

Coordination, Cost, and Changing Epidemiology—Considerations in the Hepatitis C Care Cascade

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The advent of direct-acting antiviral (DAA) therapies with sustained virologic response (SVR) rates greater than 90% makes eradication of hepatitis C virus (HCV) a feasible reality.⁽¹⁾ However, HCV treatment rates remain disappointingly low, and the number of people infected with HCV continues to increase annually.^(2,3) People with HCV need to fulfill several steps along a care continuum—collectively referred to as the “care cascade”—from diagnosis, to referral, and finally treatment, to achieve optimal health outcomes. Barriers at each step of the care cascade prevent achievement of HCV eradication.⁽³⁾

Abbreviations: DAA, direct-acting antiviral; EMR, electronic medical record; HCV, hepatitis C virus; HCV-TAC, HCV Test and Cure Coalition; PWID, persons who inject drugs; SVR, sustained virologic response.

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In this context, the recent study in HEPATOLOGY COMMUNICATIONS by investigators from the HCV Test and Cure Coalition (HCV-TAC) group provides a framework for strategies to improve the HCV care cascade in the DAA era.⁽⁴⁾ Using a multipronged approach that incorporated enhancements in provider and patient education, public health surveillance, electronic medical records and case management, HCV-TAC improved the care cascade at every step for their target population of baby boomers with HCV infection in King County, Washington. Over the 4-year study period, 8,270 (54%) baby boomers had documented testing for HCV, of which 79% were successfully staged for treatment, 53% prescribed treatment, and 39% achieved SVR. This represented a laudable 14.4-fold increase in those achieving SVR.

Many important lessons can be learned from the HCV-TAC. First, given the high prevalence of HCV among the baby boomer generation and the growing incidence among specific high-risk cohorts, population-based efforts targeted and tailored to these groups will be critical to achieve successful elimination of HCV in the United States. HCV-TAC highlighted that successful efforts would require buy-in from and collaboration between health care systems, patient advocacy organizations, public health departments, and both primary care providers and specialists. Successful coalition building involves identifying partners that can provide the specific expertise and/or resources to meet the unique needs of the target population, and overall enables broader access and provision of care to patients, maximally capitalizing on pre-existing resources and creating opportunities to streamline HCV services.⁽⁵⁾ Second, limited awareness of and knowledge about HCV still remains a key barrier to appropriate diagnosis and treatment. Formal HCV education delivered to patients has not only been shown to increase their knowledge, but also to expedite HCV therapy and improve SVR rates.⁽⁶⁾ HCV-TAC highlighted that patient and provider education can be achieved through multiple modalities (e.g., case-based telemedicine,

online tutorials, didactics), with many pre-existing educational sites and tutorial courses available that can be easily adopted. Third, advances in health care technology, such as the electronic medical record (EMR) system, “e-referrals” and telemedicine, represent powerful tools that can be used to improve HCV screening, increase access to specialist care and treatment, and enhance monitoring and follow-up through a more integrated data-management system.^(6,7)

However, while HCV-TAC shows that population-based HCV screening and treatment strategies are critical for effective elimination of HCV, it is also important to remember and incorporate patient-centric strategies. This is particularly pertinent when it comes to addressing psychosocial barriers. In their recent article in *HEPATOLOGY COMMUNICATIONS*, Spradling et al. highlight and provide valuable insight into the multitude and magnitude of psychosocial obstacles in HCV care, with a focus on HCV treatment initiation.⁽⁸⁾ In their study, approximately 900 patients with chronic HCV infection in the Chronic Hepatitis Cohort Study were extensively surveyed using validated psychometric instruments. Comparing patients who were and were not successfully started on DAA treatment, the authors found that patients who were not treated were more likely to be Black, have poorer access to health care (e.g., general difficulty obtaining medical care, limited transportation, insurance and financial barriers), experience more severe depression and anxiety and lower mental and physical function, engage in alcohol or intravenous drug use, or have been recently incarcerated or homeless. These findings not only highlight the extent that psychosocial factors affect HCV care, but also emphasize that successful efforts to eliminate HCV must take these psychosocial determinants into consideration at all steps along the care cascade.

These studies provide greater understanding of and hope for potential strategies to improve the HCV care cascade, but many questions still remain. For one, how and how much did each individual strategy of HCV-TAC’s multifaceted approach affect the care cascade? Prior studies have shown that each strategy implemented in HCV-TAC in isolation can improve successful completion of the care cascade. For example, EMR technologies (e.g., best practice electronic alerts [BPAs], decision support systems, integrated referral systems) have been shown to increase HCV testing by up to 9-fold and also improve linkage to care and subsequent curative DAA treatment.^(9,10) Care coordination interventions, such as those that provide facilitated referrals or

individualized patient-navigation support, can increase patient attendance to visits with HCV specialists by 1.5-fold, treatment initiation by 5.2-fold, and SVR rates by 2.5-fold.^(7,10) However, the specific individual-versus-collective effect of each strategy in HCV-TAC and the unique patient factors and potential limitations that prevented more than half of the patients from achieving SVR is unclear. Further analysis and understanding of those patients not reached by these strategies will be important to help guide future endeavors.

Another question we must ask is whether others can afford to implement these strategies, or should we instead be asking whether others can afford not to implement them? Scott et al. noted that their program may not be easily replicated in other settings without similar funding. Although cost-effectiveness studies show that universal screening and treatment of HCV falls well below the generally accepted value of \$100,000 per quality-adjusted life year, what is cost-effective may still not be affordable.⁽¹¹⁾ This is especially pertinent, given that the fastest growing population with HCV of young persons who inject drugs (PWID) are from more rural areas with limited resources. Some components of the HCV-TAC approach, such as implementation of EMR BPAs, use of publicly available HCV education materials, and mandatory automatic reflex RNA testing, can be implemented with relatively low costs, high effectiveness, and likely easy scalability—regardless of patient population. However, successful treatment of HCV is not a one-size-fits-all approach, and programs will need to tailor strategies based on the specific needs of their population and available resources.

Third, what role should the government play in the HCV care cascade? Scott et al. noted that during the study period, Washington State Medicaid restrictions for HCV treatment were lifted, opening up treatment options for patients with early stage fibrosis who were previously ineligible. Although it remains unclear to what degree this influenced HCV-TAC’s success, restrictive HCV Medicaid policies have been associated with suboptimal treatment outcomes, high patient burden, and excess costs. Correspondingly, modeling studies show that a comprehensive Medicaid “treat all” strategy could increase HCV-SVR rates to 95.9%, reduce total cases of cirrhosis by > 36,000, and save \$3.8 billion in health care costs.⁽¹²⁾

HCV-TAC targeted the baby boomer population, but will these strategies be applicable and effective in other patient populations, such as young PWID? In line with Spradling et al.’s findings, young PWID face

numerous psychosocial barriers that limit successful engagement in the HCV care cascade, such as discrimination (including the reluctance of some physicians to treat PWID and perceived lack of deservingness) and inadequate knowledge of HCV, resulting in a general lessened sense of urgency and need for treatment. In addition, many young PWID have limited financial resources, which when coupled with the high price and more limited insurance coverage of DAAs, make HCV services unaffordable and inaccessible.⁽¹³⁾

Many of the strategies proposed in HCV-TAC are applicable to the young PWID population, although adaptations are likely required to meet the specific needs of this high-risk and harder-to-reach population. For example, EMR-based screening can and should be used where available, but such efforts may fail to identify many eligible PWID, given their generally limited engagement with the health care system. Concerted outreach and collaboration efforts should target mental health and substance abuse treatment centers or needle-syringe programs that provide services to PWID.⁽¹³⁾ These collaborations also offer the added benefit of concurrent implementation of harm-reduction strategies, to help reduce HCV transmission and reinfection. Patient and provider education remains crucial, and training should focus on confronting bias and prejudice against treating PWID. And finally, while case management played an important role in HCV-TAC, case management may arguably be more essential for young PWIDs, given their unique psychosocial barriers and social determinants (e.g., housing instability, food security, social exclusion) that impede successful progression through the care cascade. Opportunities for states to adopt laws and policies to help increase access to HCV preventative and treatment services for young PWID should also be pursued, with simulations showing that successful treatment of only 3% of young PWIDs with HCV could reduce chronic HCV by 27% and acute HCV by 23%.^(14,15)

Overall, the goal of HCV elimination in the United States is an attainable one. Multifaceted strategies targeting each step of the HCV care cascade and adapted to the changing epidemiology of HCV are key to making this a reality.

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