

**US Department of Health and Human Services
Centers for Disease Control and Prevention
Health Resources and Services Administration**



**Virtual Business Meeting of the
CDC/HRSA Advisory Committee on
HIV, Viral Hepatitis, and STD Prevention and Treatment
April 12, 2021**

Record of the Proceedings

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Executive Summary

The United States (US) Department of Health and Human Services (HHS); the Centers for Disease Control and Prevention (CDC) National Center for HIV/AIDS, Viral Hepatitis, Sexually Transmitted Diseases (STDs), and Tuberculosis (TB) Prevention (NCHHSTP); and the Health Resources and Services Administration (HRSA) HIV/AIDS Bureau (HAB) convened a meeting of the CDC/HRSA Advisory Committee on HIV, Hepatitis, and STD Prevention and Treatment (CHAC). In response to the COVID-19 pandemic, the proceedings were held virtually via Zoom on April 12, 2021.

The focus of this CHAC Business Session was for members to hear presentations on two pressing matters of interest: 1) **Updating CDC's HIV Testing Guideline** in terms of the evidence review that is underway and in the context of taking steps toward making the guideline more nimble and routinizing/normalizing HIV testing and integration into the clinical setting; and 2) **FDA's impending reclassification of human immunodeficiency viruses (HIV) and Hepatitis C virus (HCV) diagnostic tests** from Class III to Class II in the context of HIV self-tests (HIVST) and the shifting HCV epidemiology.

With regard to **updating CDC's HIV guidelines**, CHAC members were asked to consider, deliberate, and provide feedback on what guideline topics/areas they think are most important to prioritize for implementation based on the Ending the HIV Epidemic (EHE) goals; what they would prioritize given limited evidence from mathematical models; and what implementation approach they think would work best to improve guideline access, awareness, and adherence. The following themes emerged:

- Members found it shocking that only 44% of providers are aware of the guidelines 15 years after publication. Perhaps it would be beneficial to assess the 56% who report being unaware of the guidelines, which could lead to more strategic analyses and responsive campaigns.
- Perhaps rather than trying to make every provider and patient aware of the guideline, the focus should be on system rather than individual change such as implementation of standing orders in a hospital system or clinical setting for routine, universal, opt-out testing whenever blood is drawn. One challenge with testing in the hospital/emergency department (ED) setting is not having the equipment to run that volume of testing. It also is important to remember that while testing could be standardized, providers must have the skill set to empathetically and efficiently make referrals.
- Standardization of systems must be afforded to everyone who presents to the clinical setting.
- It is important to examine the success stories and ascertain how to incorporate them into standing orders.
- In terms of the legal review, it does not appear that instituting policies has had an impact on diagnosed positives.
- At least in the short-term while dealing with the pandemic, consideration should be given to integrating HIV and COVID-19 testing as a tool for identification of those with HIV in order to start antiretroviral therapy (ART) treatment early and to begin pre-exposure prophylaxis PrEP for those who are at high-risk but test negative. Perhaps existing models can be drawn upon. At least in Atlanta, every patient in the Veterans Administration (VA) has been screened with very few exceptions.
- Having a prevalence bar is incredibly confusing for physicians, given that no one knows what the prevalence is in their area nor can they assess the prevalence of micro

populations. Similarly, patients and providers are terrible at understanding who is at high-risk. Given that the prevalence threshold poses such a barrier, there was some support for eliminating it.

- ❑ Given that risk is not static over time, a single lifetime test does not seem prudent.
- ❑ There are concerns about the 21st Century Cures Act that allows record sharing between patients and clinics in terms of those 26 years of age and younger whose data may be made available to the policy holder, as well as infants of mothers who are HIV-positive because if those tests are in the baby's chart that information will be available for the father.

In terms of **FDA's impending reclassification of human immunodeficiency viruses (HIV) and Hepatitis C virus (HCV) diagnostic tests** from Class III to Class II in the context of HIVST and the shifting HCV epidemiology, CHAC members were asked to consider, deliberate, and provide feedback on the minimum performance standards that should be considered to allow for public health benefit of OTC HIVST; additional parameters/questions members would like to provide feedback on; and whether there is a public health benefit for having access to an oral fluid HCV antibody test in the US and if so, how much sensitivity loss could be tolerated before the test would no longer be useful. The following themes arose:

- ❑ Some sentiment was expressed that there is no public health benefit to having access to an oral fluid HCV antibody test in the US and that oral antibody testing outside the US has been a failure. None of the publications provide any evidence that the oral antibody tests lead to outcomes that are meaningful (e.g., prevention, treatment, cure, decreasing prevalence/incidence, decreasing morbidity/mortality) toward elimination with the exception of the Australian study. Unlike the HIV oral testing that provides a diagnosis, HCV antibody screening is not diagnostic so these tests cannot be compared one to the other. It is doing a horrible disservice to people not to give them a diagnosis. In 2021, antibody screening that does not give a diagnosis should be phased out and there should be a move toward the science that is available, which is one-step, point-of-contact (PoC), rapid viral load nucleic acid molecular diagnostic testing. The fingerstick does everything and better than the oral fluid test.
- ❑ There could be a scenario in which a positive oral fluid antibody test would prompt a fingerstick antigen test, which could provide immediate results but reduce the frequency of fingersticks. While this does not yet exist, perhaps the future will provide more opportunities than are currently available.
- ❑ There is support for movement toward a one-step diagnosis. A rapid fingerstick that does not require any equipment would be an exceptional advancement in single-step testing; however, cost precludes a single-step test at this time. In the interim, there is still a legitimate question with the tools available in the US regarding whether oral fluid testing would advance opportunities in certain settings and could be more successfully coupled with a dried bloodspot or rapid PoC ribonucleic acid (RNA) test that does not exist in the US yet.
- ❑ Perhaps there is a role for an oral HCV antibody test that can be used as a screening tool at community events that perhaps could be coupled with a rapid RNA test.
- ❑ There probably will be a fall-off of sensitivity and specificity to ramp up some of the OTC HIVST, which may be okay in the short-term as long as there is adequate communication about what the test results mean. The long-term goal should be to get to a highly sensitive and highly specific test for all people in all settings.
- ❑ More people than ever understand sensitivity and specificity because of COVID-19. It is possible that some of the technology developed for SARS-CoV-2 actually could be adapted to a PCR test that does not need that kind of equipment and could be done inexpensively if there is enough of a market. Within clinical settings, there still could be a more efficient process with high throughput machines.

**US DEPARTMENT OF HEALTH AND HUMAN SERVICES
CENTERS FOR DISEASE CONTROL AND PREVENTION
HEALTH RESOURCES AND SERVICES ADMINISTRATION
CDC/HRSA Advisory Committee on
HIV, Viral Hepatitis, and STD Prevention and Treatment
April 12, 2021**

Minutes of the Meeting

The United States (US) Department of Health and Human Services (HHS); the Centers for Disease Control and Prevention (CDC) National Center for HIV/AIDS, Viral Hepatitis, Sexually Transmitted Diseases (STDs), and Tuberculosis (TB) Prevention (NCHHSTP); and the Health Resources and Services Administration (HRSA) HIV/AIDS Bureau (HAB) convened a meeting of the CDC/HRSA Advisory Committee on HIV, Hepatitis, and STD Prevention and Treatment (CHAC). In response to the COVID-19 pandemic, the proceedings were held virtually via Zoom on April 12, 2021.

The CHAC is a committee chartered under the Federal Advisory Committee Act (FACA) to advise the Secretary of HHS, Director of CDC, and Administrator of HRSA on objectives, strategies, policies, and priorities for HIV, viral hepatitis, and STD prevention and treatment efforts for the nation.

Information for the public to attend the CHAC meeting virtually was published in the *Federal Register*, in accordance with FACA rules and regulations. All sessions of the meeting were open to the public. Please see Appendix A for the Participant List.

DFO Opening of the Meeting and Roll Call

Staci Morris

Public Health Advisor
Office of Policy, Planning and Partnerships
National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention
Centers for Disease Control and Prevention

Ms. Morris welcomed participants to the CHAC meeting and called the proceedings to order at 3:00 PM Eastern Time (ET). She indicated that due to the time limitation for this meeting, members of the public would not have the opportunity to provide oral comments. However, written comments may be submitted up to 10 business days after the meeting. These should be submitted to smorris4@cdc.gov or nchhstppolicy@cdc.gov. The email subject line for comments should read, "April 12 CHAC Public Comment - ATTN Staci Morris."

RADM Jonathan Mermin, MD, MPH

Director, National Center for HIV/AIDS, Viral Hepatitis, STD and TB Prevention
 Centers for Disease Control and Prevention
 CHAC Designated Federal Officer
 Centers for Disease Control and Prevention

On behalf of CDC and HRSA, Dr. Mermin welcomed those present and expressed appreciation to everyone for taking time off of their busy public health schedules to join this meeting. He explained that this special business meeting was being facilitated to share information and gain feedback on two topics: 1) updates to the HIV testing guidelines from CDC; and 2) information pertaining to the Food and Drug Administration (FDA) reclassification of hepatitis C virus (HCV) and HIV diagnostics.

Dr. Mermin reminded everyone that CHAC meetings are open to the public and all comments made during these proceedings are a matter of public record. Members should be mindful of potential conflicts of interest (COIs) identified by the Committee Management Office (CMO) and recuse themselves from voting or participating in any discussions for which they may have a conflict. He then conducted a roll call to determine the CHAC voting members and *ex-officio* members who were in attendance.

Conflict of Interest Disclosures

CHAC Voting Member (Institution/Organization)	Disclosure of Conflict
Wendy Armstrong, MD (Emory University School of Medicine)	Recipient of funding from HRSA/Ryan White HIV/AIDS Program
Jean R. Anderson, MD (The Johns Hopkins Hospital)	Recipient of funding from NIH, HRSA/Ryan White HIV/AIDS Program, and Gilead (for an Educational Research Program) and spouse has stock in AbbVie, BMS, and Merck
Jodie Dionne-Odem, MD (University of Alabama, Birmingham)	Recipient of funding from NIH
Travis Gayles, MD, PhD (Montgomery County Department of Health and Human Services)	Recipient of funding from HRSA/Ryan White HIV/AIDS Program and CDC
Debra Hauser, MPH (Advocates for Youth)	Recipient of funding from CDC, ViiV, and Gilead
Venton Hill-Jones, MSHCAD, PMP (Southern Black Policy and Advocacy Network)	Recipient of funding from Gilead
Devin Hursey (The U.S. People Living with HIV Caucus)	Recipient of funding from Gilead
Shruti Mehta, PhD, MPH (Johns Hopkins Bloomberg School of Public Health)	Recipient of funding from Gilead and Abbott

Gregorio A. Millett, MPH (amfAR, Foundation for AIDS Research)	Recipient of funding from ViiV
Johanne Morne, MSED (AIDS Institute, New York State Department of Health)	Recipient of HRSA/Ryan White HIV/AIDS Program and CDC
Kneeshe Parkinson (Washington University/Project ARK)	Recipient of funding from HRSA/Ryan White HIV/AIDS Program
Leandro Rodriquez, MBA (Latino Commission on AIDS)	Recipient of funding from HRSA/Ryan White HIV/AIDS Program, CDC, and ViiV
Robert Riestler (Denver Element)	Recipient of funding from CDC and HRSA/Ryan White HIV/AIDS Program
Gloria Searson, MSW Coalition on Positive Health Empowerment	Recipient of funding from Merck, Gilead, ViiV, and AbbVie
Bradley Stoner, MD, PhD (Queen's University)	Recipient of funding from CDC
Lynn Erica Taylor, MD, FAASLD(University of Rhode Island/CODAC Behavioral Healthcare)	Recipient of funding from CDC and NIH

Ex-Officio members in attendance included Dr. Pradip Akolkar of the Food and Drug Administration (FDA), Dr. Paul Gaist of the National Institutes of Health (NIH) Office of AIDS Research, Dr. Neerja Gandotra of the Substance Abuse and Mental Health Services Administration (SAMHSA), Ms. Kaye Hayes of HHS Office of HIV/AIDS and Infections Disease Policy, Iris Mabry-Hernandez of the Agency for Healthcare Research and Quality (AHRQ), Dr. Douglas Olsen for the Centers for Medicare and Medicaid Services (CMS).

Ms. Morris confirmed that 16 voting members were in attendance, thus constituting a quorum for CHAC to conduct its business on April 12, 2021.

Introductions, Welcome, and Adoption of Minutes

Bradley Stoner, MD, PhD

CHAC Co-Chair, CDC Appointee

Jean Anderson, MD

CHAC Co-Chair, HRSA Appointee

Drs. Stoner and Anderson welcomed everyone to the April 12, 2021 CHAC business meeting. Dr. Stoner thanked the CHAC members, federal officials, CDC and HRSA staff, and the general public in attendance. He reviewed the agenda for the day, with the first order of business to seek review and approval of the minutes from the November 5-6, 2020 CHAC meeting. No errors or omissions were identified, no questions or concerns were raised, and no edits were suggested.

CHAC Action

Ms. Hauser made a motion to approve the minutes, which was seconded by Dr. Dionne-Odem. CHAC members unanimously approved the minutes with no changes or further discussion.

HIV Testing Guidelines: Evidence Review

Irene Hall, PhD

Acting Director, Division of HIV/AIDS Prevention
Centers for Disease Control and Prevention

Dr. Hall provided a summary of the steps being taken to update the CDC HIV testing guideline and to include the implementation. The guideline was published in 2006 and was one of the most successful and groundbreaking guidelines to date. The guideline transformed the paradigm of how HIV testing was implemented into routine HIV care in healthcare settings, and was an important step to normalizing and destigmatizing HIV testing. The guideline and its related paradigm shift inspired other federal agencies to change their guidelines to be consistent with the CDC guideline, such as the Veterans Administration (VA), the United States Preventive Services Task Force (USPSTF), and CMS.

Since 2006, CDC has supported implementation of the guideline by helping health departments and community-based organizations to conduct testing, sponsor testing events, promote testing social marketing campaigns, build capacity, and provide training and education. CDC's expanded testing initiative was funded in 2007 and 2011 and helped with implementation of the guideline in 27 jurisdictions in the US. This resulted in an improvement in testing. The National Health Interview Survey (NHIS) shows that lifetime testing in the US population increased between the time periods of 2003-2006 and 2007-2010.

In terms of outcomes in the 15 years that have passed since the groundbreaking guideline was published, CDC knew it was important before starting the updating process to evaluate implementation of the guideline and examine the barriers to implementation. An analysis of 2006-2016 data from the General Social Survey (GSS) shows that implementation of the guideline has been suboptimal. The data showed that only about 40% of non-institutionalized US adults had ever been tested for HIV, and that only about 62% of persons who reported HIV-related risk behaviors in the past 12 months were ever tested for HIV¹. Furthermore, a recent

analysis of data from national medical care surveys shows that although several hundred million visits were made annually to physician offices, community health centers (CHCs), and emergency departments (EDs) by persons 13 to 64 years of age between 2009-2017, HIV testing occurred at less than 1% of visits to EDs and physician offices and less than 3% of visits to CHCs². Despite the major efforts and resources that went into developing and implementing this guideline, studies also have shown that less than half of primary care physicians (PCP) in CHCs were aware of the guidelines even though they are CDC's primary stakeholders³ [1Interval Since Last HIV Test for Men and Women with Recent Risk for HIV Infection — United States, 2006–2016, MMWR, June 22, 2018; Pitasi et al; ²HIV Testing Trends at Visits to Physician Offices, Community Health Centers, and Emergency Departments, United States, 2009–2017; Weekly / June 26, 2020, Hoover et al; ³J Int Assoc Provid AIDS Care. 2014 Jul-Aug; 13(4): 296–299].

One of the first questions CDC faced regarded whether to update the guideline or scale up implementation, and the decision was made to do both. To a certain degree, implementation depends upon effectively translating the guideline into implementation products like provider toolkits, decision support tools, clinical flow algorithms, et cetera. There are methods to improve translation of the guidelines through developmental work and a parallel process for translating the product during the development of the guideline to reduce considerable time between publishing the guideline and implementation, and to reduce any confusion that may be created by having a lag.

CDC chose to pursue this concurrent approach, which means that they are developing a robust process and incorporating the new elements into the guideline while simultaneously supporting the development of related implementation tools. This approach is multi-pronged and involves four distinct parallel processes including a comprehensive environment assessment, end user needs assessment and public comments, evidence reviews, and implementation planning. The advantages are that there is a clear mechanism for guideline scoping and topic prioritization, it affords opportunities to receive stakeholder input at earlier stages, and it provides greater clarity, transparency, and integrity of the process.

In terms of stakeholder input, CDC reached out to 3 groups of stakeholders to understand uptake, lessons learned, and gaps in the current guideline and to use this information in the guideline updating process. In 2018, subject matter experts (SMEs) from the Division of HIV/AIDS Prevention (DHAP) participated in a comprehensive environmental assessment of the 2006 guideline implementation. They evaluated how well the guideline was implemented, lessons learned, barriers, gaps, and other insights. This information was used to define the guideline updates related to content, dissemination, implementation, and evaluation. They also reached out to external stakeholders through a Federal Register Notice (FRN) in which stakeholders were asked to share their input, which was received from a variety of 62 stakeholders (e.g., patient advocates, CBOs, health departments, universities, program managers, patients). A provider (e.g., end user) needs assessment was conducted through a collaboration with CDC's Office of Technology and Innovation (OTI) and Georgia Institute of Technology (Georgia Tech). This assessment provided insight on how the design, format, and publication platforms of the guideline affected accessibility and implementation and was an eye-opener for CDC.

The key topics within the stakeholder input included prevalence threshold, age interval for screening, screening frequency, linkage to services, normalization of testing, and the terminology used in the guideline. A key theme that was reiterated by all 3 groups was a call to normalize testing further to diminish the persistence of stigma and discrimination associated with HIV testing. Incorporating the guideline into electronic medical records (EMRs) was suggested by all 3 groups of stakeholders as a way to normalize testing by making testing routine and removing provider barriers and biases.

Once the assessments were completed, the process of conducting prioritized evidence reviews was begun. Based on the guideline review and stakeholder feedback, it was determined that at least 25 topics needed to be updated. Given that it would be difficult to complete an evidence review on all topics simultaneously, the decision was made to implement an Agile approach by working with questions and topics that were of highest priority. This meant that there was a need to set up a transparent process for priority-setting for guideline development. The criteria used in ranking the topics included consistency or alignment with DHAP/EHE goals, public health importance, availability of evidence to support assessment of the topic, and feasibility of implementation. Based on this prioritization, the following 9 systematic reviews were undertaken for guideline content development (GCD) and/or implementation planning (IP), some of which already have been completed:

1. Self-testing for HIV (GCD) (*In progress*)
2. Age range and frequency of HIV testing (GCD) (*Completed*)
3. Linkage to care – test and treat (GCD) (*In progress*)
4. The computerized clinical decision-support systems (CDSS) review (IP) (*Completed*)
5. Legal review of state laws on HIV testing gls (GCD, IP) (*Completed*)
6. 2006 HIV testing guideline uptake evaluation systematic review (GCD, IP) (*Completed*)
7. Scoping review for HIV testing of pregnant women (GCD) (*Completed*)
8. HIV screening or testing the woman while breastfeeding and HIV screening or testing the newborn/infant while breastfed (GCD) (*In progress*)
9. Partner services (GCD) (*In progress*)

Due to the pandemic, there has been an increased focus on HIV self-testing programs for persons who cannot or are reluctant to get tested in traditional healthcare settings. In partnership with CDC's Community Guide Office (CGO) and the World Health Organization (WHO), DHAP's Guidelines Team is adapting the WHO guideline and systemic review for self-testing for the US context using systematic review methodology. The review is in progress and is anticipated to be completed by the end of the Summer.

Key topics in this guideline included age and frequency of screening. The recommendation in the 2006 guideline was that screening should be performed in settings with a prevalence of 0.1% for those 13 to 64 years of age at least once. Patients at high risk were recommended to be tested annually. These recommendations were based on 3 mathematical models on cost-effectiveness. This raised questions regarding whether the recommendations are still valid in the area of earlier initiation of antiretroviral therapy (ART) and movement toward a test and treat environment, and whether the guideline aligns with the goal to end the HIV epidemic in the US or if a more aggressive approach is needed.

A goal of the review was to identify age and frequency of screening strategies that could provide the greatest benefits, while remaining cost-effective. The PICO (population, intervention, control, and outcomes) question and sub-questions for this review were:

Do different age-based HIV screening and interval-of-screening-based strategies lead to improved outcomes (at the patient and population level) compared to the outcomes from the CDC's one-time routine screening for general population (13-64 years old) and annual screening for high-risk populations?

- Is 13-64 years of age for screening cost-effective?
- What is the ideal frequency of screening for general and high-risk populations?
- Is the 0.1 % prevalence threshold still relevant for identifying settings to implement routine screening?

Very few models have looked at the prevalence threshold. One issue may be that prevalence may be unknown and therefore, the threshold value may act as a barrier to expanding testing or conducting testing in healthcare settings. Other factors that are difficult to account for are the unknown number of high-risk individuals in the general population, primary cases averted due to the use of pre-exposure prophylaxis (PrEP) or secondary cases averted due to viral suppression, and quantifying the impact of stigmatization of patient testing. The threshold also may be overly conservative. Only 2 newer studies were found on testing in healthcare settings or STD clinics at less than a 0.1% threshold, which found that testing was cost-effective (Walensky 2005; Paltiel 2006). One study implies that screening may be cost-effective at a 0.8% threshold (Farnham 2012), while another found one-time screening to be cost-effective at a prevalence as low as 0.05% (Sanders 2005). The potential implications are whether the general population should be screened everywhere regardless of prevalence and eliminating the threshold, or whether the current threshold of 0.1% prevalence should be maintained. Regarding screening frequency, models have found that expanding testing to the general population every 3 to 5 years is beneficial, especially combined with high rates of linkage to care. However, there may be a cost due to false positives. For high-risk populations, many models found that shorter intervals of 3 to 6 months are beneficial when coupled with high rates of linkage to care.

No models were found that looked at the lower age limits. However, when looking at the upper age range, a model concluded that testing could continue until age 74 years if HIV prevalence was greater than 0.1%. In addition, 3 models considered what age range for screening would have the most impact on lifetime incidence (Neilan 2018, Golden 2017, Rao 2020). While their conclusions varied, they recommended a tighter age range of 21 to 38 years, with an ideal range of 24 to 27 years of age for screening. The potential implications regard whether the current older age limit of 64 years old should be eliminated and if screening at least once, whether screening should occur between the ages of 21 to 38 years.

The cost-effectiveness of models that proposed greater frequency of testing for the general population and for high-risk populations are dependent upon high rates of immediate linkage to care. The 2006 guideline already states that, "HIV-infected persons should receive or be referred for clinical care promptly." However, "promptly" is not defined. During the implementation evaluation, this lack of definition was seen as a gap and brought about variation in service delivery. The systematic review on linkage to care is looking at the most effective and cost-effective linkage models, including the test and treat model.

To make sure that the guideline is valid, the team collaborated with CDC's CGO to conduct a systematic review on the effectiveness of CDSS on HIV screening. The review was published on March 23, 2021. The findings were that: 1) the Community Preventive Services Task Force (CPSTF) recommends CDSSs to increase HIV screening based on strong evidence of effectiveness; 2) evidence shows that the use of CDSS increases HIV screening for the general population and for people at high risk for HIV infection; and 3) CDSS had high acceptability among providers as well as reduced provider bias in offering tests. [<https://www.thecommunityguide.org/findings/hiv-prevention-clinical-decision-support-system-increase-hiv-screening>].

The legal assessment of state laws and regulations that was conducted by DHAP staff assessed the impact of the guideline on state policies and barriers. This assessment found that the impact of the guideline was broad, with 31 states having at least 1 component of the CDC guideline implemented [Valentine, Caldwell, & Tailor 2020].

The team also conducted an uptake evaluation of guideline implementation to understand the barriers and facilitators of the current guideline and how to address them in the updated guideline, including the parallel work on implementation. Overall, provider awareness and implementation of the guideline is low. The most important findings are that the best facilitators are integration of HIV testing into the workflow and automated prompts within the EMR for the use of clinical decision support (CDS). This review justified working on implementation plans by turning the guideline into a computer format.

A scoping review on universal perinatal HIV screening among pregnant women was completed to identify new research and research gaps to inform the path forward for updating the guideline. The scoping review identified several new topics including routine testing of pregnant women, screening or testing women while breastfeeding, testing of partners of pregnant women, or testing the newborn/infant while being breastfed. A systematic review looking at all of these research topics is currently in progress.

The next steps are to continue working on the key topics of age and frequency of testing. The search has been expanded to include new mathematic models published in the last few months that will look at these criteria from the perspective of reaching Ending the HIV Epidemic (EHE) goals. Next, a workgroup will be convened to formulate recommendations based on the evidence review. The team also will continue working on other priority systematic reviews such as self-testing, test and treat, and testing of pregnant women and infants.

The next steps will focus on improving the guideline. While embarking on a new approach in the way the guideline is written, the team proposes to use an Agile approach and living guideline format. Rather than publishing the full guideline which will take about 2 years, the guideline would be divided into topics and the most critical outcomes or recommendations would be developed and published first. Recommendations also will be made useful and accessible for clinicians at the point of care by using new technology methodologies such as clinical algorithms and decision support tools. Living computer-interpretable guidelines are human readable and computer-interpretable such that the guideline is implementable, human-centered, multi-channel enabled, actionable at the point of care, and quickly translated into decision support.

All of this work along with feedback from stakeholders has led to an innovative pilot project on the HIV testing guideline. The DHAP team is currently working with the Division of STD Prevention (DSTDP) and their partner, the Oregon Community Health Information Network (OCHIN) to develop an integrated HIV and STD screening and PrEP algorithm. When developing the new recommendation, the team will work with informaticians to write them in a way that they are machine readable or translatable. The goal is to develop and pilot test the CDS tools for HIV screening and PrEP and convert the guideline to executable logic. This will connect it to the web-based CDSS within EMR systems. This approach is designed to help reduce stigma and provider reluctance to offer testing.

In summary, DHAPs work on the update of this important guideline includes improving its content by including recent evidence and improving consistency with other guidelines. Implementation of the guideline will be improved through the use of innovative strategies such as incorporating informatics; use of Agile methodology; incorporation of end-user perspectives; and use of an online, living format. Dr. Hall posed the following questions for the CHAC members' consideration and discussion:

1. What guideline topics/areas do you think are most important to prioritize for implementation, given EHE Goals?
2. Given limited evidence from mathematical models, what would you prioritize?
3. What guideline topics/areas do you think are most important to prioritize, given EHE Goals?
4. What implementation approach would work best to improve guideline access, awareness, and adherence?

CHAC Member Discussion: HIV Testing Guidelines

Mr. Hursey requested further explanation regarding what is meant by “threshold prevalence” in terms of whether it is a comparison between population prevalence and sub-population prevalence and if that is based on geography.

Dr. Hall indicated that the prevalence is for defining an area where population screening would be implemented. Sometimes that is understood as looking at the patient population prevalence. Sometimes it is very difficult to get that information and make those decisions and can act as a barrier.

Dr. Dionne-Odom found it shocking though that only 44% of providers are aware of the guidelines 15 years after publication. She inquired as to what the right way might be to achieve better dissemination and what other guidelines that have had better reach might serve as a model.

Dr. Hall emphasized that part of the implementation planning now is to make the guideline more nimble and easier to integrate into decision-making tools and EMRs. She did not know if that was similar to other guidelines that CDC or others have published.

Dr. Mermin added that it is a common frustration that thoughtful guidelines, especially if they have taken years to produce, end up working but only with an absolute difference of a certain amount that is less than what is desired. He thinks it relates to one of the questions that Dr. Hall posed, which is that perhaps the goal is not to have every single provider and every single patient know about the guideline. Instead, it is to change the concept of what it means to provide routine care. To truly normalize HIV screening, it should be a standing order on blood that is drawn for something else. This is done by multiple hospital and clinical systems and is incredibly effective and cost-effective. They also tie it into support services and linkage to care. This has been done for Hepatitis C as well. Clinical decision reminders are perceived almost as harassment tools by clinicians, and they become frustrated and ignore them. However, a standing order that is supported by a system can be welcomed by clinicians. A system change rather than an individual change is easier to achieve. Part of the goal is to think about how that can be implemented over the next few years for multiple infections, with HIV as the architectural example of that.

Dr. Parkinson asked how many women were linked to the research DHAP conducted who ultimately were the women who breastfed. Many women globally want to tell their stories and be put in spaces and places to access studies over a period of time. She is a survivor of 2 decades. When she was diagnosed in the 1990 era, individuals were shunned about having children. Standardization of systems must be afforded to everyone who presents to the clinical setting. She invited CDC to reach out to the Directors and Co-Directors of the great entities and organizations available to help move this effort forward.

Dr. Hall indicated that the team is still in the process of reviewing the studies on women and infants. She emphasized what Dr. Mermin observed about routinizing screening in the healthcare setting so that it becomes part of standing orders and routine care.

Dr. Rodriguez asked whether the legal review included Puerto Rico (PR), the US Virgin Islands (USVI), and territories or if it is specific to the US mainland. Amrita Taylor said that she did not think this was part of the review, but will check to be sure.

In terms of gaps in implementation, Dr. Taylor emphasized physician burnout on EMRs. If the solution is going to put more into EMR, implementation is going to continue to be challenging. The most important pathway for low threshold testing that normalizes and routinizes screening is routine, universal, opt-out testing whenever blood is drawn versus only screening in high-risk settings, people on methadone, people going to needle exchange clinics, people going to STI clinics, et cetera. She asked how they envisioned getting from the current situation to routine, universal, opt-out testing.

Dr. Hall indicated that there are studies with examples in which that has worked and others in which it has not worked. It is important to examine the success stories and ascertain how to incorporate them into standing orders, such as determining how to expand routine testing when blood is drawn across the country.

Dr. Gaist inquired as to whether there is a sub-analysis of “providers” underway to determine if there are certain categories of “providers” who are making up the 56% who report being unaware of the guidelines. With that information, more strategic analyses and responsive campaigns could be conducted.

Dr. Taylor responded that they have not performed that type of sub-analysis, but it is a good idea that perhaps they can pursue.

In terms of the legal review, Dr. Millett did not see whether there was any impact on diagnosed positives based upon the policies in each of the states. He acknowledged that this type of analysis could be problematic and messy, particularly if the data are cross-sectional. In addition, he asked whether there was any consideration of integrating HIV and COVID-19 testing. Many studies are being published now showing that opt-out HIV testing during COVID-19 testing yields people diagnosed with acute HIV, usually from people of color who never would have been diagnosed as early as they are and have the benefit of starting ART early. He wondered whether any recommendations would be coming from CDC to try to fuse the two, at least in the short-term while still dealing with the pandemic. He would expect that a lot of analyses have been performed on the guideline in terms of whether age and/or frequency need to be increased, particularly for at-risk populations. The guideline should be based upon the yield of positives that would be expected for either one. There has been increasing PrEP, particularly in high-risk populations. This is a great tool for diagnosis of people with HIV and those already presenting for their PrEP updates on a quarterly basis.

Regarding the legal review, Dr. Hall was not aware that CDC has done this and said she would have to think about whether it can be done. Integrating HIV and COVID-19 testing has come up in discussions, but she was not sure whether they had a formal position as the response to the pandemic is very intense and focused. This certainly makes a lot of sense and perhaps they need to consider it in the future. The work on the frequency of testing has been evaluated and the evidence that was found was not overwhelming at the time. However, the DHAP team is looking at this for the updated guideline. Perhaps there are existing models that can be drawn upon.

Dr. Griffing responded that interventions in recent years such as PrEP and Undetectable Equals Untransmittable (U=U) have not been strongly focused on in the models. A couple of models were done at CDC, neither of which engaged deeply with those concepts, especially PrEP. This is definitely something they would be interested in focusing on as it is an important issue. The two modeling papers that included CDC authors in recent years that have examined interval of testing in high-risk populations are: Hutchinson, A. B., et al. (2016). "Cost-effectiveness of frequent HIV testing of high-risk populations in the United States." *Journal of Acquired Immune Deficiency Syndromes* 71(3): 323–330. This manuscript did consider HIV transmission that was averted due to serostatus awareness and viral suppression, but did not mention PrEP. The other is: Delaney, K. P., et al. (2015). *Optimizing human immunodeficiency virus testing interventions for men who have sex with men in the United States: a modeling study*. Open forum infectious diseases, Oxford University Press. While viral suppression was considered, PrEP was mentioned, but it does not appear it was incorporated.

Dr. Mermin added that a study on New York, which issued a law that said opt-out screening must be offered for people attending clinical settings for HIV, showed an increase in HIV and Hepatitis C when the law was issued. However, it was not as much as was needed and it is not exactly a question. The idea of doing some type of ecological analysis is intriguing and CDC has the capacity to do this. This is a dynamic situation that will influence how to proceed. For example, there will have to be a prevalence level. At some point, the idea behind that is if it gets really low, it is not cost-effective to do this anymore. There are published papers, including in the *Journal of the American Medical Association (JAMA)*, complaining about CDC's guideline because only 7 people were positive after 4 years of screening an entire clinic population. The answer was that that was below the threshold, so they should have stopped. What will happen if EHE is successful is that it will be locally different. How to incorporate that into guidelines will be a challenge and opportunity to do the right thing in a way that has not been done before, and that relates to some of the other issues about PrEP.

Dr. Armstrong agreed that having a prevalence bar is incredibly confusing for clinicians. No one knows what the prevalence is in their area nor can they assess the prevalence of micro populations. Similarly, patients and providers are terrible at understanding who is high-risk. She supports more universal testing built into systems rather than leaving this with providers. Similarly, clinicians go to apps when they do not know what to prescribe or what the next diagnostic test is for someone who is a problem. However, they are not going to go to an app to decide whether to screen someone for HIV as it takes too much time. One of the challenges with testing in the ED is not having the equipment to run that volume of testing. In addition, many clinicians are afraid of getting the positive tests back and have no idea what to advise people whose tests come back positive, how to link them to care, what to tell them, et cetera. That is a piece of education that is critical. In terms of successful models to look at, the VA has done this mostly through EMR alerts. At least in Atlanta, every patient in the VA has been screened with very few exceptions.

Mr. Hursey noted that certain demographics were pointed out during the presentation (age, gender), but it was very de-racialized. He recalled mention of partner services, which means one thing for women, but for Black gay men is normally a racialized concept. In terms of testing, he thinks it is important to encourage testers to test Black people. If they do not have to, they probably will not.

Dr. Hauser stressed that while testing could be standardized, providers must have the skill set to empathetically and efficiently make referrals. She also pointed out that the 21st Century Cures Act that allows record sharing between patients and clinics raises some concerns about young people in particular, given that the sharing would be between the provider and whomever holds the health insurance. Doctors are concerned about this new rule, which recently went into effect, given that an individual may be on someone's policy up to 26 years of age.

Dr. Hall noted that while the guideline currently recommends age 13 years and up, they found nothing that looked at the lower age limit and whether that needed to change. The studies on the best age to screen if a 1-time screen is done was among young adults. The issues about screening and consent are still the same and are well-noted. She was not sure whether insurance status had been part of the review, but perhaps it needs to be considered as well.

Dr. Anderson emphasized that the prevalence threshold is a barrier and she supported eliminating it. A lot of the people who need most to think about offering testing probably have a misperception of how low their prevalence threshold is. She also would argue for perceived low-risk individuals not to have a single lifetime test, because risk is not static over time. This is particularly true for women are often not aware of their risk, which may come from their partner. For individuals who are at perceived higher risk, more frequent testing is important to perhaps engage them in PrEP if they are not infected. Her understanding from Johns Hopkins' legal department about the 21st Century Cures Act is that it at least will have some carve-outs specifically related to STD testing. It is a concern for infants of mothers who are HIV-positive because if those tests are in the baby's chart that information will be available for the father.

Dr. Parkinson emphasized that since everyone in America is having sex, routine testing must become a standard of systems. She also thought that consideration should be given to combined COVID-19 and HIV testing to allow for opportunities to educate and support communities to help with prevention and care along with their Fast-Track Cities efforts. These interventions can ultimately help end the epidemic.

FDA Classification of HCV & HIV Diagnostics & Public Health Impact

Reclassification Overview / HIV Self-Tests (HIVST)

Michele Owen, PhD

Associate Director, Laboratory Science
National Center for HIV/AIDS, Viral Hepatitis, Sexually Transmitted Diseases, and Tuberculosis Prevention
Centers for Disease Control and Prevention

Dr. Owen began with a brief explanation of FDA in vitro device (IVD) regulation. There are 3 classes. Class I are tests that have very low risk and very simplistic controls. Class II is how most diagnostic devices are classified. These are known as cleared or 510K. There are general and special controls in this class. The special controls can be added to ensure that a device performs in a way that is clinically useful. Important to note about Class II is that it costs a manufacturer about \$10,000 to apply for this class. Class II devices are assessed as substantially equivalent to a predicate device, meaning that there must be something to compare it to. Class III is also known as approved through pre-market approval (PMA), and this is how HIV and HCV tests are currently classified by the FDA. There are some substantial differences between Class II and Class III in terms of how the tests go through the process. For example, Class III devices have general and special controls and go to the FDA with a pre-market application. There usually are extensive clinical trials and very defined performance characteristics, there is generally no predicate device to which to compare the device being presented to the FDA, and the cost is substantial at about \$310,000 to submit the application to the FDA. HIV tests are regulated through the Center for Biologics Evaluation and Research (CBER) and HCV tests are regulated through the Center for Devices and Radiological Health (CDRH).

In terms of the FDA reclassification of HIV and HCV diagnostic tests, the idea is to move from a Class III to a Class II device. CDC had been working with the FDA for many years before FDA started down the official path to do this. HCV tests considered for reclassification include qualitative tests for HCV antibody, qualitative and quantitative nucleic acid-based HCV tests for diagnostic and viral load, and nucleic acid-based HCV genotyping tests. HIV tests considered for reclassification include laboratory-based diagnostic devices, both HIV nucleic-acid (NAT) and serology; point-of-care (PoC) diagnostic devices, including HIV NAT and serology; and supplemental/confirmatory devices. Unlike HCV tests in which most tests on the market were considered, two HIV tests were excluded for consideration in the original order for reclassification. One was the viral load test, but additional conversations with the FDA suggest that they are working on viral load test classification. For this meeting, the focus was on home use over the counter (OTC) tests. At the time of the original meeting, OTC tests were not considered.

There are some anticipated advantages of test reclassification. There would be a decreased costs to manufacturers; decreased time for the regulatory process due to removal of the clinical trial requirement and the time that the FDA has to review the data; and improved testing practices in terms of improved detection of acute infection for HIV, more efficient algorithms for HIV testing, increased ability to test hard-to reach populations for HIV and HCV, and the potential for a single-step approach for HCV diagnosis.

Regarding the current status, there is a pending publication of the FDA reclassification final orders for HCV and HIV tests. In February 2020, the FDA published the proposed order for HIV with a comment period. The same occurred with HCV in April 2020 and June 2020. FDA has indicated that both final orders have been delayed as result of COVID-19, but are imminent. Tests that have a predicate probably would be regulated under the reclassification. CDC is engaged in ongoing conversations with FDA colleagues who have indicated that they would like performance metrics from an expert panel for reviewing future oral fluid HCV diagnostics and agreed that CHAC would be an acceptable panel from which to get recommendations. As noted, OTC testing is not included in the pending reclassification for HIV tests. However, FDA indicated that in the future, they would welcome evidence from CDC and public partners about risk in terms of drafting a future reclassification order for HIV OTC tests.

In terms of the public health impact of HIV OTC self-tests, eSTAMP¹ is a randomized control trial (RCT) that evaluated the public health benefits of mailing HIVST to internet-recruited MSM in the US. The general conclusions were that this increased testing, increased newly identified infections, found no difference in sexual behaviors, and that self-testing may be a cost-saving strategy if widely adopted. While not reported in the current manuscript, the data collected indicate that no adverse events (AEs) were reported among participants (e.g., violence, psychological distress, et cetera). The study also identified new infections when tests were shared with the participants' partners. State and local health departments have conducted self-testing programs in Seattle, New York City, Oregon, Virginia, and Washington, DC that have shown benefits. In 2015, the WHO² published the first global guidelines on HIV self-testing, in which HIV self-testing was recommended to be offered as an additional approach to HIV testing services. Once again, there were no reports of social harm or increased HIV risk behaviors. They also showed increased testing and that self-testing did not decrease the uptake or frequency of testing for STIs [¹MacGowan et al. doi.org/10.1001/jamainternmed.2019.5222; ²<https://www.who.int/hiv/topics/self-testing/en/>].

Dr. Owen shared a table of the various types of HIV products available. The only FDA-approved product in the US is the OraSure Technologies OraQuick[®] In-Home HIV Test. There are several tests outside of the US that are substantially equivalent to rapid tests in the US. Many of these have been pre-qualified by the WHO. The price per test varies across tests. For instance, the OraQuick[®] In-Home HIV Test available in the US has a retail price of \$38 to \$40. These tests are substantially less expensive outside of the US. In addition, she shared a table of the performance characteristics of HIV tests reported on the package insert by the FDA or in various studies. When the OraQuick[®] In-Home HIV Test was approved, it had a sensitivity of 91.7% and a specificity of 99.98%. The INSTI HIV Self-Test is an example of a test that is not available in the US, but for which there is an equivalent test in the US. The sensitivity for INSTI HIV Self-Test is very high at about 98.99% and the specificity is about 99%. There are other tests that have been evaluated outside of the US that also seem to have quite high sensitivity and specificity.

HCV Testing / Shifting HCV Epidemiology

Carolyn Wester, MD, MPH

Director, Division of Viral Hepatitis

National Center for HIV, Viral Hepatitis, STD and TB Prevention
Centers for Disease Control and Prevention

Dr. Wester pointed out that an estimated 2.4 million people are living with Hepatitis C (HepC), which left untreated can progress to cirrhosis, liver cancer, and death. HepC can be cured in more than 90% of people with safe, oral-only, short-course regimens. However, diagnosis is the first step. Unfortunately, 4 in 10 people do not know that they are infected. This precludes access to treatment. Furthermore, new cases continue to rise dramatically, particularly among reproductive age adults. This has resulted in multiple generations now being impacted by chronic HepC. This shifting epidemiology informed the updated testing recommendations issued by CDC in April 2020, which now recommends routine screening among all adults at least once and pregnant persons during every pregnancy. CDC continues to recommend testing for everyone with risk factors, including regular testing if risk persists.

The populations impacted by these testing recommendations are diverse and varied with respect to estimated population size, HCV positivity rate, and settings in which individuals receive services. Yet, the availability of diagnostic services is not widely available across settings. This is illustrated by an analysis of HCV seroprevalence and testing sites among people who inject drugs (PWID) recruited by respondent-driven sampling in 8 cities participating in the 2015 National HIV Behavioral Surveillance (NHBS) Study. The overall HCV seroprevalence was 55.2% among the over 2200 seropositive persons. Approximately 87% reported having been tested previously for HCV most commonly at a public health clinic, CHC, correctional facility, or drug treatment program. Notably, less than 10% had been tested at syringe service programs (SSPs), HIV testing sites, or family planning or obstetrics clinics. Furthermore, only 20% had been treated for HCV. Significant drop-offs are observed in the HCV care, but this is not unique to PWID. Many people who are tested lack awareness of their infection, meaning that they are not receiving their test results. Among those who do receive their test results, there is a lack of linkage to curative treatment.

In order to increase awareness of status and linkage to curative treatment among all people living with HCV, the portfolio of HCV diagnostics tools available to use will need to be expanded. Considerations for an expanded portfolio include testing indications, settings where testing occurs, and test characteristics and type of specimen collected. The recently updated HepC testing recommendations coupled with the imminent FDA down-classification of HCV diagnostics represents a unique opportunity to identify setting-specific diagnostic tools that would result in increased awareness of infection and reduced loss to follow-up on the path to viral detection and clearance. An expanded diagnostic portfolio will most certainly include increased availability of PoC testing, especially in populations and settings with higher potential for loss to follow-up. This may include the development of new tools, as well as approval in the US of some tests that may exist already and have approval for use outside of the US.

The CDC and the Association of Public Health Laboratories (APHL) are working together to evaluate these needs and opportunities holistically. It is clear that there will not be a one-size-fits-all approach. Diagnostic tools will vary depending upon the type of clinical setting, complexity of the supporting laboratories, and the purpose of the test. While there are some tests that may yield the largest advancements in supporting HCV elimination in the US, for the purpose of this discussion, Dr. Wester focused on the HCV Antibody PoC testing using oral fluids. Of note, HepC Antibody PoC testing using fingerstick is currently approved for use in the

US. However, the oral fluid PoC test is not currently available in the US. It is currently approved for use in Europe and by the WHO.

In order to guide the CHAC members in addressing this issue, they were provided with a literature review of publications since 2010 to provide some insight into the questions posed. Some of the authors' conclusions drawn from these publications regarding the utility of oral fluid PoC testing, the conclusion from Drobic et al in 2011 was that oral fluid rapid tests could help HCV screening programs reach individuals unaware of their status and extend testing into non-clinical settings. Kimble et al in 2019 concluded that their results showed that the OraSure Technologies OraQuick® oral fluid test potentially could be used for self-testing or self-collected oral fluid specimens by untrained users and could provide help for reaching marginalized populations or under-served communities. Fiore et al in 2021 concluded that saliva tests may allow to achieve a more rapid result, stage, and treatment approach. Johnson et al in 2017 concluded from an HIVST, which was included because it relates to self-testing, that HIVST is often preferred over fingerstick testing and is associated with increased uptake and frequency of testing in RCTs. The WHO currently advises countries to consider offering both blood and oral fluid-based HIVST. It is anticipated that the WHO will provide the same guidance regarding HCV self-tests when they become available or WHO pre-qualified, which is anticipated to occur in 2022.

CHAC members were provided with 23 publications from a variety of countries and settings pertaining to the minimum threshold for test sensitivity for the HCV oral fluid antibody test. The specificity of the tests in these studies was generally excellent for the most commonly studied oral fluid tests. For the sensitivity, there was a range. For the OraQuick® oral fluid test specifically, the sensitivity ranged from a low of 88% in a Saudi Arabian study that compared it to polymerase chain reaction (PCR) and up to 98.5% in a South African study. The results of a meta-analysis published by Tang et al in 2017 based on 52 studies through 2015 was reviewed in order to make sense of these ranges. Of these, 32 studies specifically evaluated the accuracy of 30 different rapid diagnostic tests (RDTs). Regarding oral fluid testing, the authors concluded that, "Our data suggest that oral tests have a slightly lower pooled sensitivity (94%, 95%CI: 93%-96%) compared to blood-based tests (98%, 95% CI: 97%-98%) but comparable specificity. Oral HCV Ab RDTs tests may be particularly useful in contexts where venipuncture may be difficult, such as subsets of people who inject drugs which have difficult veins to access."

In order to tease out why oral fluid tests might perform with a lower sensitivity, Pallarés et al in 2018 looked further to evaluate if the oral fluid rapid antibody test performance differed depending upon the presence or absence of viremia. For fingerstick RDTs, their results were an overall sensitivity of 98.8% and specificity of 100%. Overall oral fluid sensitivity was 89.9% and specificity was 100%. When the authors distinguished between past and present infection as determined by that absence or presence of viremia, the sensitivity among viremic individuals increased to 97.2%. The sensitivity among non-viremic patients was 82.2% at 20 minutes, but increased to 90.1% if the read time was increased to 20 to 40 minutes. Additionally, the overall sensitivity of 89.9% also increased by about 5% percentage points to 94.7% if the read time was increased to 40 minutes.

The following questions were posed for CHAC members' consideration and deliberation regarding HIV and HCV testing:

1. What are the minimum performance standards that we should consider to be maintained to allow for public health benefit of OTC HIVST?
 - a. Would it be acceptable to have different performance characteristics for HIVST compared to tests conducted by trained individuals in clinical or outreach settings?
 - b. Different sensitivity for different sample types (e.g., lower sensitivity for oral fluid versus fingerstick OTC tests)?
 - c. Supervised versus unsupervised?
2. Are there other parameters or questions you would like to provide feedback on (e.g., Impact of time of infection, linkage to care, benefits versus harms, et cetera)?
3. Is there a public health benefit for having access to an oral fluid HCV antibody test in the US?
 - a. If yes, and if the oral fluid HCV antibody test was less sensitive than the fingerstick HCV antibody test, how much sensitivity loss could be tolerated before the test would no longer be useful?

CHAC Member Discussion: FDA Classification of HCV & HIV Diagnostics

Dr. Taylor said that speaking frankly from the standpoint of a physician caring for people with HCV, people who have difficulty accessing healthcare, people who have had 50 antibody tests trying to get a diagnosis, and people who are unable to access traditional healthcare settings and have read all of the articles provided in the literature reviews, there is no public health benefit to having access to an oral fluid HCV antibody test in the US. Given that this was her last CHAC meeting, she expressed her hope that others could take up this discussion as needed. SARS-CoV-2 antibodies do not detect active infection. PCR is needed and ideally antigen testing. Antibodies are not diagnostic for HCV. They must be careful not to talk about oral antibody as diagnostic testing. HCV antibody screening is not diagnostic unlike the HIV oral testing that provides a diagnosis, so these cannot be compared one to the other. It is doing a horrible disservice to people not to give them a diagnosis. In 2021, antibody screening that does not give a diagnosis should be phased out and there should be a move toward the science that is available, which is one-step, PoC, rapid viral load nucleic acid molecular diagnostic testing. There has been an oral HepC antibody screening test for years and an FDA-approved test for detecting antibodies via fingerstick. They already can reach hard-to-reach populations, under-served communities, and others with fingerstick tests. The rapid antibody test has had no significant impact on HepC elimination to date. In fact, with the 2-step diagnostic paradigm, even with the rapid fingerstick testing, there has been a tripling in HepC incidence in the US from 2009 to 2018. The biggest drop-off is between antibody testing and ribonucleic acid (RNA) testing. CDC/HRSA federal dollars, resources, time, and effort should not be used promoting a paradigm that is known to have failed. None of the publications provide any evidence that the oral antibody tests lead to outcomes that are meaningful (e.g., prevention, treatment, cure, decreasing prevalence/incidence, decreasing morbidity/mortality) toward elimination. The one exception is the Australian study, which is because the Australians no longer will do isolate antibody testing. The people in that study of needle syringe program clients, after the oral antibody tests, people with reactive antibody test were offered immediate PoC testing for viral load and linked right into care in a warm handoff. Therefore, the answer is that oral fluid HCV antibody testing has been a failure. They understandably had to rely on this due to not having the technology, but now they do. Therefore, the HCV antibody testing needs

to be phased out in favor of RNA testing as has been done with HIV. The fingerstick does everything and better than the oral fluid test.

Dr. Wester reminded everyone that her goal was to lay a platform and provide context for discussion and not to lead to one decision or another. The framework that she provided showed that there are different settings, purposes, and existing tools in the US. Moving the trajectory from the existing to the ideal will be examined across sites. She also would like to see movement toward a one-step diagnosis. In the meantime, there is still a legitimate question with the tools they have regarding whether oral fluid testing would advance opportunities in certain settings and could be more successfully coupled with a dried bloodspot or rapid PoC RNA test that does not exist in the US yet.

Ms. Searson agreed with Dr. Taylor and stressed that it would be disturbing to the HepC community to invest more money into a tool that cannot be used to help get people to the doctor so they can be treated and cured. That is where the problem is. They already have access to finding people with the rapid test that is available. It is not a public health benefit. A test is needed that will eliminate the in between extra work. More than just the blood draw has to be done to get people ready for the doctor. It is too difficult and is a waste of funds and resources to have just the antibody test. She expressed her hope that they would use the time during which so many diagnostic tests are being done to get to the one that does the antigen test.

Dr. Stoner wondered if there is a role for an oral HepC antibody test that can be used as a screening tool at community events that perhaps could be coupled with a rapid RNA test. In terms of the OTC HIVST performance, it strikes him that to end the epidemic, a lot of tools will be needed. There probably will be a fall-off of sensitivity and specificity to ramp up some of the OTC, which may be okay in the short-term. The long-term goal is probably to get to a highly sensitive and highly specific test for all people in all settings. It is disheartening to see many resources and tests in other countries that have not made it past the FDA. If the CHAC members can help CDC push FDA in this area, that would be a benefit.

Dr. Mehta endorsed and supported what Dr. Taylor stated. Even in the context that was presented in terms of where oral fluid testing might be acceptable, it was not clear if that was in a head-to-head comparison that people would be picked up who would not have gotten a fingerstick. She agreed that a single test is needed. With a 1-day or 2-week delay, at least half of people are lost. On the flip side, for HIVST they need all of the tools they can get. In order to reach everyone, self-testing will be needed for HIV and she was more supportive of a test with reduced sensitivity in the short-term as long as there is adequate communication of what that test result means, with the idea that they want to strive toward better sensitivity and specificity. More people than ever understand sensitivity and specificity just because of COVID-19.

Mr. Riester noted that on a personal basis, he is used to fingersticks having Type II diabetes. He got an OTC test mailed to him for which he had difficulty with the lancet, which was different from what he is used to, and he had to fill 5 holes. It was a struggle to get all 5 holes filled and he did not know if they had to be filled partially or completely as the instructions were not very clear. In terms of mailing it in, he received results 2 weeks later. The results were favorable, so he would do that test again.

Dr. Mermin pointed out that because there is a dynamic scientific and technological situation as well, there are potential circumstances in which the ease of not having a sharp of any sort could be beneficial. There could be a scenario in which a positive oral fluid antibody test would prompt a fingerstick antigen test, which could provide immediate results but reduce the frequency of fingersticks. While this does not yet exist, he wonders whether the future will provide more opportunities than are available right now.

Dr. Stoner asked where the science is on oral RNA testing and whether that is a feasibility since the antibody is a marker and is not really diagnostic.

Dr. Mermin asked whether Dr. Owen could speak further to secretion of HCV in oral fluid, given that it tends to be more bloodborne in tissue.

Dr. Owen said that for HIV, there have been studies that tried to detect RNA in oral fluids and they have been very hit and miss. Generally, the viral load in oral fluids are extremely low for HIV.

Dr. Wester emphasized that having an RNA rapid diagnostic testing in the US is necessary, but moving toward a [CLIA-waived] rapid fingerstick for RNA detection would require exceptional advancement in single-step testing. In laboratory settings in the US, pricing is what is precluding a single-step test right now.

Dr. Mermin added that this relates in some ways to the cost of getting a test evaluated and approved in the first place. Having that change will encourage the industrial environment. There also are potential roles such as public health agencies and others to be able to support new testing. The world of self-diagnostics has changed with COVID-19. The idea of a very simple, small solution for NAT testing already has found its fruit. It is possible that some of the technology developed for SARS-CoV-2 actually could be adapted to a PCR test that does not need that kind of equipment and could be done inexpensively if there is enough of a market. Within clinical settings, there still could be a more efficient process with high throughput machines.

Dr. Anderson thought there was a fair degree of agreement regarding the question of whether there is a public health benefit for having access to an oral fluid HCV antibody test in the US. The discussion was somewhat different in terms of HIV tests. Having slightly different performance characteristics for HIV self-tests would be acceptable because it would increase the ability to identify people.

Adjournment

Dr. Mermin thanked all of the presenters and expressed appreciation for all of the comments from CHAC, and said that he looks forward to speaking with everyone and participating in the upcoming CHAC meeting scheduled for April 20-21, 2021. He then adjourned the meeting at 5:00 PM ET.

CHAC Co-Chairs' Certification

I hereby certify that, to the best of my knowledge, the foregoing minutes of the proceedings are accurate and complete.

Jean R. Anderson, MD, Co-Chair CDC/HRSA Advisory Committee on HIV, Viral Hepatitis, and STD Prevention and Treatment	Date
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Bradley Stoner, MD, PhD, Co-Chair CDC/HRSA Advisory Committee on HIV, Viral Hepatitis, and STD Prevention and Treatment	Date
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Attachment A: Participant List

CHAC Members Present

Dr. Jean Anderson (Chair)
Dr. Bradley Stoner (Chair)
Dr. Wendy Armstrong
Dr. Jodie Dionne-Odem
Dr. Travis Andre Gayles
Ms. Debra Hauser
Mr. Venton Hill-Jones
Mr. Devin Hursey
Dr. Shruti Mehta
Mr. Greg Millett
Dr. Johanne Morne
Ms. Kneeshe Parkinson
Mr. Robert Riestler
Mr. Leandro Rodriguez
Ms. Gloria Searson
Dr. Lynn Erica Taylor

CHAC Members Absent

Dr. Meredith Greene

CHAC Ex-Officio Members Present

Dr. Pradip N. Akolkar
US Food and Drug Administration

Dr. Paul Gaist
National Institutes of Health

Dr. Neerja Gandotra
Substance Abuse and Mental Health
Services Administration

Ms. Kaye Hayes
U.S. Department of Health and Human
Services

Dr. Iris Mabry-Hernandez
Agency for Healthcare Research and
Quality

Dr. Douglas Olsen
Centers for Medicare and Medicaid
Services

CHAC Ex-Officio Members Absent

Mr. Richard Haverkate
Indian Health Service

Dr. Richard Wild (Alternate)
Centers for Medicare and Medicaid Services

CHAC Liaison Representatives Absent

CARL E. SCHMID II
HIV + Hepatitis Policy Institute

CHAC Designated Federal Officers

Dr. Laura Cheever
Health Resources & Services Administration
HIV/AIDS Bureau Associate Administrator

Dr. Jonathan Mermin
Centers for Disease Control and Prevention
National Center for HIV, Viral Hepatitis, STD
and TB Prevention Director

Presenters

Michele Owen, MD
Associate Director, Laboratory Science
National Center for HIV, Viral Hepatitis, STD
and TB Prevention
Centers for Disease Control and Prevention

Carolyn Wester, MD, MPH
Director, Division of Viral Hepatitis
National Center for HIV, Viral Hepatitis, STD
and TB Prevention
Centers for Disease Control and Prevention

Attachment B: List of Acronyms

AE	Adverse Event
AHRQ	Agency for Healthcare Research and Quality
APHL	Association of Public Health Laboratories
ART	Antiretroviral Therapy
CBER	Center for Biologics Evaluation and Research
CBOs	Community-Based Organizations
CDC	Centers for Disease Control and Prevention
CDRH	Center for Devices and Radiological Health
CDS	Clinical Decision Support
CDSS	Clinical Decision Support System
CGO	Community Guide Office
CHAC	CDC/HRSA Advisory Committee on HIV, Viral Hepatitis and STD Prevention and Treatment
CHC	Community Health Center
CMS	Centers for Medicare & Medicaid Services
CMO	Committee Management Office
COI	Conflicts of Interest
DFO	Designated Federal Officer
DHAP	Division of HIV/AIDS Prevention
DSTDP	Division of STD Prevention
ED	Emergency Department
EHE	Ending the HIV Epidemic
EMR	Electronic Medical Record
FACA	Federal Advisory Committee Act
FDA	Food and Drug Administration
FRN	Federal Register Notice
GCD	Guideline Content Development
Georgia Tech	Georgia Institute of Technology
GSS	General Social Survey
HAB	HIV/AIDS Bureau
HCV	Hepatitis C Virus
HHS	(United States Department of) Health and Human Services
HIVST	HIV Self-Tests
HRSA	Health Resources and Services Administration
IP	Implementation Planning
IVD	In Vitro Device
JAMA	<i>Journal of the American Medical Association</i>
NAT	Nucleic-Acid
NCHHSTP	National Center for HIV/AIDS, Viral Hepatitis, STD and TB Prevention
NHBS	National HIV Behavioral Surveillance
NHIS	National Health Interview Survey
NIH	National Institutes of Health

OCHIN	Oregon Community Health Information Network
PoC	Point-of-Care
OTI	Office of Technology and Innovation
PCR	Polymerase Chain Reaction
PrEP	Pre-Exposure Prophylaxis
PR	Puerto Rico
PWID	People Who Inject Drugs
RDTs	Rapid Diagnostic Tests
RCT	Randomized Controlled Trial
RNA	Ribonucleic Acid
SAMHSA	Substance Abuse and Mental Health Services Administration
SME	Subject Matter Experts
SSP	Syringe Services Program
STD	Sexually Transmitted Disease
TB	Tuberculosis
U=U	Undetectable Equals Untransmittable
US	United States
USPSTF	United States Preventive Services Task Force
USVI	US Virgin Islands
VA	Veterans Administration
WHO	World Health Organization