,071 housing units (a 6% increase from 2000). The 2010 population density was 391 people per square mile (151 people per square kilometer). Twenty-nine percent of Boulder County land was categorized as agricultural in 2010.

Race/Ethnicity

In 2011, the racial makeup of the county was 91.2% white, 1.1% black or African American, 0.9% Native American, 4.3% Asian, 0.1% Native Hawaiian or other Pacific Islander, and 2.4% from two or more races. In the same year, 13.7% of the population was Hispanic or Latino of any race.

Household Composition

In 2010, there were 119,300 households in Boulder County, of which 68,891 (57.5%) were family households, and 42.3% were non-family households. Of family households, 27.6% had their own children under the age of 18 living with them; 46.4% were husband-wife families; 3.7% were male householders with no wife present; and 7.7% had a female householder with no husband present. The remaining 29.0% of all households were made up of individuals living alone. Of all households, 29.1% included children under 18 years of age, and 17.7% included individuals who were 65 years and older. The average household size was 2.39 people, and the average family size was 3.00 people. Household composition characteristics for Boulder County are represented below.

Household Composition, Boulder County, 2010[3]

			Number	Percent
Total households			119,300	100.0
	Family households (families)	Total	68,891	57.7
		With own children under 18 years	32,868	27.6
		Husband-wife family	55,358	46.4
		Male householder, no wife present	4,366	3.7
		Female householder, no husband present	9,167	7.7
	Non-family households	Total	50,409	42.3
	Total households with individuals under 18 years		34,762	29.1
	Total households with individuals 65 years and over		21,170	17.7
Average household size of all households	2.39			
Average family size of all households	3.00			

[3] Source: http://dola.colorado.gov/dlg/demog/2010censusdata.html.

Age and Generation

The Boulder County population is spread by age, ranging from 21.2% under the age of 18 to 10.0% who were 65 years of age or older in 2010. The median age in 2010 was 35.8 years. The state Demographer's Office predicts a dramatic rise in the county's median age in the coming decade, in large part due to increases in the population aged 65 to 74 years. This forecast is based on Colorado's high concentration of Baby Boomers. Compared to their national and state counterparts, Boulder's Boomers tend to be healthier, have a slow retirement rate, and have a strong attachment to the county. Many Boulder County households are multigenerational; 3,204 grandparents lived with their own grandchildren.

Age, Boulder County, 2010[4]

	Number	Percent
Total population	294,567	100
Under 5 years	16,499	5.6
5 to 9 years	18,100	6.1
10 to 14 years	17,682	6.0
15 to 19 years	22,949	7.8
20 to 24 years	29,354	10.0
25 to 29 years	20,208	6.9
30 to 34 years	19,171	6.5
35 to 39 years	20,177	6.8
40 to 44 years	20,812	7.1
45 to 49 years	22,085	7.5
50 to 54 years	22,522	7.6
55 to 59 years	19,866	6.7
60 to 64 years	15,621	5.3
65 to 69 years	10,006	3.4
70 to 74 years	6,725	2.3
75 to 79 years	4,943	1.7
80 to 84 years	3,794	1.3
85 years and over	4,053	1.4

Gender

In 2010, 50.2% of the Boulder County population was male, while 49.8% was female.

Income

Using data spanning from 2007 to 2011, the U.S. Census Bureau estimates that the median income for a household in Boulder County was $66,479 (in 2011 inflation-adjusted dollars), and the median income for a family was $90,902. In the same time period, the per capita income for the county was $37,720. About 6.5% of families and 13.1% of all people were below the poverty line, including 12.4% of people with related children under age 18. Further, 5.5% of those aged 65 or over were below the poverty line.

Governance

Boulder County is divided into three individual districts, each represented by a county commissioner who is elected county-wide. The three county commissioners comprise the Boulder County Board of Commissioners and represent the county as a whole. Each commissioner must reside in their respective district and may be elected to a maximum of two four-year terms. The commissioners are full-time public servants, and as such, approve the budget for the entire Boulder County government, with the exception of Boulder County Public Health. BCPH is governed by a five-member Board of Health that is appointed by the County Commissioners. The Board of Health approves the BCPH budget and is responsible for the hiring and oversight of the BCPH executive director.

Academic Institutions and Scientific Facilities

Boulder County is home to a variety of academic institutions and scientific research facilities, including:

- University of Colorado at Boulder
- Front Range Community College
- Boulder Valley School District and St. Vrain Valley School District
- National Center for Atmospheric Research
- National Institute of Standards and Technology
- National Oceanic and Atmospheric Administration

Community Health Status Assessment

For the inaugural public health improvement process (PHIP) in Boulder County, no primary data collection was conducted; rather, efforts focused on the compilation and review of existing data. As characteristic of all Boulder County PHIP phases, the collection and review of data were participatory activities, in which staff and community partners both took part.

Among the first indications of community health status considered were the leading causes of death. Information available at the time on the leading causes of death in Boulder County appears below.

Leading Causes of Death (and age-adjusted rate with 95% confidence limits) in Boulder County, 2011[4]

Rank	Cause of Death	N	Age-Adjusted Rate	Lower Limit	Upper Limit
	All Causes	1,539	573.6	545.2	601.9
1	Malignant neoplasms	326	118.5	105.3	131.8
2	Heart disease	294	112.2	99.3	125.1
3	Unintentional injuries	135	48.1	39.8	56.3
4	Chronic lower respiratory diseases	92	37.3	29.6	45.0
5	Cerebrovascular diseases	69	25.5	19.4	31.6
6	Alzheimer's disease	58	23.2	17.2	29.2
7	Suicide	53	18.2	13.2	23.2
8	Influenza and pneumonia	41	15.3	10.5	20.1
9	Chronic liver disease and cirrhosis	29	9.0	5.6	12.4
10	Diabetes mellitus	28	9.9	6.2	13.7

- Age-adjusted rates are adjusted to the 2000 U.S. standard population using the direct method applied to 10-year age groups.
- Age-adjusted rates provide a better basis for comparison among different geographical areas or time periods.
- Only leading causes of death with 3 or more events in 2011 are included.
- Rates based on small numbers are unstable and should be interpreted with caution.

To the leading causes of death, many other indicators of health status were added for review. In all, over 300 indicators of health status were identified and reviewed. To consolidate these into a manageable number of issues upon which to focus community and staff dialogue and interest, these were grouped into 30 population health outcomes (i.e. diagnoses or direct causes of morbidity, mortality, poor quality of life, and/or shortened life expectancy). The grouping was the result of a merging of lists of population health outcomes at four levels:

National: Healthy People (HP) 2020 and Centers for Disease Control and Prevention (CDC) Winnable Battles[5]

State: Colorado Department of Public Health and Environment (CDPHE) 2010 objectives (which had not yet been prioritized or formalized into Colorado's Ten Winnable Battles)

Local: Community partner input via key partner discussions

Agency: BCPH staff member input via PHIP Core Team meetings, all-staff meetings, and division-level leadership team meetings

[4] Source: http://www.cohid.dphe.state.co.us/scripts/htmsql.exe/deathquick1.hsql.
[5] See http://www.cdc.gov/winnablebattles/.

Thirty Health Outcomes Reviewed

Merging overlapping lists yielded a manageable, *unordered* list of 30 outcomes to consider locally:

Diabetes
Heart disease
Stroke
Cancer
Infectious disease - chlamydia
Infectious disease - gonorrhea
Infectious disease - HIV/AIDS
Infectious disease – hepatitis C virus
Infectious disease - influenza/pneumonia
Unintentional injury - musculoskeletal
Teen pregnancy
Unplanned/unintended pregnancy
Healthcare-associated infections
Osteoarthritis
Blood disorders
Kidney disease
Asthma
Depression
Mental health disorders-other
Victim of violence
Infant mortality
Pre-term births
Hypertension
COPD (chronic obstructive pulmonary disease)
Alzheimer's
Chronic liver disease
Hyperlipidemia
Back pain
Neck pain
Suicide

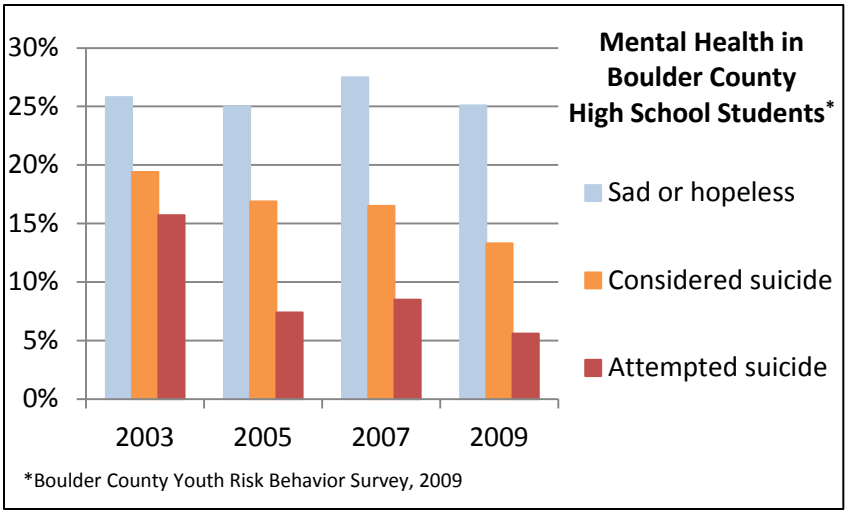
For each of these 30 outcomes we developed a 1-page description, including a simple definition, a brief indication of importance including Boulder County data, and example potential strategies for public health impact. Definitions, data, and strategies were drawn from the Centers for Disease Control and Prevention (CDC), Medline, CDPHE Boulder County profile, Colorado Health Information Dataset, The Community Guide to Preventive Services, and Minnesota Strategies for Public Health websites. This description of the 30 health outcomes is available in **Appendix A**.

For what became the top seven issues of interest, these one-page descriptions were elaborated on by PHIP Planning Phase Task Force members. For each of the three Boulder County PHIP focus areas, a two-page summary of information collected by the task forces follows, starting on the next page. Original task force summaries, with details such as source and year for data, appear in **Appendix C**. Because these descriptions were neither developed nor revised by data experts, they served to guide task force members in identifying action areas and potential strategy directions, but should not be seen as a definitive data presentation. This consolidated set of information formed a basis for the prioritization of health issues, the process and outcome of which are described in detail in **Chapter 5**.

Mental Health in the United States, Colorado, and Boulder County[6]

Mental illnesses are medical conditions that disrupt a person's thinking, feeling, mood, ability to relate to others, and daily functioning. Serious mental illnesses include major depression, schizophrenia, bipolar disorder, obsessive compulsive disorder (OCD), panic disorder, post-traumatic stress disorder (PTSD) and borderline personality disorder. One in two adults - approximately 57.7 million Americans - experiences a mental health disorder in a given year. The annual economic, indirect cost of mental illness in the United States is estimated at $79 billion, of which $63 billion reflects loss of productivity.

In the United States, 1 in 17 lives with a serious mental illness like schizophrenia, major depression, or bipolar disorder. About 1 in 10 children lives with a serious mental or emotional disorder. Over half of students age 14 and older with a mental disorder drop out of high school, the highest dropout rate of any disability group. Statewide, depression was reported by 7% of adult Coloradans. In Boulder County, a quarter of adults reported that their mental health was not good 1-7 of the previous 30 days; 10.1% reported their mental health was not good for a week or more. Among Boulder County high school students, 25.1% felt sad or hopeless every day for more than 2 weeks in a row; 13.3% had considered suicide; and 5.6% had attempted suicide in the previous year.



Mental disorders such as depression can adversely affect the course and outcome of chronic conditions, such as arthritis, asthma, cardiovascular disease, cancer, and diabetes. Mental disorders are as disabling as cancer or heart disease in terms of premature death and lost productivity. Mental illness usually strikes individuals in the prime of their lives, often during adolescence and young adulthood, yet all ages are susceptible. Depressed individuals are more likely to be uninsured and delay health care due to cost. Of those with a diagnosable mental disorder, fewer than half of adults and only one third of children get help. Early identification and treatment, as well as ensuring access to treatment and recovery programs and supports that are proven effective, accelerates recovery and minimizes further harm. Stigma and an unwarranted sense of hopelessness reinforce attitudinal, structural, and financial barriers to effective treatment and recovery.

Mental health disorders vary along the lines of income, race/ethnicity, gender, sexual orientation, and age. Low-income; African American; female; lesbian, gay, bisexual, or questioning (LGBQ); and older people often suffer disproportionately from depression and other mental health disorders. Often, members of these groups are also less likely to seek treatment because of financial barriers, stigma, and lack of community-based approaches. Latino populations frequently have higher percentages of uninsured individuals. Unfortunately, there has been little progress in overcoming barriers to treatment and improving quality of care for communities of color. Gay men, lesbians, and bisexuals experience a range of health problems directly related to their sexuality. In addition to facing discrimination, gay men

[6] Full, original task force-produced info sheets, with details such as source and year for data, are included in **Appendix C**.

and lesbians have reduced access to medical care, wait longer before seeking treatment, and are less well screened for health conditions than heterosexual people. In 2009, Boulder County LGBQ high school students had significantly higher prevalence rates of experiencing sadness and hopelessness than heterosexual high school students (52.2% versus 22.3%) and of attempted suicide (20.3% versus 4.2%).

Postpartum Depression

Clinical depression after childbirth is much the same as depression at any other time of life, except that depressed new mothers often feel very guilty about their feelings. They worry about how hard it is to care for their babies when they feel so badly themselves. In Colorado, 11.8% of all women who gave birth in 2009 reported postpartum depression. Studies have shown that postpartum depression is associated with disturbances in the mother-infant relationship, which in turn have an adverse impact on the course of child cognitive and emotional development. Effects range from negative effects on cognitive development, especially among male children and socioeconomically disadvantaged groups, to insecure attachment at 18 months and high level of behavioral disturbance in boys at 5 years of age.

Ensuring adequate screening after childbirth, ensuring adequate access to counseling/treatment, and improving coping skills for new mothers will likely decrease the impact postpartum depression may have on other family members, especially children. A multi-pronged approach to improving knowledge, screening, referral, and treatment is required to successfully address postpartum depression.

Early Childhood Social and Emotional Development

Healthy habits learned early in life, such as making good decisions, getting enough sleep, eating nutritious foods, and feeling connected, are important factors in keeping mentally fit. Boulder County's Early Childhood Framework is a collective vision on behalf of the county's young children (birth to 5 years) and their families about how to impact readiness of young children for school. The goals of the framework are readiness in the community, early care and education, family and children. Four areas determine whether or not a child is ready to learn at the kindergarten door: 1) physical health and literacy skills, 2) social and emotional health, 3) family support and education, and 4) early learning. By working collectively, family and children access a broad array of services so that children arrive at school ready to learn, in turn making them less vulnerable to mental health disorders later in life.

Suicide

Suicide becomes a risk when depression goes untreated. Suicide was the 11th leading cause of death for all ages in the U.S., accounting for 1.4% of all deaths in the U.S. More than 33,000 suicides occurred in the U.S. in 2005 (equivalent of 1 suicide every 16 minutes or roughly 11 suicides/100,000 population). Suicide was the second leading cause of death among 25- to 34-year-olds and the third leading cause of death among 15- to 24-year-olds in the United States in 2005. Males take their own lives at nearly 4 times the rate of females, while women attempt suicide 2-3 times as often as men.

More people survive suicide attempts than actually die; attempts often result in serious injury and need for medical care. The age-adjusted rate of mortality due to suicide in Boulder County was 15.4/100,000 population in 2006-2008. In 2009, 13.3% of Boulder County high school students had seriously considered attempting suicide during the 12 months preceding the survey. Further, 11.1% had made a plan, 5.6% had attempted suicide, and 2.0% reported that a suicide attempt had required medical care. Compared to heterosexual high school students, lesbian, gay, bisexual, and questioning students had significantly higher rates of considering, planning, and attempting suicide. Decreasing stigma around seeking and receiving help with mental disorders and depression is crucial to address these disparities.

Substance Abuse in the United States, Colorado, and Boulder County

Substance abuse disorders include those due to alcohol; tobacco; illicit drugs (including marijuana, amphetamine, methamphetamine, cocaine, ecstasy, hallucinogens, inhalants); and prescription drug use and dependencies. Excessive alcohol consumption is the third leading cause of preventable death in the U.S. and is a risk factor for many health and societal problems. About 5% of the total U.S. population drinks heavily, and 15% of the population engages in binge drinking. Youth aged 12 to 20 years drink 11% of all alcohol consumed in the U.S. Over 90% of this alcohol is consumed via binge drinking.

Colorado ranks 11th in the nation in per capita alcohol consumption. The National Survey on Drug Use and Health (NSDUH, 2007-2008) shows that Colorado rates of alcohol use in the past month are among the top five nationally for all three age groups surveyed (12-17, 18-25, 26+). Colorado rates of cocaine and marijuana use, alcohol consumption, and binge drinking are higher than national averages and among the highest in the nation. In 2009, rates of current marijuana and alcohol use (including binge drinking) among Boulder County high school students were significantly higher than nationally.

Ranking high in relation to other drugs and with mostly stable or increasing trends, marijuana continued to be a major drug of abuse in Colorado and the Denver/Boulder metropolitan area in 2009, based on data on treatment admissions, hospital discharges, law enforcement drug testing, and estimated emergency department (ED) visits. Marijuana use in the teen and young adult population is of special concern, as studies show that marijuana use can disrupt brain development.

In 2009, 16 million Americans ages 12 and older had taken a prescription drug for nonmedical purposes at least once in the prior year. *The 2010 Monitoring the Future Study* showed that 2.7% of 8th graders, 7.7% of 10th graders, and 8.0% of 12th graders had abused Vicodin, and 2.1% of 8th graders, 4.6% of 10th graders, and 5.1% of 12th graders had used OxyContin for nonmedical purposes in the prior year.

The National Institute on Drug Abuse (NIDA) estimates that the total costs of substance abuse in the U.S. (including productivity, health- and crime-related costs) exceed $600 billion annually. This includes $181 billion for illicit drugs, $193 billion for tobacco, and $235 billion for alcohol. Despite high rates of substance abuse, Colorado ranks 50th in financial resources dedicated to substance abuse treatment.

Significant disparities exist within Boulder County in relation to substance abuse. Youth – lesbian, gay, bisexual, and questioning (LGBQ) youth in particular – have higher rates of substance abuse than do adults, and minority groups are more likely to abuse substances than are whites. For instance, Boulder County binge drinking rates are highest among young adults aged 18-24 and in the Latino community. Latino and LGBQ youth are more likely to have driven under the influence of alcohol, to binge drink, to use marijuana, and to begin abuse of substances before the age of 13. In 2009, alcohol remained Colorado's most frequently abused substance and accounted for the most treatment admissions, ED reports, poison center calls, drug-related hospital discharges, and drug-related mortality.

Alcohol Use

Nationally there has been a long-term decline in the use of alcohol by teens, with the exception of the early- to mid- 1990s when there was a slight increase in use along with cigarettes and many illicit drugs. Colorado is consistently one of the five states with the highest rates of binge drinking and lowest rates of perceptions of the risks of binge drinking in the nation. Binge drinking (five or more drinks in a row for men and four or more for women) fell nationally during 2011, but increased from 2003 to 2009 among Boulder County high school students. In fact, 2009 rates of current binge drinking among Boulder County high school students was significantly higher than the national average. In addition,

disparities exist in alcohol use in Boulder County with more LGBQ high school students reporting binge drinking than heterosexual students (46.6% vs. 30.0%). Latino high school students in Boulder County are also significantly more likely to binge drink than are white students (30.7% vs. 28.8%).

Marijuana Use

Marijuana use continues to rise among U.S. teens. According to recent studies, daily marijuana use among high schools seniors is at a 30-year peak. Nationally, marijuana use among teens rose in 2011 for the fourth straight year in sharp contrast to the considerable decline that had occurred in the preceding decade. With increasing upward trends as compared to other drugs, marijuana continues to be a major abuse problem in Colorado and the Denver/Boulder metropolitan areas as of 2009.

Currently in Colorado there are more medical marijuana dispensaries than there are Starbucks cafés. Within the city of Boulder (population 100,000), there are 113 medical marijuana dispensaries, or 1 dispensary for about every 860 people. In addition, in 2006, there was a ballot initiative to legalize marijuana for recreational purposes; although it failed, it is expected to appear again on the 2012 ballot.

In this context of widespread availability and community norms supporting marijuana – ostensibly for medical purposes – 41% of Boulder County high school students had ever used marijuana, and 24.2% had used marijuana in the last 30 days. These rates are even worse for Latino students, with 48.8% having used marijuana and 25.6% having used it in the last month. LGBQ high school students are more likely to use marijuana than heterosexual students (45.3% vs. 22.6%).

Prescription Drug Use

While most illegal drugs peaked in the late 1990s and then began to decline, prescription drug misuse continued to climb. Deaths related to the most commonly abused prescription drugs doubled in Colorado from 228 in 2000 to 414 in 2010. In 2010, more than twice as many people in Colorado died from prescription drug abuse than drunken driving accidents. Among prescription drug abusers, high rates of other risky behaviors, including abuse of other drugs and alcohol, have also been reported.

Among Boulder County high school students in 2009, 19.4% had ever taken prescription drugs without a doctor's prescription. Among adolescents nationally, prescription and over-the-counter medications account for most of the commonly abused illicit drugs by high school seniors. In fact, nearly 1 in 12 high school seniors reported nonmedical use of Vicodin, and 1 in 20 reported abuse of OxyContin. Rates of illegal use of prescription drugs are particularly high among LGBQ populations, with 33.4% of LGBQ high school students reporting use, and 19.9% of heterosexual students reporting use.

Prescription medications are easy to access for adolescents. When asked how prescription narcotics were obtained for nonmedical use, 70% of 12th graders nationally said a friend or relative gave them the medication. Adolescents indicate that prescription drugs are "easier to get than beer" because prescription medications can be found in family and friend medicine cabinets. National Take-Back Initiative events hosted by the U.S. Drug Enforcement Administration and local law enforcement agencies targeted unused medication that may increase easy access. Coloradans turned in over 35,000 pounds of unused medication in 2010 and 2011. The exact amount of prescription medication diverted is unclear; however, state laws require that pharmacies keep records on all prescription drugs dispensed and allow the state pharmacy board access to all records. While we need to better understand diversion of prescription drugs, this may help to determine how many prescriptions are written in Boulder County.

Obesity, Healthy Eating, and Active Living in the United States, Colorado, and Boulder County

Obesity and Overweight

Despite Colorado's ranking as one of the leanest states in the nation, more than half of Colorado adults are overweight or obese, and obesity rates are rising. The proportion of Colorado adults who are obese more than doubled during the past 15 years, from 10.3% in 1996 to 21.4% in 2010. One of every eight children aged 2-14 in Colorado is obese, and obesity among Colorado children aged 10 to 17 has also increased to 14.2% since 2003. Colorado ranks 29th nationally in childhood obesity (ages 10-17 years).

In Boulder County, 50% of adults and 16% of children are overweight or obese. Among adults, the overweight rate has increased significantly from 2003 to 2008. In Boulder County, overweight rates for 2- to 5-year-olds and obesity rates for 0- to 5-year-olds have held steady over the past 3 years at approximately 12% and 10%, respectively.

Research has proven that poor eating habits and lack of physical activity are linked to a number of increased risk factors for chronic disease. Obesity-related health problems account for almost 20% of Medicaid and Medicare expenditures. In 2008, national costs were estimated at $147 billion.

Breastfeeding

Obesity prevention begins at the earliest moments of life when parents make infant feeding decisions. Decisions and actions taken by parents early in the life course have been shown to affect children's weight later in life. Breastfeeding plays an important role in obesity prevention and improving overall health outcomes throughout the life course, and children who have been breastfed for six months or more are less likely later in childhood to be overweight and obese.

Healthy Food Access

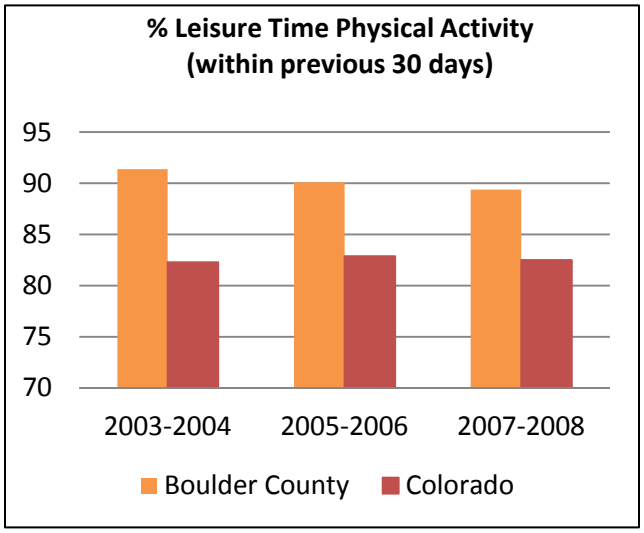
Obesity and associated chronic diseases can be worse in some communities because affordable and healthy foods are disproportionately difficult to access. Studies suggest that some areas and households have easier access to fast food restaurants and convenience stores than they do to supermarkets. This limited access to nutritious food and easy access to fast food may be associated with poor diet and obesity and diet-related disease. A major factor for people who live in areas with limited healthy food access is that they often must rely on small grocery or convenience stores that frequently do not carry healthy foods, and the foods they do carry are at higher prices. Across the United States, 2.3 million households live more than a mile from a supermarket and do not have access to a vehicle. An additional 3.4 million households live between one-half to 1 mile and do not have access to a vehicle. Americans consume about 250 more calories per day than 30 years ago, and about half of the extra calories come from sugar-sweetened drinks. Increasing access to healthy foods can help to increase the number of adults meeting national nutritional standards. Eating more fruits and vegetables is one way to protect against many chronic conditions, such as heart disease and type-2 diabetes.

While the capacity of Boulder County to provide healthy food access to its citizens has not yet been assessed, it is clear that this research must be done to determine necessary steps. Specifically, in Boulder County, adults who reported consuming 5 or more servings of fruits and vegetables per day has remained fairly consistent during recent years, with a little more than 35% of adults reporting that they eat the recommended amount. Rates of adequate consumption of fruits and vegetables (as a marker of adequate nutrition) are low. This may be related to limited food access in areas of the county.

The obesity epidemic and related health problems, like diabetes and heart disease, disproportionately affect low-income and minority communities. Many studies have documented the lack of supermarkets in poor communities and communities of color compared to wealthier, primarily white communities. Nonetheless, research shows that access to healthy, reasonably priced food in low-income communities of color can be achieved. In poor communities, building new grocery stores and encouraging existing small stores to stock healthier options can promote local small business development.

Physical Activity and Active Transportation

Researchers have found a strong association between built environment, access to healthy food, and opportunities for physical activity. Being physically active is crucial for weight management (i.e. creating a healthy balance between calories consumed and burned) and disease prevention. Physical activity is strongly associated with good physical and mental health. Physically active individuals report lower rates of heart disease, high blood pressure, stroke, type-2 diabetes, colon and breast cancers, and depression than inactive individuals. Physical inactivity is responsible for nearly 1 out of 10 deaths in the United States and plays a role in rising obesity rates. Despite known health benefits, many people do not engage in enough physical activity. In Colorado, 29.1% of adults and 53% of adolescents are not active enough. Fortunately, in Boulder County, physical activity has remained consistently high in recent years.



Research also shows a strong link between physical activity levels and the built environment. Public transportation, places to walk and bike, parks and recreations centers, and a perception of safety in one's environment contribute to increased physical activity. Part of encouraging physical activity is active transportation (AT). AT has been defined as, "purpose-oriented trips by walking or cycling" and has also been linked to reduced obesity in areas where AT has been encouraged. Getting people moving does not require expensive equipment, advanced training, or a high degree of physical fitness, and there are a wide variety of policies and services which can promote AT in a community. With the right encouragement and structural incentives, even timid, risk-averse and safety-conscious individuals can ride bikes or safely walk as part of their daily routines. However, this is only possible when communities provide the opportunity and infrastructure to safely do so. In the United States in 2005, 43% of people with safe places to walk within 10 minutes of home met recommended activity levels, while just 27% of those without safe places to walk engaged in higher levels of activity. Creating and improving places to be safely active can result in a 25% increase in people who exercise at least 3 times a week.

Planning for active transportation goes beyond reducing the number of vehicle miles in a community, to providing necessary infrastructure for local and regional transit, as well as walking and bicycling. Instead of expanding roadways and parking facilities to accommodate more cars, local government and community partners can make their communities people-friendly rather than car-friendly, thus making the community more livable and more sustainable, as well as more walkable. Boulder County has long been a leader in encouraging active transportation, but there is always more work to be done.

Chapter 4. Health System Capacity Assessment[1]

Health System Capacity Assessment (HSCA) Dynamic

The formal health system capacity assessment (HSCA) for the public health improvement process (PHIP) in Boulder County was conducted with the help of Primetime Research & Evaluation through a series of ten 3-hour meetings held in May 2011. Each meeting focused on one of the Ten Essential Public Health Services (EPHS). These facilitated focus groups consisted of 6-10 invited participants. These participants' tasks were to: 1) review the evaluation measures developed by the National Public Health Performance Standards Program (NPHPSP) for that session's essential service, 2) discuss the health system's capacity and performance of that public health function, 3) come to consensus on a rating score of the current capacity, and 4) express concerns and provide recommendations for improvement. The group facilitators recorded the sessions on digital recorders. The discussion and votes, as well as comments about the assessment tools themselves, were captured on a laptop computer. Each meeting was divided into two sessions. The first consisted of a review of the priorities recommended to the health system as a result of data review and staff/community interviews (n=50). Each priority was presented, and each group discussed their perceptions regarding the recommended priorities. The second session consisted of responding to each question in the NPHPSP capacity assessment instrument and rating the system on each essential service.

Each meeting was structured to complete the following:

- The participants reviewed the standards for each question posed in the assessment tool.
- Without discussion, an initial vote was taken to determine how each participant rates the public health system in Boulder County in terms of level of activity in regard to the question.
- If there was consensus, no further discussion occurred, and the vote was recorded as final.
- If there was not consensus, a facilitated discussion continued until consensus was reached or the timekeeper stopped discussion. Infrequently, consensus could not be reached within the time limit, so a majority vote was taken.
- All votes were recorded, and an oral summary was presented at the end of the session.

Key Stakeholder Participation

Participants for each meeting were selected based on area of expertise or interest and relationship to the essential service to be discussed. Invitations were sent to a broad range of key partners from the local public health agency, state service agencies, community-based organizations, academic institutions, hospitals, school systems, foundations, law enforcement agencies, and non-profit organizations. Additionally, invitations were sent to people in local governmental or quasi-governmental entities, including first responders, elected officials, administrators, social service providers, diversity advocates, and others. Invitations were also sent to people in the business community, media, and judicial institutions. Approximately 70 key participants (6-10 per meeting) responded to the request. Although there were sectors of the public health system in Boulder County which were underrepresented during the capacity assessment process (e.g. local hospitals), Primetime and the participants in the groups felt that the results were representative of the entire system.

Process Limitations

While attempts were made to encourage participation from multiple stakeholders, some representatives were missing from the process, including those from the business community, media,

[1] From Final PT presentation_22jun11.pptx and Primetime Final Report_25jun11.doc.

and judicial and insurance institutions. The assessment format (one 3-hour meeting plus travel time) may have precluded some participants, especially those in high profile or demanding roles, from engaging in the meetings. The time commitment may also have hindered the ability of some to participate due to lack of employer support or conflicting priorities. It is also possible that the group process deterred introverted individuals who prefer less interactive approaches.

Assessment Tool

The NPHPSP (version 2) local capacity assessment tool contains over 300 questions designed to generate discussion and a rating of each of the major activities, components, and practice areas comprising the ten EPHS. The assessment questions are designed to serve as the performance measures. All questions are preceded by model standards, which represent the optimal levels of performance based on a set of indicators that are unique to each essential service.

Quantitative Scoring, Data Entry, and Analysis

Session participants were asked to classify the percentage of activity that was met within the local public health system for each essential service, using a five-point classification rating scale:

- None: 0% of the activity met
- Minimal: 0%-25% of the activity met
- Moderate: 26%-50% of the activity met
- Significant: 51%-75% of the activity met
- Optimal: 75%-100% of the activity met

An algorithm developed by the Centers for Disease Control and Prevention (CDC) was used to calculate scores for each public health service. Each question was assigned a point value and given a weight depending on the number of questions and tiers. The score range was 0 to 100, with higher scores depicting greater performance in a given area. Each score was entered into the CDC database for analysis, from which a quantitative report was generated.

Qualitative Data Collection and Analysis

In addition to the scores that were collectively assigned by each group after discussion and consensus building, qualitative data, including recordings of all discussion topics and conclusions, as well as comments on the assessment tool, was analyzed into common themes and summarized.

Assessment Tool Limitations

The five-point rating scale delineated in the tool was awkward. (See the "Comments Regarding the Instrument" section accompanying each meeting discussion detailed in **Appendix B**.) Often, the question was worded to require a "yes" or "no" response, at the same time that wording forced participants to quantify according to the rating scale as an activity level percentage. Participants were frequently reminded, for example, that a response of "no" did not connote an appropriate response, but rather reflected "no activity," classified as 0 percent. Activity meanings in each specific question often required the explanation of a unique set of qualifiers and definitions from an 86-page glossary of definitions provided with the assessment tools by the NPHPSP. This then entailed long discussions about the intended meaning of the question. At times, the consultants endeavored to interpret a common meaning for ambiguously worded questions, which was frustrating and inefficient.

Scoring Limitations

The scores were subject to the biases and perspectives of those who chose to participate in the group and who engaged in the group dialogue. Although dissenting and positive statements were recorded, the majority vote may not have adequately reflected the viewpoint of some participants. Every attempt

was made to capture all comments made during the lively discussions, but this could not always be guaranteed.

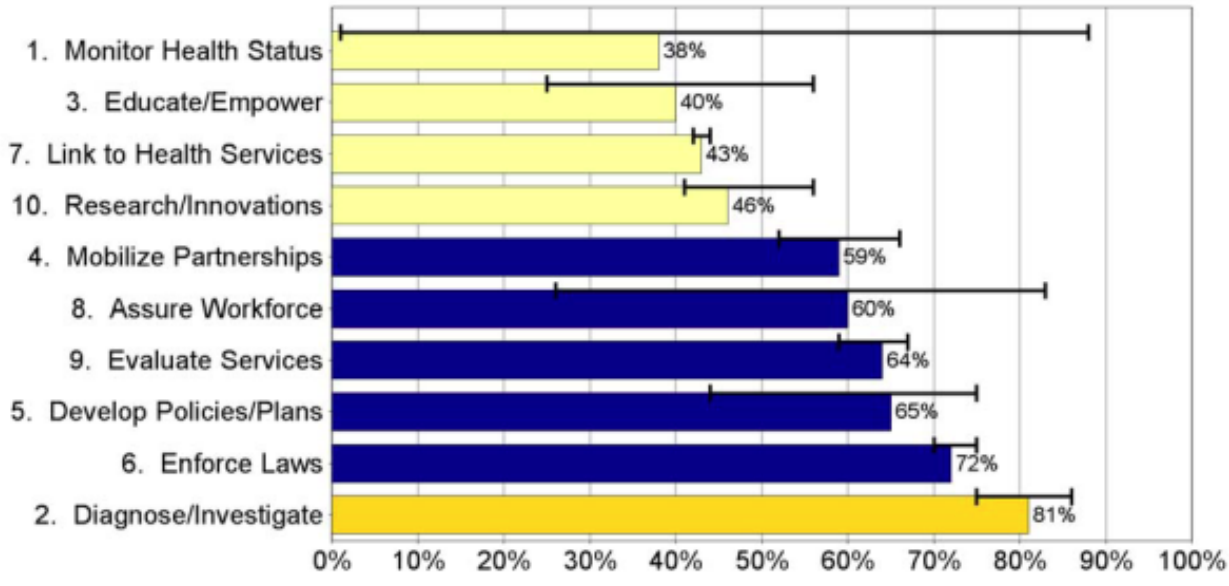
Generalizability of Results

The results of this assessment are based on a facilitated group process conducted during a specific time period that captured participants' current opinions of the essential service in which they function. As such, this assessment provides a "snapshot." The local public health system changes constantly. The assessment process is subjective, based on the views of those who agreed to participate.

Overall Quantitative Health System Capacity Assessment Results

Wide community stakeholder participation in the NPHPHS assessment process allows us to report on the capacity of the broad public health system in Boulder County (including and surpassing BCPH) to conduct the Ten EPHS. Overall, half of the essential services were rated at the significant activity level, with 40% rated at the moderate activity level, and 10% achieving the highest activity rating of optimal. The highest ratings were achieved in Essential Services #2 (diagnosing and investigating) and #6 (enforcing laws). The lowest ratings were given in Essential Services #1 (monitoring and diagnosing) and #3 (informing, educating, and empowering). In the figure below, lines show the range of responses within each Essential Service. Colored bars refer to categories of performance activity. All ten Essential Services were scored as moderate, significant, or optimal.

Rank-ordered Performance Scores for Each Essential Service by Level of Activity for the Public Health System in Boulder County

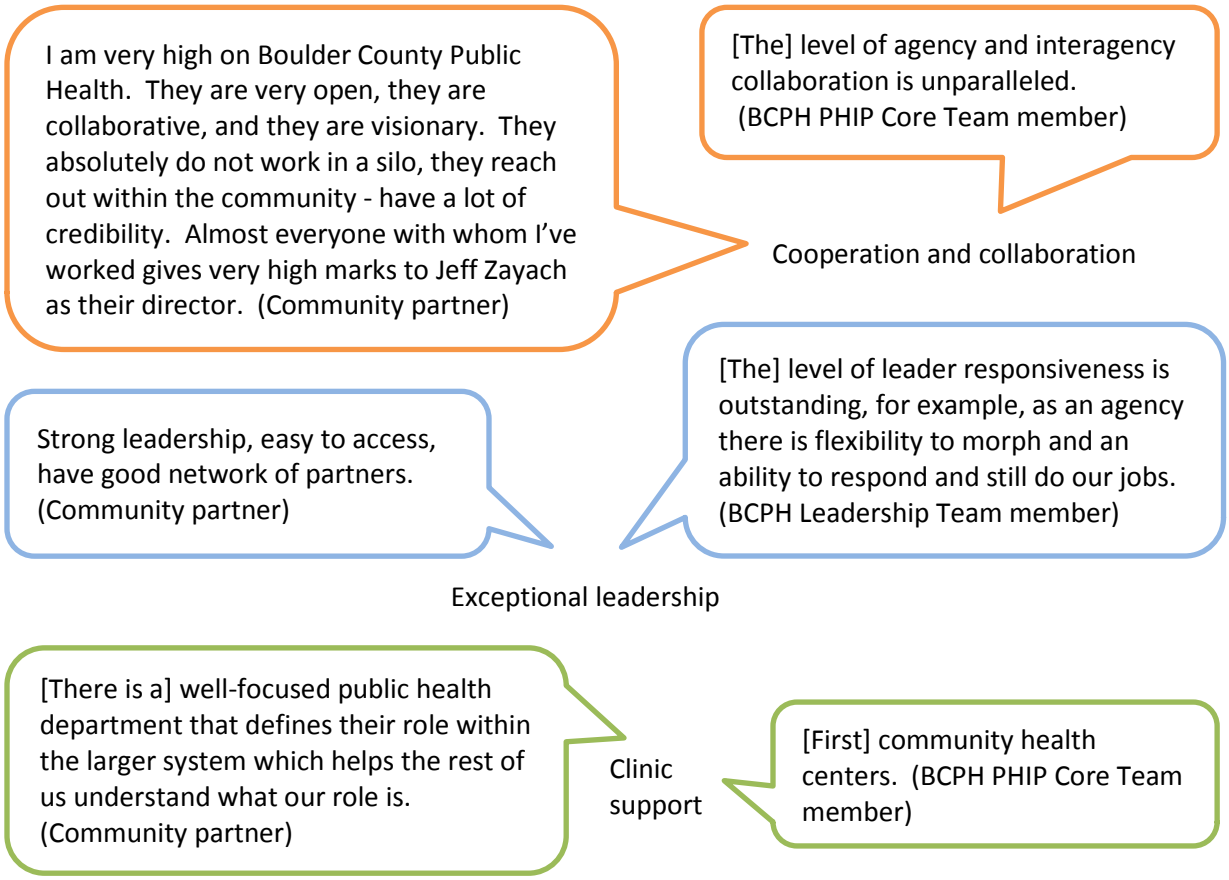


Detailed Health System Capacity Assessment Results Available Elsewhere

Detailed quantitative and qualitative health system capacity assessment results by Essential Public Health Service (EPHS) are available in **Appendix B**. These include graphs and narratives featuring the specific ratings information tabulated by NPHPSP, as well as summaries of discussions from each of the ten 3-hour, facilitated focus group sessions. Each summary reflects opportunities to enhance performance of the local public health system based on the model standards and participant input. A brief summary appears below.

Health System Capacity Assessment Summary

The following quotes help illustrate what participants perceived as strong facets of our health system:



The public health system of Boulder County has the capacity and infrastructure to provide the Ten EPHS to Boulder County. In fact, this public health system did better on the capacity assessment than did others across the nation. The majority of the EPHS focus areas assessed had moderate to significant levels of activity (rating between 38% and 74%); one area exceeded the optimal level (greater that 75%) of capacity. No areas received a rating less than 25%, indicating little or no activity.

It is evident that, with careful prioritization, strategic planning, and the necessary actions, the public health system of Boulder County can fulfill Essential Service expectations. The public health system in Boulder County demonstrated an exceptionally high capacity in Essential Service #2 (i.e. diagnosing and investigating health problems and protecting people from health problems and hazards; 81%). The system also received strong ratings in Essential Service #6 (i.e. enforcing public laws; 72%); Essential Service #5 (i.e. developing policy and plans that support community efforts; 65%); and Essential Service #9 (i.e. evaluating accessibility and quality of services; 64%). It is praiseworthy that the public health system in Boulder County took a process that is typically conducted by a handful of health department administrators and expanded it to include the direct input of hundreds of people and many institutions in a system-wide approach to a process of improvement.

With the two assessments, it became evident which health issue areas and health system capacity areas are strengths, as well as where improvement is needed in our local public health system. This set the stage for the next step in Boulder County's public health improvement process (PHIP): prioritization (see **Chapter 5**).

Chapter 5. Prioritization of Health Issues and Focus and Action Area Selection

Initial Prioritization by BCPH Staff and Community Partners

For our public health improvement process (PHIP), Boulder County Public Health (BCPH) contracted with Primetime Research & Evaluation to facilitate a community-based process through which to narrow 30 health issues down to a handful to explore in more detail. To begin, Primetime staff performed a thorough review of the archival records and relevant literature regarding the prioritization process. Then they designed, pilot-tested, and revised an interview questionnaire. Next, interviews were conducted with the BCPH PHIP Core Team, selected BCPH employees (in the context of division leadership team meetings), and a variety of community stakeholders. There was some crossover between individual interviews and the leadership team participants. The numbers of interviewees for initial prioritization of health issues were:

PHIP Core Team Members	BCPH Division Leadership Teams	Community Partners
20 interviews	6 group meetings	16 interviews
2 Executive and Administrative	7 Administrative Services Division	Boulder County Departments
4 Environmental Health Division	9 Environmental Health Division	Clinics
4 Community Health Division	7 Community Health Division	Hospitals
2 Communicable Disease Division	7 Communicable Disease Division	Foundations
2 Family Health Division	7 Family Health Division	Local Government
2 Addiction Recovery Centers Division	8 Addiction Recovery Centers Division	School Districts
		Others

The interviews consisted of a review of the 30 health outcomes, along with importance and opportunities for public health impact, followed by a discussion of what the interviewees felt were the most important health outcomes to prioritize over the next 5 years. Additionally, Primetime facilitated a 15-20 minute discussion of the priorities in capacity assessment groups (see **Chapter 4**). To do so, they provided the same list of 30 health outcomes to elicit thoughts about what might be missing. Primetime completed a content analysis on the additional prioritization discussions. To identify priorities equally important to BCPH staff and community partners, Primetime then conducted content analysis of interview and group information.

The following health issues emerged from these interviews and group discussions as priorities shared by BCPH staff and community partners. (The number in parentheses indicates how many of the individual participants cited the issue as a top priority.)

- Mental health (57), which includes mental health disorders, depression, and suicide
- Substance abuse (21)
- Teen and unplanned pregnancy (16)
- Obesity (11)

The level of interest in addressing these issue areas was similar for BCPH staff and community partners.

BCPH staff:

- Mental health (46)
- Substance abuse (13)
- Teen and unplanned pregnancy (14)
- Obesity (9)

Community partners:

- Mental health (11)
- Substance abuse (8)
- Teen and unplanned pregnancy (2)
- Obesity (2)

Other health issue areas mentioned, but not by as many total participants and/or not prioritized by both BCPH staff and community partners, were:

- Heart disease (10 staff, 0 community partners)
- Integrated health systems model (0 staff, 7 community partners)
- Vaccine-preventable diseases (6 staff, 2 community partners; only 8 overall)
- Cancer (5 staff, 1 community partner; only 6 overall)

Preliminary Health Issues Identified in Initial Prioritization

The initial prioritization process Primetime undertook identified four health issue areas as top concerns for the individuals in the local public health system who participated in the interview process:

1) mental health
2) substance abuse
3) unplanned and teen pregnancy
4) obesity

Mental health was identified as a top health issue area by almost everyone interviewed, along with the observation that current resources were inadequate to meet the need in Boulder County (especially for the chronically ill and those with dual diagnoses). The impact of mental health on physical health, as well as the widespread impact that depression and other mental health problems have on those around the sufferer, were also mentioned.

The following quotes[1] from initial prioritization participants illuminate why mental health rose to the top:

- A piece of the system that's been under real stress and one of the things that is very visible in the community are people struggling with mental health. (Community partner)
- You look at the impact of depression on the quality of life…and the costs are just enormous, and it's treatable. (PHIP Core Team member)
- There is a serious lack of accessible mental health counseling for people who need it at every level. (community partner)
- Mental health and depression impact physical health. So, in terms of bang for our buck, I think that if we can impact mental health, then we could impact a lot of the other outcomes. (PHIP Core Team member)
- [Mental health] is so pervasive; it affects every aspect of life, every aspect of the community. (PHIP Core Team member)
- …Compared to the need, we just need something of an altogether different magnitude. (PHIP Core Team member)

Substance abuse was also an agreed-upon priority for Boulder County. Many felt that this issue fell under the heading of mental health, while others identified it as a separate issue. Again, the primary observation was that resources are drastically limited compared to the need and far-reaching effects evident in Boulder County.

Unplanned and teen pregnancy was mentioned by many participants as a fundamental problem that needs to be addressed, in that it has major consequences for the parents and children involved and also for the county and its monetary output in services for these families. In addition, this was frequently cited as an underlying issue for many of the health problems on the outcomes list and was directly

[1] All direct quotations appear in italics.

connected to both mental health issues and substance abuse. Many felt that this was primarily a problem for East County. While perceived as a problem, participants often cited the "many" resources already directed at addressing this issue in our community. They expressed concern that there may be other key services that need priority resources more than unplanned and teen pregnancy.

Obesity was identified as a major health concern despite its absence from the circulated list of health outcomes. Most participants felt that obesity was an underlying cause of most of the health outcomes on that list. They also felt that this was an area that was specifically a problem in East Boulder County, and that it is an important issue to address in order to improve community-wide health. While there was little discussion about deleting any of the priorities presented to the participants, they did suggest adding unintentional injury, oral health, cancer, and heart disease to the list of potential priority areas.

Notes for Subsequent BCPH Selection of Final Health Focus Areas

Recommended Number of Focus Areas and Importance of Actionability

Primetime recommended that we choose no more than three focus areas to ensure adequate resource allocation and measurable results. A community partner echoed, *Organizations that have really changed have focused on three key issues, and then all their sharing and resources are channeled to those three issues.* Primetime emphasized that we avoid spreading resources too thin, as lack of measurable progress may discourage partner participation. (The desire for measurable progress also underscores the need to evaluate the health improvement process from the outset.) A PHIP Core Team member urged, *Knowing that we have limited resources, both financial and physically, let's pick [those outcomes] that we can have the most impact on and serve the most people.* Likewise, a community partner noted, *It will be critical for Boulder County Public Health to be crystal clear about their priorities so that they are not wasting resources, and that they have the greatest impact on the most critical issues, rather than spreading themselves so thin that they do not see the impact of their own work.*

> It will be critical for Boulder County Public Health to be crystal clear about their priorities so that they are not wasting resources, and that they have the greatest impact on the most critical issues, rather than spreading themselves so thin that they do not see the impact of their own work. (Community partner)

Need for Public Education, Outreach, and Support

> Although we are moving closer, the challenge to our system is to assess together, prioritize together, and then evaluate together consistently. (PHIP Core Team member)

Primetime encouraged ensuring wide public support for chosen focus areas via community education and outreach. The need for education is clear in that many staff members and most community members who participated in the initial prioritization process stated that they did not know what the current public health priorities were. They said things like, *I don't know*, and *We don't know what our priorities are*, and *I am guessing here*. Participants also indicated the value of community buy-in, even over the evidence-base for need: *We need to do something that the community cares about, even if it's not the most important data-wise…* (PHIP Core Team member). A key component of the process that participants repeated was communication with partners and the broader community. For instance, one PHIP Core Team member recognized, *[We] need to be really good in communication to partners who can't attend or who weren't invited. There will be a lot of work down the road engaging our partners. It's exciting but overwhelming too*. A partner reminded, *[We] need people who have not traditionally been at the table*. Another

partner stressed, *We should really be talking as much as possible to the community we are serving about what is important to them and get reflections on all data and where we think we are going*. Participants envisioned a collaborative process for collective impact. *Although we are moving closer, the challenge to our system is to assess together, prioritize together, and then evaluate together consistently*, noted a PHIP Core Team member.

Participants Spelled Out the Role of Public Health: to Inform, Envision, and Advocate

Community partners said it best, *The role of public health is not to focus on one area but to be the overall advocate for having the community understand what is cost-prohibitive, what we might do more for prevention, what are the kinds of things that make healthy living.*

> *It's a matter of ensuring that everybody understands the priorities and that they have a keeper of that vision and that that keeper of the vision keeps everyone in the organization focused on those priorities.* (Community partner)

Recognition of Health System Capacity Challenges

In addition to identifying health outcomes on which to focus, participants also recognized the need to address systemic problems related to the capacity of the health care systems to prevent and treat health outcomes. Among the systemic problems mentioned were insufficient community outreach, disparities in health care, and lack of an integrated service model. This input was welcome and expected, as BCPH and Primetime assessed health issues at the same time that we assessed health system capacity, described in **Chapter 4**.

During the health system capacity assessment small group meetings (see **Chapter 4**), Primetime revisited the health issue areas that had been recommended as PHIP focus areas in order to gain more feedback from a wider audience before final recommendations were made. The input collected reaffirmed the initial choice of issue areas. There was strong support and no disagreement with identifying both mental health and substance abuse as top focus areas for the next five years. In fact, these were the only areas with broad support from both BCPH and the community. There were questions regarding unplanned and teenage pregnancy, primarily due to the general feeling that Boulder County already does a lot of work in this area. (If unplanned and teen pregnancy were ever adopted as a focus area, Primetime recommended that we reframe it as *Prenatal Health*.) There was also some disagreement as to the inclusion of obesity in the list of outcomes and discussion regarding whether obesity is a health outcome. If obesity were adopted as a focus area, Primetime suggested concentrating on East Boulder County and Latino populations. Additionally, participants in the small groups and in the PHIP Core Team meetings recommended that the following items be assessed for inclusion in the prioritization process: vaccine-preventable disease, unintentional injury, oral health, cancer, and heart disease. Of these, Primetime suggested considering unintentional injury, heart disease, and cancer, as these are all top causes of death in Boulder County.

Need for Evaluation

Primetime urged starting formal evaluation of the public health improvement process as soon as possible in the planning process. Primetime underscored that efforts to achieve change related to each priority area be measured against a benchmark with process and outcome data collected to determine effectiveness.

Selection of Seven Issue Areas for Final Exploration and Prioritization
Based on Primetime findings and recommendations, seven issues areas were selected for final exploration and prioritization by the BCPH PHIP Core Team. These were the four health issues that emerged from the interviews and group discussions as priorities shared by BCPH staff and community partners: 1) mental health, 2) substance abuse, 3) unintended pregnancy/preconception health, and 4) obesity. The three additional staff/community recommended issues that fell within the top causes of death in Boulder County were: 5) unintentional injury, 6) heart disease, and 7) cancer.

For each of the above health issue areas, PHIP Core Team members developed a brief (3-5 page) informational sheet outlining the issue area, potential action areas within the issue area, and listing potential strategies in the areas of: a) economic opportunity, physical environment, and social factors; b) health promotion (personal behaviors); and c) access to quality care (these categories align with the Social Determinants model, see **Chapter 1**). Team members reviewed these sheets to prepare for the final prioritization process.

Staff and community input also helped shape the criteria by which the PHIP Core Team would rank the issue areas.

Final Prioritization of Issues Areas Resulting in Selection of Three PHIP Focus Areas
Final prioritization of the seven health issue areas down to three was conducted by the internal BCPH PHIP Core Team. The goal was to take all of the "important" health issues identified through our various assessment activities and systematically (through scoring and discussion) consider which are of greatest priority to be addressed for health improvement over the next few years. We kept in mind that final focus areas will be addressed in concert with the maintenance of Colorado core public health activities, via the Ten Essential Public Health Services. We agreed that focus areas should be chosen because they represent a large health burden, are amenable to intervention and public action, and can be best addressed through coordinated action by the local public health system. The team gave a lot of weight to Primetime recommendations regarding which and how many focus areas to consider.

The prioritization voting method was to use an informal show of thumbs to show common ground and disagreement, while allowing the group to move forward:
- Thumbs up to show agreement (yes vote)
- Thumbs sideways to indicate "I can live with it." (yes vote)
- Thumbs down to show disagreement (no vote)

The team voted to approve mental health as a final focus area without ranking, and to rank substance abuse along with the other issue areas. To rank the remaining six areas, each participant received a copy of the focus area ranking tool and instructions. Each person used the definitions of our three criteria (magnitude, severity, and actionability; see below) to complete a blank table, ranking for each criteria column with the areas from 1 to 6, where 1 is the area that least merits focus, and 6 is the area that most merits focus. The subjective nature of the ranking dynamic was recognized.

Magnitude
High rank indicates that:
- The area has a high number of people at risk and people impacted in terms of morbidity, mortality, and life expectancy/years of life lost (i.e. the percentage of the local population that is affected by this health issue).

Severity
High rank indicates that:

- The area has a very severe impact, such as serious injury, disability, and/or death.
- The area has a very high impact on quality of life.
- The area has a very high degree of health disparities in subpopulations.
- The area represents a very heavy economic burden to the community (number of events x cost).
- The area has a high sense of public concern and/or urgency to intervene.

Actionability
High rank indicates that:

- Responsibility for improving the area lies primarily within the public health system.
- There are known evidence-based strategies for improving this area; strategies are easy to implement; and strategies are likely to be successfully implemented.
- It is cost-effective to address this area, as dollars invested will make a difference.
- Something can be done with relatively few resources (dollars, people, etc.) to impact the area.
- There is political will for addressing this area.
- There is community readiness/support to address this area.

Because all of the areas discussed were on the list due to their high magnitude and severity, we weighted actionability by a factor of two to help separate the issues that are likely to be impacted from those that are not likely to be impacted. Note that for an issue with high magnitude, severity, and likelihood of being impacted, but which lacks capacity and resources, we may decide to focus on getting the capacity and resources.

We then collected the scoring tool and, during a break, tabulated and projected results, as listed below.

	Magnitude	Severity	Actionability	Total score	Top focus areas
Mental health (pre-approved, so not ranked)					**1**
Substance abuse	68	78	174	494	**2**
Obesity/healthy eating & active living	88	67	158	471	**3**
Cancer	93	81	134	442	4
Heart disease	80	65	136	417	5
Unintended pregnancy/preconception health	38	47	118	321	6
Unintended injury	53	40	74	241	7

Focus Areas for Public Health Improvement
The final three focus areas selected for public health improvement were promoting mental health, reducing substance abuse, and addressing obesity (later clarified as accomplished through encouraging healthy eating and active living [HEAL]). As mentioned above, informational sheets helped us arrive at the selection of these focus areas. Once selected, the "info sheets" (see **Chapter 4**) continued to be strengthened for use in further exploring each focus area.

Action Areas, Indicators, and Target Goals Identified

During the Planning Phase, facilitated by Primetime and supported by the BCPH Steering Committee, task forces identified 3-4 priority action areas within each focus area, yielding a total of 10 action areas. Within each action area, they selected a total of 19 potential indicators. Possible strategies were also identified and slated for further evaluation in the subsequent Implementation Phase for alignment with available community resources. PHIP focus and action areas, as well as corresponding potential core indicators and the baseline and five-year target measures, are summarized here and listed in more detail in the table in **Chapter 6**.

Mental Health Action Areas

The Mental Health Task Force proposed three key action areas: promotion of early childhood social and emotional development, reduction of postpartum depression, and prevention of suicide. These areas were selected because they represent problems that contribute to: high rates of death and disability; serious complications for chronic disease patients; significantly high health care costs for employers, as well as absenteeism, short-term disability, and lost productivity in the workplace; negative pregnancy outcomes and negative impacts on child health and development; and because they can best be managed through coordinated action by city agencies, public and private partnerships, health care providers, businesses, and individuals in Boulder County.

Substance Abuse Action Areas

The Substance Abuse Task Force proposed three key action areas: reduction of risky alcohol, marijuana, and prescription drug use. These areas were selected because they cause many physical, mental, emotional, and community problems, such as family disintegration; loss of employment; failure in school; domestic violence; increased crime and jail bed usage; higher incidence of unintended injury, infectious disease (HIV, hepatitis, STIs), and chronic disease (heart illness, diabetes, cancer). This group suggested that work aim to: raise awareness of the nature and magnitude of the problems caused by harmful use of these substances; prevent and reduce negative consequences of underage use and adult problem use; and strengthen partnerships and coordination among stakeholders to mobilize resources.

Obesity/Healthy Eating and Active Living Action Areas

The Healthy Eating and Active Living Task Force proposed four key action areas: reduction of obesity and overweight, improved access to healthy food, promotion of physical activity, and an increase in active transportation. These areas were selected because they represent health problems that: 1) present a disease burden killing Boulder County residents and causing many preventable illnesses and disabilities each year; 2) are proven to show a positive response to intervention and public action; and 3) can best be managed through coordinated action by city agencies, public and private partnerships, health care providers, and businesses and individuals in Boulder County.

PHIP Focus Areas & Action Areas

Promote Mental Health:
Promote early childhood social and emotional development
Reduce postpartum depression
Prevent suicide

Reduce Substance Abuse:
Reduce risky alcohol use
Reduce risky marijuana use
Reduce risky prescription drug use

Encourage Healthy Eating & Active Living:
Reduce obesity and overweight
Improve access to healthy food
Promote physical activity
Increase active transportation

Chapter 6. Setting Goals, Creating Work Plans, and Informing Strategies

Setting Goals: Planning Phase Progress 2012

The Prioritization Phase (see **Chapter 5**) of the public health improvement process (PHIP) in Boulder County culminated in the selection of the focus areas. In the Planning Phase, facilitated by Primetime Research & Evaluation and supported by the Boulder County Public Health (BCPH) Steering Committee, a task force for each focus area was convened (see **Chapter 2**). Each task force met with Primetime eight times between November 2011 and April 2012. While task force composition, dynamics, and focus area varied, the purpose, charge, and process were consistent across the three groups.

Initial meetings focused on introducing group members, setting meeting norms, explaining the purpose of the groups, and providing orientation to resources available to the group. After promoting group familiarity via introductions and ice breakers, each group reached accords about group dynamics. In general, each task force arrived at agreement similar to the following:

1. All votes will be majority, unless a member asks for and explains why consensus is needed.
2. The content under consideration will be determined to be a dialogue or discussion.
3. Every meeting will end with an inventory of the following questions:
    a) What two important ideas emerged from this discussion?
    b) What remains unresolved or contentious about the topic(s)?
    c) What do we need to talk about next time if we are to better understand this issue?
    d) What needs to change?
4. This task force will produce an action plan for their focus area.
5. Ask questions and take risks.

The group purpose was explained as, "a call to action to the Boulder County system of public health, health care providers, schools, employers, and businesses to collaborate at the community level to improve the health status of Boulder County residents through increased emphasis on [focus area] and to achieve evidence-based, measurable impact in Boulder County within five years in these target areas." The group was tasked with, "using a community planning approach to produce an action plan to identify optimal strategies and rally resources and partnerships to accelerate a measurable impact on Boulder County residents' health." Task force member expectations about task force work and anticipated benefits of this work were discussed as well. Resources, such as the online Wiggio platform (see **Chapter 2**), were offered to participants. The timeline, also outlined, focused on continuously "narrowing" focus areas to action areas via qualitative and quantitative data review, resource mapping, identification of potential indicators and measurable targets, and proposal of evidence-based strategies.

Early on, task forces were reminded of helpful guiding models. All task forces were exposed to the systems approach (i.e. using system thinking as a technique for understanding the current reality and to identify effective actions and solutions), the health impact pyramid, logic models, and the equity model (including life course, social determinants, and individual factors) (see **Chapter 1**). Further, each group reviewed models specific to their focus area, such as the substance abuse triangle (prevention-intervention-treatment) and risk scale (no use>social use>risky use>high-risk use>addiction).

Intermediate meetings of task forces centered on data review and discussion. Frequent dynamics for accomplishing this task included individual and group brainstorming, online polls, small group work and reporting back to the full task force. The idea was to assess the magnitude, severity, and actionability of all components of the focus area in order to land on 3-4 action areas. Other key data reviewed centered on populations most in need. Information and data were shared via fact sheets, literature, PowerPoint, etc. Task force members were encouraged to call out missing data. Among the data sources reviewed

were state plans and indicators, as well as local models and data. For instance, in a Mental Health Task Force meeting, the group heard presentations on the state indicators for mental health, the number of people receiving behavioral health services in primary care settings, the early childhood plan in Boulder County, a review of literature provided by the local mental health organization, a review of the national prevention strategy, and more. Group members were asked to consider local, state, and federal priorities; known effective, scalable interventions; the potential for large impact on health; optimal strategies and challenges along the way; and efforts to make measurable impact on health.

Resource mapping was conducted to review data and identify needs, gaps, and opportunities; target populations; strategies; and specific indicators. To facilitate data review, Primetime, BCPH, and group members developed matrices to consolidate components (action areas and possible indicators) from various health improvement plans and sources, such as the National Prevention Strategy, Colorado's Ten Winnable Battles, and the New York City plan (aka Take Care New York). Task force members then revised and updated matrices to include available local data. Much small group work was conducted to generate a comprehensive list of action areas and measures. Eventually, task force members were able to select a few action areas and corresponding indicators from the matrix worthy of consideration for inclusion in the local plan to help improve outcomes in their focus area within Boulder County.

Later meetings of task forces focused on decisions on action areas and indicators, defined as follows.

- *Indicators* are measurements (rate, percent, proportion, prevalence, etc.) for a specific health issue. They include a target population (age, sex, race, ethnicity, etc.).
- *Baseline* is the current measurement associated with the indicator.
- *Target* is the desired measurement you want to achieve.
- *Objective* is a specific, measurable, achievable, realistic, and time-bound way in which to state how we hope to change or improve an indicator. It pieces together the indicator with the target.
- *Strategies* are broad methods or actions for how, as a community, we hope to achieve our objectives, including what we are going to do, what is already happening in our community that we wish to promote, and how we will leverage existing work or the resources within the community.

Each task force identified 3-4 priority action areas within their focus area, yielding 10 action areas.

PHIP Focus Areas & Action Areas

Promote Mental Health:	**Reduce Substance Abuse:**	**Encourage Healthy Eating & Active Living:**
Promote early childhood social and emotional development	Reduce risky alcohol use	Reduce obesity and overweight
Reduce postpartum depression	Reduce risky marijuana use	Improve access to healthy food
Prevent suicide	Reduce risky prescription drug use	Promote physical activity
		Increase active transportation

Within each action area, the task forces selected at total of 19 potential indicators. Possible evidence-based strategies were also identified and slated for further evaluation in the subsequent Implementation Phase. PHIP focus and action areas, as well as corresponding suggested indicators and baseline and five-year target measures, are summarized in the table on the next page. The initial version of the table, created by Planning Phase task forces based on data available at that time, was updated by the BCPH PHIP team based on the most recent, reliable data available prior to the Implementation Phase. Implementation teams will review recommendations from previous phases and fill in final indicators, baselines, targets, and strategies to be carried out. Each implementation team will create a structure and work dynamic that works for them.

Public Health Improvement Process Plan for Boulder County (as of February 1, 2013)

Focus & Action Area	Core Indicator	Baseline	2017 Target
Promote Mental Health			
1 Promote Early Childhood Social and Emotional Development	Percentage of parents of 1- to 5-year olds whose health care providers asked them to fill out a survey regarding their child's social and emotional development	43.8%	60.0%
2 Reduce Postpartum Depression	Percentage of mothers whose health care providers talked to them about what to do if they felt depressed during pregnancy/after delivery	67.6%	80.0%
3 Prevent Suicide	Age-adjusted suicide rate in Boulder County, all ages (per 100,000)	19.2%	17.3%
	Prevalence rate among Boulder County high school students who attempted suicide in the past 12 months	6.7%	5.0%
	Prevalence rate of Boulder County high school students identifying as lesbian, gay, bisexual, or questioning (LGBQ) who had attempted suicide in the past 12 months	31.8%	12.2%
Reduce Substance Abuse			
4 Reduce Risky Alcohol Use	Prevalence rate of Boulder County high school students who engaged in binge drinking in the 30 days prior to survey	25.0%	23.8%
	Prevalence rate of Boulder County high school students who initiated use of alcohol before age 13	19.0%	14.8%
	Prevalence rate of Boulder County high school students reporting that their parents would disapprove of them drinking alcohol	86.2%	88.0%
	Percentage of adults who engaged in binge drinking in the last 30 days	12.8%	12.2%
5 Reduce Risky Marijuana Use	Prevalence rate of Boulder County 9th grade students who used marijuana on 1+ days in the 30 days prior to survey	11.9%	10.6%
	Prevalence rate of Boulder County high school students who had initiated use of marijuana before age 13	7.8%	6.5%
	"Per capita" medical marijuana certificates issued for Boulder County residents	TBD	TBD
6 Reduce Risky Prescription Drug Use	Overall controlled prescriptions written in Boulder County	TBD	TBD
	Prevalence rate of Boulder County high school students who had ever used a prescription drug without a prescription	18.4%	17.5%
Encourage Healthy Eating & Active Living			
7 Reduce Obesity and Overweight	Percentage of 2- to 5-year olds who are ≥ 85% Body Mass Index	TBD	TBD
	Percent of children who were breastfed for 6+ months	61.2%	65.0%
8 Increase Access to Healthy Food	Existence of healthy food access baseline measurement	Non-existent	Existent
9 Promote Physical Activity	Prevalence of high school students who had engaged in vigorous physical activity for at least 60 minutes 3+ times a week	73.8%	75.0%
10 Increase Active Transportation	Percentage of commute trips that were by transit and non-motorized transportation	13.9%	15.9%

Creating Work Plans

The State of Colorado requests that local public health departments submit a Community Health Assessment and Planning System (CHAPS) Action Plan for each strategy identified. The format appears below.[1] As of February 2013, Boulder County has identified what the state calls priorities (focus areas), strategies (action areas), major indicators (core indicators), lead entity (BCPH), and potential five-year goals (target percentages) related to SMART (specific, measurable, attainable, relevant, time-bound) objectives. These already-identified work plan components are summarized in the table above; we fully expect to hone them via applying the collective impact framework in the Implementation Phase. The remaining work plan components (supporting entities, action steps/activities/evidence-based strategies, organization responsible, completion date, and confirmation) will be defined in the current Implementation Phase by the implementation teams, facilitated by the Public Health Improvement Process coordinator and subject to review and approval of the Executive Steering Committee. In the table below, the CHAPS Action Plan components already identified in Boulder County are shaded, while the components yet to be defined in our community are not shaded. Where state and local terms contrast, the state term appears in gray, while the Boulder County term appears in black.

CHAPS Action Plan					
Name of LPHA or Regional Collaborative:					
PRIORITY/FOCUS AREA:		**STRATEGY/ACTION AREA:**			
Major Indicator:					
Lead Entity:		**Supporting Entities:**			
Five-Year Goal(s)	**SMART Objectives**	**Action Steps (Activities) Evidence-based strategies**	**Organization Responsible**	**Completion Date**	**Action Complete**
Determined as of February 1, 2013		**To be determined in Implementation Phase**			

STATE TERM/BOULDER COUNTY TERM

Task Force Suggested Strategies

While not defined as of February 2013, the Planning Phase included foundational exploration on strategies. Specifically, in fall 2011, PHIP Planning Phase task forces researched potential strategies to address identified focus and action areas. The recommended strategies in the table below are organized based on the Social Determinants of Health Framework (see **Chapter 1**). While some of these strategies are evidence-based, others are not, as some address topics that have not been widely

[1] See action plate template link at http://www.chd.dphe.state.co.us/CHAPS/phases.aspx?phaseID=phase6.

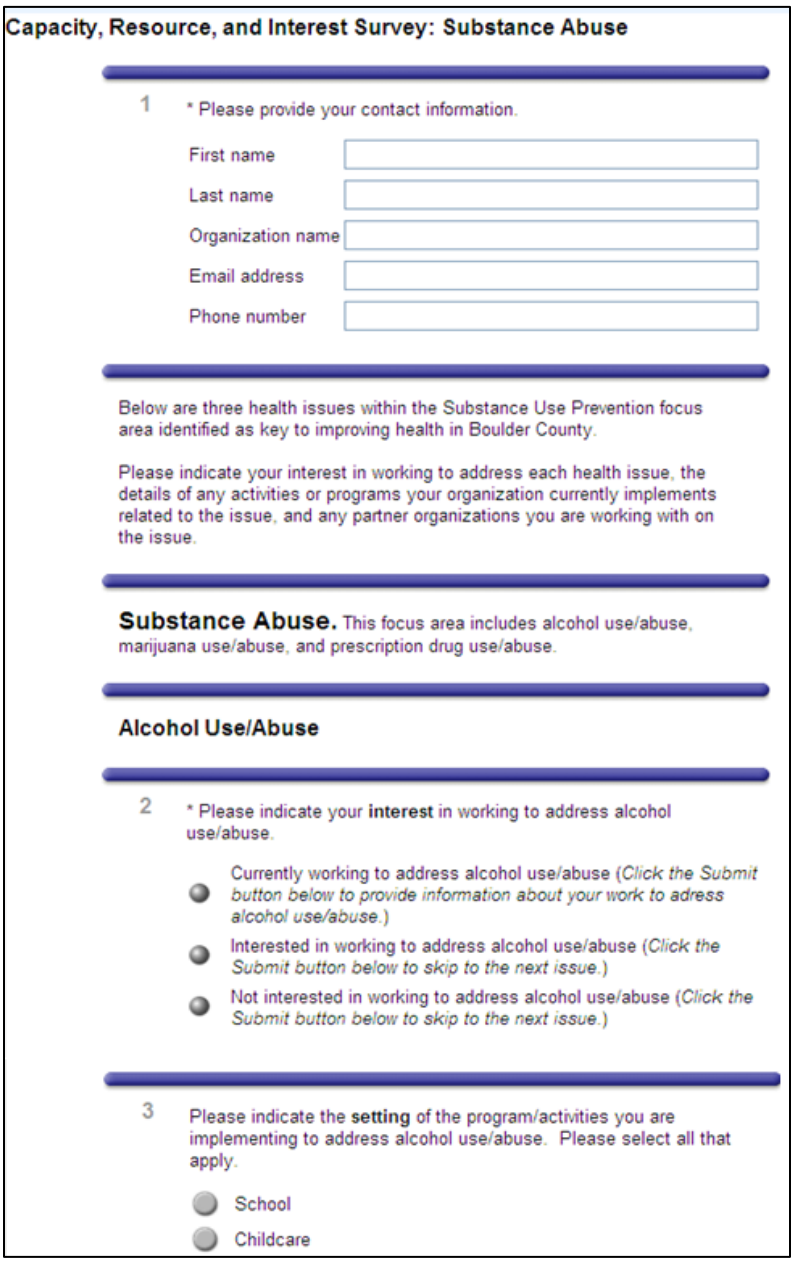
explored in the literature. **The strategies listed below are neither all-inclusive nor definitive**. Final strategies will be selected in the Implementation Phase, using these as one strong source of possibilities.

Task Force Suggested Strategies, Fall 2011	
Promote Mental Health	
Economic opportunity, physical environment, social factors	Continue to support implementation of evidence-based, early childhood social and emotional development curricula
Health promotion (individual behavior)	Decrease stigma
Access to quality care	Increase screening and early recognition Improve access to effective treatment and case management Increase provider use of evidence-based protocols Enhance surveillance for depression and suicide data Improve number of hospitals in Boulder County that are baby-friendly Advocate for expanded insurance coverage Support current and future legislation Improve coordination of services Improve coordination among partners
Reduce Substance Abuse	
Economic opportunity, physical environment, social factors	Explore, support, and initiate policy approaches to reduce substance abuse Improve integration of activities Improve access to data for age of initiation Strengthen partnerships
Health promotion (individual behavior)	Increase consumer and provider education/awareness Promote awareness of risks/hazards of marijuana, alcohol, prescription drug use Engage in social media work to change social norms about alcohol and drug use Support and promote prescription drug recycling/collection programs to improve appropriate disposal of medications Promote media and advertising awareness of representations of alcohol in advertising
Access to quality care	Broaden utilization of best practices for prescribing policies and programs Advocate to include prescribing data in Colorado Regional Health Information Organization (CORHIO) Explore data collection options Expand SBIRT (Screening, Brief Intervention, Referral, and Treatment) to other providers
Encourage Healthy Eating & Active Living	
Economic opportunity, physical environment, social factors	Policy support and implementation for breastfeeding Breastfeeding support within the workplace Breastfeeding support within child care settings Advocate for a built environment that supports active living Assess the policy barriers/incentives for food access Support nationally recommended early childhood education physical activity standards Develop criteria and conduct assessments to determine the physical, financial, nutritional, and cultural barriers/incentives to gaining access to food
Health promotion (individual behavior)	Facilitate school-based opportunities for increased physical fitness Increase access to physical activity spaces Raise public awareness of physically active lifestyles
Access to quality care	Develop criteria and assess the capacity of the local food system Encourage health care providers to promote physical activity and good nutrition Expand community-based programs that encourage physical activity

Informing Strategies via Resources, Interests, and Capacity Survey[2]

Survey Implementation and Analysis

As a subsequent step to complete the gaps in the CHAPS Action Plan (supporting entities, action steps/activities/evidence-based strategies, organization responsible), in May 2012, BCPH developed surveys to inform further work on potential strategies for each PHIP area of interest. Surveys were designed to provide a snapshot of community engagement in PHIP focus areas. Surveys capture: contact information, interest, program/activity setting, target population, geographic location of activity, annual budget, length of time for funding, and open-ended responses on program objectives and strategies. There was one survey for each of the three focus areas. Each explored engagement in the 3 to 4 action areas within that specific focus area. A sample screen shot appears below.



Capacity, Resource, and Interest Survey: Substance Abuse

1 * Please provide your contact information.

First name

Last name

Organization name

Email address

Phone number

Below are three health issues within the Substance Use Prevention focus area identified as key to improving health in Boulder County.

Please indicate your interest in working to address each health issue, the details of any activities or programs your organization currently implements related to the issue, and any partner organizations you are working with on the issue.

Substance Abuse. This focus area includes alcohol use/abuse, marijuana use/abuse, and prescription drug use/abuse.

Alcohol Use/Abuse

2 * Please indicate your **interest** in working to address alcohol use/abuse.

- Currently working to address alcohol use/abuse (*Click the Submit button below to provide information about your work to adress alcohol use/abuse.*)
- Interested in working to address alcohol use/abuse (*Click the Submit button below to skip to the next issue.*)
- Not interested in working to address alcohol use/abuse (*Click the Submit button below to skip to the next issue.*)

3 Please indicate the **setting** of the program/activities you are implementing to address alcohol use/abuse. Please select all that apply.

- School
- Childcare

[2] These results are from: G:\MAPP Core\Focus Area\3 Primary Focus Areas\Survey - Resources_Interest_Capacity_June 2012\PHIP Survey Results_Namino_10oct12.Docx.

BCPH staff and community partners responded to the surveys. In all, 210 people received surveys (one per focus area) via email with telephone follow-up. Of these, 94 people representing unique programs responded fully, such that 48 unique organizations (including BCPH) submitted complete responses. Data were cleaned to consolidate responses into a general description of partner engagement. All "other" category responses were reclassified to fit into existing categories or placed into added categories. This eliminated "other" responses from program/activity setting, target population, and physical location, and consolidated results of activity by action area. All 14 BCPH records were removed and placed in a new database for separate analysis. All partner (i.e. non-BCPH) responses originating from the same organization were merged into one consolidated record (merging by programs within organizations and by activity level and focus area was attempted but unfeasible). This method captured all activity information and gave each organization one "vote" regardless of number of respondents. In most cases, the different programs within the same organization work on the same focus area; the only exceptions were Boulder Valley School District (2 records), City of Boulder (3 records), and University of Colorado Boulder (2 records). The resulting database merges records under Boulder Community Hospital, Boulder County Housing & Human Services, Boulder Valley School District, City of Boulder, City of Longmont, Clinica/People's, Colorado State University Extension, LiveWell Longmont, Mental Health Partners, and University of Colorado Boulder. All previous analysis was re-run on these two new databases (partner-only and BCPH-only). The final table in this chapter consolidates partner results.

Survey Results

To make sense of the detail provided on the table above, below is a brief summary of results around: a) current work and interests, b) program/activity setting, c) target population, d) geographic location, e) annual budget, f) length of time for funding, and g) current and potential PHIP partners. Results portray partner-only engagement and gaps in the PHIP focus and action areas.[3] While the summaries and table below detail results among partners only (excluding BCPH), the BCPH results profile is similar.[4]

a. Current Work and Interest Results

Surveys track three levels of engagement: currently working on, interested, and not interested. When all partner responses originating from the same organization were merged into one consolidated record, the highest level of engagement from any respondent was recorded (i.e. current work, then interest, then lack of interest).

General observations across focus areas were:

- Many organizations are already working on the action areas within these focus areas, and many are interested in additional action areas.
- 9 organizations are currently working in at least 1 action area in multiple focus areas (2 are working in all 3 focus areas). Focus areas overlap, and it is possible to hit multiple "birds" with 1 stone.
- Across all 3 focus areas, highest current work is in healthy eating and active living (HEAL), followed by mental health, and then substance abuse.
- Across all 10 action areas, highest current work is in reducing overweight and obesity.
- Across all 10 action areas, lowest current work is in addressing postpartum depression.
- Across all 3 focus areas, highest interest is in mental health, followed by similar interest in HEAL and substance abuse.
- Across all 10 action areas, highest interest is in reducing obesity and overweight, addressing prescription drug abuse, and preventing suicide. A few focus areas have no interest indicated.

[3] See Copy of All results_07-01-12_Reclassify_10oct12.xlsx, SummaryMerged-Partners tab.
[4] See Copy of All results_07-01-12_Reclassify_10oct12.xlsx, SummaryMerged-BCPH tab. BCPH-only data are available upon request.

HEAL:	Mental Health:	Substance Abuse:
• Highest current work in reducing overweight and obesity; lowest in increasing active transportation. • Highest interest in reducing overweight and obesity.	• Highest current work in early childhood social and emotional development; lowest in postpartum depression. • Highest interest in suicide prevention.	• Highest current work in alcohol abuse; lowest in prescription drug abuse. • Highest interest in prescription drug abuse.

b. Program/Activity/Setting Results

Surveys track these activity settings for all action areas: school, child care, workplace, direct patient care, community-based, and media-based. Surveys track medical provider, built environment, and food systems for some action areas. "Other" responses in those action areas for which these last three categories were not on the survey were placed in these categories.

General observations across focus areas were:

- Community-based settings are most common; child care is least common.
- School, workplace, and direct patient care settings are targeted in 9 of 10 action areas.
- Media-based setting is infrequent; not mentioned at all in mental health, and only once in substance abuse.

HEAL:	Mental Health:	Substance Abuse:
• Community-based setting most common, followed by schools and work place. • Medical provider and child care least common.	• Community-based setting most common, followed by direct patient care. • Media, built environment, and food systems not addressed.	• Community-based setting most common, followed by schools. • Food system, child care, media least common.

c. Target Population Results

Surveys track target population characteristics, including age group, low socioeconomic status (SES), and race/ethnicity. Two categories were added to house "other" responses in some action areas for which there were not response categories on the original survey: organized groups (government, schools, and employees) and those with illness (mental, physical, addiction).

General observations across focus areas were:

- Work fairly well spread across life course; potentially less effort on 0-6 and 65+ age groups.
- Much effort on low SES across the 10 action areas within the 3 focus areas.
- Work fairly well spread among racial/ethnic groups.

HEAL:	Mental Health:	Substance Abuse:
• Work fairly well spread across life course; less effort on 0-6 years. • Most low SES efforts aimed at overweight and obesity; least aimed at active transportation. • Work fairly well spread among racial/ethnic groups, a bit less on other non-Hispanic.	• Work fairly well spread across life course; less effort on 65+ years. • Most low SES efforts aimed at early childhood development; fewer aimed at postpartum depression and suicide. • Work fairly well spread among racial/ethnic groups.	• Work fairly well spread across life course; no effort on 0- to 6-year age group. • Most low SES efforts aimed at alcohol; fewer aimed at marijuana and prescription drugs. • Work fairly well spread among racial/ethnic groups.

d. Geographic Location in Boulder County Results

Surveys track location of efforts as: all of Boulder County, City of Boulder, City of Lafayette, City of Longmont, mountain communities, and other. Seven categories were added to house "other" responses: Erie/Lyons/Louisville/Superior (mentioned as a set), Front Range, Denver & US 36, Boulder Valley School District (BVSD), St. Vrain Valley School District (SVVSD), Broomfield, and Weld County.

General observation across focus areas was:

- Most effort aimed at all of Boulder County; some at cities; little at mountain communities.

HEAL:	Mental Health:	Substance Abuse:
• Longmont is most common location.	• Work fairly well spread among city-level locations.	• Most work at Boulder County level rather than city-level.

e. Annual Budget Results

Surveys track annual budget in 5 categories: $0; $1-$9,999; $10,000-$24,999; $25,000-$49,000; and $50,000 and up.

General observations across focus areas were:

- Money is already being spent to address all 3 focus areas.
- Most frequent annual budget level is $50K+; this level of support is present across focus areas.
- That said, many initiatives are unfunded or have the lowest level of funding ($1-$9,999), especially in substance abuse.

HEAL:	Mental Health:	Substance Abuse:
• Increasing physical activity and reducing overweight and obesity initiatives are most funded; active transportation the least.	• Early childhood development initiatives are most funded; postpartum depression the least.	• Alcohol initiatives are most funded; marijuana and prescription drugs are less.

f. Length of Time for Funding Results

Surveys track length of time for funding in 6 categories: < 1 year; 1-2 years; 3-4 years; 5+ years; ongoing; and unknown.

General observations across focus areas were:

- There is ongoing funding for initiatives across the 3 focus areas (marijuana is an exception).
- That said, all initiatives but 1 (increasing physical activity) have known funding for less than 5 years.

HEAL:	Mental Health:	Substance Abuse:
• Ongoing funding across the three action areas; less active in transportation and food access	• Ongoing funding strong across the three action areas.	• Ongoing funding strong for alcohol, but only one effort with ongoing funding to address prescription drug use, and none for marijuana use.

g. Current and Potential PHIP Partners Results[5]

The table below lists, by focus area: partner organizations currently working on each focus area (upper lists) and organizations not currently working on but are interested in working on each focus area (lower lists). Respondents were also asked to list their primary partners in each focus area. The following focus area acronyms are used: Mental Health, MH; Substance Abuse, SA; Healthy Eating and Active Living, HEAL. These results informed later decisions about constituents of implementation teams.

Currently working on HEAL	Currently working on MH	Currently working on SA
Boulder B-cycle	Alternatives for Youth	Alternatives for Youth
Boulder County AIDS Project	Boulder County Housing & Human Services	Alcoholics Anonymous, Boulder Central Office
Boulder County Area Agency on Aging	Boulder Housing Partners	Boulder County: Community Justice System
Boulder County Movement for Children	BVCAN	Boulder Housing Partners
Boulder County Transportation	City of Boulder-Public Works Transportation	Boulder Municipal Court
Boulder County Community Justice System	Clinica Campesina	Boulder Shelter for the Homeless
Boulder Rotary Club	Early Childhood Council of Boulder County	Boulder Valley School District
Boulder Valley School District	Healthy Youth Alliance	City of Boulder-Public Works Transportation
Boulder Valley Women's Health Center	Imagine!	Clinica Campesina
City of Boulder-Public Works Transportation	Lifemoves Counseling Services	Healthy Youth Alliance
City of Longmont	Mental Health Partners	IMPACT
Clinica Campesina	OUR Center	Mental Health Partners
Colorado School of Public Health	Private psychotherapist	Partners Mentoring Youth
CSU Extension, Boulder County	Real Choices Pregnancy Care Center	Sister Carmen Community Center
El Centro AMISTAD	Safe Shelter of St. Vrain Valley	TEENS, Inc.
Foothills United Way	Safehouse Progressive Alliance for Nonviolence	
Intercambio Uniting Communities	Tiny Tim Center	
iPN - integrated Physician Network	University of Colorado, Boulder	
LiveWell Longmont	Voices For Children CASA	
Longmont United Hospital		
Longmont YMCA		
St. Benedict Health and Healing Ministry		
St. Vrain Valley School District		
University of Colorado, Boulder		
Women's Wilderness Institute		
WPM Consulting, LLC		

HEAL interest, no current work	MH interest, no current work	SA interest, no current work
Boulder Housing Partners	Boulder Community Hospital	Boulder County AIDS Project
Boulder Youth Body Alliance	Boulder B-cycle	Boulder County Commissioners
Epstein Neurosurgery Center, LLC	Boulder County Commissioners	Longmont Police Department
Housing & Human Services	Boulder County Head Start	OUR Center
IMPACT	Boulder Valley School District	Safe Shelter of St. Vrain Valley
OUR Center	Boulder Valley Women's Health Center	The Inn Between
YWCA	Longmont Police Department	
	My Family Doctor, PLLC	

This survey effort provided an understanding of current resources, interest, and capacity in each focus and action area. In the Implementation Phase, the Executive Steering Committee, the Public Health Improvement Process coordinator, and the implementation teams will study these results to pinpoint the most efficient and effective strategies to ensure collective impact on the health issues in question.

[5] See Copy of All results_07-01-12_Reclassify_10oct12.xlsx, InterestMerged-PARTNERS only tab.

Boulder County Public Health PHIP Survey Results - Summary

	Healthy Eating/Active Living				Mental Health			Substance Abuse		
	Reducing Obesity & Overweight	Improving Access to Healthy Food	Increasing Physical Activity	Increasing Non-Motorized Transportation & Commuting	Early Childhood Social & Emotional Development	Postpartum Depression	Suicide Prevention	Alcohol Use/Abuse	Marijuana Use/Abuse	Prescription Drug Use/Abuse
Interest										
Currently working on	30	16	18	9	21	11	13	24	15	15
Interested	13	17	16	12	15	14	15	6	8	12
Not Interested	8	12	9	23	10	19	14	3	9	4
Program/Activity Setting										
School	9	6	7	4	4	0	4	5	3	2
Childcare	1	1	1	0	3		0	0	0	0
Workplace	9	2	8	7	4	0	2	5	3	4
Direct patient care	7	1	5	1	5	8	5	9	5	8
Community-based setting	12	10	12	6	8	3	6	12	6	9
Food systems	8	9								
Medical provider								3	2	4
Built environment	7	4	6	7	0			1	0	0
Media-based	4	1	2	2	0	0	0	1	0	0
Other	8	2	3	2	7	2	2	5	3	3
Target Population										
0-6 years old	13	6	5	2	16	1	3	0	1	1
7-12 years old	16	9	9	4	8	0	6	3	2	4
13-17 years old	16	8	10	4	7	5	8	15	8	8
18-26 years old	19	10	11	6	6	8	8	16	8	12
27-64 years old	19	8	13	6	6	7	6	12	6	10
65+ years old	14	7	10	5	2	0	4	8	3	7
Low socioeconomic status	19	10	12	2	15	7	7	13	5	8
White, non-Hispanic	15	6	9	1	13	7	7	12	5	9
Hispanic/Latino	17	7	10	1	13	7	7	12	5	9
Other non-Hispanic	11	4	6	1	12	5	7	11	5	9
Other	7	2	4	4	1	1	0	3	1	2
Physical location in Boulder County										
All of Boulder County	8	5	8	4	10	6	8	13	7	7
City of Boulder	7	4		3	5	3	2	6	2	4
City of Lafayette	3	1			4	2	1	4	1	2
City of Longmont	13	8	8	4	5	2	2	3	2	4
Mountain Communities	1	1	1	1	0	0	0	1	1	1
Superior			1							
Erie			2							
Other	4	1	6	3	3	4	4	2	1	2
Annual Budget										
$0	3	1	1	0	2	0	1	3	1	1
$1 to $9,999	3	4	4	3	1	0	1	1	1	1
$10,000 to $24,999	2	3	0	0	0	1	0	0	0	1
$25,000 to $49,000	2	2	1	0	0	1	1	1	0	0
$50,000 or more	9	3	8	3	12	6	7	13	6	6
Length of Time for Funding										
Less than 1 year	2	0	1	0	0	0	0	1	0	0
1-2 years	1	3	2	4	1	1	0	0	0	0
3-4 years	3	2	2	0	1	0	0	3	1	1
5+ years	0	0	1	0	0	0	0	1	0	2
Ongoing (no time limit)	7	4	8	3	11	5	6	10	4	5
Unknown	7	4	2	1	2	3	5	5	4	4

G:\Admin Services\Health Planning\Surveys\Development\2012 Surveys\PHIP - Chana Goussetis - May 2012\All results_07-01-12.xlsxData Summary

7/2/2012

Chapter 7. Evaluation and Monitoring Progress

Evaluation Plan to Monitor Process and Progress

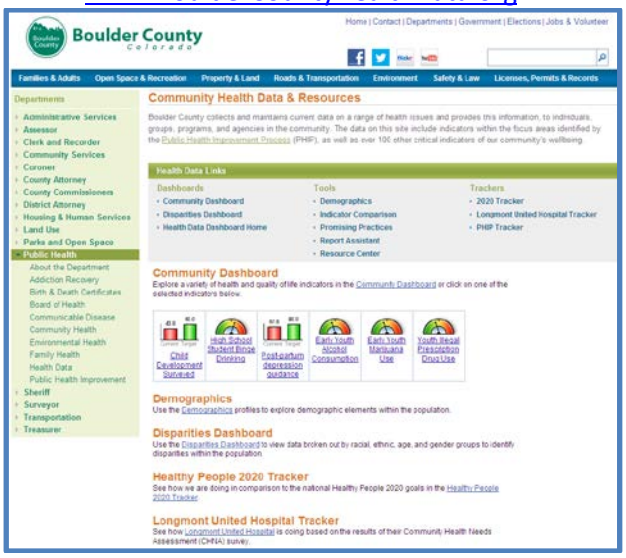
The quality of the public health improvement *process* (PHIP) in Boulder County has been and will continue to be evaluated via structured meeting evaluation forms (used, for instance, in each Planning Phase task force meeting); discussion in Boulder County Public Health (BCPH) leadership forums (including the PHIP Steering Committee and Management Team meetings); and now through the quality control function of the Executive Steering Committee. An evaluation plan will be developed to assess short- and long-term *progress* in addressing each of the three focus areas and action areas therein in order to improve our community's health. We will report on progress toward our identified five-year plan targets annually on our website. In the meantime, BCPH has put two websites into place to display and monitor our PHIP process, our local data, and our progress on improving health in our community. These websites may be combined in the near future. Our primary target audience for the overall PHIP initiative and these websites is first our staff and partners whom we want to engage in health improvement implementation, and then the broader public, whom we hope to empower to make informed decisions and change behavior to better their own health.

www.HealthyBoulderCounty.org Tracks Process and Engages Partners

To communicate our *process*, we established www.HealthyBoulderCounty.org. This site is accessible to the public and includes brief explanations of our process, participants, and milestones. It also features links to outputs and related sites.

www.HealthyBoulderCounty.org

www.BoulderCountyHealthData.org

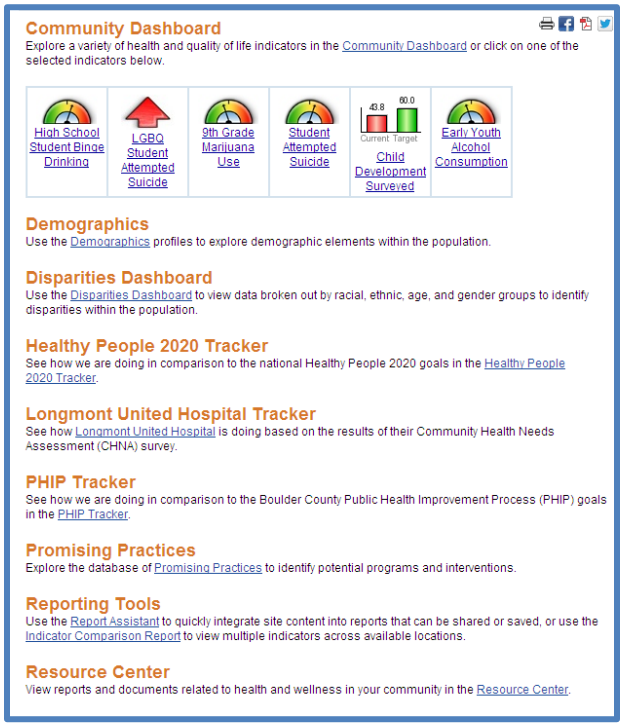


www.BoulderCountyHealthData.org Dashboard Tracks Progress and Enables Partners

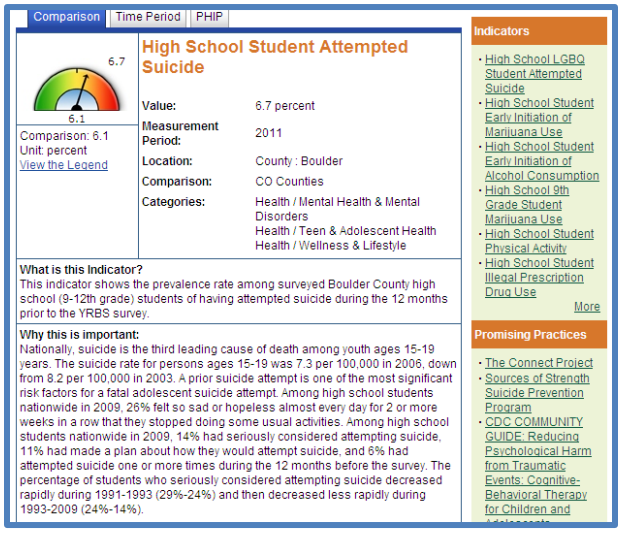
To communicate our data and *progress*, we contracted with Healthy Communities Institute (HCI, www.healthycommunitiesinstitute.com) for a web-based "dashboard." We anticipate engaging our community members by offering the dashboard as the main source/clearinghouse of information relative to Boulder County's health and local health improvement efforts. In late 2012, we conducted a soft launch of our dashboard to BCPH staff for piloting and strengthening the site, and followed this with a hard launch to the state, partners, and the public in early 2013.

The Boulder County health data dashboard includes indicators within the focus areas, as well as over 100 other critical indicators of our community's well-being. The Boulder County Health Tracker displays the status of indicators within the focus areas. The dashboard includes many tools, displayed below.

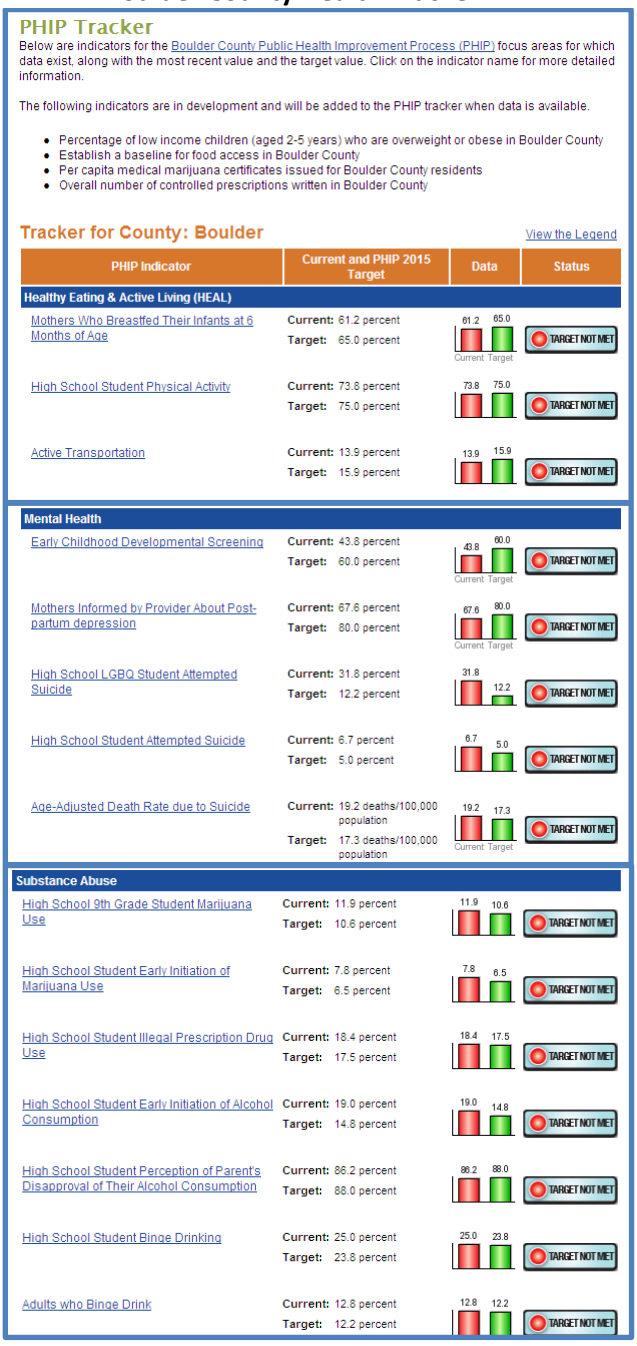
Dashboard Tools



Example Portion of One PHIP Indicator



Boulder County Health Tracker



As is every aspect of PHIP, dashboard development and maintenance is done in a coordinated and collaborative way. For instance, local data is associated with the Colorado Health Information Dataset (COHID) site and health and disparities profiles (www.chd.dphe.state.co.us/Default.aspx). Local PHIP focus areas overlap with the state's Ten Winnable Battles (www.chd.dphe.state.co.us/Default.aspx). The dashboard will also be linked to local partners, such as the Community Foundation's *Trends* publication and online profiles (www.commfound.org/trendsmagazine), as well as hospital assessments.

Chapter 8. System-wide Coordination

System-wide coordination of the Boulder County public health improvement process (PHIP) is facilitated by a collective impact approach and occurs simultaneously on agency, county, state, and national levels.

Collective Impact and System-wide Coordination
The Boulder County Public Health (BCPH) commitment to collective impact does not simply mean building more collaboration or partnerships within the agency, county, state, or nation. Rather, this effort entails a systemic approach to social impact that focuses on relationships between organizations, with a common agenda, shared measurement system, mutually reinforcing activities, continuous communication, and backbone support organizations.[1] (See **Chapter 1** for detail on collective impact.)

Agency-Level Coordination
At the agency level, PHIP is interwoven into operational plans for the 30 programs comprising Boulder County Public Health (BCPH). The 2013 BCPH strategic plan specifically references PHIP. BCPH directors champion PHIP and allocate staff, funding, and marketing to support PHIP. The establishment of a full-time permanent Public Health Improvement Process coordinator speaks to the commitment to root the agency in PHIP and vice versa. At BCPH, "all staff" means over 250 employees, which underscores the potential reach of the focus on PHIP in biennial all-staff meetings and e-mail to the all-staff distribution list. Further, the Boulder County Board of Health underscores system-wide coordination as it responds to monthly BCPH director's reports and hears yearly update presentations about PHIP. These types of interaction and investment help to ensure that the PHIP initiative is coordinated at the agency level.

County-Level Coordination
At the county level, while BCPH has stepped up to coordinate PHIP, all PHIP phases have incorporated community partner insight. Stakeholders have been invited to participate time and again, first to assess, then to prioritize, then to plan, and now to implement PHIP activities. Individual voices converge in task force meetings, group interviews, web-based worksites, and community meetings. In addition to the buy-in that early and continuous inclusion promotes, more consistent and coordinated efforts result from the interaction. Partnerships around funding proposals, policies, information exchange, and strategic planning have demanded coordination, as well. (See **Chapter 2** on stakeholder involvement.)

State-Level Coordination
At the state level, Boulder County has drawn on Colorado PHIP resources and followed Colorado Health Assessment and Planning System (CHAPS) guidance. In assessing health status, for instance, we are attentive to the Colorado Ten Winnable Battles and county data profiles developed by the Colorado Department of Public Health and Environment (CDPHE). These tie Boulder County to the larger whole. BCPH Executive Director Jeff Zayach keeps his finger on the PHIP pulse through the state's Public Health Improvement Steering Committee (PHISC); he serves as PHISC co-chair. BCPH PHIP presentations in state forums, such as the Colorado School of Public Health and the Colorado Public Health Association, help to ensure clear, consistent state-local coordination. Coordination is not only about BCPH coming to the state; the state participated in the BCPH process. For instance, in the Foundational and Planning Phases, a planner from the CDPHE Office of Planning and Partnerships (OPP) sat in on BCPH PHIP Core Team and sub-committee meetings. BCPH piloted PHIP for the state, and many successful BCPH experiments became statewide templates. This iterative state-local exchange has allowed BCPH to shape and pilot PHIP while drawing on the expertise and resources of the state initiative.

[1] Paraphrased from http://www.ssireview.org/articles/entry/collective_impact.

BCPH staff members have served on a number of CHAPS work groups, as outlined below.

- The Assessment & Planning Work Group developed the processes and resources to guide and support each county in its PHIP.
- The Indicators Work Group selected indicators that the state would provide in the county health profiles and which would be used to monitor and track progress across the state.
- The Finance Work Group defined funding formulas, including former "per capita" formula, which links funding to core public health services, and the emergency preparedness funding formula.
- The Public Health Standards Work Group responded to the 2009 Colorado Public Health Improvement Plan (COPHIP), which supports the Public Health Act, to develop a set of minimum quality health standards to complement core public health services, as well as guidance on expected activities and a list of system improvement recommendations related to standards.

BCPH staff members have participated in statewide PHIP learning communities with other PHIP sites around the state and state-wide conversations relevant to Colorado's Ten Winnable Battles. For instance, BCPH participates in CDPHE Prevention Services Division and OPP State Obesity Strategy meetings to provide input on CDPHE's efforts to support healthy eating and active living and to ensure collaborative alignment of local and state initiatives within this PHIP focus area.

BCPH staff members have worked with state colleagues to coordinate shared measurement systems, mutually reinforcing PHIP focus and action areas and targets, and consistent data sources and statistics.

A key facet of system-wide coordination at the state level is exchange of materials.

- BCPH gleaned from materials developed and piloted by colleagues around the state; for instance, the El Paso County data collection process and Weld County prioritization process.
- BCPH developed visual aids to help conceptualize and explain PHIP within the agency (e.g. in leadership team meetings and one-on-one meetings), among partners, and with state collaborators.
- BCPH collected experiences on prioritization of health issues from the State Advisory Committee pilot, Weld County meetings, and OPP/CDPHE colleagues.
- BCPH responded to many requests for PHIP methods, tools, templates, and outcome from city and county health departments and academic institutions around Colorado. Among those guided were Larimer, Jefferson, Powers, Aspen, and Pueblo Counties; Denver Department of Environmental Health; University of Denver College of Medicine, and the Colorado School of Public Health.

All Boulder County PHIP work was structured by, contributed to, and benefited from state PHIP mandates, protocol, tools, templates, and technical support. Simultaneously, all BCPH work served as a pilot trial of the state's nascent local public health prioritization protocol.

National-Level Coordination

BCPH draws on national models, standards, benchmarks, practices, and goals. We originally structured our PHIP around the National Association of City and County Health Officials (NACCHO) Mobilizing for Action through Planning and Partnership (MAPP) model. This framework was later adjusted to coincide with state CHAPS guidance, largely based on the Public Health Accreditation Board (PHAB) framework and the national Ten Essential Public Health Services and requirements for accreditation. (See **Chapter 1** for more details on these models.) Standards, benchmarks, and goals have been drawn from the Centers for Disease Control and Prevention (CDC) and Healthy People 2020. The National Prevention Strategy and the Guide to Community Preventive Services inform implementation strategies.[2]

[2] See www.healthcare.gov/prevention/nphpphc/strategy/report.pdf and www.thecommunityguide.org/index.html.

Chapter 9. Financial Resources[1]

Resource Goal

Boulder County Public Health (BCPH) recognizes the need for committed resources to help oversee and coordinate our public health improvement process (PHIP), especially as the Implementation Phase begins. Our resource goal is to ensure sufficient support to improve health in our PHIP focus areas, while continuing to ensure provision of Colorado core services.[2] To meet this goal, we researched resources and then embarked on resource development.

Resource Research

BCPH first reviewed results of national, state, and local surveys of our own agency and our community resources. To contextualize our resources, we both completed and then studied the results of the National Association of City and County Health Officers (NACCHO) 2010 National Profile of Local Health Departments, the only national-level source of critical information on infrastructure and public health practices at the local level.[3] At the state level, BCPH participated in and reviewed Boulder County results of the Local Public Health Department Capacity Survey conducted by the state's Office of Planning and Partnerships (OPP). The NACCHO and OPP findings informed BCPH of agency capacity and resources.

At the local level, BCPH invited 270 community stakeholders to complete the PHIP resources, interests, and capacity survey. (See **Chapter 6** for PHIP survey details and results.) Results include current work and future interest in PHIP focus and action area work, amount of annual budget, and duration of funding.

By tracking amount of annual budget in five categories ($0; $1-$9,999; $10,000-$24,999; $25,000-$49,000; and $50,000 or more), we discovered that money is already being spent locally to address all three focus areas. The most frequent annual budget level is $50K+, and this level of support is present across the three focus areas. That said, many initiatives are unfunded or have the lowest level of funding ($1-$9,999), especially in substance abuse. In terms of resources currently allocated in each individual focus area, in mental health, early childhood development initiatives are most funded; postpartum depression the least. In substance abuse, alcohol initiatives are most funded; marijuana and prescription drugs less so. In healthy eating and active living (HEAL), increasing physical activity and reducing overweight and obesity initiatives are most funded; active transportation the least.

Surveys track duration of funding in six categories: less than 1 year, 1-2 years, 3-4 years, 5+ years, ongoing, and unknown. Results reveal that there is ongoing funding for initiatives across the three focus areas (marijuana is an exception). That said, all initiatives but one (increasing physical activity) have known funding for less than five years. By focus area, for mental health, there is strong ongoing funding across the three action areas. For substance abuse, ongoing funding is strong for alcohol, but there is only one effort with ongoing funding to address prescription drug use, and none for addressing marijuana use. There is strong ongoing funding across the three action areas in the HEAL focus area. These results illuminate potential pockets of financial support for specific PHIP focus and action areas, as well as less-funded areas.

[1] From Boulder County PHIP CPHA ppt_Namino Glantz_18sep12.pptx.

[2] For more information on Colorado core services, see 2011 **Core Services** - Final Rule - Public Health Alliance of **Colorado**.

[3] For more information on the NACCHO Profile, see www.naccho.org/topics/infrastructure/profile/resources/2010report/index.cfm.

Resource Development
In response to our resource research, BCPH has pursued a variety of resource development initiatives:

1. Receipt and use of two grants through the OPP. The first was applied to pay for administrative support in the Assessment and Prioritization Phase. The second contributes to the Public Health Improvement Process (PHIP) coordinator position (See **Chapter 2**).
2. Budget request submitted and approved for operating funding for implementation, including data collection, evaluation, annual reporting, etc.
3. Budget request submitted and approved for a full-time PHIP coordinator to help oversee and coordinate implementation (See **Chapter 2**).
4. Budget request submitted and approved for a grant writer who will identify funding opportunities in PHIP focus/action areas and then vie for those funds.
5. Proposals developed for grants related to PHIP. To date, BCPH has arrived at an agreement with the Colorado Department of Public Health and Environment (CDPHE) Chronic Disease Division to receive $25,000 to help support our efforts for healthy eating and active living. Awarded or not, these budget requests and grant proposals align us for other grants, give us population-wide strategies, and help us build community capacity and collaboration frameworks.
6. Designation of any "extra" available funding to PHIP, as these focus and action areas represent our greatest needs in the agency.
7. PHIP focus areas may also receive non-monetary support, such as increased community engagement; root cause analysis; investigation of effective strategies/best practices; fundraising support; media and/or education materials; advocacy; model policies; and evaluation/performance measurement. CDPHE will provide technical assistance in these areas.

The Most Precious Resource and Greatest Return on Investment
BCPH will continue to pursue grant opportunities, leverage community funds, and earmark funding for PHIP. That said, our most precious resource lies in the relationships we cultivate with community partners, and the greatest return on investment will be achieved via our commitment to the collective impact model and will be embodied in the health and well-being of the people and the environment in Boulder County.

Appendix A. Population Health Outcomes Detail

Community Health Status Assessment

For the inaugural public health improvement process (PHIP) in Boulder County, no primary data collection was conducted; instead, efforts focused on the compilation and review of existing data. Over 300 indicators of health status were identified and reviewed. These were grouped into 30 population health outcomes (i.e. diagnoses or direct causes of morbidity, mortality, poor quality of life, and/or shortened life expectancy). The grouping was the result of a merging of lists of population health outcomes at three levels:

- National: Healthy People (HP) 2020 and Centers for Disease Control and Prevention (CDC) Winnable Battles
- State: Colorado Department of Public Health and Environment (CDPHE) 2010 objectives (which had not yet been prioritized or formalized into Colorado's Ten Winnable Battles)
- Local: Boulder County Public Health (BCPH) staff and community partner input via all-staff meeting, leadership team meetings, key partner discussions

Thirty Health Outcomes Reviewed

Merging these overlapping lists and eliminating duplicates yielded a manageable, *unordered* list of 30 outcomes:

Diabetes
Heart disease
Stroke
Cancer
Infectious disease - chlamydia
Infectious disease - gonorrhea
Infectious disease - HIV/AIDS
Infectious disease - hepatitis C virus
Infectious disease - influenza/pneumonia
Unintentional injury - musculoskeletal
Teen pregnancy
Unplanned/unintended pregnancy
Health care-associated infections
Osteoarthritis
Blood disorders
Kidney disease
Asthma
Depression
Mental health disorders-other
Victim of violence
Infant mortality
Pre-term births
Hypertension
Chronic obstructive pulmonary disease (COPD)
Alzheimer's disease Chronic liver disease
Hyperlipidemia
Back pain
Neck pain
Suicide

The following is an *alphabetically ordered* and – as it turned out – evolving list of these 30 outcomes, each with a brief definition, brief indication of importance (including Boulder County data), and example potential strategies for public health impact. Definitions, data, and strategies are from the Centers for Disease Control and Prevention (CDC), Medline, CDPHE Boulder County profile, Colorado Health Information Dataset, The Community Guide to Preventive Services, and Minnesota Strategies for Public Health websites. Information available at the time on the leading causes of death in Boulder County and leading disease categories contributing to burden of disease follows the issue-specific pages.

Alzheimer's disease = most common form of dementia among older adults, affecting parts of the brain that control thinking, remembering, and making decisions, and often seriously impairing ability to complete daily activities.

Why is this important?

- The age-adjusted mortality rate due to Alzheimer's in **Boulder County** was 34.9/100,000 in 2007-2009.
- As many as 5.3 million people in the U.S. live with Alzheimer's. Nearly half of those aged 85 and older may have it.
- Alzheimer's often necessitates round-the-clock care, which translates into caregiver stress and financial strain.
- The average lifetime cost of caring for someone with Alzheimer's is $174,000, or $18,000 to $36,000 a year.

What can the public health system do?

- Allocate funding for Alzheimer's research.
- Promote active medical management to improve the quality of life for individuals living with Alzheimer's disease and their caregivers.
- For some people in the early and middle stages of the disease, certain drugs may help to prevent some symptoms from becoming worse for a limited time or help control behavioral symptoms of Alzheimer's disease, such as sleeplessness, agitation, wandering, anxiety, and depression.

Asthma = disease affecting lungs and airways, causing repeated episodes of wheezing, breathlessness, chest tightness, and coughing.

Why is this important?

- In 2007-2008, 10.6% of adults in **Boulder County** reported they had ever been told by a doctor, nurse, or other health professional that they had asthma; 6.6% reported still having asthma.
- Frequent visits to the doctor and emergency departments, as well as hospitalization, cost of treatment, and other associated costs make asthma one of the most cost-incurring medical conditions, costing the United States more than $30 billion every year.
- 34 million people (11.5%) or 1 in 9 Americans have been diagnosed with asthma during their lifetimes.
- Asthma is one of the most common long-term diseases of children; 9% of children in the U.S. are asthmatic.

What can the public health system do?

- Facilitate patient control via taking medicine, knowing the warning signs of an attack, and avoiding or removing the environmental and behavioral triggers that can cause an attack.
- Assess the home environment to detect and remove asthma triggers.
- Train and educate patients to improve self-management.
- Provide coordinated care, including social services and support, for asthma clients.
- Decrease environmental contaminants contributing to asthma.

Back and neck pain = discomfort in the back, usually originating from the muscles, nerves, bones, joints, or spinal structures; discomfort in the neck (including muscles, nerves, vertebrae, and disks in between) or near the neck (such as the shoulder, jaw, head, and upper arms).

Why is this important?

- (No statistics for **Boulder County**.)
- Back pain is one of the most common medical problems, affecting 8 out of 10 people at some point during their lives.
- In a three-month period, about one-fourth of U.S. adults experience at least one day of back pain.
- Back pain is the leading cause of disability and missed work in the U.S.; it results in $50 billion annually in costs in the U.S.
- In the U.S., acute low back pain (also called lumbago) is the fifth most common reason for physician visits.
- Low back pain is the most common cause of job-related disability and a leading contributor to missed work and reduced productivity (2006).
- Two-thirds of the population has neck pain at some point in their lives.
- 15% of U.S. adults aged 18 and up reported neck pain during the previous 3 months (2006).
- Pain, particularly chronic pain, can affect everything from day-to-day activities and quality of life to employee productivity.
- Conventional treatment of chronic pain is time-consuming and often very expensive, particularly over the course of several years.

What can the public health system do?

- Offer a variety of prevention and treatment options, including relaxation techniques and regular exercise to prevent unwanted stress and tension to the neck and back muscles, stretching, and physical therapy.
- Prevent via healthy diet to maintain a healthy weight, which helps avoid putting unnecessary and injury-causing stress and strain on the back.
- Educate on best lifting techniques and stretching exercises to increase flexibility and mobility.
- Promote good posture and proper, consistent use of ergonomic equipment.
- Improve sleeping conditions.
- Encourage use of seat belts and bike helmets to prevent injuries.

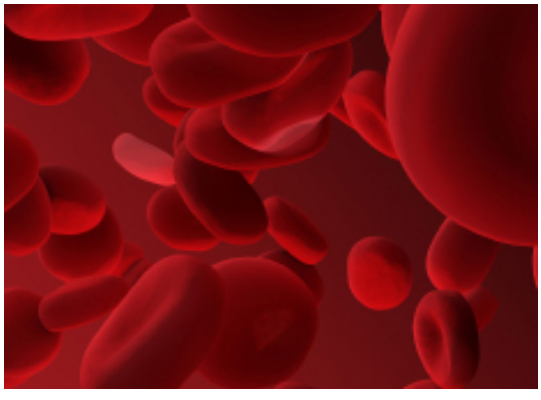
Blood disorders = include hemophilia (blood does not clot normally); anemia (blood does not carry enough oxygen); sickle cell anemia (body produces abnormally shaped red blood cells which block blood flow); deep vein thrombosis (blood clot forms in a deep vein and can break off and travel to the lungs, causing an embolism).

Why is this important?

- (**Boulder County** data on blood disorders is very limited.)
- Anemia is the most common blood disorder in the U.S., affecting nearly 3.5 million women and children: 7% of children ages 1-2, 12% of women ages 12-49 (1999-2000), and 19% of nursing home residents (2004). The mortality rate is 1.6/100,000 population.
- The annual average of visits to physician offices, hospital outpatient and emergency departments with anemia as the primary diagnosis was 5.5 million (2005-2006).
- Sickle cell anemia affects an estimated 1 in 12 African Americans in the U.S.
- In 1999 in **Boulder County**, there were no reported cases of hemophilia.
- The age-adjusted rate of all male hemophilia cases in Colorado was 234/100,000 population in 1994.
- Hemophilia affects 1 in 5,000 male births in the U.S. About 400 babies are born with hemophilia each year.
- Hemophilia can result in joint swelling, brain and organ damage, and death, as well as increased risk of septic arthritis, heart and renal disease.
- An estimated 20,000 people in the U.S. live with hemophilia.
- Complications associated with these conditions can be very painful, extremely costly, and life-threatening.
- Complications from deep vein thrombosis kill more people each year than breast cancer, motor vehicle accidents, and HIV combined.

What can the public health system do?

- Develop effective surveillance program to better understand how the condition affects our county.
- Conduct population-based studies to understand risk factors, causes, and complications.
- Promote regular screening for blood disorders, blood-borne infections, and ongoing comprehensive treatment.



Cancer = group of 100+ diseases in which abnormal cells in a part of the body grow out of control.

Why is this important?

- Cancer was the leading cause of death in **Boulder County** in 2009.
- The Boulder County age-adjusted incidence rate of all cancers was 440.3/100,000. Age-adjusted incident rates for 2005-2007 were:

malignant neoplasms	prostate cancer	female breast cancers	lung & bronchial cancers	colorectal cancers
142.2/100,000	200.1/100,000	131.7/100,000	40.0/100,000	38.0/100,000

- 73.5% of adult women age 40+ in Boulder County had a clinical breast exam and mammogram in the past 2 years (2005-2007).
- 60.7% of adults age 50+ in Boulder County had ever had a sigmoidoscopy or colonoscopy (2005-2007).
- 19.2% of adults age 50+ in Boulder County had a blood stool test in the past two years (2005-2007).
- The estimated overall annual cost of cancer in the U.S. in 2008 was $228.1 billion: $93.2 billion in health expenditures, $18.8 billion in lost productivity due to illness, and $116.1 billion in lost productivity due to premature death.
- A major cost of cancer is treatment; lack of health insurance and barriers to health care impede getting good, basic health care and treatment.

What can the public health system do?

- Promote screening via one-stop screening, special screening days, lay recruiters/outreach workers, and an inreach system.
- Provide peer-based community education programs.
- Offer media coverage, telephone hotlines.
- Treat and manage via early diagnosis and action.
- Provide coordinated care, including social services and support, for cancer patients.
- Decrease environmental and behavioral risk factors contributing to cancer.

Chronic liver disease = progressive destruction and regeneration of the liver, leading to fibrosis and cirrhosis (replacement of normal liver tissue with scar tissue).

Why is this important?

- The age-adjusted mortality rate due to chronic liver disease in **Boulder County** was 5.6/100,000 in 2007-2009.
- Common causes of chronic liver disease in the U.S. include hepatitis C infection and long-term alcohol abuse. In 2007-2008, 7% of Boulder County adults reported that they had exceeded the guidelines for low-risk drinking in the past month (male guideline is 2 drinks per day, female guideline is 1 drink per day).
- In the U.S., 112,000 hospital discharges listed chronic liver disease or cirrhosis as the first diagnosis in 2005.

What can the public health system do?

- Prevent and treat via lifestyle changes that include not stop drinking alcohol; limit salt in the diet; eating a nutritious diet; and getting vaccinated for influenza, hepatitis A and hepatitis B, and pneumococcal pneumonia.
- Treat via endoscopy, diuretics, coagulopathy, medication, and transplant.

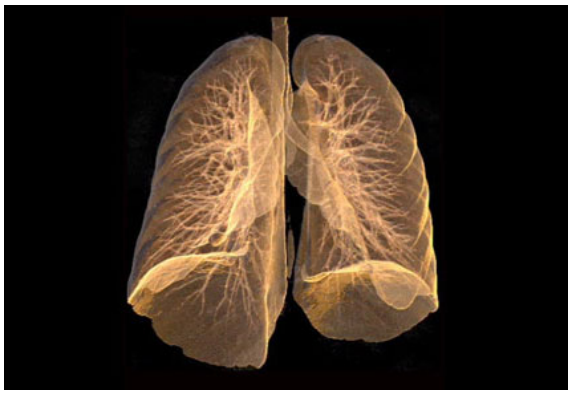
Chronic Obstructive Pulmonary Disease = group of diseases (including emphysema, chronic bronchitis) that cause airflow blockage and breathing-related problems (aka COPD).

Why is this important?

- The age-adjusted mortality rate due to chronic lower respiratory diseases in **Boulder County** was 43.2/100,000 in 2007-2009.
- COPD is the fourth leading cause of death in the United States.
- COPD kills more than 120,000 adults aged 25+ in the U.S. each year – that's 1 death every 4 minutes.
- COPD causes serious, long-term disability.
- Tobacco use is a key factor in the development and progression of COPD. Asthma, exposure to air pollutants in the home and workplace, genetic factors, and respiratory infections also play a role.

What can the public health system do?

- Treat COPD via careful and thorough evaluation by a physician.
- Encourage avoidance of tobacco smoke and removing other air pollutants from the patient's home or workplace.
- Treat symptoms, such as coughing or wheezing, with medication, and treat respiratory infections with antibiotics.
- Patients who have low blood oxygen levels in their blood can be given supplemental oxygen.
- Educate the public to be aware of the risk factors and recognize the symptoms.
- Support pulmonary rehabilitation programs.
- Promote flu and pneumonia shots.



Depression = mood disorder in which feelings of sadness, loss, anger, or frustration interfere with everyday life for an extended period of time.

Why is this important?

- 25.1% of **Boulder County** high school students felt sad, hopeless, or depressed (2009).
- 7% of adults in Colorado were currently depressed. Depressed respondents were more likely to be uninsured and delay health care due to cost (2008).
- Depression affects 1 in 10 U.S. adults (9% for current depression, 3.4% for major depression in 2006-2008) and 20 million+ people in the U.S.
- An average of 8.5 million average ambulatory care visits (to physician offices, hospital outpatient and emergency departments) per year had major depression as primary diagnosis (2005-2006 in U.S.).
- The average length of stay for major depressive disorder is 6.3 days in the U.S.
- Depression can adversely affect course and outcome of chronic conditions (e.g. arthritis, asthma, cardiovascular disease, cancer, and diabetes).
- Depression can result in increased work absenteeism, short-term disability, and decreased productivity.

What can the public health system do?

- Encourage health care providers to regularly screen children and adults for depression to ensure that accurate diagnosis and effective treatment can be provided with careful monitoring and follow-up.
- Promote collaborative care among primary care providers, mental health specialists, and other providers to improve disease management.
- Expand affordable access to mental health services.
- Address the stigma associated with depression as well as screening, intervention, referral, and treatment.
- Educate patients, practitioners, and the public to recognize, refer, and support people experiencing depression.
- Monitor use of medication, especially self-medication.

Diabetes = a disease in which blood glucose levels are above normal.

Why is this important?

- 3.5% of **Boulder County** adults had been told by a doctor that they had diabetes; the age-adjusted mortality rate was 11.2/100,000 (2007-2009).
- Diabetes affected about 1 in 19 Colorado adults (or 5.3% of the adult population) in 2007.
- Diabetes affects 8.3% of the population and is the seventh leading cause of death in the U.S.
- Diabetes accounted for $116 billion in total U.S. health care system costs in 2007.
- The estimated total cost of diabetes for people in Colorado in 2006 was more than $2.5 billion, including over excess medical costs of $1.6 billion attributed to diabetes and lost productivity valued at more than $900 million.
- Almost 24 million Americans have diabetes, including 5.7 million who do not know that they have the disease.
- 35% of U.S. adults aged 20 years or older had pre-diabetes (50% of adults aged 65 years or older) in 2005-2008.
- Diabetes is the leading cause of kidney failure, non-traumatic lower-limb amputations, and new cases of blindness among U.S. adults. Complications also include heart disease, stroke, hypertension, nervous system disease, dental disease, and complications of pregnancy.

What can the public health system do?

- Promote healthy behaviors to prevent diabetes via lifestyle intervention to improve diet, lose weight, increase physical activity, get adequate sleep, and reduce substance use.
- Convene a coalition to address the issues of diabetes in the community.
- Create and publicize a profile of the impact of diabetes in the community.
- Provide diabetes education and training for health professionals, including eye doctors, obstetricians, and general practitioners.
- Facilitate improvement of diabetes care in clinical settings and patient self-management via diet, exercise, insulin, and oral medication.
- Implement education, support programs, economic assistance, health care, education, and self-care practices for patients.
- Impact physical environment to encourage exercise, and institute legislation to limit diabetes-aggravating foods.

Food and waterborne disease = foodborne disease refers to over 250 diseases (e.g. salmonella, E-coli) caused by consuming contaminated foods or beverages, often causing nausea, vomiting, abdominal cramps, and diarrhea; waterborne diseases (e.g. *giardia*, norovirus) are caused by organisms directly spread through water and acquired due to a lack of water for good hygiene, lack of sanitation, or increasing insect populations that breed in water and then spread disease.

Why is this important?
Salmonella and others

- There were 15.8 cases of foodborne disease per 100,000 persons in Colorado (2000).
- There were 33 reported cases of salmonella in **Boulder County** in 2009. Boulder County also had cases of campylobacter (64), cryptosporidiosis (2), E-coli (12), giardiasis (66), hepatitis A (6), and shigellosis (14) in 2009.
- Boulder County experienced an outbreak of campylobacter and E-coli; many were linked to raw goat milk in 2010.
- Each year, roughly 1 out of 6 Americans (or 48 million people) get sick (the majority of which cause mild symptoms for a day or two), 128,000 are hospitalized, and 3,000 die of foodborne diseases.
- Poor underlying health or weakened immune systems allow foodborne illness to invade the bloodstream and cause life-threatening infections.
- The most severe of foodborne cases tend to occur in the very old, the very young, those who have an illness already that reduces their immune system function, and in healthy people exposed to a very high dose of an organism.

What can the public health system do?

- Treat depending on symptoms via rehydration, medication.
- Regulate and monitor food vendors. Engage/partner with retail food facilities to promote active managerial control of foodborne illness risks.
- Educate regarding proper food storage and preparation, as well as the importance of reporting suspected illness to the health department.
- Protect drinking, swimming, hygiene, and recreational water sources.
- Conduct surveillance, investigation, and response to outbreaks.

Health care-associated infections = infections occurring during or after treatment for a separate medical condition in a health facility.

Why is this important?

- Health care-associated infections data reporting in Colorado, including **Boulder County** health care facilities, became legally mandatory in 2006, and data began to be reported in 2008. In 2007-2008, Boulder Community Hospital and Longmont United Hospital both had infection rates statistically the same as (or in a few cases better than) national rates for surgical site infections (e.g. open heart surgery), orthopedic operative procedures (e.g. hip or knee replacement), and catheter associated bloodstream infection rates.
- Health care-associated infections are the most common complication of hospital care, resulting in 1.7 million infections, affecting 1 in 20 hospital patients, and causing 99,000 deaths in the U.S. each year.
- The health care-associated infections financial burden in the U.S. is estimated to be between $28 billion to $33 billion each year.
- Infections in blood stream, urinary tract, and surgical sites are preventable.

What can the public health system do?

- Strengthen national surveillance through National Healthcare Safety Network.
- Increase implementation of evidence-based prevention guidelines in hospitals (e.g. hand hygiene, addressing Methicillin-resistant Staphylococcus Aureus [MRSA]).
- Ensure federal and state policies to support transparency and accountability.
- Expand prevention to non-hospital settings.

Heart disease = narrowing or blockage of the blood vessels that supply blood to the heart.

Why is this important?

- The age-adjusted mortality rate due to heart disease in **Boulder County** was 139.9/100,000 in 2007-2009.
- Heart disease is the leading cause of death for both men and women in the U.S., causing more than one in every four U.S. deaths in 2006.
- Heart disease is a major cause of heart attack and disability.
- In the U.S., someone has a heart attack every 34 seconds; each minute, someone dies from a heart disease-related event.
- In 2010, heart disease will cost the U.S. $316.4 billion (includes health care services, medication, lost productivity).

What can the public health system do?

- Promote prevention via wellness programs and encourage lifestyle changes, such as controlling blood pressure, lowering cholesterol, not smoking, exercising, reducing stress, lowering substance use, eating healthily, as well as taking medication.
- Screen early and regularly for heart disease and wellness.
- Educate patients, providers, and the public regarding symptoms, treatment, and prevention.
- Implement policy and education to promote heart-healthy living and working conditions.
- Treat and manage via early action – recognizing chest pain as a symptom of heart attack and getting immediate medical attention.
- Provide affordable medication and accessible care.
- Encourage good oral health to reduce the risk of heart and blood vessel problems.

Hyperlipidemia = elevated concentrations of any or all of the lipids in blood plasma, such as high cholesterol and high blood triglycerides.

Why is this important?

- 30.3% of adults aged 18+ years in **Boulder County** who have ever had cholesterol screening have been told by a health care provider that they had high blood cholesterol (2007).
- 73% of adults in Boulder County had their blood cholesterol checked in the past 5 years (2007).
- Hyperlipidemia is a risk factor for cardiovascular disease and heart attack. The age-adjusted rate of mortality in Boulder County due to heart disease was 139.9/100,000 in 2007-2009.

What can the public health system do?

- Prevent via dietary behavior (reduce saturated fat and cholesterol intake).
- Provide dietary counseling, and encourage weight loss and regular exercise.
- Treat via medication to control cholesterol and/or triglyceride levels.
- Institute school, worksite, and home-based nutrition programs.

Hypertension = chronically elevated blood pressure in the arteries (aka high blood pressure).

Why is this important?

- In 2007-2008, 15.1% of **Boulder County** adults had ever been told by a health professional that they had high blood pressure.
- Hypertension affects 1 in 3 adults and contributes to 1 of every 7 deaths and nearly half of all cardiovascular disease-related deaths in the U.S.
- High blood pressure is called the "silent killer," as it often has no warning signs or symptoms, and many people do not realize they have it.
- High blood pressure is a major risk factor for heart disease, stroke, congestive heart failure, and kidney disease.
- In 2010, high blood pressure will cost the U.S. $76.6 billion in health care services, medications, and missed days of work.

What can the public health system do?

- Educate and ensure access to regular blood pressure screening and follow-up activities.
- Prevent via lifestyle changes such as diet, weight, not smoking, exercise, and reducing alcohol consumption.
- Promote heart-healthy and stroke-free living and working conditions.
- Treat via medication and lifestyle changes.

Infant mortality = death of an infant before his or her first birthday, frequently caused by birth defects, preterm birth and low birth weight, and sudden infant death syndrome (SIDS).

Why is this important?

- The **Boulder County** infant mortality rate was 5.4/1000 live births in 2007-2009.
- The infant mortality rate is an important measure of the well-being of infants, children, and pregnant women because it is associated with a variety of factors, such as maternal health, quality and access to medical care, socioeconomic conditions, and public health practices.

What can the public health system do?

- Prevent prior to and during pregnancy, encouraging women to get prenatal care; take folic acid; stop consuming alcohol, tobacco, and illicit drugs; and get medical conditions like diabetes under control.
- Increase public awareness of healthy behaviors prior to, during, and after pregnancy.
- Improve early and regular participation in prenatal care.
- Ensure the delivery of very low birth weight infants at facilities for high-risk deliveries and neonates.
- Modify health services to better meet the multiple and complex needs of pregnant and parenting teens.
- Reduce the number of low (<2500 grams) and very low (<1500 grams) birth weight infants.

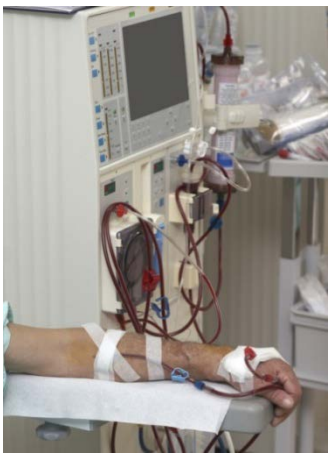
Kidney disease = damaged kidneys cannot filter blood well, causing wastes to build up and lead to other health problems, including cardiovascular disease, anemia, and bone disease.

Why is this important?

- (No **Boulder County** data available.)
- The age-adjusted death rate due to kidney disease in Colorado was 10.8/100,000 in 2007.
- Kidney disease was the ninth leading cause of death in the U.S., causing over 48,000 deaths in 2008.
- More than 10% (over 20 million) U.S. adults have kidney disease, and most of them are not aware of their condition.
- Among adults with diabetes in the U.S., more than 35% have kidney disease.
- Kidney disease is usually an irreversible and progressive disease and can lead to kidney failure if not treated.

What can the public health system do?

- Educate about testing, as a blood test is only way to detect kidney disease and urine tests assess kidney damage.
- Once detected, treat through medication and lifestyle changes to slow disease progression and prevent or delay kidney failure.
- The only treatment options for kidney failure are dialysis or a kidney transplant.



Mental health disorders – other = anxiety (like post-traumatic stress disorder and phobias), mood, and impulse-control disorders (not including depression and suicide).

Why is this important?

- 25.1% of adults in **Boulder County** reported that their mental health was not good 1-7 of the previous 30 days, while 10.1% reported that their mental health was not good for a week or more (2007-2008).
- 1 in 2 Americans has a diagnosable mental disorder each year, including 44 million adults and 13.7 million children.
- 55.7 million ambulatory care visits (to physician offices, hospital outpatient and emergency departments) had mental disorders as primary diagnosis (annual 2005-2006).
- In the U.S., 2.4 million discharges had mental disorders as the first-listed diagnosis in 2007.
- The average length of stay for mental disorders was 7.1 days in 2007.
- Mental disorders are as disabling as cancer or heart disease in terms of premature death and lost productivity.
- 80-90% of people who die by suicide were suffering from a diagnosable mental illness.
- Of those with a diagnosable mental disorder, fewer than half of and only one-third of children get help.

What can the public health system do?

- Increase awareness of effective early diagnosis and appropriate treatment (80-90% of disorders are treatable via medication and therapies).
- Ensure the supply of quality mental health services and frontline providers who are trained to identify and respond to mental health issues among children and adults with proven prevention and treatment services, tailored to age, gender, race, and culture.
- Shift norms and address stigma associated with mental disorders and seeking mental health services.
- Reduce financial barriers to child and adult mental health treatment.

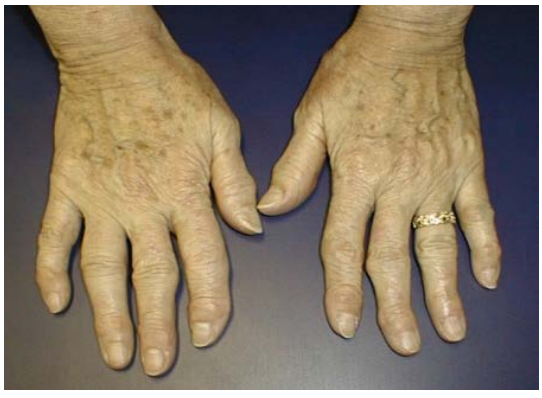
Osteoarthritis = the most common form of arthritis, characterized by degeneration of cartilage and bone within a joint and bony overgrowth, and causing pain, swelling, and reduced motion in joints, usually hands, knees, hips, or spine (aka degenerative joint disease).

Why is this important?

- 23.3% of adults in **Boulder County** had been told by a doctor that they had arthritis (not just osteoarthritis) in 2006-2008.
- 52% of adults in Boulder County were limited in their daily activities due to arthritis (not just osteoarthritis) in 2009.
- In 2002, arthritis affected nearly one third of Colorado adults, yet only 21% were being treated for it.
- Arthritis and related conditions are the leading cause of disability in the U.S., affecting nearly 43 million Americans with annual costs of more than $65 billion (1995).
- Osteoarthritis affects 26.9 million U.S. adults, including 33.6% (12.4 million) of those 65+ (2005).
- Osteoarthritis accounts for 0.2 to 0.3 deaths/100,000 population (1979–1988), 55% (409,000) of all arthritis-related hospitalizations (1997); and 7.1 million (19.5%) of all arthritis-related ambulatory medical care visits (1997).
- Osteoarthritis of the knee is 1 of 5 leading causes of disability among non-institutionalized adults.
- About 80% of patients with osteoarthritis have some degree of movement limitation; 25% cannot perform major activities of daily living.

What can the public health system do?

- Because there is currently no cure for osteoarthritis, relieve symptoms and improve function via patient education, physical therapy, weight control, and use of medications, alternative therapies, and surgery.
- Promote availability and utilization of arthritis self-management programs.
- Conduct health communications campaigns enhancing health knowledge, attitudes, beliefs, and behaviors of arthritis patients and providers.
- Conduct campaigns promoting adequate calcium intake and regular physical activity to maximize bone density development in youth and young adults and minimize bone density loss and prevent osteoporosis among mid-life and older women.



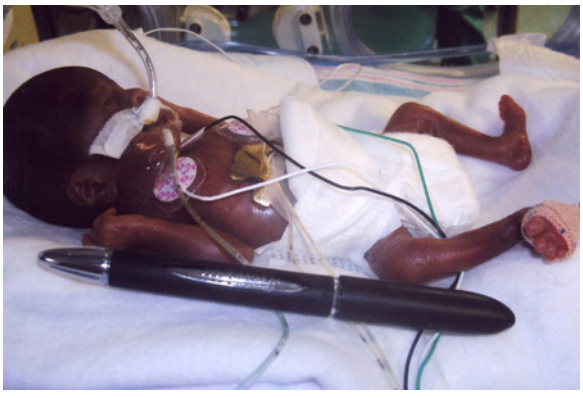
Preterm births = birth of an infant at least three weeks before the due date (< 37 weeks gestation) (aka premature birth).

Why is this important?

- The rate of preterm births for **Boulder County** was 3.4/1,000 live births for 2005-2009.
- Over a half million babies in the U.S. (1 in 8) are born preterm each year.
- Preterm birth is the major cause of neonatal mortality.
- Preterm infants are at greater risk of death and disability than full-term infants.
- Prematurity is the leading cause of death among newborn babies. Preterm-related deaths account for more than a third of all deaths during the first year of life, and more infants die from preterm causes than from any other cause.
- Some preterm babies require special care and spend weeks or months hospitalized in a neonatal intensive care unit (NICU).
- Babies who survive preterm birth may face lifelong problems, such as intellectual disabilities, cerebral palsy, breathing and respiratory problems, vision and hearing loss, and feeding and digestive problems.
- African American women have a much greater risk of delivering a preterm baby than white women.

What can the public health system do?

- Prevent preterm birth prior to and during pregnancy. Women should get early and regular prenatal care; take folic acid; stop consuming alcohol, tobacco, and illicit drugs; and get medical conditions like diabetes and high blood pressure under control.
- Promote recognition of the warning signs of preterm birth.
- Increase public awareness of healthy behaviors prior to, during, and after pregnancy.
- Improve early and regular participation in prenatal care.
- Modify health services to better meet the multiple and complex needs of pregnant and parenting teens.



Sexually transmitted and blood-borne disease = sexually transmitted diseases are infections acquired through sexual contact (e.g., chlamydia, gonorrhea); blood-borne disease is one that can be spread by contamination by blood (e.g., hepatitis C, HIV).

Why is this important?

Chlamydia

- The rate of positive chlamydia cases reported in females age 15-24 in **Boulder County** was 1,372.4/100,000 (2006-2008).
- The rate of positive chlamydia cases reported in males age 15-24 in Boulder County was 297.9/100,000 (2006-2008).

Gonorrhea

- The rate of new cases of gonorrhea reported in Boulder County was 19.2/100,000 (2006-2008).

Hepatitis C

- The rate of new cases of chronic hepatitis C among persons of all ages in **Boulder County** was 50.1/100,000 (2006-2008).

HIV/AIDS

- The rate of new cases of HIV diagnosed among persons aged 13+ in **Boulder County** was 3.7/100,000 (2006-2008).
- The rate of new cases of AIDS diagnosed among persons aged 13+ in Boulder County was 4.57/100,000 (2006-2008).

What can the public health system do?

- Develop and implement standardized protocols for sexual health risk assessment, partner notification, testing, referral, and care.
- Provide STD/HIV testing, counseling, and treatment in multiple settings, including in clinics and on the streets.
- Conduct STD/HIV data surveillance, community assessments, and community planning.
- Provide one-on-one, group, and community STD/HIV prevention education, via institutional settings, mass media, hotlines, and clearinghouses.
- Build community capacity through community organizing, agency development, agency collaborations, and concerned individuals.
- Reduce environmental and other risk factors that increase the risk of STD/HIV transmission.

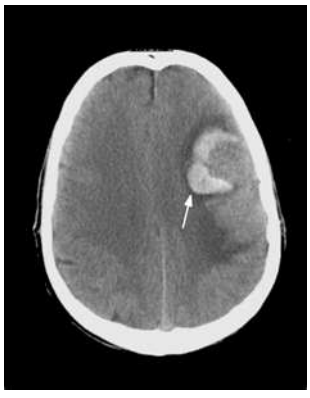
Stroke = when a blood vessel in the brain is blocked or bursts open, interrupting blood flow; if blood flow is stopped for longer than a few seconds, brain cells can die, causing permanent damage.

Why is this important?

- The age-adjusted mortality rate due stroke in **Boulder County** was 38.2/100,000 in 2007-2009.
- Stroke is the third leading cause of death for both men and women in the U.S., accounting for nearly 1 in every 17 deaths.
- Stroke is a leading cause of serious long-term disability, such as paralysis, speech difficulties, and emotional problems.
- In the U.S., someone has a stroke every 40 seconds; every 3-4 minutes, someone dies. Survivors often go on to have another stroke.
- In 2009, stroke will cost the U.S. $68.9 billion (includes health care services, medication, lost productivity).

What can the public health system do?

- Prevent via lifestyle changes such as eating healthy, maintaining healthy weight, exercising, not smoking, and limiting alcohol use.
- Prevent or treat via cholesterol and blood pressure screening, managing diabetes, and taking medication.
- Treat and manage via early action, including recognizing symptoms and getting immediate medical attention.



Substance abuse disorders = disorders due to alcohol, tobacco, and other drug use and dependencies.

Why is this important?

- 17.5% of adults in **Boulder County** reported binge drinking (5+ drinks on an occasion) in the past month; 7% exceeded guidelines for low-risk drinking in the past month (2 drinks/day for males, 1 drink/day for females) (2007-2008); 2.5% had driven under the influence (2008).
- 13.7% of adults in Boulder County reported currently smoking cigarettes (2007-2008).
- 88.6% of Boulder County high school students had drunk alcohol, 42.8% in the previous month; 28.0% binge drunk in the previous month.
- 19.4% of Boulder County high school students had ever taken prescription drugs without a doctor's prescription.
- 41.0% of Boulder County high school students had ever used marijuana, and 24.2% had done so in the previous month (2009).
- 11.9% of Boulder County mothers reported smoking during the three months prior to pregnancy; 4.0% smoked and 15.2% drank alcohol during the last three months of pregnancy (2008-2009).
- Excessive alcohol consumption is the third leading cause of preventable death in the U.S. and is a risk factor for many health and societal problems. Approximately 5% of the total U.S. population drinks heavily, and 15% of the population engages in binge drinking.
- Youth aged 12 to 20 years drink 11% of all alcohol consumed in the U.S. Over 90% of this alcohol is consumed via binge drinking.

What can the public health system do?

- Shift norms and address stigma associated with substance abuse and related services.
- Reduce youth access to alcohol/drugs (e.g. by raising price), and promote alternative beverages and activities (e.g. exercise).
- Decrease the appeal of substance products by examining, publicizing, and reducing advertising/marketing and by counter-advertising.
- Encourage work sites, schools, communities, and others to examine and consistently enforce substance abuse (e.g., increase alcohol taxes, set limits on days/hours/ages of sale, regulate outlet density, and enact dram shop liability for harm inflicted by customers consuming alcohol).
- Encourage health care providers to screen, counsel, and refer patients for substance abuse problems, including prenatal exposure.
- Emphasize the positive role males can play by supporting their partners to be alcohol/drug-free in order to ensure healthy pregnancy outcomes.

Suicide = suicidal behavior exists along a continuum from thinking about ending one's life (suicidal ideation), to developing a plan, to non-fatal suicidal behavior (suicide attempt), to intentionally ending one's own life (suicide).

Why is this important?

- The age-adjusted rate of mortality due to suicide in **Boulder County** was 15.4/100,000 population in 2006-2008.
- In 2009, 13.3% of Boulder County high school students reported that they had seriously considered attempting suicide during the 12 months preceding the survey, 11.1% made a plan, 5.6% of students reported that they had actually attempted suicide 1 or more times during the same period, and 2.0% required medical care.
- Suicide was the eleventh leading cause of death for all ages in the U.S., accounting for 1.4% of all deaths in the U.S. (2005).
- More than 32,000 suicides occurred in the U.S. (equivalent of 1 suicide every 16 minutes or 11.05 suicides/100,000 population) in 2005.
- Suicide was the second leading cause of death among 25- to 34-year-olds and the third leading cause of death among 15- to 24-year-olds in 2005.
- More people survive suicide attempts than actually die. Attempts often result in serious injury and need for medical care.
- Among 15- to 24-year-olds, there is 1 suicide for every 100-200 attempts; among adults ages 65+, there is 1 suicide for every 4 attempts (Goldsmith et al. 2002).
- Males take their own lives at nearly 4 times the rate of females, while women attempt suicide 2-3 times as often as men (Krug et al. 2002).

What can the public health system do?

- Ensure supply and access to effective and appropriate child and adult mental health and suicide prevention services and providers.
- Educate professionals and the community (including youth, parents, school staff) to recognize suicide warning signs, to respond appropriately, and make referrals to treatment and necessary supports.
- Improve reporting and portrayals of suicidal behavior, mental illness, and substance abuse in the entertainment and news media, and conduct campaigns to support youth and adults, such as the “It gets better” online video to prevent suicide across sexual orientation.
- Promote and enforce suicide means and methods restrictions, including limiting access to firearms, promoting safe storage of firearms, and encouraging use of trigger locks.
- Shift norms and address stigma associated with mental disorders and seeking mental health and suicide prevention services.

Teen pregnancy = pregnancy in a woman who has not reached her twentieth birthday when the pregnancy ends.

Why is this important?

- 2.1% of all births in **Boulder County** were to women aged 15-17 in 2007-2009.
- The teen (15- to 17-year-olds) fertility rate of live births born to women age 15-17 per 1,000 women aged 15-17 was 12.6%.
- 4.0% of all births in Boulder County were to women aged 18-19 in 2007-2009.
- The teen (18- to 19-year-olds) fertility rate of live births born to women age 18-19 per 1,000 women aged 18-19 was 20.4%.
- In the U.S., 409,840 infants were born to 15- to 19-year-olds, for a live birth rate of 39.1 per 1,000 women in this age group in 2009.
- In the U.S., two thirds of pregnancies in women under 18 years of age are unintended.
- Teen pregnancy increases infant death, low birth weight, preterm birth, and health care costs.
- Teen mothers more likely to have lower school achievement and higher dropout rates, incarceration, and unemployment.
- Taxpayer costs of teen pregnancy are over $9 billion per year in the U.S.

What can the public health system do?

- Develop an increased focus on healthy youth development in health care systems.
- Increase access to reproductive health services, especially long-acting reversible contraceptives.
- Reduce cost and accessibility (e.g., transportation) barriers to family planning services and contraceptives.
- Work to change health professional and community norms, including promotion of sex education.
- Develop focus on the role of parents in adolescent health, improve the parenting skills of parents of adolescents, and increase awareness of parents about the importance of parenting in the healthy development of teens.
- Develop youth service, leadership, enrichment, and career opportunities.
- Help youth feel comfortable with and connected to schools.
- Expand data collection on adolescent health issues.

Unintentional injury – musculoskeletal = injury from an external cause (e.g., fall, motor vehicle accident, poisoning), without any harm intended, causing damage to the muscular or skeletal systems.

Why is this important?

- The age-adjusted mortality rate due unintentional injury in **Boulder County** was 49.6/100,000 in 2007-2009.
- 14.5% of adults in Boulder County reported not always wearing a seatbelt when riding or driving in a car (2007-2008).
- Unintentional injury is the fifth leading cause of death in the U.S. and the leading cause of death in the first four decades of life.
- There were 26 million emergency department visits for unintentional injuries in the U.S. in 2007.
- Injuries may cause suffering, disability, chronic pain, and a profound change in life circumstances, including financial consequences.
- In 2000 alone, the 50 million injuries that required medical treatment in the U.S. will ultimately cost $406 billion.

What can the public health system do?

- Institute prevention targeting transportation and home and recreation activities, including alcohol-impaired, older, and teenage drivers; child passenger safety; falls, especially among older adults; injuries caused by residential fires; supervision of children; pedestrian safety; and sports and recreation injuries, including drowning prevention.
- Enforce legislation, such as traffic laws, smoke alarms, etc.
- Collect and analyze data and support new prevention efforts.
- Conduct home visits to assess the home environment for the risks of falls and other home hazards, as well as smoke alarms.
- Offer home safety and injury prevention education and safety supplies through schools, day care providers, and community agencies.
- Encourage community help with friendly neighbors and community watch programs.
- Provide age-appropriate and culturally sensitive counseling by primary care providers.
- Offer fire safety education following a burn or a visit to the emergency department.

Unplanned/unintended pregnancy = a pregnancy that is either mistimed or unwanted at the time of conception.

Why is this important?

- In 2007-2009, 26.4% of live births in **Boulder County** resulted from an unintended pregnancy.
- In 2001, approximately one-half of pregnancies in the United States were unintended. By age 45, the average American woman will have had 1.42 unintended pregnancies.
- When pregnancy is unplanned, mothers have increased risk of late initiation of prenatal care, smoking and drinking during pregnancy, depression during pregnancy and postpartum, and domestic violence.
- When pregnancy is unplanned, fathers have greater levels of stress than those with planned infants.
- Infants are at greater risk for low birth weight and are more likely to suffer developmental deficits, such as lower verbal skills.

What can the public health system do?

- Provide assessment, policy development and planning, and assurance activities to reduce unintended pregnancy rates.
- Improve public knowledge about family planning and reproductive health.
- Provide comprehensive family planning services specifically designed to meet the cultural, age, and gender needs of clients in a variety of settings.
- Increase access to reproductive health services, especially long-acting reversible contraceptives.
- Develop multi-faceted programs that support the prevention of adolescent pregnancy.
- Reduce cost barriers to family planning services and contraceptives.
- Work to change health professional and community norms.

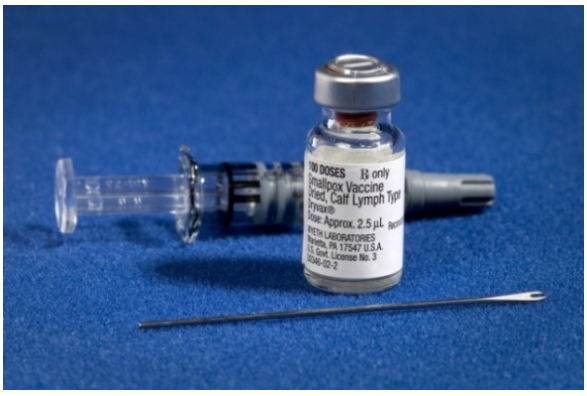
Vaccine-preventable disease = infectious disease for which an effective preventive vaccine exists (including influenza, pneumococcal pneumonia, diphtheria, pertussis, polio, tuberculosis, yellow fever, tetanus).

Why is this important?
Influenza/Pneumonia

- The age-adjusted rate of mortality in **Boulder County** was 16.3/100,000 in 2007-2009. In 2009, there were 96 reported hospitalized influenza cases and 3 pediatric deaths.
- 70.8% of adults age 65+ in Boulder County had ever received the pneumonia vaccine in 2007-2009.
- Even though most infants and toddlers have received all recommended vaccines by age 2, many under-immunized children, adolescents, and adults remain, leaving the potential for outbreaks of disease.

What can the public health system do?

- Implement strategies to increase rates of immunization against influenza among high-risk adults and others wishing to obtain immunity.
- Implement and maintain a quality control system to ensure that vaccines are viable.
- Ensure that patients receive all needed vaccines at every visit.
- Encourage full participation in the statewide immunization registry system.



Vector-borne disease = disease that is transmitted to humans or other animals by an insect or arachnids (e.g. mite, tick), such as West Nile virus, Lyme disease, dengue, yellow fever, plague, rabies, hantavirus, and tularemia.

Why is this important?
West Nile virus and others

- There were 6 cases of severe West Nile virus (WNV) infections (neuroinvasive with hospitalization) in humans in **Boulder County** in 2010.
- In Colorado in 2010, there were a total of 81 WNV cases: 26 neuroinvasive cases, 55 nonneuroinvasive cases; 4 cases resulted in death.
- West Nile virus infection usually causes mild illness, but in less than 1% of cases it may also cause encephalitis (inflammation of the brain), meningitis (inflammation of the lining of the brain and spinal cord), or polio-like paralysis. Among those with severe illness due to West Nile virus, case fatality rates range from 3-15% and are highest among the elderly.
- The incidence of rabies, which is nearly always fatal once contracted, has significantly increased among wild animals in Colorado in the last three years due to the introduction of a new strain of skunk rabies.

What can the public health system do?

- Educate and enable people to avoid risk, for instance not touching infected animals and preventing mosquito bites via repellant and clothing.
- Promote home improvements, such as installation and maintenance of window and door screens.
- Eliminate vectors and breeding grounds, such as eliminating standing water where mosquitoes can lay eggs and by applying insecticides.
- Educate regarding symptoms and encourage rapid medical evaluation, diagnosis, and treatment.
- In severe cases, provide supportive care: hospitalization, intravenous fluids, respiratory support, and prevention of secondary infections.
- Promote rabies vaccination for pets and ensure Boulder County Public Health (BCPH) and animal control officers are contacted for any potential exposures or risks.
- Promote clinical trials to learn more about cause, treatment, and prevention.

Victim of violence = force against one or more people, compelling action against one's will on pain of being hurt.

Why is this important?

- Among **Boulder County** high school students, 26.3% reported being in a physical fight in the previous year; 14.8% reported carrying a weapon in the previous month; 27.9% were harassed or bullied in the previous month (2009).
- Violence accounts for approximately 51,000 deaths annually in the U.S.
- Cost of violent deaths (e.g. suicide, homicide, and legal intervention deaths) in the U.S. totaled $47 billion in work loss costs and $215 million in medical treatment. The per capita cost of violent deaths for Americans was $160 (2005).
- About 1 in 5 U.S. children experience some form of child maltreatment. U.S. state and local child protective services (CPS) received 3.3 million reports of children being abused or neglected (2008).
- Homicide was the second leading cause of death for youth aged 10 to 24 years (84% were killed with a firearm).
- In 2007, 5,764 youth aged 10 to 24 were murdered; an average of 16 each day.
- Each year, women in the U.S. experience about 4.8 million intimate partner-related physical assaults and rapes; men, 2.9 million.
- The medical care, mental health services, and lost productivity cost of intimate partner violence was an estimated $5.8 billion (1995).
- 551,000 people ages 60 and older were victims of elder abuse, neglect, and/or self-neglect in domestic settings (1996).

What can the public health system do?

- Collect and analyze data (e.g. monitor violence-related injuries, child mortality) to inform interventions, policies, and the community.
- Promote culturally specific relational models of attachment, self-efficacy, community connectedness, intimacy, and coping skills.
- Identify and promote community norms that discourage domestic violence, including norms from a diversity of cultures.
- Increase availability, accessibility, and utilization of services for domestic violence victims, perpetrators, and affected family members.
- Facilitate referrals to mental and chemical health programs, access to parenting information, as well as access to family home visiting.
- Educate the community to recognize and refer violence and maltreatment victims to child protection, law enforcement, and support services.
- Promote safe and supportive home, school, and work environments in which violence is proactively prevented.
- Advocate with systems to address social conditions and improve practices related to violence.

Appendix B. Consultant-Developed Health System Capacity Assessment Report[1]

Health System Capacity Assessment (HSCA) Dynamic

The formal health system capacity assessment (HSCA) for the public health improvement process (PHIP) in Boulder County was conducted with the help of Primetime Research & Evaluation. Primetime wrote this report after carrying out a series of ten three-hour meetings held in May 2011. Each meeting focused on one of the Ten Essential Public Health Services (EPHS). These facilitated focus groups consisted of 6-10 invited participants. These participants' tasks were to: 1) review the evaluation measures developed by the National Public Health Performance Standards Program (NPHPSP) for that session's Essential Service, 2) discuss the health system's capacity and performance of that public health function, 3) come to consensus on a rating score of the current capacity, and 4) express concerns and provide recommendations for improvement. The group facilitators recorded the sessions on digital recorders; the discussion and votes, as well as comments about the assessment tools themselves, were captured on a laptop computer. The meeting was divided into two sessions. The first consisted of a review of the priorities recommended to the health system as a result of data review and staff/community interviews (n=50). Each priority was presented, and each group discussed their perceptions regarding the recommended priorities. The second session consisted of responding to each question in the NPHPSP capacity assessment instrument and rating the system on each Essential Service.

Each meeting was structured to complete the following:

- The participants reviewed the standards for each question posed in the assessment tool.
- Without discussion, an initial vote was taken to determine how each participant rates the public health system in Boulder County in terms of level of activity in regards to the question.
- If there was consensus, no further discussion occurred, and the vote was recorded as final.
- If there was not consensus, a facilitated discussion continued until consensus was reached or the timekeeper stopped discussion. Infrequently, consensus could not be reached within the time limit, so a majority vote was taken.
- All votes were recorded, and an oral summary was presented at the end of the session.

Key Stakeholder Participation

Participants selected for each meeting were chosen based on area of expertise or interest and relationship to the Essential Service to be discussed. Invitations were sent to a broad range of key partners from the local public health agency, state service agencies, community-based organizations, academic institutions, hospitals, school systems, foundations, law enforcement agencies, and non-profit organizations. Additionally, invitations were sent to people in local governmental or quasi-governmental entities, including first responders, elected officials, social service providers, administrators, diversity advocates, and others. Invitations were also sent to people in the business community, media, and judicial institutions. Approximately 70 key participants (6-10 per meeting) responded to the request. Although there were sectors of the public health system in Boulder County which were underrepresented during the capacity assessment process (i.e. local hospitals), Primetime and the group participants felt the results were representative of the system.

Process Limitations

Although attempts were made to encourage participation from multiple stakeholders, some representatives were missing from the process, including those from the business community, media, and judicial and insurance institutions. The assessment format (one 3-hour meeting plus travel time)

[1] From Final PT presentation_22jun11.pptx and Primetime Final Report_25jun11.doc.

may have precluded some participants, especially those in high-profile or demanding roles, from engaging in the meetings. The time commitment may also have hindered the ability of some to participate due to lack of employer support or conflicting priorities. It is also possible that the group process deterred introverted individuals who prefer less interactive approaches.

Reaching true consensus on each question was deemed to be unattainable in the given timeframe or when an individual(s) was unable to concede to the larger group. As mentioned above, majority vote was used to capture individual item scores when consensus was not achieved. Minority votes were not recorded and are not part of the overall scoring using the Centers for Disease Control and Prevention (CDC) algorithm.

Assessment Tool

The local capacity assessment tool developed by the NPHPSP (version 2) contained over 300 questions designed to generate discussion and a rating of each of the major activities, components, and practice areas comprising the Ten Essential Services of the local public health system. The assessment questions are designed to serve as the performance measures. All questions are preceded by model standards, which represent the optimal levels of performance based on a set of indicators that are unique to each Essential Service.

Quantitative Scoring, Data Entry and Analysis

Session participants were asked to classify the percent of activity that was met within the local public health system for each Essential Service, using a five-point classification rating scale:

- None: 0% of the activity met
- Minimal: 0%-25% of the activity met
- Moderate: 26%-50% of the activity met
- Significant: 51%-75% of the activity met
- Optimal: 75%-100% of the activity met

The algorithm developed by the CDC was utilized to develop scores for every Essential Public Health Service. Each question was assigned a point value and given a weight depending on the number of questions and tiers. The score range was 0 to 100, with higher scores depicting greater performance in a given area. Each response was entered into the CDC database for analysis. A report was generated from this database highlighting the quantitative results.

Qualitative Data Collection and Analysis

In addition to the scores that were collectively assigned by each group after discussion and consensus building, qualitative data, including recordings of all discussion topics and conclusions as well as comments on the assessment tool, was analyzed into common themes and summarized for this report.

Assessment Tool Limitations

The five-point rating scale delineated in the tool was awkward (see the "Comments Regarding the Instrument" section accompanying each meeting discussion detailed below). Often, the question was worded to require a "yes" or "no" response; at the same time that wording forced participants to quantify according to the rating scale as an activity level percentage. Participants were frequently reminded, for example, that a response of "no" did not connote an appropriate response, but rather reflected "no activity," classified as 0 percent. Activity meanings in each specific question often required the explanation of a unique set of qualifiers and definitions from an 86-page glossary of definitions provided with the assessment tools by the NPHPSP. This then entailed long discussions about the

intended meaning of the question. At times, the researchers endeavored to interpret a common meaning for a question no one clearly understood. Even Primetime researchers had to stretch for a meaningful explanation of ambiguous wording. This was frustrating and wasted valuable meeting time.

Scoring Limitations

The scores are subject to the biases and perspectives of those who chose to participate in the group and who engaged in the group dialogue. Although dissenting and positive statements were recorded, the majority vote may not have adequately reflected the viewpoint of some participants. Every attempt was made to capture all comments made during the lively discussions, but understandably, this could not always be guaranteed.

Generalizability of Results

The results of this assessment are based on a facilitated group process conducted during a specific time period that captured the current opinions of the participants assessing the Ten Essential Public Health Services in which they function. As such, this assessment provides a "snapshot" approach. Changes to the local public health system at all levels occur constantly. The assessment process is subjective, based on the views of those who agreed to participate.

Overall Quantitative Health System Capacity Assessment Results

Wide community stakeholder participation in the NPHPHS assessment process allows us to report on the capacity of the broad public health system in Boulder County (including and surpassing Boulder County Public Health) to conduct the Ten Essential Public Health Services. Overall, half of the Essential Services were rated at the significant activity level, with 40% being rated at the moderate activity level, and 10% achieving the highest activity rating of optimal. The highest ratings were achieved in Essential Services #2 (diagnosing and investigating) and #6 (enforcing laws). The lowest ratings were given in Essential Services #1 (monitoring and diagnosing) and #3 (informing, educating, and empowering).

Figure 1: Summary of Essential Public Health Service performance scores and overall score (with range) for the public health system in Boulder County.

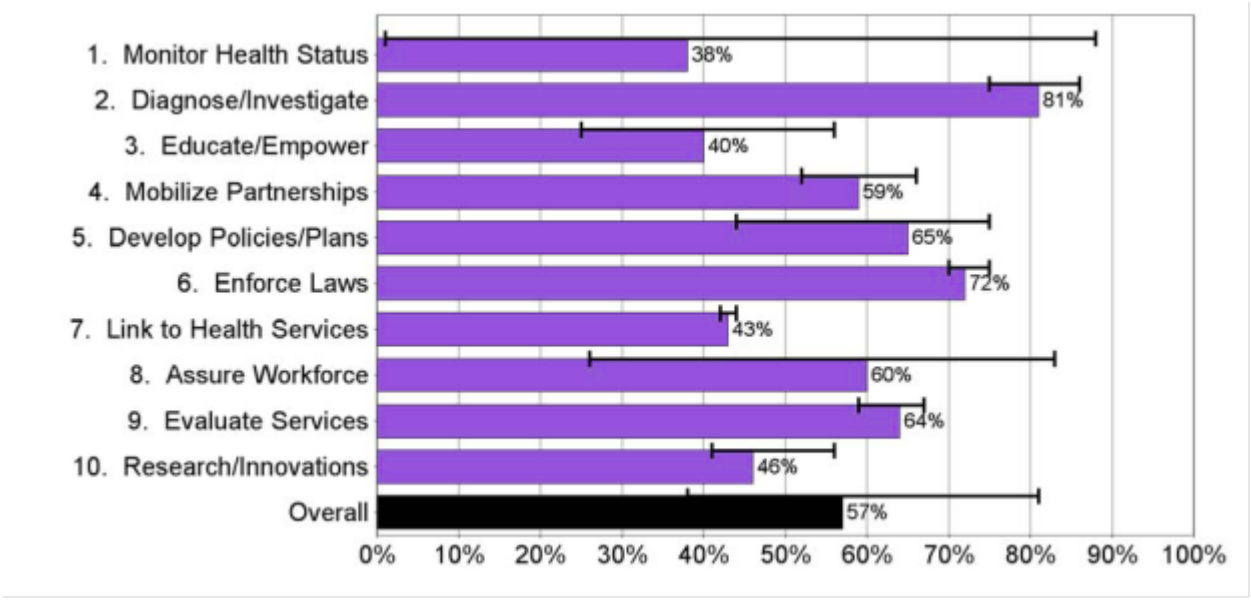


Figure 1 (above) displays performance scores for each Essential Service, along with an overall score that indicates the average performance level across all Ten Essential Public Health Services. The range bars show the minimum and maximum values of responses within the Essential Service and an overall score.

Figure 2: Rank-ordered performance scores for each Essential Service for the public health system in Boulder County.

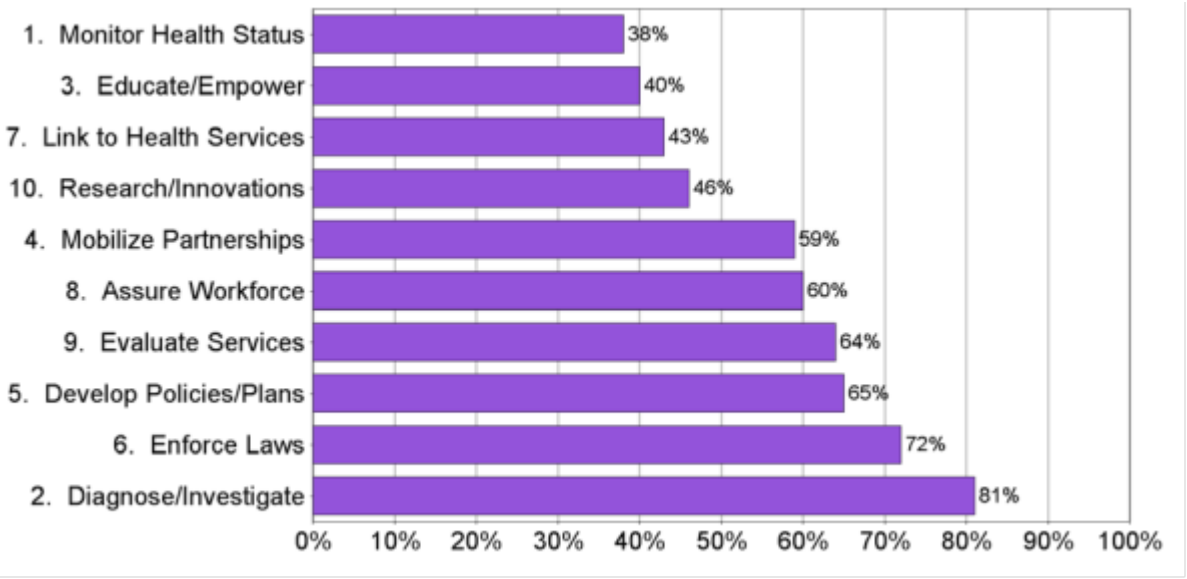


Figure 2 (above) displays each composite score from low to high, allowing easy identification of service domains where performance is relatively strong or weak.

Figure 3: Rank-ordered performance scores for each Essential Service, by level of activity, for the public health system in Boulder County.

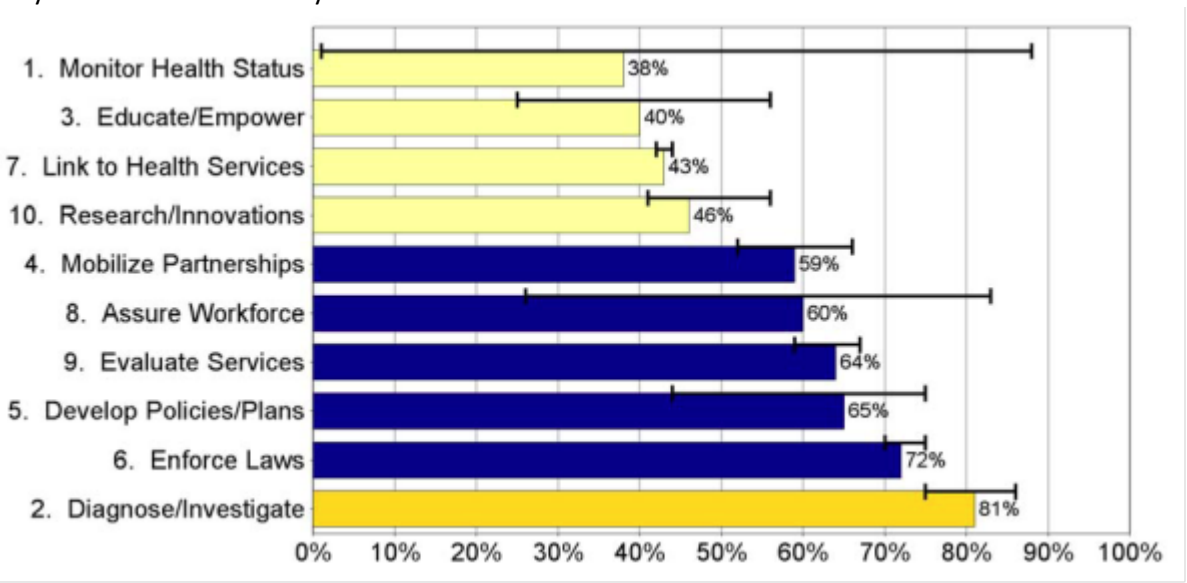


Figure 3 (above) provides a composite picture of the previous two graphs. The range lines show the range of responses within an Essential Service. The color-coded bars make it easier to identify which of the Essential Services fall in the five categories of performance activity. Note that all ten were scored as moderate, significant, or optimal.

Figure 4: Percentage of Essential Services scored in each level of activity for the public health system in Boulder County.

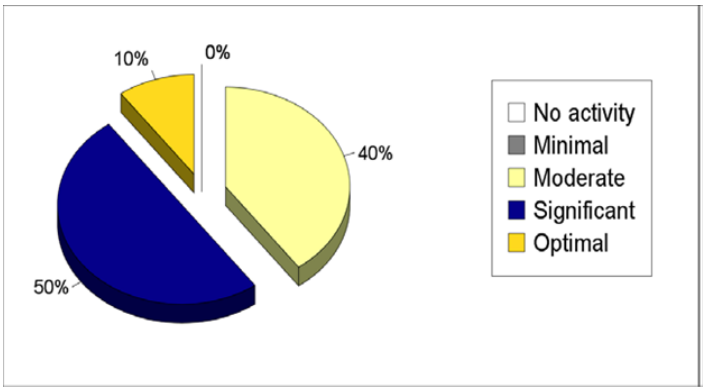


Figure 4 displays the percentage of the system's Essential Services scores that fall within the five activity categories for the public health system in Boulder County.

Figure 5: Percentage of model standards scored in each level of activity for the public health system in Boulder County.

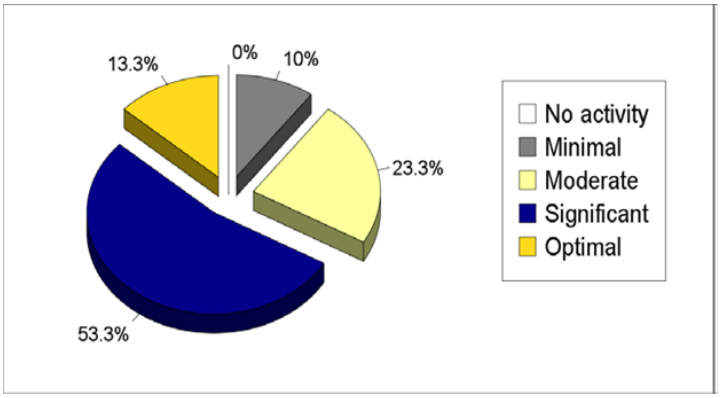


Figure 5 (above) displays the percentage of the system's model standard scores that fall within the five activity categories.

Figure 6: Percentage of all questions scored in each level of activity for the public health system in Boulder County.

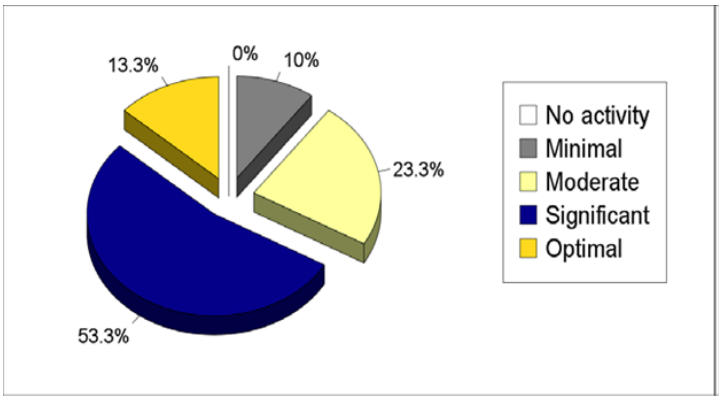


Figure 6 (above) displays the percentage of all scored questions that fall within the five activity categories. This breakdown provides a closer snapshot of the system's performance, showing variation that may be masked by the scores in Figures 4 and 5.

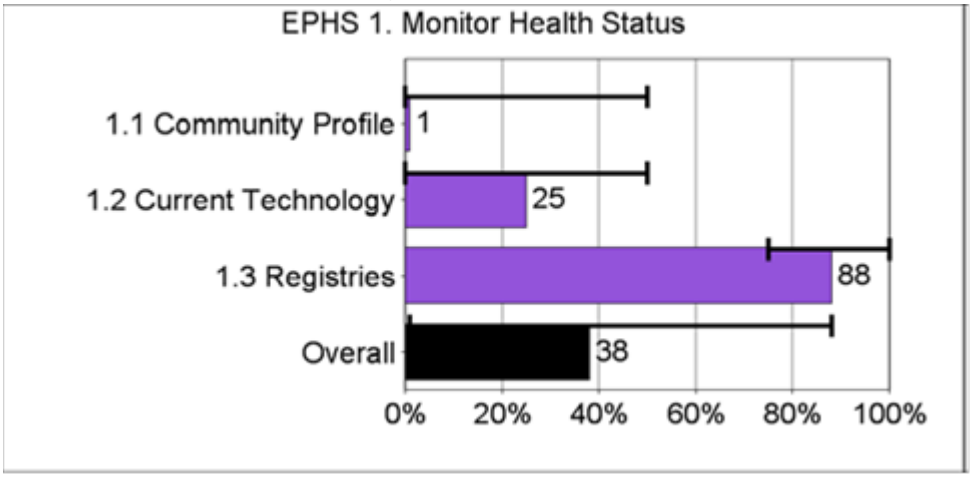
Detailed Quantitative and Qualitative Health System Capacity Assessment Results by Essential Public Health Service

The following graphs and narratives provide the detailed ratings information tabulated by NPHPSP as well as summaries of discussions conducted during each of the ten 3-hour facilitated focus group sessions. Each session focused on one of the Ten Essential Public Health Services (EPHS). The discussion summaries are not exhaustive. Each summary reflects opportunities for enhancing performance of the local public health system based on specific language and measures identified in the model standards and from input from participants.

EPHS 1. Monitor health status to identify community health problems

Capacity Assessment

Group Rating of Capacity Percentage: 38% (lowest rating score of the Ten EPHS ratings, which ranged from 38% to 81%, with a mean score of 57%).



Discussion Summary

To date, a single population-based community health profile (CHP) has not been conducted in Boulder County. Consequently, there is not a consistent community health assessment or community-wide use of community health assessment or CHP data. However, the group suggests that developing a community health profile should:

1. Identify community priorities and goals.
2. Track trends and progress.
3. Be widely disseminated across the local public health system.
4. Be reviewed and updated regularly.

Although there is no health profile *per se*, participants say that several entities at the local level are collecting data (e.g., police, hospitals, health systems, insurers), but there is no systematic approach to coordinate the data collection efforts or to compile the information into a community health profile. Although some of the data are available upon request, the incentives for partners to provide this information are unclear, and the current capacity of the system to routinely develop and maintain a community health profile is uncertain.

On a positive note, the group is certain that there is adequate diagnosis and investigation of health problems and health hazards. It is not all it could be, but progress is being made with the resources, time, and talent that are available. It appears that adequate resources do not exist for developing and maintaining a community health profile, and this issue is not a priority in public health, based on the

current funding streams. One person said, "Funding sources do not allow us to be creative with programming and statute requirements often stifle creativity; nonetheless, there is a lot more we can do."

While the foregoing may be accurate, the group felt that the public health system in Boulder County should consider putting into place (or begin to build) a system to collect data about the community for health assessment purposes and to define the priorities, steps, timeframe, partners, and resources needed. It appears to the researchers that after the health system focus areas have been identified and before the strategic plan to address them goes too far forward, establishing a broad-based community health improvement committee that is responsible for reviewing the community health improvement plan should be considered.

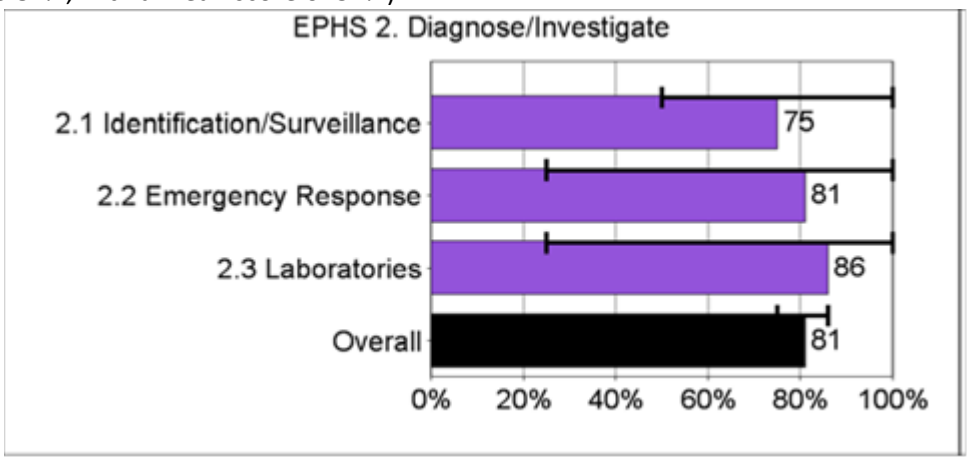
Comments Regarding the Instrument

- *Now that I have read the subtext, I need to change my first question – this is confusing.*
- *How do we interpret these questions without knowing exactly what others are doing?*
- *I don't know what standard to use because I do not know what this question means - too ambiguous.*
- *I struggle with these questions, even though I have gone through the questions beforehand.*
- *You almost have to choose one word in the question and focus on it to answer the remainder of the question – is that okay?*

EPHS 2. Diagnose and investigate health problems and health hazards in the community

Capacity Assessment

Group Rating of Capacity Percentage: **81%** (highest rating score of the Ten EPHS ratings, which ranged from 38% to 81%, with a mean score of 57%).



Discussion Summary

This Essential Service category received the highest rating of all ten (81%). There was discussion in this group regarding a more comprehensive emergency preparedness and response plan that builds on the current plan but adds:

1. Descriptions of organizational roles and responsibilities across all public health entities participating in the plan.
2. Communication and information networks available within the local system.
3. A method for wider distribution of the plan.
4. Evaluation of effectiveness of public health emergency response incidents.
5. Opportunities for improvement that are well distributed across the county.

At least one individual said there is apparent lack of ready access to state laboratories for public health threats, hazards, and emergencies. There are also epidemiological reporting inconsistencies. The way the law is structured causes lab inconsistencies, as well; for example, the state often gets the results before the local level does. Additionally, unintentional injuries are not routinely reported, especially at the university with football games, binge drinking, and known alcohol spikes.

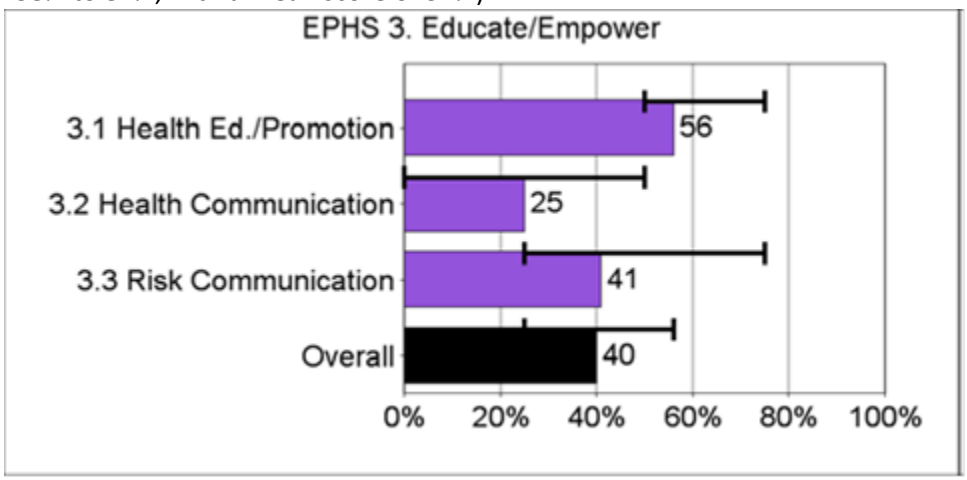
Comments Regarding the Instrument

- *The assessment response categories are great in some of the bullets, but others have a lot less; for example, environmental system has less going on, some systems for bioterrorism threats.*
- *Instrument needs more detail - too much variation in what is done for different systems.*
- *Problem with the instrument asking for averages, teasing out the problematic issues would be more useful to do.*
- *This survey is so complex; it has a glossary, too?*

EPHS 3. Inform, educate, and empower people about health issues

Capacity Assessment

Group Rating of Capacity Percentage: **40%** (second lowest rating score of the Ten EPHS ratings, which ranged from 38% to 81%, with a mean score of 57%).



Discussion Summary

It is significant that this group is adamant about information and education not filtering down to the people who may need it the most. However, those in the system seem to know that Boulder County Public Health (BCPH) frequently provides the general public and policy leaders with information on health risks and behaviors that improve health, particularly for specific health issues. One person said that BCPH sponsors health education programs that are often based on issues identified by the community. These programs often target health risks and provide guidance on developing skills and adopting healthful behaviors. However, there is no established frequency for communicating with organizations and the community-at-large through planned events. A process does not exist for system-wide notification of the events, and communication of information is typically not evaluated. The majority felt that resources go to the event rather than to advertising it. Two participant comments that sum up a long conversation: 1) "I don't know if they [BCPH] have staff, but we're not getting the information." And, 2) "They [BCPH] have staff, but they are not getting [the information] to the right groups."

The group feels that the challenge is, "Do you know where and how to find the information on your own?" One person summed it up this way, "If you're not in it [local public health department], you do not hear much. But when you are in it, living it and breathing it, you do hear everything." According to this group, there are many services in the county, but one participant said, "If you don't need services, you do not seek them out, especially in the mountain communities and East County." BCPH does maintain a master list of the names and contact information of individuals and groups for reference purposes, but there is definitely a gap in communication and, ultimately, education and empowerment. In addition, participants did not feel or were not certain that there is a local plan for communication, but they thought one would help. One person asked, "Are [communication] plans made with different populations in mind; for example, how are we going to reach the homeless?"

They felt that, for the most part, health care settings/clinics are often the only places where health care information filters down to the public. One person said, "People have to send things in or ask for information - no one comes with [information] or looking for information."

The group felt that, generally, things related to this Essential Service feel fragmented and "kind of happen" rather than having a "real plan" that everyone agrees to. In addition, there was consensus that little information gets to the Spanish-speaking population and that there are few partnerships with non-profits who could reach target populations.

They felt that the public health system in Boulder County may provide health risk and behavior information to the general public, but this information is often limited to specific segments of the population (e.g. WIC recipients, non-immigrants, middle classes, the city of Boulder) and is based on identified health needs derived from county-level or state-level data.

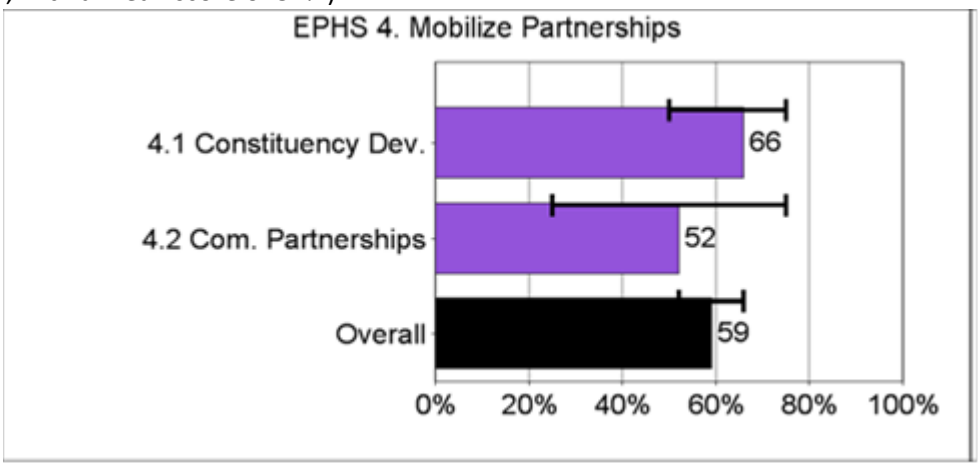
Comments Regarding the Instrument

- *This [assessment] does not allow for consensus.*
- *These questions are confusing when it says "local public health system" - it's too much to take in and then make a decision.*
- *Questions are too ambiguous to respond to with the categories provided - they are "yes or no" questions.*
- *Some questions are all or nothing, so they are very frustrating and make it too much of a subjective opinion.*
- *Everyone said, "3.1.3.1 - we don't like that question."*

EPHS 4. Mobilize community partnerships to identify and solve health problems

Capacity Assessment

Group Rating of Capacity Percentage: **59%** (rating 6th out of the Ten EPHS ratings, which ranged from 38% to 81%, with a mean score of 57%).



Discussion Summary

The group says numerous, healthy partnerships exist within the public health system and include BCPH, and that system stakeholders do have constituency-building activities, which they feel "is a very hard process." One person clearly pointed out, and others agreed, that at meetings, "BCPH does ask, *Who do we need at the table?* - but this effort it is not well-coordinated." The group agrees that key constituents are often identified to problem-solve with BCPH, but again, this is not coordinated or comprehensive. There is a local directory of organizations that comprise the local health system maintained by BCPH (not necessarily accessible to others than BCPH personnel), and that there are many online resources available. BCPH also does do focus groups and community surveys to provide information to and get information from constituents. Finally, the group thinks that although opportunities do exist for volunteers to help in community health, mechanisms for recruitment and retention may not be adequate, and existing opportunities may not be well-publicized and coordinated.

Overall, participants think that despite the existing partnerships, the public health system in Boulder County may lack a coordinated and comprehensive approach to improving community health with all partners who could "move the community health needle forward." For example, they did not think BCPH has a broad-based community process that encourages people to meet regularly and participate in data sharing, community improvement activities, assist with monitoring progress, and leveraging community resources. The researchers would add to this thought that the public health system might wish to systematically and routinely assess the effectiveness of community partnerships developed to improve community health.

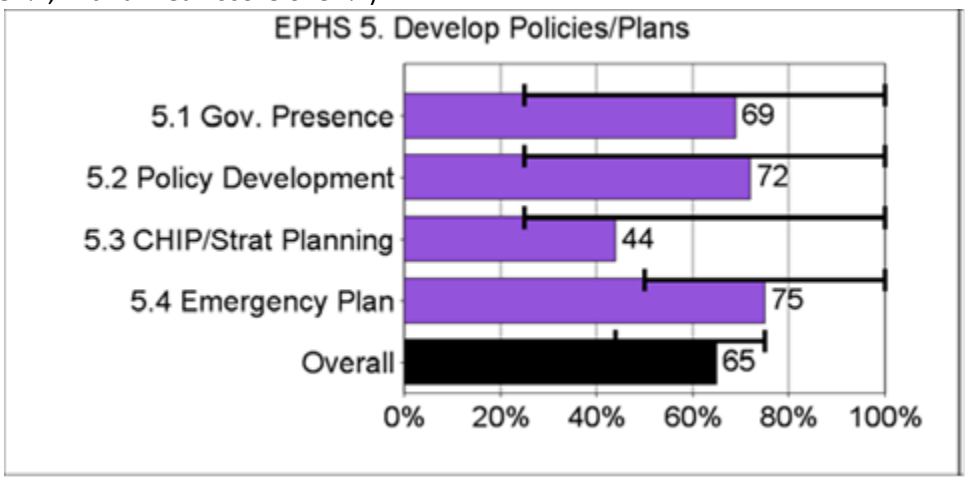
Comments Regarding the Instrument

- *How do I rate the public health department verses everything else?*
- *I am hung up on the process for identifying with this assessment.*
- *Do we need to reframe every question to understand it? Seems like a waste of time.*
- *These are vague questions.*

EPHS 5. Develop policies and plans that support individual and community health efforts

Capacity Assessment

Group Rating of Capacity Percentage: **65%** (rating 3rd out of the Ten EPHS ratings, which ranged from 38% to 81%, with a mean score of 57%).



Discussion Summary

BCPH works with the state public health system and county public health agencies to assure the provision of public health services. BCPH maintains current documentation describing its mission and assists in providing resources to assure the delivery of services to the community. There is oversight for BCPH by a governing agency, and this agency maintains statutory documentation. There was a question as to whether BCPH had statutory authority to assure the delivery of essential public health services to the community. BCPH does not assure the participation of all relevant stakeholders in the implementation of a community health improvement plan because such a plan does not currently exist. Funding is not adequate to provide all services required; for example, there is not enough staff to cover all needed food inspections. BCPH routinely contributes to the development of public health policies and routinely advocates for those who bear disproportionate burdens of mortality or morbidity. BCPH has been involved in specific activities that have influenced or informed the public health policy process, including: preparing briefs; giving public testimony; participating on local/state/national boards, policy teams, or advisory panels; and meeting with elected officials. These activities have resulted in new policy and in changes to policy. "We are quite involved in public health work," said one stakeholder.

On the other hand, one participant said, "Public health [BCPH], however, is not at others' policy tables as much as we should be." Policy development takes a tremendous amount of coordination, and this group feels BCPH does more than most in this regard. There is a formal process currently under way to set priorities through a comprehensive, coordinated, and collaborative approach. Organizational strategic plans, including the BCPH strategic plan, will align with the community health improvement process under way. This discussion group was not certain that this is true for all public health entities.

The group also felt there was not adequate evaluation of current policies, their outcomes, and the desired effect or impact the policies should have. When asked about policy development and its effects, most said there is limited feedback from the community. The researchers felt that once a PHIP plan was completed, organizations should align their own strategic plans with the community plan.

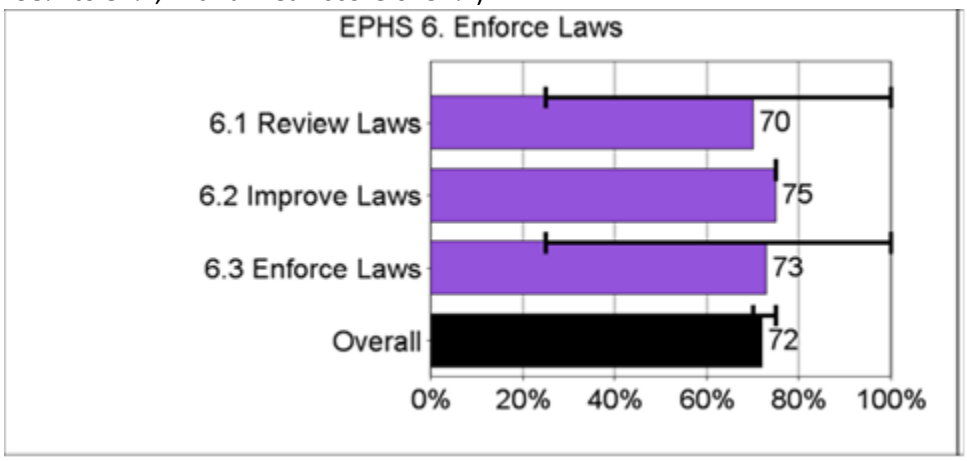
Comments Regarding the Instrument

- *We cannot get stuck on these questions literally.*

EPHS 6. Enforce laws and regulations that protect health and ensure safety

Capacity Assessment

Group Rating of Capacity Percentage: **72%** (second highest rating score of the Ten EPHS ratings, which ranged from 38% to 81%, with a mean score of 57%).



Discussion Summary

The public health system in Boulder County has identified issues that can be addressed through laws, regulations, and ordinances. According to participants, the public health system in Boulder County has access to a current compilation of federal, state, and local laws, regulations, and ordinances that protect the public's health. Much of this information is available electronically. "Emergency preparedness has some documentation laid out, but I am not familiar with other groups, but I do not think there is a single document," said one person. "The Four Mile Fire, for example, nobody knew what they [public health] were there for," said one of the evaluators for the emergency. One person added, "Sometimes there is no document, just knowledge." According to the group, a formal document does not exist that identifies the roles and responsibilities of each organization with enforcement authority.

It appears the public health system in Boulder County does not systematically review public health laws and regulations on a routine basis (e.g., at least once every five years). There was uncertainty that laws and regulations provide the authority to carry out the Ten Essential Public Health Services. They also were not certain what the impact of existing laws and regulations on the health of the community are or what the community thinks about such laws.

BCPH maintains authority for select enforcement activities (e.g. inspections, food service establishments, waste disposal, sidewalks, alcoholic beverages, etc.). Those engaged in select enforcement activities (e.g. inspectors, code enforcement officers) receive training and appear, for the most part, to effectively enforce the laws. "There is consistent enforcement of standing laws," said one key participant. On the other hand, another felt that codes were enforced inconsistently; for example, tobacco in schools. And a third said, "We may not enforce all laws, but we are consistent."

The majority said the public health system in Boulder County does a good job enforcing laws and regulations in the timeframe stipulated while respecting due process and civil rights of their constituency. The group said the public health system in Boulder County does provide their constituency with information about how to comply with applicable laws and ordinances where necessary.

The researchers suggest reviewing existing public health laws and regulations because: 1) there may be issues regarding the authority and the staff to carry out public health services, 2) the public health system in Boulder County may want to consider the impact of the laws or regulations on the health of the community and the opinions of constituents, and 3) it may be time to identify those laws and regulations that require updating.

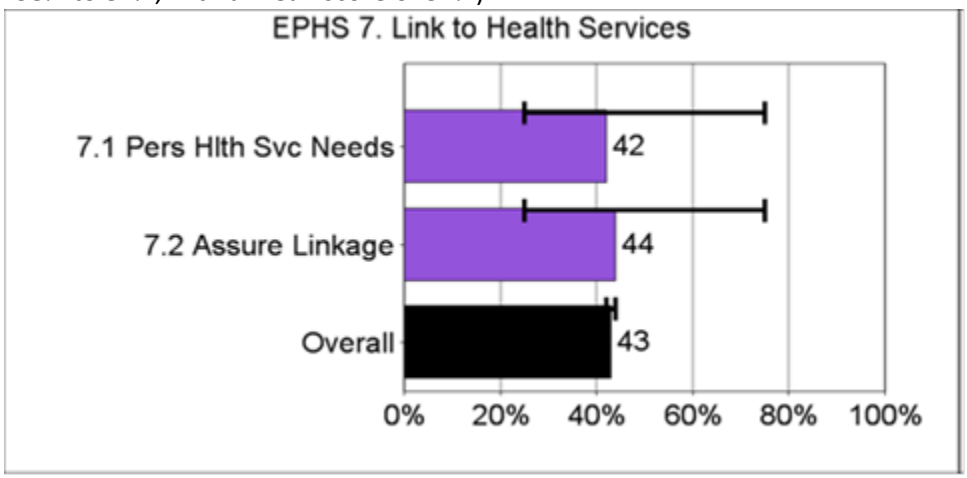
Comments Regarding the Instrument

- *The semantics are everything here. Is it one document? Or is it a document? Or is there a document somewhere? I just don't get it.*
- *We can read this two ways, so we will have to decide for ourselves how to respond. Is that all right?*
- *There are too many ways to interpret these questions!*
- *I do not think these questions should be asked without NACCHO (National Association of City and County Health Officials) in the room.*
- *I think we are getting bored with these questions.*

EPHS 7. Link people to needed personal health services and assure the provision of health care when otherwise unavailable

Capacity Assessment

Group Rating of Capacity Percentage: **43%** (third lowest rating score of the Ten EPHS ratings, which ranged from 38% to 81%, with a mean score of 57%).



Discussion Summary

Mental health, substance abuse, and oral health are very difficult "to get care for," according to the group. They suggest that there is a general lack of comprehensive health care models and services, saying that things are "fragmented and frequently with little follow-through." Some suggest there is a general lack of coordination regarding existing data to assess health services.

The whole person assessment and case management at any one site is not well-linked to others in the system according to this group. It appears that there is greater disparity in the wider system because there is not enough communication or a shared vision.

The health system in Boulder County does identify populations that may encounter barriers to accessing personal health services, including: 1) children and elderly, 2) persons who may encounter barriers due to a lack of education, geographic location, race, or ethnicity, 3) persons with low income, cultural or language barriers, physical disabilities, or mental illness, and 4) un- and under-insured persons. Some populations, however, are not adequately identified/reached by the health system, such as the homeless, the undocumented, and people living in the mountain region or East County. One person suggested that the health system in Boulder County is not adequately defining personal health service needs for all of its catchment areas due, in part, to a lack of data. Others note, however, that the system is identifying the personal health services (e.g., preventive, curative, and rehabilitative) available to diverse populations who may encounter barriers to services "for the most part." Overall, the take-away here is to define the personal health service needs of the community and assess, in a coordinated way, the extent to which personal health services are accessible, acceptable, and available.

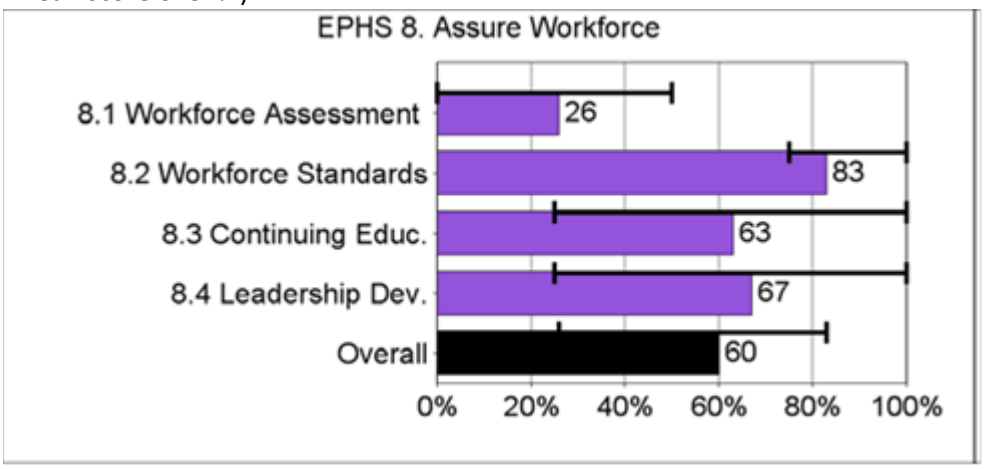
Comments Regarding the Instrument

- *These are "yes" or "no" questions. How can we assign a percentage?*

EPHS 8. Assure a competent public and personal health care workforce

Capacity Assessment

Group Rating of Capacity Percentage: **60%** (rating 5th out of the Ten EPHS, which ranged from 38% to 81%, with a mean score of 57%).



Discussion Summary

The public health system in Boulder County may not have recently (e.g., in past three years) conducted a formal workforce assessment. There have been some identification of workforce needs, but as one participant said, "…it has not been systematic." In addition, gaps within the public and personal health workforce have not been adequately identified based on a formal process. One participant said, "…for example, there is a shortage of nurses, dietitians, or specialty care people, I hear about, but there is not a formal process." The process is "fragmented" said another. The group feels that, regarding training, "things are getting underway, but we have a long, long way to go in public health." When asked why, several reasons were presented, including an aging workforce, downturn in the economy, lack of public health schools in Colorado. The group thinks more should be done relating to "professional training," as well as increasing on-the-job training. In other words, "giving them a real world understanding of what they are training for will be like, especially nurses where 30-70% leave the field after their first year on the job."

Organizations within the health system of Boulder County are aware of and in compliance with guidelines and other requirements (e.g., licensure) for personnel contributing to the public health. In addition, written job standards and position descriptions exist for all personnel within the local public health department. However, one person commented, "Anyone can work in public health." Although others chuckled, most nodded their heads in silent agreement.

Performance evaluations conducted by entities in the local public health system are based on the demonstration of core public heath competencies. Evaluators or supervisors are trained in techniques for performance appraisal as part of an overall performance improvement process. The group felt that representatives of the entities comprising the health system in Boulder County were aware of and in compliance with guidelines and other requirements (e.g., licensure) for personnel contributing to the system. There are written job standards and position descriptions for all personnel within BCPH. The participants thought job standards and position descriptions were reviewed periodically and include employee and supervisory input.

The participants agreed that the public health system does not adequately identify education and training needs. "We have 'just in time' training," said one participant. However, group members did offer several educational examples, such as training modalities, that are utilized, including distance learning technology, conferences, cross-training, coaching but not necessarily mentoring. "We have not implemented a plan for coaching or mentoring; we talk about it a lot, but modeling is really strong – you know, modeling for what's good for the client." Another said that "…there are coaching opportunities, but people just don't have time because they are in survival mode most of the time." The group felt that BCPH did not develop opportunities for the local public health system workforce to be mentored by faculty from academic and research institutions, for example. One person said, and others agreed, that there are limited opportunities for interaction between BCPH staff and organizations and faculty from academic and research institutions, particularly those connected with a school of public health. Finally, there were a few select efforts to promote leadership within some of the organizations that comprise the public health system in Boulder County.

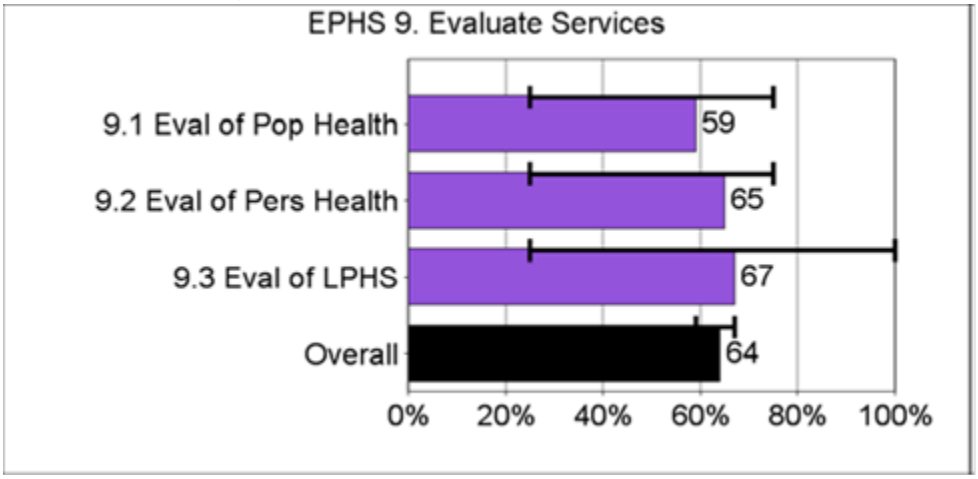
The researchers recognized that organizational strategic, operational, and evaluation plans may not adequately integrate opportunities to address workforce gaps due to the lack of a formal workforce assessment. It may be useful to conduct a coordinated assessment of the local public health system workforce to determine composition, size, competencies, training needs, and gaps.

Comments Regarding the Instrument *(none)*

EPHS 9. Evaluate effectiveness, accessibility, and quality of personal and population-based health services

Capacity Assessment

Group Rating of Capacity Percentage: **64%** (rating 4th of the Ten EPHS ratings, which ranged from 38% to 81%, with a mean score of 57%).



Discussion Summary

This was a discussion of what constitutes *formal evaluation*. The public health system in Boulder County does not conduct a formal evaluation of the system every three to five years, and linkages and relationships among organizations that comprise the local public health system are not routinely or comprehensively assessed. There is no formal evaluation process in place to guide community health improvements (with the exception of specific program-based evaluation efforts). However, when and where there are BCPH evaluations, the methods are standard and correct. Many within the local public health system use targets and standards like Healthy People 2020. But it is fragmented – it seems that there is not a standard evaluation model right now, but one is being established. When it is finished, the group was concerned that the local public health system use it rather than "shelve it." System members do evaluate population-based health services, excluding prevention or adults. However, the state does a behavioral risk and preventive behaviors survey for adults. This survey has its limits for Boulder County, as sampling does not contribute enough at the county data level. BCPH developed a list of 300+ agencies with whom they currently partner, but these linkages are not routinely assessed. The block grants do comprehensive evaluations, but across all of the local public health system, evaluation is not formalized or consistent. It may be useful to conduct a comprehensive evaluation of the local public health system that is based on established criteria, involves a broad base of organizations, assesses linkages and relationships among organizations, and uses the results to guide community health improvements. This prioritization and capacity assessment process is a step in that direction.

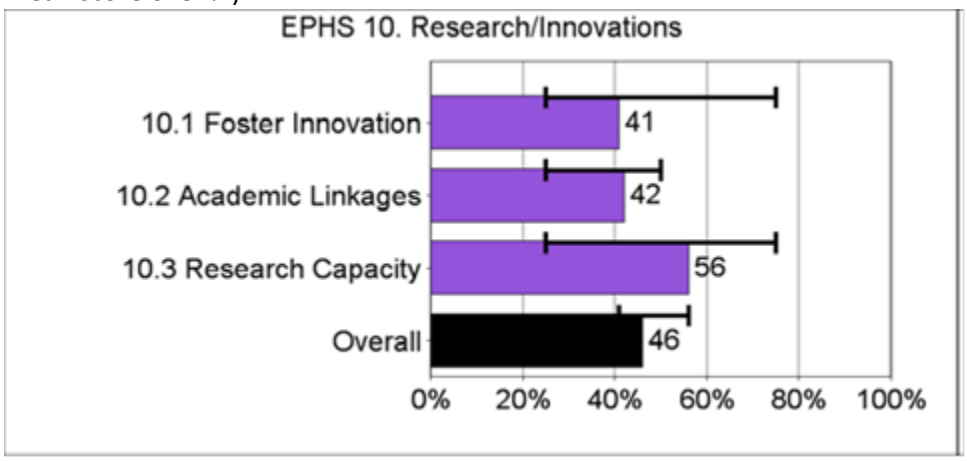
Comments Regarding the Instrument

- *This tool is far from perfect, but it is the best we have.*
- *This is so abstract.*

EPHS 10. Research for new insights

Capacity Assessment

Group Rating of Capacity Percentage: **46%** (rating 7th of the Ten EPHS ratings, which ranged from 38% to 81%, with a mean score of 57%).



Discussion Summary

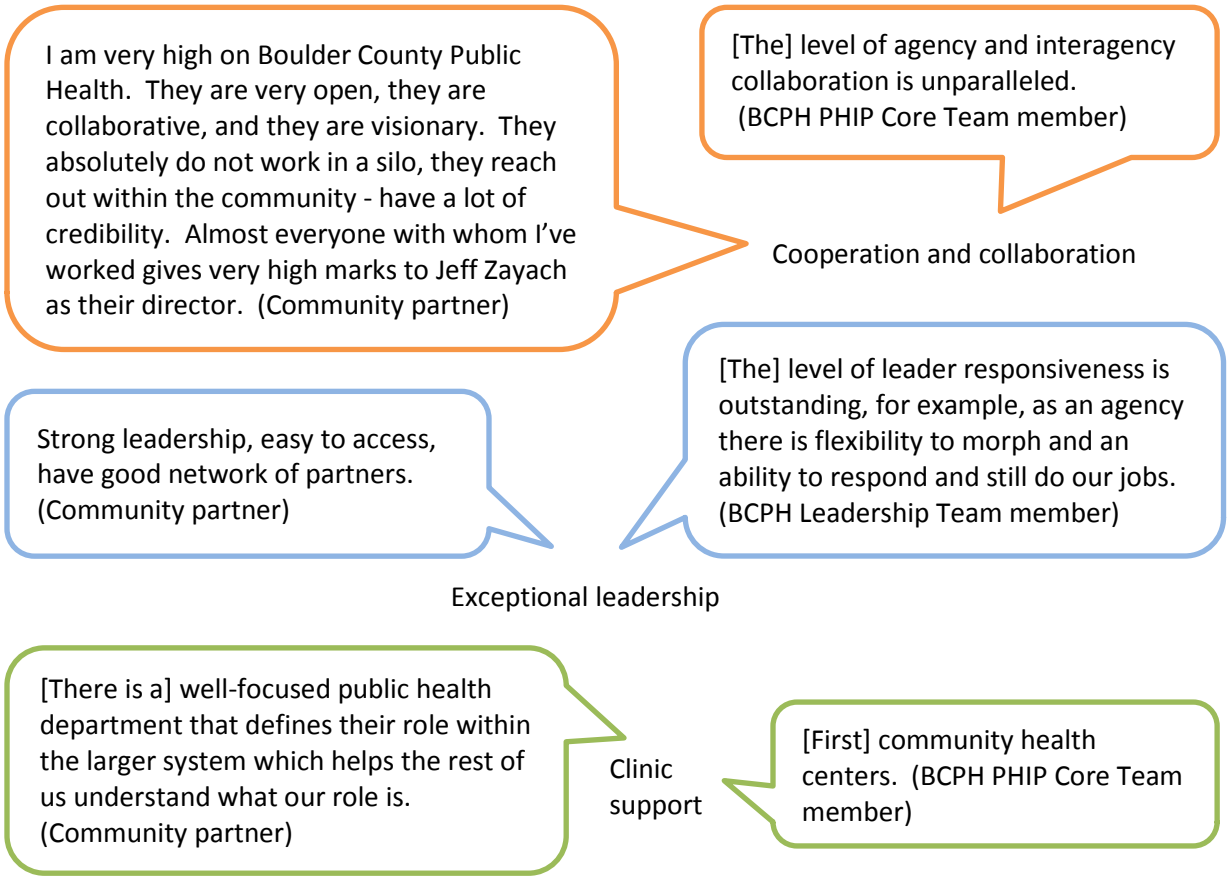
Resources control the opportunity to create and complete research within the public health system. "There is a clear value within our community for research, but the resources are not there," indicated a key participant. Another participant said, "There is still a lot more that we can do." Although there are programs that are innovative in Boulder County, there is little space for innovation because of the workload people have, the inability to write grants and the lack of coordination between possible research partners. There is a public health-based research network, which is an innovative idea that increases the formality between research and practice, according to one participant. This network is a partnership between practitioners and researchers to develop research that is relevant and immediately transferable into action. There is research interest within BCPH; however, as an entity it has decided to remove research as a priority in its organization. It does exist in pockets, said one. Some entities within the system have the data to do research to develop innovative programs but not the interest, time, or resources to do so. Apparently, staff put energy into services rather than research. In addition, while teaching and faculty exchange opportunities may exist, there are few examples of joint appointments with research and practice-based organizations.

Participants strongly urge the public health system in Boulder County to prioritize research. The group suggests encouraging research institutions (e.g., hospitals, universities, others) to include public health issues in their research agenda, as proposed by BCPH. Furthermore, this group suggested BCPH evaluate the development, implementation, and impact of research activities in the local public health system in order to innovate and improve locally. The local public health system does have access to individuals with research skills, including those employed at research institutes, academic centers, insurance agencies, and local hospitals. The researchers have training or experience in epidemiology, health policy, health economics, health services, and health systems.

Comments Regarding the Instrument *(none)*

Health System Capacity Assessment Summary

The following quotes help illustrate what participants perceived as strong facets of our health system:



The public health system of Boulder County has the capacity and infrastructure to provide the Ten Essential Public Health Services (EPHS) to those who live, work, study, and play in Boulder County. In fact, this public health system did better on the capacity assessment than did others across the nation! The majority of the EPHS focus areas assessed have moderate to significant levels of activity (a rating between 38% and 74%); one area exceeds the optimal (greater that 75%) level of capacity. No areas received a rating below 25%, indicating little or no activity.

It is evident that, with careful prioritization, strategic planning, and the necessary actions, the public health system of Boulder County can fulfill Essential Service expectations. The public health system in Boulder County demonstrated an exceptionally high capacity in Essential Service #2, diagnosing and investigating health problems and protecting people from health problems and hazards (81%). The system also received strong ratings in Essential Service #6, enforcing public laws (72%); Essential Service #5, developing policy and plans that support community efforts (65%); and Essential Service #9, evaluating accessibility and quality of services (64%).

It is praiseworthy that the public health system in Boulder County took a process that is typically conducted by a handful of health department administrators and expanded it to include the direct input of hundreds of people and many institutions - other than their own - in a system-wide approach to a process of improvement. With the two assessments, it became evident which health issue areas and health system capacity areas are strengths, as well as where improvement is needed in our local public health system.

Appendix C. Task Force-Developed Focus Area Information Sheets

For each of 30 identified health outcomes, we developed a 1-page description, including a simple definition, a brief indication of importance including Boulder County data, and example potential strategies for public health impact. Definitions, data, and strategies were drawn from the Centers for Disease Control and Prevention (CDC), Medline, CDPHE Boulder County profile, Colorado Health Information Dataset, The Community Guide to Preventive Services, and Minnesota Strategies for Public Health websites. This description of the 30 health outcomes is available in **Appendix A**.

For what became the top 7 issues of interest, these 1-page descriptions were elaborated on by public health improvement process (PHIP) Planning Phase task force members, becoming 4-page "info sheets" for each health issue of interest. The info sheets for each of the three prioritized Boulder County PHIP focus areas follow. These information sheets and accompanying endnotes were neither developed nor revised by data experts; therefore, they should not be seen as definitive data or plans.

Mental Health Promotion for a Healthy Boulder County

Mental Health Promotion		
Reduce Postpartum Depression	Baseline	2017 Target
Prevalence rate of mothers in Boulder County reporting that a health care provider talked to them about what to do if they felt depressed during their pregnancy or after delivery.[1]	37.0%	60.0%
Early Childhood Social and Emotional Development		
Prevalence rate of parents in Boulder County of 1- to 5-year-olds reporting that their health care provider asked them to fill out a survey related to their child's development.[2]	67.6%	80.0%
Reduce Suicide		
Suicide rate in Boulder County, all ages (per 100,000).[3]	19.9%	18.9%
Prevalence rate of Boulder County high school students reporting they had attempted suicide in the 12 months prior to the survey.[4]	5.6%	5.0%
Prevalence rate of Boulder County high school students who identified as lesbian, gay, bisexual, or questioning (LGBQ) reporting they had attempted suicide in the 12 months prior to the survey.[5]	20.3%	12.2%

Introduction

Mental illnesses are medical conditions that disrupt a person's thinking, feeling, mood, ability to relate to others, and daily functioning.[6] Serious mental illnesses include major depression, schizophrenia, bipolar disorder, obsessive compulsive disorder (OCD), panic disorder, post-traumatic stress disorder (PTSD), and borderline personality disorder.[7] One in two adults - approximately 57.7 million Americans - experiences a mental health disorder in a given year.[8] In the United States, the annual economic, indirect cost of mental illness is estimated to be $79 billion. Most of that amount - approximately $63 billion - reflects the loss of productivity as a result of illnesses.[9]

Depression can adversely affect the course and outcome of chronic conditions, e.g. arthritis, asthma, cardiovascular disease, cancer, and diabetes.[10] One in 17 lives with a serious mental illness, such as schizophrenia, major depression, or bipolar disorder,[11] and about 1 in 10 children live with a serious mental or emotional disorder.[12] Over 50% of students age 14 and older with a mental disorder drop out of high school - the highest dropout rate of any disability group.[13] Statewide, depression was reported by 7% of adult Coloradans.[14] A quarter of adults in Boulder County reported that their mental health was not good 1-7 of the previous 30 days, while 10.1% reported that their mental health was not good for a week or more.[15]

Mental disorders are as disabling as cancer or heart disease in terms of premature death and lost productivity.[16] Mental illness usually strikes individuals in the prime of their lives, often during adolescence and young adulthood. All ages are susceptible, but the young and the old are especially vulnerable.[17] Depressed individuals are more likely to be uninsured and delay health care due to cost.[18] For example, over 90% of people who die by suicide were suffering from a diagnosable mental illness.[19] Of those with a diagnosable mental disorder, fewer than half of adults and only one-third of children get help.[20] Early identification and treatment is of vital importance; ensuring access to treatment and recovery programs and supports that are proven effective, meaning that recovery is accelerated, and further harm related to the course of illness is minimized. Stigma erodes confidence that mental disorders are real, treatable health conditions.[21] We have allowed stigma and an unwarranted sense of hopelessness to erect attitudinal, structural, and financial barriers to effective treatment and recovery.

Mental health disorders vary along lines of income, race/ethnicity, gender, sexual orientation, and age. Low-income, African American, female, LGBQ (lesbian, gay, bisexual, questioning), and older people often suffer disproportionately from depression and other mental health disorders.[22] African Americans are more likely to experience a mental disorder than their white counterparts.[23] They are also less likely to seek treatment because of financial barriers, stigma, and lack of community-based approaches.[24] Higher percentages of uninsured individuals are within Latino populations.[25] Unfortunately, there has been little progress in overcoming barriers to treatment and improving quality of care for communities of color. Gay men, lesbians, and bisexuals experience a range of health problems directly related to their sexuality. Discrimination and dealing with homophobia can affect a person's health. Research has also shown that gay men and lesbians have reduced access to medical care, wait longer before seeking treatment, and are less well screened for health conditions than heterosexual people.[26] Boulder County LGBQ high school students report significantly more sadness and hopelessness than heterosexual high school students (52.2% versus 22.3%, respectively) and have reported attempted suicide more often as well (20.3% versus 4.2%, respectively).[27]

Action Areas

Representatives of the public health system in Boulder County set an ambitious agenda to address mental health in three key action areas: reduction of postpartum depression, promotion of early childhood social and emotional development, and reduction of suicide. These areas were selected because they represent problems that contribute to: 1) higher rates of death and disability; 2) serious complications for chronic disease patients; 3) significantly higher health care costs for employers, as well as absenteeism, short-term disability, and lost productivity in the workplace; 4) negative pregnancy outcomes and negative impacts on child health and development; and 5) can best be managed through coordinated action by city agencies, public and private partnerships, health care providers, and businesses and individuals in Boulder County. Looking across the life course, it is clear that in order to prevent mental health disorders, it is important to both give mothers and children the best start in life, as well as address mental health issues that can lead to suicide. Therefore, representatives of the public health system in Boulder County determined that focusing on postpartum depression, early childhood social and emotional development, and suicide prevention would significantly improve mental health in Boulder County.

Postpartum Depression

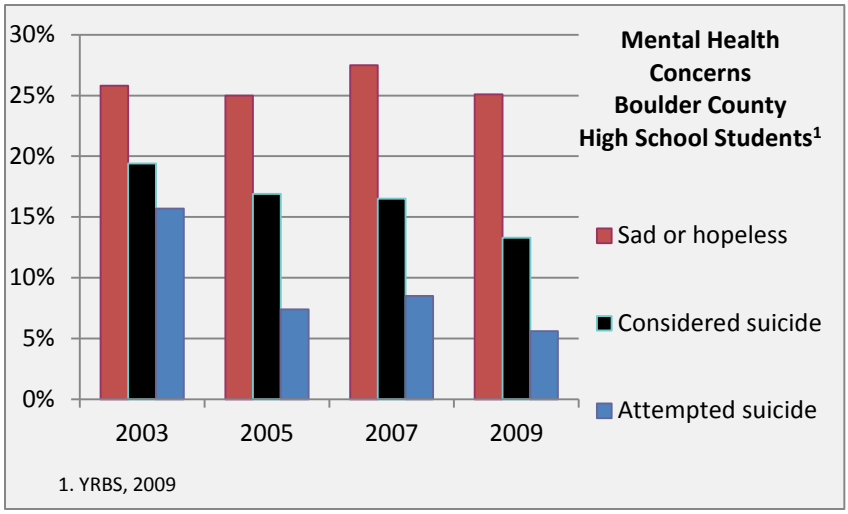
Clinical depression after childbirth is much the same as depression at any other time of life; except for one major difference: depressed new mothers often feel very guilty about the way they are feeling.[28] They worry about how hard it is to care for their babies when they are feeling so badly themselves. In Colorado, 11.8% of all women who gave birth in 2009 reported postpartum depression.[29] Studies have shown that postpartum depression is associated with disturbances in the mother-infant relationship, which in turn has an adverse impact on the course of child cognitive and emotional development.[30] Effects range from negative effects on cognitive development, especially among male children and socioeconomically disadvantaged groups, to insecure attachment at 18 months and high level of behavioral disturbance in boys at 5 years of age.[31]

Postpartum depression is treatable, although it probably cannot be prevented or eliminated.[32] Ensuring adequate screening after childbirth, ensuring adequate access to counseling/treatment, and improving coping skills for new mothers will likely decrease the impact postpartum depression may have on other family members, especially children. A multi-pronged approach to improving knowledge, screening, referral, and treatment is required to successfully address post-partum depression.

Early Childhood Social and Emotional Development

Healthy habits learned early in life, such as making good decisions, getting enough sleep, eating nutritious foods, and feeling connected to something or someone, are important factors in keeping mentally fit. Boulder County's Early Childhood Framework is a collective vision on behalf of Boulder County's young children (birth to 5 years) and their families about how to impact the readiness of young children for school.[33] By working collectively, family and children will have access to a broader array of services so more children show up at school ready to learn. In turn, this should make children less vulnerable to mental health disorders later in life.

If our goals are a ready community, ready early care and education, ready family, and ready children, we can prevent the problems that can lead to later mental health disorders. To be successful, focus must be put on four areas of practice so that a child is ready to learn at the kindergarten door: 1) physical health (oral, visual, auditory, developmental, children with special needs) and literacy skills, 2) social and emotional health, 3) family support and education, and 4) early learning.



Suicide

Suicide becomes a risk when depression goes untreated. Suicide was the eleventh leading cause of death for all ages in the U.S., accounting for 1.4% of all deaths in the U.S.[34] More than 33,000 suicides occurred in the U.S. in 2005 (equivalent of 1 suicide every 16 minutes, or roughly 11 suicides/100,000 population).[35] Suicide was the second leading cause of death among 25- to 34-year-olds and the third leading cause of death among 15- to 24-year-olds in the United States in 2005.[36] Males take their own lives at nearly 4 times the rate of females, while women attempt suicide 2-3 times as often as men.[37]

More people survive suicide attempts than actually die; attempts often result in serious injury and need for medical care.[38] The age-adjusted rate of mortality due to suicide in Boulder County was 15.4/100,000 population in 2006-2008.[39] In 2009, 13.3% of Boulder County high school students reported they had seriously considered attempting suicide during the 12 months preceding the survey.[40] Further, 11.1% reported they had made a suicide plan, 5.6% of students reported they had actually attempted suicide 1 or more times during the same period, and 2.0% reported they had required medical care.[41] There are also significant disparities in suicide rates between LGBQ and heterosexual high school students (35.3% versus 11.1%, respectively).[42] Decreasing stigma for these youth in asking for and receiving help with mental disorders and depression is critical in order to reduce this disparity.

Strategies

Beginning in fall 2011, Boulder County Public Health convened a task force with the purpose of determining not only the action areas presented above, but also how best to address each one. Below are some of the strategies suggested by this task force. These are organized into three categories consistent with the social determinants of health (aka health equity) conceptual framework (see **Chapter 1**). While some of these strategies are evidence-based, others are not, as some address topics that have not been widely explored in the literature. It is important to note that the strategies listed are not all-inclusive, and other strategies may be engaged in as the public health system in Boulder County implements our five-year strategic public health plan.

I. Economic Opportunity, Physical Environment, Social Factors

- Continue to support the implementation of evidence-based early childhood social and emotional development curricula.

II. Health Promotion (Personal Behaviors)

- Decrease stigma.

III. Access to Quality Care

- Increase screening and early recognition.
- Improve access to effective treatment and case management.
- Increase provider use of evidence-based protocols.
- Enhance surveillance for depression and suicide data.
- Improve number of hospitals in Boulder County that are baby-friendly.
- Advocate for expanded insurance coverage.
- Support current and future legislation.
- Improve coordination of services.
- Improve coordination among partners.

Substance Abuse Prevention for a Healthy Boulder County

Substance Abuse Prevention		
Reduce Alcohol Use	**Baseline**	**2017 Target**
Prevalence rate of Boulder County high school students reporting they had engaged in binge drinking in the 30 days prior to the survey.[43]	28.0%	26.6%
Prevalence rate of Boulder County high school students reporting they had initiated use of alcohol before the age of 13.[44]	15.6%	14.8%
Prevalence rate of Boulder County high school students reporting that their parents would disapprove of them drinking alcohol.[45]	83.8%	88.0%
Prevalence rate of Boulder County adults reporting they had engaged in binge drinking in the 30 days prior to the survey.[46]	20.7%	19.7%
Reduce Marijuana Use		
Prevalence rate of Boulder County 9th grade students reporting they had used marijuana on 1 or more days in the 30 days prior to the survey.[47]	14.7%	13.0%
Prevalence rate of Boulder County high school students reporting they had initiated use of marijuana before the age of 13.[48]	7.4%	6.5%
"Per capita" medical marijuana certificates issued for Boulder County residents.[49]	Not Established	Established
Reduce Prescription Drug Use		
Overall number of controlled prescriptions written in Boulder County.[50]	Not Established	Established
Prevalence rate of Boulder County high school students reporting they had ever used a prescription drug without a prescription.[51]	19.4%	18.4%

Introduction

Substance abuse disorders include those due to alcohol; tobacco; illicit drugs (including marijuana, amphetamine, methamphetamine, cocaine, ecstasy, hallucinogens, inhalants); and prescription drug use and dependencies.[52] At Boulder County Public Health, our goal is to postpone the age of initiation and reduce risky and harmful use and dependency on: alcohol, marijuana, and prescription drugs. Boulder County's public health system utilizes and supports existing coalitions and businesses to promote consistent, evidence-based substance abuse information and programming for youth, parents, and community members. This system establishes healthy cultural norms to support informed use or the decision to abstain.

Nationally, excessive alcohol consumption is the third leading cause of preventable death in the U.S. and is a risk factor for many health and societal problems.[53] Approximately 5% of the total U.S. population drinks heavily, and 15% of the population engages in binge drinking.[54] Youth aged 12 to 20 years drink 11% of all alcohol consumed in the U.S. Over 90% of this alcohol is consumed via binge drinking. Colorado ranks 11th in the nation in per capita alcohol consumption.[55] The National Survey on Drug Use and Health (NSDUH, 2007-2008) shows that Colorado rates of alcohol use are among the top five nationally for all three age groups surveyed (12-17, 18-25, 26+). Colorado's rates of marijuana and cocaine use, alcohol consumption, and binge drinking are far higher than the national average; Colorado is among the highest states in the nation.[56] In 2009, rates of current use of marijuana and alcohol use (including binge drinking) among Boulder County high school students were significantly higher than nationwide use.[57]

Ranking high in relation to other drugs and with mostly stable or increasing trends, marijuana continued to be a major drug of abuse in Colorado and the Denver/Boulder metropolitan area in 2009, based on data on treatment admissions, hospital discharges, law enforcement drug testing, and estimated emergency department (ED) visits. Marijuana use in the teen and young adult population is of special concern, as studies have found that marijuana use in those with still developing brains can disrupt brain development.[58]

The National Institute on Drug Abuse (NIDA) estimates that the total overall costs of substance abuse in the U.S., including productivity, health- and crime-related costs, exceed $600 billion annually. This includes $181 billion for illicit drugs, $193 billion for tobacco, and $235 billion for alcohol. Despite high rates of substance use and abuse, Colorado ranks 50th in financial resources dedicated to substance abuse treatment. In 2009, 16 million Americans ages 12 and older had taken a prescription drug for nonmedical purposes at least once in the prior year.[59] *The* 2010 *Monitoring the Future Study* showed that 2.7% of 8th graders, 7.7% of 10th graders, and 8.0% of 12th graders had abused Vicodin, and 2.1% of 8th graders, 4.6% of 10th graders, and 5.1% of 12th graders had abused OxyContin for nonmedical purposes at least once in the prior year.[60]

Significant disparities also exist within Boulder County in relation to substance abuse.[61] Youth - LGBQ (lesbian, gay, bisexual, questioning) youth in particular - have higher rates of substance abuse than do adults, and minority groups are more likely to abuse substances than are whites.[62] Specifically, binge drinking is highest in Boulder County among young adults ages 18-24 and in the Latino community.[63] Latino and LGBQ youth are more likely to have driven under the influence of alcohol, to binge drink, to use marijuana, and they are more likely to have begun use of substances before the age of 13.[64] In 2009, alcohol remained Colorado's most frequently abused substance and accounted for the most treatment admissions, emergency department reports, poison center calls, drug-related hospital discharges, and drug-related mortality.[65]

Action Areas

Representatives of the public health system in Boulder County set an ambitious agenda to address substance abuse in three key action areas: reducing alcohol use, reducing marijuana use, and reducing prescription drug use. These areas were selected because they cause many physical, mental, emotional, and community problems, such as family disintegration; loss of employment; failure in school; domestic violence; increased crime and jail bed usage; and higher incidence of unintended injury, infectious disease (e.g. HIV, hepatitis, STIs), and chronic disease (e.g. heart illness, diabetes, cancer).[66]

The goals set in Boulder County are important and winnable - important because they affect every Boulder County resident; winnable because it is known what actions work to prevent illness and death, and because these actions are achievable. For example, current research has identified effective interventions with younger populations to help prevent risky behaviors before drug abuse occurs, and progress is being made with older teens who are already using drugs to find ways to prevent further abuse or addiction. More importantly, for each dollar invested in prevention, a savings of up to $10 in treatment for alcohol or other substance abuse can be seen. Our focus is to postpone the age of initiation, and reduce risky and harmful use and dependency on: alcohol, marijuana, and prescription drugs.

Reducing Alcohol Use

Generally, there has been a long-term decline in the use of alcohol by teens, with the exception of the early- to mid- 1990s, when there was a slight increase in use, along with cigarettes and many of the illicit drugs.[67] Binge drinking (i.e. five or more drinks in a row for men and four or more for women) fell nationally during 2011,[68] but it increased among high school students in Boulder County from 2003 to 2009.[69] In fact, 2009 rates of current binge drinking among Boulder County high school students was significantly higher than the national average.[70] Colorado is consistently one of the five states in the nation with the highest rates of binge drinking and the lowest rates of perceptions of the risks of binge drinking. In addition, disparities exist in alcohol use in Boulder County, with more LGBQ high school students reporting binge drinking than heterosexual students (46.6% versus 30.0%).[71] Latino students in

Boulder County are also significantly more likely to binge drink than are white students (30.7% versus 28.8%).[72]

The public health system in Boulder County focuses on: 1) raising awareness of the nature and magnitude of the problems caused by harmful use of alcohol; 2) preventing and reducing negative consequences of underage drinking and adult problem drinking; and 3) strengthening partnerships and coordination among stakeholders to appropriately mobilize resources.

Reducing Marijuana Use

Marijuana use continues to rise among U.S. teens.[73] According to recent studies, daily marijuana use among high schools seniors is at a 30-year peak.[74] Nationally, marijuana use among teens rose in 2011 for the fourth straight year, in sharp contrast to the considerable decline that had occurred in the preceding decade.[75] With increasing upward trends when compared to other drugs, marijuana continues to be a major abuse problem in Colorado and the Denver/Boulder metropolitan area (as of 2009).[76]

At this time this is written, in Colorado, there are more medical marijuana dispensaries than Starbucks coffee houses.[77] Within Boulder alone, a city of less than 100,000 people,[78] there are 113 medical marijuana dispensaries, equaling 1 dispensary for approximately every 860 people.[79] In addition, in 2006 there was a ballot initiative to legalize marijuana for recreational purposes, and although it failed, it is expected to appear again on the 2012 ballot.[80]

Given the widespread availability and community norms which support marijuana - ostensibly for medical purposes - it is not surprising that 41% of Boulder County high school students reported ever having used marijuana, and 24.2% reported they had used marijuana in the last 30 days.[81] These statistics are even worse for Latino students, with 48.8% reporting ever having used marijuana, and 25.6% having used it in the last month.[82] LGBQ high school students are also more likely to use marijuana than heterosexual students (45.3% versus 22.6%).[83]

Reducing Use of Prescription Drugs

While most illegal drugs peaked in the late 1990s and then began to decline, the misuse of most prescription drugs continued to climb.[84] For example, yearly deaths related to the most commonly abused prescription drugs doubled in Colorado from 228 in 2000 to 414 in 2010.[85] In 2010, more than twice as many people in Colorado died from prescription drug abuse than drunken driving accidents.[86] Among those who abuse prescription drugs, high rates of other risky behaviors, including abuse of other drugs and alcohol, have also been reported.[87]

Over 19% of Boulder County high school students reported having ever taken prescription drugs without a doctor's prescription.[88] Among adolescents nationally, prescription and over-the-counter medications account for most of the commonly abused illicit drugs by high school seniors. In fact, nearly 1 in 12 high school seniors reported nonmedical use of Vicodin and 1 in 20 reported abuse of OxyContin.[89] Rates of illegal use of prescription drugs are particularly high among LGBQ populations, with 33.4% of LGBQ high school students reporting use, and only 19.9% of heterosexual students reporting use.[90]

Prescription medications are easy to access for adolescents.[91] When asked how prescription narcotics were obtained for nonmedical use, 70% of 12th graders said a friend or relative gave them the medications.[92] Adolescents indicate that prescription drugs are "easier to get than beer" because prescription medications can be obtained from family and friends' medicine cabinets.[93] Unused

amounts of prescription medications that may increase easy access is the target of the three National Take-Back initiative events hosted by the U.S. Drug Enforcement Administration and local law enforcement agencies. Coloradans turned in more than 35,000 pounds of unused medication.[94] The exact amount of prescription medications diverted is unclear; however, State laws require that pharmacies keep records on all prescription drugs dispensed and allow the state pharmacy board access to all records.[95] This may be a source to help determine how many prescriptions are written in Boulder County; however, we need to research and better understand the diversion of prescription drugs.

Strategies

Beginning in fall 2011, Boulder County Public Health convened a task force with the purpose of determining not only the action areas presented above, but also how best to address each one. Below are some of the strategies suggested by this task force. These are organized into three categories consistent with the social determinants of health (aka health equity) conceptual framework (see **Chapter 1**). While some of these strategies are evidence-based, others are not, as some address topics have not been widely explored in the literature. It is important to note that the strategies listed are not all-inclusive, and other strategies may be engaged in as the public health system in Boulder County implements our five-year strategic public health plan.

I. Economic Opportunity, Physical Environment, Social Factors

- Explore, support, and initiate policy approaches to reduce substance abuse.
- Improve integration of activities.
- Improve access to data for age of initiation.
- Strengthen partnerships.

II. Health Promotion (Personal Behaviors)

- Increase consumer and provider education/awareness.
- Promote awareness of the risks/hazards associated with use of marijuana, alcohol, and prescription drugs.
- Engage in social media work to change social norms about alcohol and drug use.
- Support and promote prescription drug recycling/collection programs to improve appropriate disposal of medications.
- Promote media and advertising awareness of representations of alcohol in advertising.

III. Access to Quality Care

- Broaden utilization of best practices for prescribing policies and programs.
- Advocate for including prescribing data in regional/state health information exchange (Colorado Regional Health Information Exchange, CORHIO).
- Explore data collection options.
- Expand SBIRT (Screening, Brief Intervention, Referral, and Treatment) to other providers.

Healthy Eating & Active Living for a Healthy Boulder County

Healthy Eating and Active Living		
Reduce Obesity and Overweight	**Baseline**	**2017 Target**
Prevalence rate of 2- to 5-year-olds who are ≥ 85% Body Mass Index.[96]	28.1%	26.7%
Prevalence rate of children who were breastfed for 6 months or more.[97]	Not Established	65%
Healthy Food Access		
Establish a baseline for food access.[98]	Not Established	Established Baseline
Physical Activity		
Prevalence rate of Boulder County high school students reporting vigorous physical activity for at least 60 minutes 3+ times a week in the 30 days prior to the survey.[99]	72.6%	75%
Active Transportation		
Prevalence rate of commute trips that are by transit and non-motorized transportation.[100]	15.4%	17.4%

Introduction

The current generation of children may be the first ever to have a shorter lifespan than their parents.[101] However, healthier eating and being physically active can significantly improve health. Where people live, work, and play impacts their health, and people thrive when they live in communities with parks and playgrounds, grocery stores selling nutritious food, and neighbors who know one another. There is increasing agreement among researchers and practitioners that conditions where people live - from local economic opportunities, to the physical environment, to services such as local stores where people can buy healthy food - all can affect health, either positively or negatively.[102] In the absence of a healthy environment, obesity increases; people are more likely to suffer chronic diseases, such as diabetes, asthma, and heart disease; and they are less likely to engage in adequate physical activity.[103]

Despite Colorado's ranking as one of the leanest states in the nation, more than half of Colorado adults are overweight or obese.[104] The proportion of Colorado adults who are obese more than doubled during the past 15 years, from 10.3% in 1996 to 21.4% in 2010.[105] Obesity also threatens the health of future generations. Colorado ranks 29th among states in childhood obesity (ages 10-17 years).[106] One of every 8 children ages 2-14 in Colorado is obese.[107]

Although the percentage of Boulder County's overweight and obese individuals is lower than that of national averages, we are headed in the wrong direction.[108] Research has proven that poor eating habits and lack of physical activity are linked to a number of increased risk factors for chronic disease. Obesity-related health problems account for almost 20% of Medicaid and Medicare expenditures. In 2008, national costs were estimated at $147 billion.[109]

Action Areas

Representatives of the public health system in Boulder County set an ambitious agenda to address healthy eating and active living in four key action areas: reducing obesity and overweight, while promoting healthy food access, physical activity, and active transportation. These areas were selected because they represent health problems that: 1) present a disease burden killing Boulder County residents and causing many preventable illnesses/disabilities each year; 2) are proven to show a positive response to intervention and public action; and 3) can best be managed through coordinated action by city agencies, public and private partnerships, health care providers, and businesses and individuals in Boulder County.

Reducing Obesity and Overweight

In Boulder County, 50% of adults and 16% of children are overweight or obese.[110] Among adults, the overweight rate has increased significantly from 2003 to 2008. Obesity among Colorado children ages 10-17 has also increased to 14.2% since 2003.[111] More specifically for Boulder County, overweight rates for 2- to 5-year-olds and obesity rates for 0- to 5-year-olds have held steady over the past 3 years, at approximately 12% and 10%, respectively.[112]

Obesity prevention begins at the earliest moments of life when parents make infant feeding decisions. Decisions and actions taken by parents early in the life course have been shown to affect children's weight later in life. Breastfeeding plays an important role in obesity prevention and improving overall health outcomes, and children who have been breastfed for six months or more are less likely later in childhood to be overweight and obese.[113] Therefore, a fundamental strategy for preventing overweight and obesity in childhood and adolescence is to encourage initiation and longer duration of breastfeeding. Breastfeeding has been shown to have an impact on obesity throughout the life span, while also contributing to numerous other positive health outcomes.[114] The evidence for the value of breastfeeding to children's and women's health is scientific, solid, and continually being reaffirmed by new research. Medical experts agree with the U.S. Department of Health and Human Services in recommending exclusive breastfeeding for six months and continued breastfeeding for the first year of life.[115] Although further research is needed, exclusive breastfeeding appears to have a stronger protective effect than breastfeeding combined with formula feeding.[116]

Healthy Food Access

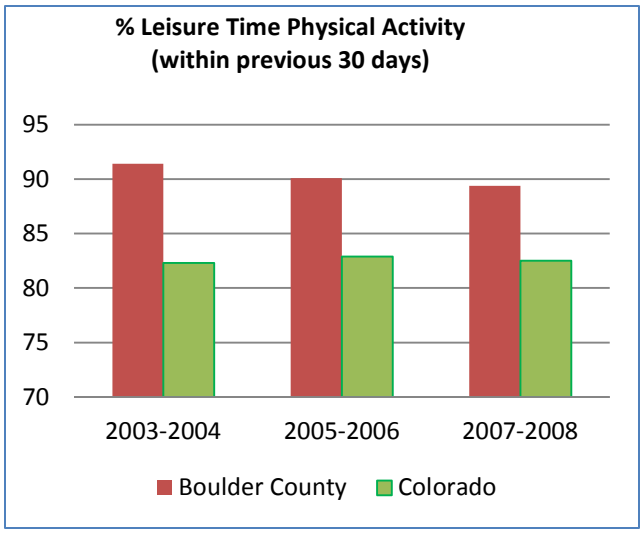
Increases in obesity and chronic diseases are major public health issues. These problems can be worse in some communities because affordable and healthy foods are disproportionately difficult to access.[117] Studies suggest that some areas and households have easier access to fast food restaurants and convenience stores than they do to supermarkets.[118] This limited access to nutritious food and easy access to fast food may be associated with poor diet and obesity and diet-related disease.[119] A major factor for people who live in areas with limited healthy food access is that they often must rely on small grocery or convenience stores that frequently do not carry healthy foods, and that the healthy foods they do carry are at higher prices.[120]

Of all households in the United States, 2.3 million people live more than a mile from a supermarket and do not have access to a vehicle.[121] An additional 3.4 million households live between one-half mile to 1 mile from a supermarket and do not have access to a vehicle.[122] Americans consume about 250 more calories per day than they did 30 years ago; about half of these extra calories come from sugar-sweetened drinks.[123] Increasing access to healthy foods can help to increase the number of adults meeting national nutritional standards. Eating more fruits and vegetables is one way to protect against many chronic conditions, such as heart disease and type-2 diabetes.[124]

While the capacity of Boulder County to provide healthy food access to its citizens has not yet been assessed, it is clear that this research must be done to determine necessary steps. Specifically, in Boulder County, adults who reported consuming 5+ servings of fruits and vegetables per day has remained fairly consistent during recent years, with a little more than 35% of adults reporting that they eat the recommended amount.[125] These rates of adequate consumption of fruits and vegetables (as a marker of adequate nutrition) are low. This may be related to limited food access in areas of the county.

The obesity epidemic and related health problems, like diabetes and heart disease, disproportionately affect low-income and minority communities.[126] Many studies have documented the lack of

supermarkets in poor communities and communities of color compared to wealthier, primarily white communities.[127] Nonetheless, research shows that access to healthy, reasonably priced food in low-income communities of color can be achieved.[128] In poor communities, the building of new grocery stores can spur economic development. In addition, existing small stores can be encouraged to stock healthier options, promoting local small business development, and in some cases, turning a place seen as a community problem into a community asset.[129]



Physical Activity Including Active Transportation
Researchers have found a strong association between the built environment, access to healthy food, and opportunities for physical activity.[130] Being physically active is important for weight management (i.e. creating a healthy balance between calories consumed and burned) and for disease prevention.

Physical activity is strongly associated with good physical and mental health, with physically active individuals reporting lower rates of heart disease, high blood pressure, stroke, type 2 diabetes, colon and breast cancers, and depression than individuals who are inactive.[131] Physical inactivity is responsible for nearly one out of every ten deaths in the United States and also plays a role in rising obesity rates.[132] Despite known health benefits, many individuals do not currently engage in enough physical activity. In Colorado, 29.1% of adults and 53% of adolescents are not active enough.[133] Fortunately, in Boulder County, physical activity has remained consistently high in recent years.

Research also shows that there is a strong link between physical activity levels and the built environment.[134] Public transportation, places to walk and bike, parks and recreations centers, and a perception of safety in one's environment contribute to increased physical activity.[135] Part of encouraging physical activity is active transportation (AT). AT has been defined as "purpose-oriented trips by walking or cycling"[136] and has also been linked to reduced obesity in areas where AT has been encouraged.[137] Getting people moving does not require expensive equipment, advanced training, or a high degree of physical fitness, and there are a wide variety of policies and services which can promote AC in a community. With the right encouragement and structural incentives, even timid, risk-averse and safety-conscious individuals can ride bikes or safely walk as part of their daily routines. However, this is only possible when communities provide the opportunity and infrastructure to safely do so.

In the United States in 2005, 43% of people with safe places to walk within 10 minutes of home met recommended activity levels, while just 27% of those without safe places to walk engaged in higher levels of activity.[138] Creating and improving places to be safely active can result in a 25% increase in the percentage of people who exercise at least 3 times a week.[139]

Planning for active transportation goes beyond reducing the number of vehicle miles in a community to providing necessary infrastructure for local and regional transit, as well as walking and bicycling.[140] Instead of expanding roadways and parking facilities to accommodate more cars, local government and community partners can make their communities "people-friendly rather than car-friendly, thus making

the community more livable and more sustainable,"[141] as well as more walkable.

Boulder County has long been a leader in encouraging active transportation. The county currently has many programs that encourage AC, such as: 1) the Bike Program, which encourages people to ride a bike as their daily commute method rather than taking a car; 2) the Bus then Bike Program, which encourages people who live farther away from their workplaces to ride a bus part of the way and then bike to their workplaces; and 3) the Ecopass Program, which allows employers and communities to subsidize bus fares for their workers/residents to encourage taking the bus to work.[142] In addition, Boulder County has a wide variety of transportation partnerships with transit service providers, such as the Regional Transportation District (RTD), which offers services that encourage transportation other than by car, including transportation options for those with special needs.[143] While these programs have been successful at encouraging active transportation rather than commuting by car, there is always more work to be done.

Strategies

Beginning in fall 2011, Boulder County Public Health convened a task force with the purpose of determining not only the action areas presented above, but how best to address each one. Below are some of the strategies suggested by this task force. These are organized into three categories consistent with the social determinants of health (aka health equity) conceptual framework (see **Chapter 1**). While some of these strategies are evidence-based, others are opportunities to develop innovative solutions to address specific needs or concerns within our own communities. It is important to note that the strategies listed are not all-inclusive, and other strategies may be engaged in as the public health system in Boulder County implements our five-year strategic public health plan.

I. Economic Opportunity, Physical Environment, Social Factors

- Policy support and implementation for breastfeeding.
- Breastfeeding support within the workplace.
- Breastfeeding support within child care settings.
- Advocate for a built environment that supports active living.
- Assess the policy barriers/incentives for food access.
- Support national recommendations for physical activity standards for early childhood education.
- Develop criteria and conduct assessments to determine the physical, financial, nutritional, and cultural barriers/incentives to gaining access to food.

II. Health Promotion (Personal Behaviors)

- Facilitate school-based opportunities for increased physical fitness.
- Increase access to physical activity spaces.
- Raise public awareness of physically active lifestyles.

III. Access to Quality Care

- Develop criteria and assess the capacity of the local food system.
- Encourage health care providers to promote physical activity and good nutrition.
- Expand community-based programs that encourage physical activity.

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