Center for Sharing
Public Health Services
Rethinking Boundaries for Better Health

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MEASURING THE IMPACT OF CROSS-JURISDICTIONAL SHARING IN PUBLIC HEALTH

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Introduction

To better understand the impact of cross-jurisdictional sharing (CJS) among public health agencies, CJS teams need to identify suitable measures and measurement processes. This document provides instructions to develop and implement an impact measurement plan. The document contains only efficiency and effectiveness impact measures and measurement processes that have been developed and are supported by the Center for Sharing Public Health Services ("the Center") and are applicable to select public health program, service and function areas.

Guidance to Develop an Impact Measurement Plan

This document contains a matrix (*Table 1*, page A-9) that combines two components, each necessary for an impact measurement plan:

1. A list of program, service and function areas with important public health relevance for which the Center has identified adequate impact measurement processes.
2. Efficiency and effectiveness measures that can be applicable to each program, service and function area.

To demonstrate the impact of a CJS arrangement, you will need to conduct measurement activities at "baseline" (i.e., before the start of the CJS arrangement) and "follow-up" (i.e., sometime after the CJS arrangement has been implemented).

There are three basic steps to develop and implement an impact measurement plan:

1. Identify a program, service or function area for which you wish to demonstrate the impact of a sharing arrangement.
2. Choose efficiency and effectiveness impact measures.
3. Conduct baseline and follow-up measurement activities.

Identify a Program, Service or Function Area

The first step is to identify from the matrix in Table 1 (page A-1) the program, service or function that best represents the focus of the CJS agreement for which you wish to demonstrate the impact. Areas are grouped into nine domains:

a. Administration and management
b. Chronic disease prevention
c. Communicable disease control
d. Community health assessment and improvement
e. Emergency preparedness
f. Environmental health protection
g. Epidemiologic services
h. Policies and planning
i. Workforce development

Each area has a definition that describes a program, service or function. The definitions are important to assure standardization in the description and implementation of the shared program, service or function. If the activities included in your CJS agreement depart substantially from the definitions in Table 1, the applicability of this impact measurement matrix may be compromised. The Center is aware that these areas cover only a fraction of what many health departments do. If you want to apply the efficiency and effectiveness impact measures to areas not included in Table 1, you should be aware that the applicability and validity of the measures in those areas may vary.

Choose Efficiency and Effectiveness Impact Measures

After choosing the area that best represents the focus of your CJS agreement, you will choose impact measures appropriate for that area. Impact measures are used to describe the impact of the CJS agreement on the efficiency and effectiveness of the selected program, service or function area. In this context, the Center defines efficiency and effectiveness as follows:

- **Efficiency:** Getting the most out of the amount of resources needed to produce a given output or outcome. Efficiency can be achieved in different ways. Some CJS agreements may result in a decrease in the cost of a service (for example, by allowing the use of fewer FTEs to deliver the same service in multiple jurisdictions), while others may result

in a stable or even higher budget but produce better or larger outputs (for example, when a service is expanded or a new service is introduced through a CJS agreement).

- **Effectiveness:** The ability of a public health program, service or function to achieve its desired results (i.e., its goals and objectives). The concept of effectiveness can be applied to long-term outcomes (e.g., better health status in a population), short-term outcomes (e.g., adoption of healthier behaviors, or diffusion of knowledge about health prevention and promotion) or improvements in capacity and processes needed to achieve the desired outcomes.

The measures developed by the Center (based on previous work from the Public Health Accreditation Board, the Centers for Disease Control and Prevention's National Public Health Improvement Initiative, and others) are as follows:

1. Efficiency Measures:
    a. Saved Time — Time to complete a specific process / deliver a specific service.
    b. Reduced Number of Steps — Number of steps required to complete a specific process or deliver a specific service.
    c. Increased Revenues — Revenues generated by changing the implementation of a billable process or service.
    d. Cost — Cost to complete a specific process, deliver a specific service, implement a specific program or maintain a specific function.
2. Effectiveness Measures:
    a. Increased Customer Satisfaction — Percentage of customers and/or staff who report being satisfied or extremely satisfied with a specific service or process.
    b. Increased Reach to Target Population — Percentage of a target population that has been offered, received or completed a specific public health service or program. The target population may include the general public or a segment of the population identified as having a high risk or need.

c. Dissemination of Information — Percentage of target individuals or public health partner organizations reached through health education materials and messages, risk communication efforts and other vehicles for information. The target population may include the general public or a segment of the population identified as having a high risk or need.

d. Quality Enhancement — Description of issues or improvement opportunity and its resolution for a specific service, program, function or data/health information system (qualitative or quantitative).

e. Increased Preventive Behaviors — Percentage of preventive or health-promoting behavior or early indicators of preventive behaviors in a target population. The target population may include the general public or a segment of the population identified as having a high risk or need.

For a detailed description of each efficiency and effectiveness measure, see Table 2 in Appendix B at the end of this document.

Since not all proposed efficiency and effectiveness measures may be suitable for each program, service and function area, the Center has developed recommended matches between areas and impact measures (see Table 1, page A-1). The efficiency measure "Cost" and the effectiveness measure "Quality Enhancement" are available for use with all areas, since they are potentially suitable to measure the impact of CJS arrangements in a broad variety of settings. The Center recommends choosing at least one efficiency and one effectiveness measure for each CJS impact measurement plan.

The Center is aware that the list of efficiency and effectiveness impact measures included in this document is limited. These are the measures that we have reviewed and studied, and we feel confident they can produce good results. You can identify other impact measures that may better meet your needs, but you should use caution, since the validity of new measures that have not been tested may vary.

Conduct Baseline and Follow-up Measurement Activities

To demonstrate the impact of a CJS agreement, you will need a baseline and one or more follow-up measurements.

Ideally, the baseline measurement should be performed no earlier than six months before the date of implementation of the CJS agreement and no later than three months after implementation. A baseline measurement can be conducted retrospectively if it is based on pre-existing records, as long as the records reflect the status of the measure within the appropriate timeframe (i.e., between six months before and three months after the implementation of the CJS agreement).

Follow-up measurements should meet the following criteria:

- Data collection should start no earlier than six months after the date of implementation of the CJS agreement.
- There should be an interval of at least six months between the baseline and the first follow-up measurement.
- At least one follow-up measurement is needed. Multiple follow-up measurements may be desirable, depending on the nature of the sharing arrangement.

The purpose of this recommended timeline is to assure that:

a. The measurements before and after the implementation of a CJS agreement are conducted close to the implementation date, to minimize the effects of other external factors that also could result in a change of the values being measured; and

b. Sufficient time is allowed for the CJS agreement to produce measurable results.

Other Considerations

Qualitative Changes

While the Center encourages whenever possible the use of quantifiable measures like those included in this document, our experience shows that in many cases CJS can impact a public health program, service or function in ways that are difficult to capture using quantitative

methods alone. Examples might include changes in worksite culture, professional relationships, trust, external credibility, expertise, etc. While difficult to measure, these changes are nevertheless very important. In addition to the measures described in this document, the Center encourages, when helpful and feasible, the use of qualitative evaluation methods (such as case studies, interviews, focus groups, etc.) to document the full gamut of the impact of CJS.

Baseline Information

Obtaining baseline information is often complicated. Follow-up data are collected prospectively and you can plan for the data collection ahead of time, but the same is usually not true for baseline data. The Center recommends that you study carefully the availability and validity of your baseline data before you finalize an impact measurement plan. Ideally, you should plan to collect the baseline information after you have decided to share a program, service or function, but before your sharing agreement is implemented. A baseline measurement can be conducted retrospectively, for example, if you can rely on pre-existing records (such as staff time sheets, budget reports, inspection logs, etc.), as long as the records reflect the status of the measure within the appropriate timeframe (i.e., between six months before and three months after the implementation of the CJS agreement). In the absence of good, credible baseline data you will not be able to demonstrate an impact of your sharing arrangement.

Special Considerations for Program, Service or Function Expansion

In some cases, one of the objectives of a CJS agreement may be to expand a program, service or function, or even introduce a new one through sharing activities. By definition, to demonstrate an impact you need to compare a baseline and a follow-up measurement, but in these cases the baseline information is not available or may be incomplete. One approach to circumvent this limitation is to develop an estimation of what the impact measure baseline value would be, had the new or expanded program, service or function elements been delivered by the single jurisdictions involved in the CJS agreement. This creates a sort of fictional baseline that, while imperfect, can be used to assess the difference in efficiency and effectiveness related to using a sharing approach.

Example – You decide to conduct a community health assessment in conjunction with two other jurisdictions. You want to calculate if a shared assessment is more efficient by measuring whether the cost of a joint assessment is lower than the cost of conducting three individual

assessments. One of the three jurisdictions has done an assessment a few years ago, while the other two have not. Therefore, you do not have access to "real" baseline cost information. In this case, you can calculate to the best of your ability what the cost would have been if you had developed three individual assessments similar to the one that was done jointly, and use that as your "baseline" value.

Additional Resources

Center for Sharing Public Health Services. http://www.phsharing.org

Public Health Accreditation Board (PHAB). Standards and Measures, Version 1.5. Available online at http://www.phaboard.org/wp-content/uploads/PHABSM_WEB_LR1.pdf

University of Washington School of Nursing The MPROVE Study—Multi-network Practice and Outcome Variation Examination: Developing Service Delivery Measures for Studies of Practice Variation. Available online at http://phastdata.org/mprove

McLees, A., Nawaz, S., Thomas, C., & Young, A. (2015). Defining and Assessing Quality Improvement Outcomes: A Framework for Public Health. American Journal of Public Health, 105, S167–S173.

Centers for Disease Control and Prevention. Cross-Jurisdictional Sharing of Public Health Services. Available online at http://www.cdc.gov/stltpublichealth/cjs/index.html

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Table 1. **Program-Service-Function Areas and Recommended Impact Measures**		Recommended Efficiency Measures				Recommended Effectiveness Measures				
Area	Definition	Saved Time	Reduced Steps	Increased Revenues	Cost	Increased Customer Satisfaction	Increased Reach to Target Population	Dissemination of Information	Quality Enhancement	Increased Preventive Behaviors
ADMINSTRATION AND MANAGEMENT										
Maintain a functional human resources (HR) system	An HR system is in place with the following characteristics: A) An HR manual exists with the following components: (1) Personnel recruitment, selection and appointment; (2) Equal opportunity employment; (3) Salary structure; (4) Hours of work; (5) Benefits package; (6) Performance evaluation process and individualized development plans; and (7) Problem solving and complaint handling, including sexual harassment. B) HR policies and procedures are implemented, as demonstrated by: (1) Documentation of the recruitment of qualified individuals that reflect the population served; (2) Documentation of retention activities conducted (e.g., employee satisfaction surveys, work environment needs assessments, reward and recognition programs, etc.); (3) Description of process to verify staff qualifications.		Y		Y				Y	
Use information systems that support the health department mission and workforce by providing infrastructure for data collection/analysis, program management and communication	A functional IT system is in place, as demonstrated by: (1) Inventory of hardware, with specifications of which programs, functions or departments are served by each item; (2) Inventory of software, with specifications of which programs, functions or departments are served by each item; (3) Two examples from different program areas of how technology supports functions in the agency.			Y	Y	Y			Y	

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Area	Definition	Saved Time	Reduced Steps	Increased Revenues	Cost	Increased Customer Satisfaction	Increased Reach to Target Population	Dissemination of Information	Quality Enhancement	Increased Preventive Behaviors
ADMINSTRATION AND MANAGEMENT (continued)										
Maintain an organizational structure that supports the health department mission and workforce	Organizational chart showing leadership, upper management positions and the organization of programs.				Y				Y	
Establish effective financial management systems	An effective financial management system, as demonstrated by all of the following elements: (1) Written agreements with entities providing processes, programs, services or interventions on behalf of the health department (if any exist);(2) Agency-wide and program-specific financial reports (at a minimum quarterly); (3) At least one grant application in the previous 12 months; (4) Billing system with the ability to send charges to both clients and the main insurance carriers in the jurisdictions.	Y		Y	Y	Y			Y	
CHRONIC DISEASE PREVENTION										
Smoking restriction policy compliance and enforcement	Number of reported cases of clean indoor air policy violations in the community; Number of compliance inspections/investigations conducted; and number of citations/fines issued for violations.		Y	Y	Y		Y		Y	
Agency involvement in tobacco prevention, control and cessation	Participation in a tobacco control initiative with all of the following components: Educational materials; Educational media; Cultural/linguistic specific materials; Cultural/linguistic specific programs; Educational/training programs; Community development (i.e., coalitions); Policy development; Tobacco cessation programs; Adult tobacco use surveillance (e.g., BRFSS); Youth tobacco use surveillance (e.g., YRBS).				Y		Y	Y	Y	Y

Table 1. **Program-Service-Function Areas and Recommended Impact Measures**		Recommended Efficiency Measures				Recommended Effectiveness Measures				
Area	Definition	Saved Time	Reduced Steps	Increased Revenues	Cost	Increased Customer Satisfaction	Increased Reach to Target Population	Dissemination of Information	Quality Enhancement	Increased Preventive Behaviors
CHRONIC DISEASE PREVENTION (continued)										
Agency involvement in prevention and control of a chronic condition of public health relevance	Participation in a chronic disease control initiative with all of the following components: Educational materials; Educational media; Cultural/linguistic specific materials; Cultural/linguistic specific programs; Educational/training programs; Community development (i.e., coalitions); Policy development; Surveillance data (e.g., BRFSS or YRBS).				Y		Y	Y	Y	Y
Agency involvement in physical activity promotion	Health department involvement in an initiative to increase access to free or low-cost recreational opportunities for physical activity (like working to develop policies to increase access to public facilities for physical activity, increasing worksites that have policies that enhance physical activity).				Y		Y	Y	Y	Y
Agency involvement in increasing access to healthy foods	Health department involvement in an initiative to increase access to healthy foods in the community. Examples include, but are not limited to, working with partners to develop a community garden or farmers market or to attract and open a new grocery store in an area identified as a food desert.				Y		Y		Y	

Table 1. **Program-Service-Function Areas and Recommended Impact Measures**		Recommended Efficiency Measures				Recommended Effectiveness Measures				
Area	Definition	Saved Time	Reduced Steps	Increased Revenues	Cost	Increased Customer Satisfaction	Increased Reach to Target Population	Dissemination of Information	Quality Enhancement	Increased Preventive Behaviors
CHRONIC DISEASE PREVENTION (continued)										
Combined physical activity intervention availability	Participation in a community-wide physical activity intervention with at least five of the following seven components: (1) Community-wide health education campaigns (e.g., large-scale, highly visible messages directed to large audiences through media such as television, radio and newspapers typically combined with other approaches including support or self-help groups, community events or risk factor screenings), (2) Community-wide stair use campaigns (e.g., motivational signs placed by elevators/escalators to encourage people to use nearby stairs for health/weight loss), (3) School-based PE programs (e.g., programs to increase amount of time students spend in PE classes which enhance the length or activity level of students and health education), (4) Social support interventions in the community (e.g., focus on changing physical activity behavior through creating, strengthening and maintaining social networks that provide supportive relationships for behavior change), (5) Individually adapted health behavior change programs (e.g., teaching goal setting/self-monitoring of progress, structured problem solving and relapse prevention), (6) Initiatives to create or enhance access to places for physical activity combined with informational outreach activities (e.g., built environment: walking trails, biking trails, exercise facilities within worksites/coalitions/agencies), (7) Community-level urban design initiatives (e.g., developments to increase the percent of residents living within walking distance of shopping, work and school; improved connectivity of streets and sidewalks; preserve or create green space and improve aesthetic qualities of the environment).				Y		Y	Y	Y	Y

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Area	Definition	Saved Time	Reduced Steps	Increased Revenues	Cost	Increased Customer Satisfaction	Increased Reach to Target Population	Dissemination of Information	Quality Enhancement	Increased Preventive Behaviors
COMMUNICABLE DISEASE CONTROL										
Childhood immunization completeness	Proportion of children vaccinated with complete series as required by state law upon entry into kindergarten (can be limited to proportion of children in a specific high-needs population, such as the children of undocumented, migrant farmworkers).				Y		Y		Y	Y
Childhood immunizations administered by agency	Number of immunizations administered by the health department to children age 0–5 years, and children age 6–18 years, during six months (can be limited to proportion of children in a specific high-needs population, such as the children of undocumented, migrant farmworkers).	Y		Y	Y	Y	Y		Y	
Foodborne enteric investigation volume	Proportion of reported foodborne/enteric disease cases that the health department investigates within the timeframe prescribed by the agency protocols.		Y		Y		Y		Y	
Foodborne enteric investigation completion time	Average time from receipt of reported case of enteric disease to completion of case investigation.	Y	Y		Y	Y			Y	
STI contact tracing	Number of STI contacts traced by the health department for each reported case of gonorrhea, chlamydia, syphilis and HIV.				Y		Y		Y	
TB active contact screening	Number of unduplicated clients that were provided active TB contact screening services by the health department for each reported case of active TB.				Y		Y		Y	
TB therapy	Percentage of TB cases that were placed on directly observed therapy following current state or national protocols.		Y		Y		Y		Y	
TB contacts who completed treatment for latent TB	Percentage of contacts with newly diagnosed latent TB infection who (1) started and (2) completed treatment.		Y		Y		Y		Y	Y

Table 1. **Program-Service-Function Areas and Recommended Impact Measures**		Recommended Efficiency Measures				Recommended Effectiveness Measures				
Area	Definition	Saved Time	Reduced Steps	Increased Revenues	Cost	Increased Customer Satisfaction	Increased Reach to Target Population	Dissemination of Information	Quality Enhancement	Increased Preventive Behaviors
COMMUNITY HEALTH ASSESSMENT AND IMPROVEMENT										
Developing a community health assessment	Participate in or conduct a collaborative process resulting in a comprehensive community health assessment meeting the following criteria: (1) Participation of representatives of various sectors of the local community, (2) Description of demographics, (3) General description of health issues and specific descriptions of population groups with a particular health issue, (4) Description of contributing causes of community health issues, (5) Description of community assets or resources to address health issues.	Y			Y				Y	
Developing a community health improvement plan	Participate in or conduct a collaborative process resulting in a comprehensive community health improvement plan meeting the following criteria: (1) Broad participation of community partners, (2) Information from community health assessment is used to guide the improvement plan, (3) Health priorities, measurable objectives, improvement strategies and performance measures with measurable and time-framed targets are included, (4) Individuals and organizations that have accepted responsibility for implementing strategies are specified.	Y			Y				Y	
EMERGENCY PREPAREDNESS										
Adopt and maintain a public health emergency operations plan (EOP)	A) Adopt and maintain a public health emergency operations plan with the following characteristics: (1) List of staff positions involved in response to an emergency, (2) Communication plan including emergency communication network, (3) Continuity of operations plan, (4) Process and frequency for reviewing the plan. B) De-briefing or after-action report from a real emergency event or an exercise.				Y				Y	

Table 1. **Program-Service-Function Areas and Recommended Impact Measures**		Recommended Efficiency Measures				Recommended Effectiveness Measures				
Area	Definition	Saved Time	Reduced Steps	Increased Revenues	Cost	Increased Customer Satisfaction	Increased Reach to Target Population	Dissemination of Information	Quality Enhancement	Increased Preventive Behaviors
ENVIRONMENTAL HEALTH PROTECTION										
Elevated blood lead level investigation	Number of cases of elevated blood lead (EBL) in children age 0–6 years investigated by the health department (to be expressed as a proportion of reported cases).	Y			Y	Y	Y		Y	
Food safety inspection reach	Number of food service establishments inspected for food safety during the past 12 months, as a percentage of the total number of food service establishments required to be inspected under state and/or local law.	Y		Y	Y	Y	Y		Y	
Environmental inspection reach	Number of inspections of environmental areas where pollutants may impact the public's health. This can be expressed as a percentage of total number of such inspections required under state and/or local law, or a rate per 1,000 people resident in the jurisdictions. Examples of types of inspections are: • Water quality at public beaches and/or swimming pools, • Drinking water inspections (either water lines or wells), • Sewage inspection.	Y	Y	Y	Y	Y			Y	
EPIDEMIOLOGIC SERVICES										
Collect, maintain and analyze data to monitor conditions of public health importance	Maintain a surveillance system including the following characteristics: (1) Availability of a 24/7 on-call trained staff (for infectious disease conditions only), (2) Routine use of primary data from individuals or agencies reporting surveillance information, as demonstrated by at least two reports with aggregate primary data, (3) Routine use of secondary data, as demonstrated by at least two reports with aggregate secondary data, (4) Evidence of distribution of two analytical reports to specific audiences.	Y			Y		Y		Y	

Table 1. **Program-Service-Function Areas and Recommended Impact Measures**		Recommended Efficiency Measures				Recommended Effectiveness Measures				
Area	Definition	Saved Time	Reduced Steps	Increased Revenues	Cost	Increased Customer Satisfaction	Increased Reach to Target Population	Dissemination of Information	Quality Enhancement	Increased Preventive Behaviors
EPIDEMIOLOGIC SERVICES (continued)										
Infectious disease investigation volume	Proportion of cases of one or more selected reportable diseases that the health department investigates within the timeframe prescribed by the agency protocols.	Y			Y		Y		Y	
POLICIES AND PLANNING										
Serve as a resource for establishing and maintaining public health policies, practices and capacity	Documentation of the health department informing policymakers and/or the public about potential public health impacts of policies that are being considered or are in place, as demonstrated by two examples, each including at least two of the following three elements: (1) Impact statement or fact sheet that addresses current or proposed policies and is science-based, (2) The distribution of correspondence, emails, briefing statements or reports on policy impacts, (3) A presentation of evaluations or assessments of current and/or proposed policies.	Y			Y		Y	Y	Y	
WORKFORCE DEVELOPMENT										
Assess staff competencies and address gaps by enabling organizational and individual training and development opportunities	A) Adopt and implement a workforce development plan with the following characteristics: (1) Nationally adopted core competencies, (2) Curricula and training schedules. B) Documentation of two examples of implementing the workforce development plan.				Y				Y	

Table 2. **Impact Measures**

Saved Time (Efficiency Measure)

What to Measure	Time to complete a specific process / deliver a specific service.
Measure Definition	Time from initiation to completion of a process or service. The specific process or service is to be identified and indicated in the application. Specific activities or events that start and end the process / service delivery must be identified to calculate time. Examples of time measures include, but are not limited to: • Time to award contracts. • Wait time for clinic services. • Time to process a bill. • Time to provide permits / vital records (e.g., time saved through movement to electronic systems).
Measure Reporting	The following three data points will be reported for the measure. Time increment used (e.g., hours or days) must be reported along with the time value. Guidance for calculating time is found below. 1. Baseline value: Time recorded for identified process / service before the implementation of a sharing agreement. 2. Actual value: Recorded time following the implementation of a sharing agreement. 3. Time saved: The difference between the times recorded after implementation of the sharing agreement and before. In other words: actual value – baseline value.
Additional Guidance: Saved Time	For the baseline, target and actual values, the time to complete the process or deliver the service must be determined using the same start and stop times to ensure that the times reported represent the same completed process or service. Calculate the time as follows: • Start time: Date and time the given process or service delivery event begins. This would represent the step / task / encounter that is determined to initiate the process. • Stop time: Date and time the given process or service delivery event ends. This would represent the step / task / encounter that is determined to complete the process. • Time to complete the process or deliver the service: The time elapsed from the date / time that the process starts (start time) until the date / time that the process ends (stop time) represents the time to complete the process or deliver the service.
Additional Information to Report	Additional information will be collected to provide context for this measure. This information is: • Lessons learned from the implementation and measurement of the sharing agreement.

Table 2. **Impact Measures**

Reduced Number of Steps (Efficiency Measure)

What to Measure	Number of steps required to complete a specific process or deliver a specific service.
Measure Definition	Number of discrete steps or tasks necessary to complete a given process or deliver a specific service. The specific process or service is to be identified and indicated in the application. Examples may include: • Elimination of duplicate efforts to meet state or federal grant reporting requirements through submission of a joint report. • Elimination of duplicate efforts to apply for grants through submission of a joint grant. • Reduction of the number of steps necessary to schedule clients for appointments.
Measure Reporting	The following three data points will be reported for the measure. Basic guidance for calculating number of steps is found below. 1. Baseline value: Number of steps required to complete the identified process or deliver the identified service before the implementation of a sharing agreement. 2. Actual value: Recorded number of steps following the implementation of a sharing agreement. 3. Reduction in the steps: The difference between the number of steps recorded after implementation of the sharing agreement and before. In other words: actual value – baseline value.
Additional Guidance: Reduced Number of Steps	Identifying the number of discrete steps or tasks required to complete a process or deliver a service, as well as eliminating unnecessary steps to make a process / service more efficient, can be performed by: • Determining the activities and sequence of activities used to complete a process or to deliver a service before a sharing agreement is implemented. This can be accomplished using a variety of QI approaches such as process mapping or flow charting. This number will serve as the baseline value. • Identifying steps that, as a result of the implementation of the sharing agreement, are not necessary to successfully complete the process or deliver the service, may be redundant or do not add value to the process. Then, eliminating the identified steps and implementing a new process flow. Repeat until the most efficient process has been identified. The number of steps left in the process will serve as the actual value.
Additional Information to Report	Additional information will be collected to provide context for this measure. This information is: • Lessons learned from the implementation and measurement of the sharing agreement

Table 2. **Impact Measures**

Increased Revenues (Efficiency Measure)

What to Measure	Revenues generated by changing the implementation of a billable process or service.
Measure Definition	Revenue generated by adding or changing the implementation of a billable process or service. This can be achieved by adding new billable processes / services or increasing the number of instances that a billable process / service is delivered. The specific approach used to increase revenue is to be identified and indicated in the application. Examples of measures include but are not limited to: • Increase in clinic revenue through increase in number of individuals served that are covered by public or private insurance (e.g., Medicaid, Medicare). • Increase in revenue through increase in the average number of permits issued on a monthly basis. • Increase in revenue generated through fines or citations due to development or expansion of services, such as restaurant or nuisance inspections.
Measure Reporting	The following three data points will be reported for the measure. Basic guidance for calculating revenue generated is found below. 1. Baseline value: Revenue generated through identified process or service before the implementation of a sharing agreement. 2. Actual value: Recorded revenue generated following implementation of the CJS agreement. 3. Change in revenue generated: The difference between the revenue generated after implementation of the CJS agreement and before. In other words: actual value – baseline value.
Additional Guidance: Increased Revenue	It is recommended that awardees use their agency accounting system to track revenue gains before and after implementation of the CJS agreement. If relevant revenue is tracked by other agency systems, please use those instead of, or in addition to, the accounting / payroll system.
Additional Information to Report	Additional information will be collected to provide context for this measure. This information is: • How additional revenue is to be / was used by the grantee to support other agency needs or priorities (if known). • Lessons learned from the implementation and measurement of the sharing agreement.

Table 2. **Impact Measures**

Cost (Efficiency Measure)

What to Measure	Cost to complete a specific process, deliver a specific service, implement a specific program or maintain a specific function.
Measure Definition	Costs reduced in the delivery of an existing program-service-function area. OR delivering a new program-service-function area at lower costs than would be the case if it were delivered by a single health department. This measure may be used when the awardee has identified the opportunity to perform a process or deliver a service at lower costs by using a sharing agreement. The process or service could be one already in place, or a new one established as a result of the sharing agreement. In other words, the intent is to lower total costs (or the cost per unit of service) through a sharing agreement without decreasing the quality of a certain process or service. The specific process or service to be targeted is to be identified and indicated in the application. Examples include, but are not limited to: • Reduced costs through economy of scale in purchasing supplies. • Reduced labor costs by combining multiple positions. • Reduced costs of conducting a diabetes outreach program. • Reduced costs of conducting restaurant inspections. • Reduced training costs due to shared staff.
Measure Reporting	The following three data points will be reported for the measure. Basic guidance for calculating costs saved is found below. 1. Baseline value: Costs of completing a process or delivering an identified service before implementation of a sharing agreement. When appropriate, the cost can be expressed per unit of service (e.g., cost per client served, cost per inspection performed, etc.). *For a new service, baseline is the estimated costs of delivering the service without the implementation of a sharing agreement.* 2. Actual value: Recorded costs following implementation of the sharing agreement. 3. Costs saved: The difference between the costs recorded after implementation of the sharing agreement and before. In other words: actual value – baseline value. The value reported will depend on the method selected to calculate costs as described below. Options for reporting costs saved include but are not limited to: a. Difference in one categorical costs area (e.g., administrative only, supplies only, etc.). This level of data collection may be best tailored to track reductions in costs associated with process implementation. b. Difference in total program costs represented by several categories of costs (including a combination of personnel, supplies, operation costs, etc.). This broader data collection may be best tailored to track reductions in costs associated with service delivery or program implementation.

Additional Guidance: Cost	Help in the calculation of cost data can be found in the resources provided below: **Guides / Manuals for Calculating Programmatic Costs** • **Part III: Programmatic Cost Analysis** (http://www.cdc.gov/dhdsp/programs/nhdsp_program/economic_evaluation/Module_III/Podcast_III.pdf) – Developed by the CDC's Division of Heart Disease and Stroke Prevention. • **Calculating Health Intervention Costs** (http://www.hsph.harvard.edu/ihsg/publications/pdf/No-5.PDF) – Worksheets to calculate programmatic costs, and costs saved only (Please look at table 5.6 on pg. 71, and Appendix A18). Users enter recurrent and one-time costs for personnel, supplies, pharmaceuticals, equipment and/or vehicle operation and maintenance, administration, and training and promotional materials. Examples of unit costs required and sources of cost information are also provided. • **Cost-Benefit Analysis: A Primer for Community Health Workers Chapters 2-3** (https://apps.publichealth.arizona.edu/CHWToolkit/PDFs/Framewor/costbene.pdf) – These chapters focus on calculating programmatic costs. • **Cost Estimating Worksheet** (http://media.roiinstitute.net/tools/2007/05/24/CostEstimatingSummary.pdf) – Developed by the ROI institute. **Example of Calculating Costs for Public Health Interventions** • ***Estimating costs of surveillance – SurvCost template*** (http://www.cdc.gov/globalhealth/dphswd/idsr/tools/survcost.html) – Spreadsheet developed to help public health officials estimate the cost of Integrated Disease Surveillance and Response systems. **Methods to Compute the Cost of Shared Services** • *Determining and Distributing Costs of Shared Public Health Services*. (http://phsharing.org/wp-content/uploads/2015/04/DeterminingDistributingCostsCJS.pdf) – Developed by the Center for Sharing Public Health Services.
Additional Information to Report	Additional information will be collected to provide context for this measure. This information is: • Specific types of costs and other related data used in calculations. • How cost savings are to be / were leveraged or reprogrammed to support other agency needs or priorities (if known). • Lessons learned from the implementation and measurement of the sharing agreement.

Table 2. **Impact Measures**

Increased Customer Satisfaction (Effectiveness Measure)

What to Measure	Percentage of customers and/or staff who report being satisfied or extremely satisfied with a specific service or process.
Measure Definition	Percentage of individuals in a defined target population that are satisfied with a process or service. The target population may be external customers (e.g., clinic clients, health system partners) or internal staff (e.g., staff engaged in a process or delivery of a service), depending upon the specific process or service. The specific process or service to be targeted is to be identified and indicated in the application. Examples include but are not limited to: • Improved scores on satisfaction surveys administered internally to staff or externally to customers.
Measure Reporting	The following three data points will be reported for the measure. 1. Baseline value: Percentage of customers or staff reporting satisfaction or extreme satisfaction with a process or service before the implementation of a sharing agreement. 2. Actual value: Recorded percentage of customers or staff reporting satisfaction or extreme satisfaction following the implementation of a sharing agreement. 3. Calculated change in customer / staff satisfaction: The difference between the percentages of customers or staff reporting satisfaction or extreme satisfaction recorded after the implementation of a sharing agreement and before. In other words: actual value – baseline value.
Additional Guidance: Assessing Customer Satisfaction	Identify the target population: For improvements in service delivery, the target population includes clients or other customers (e.g., health system partners) using the services. For internal process improvements, the target population includes staff members who are directly affected by the process. Develop the satisfaction survey: Identify domains and items for the satisfaction survey that are specific to the target audience (e.g., customers or staff) and to the identified process or service. Likert scales for satisfaction are a fairly straightforward way to track change over time, and a five-point scale is often employed (Extremely satisfied – Satisfied – Neutral – Dissatisfied – Extremely dissatisfied). Surveys should be incorporated into the process with an effort to maximize response rates. *Examples of customer / staff satisfaction questions* Please rate your level of satisfaction in the following areas: Quality of the service you received (or quality of the process being implemented): ☐ Extremely satisfied ☐ Satisfied ☐ Neutral ☐ Dissatisfied ☐ Extremely dissatisfied

	Quality of educational materials (or quality of guidance / instructions for staff): ☐ Extremely satisfied ☐ Satisfied ☐ Neutral ☐ Dissatisfied ☐ Extremely dissatisfied Timeliness of the service (or time required to complete the process): ☐ Extremely satisfied ☐ Satisfied ☐ Neutral ☐ Dissatisfied ☐ Extremely dissatisfied Determine how to administer the survey: The entire target population or a representative sample will be invited to take the survey (paper-based or web-based) before the implementation of a sharing agreement (baseline value) and after (actual value). The same tool must be used at baseline and at follow-up to ensure comparability of results. Reporting on Satisfaction: The percentage of satisfied customers / staff is calculated such that: Numerator: Number of customers / staff that report being satisfied or extremely satisfied with the process or service. Denominator: Total number of customers / staff that responded to the survey.
Additional Information to Report	In addition to the data reported for the measure itself (baseline, actual value, and calculated change in customer / staff satisfaction), additional information will be collected to provide context for this measure. This information is: • Target population: Total number (e.g., number of staff involved in process / service or number of clients served). • Surveyed population: Number that were asked to take the survey. • Response rate: Number of individuals who responded to the surveys divided by the number of individuals who were asked to take the survey. • Lessons learned from the implementation and measurement of the sharing agreement.

Table 2. **Impact Measures**

Increased Reach to Target Population (Effectiveness Measure)

What to Measure	Percentage of target population that has been offered, received, or completed a specific public health service or program. The target population may include the general public or a segment of the population identified as having a high risk or need.
Measure Definition	Percentage of individuals in an identified target population that are offered or receive a given service. The specific service to be targeted is to be identified and indicated in the application. *Reach* can be defined in three different ways: • Number of individuals in a target population *offered* services. Examples might include: o Increased community outreach through events such as health fairs, with services made available to participants. • Number of individuals in a target population *receiving* at least one instance of an identified service. Examples might include: o An increase in the number of services provided, such as the number of individuals who receive cholesterol testing through community outreach events. o Increased percentage of testing sites using the T-SPOT TB test. o Increased number of individuals who receive diagnostic testing (e.g., A1C, cholesterol, HIV). o Increased number of restaurant or nuisance inspections. • Number of individuals in a target population *receiving a complete service package.* Examples might include: o Number of individuals attending *all* prenatal visits; o Number of individuals receiving *all* immunizations; o Number of diabetic individuals in a target population receiving *all* recommended glucose (A1C) tests.
Measure Reporting	The following three data points will be reported for the measure. Basic guidance for calculating reach is found below. 1. Baseline value: Percentage of individuals in a target population that have been reached with a given service before the implementation of a sharing agreement. 2. Actual value: Recorded percentage of individuals in a target population that have been reached with a given service after the implementation of a sharing agreement. 3. Calculated change in number of individuals reached: The difference between the percentages of individuals in a target population that have been reached with a given service recorded after the implementation of a sharing agreement and before. In other words: actual value – baseline value.
Additional Guidance: Increased Reach	The numerators for this measure will depend on what type of reach is to be achieved. *Percentage of individuals offered the service:* Numerator: Number of individuals in a given target population that have been offered services during a given timeframe. Denominator: Number of individuals comprising the target population that are eligible for the identified service or program. *Percentage of individuals served:* Numerator: Number of individuals in a given target population that have received services during a given timeframe. Denominator: Number of individuals comprising the target population that are eligible for the identified service or program.

	Percentage of individuals that receive <u>all</u> components of a service or program package (this measure would be most relevant to programs requiring follow-up or multiple visits): Numerator: Number of individuals in a given target population who attended all sessions / received all components of a service or program to successfully complete the program. Denominator: Number of individuals comprising the target population that are eligible for the identified service or program.
Additional Information to Report	Additional information will be collected to provide context for this measure. This information is: • Lessons learned from the implementation and measurement of the sharing agreement.

Table 2. **Impact Measures**

Dissemination of Information (Effectiveness Measure)

What to Measure	Percentage of target individuals or public health partner organizations reached through health education materials and messages, risk communication efforts, and other vehicles for information. The target population may include the general public or a segment of the population identified as having a high risk or need.
Measure Definition	Dissemination of public health-related information, health department products, and/or evidence-based practices to the public and/or public health system partner organizations. This is, in essence, a different type of 'reach,' where the focus is on reaching the public and/or public health system partners with information in order to: • Improve access to public health information or resources, and/or • Improve the performance of the public health system. This measure captures improvements resulting from increased outreach that leads to a greater access to information, uptake of services by clients or adoption of best practices by health system partners. The specific process or service to be targeted is to be identified and indicated in the application. Examples include but are not limited to: • Increased number of individuals accessing public health information on the health department website. • Increased community outreach through events, such as number of public health education courses (e.g., nutrition education, vaccination, parenting, breastfeeding) or community health fairs. • Increased number of individuals from a target population attending a public health education class. • Increased percentage of public schools using evidence-based school health asthma guidelines. Please note: The focus of this outcome is NOT on the reach of public health services to individuals in a target population, for which the "Increased Reach to Target Population" outcome should be used instead.
Measure Reporting	The following three data points will be reported for the measure. Basic guidance for calculating this measure is found below. 1. Baseline value: Percentage of individuals or public health system partners that are accessing the information or using evidence-based practices before the implementation of a sharing agreement. 2. Actual value: Recorded percentage of individuals or public health system partners accessing the information or using evidence-based practices following the implementation of a sharing agreement. 3. Calculated change in number of individuals or public health system partners reached: The difference between the percentages of individuals or public health system partners accessing the information or using evidence-based practices recorded after the implementation of a sharing agreement and before. In other words: actual value – baseline value.
Additional Guidance: Dissemination of Information	The unit of interest for this measure can either be individuals or organizations depending on who the organization is *directly* trying to reach through dissemination of information, products, or evidence-based practices. • If the target of the dissemination is the general public or a specific segment of the population, then the unit of measurement will be the individual. • If, on the other hand, the direct target of the dissemination strategy is another entity in the broader public health / health care system, then the unit of measurement is the organization. The numerator and denominator will be calculated the same way for both units of measurement: Numerator: Number of individuals or organizations that access the information or use evidence-based practices being disseminated.

	Denominator: Total number of relevant individuals or organizations (e.g., total number of individuals that should be reached by select health department web content; total number of local health agencies that should be using the selected evidence-based practice).
Additional Information to Report	Additional information will be collected to provide context for this measure. This information is: • Lessons learned from the implementation and measurement of the sharing agreement.

Table 2. **Impact Measures**

Quality Enhancement (Effectiveness Measure)

What to Measure	Description of issues or improvement opportunity and its resolution for a specific service, program, function or data / health information system (qualitative or quantitative).
Measure Definition	Improving the quality of a specific service, program, function, or data / health information system. The focus of the quality enhancement measure is on improving the quality of the agency's services, information systems, or programs. The specific process or service to be targeted is to be identified and indicated in the application. The types of specific improvements intended to be captured by this measure follow: • Improved standardization or consistency in adopting and meeting existing standards or protocols of service, program delivery, or data / health information systems. Examples include but are not limited to: • Introduction of standard quality or performance criteria (e.g., checklists or protocols across providers or staff). • Increased completeness or accuracy of data elements in a surveillance system. • Increased percentage of agency databases that are compliant with relevant standards or requirements. • Improved access to data, including increased access and ability to acquire data. • Increased agency IT capacity for public health surveillance. • Improved functionality of linked data systems by adding the ability to automatically generate linked data sets for a specific population. • Increased staff knowledge regarding external legal requirements related to data. • Increased ability of agency staff to meet external legal requirements and internal procedures related to data acquisition, security and dissemination in key chronic diseases. • Increased compliance with established policies or procedures across health department programs. **NOTE:** If quality enhancements yield timeliness, cost savings, increased customer satisfaction, increased reach or other outcomes highlighted in this document, applicants are encouraged to develop measures for those outcomes as well.
Measure Reporting	The following three data points will be reported for this measure. Due to the varied ways that quality may be enhanced, reporting on this measure may be quantitative or qualitative. Basic guidance for reporting is found below. 1. Baseline value: Description of the specific issue or aspect of the service or program requiring improvement at the time of measure identification and submission. If the issue / improvement opportunity is quantifiable, please reflect this in baseline value (e.g., current percent of staff using standardized protocol for identified process or service). If not, please provide a description of the current status of the process or service and the specific area to be improved. 2. Actual value: Recorded status of the service or program following implementation of the sharing agreement. If the recorded status is quantifiable, please reflect this in the actual value (e.g., percent of staff using standardized protocol for identified process or service following completion of QI cycles). If not, please describe the recorded status of the process or service following implementation of the sharing agreement. 3. Calculated change in quality: The difference in the quality of a service or program recorded after the implementation of a sharing agreement and before. In other words: actual value – baseline value.

Additional Guidance: Description of Quality Enhancement	Describing specific improvements to a service or program depends largely on the characteristics of the identified improvement opportunity. Examples of improvements to quality include but are not limited to: *Standardization of service delivery:* Increasing the consistency with which services are delivered by developing procedures, tools, or other mechanisms to assist service providers. Alternatively, enhancements could involve conducting regular fidelity assessments to ensure that services are delivered in a consistent manner and providers are consistently applying existing protocols or procedures. The same concept can be applied to program implementation and the consistent application of protocols, guidelines, procedures, etc. *Evidence-based practices or guidelines:* Improvement in program implementation or service delivery by implementing evidence-based public health or clinical interventions or evidence-based business processes and management strategies.
Additional Information to Report	Additional information will be collected to provide context for this measure. This information is: • Evidence / data / documentation used to inform quality enhancement. • Lessons learned from the implementation and measurement of the sharing agreement.

Table 2. **Impact Measures**

Increased Preventive Behaviors (Effectiveness Measure)

What to Measure	Percentage of preventive or health promoting behaviors or early indicators of preventive behaviors in a target population. The target population may include the general public or a segment of the population identified as having a high risk or need.
Measure Definition	Increase in the rate of preventive / health promoting behaviors and/or reduced risk of preventable risk factors. The specific process or service to be targeted is to be identified and indicated in the application. If possible, awardees should report data on actual behavior change for this outcome / measure. Examples of actual changes in preventive behaviors include but are not limited to: • Increased percentage of adults who self-report engaging in 30 minutes of physical activity five or more days a week. • Increased proportion of children receiving childhood immunizations (i.e., increased vaccinations). • Increased percentage of individuals who self-report always using a seat belt while driving or riding in a car. • Increased proportion of cigarette smokers who self-report a quit attempt. • Increase proportion of WIC participants who initiate breastfeeding. Early Indicators / Intermediate Outcomes: Measurable characteristics or changes that indicate *progress toward* the identified preventive / health promoting behavior also can be reported. Measures of intermediate steps in achieving behavior change can fall into one of the following areas: a. *Awareness or knowledge* – increased awareness and/or knowledge about the need for behavioral change to improve health. Example of survey questions: Q. Which of the following do you think increases a woman's chances of getting cancer of the breast? R. Increasing age, high-fat diet, low-fiber diet, smoking, family history, having multiple sex partners, none of these, don't know. b. *Acceptance and support* – increase acceptance and/or support of behavioral change to improve health. Example of survey questions: Q. Smoking should not be allowed in any public place. Do you: R. Strongly Agree, Agree, Disagree, Strongly Disagree. c. *Motivation to engage in preventive behaviors / access public health services* – increase in motivation to access services as a proxy for behavioral change. Example of survey questions: Q. How likely is it that you will seek counseling and testing for HIV? R. Very likely, likely, somewhat unlikely, unlikely.

Measure Reporting	The following three data points will be reported for the measure. Basic guidance for reporting on the rate of preventive behaviors is found below: 1. Baseline value: Percentage of individuals demonstrating preventive / health promoting behaviors or intermediate outcomes before the implementation of a sharing agreement. 2. Actual value: Recorded percentage of individuals demonstrating preventive / health promoting behaviors or intermediate outcomes after the implementation of the sharing agreement. 3. Calculated change in preventive behavior: The difference between the percentages of individuals demonstrating preventive / health promoting behaviors or intermediate outcomes after the implementation of the sharing agreement and before. In other words: actual value – baseline value.
Additional Guidance: Increased Preventive Behavior	Identify the target population, then develop a survey. *Percentage of individuals demonstrating preventive behavior:* Numerator: Number of patients / customers practicing preventive / health promoting behavior. Denominator: Number of patients / customers at risk in population. *Percentage of individuals demonstrating knowledge, acceptability or motivation to engage in preventive behavior (intermediate outcomes):* Numerator: Number of patients / customers who are aware or knowledgeable about health risks, supportive of healthy behaviors, or motivated to engage in preventive behaviors. Denominator: Number of patients / customers at risk in population.
Additional Information to Report	Additional information will be collected to provide context for this measure. This information is: • Evidence / data / documentation used to inform initiatives to address preventive behavior such as the *Community Guide*, evaluation data, pilot study, etc. • Lessons learned from the implementation and measurement of the sharing agreement.

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Rethinking Boundaries for Better Health