ORIGINAL ARTICLE

Implementation of the North Carolina HIV Bridge Counseling Program to Facilitate Linkage and Reengagement in Care for Individuals Infected with HIV/AIDS

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BACKGROUND Statewide interventions are critical to meeting the goals of the National HIV/AIDS Strategy in this country. In 2012, the North Carolina Division of Public Health developed the North Carolina State Bridge Counselor program to improve linkage to and reengagement in care for newly diagnosed persons and persons living with HIV who were out-of-care.

METHODS We reviewed the planning process for the North Carolina State Bridge Counselor program, which involved a review of existing strengths-based counseling models for persons living with HIV, implementation of these models, and communication strategies with other providers. State bridge counselor responsibilities were delineated from the role of disease intervention specialists while retaining the fieldwork capability of disease intervention specialists to conduct outreach and provide services for persons living with HIV throughout the state.

RESULTS Program implementation required extensive planning with stakeholders, incorporation of strengths-based counseling models, development of performance standards, and utilization of CAREWare, an HIV care software program to document referrals and data-sharing between state bridge counselors and clinics. By the end of 2014, state bridge counselor services were provided to approximately 60 of the 400 persons living with HIV (15%) who are diagnosed each quarter in North Carolina, with increasing utilization of the program.

LIMITATIONS We assessed the development of this intervention specific to the North Carolina Division of Public Health, which may limit its generalizability. However, the State Bridge Counselor program was implemented in both urban and rural areas throughout the state, which increases its applicability to different public health programs throughout the country.

CONCLUSION We demonstrated that a statewide State Bridge Counselor program for linkage and reengagement activities can be implemented by leveraging existing infrastructures, electronic medical records, HIV care networks, and fieldwork activities.

The HIV care continuum provides a framework for conceptualizing how persons living with HIV (PLWH) are diagnosed, linked, and retained in care. According to the most recent Centers for Disease Control and Prevention (CDC) data from 2011, 40% of PLWH in the United States are retained in care and 30% are virally suppressed [1, 2]; in other words, 70% of PLWH are not in care and presumably are not virologically suppressed, representing an important reservoir for HIV transmission.

In 2014, the White House updated the National HIV/AIDS Strategy (NHAS), which sets goals to reduce new infections, increase access to care, and reduce health disparities. The NHAS updated goals are to link 85% of newly diagnosed, HIV-infected patients to care within one month of diagnosis and keep at least 90% in continuous care [3]. Moving linkage and retention rates toward the NHAS goals requires attention to barriers including access to care, competing personal needs, and comorbid illnesses, especially mental health and substance abuse issues [4-11].

Social and environmental factors such as stigma, poverty, and limited health literacy impact linkage and retention, particularly in the South [4, 5, 7-9, 12-15]. As of 2015,

North Carolina had an estimated 29,935 PLWH, the majority of whom are African-American males [16]. In 2013, 26% of PLWH in North Carolina experienced an "unmet need," which indicates no engagement in medical care in the past 12 months (using documented HIV viral load, CD4 level, or antiretroviral therapy [ART] prescriptions as a proxy for care) [16].

In September 2011, the North Carolina Division of Public Health (NC DPH) was awarded Health Resources and Services Administration (HRSA) Special Project of National Significance funding as a demonstration site in the HIV Systems Linkages and Access to Care Initiative. To develop novel responses to gaps in the NC HIV continuum of care, the project, "NC-LINK," utilized a Learning Collaborative frame-

work—Plan, Do, Study, Act cycles (PDSA)—that includes methodology for rapid program development, implementation, assessment, and refinement for 6 pilot programs [17]. As one of these pilot programs, we developed the North Carolina State Bridge Counselor (SBC) intervention to improve linkage to and reengagement in care for newly diagnosed and out-of-care PLWH. To assess the implementation process and utilization of this new intervention, we reviewed the planning process, evidence-based models, and communication strategies contributing to the development of the program.

Methods

The NC HIV care delivery system is comprised of 10 Regional Networks of Care (RNC). These are funded by HRSA's Ryan White Program Part B, with 1 Transitional Grant Area being funded by Ryan White Part A (5 counties) (see Figure 1). The RNCs covered 95 counties and were contracted to provide medical care, supportive services, planning, coordination, and evaluation activities for each region. North Carolina Disease Investigation Specialists (DIS), who perform contact tracing for all newly diagnosed, HIV-infected persons, were already assisting with linkage by referring patients to care. However, ascertaining appointment attendance was not conducted since DIS's primary objectives were to provide partner notification services. In 2010, each RNC was tasked with developing mechanisms to "bridge" newly diagnosed, HIV-infected persons or re-engage out-of-care PLWH to care, regardless of insurance status. However, outreach efforts were constrained to clinic-based activities with no field efforts and reaching PLWH with unstable addresses or phone service was problematic. HIPAA concerns restricted clinics to offering services only to registered patients and limited contact with PLWH not yet linked to services. Further, the regional focus limited program effectiveness.

Definitions

In order to standardize terminology for program development and assessment, the following definitions were used to refer to HIV care services and patients (of note, clinics were permitted to define time frames more strictly if they chose to): 1) linked to care—attendance at the first HIV medical appointment within 90 days of diagnosis; 2) retained in care—attendance of at least one HIV medical appointment in the last 12 months (using presence of any documented HIV viral load, CD4 level, or prescription for ART in the preceding 12 months); 3) out-of-care patients—PLWH who did not attend an HIV medical appointment in the last 12 months (using absence of all documented HIV viral load, CD4 level, and ART prescription in the preceding 12 months); 4) retention services—efforts by clinical or service agency staff to return out-of-care PLWH to care; 5) lost-to-care patients—patients not returned to care through retention services and referred to the SBC; 6) reengagement services—efforts by SBC to locate and re-connect lost-to-care PLWH to medical care; and 7) reengaged—attendance at a medical appointment after a gap in care (using presence of any documented HIV viral load, CD4 level, or prescription for ART).

FIGURE 1.
North Carolina HIV Prevention and Care Regions
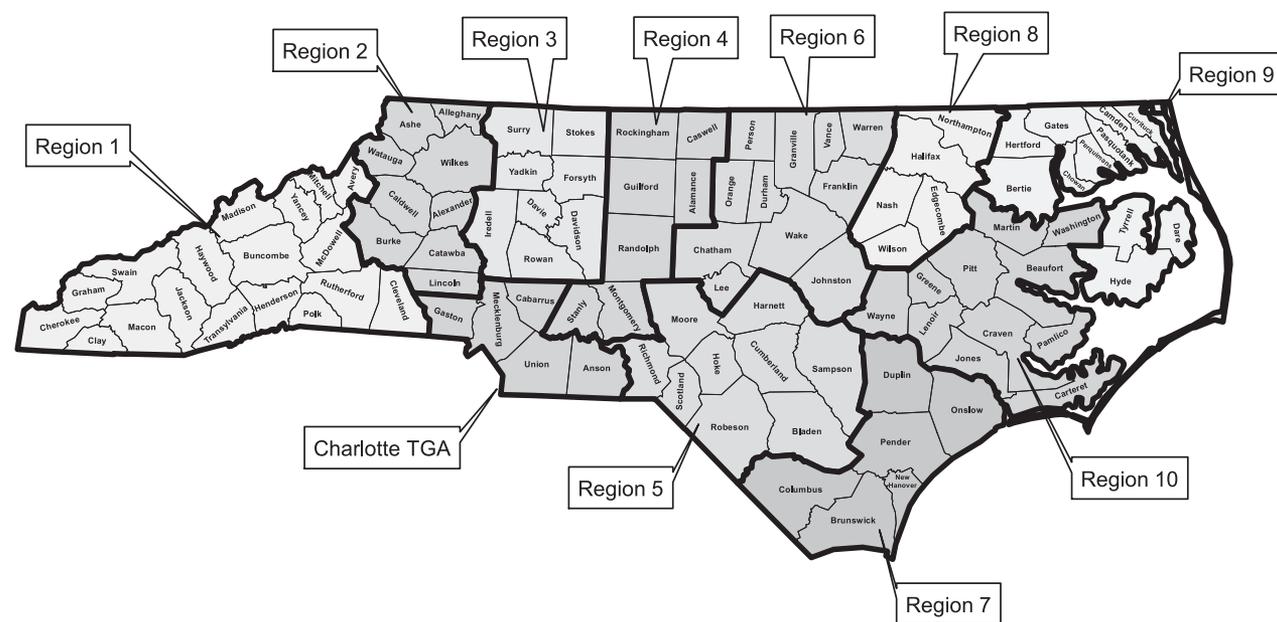
Note. There are 10 Regional Networks of Care consisting of 95 counties funded by HRSA's Ryan White Program, Part B and one Transitional Grant Area (TGA) funded by RW Part A with 5 counties.

Planning Process

The initial statewide stakeholder meeting, conducted in April 2012 with RNC and NC DPH representatives, included newly appointed SBCs. During planning meetings, key stakeholders decided to develop linkage-to-care services within all 10 RNCs and the Transitional Grant Area (a Ryan White specific designation) in North Carolina. We adapted a successful program used by an urban North Carolina clinic that utilized an HIV bridge counselor to link newly diagnosed patients to care and to locate patients who had fallen out of care by conducting phone calls, searches in jail populations and homeless shelters, and field visits. Regional referrals for reengagement services were initially piloted in a single region, then later expanded. Integration of the SBC program into the NC DPH system permitted statewide provision of services.

SBCs were tasked with ensuring linkage to care for newly diagnosed HIV patients referred by DIS, and retained the fieldwork capability of DIS to find out-of-care PLWH. SBCs were given the ability to work across RNC borders, facilitating contact with the increasingly fluid and mobile population of PLWH. Clinics were encouraged to develop monthly out-of-care lists for SBC referrals.

Evidence-Based Models

Several evidence-based, patient-centered, and strengths-based counseling models were considered in the SBC program to address delivery of services for HIV-infected patients who were unlinked and not engaged in care [18, 19]. These models included immediate linkage into care with an HIV provider for young men who have sex with men, and other strengths-based case management models that emphasized individuals' self-determination and strengths to overcoming barriers to care [18, 19].

The Anti-Retroviral Treatment and Access to Services (ARTAS) model was also integrated into the SBC program [20]. ARTAS encourages patients to identify personal strengths, set goals, and develop a plan for linkage and adherence to medications over several individual sessions (range of 2 to 5 sessions, median of 2). Although the full model was considered for the intervention, program planners opted to utilize ARTAS's strengths-based and case management framing but not its structured sessions due to the anticipated demands of SBC caseloads.

Communication of Health Information

During the planning process, effective communication of protected health information (PHI) was recognized as a key requirement for the program. Creating out-of-care lists, locating patients in other regions, making appointments, and confirming attendance required access to PHI. Regional and clinical staff would need to identify out-of-care PLWH and make referrals to the SBC with PHI. After consultation with a health privacy attorney and NC DPH, it was determined that PHI sharing was permitted under HIPAA since program efforts were for the purpose of care and treatment.

Results

The North Carolina SBC program was developed and implemented over a 5-year period from 2011 to 2015 (see Figure 2). Efforts included hiring SBCs for each RNC, holding stakeholder meetings to refine processes based on data collected from iterative PDSA cycles, and using databases for linkage and reengagement activities as described below.

Implementation of Linkage Activities

A work group including leadership from NC DPH, NC-LINK, and local stakeholders developed the SBC procedures, training program, performance standards, and tracking processes to facilitate standardization, monitoring, and evaluation. The SBC process was based on DIS performance standards with iterative edits and restructuring for the SBCs' linkage role (see Figure 3) [17]. Records of newly diagnosed patients interviewed by DIS were sent to the SBC electronic "work flows" in the North Carolina Electronic Disease Surveillance System (NC EDSS). The SBC then determined if the patient had scheduled a medical care appointment and if additional linkage services were needed. SBCs recorded service activities in NC EDSS, avoiding duplication of work while documenting services and medical care.

The responsibilities of SBCs and DIS were distinguished in order to resolve role confusion. For the SBC program, the primary goal was patient care instead of partner services; therefore, addressing HIV control measures and public health law violations were specifically excluded from SBC responsibilities. This point was important during communications with health care providers, some of whom were concerned that SBC referrals might result in negative consequences for their patients.

ARTAS training was provided to the SBCs in the fall of 2012, with a booster session in spring 2013. As new SBCs were hired, ARTAS trainings were conducted using strengths-based counseling modules from ARTAS. The initial trainings were conducted by professional trainers from Danya International, the agency contracted by the CDC to provide ARTAS training in a standardized and validated manner. Subsequent trainings for new hires were administered by the project coordinator, who was trained in ARTAS and counseling methods.

Regular, scheduled conference calls with SBCs, project leadership, and other stakeholders clarified key components of the SBC linkage work. These calls emphasized the importance of understanding best practices and themes, including barriers to care, data collection methods, time, and case management. The SBC data tracking form, important for both care needs and project evaluation, underwent a series of PDSA cycles before implementation [17].

Implementation of Reengagement Activities

The SBC processes for linkage were adapted for reen-

gagement services (see Figure 4). Referrals of lost-to-care patients were encouraged from clinic staff to SBCs, who conducted phone contacts, database searches, internet searches, and field visits to locate and reconnect PLWH to care. SBCs were provided the authority to transfer a case patient to another SBC region if there was evidence that the patient resided in another area.

Initial referrals via electronic methods and face-to-face meetings created time management and patient confidentiality challenges for larger clinics. Each clinic developed an internal procedure and process for developing out-of-care lists and making referrals to SBCs. Therefore, CAREWare, a software program to track HIV care, was utilized to facilitate communication between SBCs and Ryan White Part B clinics. Clinics that did not use CAREWare were still able to make SBC referrals via telephone, secure fax, and face-to-face meetings; SBCs entered those referrals into CAREWare for tracking and program evaluation. SBCs were granted access to CAREWare for the purpose of referral receipt, outcome documentation, and data sharing. Access to statewide client information was granted to RNCs and clinical staff for patients in their care. Use of CAREWare as the communication system for referrals and feedback between SBCs and 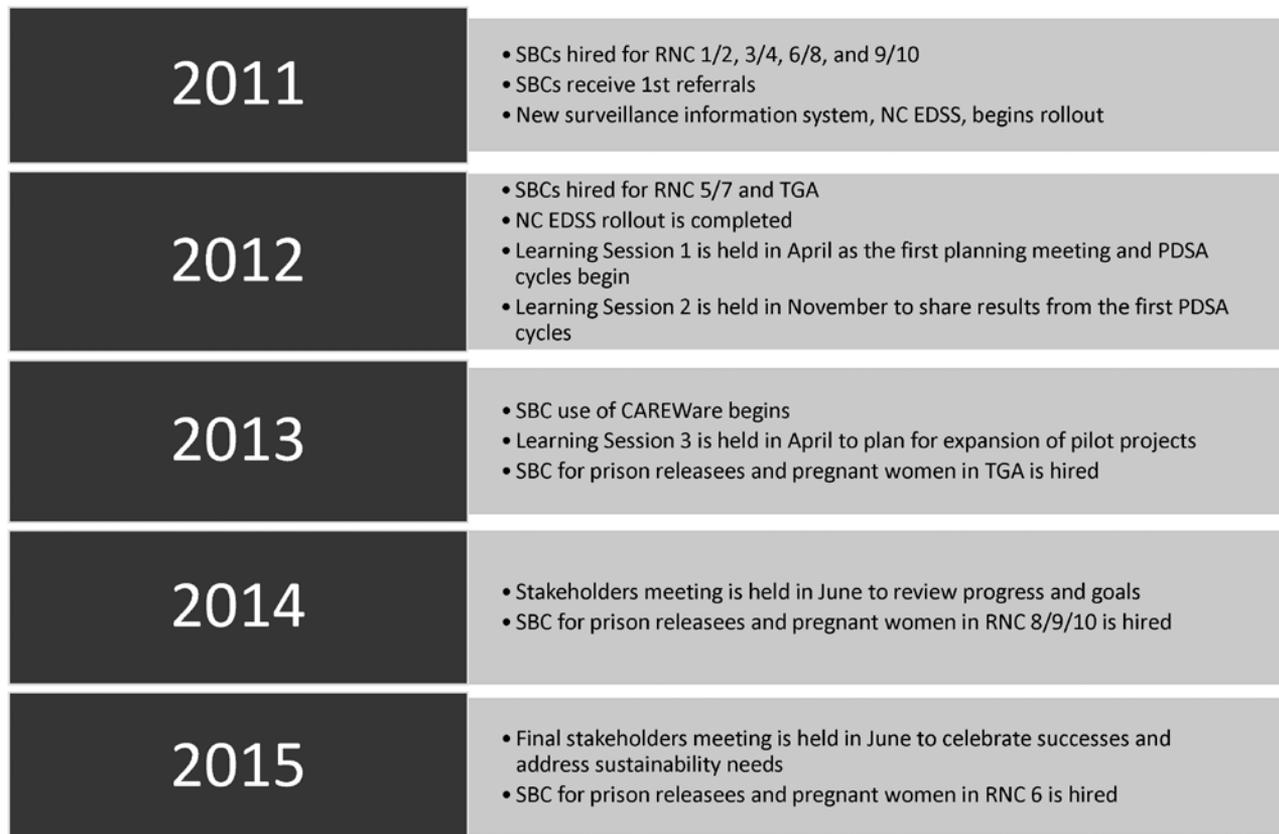referral sources was implemented through training updates and support, and conversion of the tracking form used by SBCs for field work into CAREWare fields. Monthly reports of SBC-entered CAREWare data were produced and disseminated to NC-LINK leadership and the SBC team to facilitate project monitoring and ongoing quality improvement efforts.

Utilization

The NC-LINK project became operational during 2013 and 2014, when SBCs were hired for each region and SBC reporting in CAREWare was implemented (see Figure 4). Over this time period, the number of referrals for linkage services increased. By the end of 2014, linkage services were provided to approximately 60 of the 400 PLWH (15%) diagnosed each quarter. For most linkage patients, the SBCs only needed to confirm first appointment attendance.

Increasing numbers of referrals for reengagement services were sent to SBCs by clinic staff and DIS over the implementation period. At the end of 2014, approximately 150 referrals were received per quarter at a time when over 28,000 PLWH were residing in North Carolina, making the referral rate approximately 5 per 1000 PLWH. While all regional positions were filled by 2013, staff turnover resulted in at least one SBC vacancy until August 2014. The continued increase in referrals represented increasing utilization

FIGURE 2.

Timeline of Activities in the Development and Implementation of the State Bridge Counselor Intervention, as part of NC-LINK

2011	• SBCs hired for RNC 1/2, 3/4, 6/8, and 9/10 • SBCs receive 1st referrals • New surveillance information system, NC EDSS, begins rollout
2012	• SBCs hired for RNC 5/7 and TGA • NC EDSS rollout is completed • Learning Session 1 is held in April as the first planning meeting and PDSA cycles begin • Learning Session 2 is held in November to share results from the first PDSA cycles
2013	• SBC use of CAREWare begins • Learning Session 3 is held in April to plan for expansion of pilot projects • SBC for prison releasees and pregnant women in TGA is hired
2014	• Stakeholders meeting is held in June to review progress and goals • SBC for prison releasees and pregnant women in RNC 8/9/10 is hired
2015	• Final stakeholders meeting is held in June to celebrate successes and address sustainability needs • SBC for prison releasees and pregnant women in RNC 6 is hired

Note. North Carolina Electronic Disease Surveillance System (NC EDSS); Regional Network of Care (RNC); State Bridge Counselors (SBCs).

FIGURE 3.
Timeline of Activities in the Development and Implementation of the State Bridge Counselor Intervention, as Part of NC-LINK
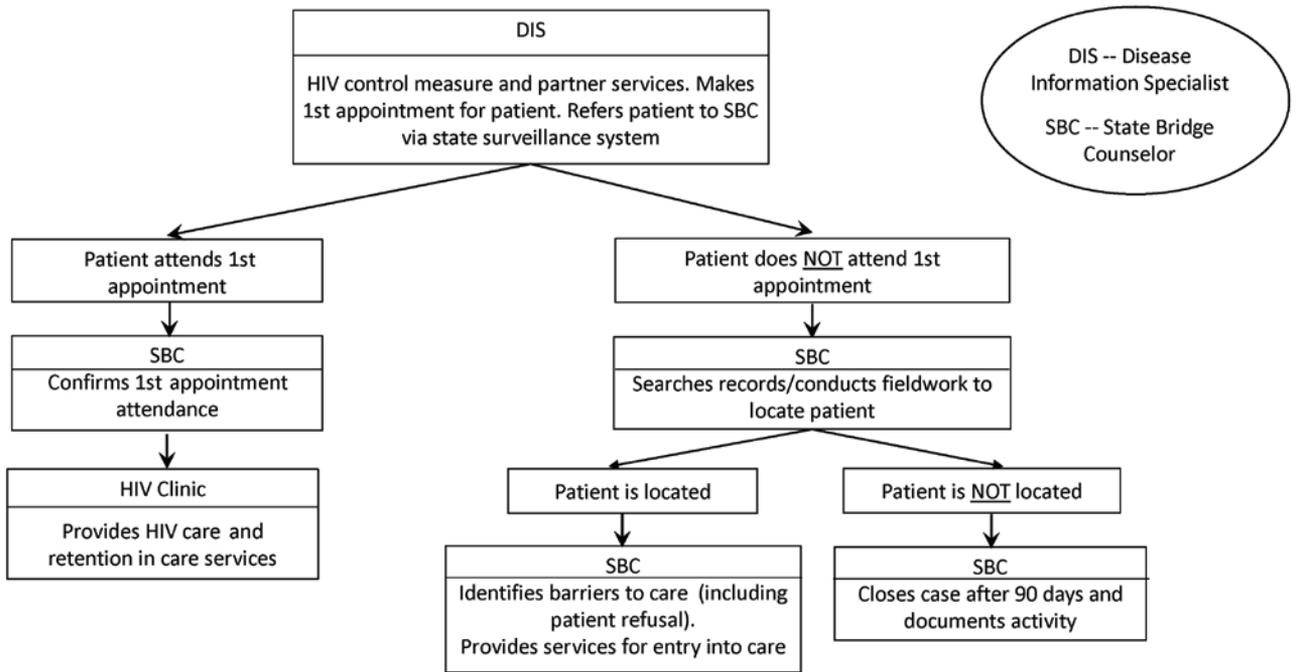
Note. DIS, Disease Information Specialist; SBC, State Bridge Counselor. All linkage activity and outcomes are documented by SBCs in clinical and state surveillance systems.

of the program with additional team members and community awareness and suggested that service demand had not peaked by the end of 2014.

Discussion

The North Carolina SBC program was developed to facilitate linkage to and reengagement in care for PLWH by leveraging existing networks for HIV care delivery, evidence-based models, and electronic data reporting systems for sharing of information. The planning process required careful consideration of the strengths and limitations of stakeholders, while the implementation process required development of formal policies and procedures for SBC activities.

Program Strengths

The Learning Collaborative Model provided a useful structure for the development of the SBC team. SBCs had little contact with other team members and reported to separate regional directors; the structured format of the model and subsequent activities (ie, calls, meetings, and trainings) created a cohesive team with defined tasks and a shared sense of purpose.

Challenges existed in terms of initiation, duplication of efforts, role confusion, and number of referrals. For example, the initial out-of-care list (defined as no care visit for 1 year) for one clinic generated 350 names, some of whom had not attended an appointment in over 5 years (unpublished

data, J. Keller). As SBCs worked with clinic staff and demonstrated search methods to locate individuals, the skillsets of clinic-based case managers increased. This allowed SBCs to use time more strategically to find patients who were truly lost to care.

CAREWare was used as a communication method based on SBC feedback. Busy clinics had issues setting aside time for meeting or speaking on the phone about clients. CAREWare allowed clinics to make referrals confidentially and receive feedback. Although this sometimes required the SBC to enter data twice (into both NC EDSS and CAREWare), it was important to ensure clinics knew about upcoming appointments and when to close out patients in their records. Ultimately, duplicate entry into CAREWare actually reduced the workload of the SBC, as communication efforts were less labor intensive and always retrievable.

Lessons Learned

Sporadically engaged HIV clients often required more effort from SBCs than initial linkage patients because of more intensive reengagement activities, usually in terms of time spent searching for the patient. However, because many of the processes and goals were identical, procedures and performance standards were similar for linkage and reengagement. Not infrequently, patients lost to care had in fact moved out of state. We determined that after 3 months of active searching, a case would be closed, and the clinic informed. Additional data regarding clients served

by the SBC program and our clinical outcomes are discussed in detail by Seña and colleagues [22].

Team communication methodology (eg, faxes, phone calls, and in-person meetings) emerged as unwieldy and unsustainable aspects of the program. Regular and frequent in-person meetings were not always feasible, necessitating conference calls. However, conference calls still demanded simultaneous participation by staff with multiple competing responsibilities. Improved communication and feedback between clinics and SBCs was enhanced by using CAREWare as a communication tool and became a key component of the program. CAREWare also provided agencies with the ability to "see" across domains and develop customized outcome reports on SBC efforts for each referring agency.

State budgetary shortfalls and resulting hiring freezes increased the administrative burden and time required to create and hire SBCs. SBC position turnover was common, and frequent ARTAS refreshers and data system trainings were needed. Client transportation emerged as an important need but was both challenging for SBCs to meet and limited by budgetary constraints. However, use of ongoing state funding rather than the NC-LINK grant supported the program's sustainability.

Comparison to Other HIV Care Interventions

Other statewide interventions have been described as safety net interventions that are applied when primary linkage by testing sites or retention-in-care services by clinical sites fail. At the time of project initiation in 2011, only a few publications addressed primary linkage and retention. None addressed reengagement prior to 2014, although additional interventions have been subsequently described [23]. Most have been conducted in urban settings and used various combinations of navigation (4 peers) and intensive case management [24-26]. The Louisiana Positive Charge program utilized clinic-based, out-of-care lists from state hospitals and DIS to assist in locating PLWH. To our knowledge, systematic case finding or use of HIV surveillance data for secondary linkage services between DIS and SBCs was not utilized [24-26].

Bove and colleagues initiated a similar combination program using clinic data and public health surveillance data to determine care status [27]. Our program differs from this intervention in that clinical staff had access to statewide Ryan White Part B CAREWare data in addition to site data, developed procedures for generating out-of-care lists, and attempted to locate and return PLWH to care prior to an SBC referral. Additionally, we expanded our intervention statewide and generated out-of-care lists monthly compared to semi-annual intervals [27].

Limitations

We collected data regarding the implementation process from meeting or conference call documentation and collec-

FIGURE 4.
Protocol Developed by NC-LINK and Followed by State Bridge Counselors to Re-Engage Lost-to-Care HIV-Infected Patients in HIV Care
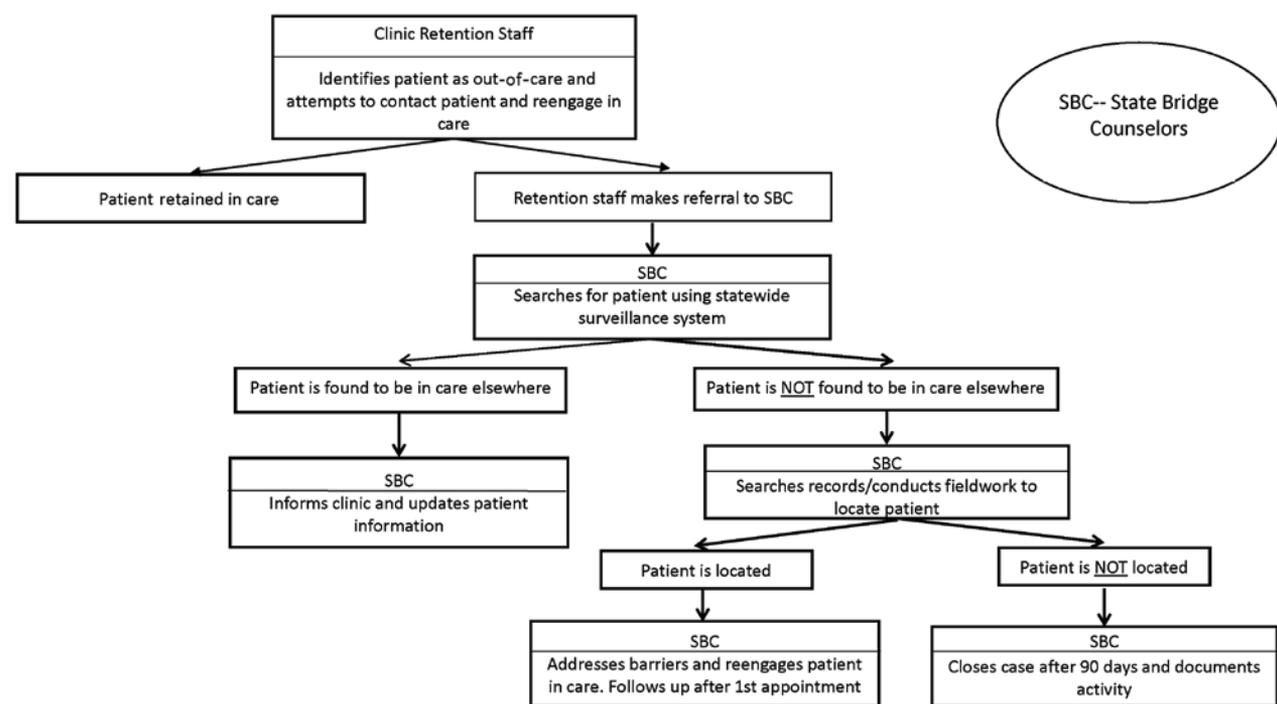
Note. SBC, State Bridge Counselors.
*All reengagement activity and outcomes are documented by SBCs in clinical and state surveillance systems.

Linkage and Reengagement Referrals Referred to the State Bridge Counselors by Quarter for 2013 and 2014
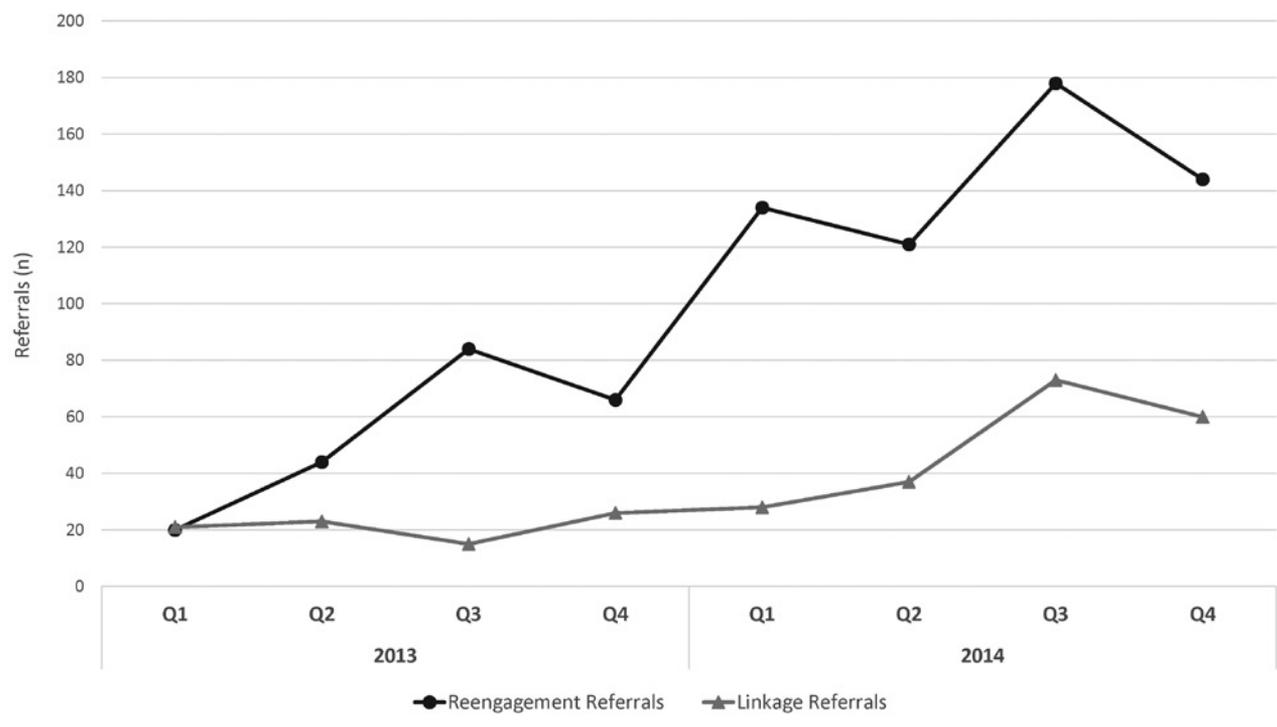
tive recall from key stakeholders in the SBC program, which could have been biased resulting in over or underreporting of some issues. To mitigate this, multiple authors were present during each call or meeting and all authors actively participated in identifying key issues. We developed the SBC team through NC DPH, which may limit the generalizability of our program to other states; generalizability may also be limited by legal restrictions regarding HIV data sharing in other jurisdictions. The SBC program was implemented in both urban and rural areas and may be applicable to other public health programs nationwide. Although data sharing was crucial in our program to allow statewide interventions that were not otherwise possible, ongoing implementation will require vigilance to ensure that HIPAA standards are met and that benefits of data sharing supersede any harm.

Conclusion

We developed a statewide SBC program for linkage and reengagement activities in North Carolina, leveraging existing infrastructure, electronic medical records and care systems, and fieldwork capability. The strengths of the program included evidence-based training with regular refreshers, standardized policies and procedures to facilitate statewide collaboration and coordination, and communications and data collection for evaluation purposes. The use of simple procedures and resources present in most jurisdictions make this a useful intervention to address goals identified in the National HIV/AIDS Strategy. *NCMJ*

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