

Program collaboration and service integration: Enhancing the prevention and control of HIV/AIDS, Viral Hepatitis, STD, and TB in the United States

**An NCHHSTP Green paper¹
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¹ A green paper is a discussion document intended to stimulate debate and launch a process of consultation on a particular topic. A green paper usually presents a range of ideas and is meant to invite interested individuals or organizations to contribute views and information. It may be followed by a white paper, the official set of proposals that is used as a vehicle for policy development.

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SUMMARY

This green paper describes how CDC's National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention (NCHHSTP) will work with partners at national, state and local levels to advance its strategic priority of Program Collaboration and Service Integration.

CDC has defined Program Collaboration and Service Integration (PCSI) as a mechanism of organizing and blending inter-related health issues, separate activities, and services in order to maximize public health impact through new and established linkages between programs to facilitate the delivery of services. The focus of PCSI is on integrated service delivery at the client level, or point of service delivery, and is not intended to imply integration at the organizational or structural level. CDC's vision for program collaboration and service integration is to provide prevention services that are holistic, evidence based, comprehensive, and high quality to appropriate populations at every interaction with the health system.

With the evolution in the epidemiology of HIV, viral hepatitis, STD and TB in the United States, many prevention partners are shifting their focus from "what" they deliver to "how" they deliver it. Promoting improved collaboration between programs and integration of preventive services are important tools in meeting this challenge. However, this shift requires an acknowledgement of the current barriers to PCSI, and potential solutions. It also requires that CDC keep pace with the needs of prevention partners, as well as the resources at their disposal.

This green paper introduces the concept of PCSI Levels of Integration as a strategy to conceptualize, implement and deliver holistic, evidence based and comprehensive services to appropriate populations in clinical settings. Based upon discussion between internal and external stakeholders, the PCSI Levels of Integration incorporate a platform of standards that allows jurisdictions to:

- Increase efficiency and reduce redundancy and missed opportunities by integrating appropriate prevention services, according to setting.
- Increase flexibility, by enabling partners to adapt, implement and modify integrated services to increase responsiveness to evolving epidemics or changing contexts.
- Increase control over their operations, by utilizing local information derived from surveillance and key performance indicators along with the strategic information required to optimize prevention services.

By prioritizing PCSI, it is CDC's hope that our prevention partners will increase their ability to innovate within the boundaries of current fiscal requirements, and meet changing demands more rapidly, with greater levels of flexibility, efficiency, and customer satisfaction.

INTRODUCTION

Background

For years, many national organizations and CDC grantees have called for better service delivery integration especially of HIV, STD, viral hepatitis and TB prevention activities^{1,2,3,4,5}. Particularly in today's environment, our prevention partners are continually striving to increase their ability to respond to changing epidemiology, finding new opportunities to meet the needs of communities, and populations at risk for multiple infections offer the opportunity to enhance programs by integration.

There are several factors creating momentum toward greater integration of prevention services at the client level. First is the desire of programs in the field and CDC to provide the best prevention services to clients whenever they interact with private or public health services^{6,7}. A key benefit of integration is to eliminate missed opportunities to offer services to at-risk individuals when they do access services. In many ways, prevention partners in the field have led the way in recognizing the need for improved collaboration between prevention programs by integrating appropriate services, and taking action^{6,8}.

Second, advances in diagnostic technology and treatment have made integration of services for specific populations and access in new venues possible. With the advent of rapid HIV testing, familiar venues such as STD and TB clinics, correctional settings, as well as newer settings such as community health centers, drug treatment centers, and hospital emergency departments have made integration at the service delivery level more feasible than ever^{9,10}.

Third, limited and dwindling federal resources for core program activities makes identification of efficiencies critically important. Where program collaboration and service delivery integration creates cost savings, CDC and our partners believe that it is important to eliminate duplication and streamline services to achieve maximize public health benefit^{6,8}.

While there is widespread support for program collaboration and service delivery integration, some negative experiences in program or grant consolidation, and the attendant dilution of scientific and program expertise have been noted^{11,12}. It is important to learn lessons from these experiences and not repeat the mistakes of the past. Of equal importance is to recognize how the current effort toward better program collaboration and service delivery integration differs from previous efforts in the timing motivation, external drivers, definition, and focus.

Of their own volition, many HIV, viral hepatitis, STD, and TB programs have already initiated service delivery integration efforts. Consequently, there have been several reports and publications which describe the actual and potential barriers to integration that programs have faced. Often cited barriers include: restrictive and inflexible use of categorical funds^{1-6,8,13}; lack of funding^{1,2,6,14,15,16,17,18}; burdensome and inefficient

administrative requirements^{1,2,4}; lack of harmony, consistency, and synchronization of data collection and surveillance systems^{1,2,4,6,8,11,15-19}; lack of prevention guidelines^{1,2,4}; overly prescriptive program announcements and burdensome reporting requirements^{1,2,4}; insufficient translation and integration of science and program^{1,2,5}; and insufficient support, both technical and financial, for cross training, evaluation and dissemination of best practices^{1,2,4,8}. As we move forward with program integration plans and activities, it will be important to verify to what extent these or additional barriers exist and, where possible, to systematically address them (see Table 5).

Purpose of this Document

This document is intended to articulate NCHHSTP's vision and goal for program collaboration and service integration. Using existing CDC screening and treatment recommendations as a foundation, an evidence-based framework for describing levels of integration is described. The purpose of this description is to be able to measure and monitor progress toward greater integration at the point of care. The primary audience of this document is domestic NCHHSTP funded programs.

NCHHSTP Program Collaboration and Service Integration

Definition:

A mechanism of organizing and blending inter-related health issues, separate activities, and services in order to maximize public health impact through new and established linkages between programs to facilitate comprehensive delivery of services.

Vision:

To provide HIV/AIDS, viral hepatitis, STD and TB prevention services that are holistic, evidence-based, comprehensive, and of high quality to appropriate populations at every interaction with the health system.

NCHHSTP views improved collaboration between programs and integration of appropriate prevention services as essential and important drivers towards greater effectiveness and flexibility by focusing on "how" to deliver prevention services, in addition to "what" to deliver.

Program collaboration:

NCHHSTP recognizes that many state and local programs have a rich history of significant and productive coordination and cooperation on a variety of important programs and activities. Acknowledging and building upon these existing and productive collaborations will be crucial to success. Within NCHHSTP there is also increasing cross-division and cross-program communication and coordination. In this instance, NCHHSTP views program collaboration as individuals, groups and **systems** working together at a significantly higher degree than just through coordination or cooperation. Program collaboration is therefore intended to facilitate greater joint planning, sharing of resources (human, training, data, fiscal) to the extent necessary to

further more holistic services in the best interests of clients. For example, it is important to analyze surveillance and case management data across programs to keep abreast of the changing epidemiology of co-morbidities and risks to better target interventions and prevention services. In many instances, a single public health worker (e.g. public health nurse, disease intervention specialist) may be working with an individual or family with multiple conditions (e.g. TB/ HIV/Hepatitis C), underscoring the need for good cross-training of personnel as well as the need to blend funding within organizations to pay for these positions.

PCSI is about maximizing the return that our prevention partners gain from their activities and assets, increasing efficiency by combining, streamlining and enhancing prevention services; avoiding missed opportunities to screen, treat, or vaccinate, and enabling services to adapt and keep pace with the requirements of changing disease epidemiology and new technologies. PCSI should be considered as the next crucial step in the evolution towards more holistic prevention services and a shared vision to achieve multiple related health goals.

Common Goals and Strategies:

A major prerequisite for effective PCSI is common purposes and strategies. In NCHHSTP, a priority and shared goal across all programs is the elimination of health disparities in HIV, STD, viral hepatitis, and TB infections (e.g., economically deprived, IDU, racial and ethnic minority populations).

Other common goals across NCHHSTP programs include:

- Managing and reducing stigma and the resulting consequences in accessing and providing services
- Preventing disease among at-risk/un-infected persons
- Interrupting transmission of infection using similar methods of partner counseling, elicitation, referral, and contact investigations
- Ensuring access to high quality, culturally competent services for marginalized, under and uninsured, at risk populations
- Diagnosing disease and providing expeditious treatment and/or referral for care
- Monitoring infections in the population (i.e. case surveillance)
- Maintaining systems that assure patient confidentiality

Finally, a number of NCHHSTP programs (HIV/AIDS, STD, viral hepatitis) also share a vision for improved sexual health, thereby driving the need for more holistic and comprehensive services (including mental health, substance abuse prevention and treatment) as part of a package of preventive care to those at greatest risk.

Effective PCSI is also made easier by the use of similar prevention tools across programs. For example, within clinical services, PCSI is enhanced where common

target populations, partner services, outbreak response, social marketing and mass media behavior change activities exist. Similarly, within correctional settings, PCSI is greatly facilitated by the homogeneity in populations (adults), uniformity of access, limited provider choice, and common devastating impact of transmission within and outside of jails and prison.

Why might there be concerns about PCSI?

Although considered an ideal model for strategic planning and engineering of national prevention services, the published literature provides some insight into situations and contexts, and certain structural and administrative models of consolidation, which may not be the ideal solutions for fostering program collaboration or service delivery integration¹². NCHHSTP believes that consideration of these *limitations* is important as we move forward with this national priority. However, efforts should be made to overcome these in the conceptualization and implementation of local PCSI efforts.

- 1. Loss of Program Identity, Focus and Expertise.** Local programs have expressed concern about the potential for loss of focus and dilution of expertise due to service integration. In the case of elimination programs, such as TB and syphilis, lack of awareness and loss of clinical and prevention acumen are common problems, especially in the private sector^{19,20}. NCHHSTP believes that thoughtful program integration can potentially benefit such efforts. For example, cross-training of relevant staff and development of appropriate guidance could actually raise the level of expertise of more public health workers and increase the cadre of personnel able to conduct risk assessments and refer appropriately. “Walling off” or segmenting of training and expertise only serves to further limit the “outreach” of knowledgeable public health workers.
- 2. Mixing of Prevention Models.** Potential conflicts may also exist when attempting to integrate traditional single disease control models such as TB and STD (e.g. testing, case finding and treatment, contact-tracing) with approaches based upon health promotion, harm reduction, or other behavioral prevention models²¹. Some research studies, predominately in international HIV settings, have highlighted provider concerns about incorporating predominately clinical interventions such as STD testing or vaccination into HIV prevention interventions²². Providers are concerned this could compromise risk reduction messages and create substantial staff training and capacity issues. On the other hand, key public health leaders have begun to argue that with advances in testing technology and HIV treatment that it is time to apply proven public health principles to the epidemic²³. Several recent successful examples of incorporating risk reduction and behavioral change interventions with medical models have been identified^{21,24}. Clearly, service delivery integration will increase the interaction between these different approaches and necessitate a thoughtful blending; taking the best that each approach has to offer, and creating the best delivery of services to clients.
- 3. Loss of Control.** Change is often difficult, and providers may prefer the status quo and locus of control resulting from working within disparate and vertical systems as opposed to integrated systems, despite evidence regarding the

benefits to patients and providers. Perceived barriers may also include lack of time, increased work, and limited benefit. Programs may also view actions to increase funding flexibility, reduce administrative barriers, and truly embrace integrated data for local decision making, as loss of control^{11,12}. Historical CDC funding patterns have exacerbated this categorical thinking and loss of control concerns. NCHHSTP believes that the success of our future prevention efforts will require changing our response to meet rapidly evolving public health and population needs. These changes are within our “control”, and it’s critical that NCHHSTP and our prevention partners reach beyond categorical ways of thinking and acting to truly work across programs in the best interest of service delivery and the clients we all aim to reach.

IMPLEMENTATION

NCHHSTP aims to be responsive to the needs of our prevention partners as we move into the 21st century, fully acknowledging the extensive local work which has already taken place in PCSI. With the right vision and plan of action, we can maximally leverage from existing resources, while implementing solutions that achieve the efficiency, scalability of our prevention interventions, and significantly impact health disparities.

Principles of effective PCSI

NCHHSTP believes that there are five key principles for effective Program Collaboration and Service Integration for HIV/AIDS, viral hepatitis, STD and TB Prevention.

1. **Appropriateness.** First, integration of prevention services must make epidemiological and programmatic sense and should be contextually appropriate. Not all individuals are at risk for all diseases, and not all settings see high prevalence of all conditions. For example, CDC currently recommends that every person with TB infection should know their HIV status²⁵. This applies in all settings and population subgroups. However, integrating comprehensive STD services may not be desirable or feasible for all TB patients, but more appropriate for particular settings (e.g. corrections) or in certain populations at high risk (e.g. urban minority adults) and contingent upon available resources and demonstrable health impact. In complex outbreak and contact investigations, such as that of a TB case with unnamed drug use contacts, it would be important for STD, HIV, and TB programs to collaborate on activities related to cross-matching of databases and contact tracing information and at the state and local level.
2. **Effectiveness.** Prevention resources are far too limited to be wasted on ineffective or unproven interventions. Routine HIV screening and Hepatitis A and B vaccinations are examples of effective interventions that should be expanded and scaled-up via PCSI efforts. Not only does this enable local partners to

leverage the investments they have already made, but it promotes efficiencies with all its associated benefits of reduced costs and improved quality.

3. **Flexibility.** Organizations need the ability to rapidly change and assemble new prevention services to meet changing epidemiology, demographics, advances in technology, or policy/political imperatives. Effective PCSI initiatives should allow partners to consistently examine and revise how integration of services can best meet client needs, not only among services funded and provided by NCHHSTP programs, but by other programs within (e.g. Immunization Services, Reproductive Health) and outside (HRSA, SAMHSA) of CDC. When processes and services can be composed from existing building blocks, operational changes can be delivered faster, cheaper and with a higher degree of quality.
4. **Accountability.** NCHHSTP views PCSI as part of a continuum of continuous quality improvement of prevention services. Consequently, prevention partners need the ability to monitor key significant aspects of their prevention services and gain insight into how they can optimize operations. By tracking appropriate indicators that reflect operational performance, and comparing them against previously defined key performance standards, our partners can create a continuous feedback loop that facilitates iterative process improvement.
5. **Acceptability.** It is crucial that PCSI leads to improved acceptability to clients, programs, and providers, through improved quantity and quality of the integrated services. Program buy-in and commitment, in the field and at CDC, is crucial in supporting PCSI because it is the programs that will ultimately interact with providers and clients in implementing acceptable, coordinated, and integrated services. PCSI objectives are not simply to load additional disjointed services onto clients, but to deliver high quality services through appropriate packaging and provision of coordinated services in appropriate contexts. Where successful, appropriate packaging of services may improve patient satisfaction and increase uptake of other preventive services. For example, evidence supports that offering clients hepatitis prevention services increases acceptance of STD and HIV testing and services^{26,27}. In this regard, PCSI may also be a key strategy for reducing health disparities. Finally, PCSI should be acceptable to programs and providers who see and understand the benefit of combining services and enhancing interactions with clients.

Program Functions

Opportunities for greater collaboration that could enhance integrated approaches to service delivery involve many aspects of comprehensive program management. Since these programmatic activities are the underpinnings to effective and integrated service delivery, NCHHSTP thinks it important to identify strategies that are likely to increase program collaboration, coordination, and to yield greater service delivery integration. The 10 Essential Public Health Functions²⁸ is a useful framework for categorizing strategies that could enhance PCSI. Table 1 lists the 10 Functions and suggests potential activities for each function.

Table 1. Essential Public Health Functions and Potential Strategies²

Program Function, followed by potential strategies

1. Monitor health status to identify and solve community health problems

- Develop operating procedures and agreements that assure each program has access to relevant data sets
- Develop common reporting and data collection instruments
- Conduct analyses looking across data sets for relevant data
- Link data sets to allow common risk factors to be analyzed with multiple specific outcomes
- Develop and disseminate cross-program reports and briefs

2. Diagnose and investigate health problems and health hazard in the community

- Identify populations and venues that are a shared high priority and develop a joint approach to providing outreach, testing, and risk reduction services.
- See Table 2 for PCSI Levels of Clinical Service Integration

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

- Identify partners working with multiple infectious disease programs and coordinate contacts and common activities
- Develop and test integrated messages for diseases with common risk factors
- Develop messages that address cross-cutting infectious disease priorities
- Develop web-based information and links to multiple relevant program services

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

- Develop partnerships and coalitions that have broad representation from areas affected by multiple infectious diseases with common routes of transmission
- Assure that targeted communities are represented in planning, implementation, and evaluation across programs
- Work with community partners and contacts jointly across programs

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

- Develop and advocate for integration policies that impact multiple and commonly acquired infectious diseases and risk factors
- Develop cross-program social and community-level interventions

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

- Explore the development and implementation of structural interventions which may enhance and accelerate the prevention of HIV, hepatitis, STD and TB infections

² Source: Public Health Functions Steering Committee. *Public Health in America*, Fall 1994. See <http://www.health.gov/phfunctions/public.htm>

Table 1. Essential Public Health Functions and Potential Strategies (continued)

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

- Identify opportunities for integrated partner services where individuals, contacts, or networks would benefit from counseling, testing, or referral

8. Assure competent public and personal health care workforce

- Train outreach staff to be able to make cross referrals to other programs
- Cross-train staff to conduct all forms of partner referral and treatment services (i.e. EPT, PCRS, PN, DOT)
- Develop internal cross-program communication mechanisms to keep all staff up-to-date on all programs

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

- Develop mechanisms to track multiple program interventions to common outcomes
- Determine the population level impact of program integration on HIV, hepatitis, STD and TB prevention and reducing health disparities for these conditions.

10. Research for new insights and innovative solutions to health problems

- Identify and support research to inform best or promising models of practice for program collaboration and service integration.

PCSI Levels of Integration framework

PCSI Levels of Integration is a conceptual framework for organizing holistic, evidence based HIV, STD, viral hepatitis and TB clinical and other prevention services. This framework synthesizes and integrates the existing HIV/AIDS, STD, viral hepatitis, and TB screening, treatment, and vaccination guidelines^{9,25,29,30,31,32}. The Levels start with the most broad-based testing guideline that does not require risk assessment (e.g. HIV testing) and ascends through a hierarchy of services recommended in the guidelines. It starts with incorporating focused risk assessment and ends with the most comprehensive level of services. These Levels are not intended to emphasize or prioritize any particular service over another, rather, they are a way to describe and integrate CDC guidelines. It builds on existing models of promising practice in the field, as well as CDC's expertise in developing program tools and technologies. While this integrated framework focuses on health care settings, it also applies to community-based organizations who provide single or limited clinical service (e.g. HIV testing).

CDC proposes three distinct levels (limited, expanded, and comprehensive) in an ascending hierarchy at the client-provider interface (see Table 2). Each level has defined *minimum* HIV/AIDS, hepatitis, STD or TB prevention services with integration performance indicators to be determined (see Table 3 and 4). The framework is hierarchical in that each level incorporates the recommended services and performance indicators from the prior level.

The CDC PCSI Levels of Integration framework makes it possible to identify *minimum levels of integrated services* within specific jurisdictions and settings. The proposed PCSI Levels of Integration also adheres to existing CDC guidelines, standards and recommended practices as well as current promising practices in program collaboration and services integration. As the epidemiology of diseases in various sub populations change, as new technologies are developed, as new interventions are available, and as CDC revised guidelines are published, components within each level can be expected to change.

Table 2. Program Collaboration and Service Integration (PCSI) Levels of Integration Framework for prevention services in health care settings*.

Non-Integrated services

Definition – Prevention services completely separate, vertical or non-integrated at the point of client access

Description – No Integration

Example – Clients are provided a single prevention service at the point of access, with or without referral to allied prevention services.

I. Limited Integration

Definition – Package of services which integrates routine HIV testing into clinical services, with documented referral to more comprehensive allied or specialist services.

Description – **HIV testing**

Example – **Some integration of health information and referrals, Minimum Onsite:**

- Routine HIV testing in line with the 2006 CDC revised recommendations
- Health information on HIV, STD, viral hepatitis, and TB, including locations of local services, readily available to clients
- Documented and tracked referrals to Level 2, Level 3 or specialist services[§] available upon request or as indicated. For HIV+, treatment means linked to care.

2. Expanded Integration

Definition – Package of services which integrates selected age, prevalence, and risk- based HIV, Hepatitis, STD, and TB prevention services with linkage and/or referral to comprehensive allied services.

Description – **Service integration across programs funded by CDC based on risk assessment,**

Example – **Minimum Onsite:**

All onsite services from Level 1 plus:

- Chlamydia screening and treatment for women < 25 years
- Gonorrhea screening if indicated by risk, prevalence
- Syphilis testing if indicated by, risk, prevalence
- Treatment available for CT, GC, Syphilis
- Hepatitis A/B vaccine <19 y.o., referral for others if indicated
- Hepatitis C risk assessment
- Condoms available (or upon request)
- Expedited Partner Therapy, partner notification or Partner Counseling Referral Services available
- Pregnancy testing as indicated
- Screening for TB exposure/ risk
- For women, reproductive history is elicited (preg. and contraceptive)
- Documented and tracked referrals to Level 3, specialist, other prevention services available upon request or as indicated.

3. Comprehensive Integration

Definition – Package of services which integrates HIV, STD, Hepatitis and TB prevention, diagnosis and treatment services with linkage and/or referral to specialist or other prevention services.

Description – **Service integration across systems of care (CDC or not) based on risk assessment**

Example – **Minimum Onsite:** All onsite services from Level 2 plus:

- Comprehensive sexual and reproductive health risk assessment as well as drug use, mental health, intimate partner violence risk assessment.
- Comprehensive HIV, hepatitis A/ B/ and Hepatitis C, STD, TB screening, diagnosis and treatment, with referral for specialist care if required in line with CDC recommendations.
- Comprehensive reproductive health services including pregnancy testing and contraceptive services
- Health Education and targeted risk reduction information is available and offered to all individuals
- Referral to specialist services as indicated.

Notes:

* Health care settings include all settings where health care providers in the public and private sectors work, including those working in hospital emergency departments, urgent care clinics, inpatient services, substance abuse treatment clinics, public health clinics, community clinics, correctional health-care facilities, and primary care settings. [§]Specialist services include partner notification, EPT or PCRS.

PCSI Levels of Integration services:

- **Limited Integration:** Describes the basic package of integrated services which integrates routine HIV testing into clinical services, with documented referral to more comprehensive or specialist services, including other prevention services. No individual risk assessment is required. As a minimum, Limited services should include routine HIV testing in line with the 2006 CDC *Revised Recommendations for HIV testing of Adults, Adolescents, and Pregnant Women in Health Care Settings*⁹; health information on HIV, STD, viral hepatitis, and TB, including locations of local services readily available to clients; and documented and tracked referrals to subsequent levels or specialist services is available upon request or as indicated. Treatment for HIV positive individuals means linked to HIV care.
- **Expanded:** This expanded service package would integrate selected age, prevalence, and risk- based HIV/AIDS, Hepatitis, STD, and TB prevention services with linkage and/or referral to comprehensive allied services. Limited individual risk assessment is required. Minimum onsite prevention services would include all services from the prior level plus: Chlamydia screening and treatment for women < 25 years; gonorrhea testing if indicated by risk or prevalence, Syphilis testing if indicated by risk or prevalence, hepatitis A/B vaccine for <19 year olds and referral for those older than 19 year of age; condoms available (or upon request); expedited partner therapy (EPT), partner notification or partner counseling and referral services (PCRS) available; pregnancy testing as indicated; screening for TB exposure/ risk; for women, reproductive history is elicited (pregnancy and contraceptive); along with documented and tracked referrals to the subsequent level or specialist services available upon request or as indicated.
- **Comprehensive:** Describes a comprehensive package of services which integrates HIV, STD, Hepatitis and TB prevention, diagnosis and treatment

services with linkage and/or referral to specialist services. Minimum on-site services could include: Comprehensive sexual, reproductive health, and behavioral risk assessment including drug use, mental health, intimate partner violence risk; comprehensive HIV, hepatitis B/C, STD, TB screening, diagnosis and treatment, with referral for specialist and primary care if required in line with CDC recommendations; comprehensive reproductive health services including pregnancy testing and contraceptive services; health education and targeted risk reduction information is available and offered to all individuals; referral to other specialist services, and prevention services (e.g. behavioral interventions to help reduce or eliminate high risk behaviors) as indicated. Current examples include: LGBT Health Centers, Community Clinics, HIV/AIDS treatment sites.

Flexibility:

The PCSI Levels of Integration framework is designed to be flexible enough to allow the combination and implementation of key HIV, STD, viral hepatitis and TB prevention services in any health care setting. Regardless of the level, agencies receiving NCHHSTP funds would be expected to deliver high quality prevention services and to report on certain integration performance indicators. Within each level of integration, ongoing local evaluation of the impact on service delivery and identification of best practices will be encouraged.

Utility:

The PCSI Levels of Integration framework aims to provide an inventory of the minimum level of key effective prevention interventions that can be recombined quickly and easily to create evidence-based and comprehensive prevention services. The notion of combining interrelated prevention services—versus delivering services independently—drives two critical benefits:

- A renewed sense of flexibility and adaptability for prevention partners, increasing their readiness to respond to changing disease epidemics or policy/ political priorities. Integrated prevention services often require significantly less time to construct than isolated vertical programs, since they are able to build upon existing infrastructures.
- The ability to deploy existing prevention resources (human, IT, financial) to construct integrated services. In turn, this greatly improves return on investment of existing prevention assets and lowers the total cost outputs. The maintenance costs of integrated prevention services are also likely to be lower, by virtue of being based on already-tested and effective interventions.

Summary:

The PCSI Levels of Integration framework (Table 2) enables prevention partners to contribute their respective strengths to maximize their effectiveness in providing

prevention services. It provides a layered view, starting from the simplest of integrated services in settings where no risk assessment is required (Limited Integration), to those where comprehensive HIV, STD, viral hepatitis and TB prevention interventions and linkage to other allied services may be offered (Comprehensive). PCSI Levels of Integration takes advantage of the underlying prevention services capabilities and allows the assembly of integrated processes.

MONITORING AND EVALUATION

CDC ensures the quality of its programs and projects through regular monitoring, evaluation, audit and other oversight activities³³. Monitoring is the regular observation and recording of activities taking place in a project or program. Evaluation is essential for evidence-based lessons from the program implementation experience and using lessons learned in planning of other projects. Both monitoring and evaluation are key components to the successful implementation of PCSI across existing prevention services.

Monitoring and evaluation consists of process measures and performance indicators. Process measures for Program Functions would be jurisdiction specific and depend on the specific strategies identified. Table 3 provides suggestions for strategies that could be used to achieve a public health function, process measures would then be determined based on the strategies employed.

Table 3. Essential Public Health Functions, Potential Strategies, and Process Measures

- 1. Monitor health status to identify and solve community health problems.** Potential strategies are:
 - Develop operating procedures and agreements that assure each program has access to relevant data sets
 - Develop common reporting and data collection instruments
 - Conduct analyses looking across data sets for relevant data
 - Link data sets to allow common risk factors to be analyzed with multiple specific outcomes
 - Develop and disseminate cross-program reports and briefs
- 2. Diagnose and investigate health problems and health hazard in the community.** Potential strategies are:
 - Identify populations and venues that are a shared high priority and develop a joint approach to providing outreach, testing, and risk reduction services.
 - See Table 2 for PCSI Levels of Clinical Service Integration
- 3. Inform, educate, and empower people about health issues.** Potential strategies are:
 - Identify partners working with multiple infectious disease programs and coordinate contacts and common activities
 - Develop and test integrated messages for diseases with common risk factors
 - Develop messages that address cross-cutting infectious disease priorities
 - Develop web-based information and links to multiple relevant program services
- 4. Mobilize community partnerships and action to identify and solve health problems.** Potential strategies are:
 - Develop partnerships and coalitions that have broad representation from areas affected by multiple infectious diseases with common routes of transmission

- Assure that targeted communities are represented in planning, implementation, and evaluation across programs
- Work with community partners and contacts jointly across programs

5. Develop policies and plans that support individual and community health efforts. Potential strategies are:

- Develop and advocate for integration policies that impact multiple and commonly acquired infectious diseases and risk factors
- Develop cross-program social and community-level interventions

6. Enforce laws and regulations that protect health and ensure safety. Potential strategies are:

- Explore the development and implementation of structural interventions which may enhance and accelerate the prevention of HIV, hepatitis, STD and TB infections

7. Link people to needed personal health services and assure the provision of health care when otherwise unavailable. Potential strategies are:

- Identify opportunities for integrated partner services where individuals, contacts, or networks would benefit from counseling, testing, or referral

8. Assure competent public and personal health care workforce. Potential strategies are:

- Train outreach staff to be able to make cross referrals to other programs
- Cross-train staff to conduct all forms of partner referral and treatment services (i.e. EPT, PCRS, PN, DOT)
- Develop internal cross-program communication mechanisms to keep all staff up-to-date on all programs

9. Evaluate effectiveness, accessibility, and quality of personal and population-based health services. Potential strategies are:

- Develop mechanisms to track multiple program interventions to common outcomes
- Determine the population level impact of program integration on HIV, hepatitis, STD and TB prevention and reducing health disparities for these conditions.

10. Research for new insights and innovative solutions to health problems. Potential strategies are:

- Identify and support research to inform best or promising models of practice for program collaboration and service integration.

Performance indicators help to demonstrate the degree to which program objectives have been achieved. They allow a comparison of what is happening with what was planned, and provide insight into what should be done to tell whether an activity is on schedule and implemented as planned. Table 4 shows the potential performance indicators which may be used alongside the PCSI Levels of Integration framework for evaluating integration of HIV, STD, viral hepatitis and TB prevention services.

Table 4. Suggested PCSI performance indicators
Level of Integration, Support Services, Integration Performance Indicators

LIMITED – At minimum

- Staff delivering services have received appropriate training for their job functions – training is inclusive of relevant NCHHSTP services
- CDC 2006 Revised recommendations on HIV testing are followed
- Quality assurance system for all interventions is in place and evidence of QA monitoring available

For example:

- Number and percentage of clients receiving HIV test
- Percent of persons with HIV-positive test results who receive their test results

EXPANDED – As above plus

- Staff delivering services has received appropriate training for their job functions – training is inclusive of all NCHHSTP services
- Current prevention guidelines are followed for HIV, CT, Hepatitis B prevention
- Integrated monitoring, QA or surveillance data are shared locally and available to inform program interventions
- Quality assurance system for all interventions is in place and evidence of QA monitoring is available

For example:

- Percent of sexually active women < age 25 screened for CT
- Percent of those with CT who receive appropriate treatment

COMPREHENSIVE – As above plus

- Staff delivering services has received appropriate training for their job functions

For example:

- Number and percent of clients referred to specialist mental health, drug counseling services.
- Percent of those referred who access services

Many of the performance indicators in Table 4 are already collected by local jurisdictions or may be readily captured using existing information management systems. Others may need to be collected using tailored studies or audits within the clinical setting. Key characteristics of these performance metrics include:

- **Validity.** PCSI performance indicators should be able to monitor actual performance, (e.g. offered appropriately vs. acceptance) as well as exceptions; e.g., when a particular service is not provided.
- **Adaptability.** PCSI performance indicators should be able to identify and adjust to process peaks or changes in clinical activity levels, changing epidemiology, or demographic contexts.
- **Continuous improvement.** PCSI performance indicators should be useful for quality assurance and in informing quality improvement at the local level.

Collectively, PCSI process measures and performance indicators should provide organizations with a level of prevention services intelligence, insight, and flexibility, increasing the speed and effectiveness with which providers are able to respond to changing epidemiology or external prevention/ policy contexts.

ROLES AND RESPONSIBILITIES

Successful implementation of PCSI using the Levels of Integration framework will require clear roles and responsibilities for all prevention partners.

To monitor progress of PCSI, NCHHSTP intends to support greater coordination and communication among its relevant programmatic components. At a minimum, this will entail examining programmatic requirements currently contained in funding opportunity announcements and incorporating indicators of integration as well as harmonizing reporting timelines and elements.

NCHHSTP will encourage more joint site visits where feasible, as well instituting reverse site visits that involve all NCHHSTP programs. In addition, measures of service delivery integration will be incorporated into various site visit assessments so that all program consultants and project officers are incorporating aspects of service delivery integration into their on-going work with grantees. Finally, NCHHSTP will support on-going training and cross-training of program consultants to reduce variability and increase consistent interpretation of program announcement and guidance language.

Other key responsibilities include:

CDC:

In consultation with prevention partners, CDC provides:

- National guidance and recommendations on standards for integrated HIV, hepatitis, STD and TB prevention services, as well as key integration performance indicators
- Undertakes periodic assessments of coverage and quality of integrated services
- Collates national monitoring and evaluation data on PCSI implementation from grantees.
- Supports training, policy and guideline development to support PCSI implementation
- In consultation with partners, CDC will explore funding opportunities to support integration of prevention services

Grantees:

- Designs, implements, monitors, and evaluates integrated services
- Assesses quality of services
- Develops systems to collect report and analyze key integration performance indicators on a periodic basis, and submit these data to CDC
- Supports training, policy and guideline development to support PCSI implementation
- Identifies local funding opportunities to support integration of prevention services

Addressing specific implementation barriers:

NCHHSTP acknowledges that in addition to identifying a framework for implementing integration, consideration should be given to addressing some of the specific structural, operational, policy or fiscal barriers to successful implementation.

Table 5 outlines some of CDC's immediate and planned actions steps in response to concerns identified by our partners in the field. These actions steps will be included into the overall implementation action plan for PCSI.

Table 5: Addressing barriers to PCSI implementation

Issue to be addressed, followed by action steps instituted/ planned by CDC.

National guideline/ policy on PCSI

- Development of NCHHSTP PCSI green paper Summer 2007
- NCHHSTP PCSI stakeholder consultation Summer 2007
- Development of NCHHSTP white paper on PCSI Spring 2008

Funding for program collaboration and service integration

- Analysis of budget authorities to determine and clarify opportunities for funding integration
- Explore agency-wide opportunities to identify seed monies to invest in integrated approaches to prevention
- Ensure new program announcements/ funding opportunities are developed in an integrative fashion and where programmatically relevant, funding flexibilities are identified

Decreasing burden and increasing efficiency of administrative requirements

- Continue work with PGO re: grants administration and monitoring requirements
- Collaborate with the CDC portfolio management project to pilot new contractual procedures with states

Data collection and surveillance systems

- Establish cross-Center working group on surveillance and strategic information
- Publication of STD/HIV integrated interview record
- Publication of integrated annual surveillance reports
- Convene strategic information workgroup to examine surveillance and PCSI

Integrated prevention guidelines

- Commission workgroups to develop integrated evidence-based prevention guidelines. Key groups to be prioritized: Drug Users, Corrections, MSM
- Ensure integrated guidelines included in new NCHHSTP prevention policy documents

CDC program announcements and reporting requirements

- Review of NCHHSTP grants and program announcements to ensure inclusion of language in support of PCSI

Insufficient translation and integration of science and program

- Update and publish evidence based guidelines
- Update and publish evidence based prevention interventions
- Increase investments into translational research especially those relevant to the health of minorities
- Fund operational research and evaluation to assess impact of integration

Insufficient support, both technical and financial, for cross training, evaluation and dissemination of best practices

- Development of cross-NCHHSTP program consultant's workgroups to improve information exchange and training

- Collaborate with the 4 National Prevention Training Centers to assess needs related to program integration
- Fund integrated training curricula
- Develop web-based portal and other methods to share promising practices
- Seek funding to establish regional networks to facilitate sharing of best practices

FUNDING

Despite historic funding streams, provisions already exist for using some CDC categorical funds to support integrative prevention services, with specific restrictions. For example, providing Hepatitis C testing has been shown to increase acceptance of HIV testing and use of HIV prevention funds for this service has been supported^{26,27}. In addition, CDC recommends HIV testing for all those identified with TB infection and both TB and HIV cooperative agreement funds may support this activity²⁵. Finally, use of unexpended funds to support adult hepatitis A and B vaccination for those at high risk has been supported through Immunization Services and STD Prevention grants.

In addition, other funding streams (e.g. local, other federal agencies) may be combined with CDC investments to support and enhance integrated HIV, hepatitis, STD and TB prevention services. Where new prevention investments are available, CDC will work to ensure that integrated approaches for implementation are encouraged and supported.

Given the significant state and local investment in HIV, viral hepatitis, STD, and TB prevention programs, NCHHSTP is interested in employing new management strategies that better coordinate and strengthen the health protection potential of state, local and CDC investments³⁴. To this end, NCHHSTP will explore, test, and evaluate models in which an integrated approach to planning with States can better blend state-wide strategic plans and goals with CDC's health protection goals. Such models may also include exploring new and innovative mechanisms and methods to streamline grant-related administrative systems among grantees.

TRAINING AND SUPPORT

NCHHSTP acknowledges that successful implementation of PCSI will require ongoing training and support for prevention workers in a variety of health care settings over sustained periods. In addition to providing clear recommendations and expectations for PCSI, NCHHSTP is committed to supporting state and local programs in PCSI through:

- Working with Prevention Training Centers to ensure that integrated approaches to providing HIV, hepatitis, STD and TB prevention services are developed and disseminated

- Using new technologies (internet, blogs, listserves, social marketing) to provide and disseminate information on PCSI
- Partnering with professional agencies to document and disseminate models of promising practice.
- Producing integrated guidelines for HIV, STD, hepatitis and TB preventive services, in particular for sub-populations at high risk of acquiring these diseases
- Supporting ongoing dialogue and exchange of information through meetings, consultation events, site visits etc.
- Ensuring progress data on PCSI implementation is shared with stakeholders on a timely basis
- Ensuring NCHHSTP grants and cooperative agreements reflect and support the Center's priorities for program collaboration and service integration

THE NEXT STEPS

NCHHSTP is committed to working with our many partners to identify a shared vision for Program Collaboration and Services Integration, along with key milestones for implementation. Partner feedback on this consultation paper is therefore an important first step.

Some initial milestones and activities are highlighted below:

Spring 2007: Preparation and internal clearance of NCHHSTP green paper on PCSI

Summer 2007: External consultation with NCHHSTP stakeholders

Winter 2007: Publication of NCHHSTP white paper on PCSI

Spring 2008: Publication of NCHHSTP Implementation Action Plan for PCSI

CONCLUSIONS

CDC and its prevention partners continue to seek ways to improve collaboration and to provide more effective and holistic prevention services to those in need. PCSI may present an effective tool to realizing these goals. This can be further enhanced when programmatic prevention goals are aligned with the strategic information thereby providing partners with enhanced flexibility, efficiency and control. CDC acknowledges

the tremendous work already underway by our partners in collaborating and integrating services, and is keen to build upon the experience and expertise of the models in the field.

CDC recommends the PCSI Levels of Integration as one potential solution that addresses many of the dimensions of Program Collaboration and Service Integration in a single offering. It builds upon existing prevention activities at the local level, is responsive to clients needs, and is flexible enough to be implemented within a diverse range of clinical and outreach settings.

By using PCSI Levels of Integration, organizations can better differentiate themselves by “how” they conduct prevention activities, and not merely by “what” prevention services they offer. All of this translates into greater client satisfaction, improved return on prevention investments, and greater control over, and visibility into, prevention services.

FOR MORE INFORMATION

For additional information on Program Collaboration and Service Integration and PCSI Levels of integration, please visit the NCHHSTP website at <http://www.cdc.gov/nchhstp> or contact us at one of the phone numbers on the cover sheet page of this paper.

About NCHHSTP

The National Center for HIV/AIDS, Viral Hepatitis, STD and TB Prevention (NCHHSTP) is responsible for public health surveillance, prevention research, and programs to prevent and control human immunodeficiency virus (HIV) infection and acquired immunodeficiency syndrome (AIDS), other sexually transmitted diseases (STDs), viral hepatitis, and tuberculosis (TB). Center staff work in collaboration with governmental and nongovernmental partners at community, State, national, and international levels, applying well-integrated multidisciplinary programs of research, surveillance, technical assistance, and evaluation.

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