Barriers to Implementation of a Hospital-Based Program for Survivors of Traumatic Injury

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ABSTRACT

The Trauma Survivors Network is a multimodal program for trauma patients and their families. Despite training representatives of 30 trauma centers, only 3 have fully implemented the program. The purpose of this study was to identify barriers to program implementation among trainees through in-depth phone interviews and an electronic survey. Although interviewees were positive about the Trauma Survivors Network concept, they identified numerous barriers to implementation. Trainee confidence in their ability to implement program components was predictive of their success. We recommend that future trainings include program advocacy, implementation skills, and an assessment of trainees' roles in the hospital.

Key Words

Implementation barriers, Physical trauma, Psychosocial interventions, Self-management

Studies have shown that many evidence-based programs, tools, and interventions are not widely adopted or successfully implemented in clinical settings.[1] Evidence-based interventions are essential to best practices, yet there is a "chasm" between study recommendations and standard practice.[2] In an assessment of adoption of evidence-based finding into practice, Balas and Boren[3] found that new research findings take an average of 17 years to become clinical practice. A well-documented example is the low adoption of electronic health records, despite high satisfaction among adopters and benefits to clinical practice.[4-8]

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Studies examining the translation of effective interventions are increasingly common in the research literature, and there is growing recognition of the practical and theoretical connection between how interventions are implemented and their impact on population outcomes.[9-12] Such research is informed by the Diffusion of Innovations and Social Marketing theories. Research examining the dissemination of educational interventions in clinical settings has shown the value of these theoretical approaches to understanding the uptake of programs for pediatric asthma,[13] addiction,[14] and smoking.[15] Findings from these studies describe dissemination as a process with several identifiable stages and emphasize the value of multifaceted dissemination strategies.

Programs and services that empower patients to become active participants in their care and support each other have been successful for various chronic illnesses.[16,17] The Trauma Survivors Network (TSN) is a comprehensive intervention to improve functional outcomes among trauma survivors by increasing participation in the management of their own recovery processes.[18] The TSN is a program of the American Trauma Society (ATS). The ATS reached out to collaborators at the Johns Hopkins Center for Injury Research and Policy—some of whom are coauthors on this article—for help in the design and implementation of the program. Development of the TSN benefited from close involvement of both survivors and trauma center clinicians. The TSN consists of 4 highly integrated components: the NextSteps self-management course, a peer support and visitation program, efficient access to information for patients and their families, and an online social networking Web site. Several research priority statements have highlighted psychosocial health as a key future priority for trauma research. These include statements from the Lower Extremity Assessment Project study[19] and the Extremity War Injuries symposium,[20] both of which concluded that key research and clinical treatment priorities for trauma are the development of interventions to address the psychosocial needs of the patient. The TSN was developed to meet these needs with a hospital-level intervention built using evidence-based, widely used components. The evidence base has been described in a prior publication[18] but includes research conducted in the fields of arthritis, smoking, and amputation, where such interventions are already being

widely used. In addition, a Centers for Disease Control and Prevention–funded evaluation of an early implementation of the TSN at a single trauma center shows promising results regarding the reduction of depression.[21] The TSN was designed with the ultimate goal of implementation in all US trauma centers.

As an initial step in realizing that goal, the ATS conducted comprehensive 1- or 2-day trainings in 2008, 2009, 2010, and 2011. The trainings were designed to provide participants with the tools necessary to implement the program in their hospitals, all of which housed trauma centers. Included with the training were implementation guidebooks, marketing materials, and ATS contact information for technical support. Ninety-two professionals from 34 institutions participated in these trainings (Table 1). Of the 30 centers in which staff were trained to implement the TSN between 2008 and 2010, only 3 have fully implemented the program and fewer than one-third have implemented any of its components. We sought to understand the low rate of adoption and to identify barriers to widespread implementation of the TSN.

On the basis of the theories described previously and our experience working with consumer organizations like the ATS[18] and the Amputation Coalition of America,[17] we developed a conceptual framework that included hypothesized barriers and facilitators to successful implementation of the TSN (Figure 1).

When implementing a new program, strong leadership is essential. The presence of a champion or knowledgeable troubleshooter is widely documented in the implementation literature as a critical factor in implementing various programs from electronic medical records[4,5] to clinician behavior change.[22] At the same time, a lack of commitment to the program from organizational leadership[5,23,24] or ambiguity in the project aims is an identified barrier.[25]

The infrastructure and organizational placement of a program are also potentially important to implementation. Provider readiness to adopt, including belief in the importance of the program,[5] that the program will help providers attain professional goals, and that the program could be successfully implemented and sustained may be necessary for success.[26] Importantly, unrealistic expectations about the program may act as a barrier. The existence of well-established departments dealing with social work, volunteers, and patient advocacy may also play a key role.[5,23,24]

The literature addresses program fidelity, or the extent to which an entire program is implemented as opposed to selected components.[23] Although lack of fidelity can be a barrier to implementation, areas where the program's fidelity is routinely compromised may signal low program feasibility and a need for improvement.

Finally, the lack of financial or human resources can be a significant impediment to program implementation. A TSN coordinator is central to the TSN program we developed, and we hypothesized that a coordinator would be important to implementation as well. Several studies have documented the importance of resources to the implementation process. Specifically, the extent to which time and resources are available to key implementers to complete program tasks[27] and staff turnover[28] are examples of resource-related factors identified in the literature as relevant to implementation.

We anticipated that only a subset of these hypothesized factors would play a role in the implementation of the TSN, and also considered that new factors would be identified through our research. For example, we considered external barriers and facilitators that could influence TSN implementation such as training and technical assistance provided by ATS, the nature and extent of volunteerism in the community, and characteristics of the catchment area such as the size of the population served.

Given the literature on implementation of clinical programs and our interest in ensuring widespread implementation of the TSN, we designed a study to assess the initial implementation effort of the TSN to inform future efforts to replicate the TSN nationwide. In this study, we report the findings from that study, and on the basis of these findings, offer a set of actionable steps for increasing successful implementation of the TSN.

TABLE 1	Trauma Survivors Network Trainings			
Date	Location	Length, d	Number of Participants	Total Number of Institutions[a]
April 2008	Washington, District of Columbia	2	37	22
July 2009	Baltimore, Maryland	2	6	2
January 2010	San Diego, California	1	30	6
January 2011	Phoenix, Arizona	2	19	7
Total			92	34
[a]For 3 institutions that attended multiple trainings, only the first attendance is reflected in these numbers.				
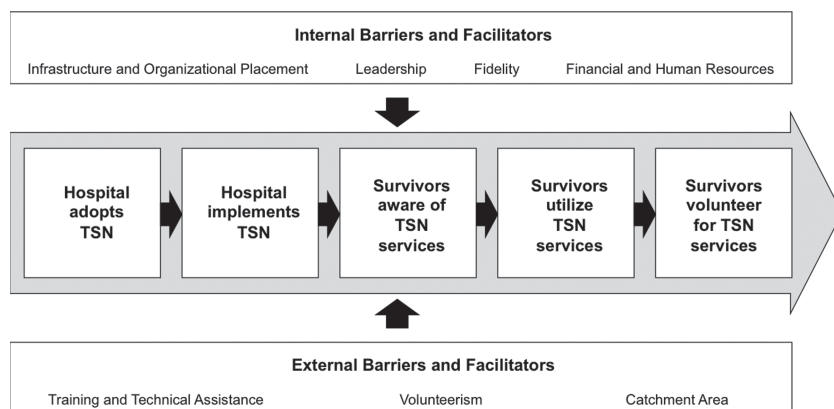
Figure 1. Implementation logic model. TSN indicates Trauma Survivors Network.

METHODS

We designed a 2-phase study. Phase I involved in-depth interviews with health care professionals who participated in the 2009 and 2010 trainings. The interview findings informed phase II, in which we developed and fielded an electronic survey to participants in the 2008 trainings. This project was approved by the institutional review board of the Johns Hopkins Bloomberg School of Public Health.

Phase I

Qualitative Interviews

Participants for the in-depth phone interviews were drawn from health care professionals who attended the trainings in 2009 and 2010. We invited all training attendees (n = 37) to participate in a phone interview about their experiences in the training and with implementing the TSN. Those who did not respond to the initial e-mail were sent 2 follow-up e-mail invitations.

One interviewer conducted semistructured phone interviews with all who responded to the e-mail invitations, using a protocol developed by the research team. The protocol included questions about the interviewees' roles in the hospital, the organization and infrastructure of their trauma department, their TSN training experience, and their experience with implementing the TSN. We generated these questions, using the Implementation Framework (Figure 1) as a guide. Particular emphasis was placed on the barriers they experienced in implementing the TSN. The interviewer requested permission from the interviewees to record the interviews. Recorded interviews were transcribed by a professional transcription company.

We selected a second sample of interviews from the pool of TSN coordinators who participated in ongoing TSN conference calls organized by the interviewer. All interviewees agreeing to participate were included; the same protocol was used to guide these interviews. TSN coordinator interviews were conducted as a part of regularly scheduled meetings and were, therefore, not recorded.

Qualitative data analysis procedures were used to organize, retrieve, and interpret the resulting data.[29] Specifically, the interviewer recorded extensive notes following each interview and carefully reviewed both the notes and transcripts for patterns in the data that suggested key components of the implementation process, specifically focused on common barriers to TSN implementation.

A preliminary set of codes was created on the basis of the categories of questions asked and interviewees' responses. The coded data were reviewed, and codes were further refined and reduced, on the basis of the analytical and theoretical findings that evolved through the data collection and analysis processes.[30] Coded data were grouped into themes, such as "confidence following training" and "implementation efforts"; these themes were used in the design of the closed-ended survey.

Phase II

Survey Design and Distribution

On the basis of the interview data findings, an 11-item closed-ended survey was designed and electronically distributed using Survey Monkey to the 2008 training participants (n = 37) in March 2011. Surveys were directed to individual trainees, even in instances where multiple people from the same hospital attended the training. The survey included questions about the respondents' roles in their hospitals, reasons for attending the TSN training, experiences from the TSN training, confidence in implementing various aspects of the program, efforts to implement the program, and barriers encountered during the implementation process. We sent weekly electronic reminders until 75% of those eligible completed the survey. As an incentive to complete the survey, those sampled were offered $25 Amazon gift certificates.

Hospital-Level Data

We also collected hospital-level characteristics for our responding sites. These data were obtained from the

American Hospital Association Annual Survey Database[31] the Area Resource File, and the Trauma Information Exchange Program of the ATS.[32]

Analysis

Although there were participants who had attended the training from the same hospital, we analyzed the data at the respondent level to preserve their unique reflections on the training and the implementation efforts that followed. Analyses were also replicated at the hospital level to determine whether pooling data from respondents at the same facility would alter our findings, but these are not presented because results were similar to the individual-level analyses. Survey respondents and nonrespondents were compared using hospital characteristic data. Survey data were checked for consistency, and in some instances, similar response categories were combined because of small cell frequencies. We used descriptive statistical techniques to evaluate responses for each survey question and created 2 × 2 contingency tables and calculated odds ratios to describe respondents' implementation activities. We assessed their implementation of TSN program components in the context of their self-reported confidence levels for undertaking those tasks. Generalized estimating equation techniques were used to model the population-averaged response (implementation action) as a function of confidence across all program components, while accounting for within-person and within-hospital correlations in the data. All analyses were performed using SAS Version 9.1 (SAS Institute Inc, Cary, North Carolina).

RESULTS

Phase I

In-Depth Interviews

Of the 36 health care professionals invited to participate in the qualitative interviews, 6 agreed to participate; additional data were collected from 7 other TSN coordinators responsible for TSN implementation at their sites. Of the 13 informants, 1 was a chaplain, 4 were social workers, 6 were nurses, 1 was a health educator, and 1 was an administrative assistant. All subjects were women. The interviews took approximately 20 minutes to complete. The informants came from facilities in various stages of implementing the TSN, including those who had not made any implementation efforts thus far. None of the informants' institutions had fully implemented the TSN.

Participants' Resources

The interview subjects' levels of experience and skills relevant to overseeing the TSN program were high. The group, on average, had more than 20 years' experience

working in trauma (range, 10-30 years). Most were involved in administrative activities that connected them to other departments, provided them with contacts throughout the hospital, and enabled them to initiate other hospital programs. All had been involved in staff training and patient education; several had implemented programs and provided leadership in their field.

All participants had similar resources available that could facilitate implementation of the TSN, including social workers providing psychosocial support to patients and nurses providing case management/discharge planning. Although no hospital had preexisting peer visiting programs or trauma support groups, one participant noted a traumatic brain injury support group available in the community.

Informing Survey Design

All interviewees described the training as appropriate for their work and were positive about the TSN concept. Some felt that it would have been helpful to have hospital administrators in attendance since their support was needed to implement the TSN.

Following training, implementation efforts varied according to interviewees. Some engaged in no implementation activities after the training but did go to the TSN Web site and viewed online resources. Overall, the training served to increase sensitivity to the family needs and experience for several interviewees, as described by this chaplain who was motivated to advocate for a patient's non–English-speaking family:

> [as a result of attending this training] I actually brought [the issue] to the team and said, "This is an example of where we might need to be more aware of how to tap into resources to serve a patient. There's got to be a way to assess how a family member feels—it can even be traumatizing for a family member who thinks it will be ok."

Those who made extensive efforts to initiate program development engaged in such activities as meeting with colleagues and people in other departments to discuss implementation; presenting the TSN concept in meetings; developing goals and timelines; and obtaining administrative buy-in.

Participants identified several barriers to implementation. These barriers all involved administrative challenges and clinical concerns the interviewees encountered when trying to implement the TSN. The 2 most commonly reported barriers to implementation were lack of evidence about the effectiveness of the TSN and lack of resources for program development. Interviewees described evidence of effectiveness as critical to convincing their administration to commit resources to the program, and without such evidence they were at

a disadvantage. Interviewees further indicated that their managers and administrators required a stronger business case—a logical justification for initiating a project or program—before assigning staff to develop the program. Without such support, interviewees did not see program implementation as viable. Most echoed this social worker's assessment of how programs are adopted in their institutions: "Nothing will happen if you don't have buy-in from administration."

Without an administrative mandate, finding the time to develop the needed materials, initiate support programs, and secure funds to print materials and market the program was difficult. One participant stated,

> The demands of my job at this point don't allow for this work. I just don't know where I would personally fit it in.

In addition to these 2 barriers, participants identified other challenges to implementation. However, each of these additional challenges was cited by a minority of interviewees. Three participants cited a lack of interdepartmental collaboration as an impediment to program development, as described by this TSN coordinator:

> Developing this program requires so much collaboration between so many different departments—I don't know if it happens all the time or all that easily.… For one thing, it's tough to have a communication system between departments and across systems—e-mail and access to patient information is not always smooth.

Another TSN coordinator was unable to secure a legal agreement between the institution and ATS to proceed with program implementation. Yet another training participant expressed concerns about the possible harm to patients with improperly screened and trained peer volunteers or poorly facilitated support groups. Without participants' full support of the program, including confidence in its clinical integrity, the program was unlikely to find traction in the participants' home institutions.

These results led to the development of a survey that included 11 closed-ended questions. These questions focused on information about the participant, the participant's reason for attending the training, perceived benefits of training, confidence in their ability to implement the program following training, institutional interest in the program, and actions taken by the participant and institution to implement the program. The final question focused on 11 barriers identified in the qualitative interviews, prompting survey participants to identify how much each impeded implementation in their own hospitals.

Phase II

Survey

Based on the results from phase I, a survey was distributed to the 2008 training participants. Of 37 survey invitations sent to the 2008 training cohort, 28 were completed. A comparison of hospital characteristics of survey respondents and nonrespondents is shown in

TABLE 2. Characteristics of Responding and Nonresponding Hospitals		
	Respondents, N (%) (n = 28)	Nonrespondents, N (%) (n = 9)
Hospital characteristics		
Level I trauma center	20 (71.4%)	7 (77.8%)
Metropolitan county	27 (96.4%)	9 (100.0%)
500+ beds	17 (60.7%)	4 (44.4%)
Median number of beds	683	489
Hospital services		
Community health education	25 (96.2%)	8 (88.9%)
Patient education center	24 (92.3%)	7 (77.8%)
Outpatient physical rehabilitation	25 (96.2%)	8 (88.9%)
Social work services	26 (100.0%)	9 (100.0%)
Support groups	24 (92.3%)	9 (100.0%)
Volunteer services	26 (100.0%)	9 (100.0%)
Not in AHA database	2	0
Abbreviation: AHA, American Hospital Association.		

Table 2. Survey respondents worked predominantly at level I trauma centers (71%) from metropolitan counties (96%). Some TSN-related services were available at nearly all respondents' hospitals. These included community health education programs (96%), outpatient rehabilitation (96%), social work services (100%), and volunteer services (100%). Respondents' and nonrespondents' hospitals appeared to have similar resources, although nonrespondents' hospitals tended to be smaller. The most common positions held by respondents included trauma program managers (29%), social workers (25%), and clinical staff (18%). Most (64%) had worked in the field of trauma for more than 6 years, and 86% stated that they held the same position at the time of the survey as at the time of TSN training.

Experiences With TSN Implementation

Initial responses to the TSN training are summarized in Table 3. Upon completion of the training, participants noted that they had received materials they could use at their trauma centers (86%) and had an increased interest in implementing the TSN (75%) compared to before training. The majority felt mostly or completely confident in their abilities to accomplish basic tasks of the TSN, including personalizing the *Patient and Family Handbook* to their own hospitals (68%), obtaining assistance from the ATS to implement the TSN (64%), and assisting a colleague in his or her implementation efforts (61%). Respondents were least confident about their abilities to manage the TSN Web site (36%) and facilitate the NextSteps training (43%). When considering the 4 primary components of the TSN (customizing the *Patient and Family Handbook*, peer visitation programs, peer support groups, and NextSteps self-management classes), 29% of responders indicated that they were mostly or completely confident in their abilities to implement all 4 program activities at their hospitals; 21% reported that they were not confident in being able to implement any of these activities. The remaining 50% reported that they were mostly or completely confident in their ability to implement 1, 2, or 3 components.

Participants' TSN activities following the trainings are summarized in Table 4. Nearly all respondents discussed the training in a meeting or with a colleague upon return to their hospitals (93%). Most respondents discussed the training with their managers (85%). Approximately half of the respondents' colleagues were interested in the program, while very few colleagues (5%) expressed no interest at all. Among those respondents who took any action toward implementation (n = 18), most effort was made toward developing a *Patient and Family Handbook* (72%). Six respondents had 1 or 2 follow-up meetings, and 6 initiated a TSN work group in their hospitals. One respondent worked on legal agreements with the ATS.

While recognizing the importance of secondary TSN activities needed for implementation, such as generating support among colleagues and administration, the hallmark of a successful program remains in the implementation of its 4 primary components. Approximately one-third (36%) of respondents who took any implementation action at all indicated working on 1 or more of the 4 primary TSN components. Most (55%) worked only on 1 or 2 of these activities and none of the respondents had acted on all 4 of the primary components of the TSN.

TABLE 3 Participant Response to the Training	
Responses	**Respondents, N (%) (n = 28)**
Initial response to training	
Found materials useful	24 (85.7)
Expressed interest in improving/ starting service for survivors	21 (75.0)
Found clinical education useful	12 (42.9)
Found contact information for help useful	12 (42.9)
Felt willing to help colleague implement	9 (32.1)
Sensed implementation would be overwhelming	7 (25.0)
Obtained no new skills	0 (0.0)
Posttraining, felt confident to	
Adapt the Patient and Family Handbook[a]	19 (67.9)
Get help from ATS as needed	18 (64.3)
Assist a colleague in implementation	17 (60.7)
Enlist support of home institution	14 (50.0)
Implement a peer visitation program[a]	14 (50.0)
Implement a trauma support group[a]	14 (50.0)
Facilitate a NextSteps self-management course[a]	12 (42.9)
Manage the TSN Web site	10 (35.7)
Number of TSN primary components where confident	
0	6 (21.4)
1	6 (21.4)
2	3 (10.7)
3	5 (17.9)
4	8 (28.6)
Abbreviations: ATS, American Trauma Society; TSN, Trauma Survivors Network. [a]Primary TSN program components.	

TABLE 4	Action Taken Toward Implementation Following Training	
Action or Interest Level	**N (%)**	
Trainee had conversation with others (n = 26)		
Manager/administrator	22 (84.6)	
Colleague	19 (73.1)	
Presented idea in meeting	15 (57.7)	
Other	1 (3.9)	
Trainee had no conversation with others (n = 2)		
Level of interest of others following conversation[a] (n = 26)		
Completely interested	2 (9.1)	
Mostly interested	8 (36.4)	
Somewhat interested	11 (50.0)	
Not interested at all	1 (4.6)	
No response (n = 4)		
Action toward implementation[b] (n = 18)		
Hospital worked on a Patient and Family Handbook	13 (72.2)	
Had 1 or 2 follow-up meetings	6 (33.3)	
Initiated a TSN work group	6 (33.3)	
Hospital worked on personalizing the Web site	5 (27.8)	
Hospital worked on developing a trauma support group	4 (22.2)	
Hospital worked on developing a peer visiting program	2 (11.1)	
Hospital worked on developing a NextSteps program	2 (11.1)	
Hospital worked on legal agreements with the ATS	1 (5.6)	
Did not take action toward implementation (n = 4)		

Abbreviations: ATS, American Trauma Society; TSN, Trauma Survivors Network.

[a]*Among trainees who had conversation.*

[b]*Among respondents who indicated any action.*

Confidence level of survey respondents in their ability to implement specific components of the TSN strongly predicted actions taken toward implementation (Table 5). About half of all participants were confident to mostly confident in their ability to implement program components (ranging from 44% for the NextSteps self-management program to 72% for the *Patient and Family Handbook*) and enlist support within their institution to implement the overall program (50%). Action toward implementation was at least twice as likely among participants reporting that they were confident in their ability to do so, although

these increases were not statistically significant when examined individually for each program component. However, when all components are pooled, participants who were *confident* to *mostly confident* about their ability to implement program components were 12.6 times as likely to take action as those who did not ($P = .0087$). Similar results were obtained when clustering across hospital groups instead of individuals.

Barriers to Implementing the TSN

Participants' reported barriers to implementation of the TSN are summarized in Table 6. The survey included 11 barriers (listed later) identified by phase I interviewees. Sixty percent identified 4 or more institutional barriers to implementing the TSN. The most common barriers identified included lack of time to conduct the activities (81%), lack of dedicated funding for the activities (81%), and lack of an institutional mandate to implement the program (54%). Barriers involving institutional relations with the ATS, such as the cost of joining the ATS or working out legal agreements, were cited by 32% and 19% of responders, respectively. Overall, the vast majority of respondents (92%) identified multiple barriers, with more than half of respondents identifying 4 or 5 separate moderate or significant barriers to TSN implementation.

DISCUSSION

The results of this study suggest that, as observed in numerous other public health interventions, implementation of patient and family support programs is challenging. Overall, implementers had limited success and most progress was limited to a small number of TSN components. This level of adoption is consistent with implementation efforts for other health interventions.[3] Several dimensions of program implementation were explored and grouped more broadly into institutional and individual categories. At the institutional level both interviewees and survey respondents agreed that lack of time and money and lack of administrative buy-in to implement the program were the primary barriers to successful implementation. Both interviewees and survey respondents also noted that insufficient evidence for the program's efficacy could explain hospital administrators' weak support. At the individual level, response to the TSN was much more positive. Interview subjects felt that the training was an excellent introduction to the TSN and provided adequate information to implement the program at their hospitals. Survey respondents were generally confident in their ability to perform tasks associated with program implementation and this confidence was strongly predictive of their success. This finding is consistent with the behavioral science literature, which emphasizes the importance of individual confidence or self-efficacy in being able to perform a task.[33] Assessment of self-efficacy in implementing

TABLE 5	Relationship Between Confidence and Action Toward Implementation Among Those Who Took Action (n = 18)				
TSN Component	No. of Respondents by Confidence in the Given Component		Action for Respondents by Confidence in the Given Component, N (%)		Odds Ratio (95% CI)
	High[a]	Low[b]	High[a]	Low[b]	
Patient and Family Handbook	13	5	11 (84.6)	2 (40.0)	8.25 (0.49-147.06)
Peer visitation[c]	9	4	2 (22.2)	0 (0.0)	6.33 (0.26-152.86)
Support group	10	8	3 (30.0)	1 (12.5)	3.00 (0.17-179.59)
Next steps[c]	12	6	3 (25.0)	0 (0.0)	8.08 (0.33-196.18)
GEE pooled odds ratio					12.56 (1.90-83.08) (P = .0087)

Abbreviations: CI, confidence interval; GEE, general estimating equations; TSN, Trauma Survivors Network.

[a]Response of "mostly confident" or "completely confident."

[b]Response of "somewhat confident" or "not at all confident."

[c]Odds ratios adjusted using Haldane's correction to account for zero frequency cells.

a program may be a useful tool in identifying individuals who are in need of training or as a useful metric to assess the impact of training to increase the likelihood of successful implementation.

Updating the Implementation Logic Model

Based on our findings, Figure 2 offers a vision that updates our conceptual framework. This provides more detail about internal and external barriers to, and facilitators for, successful implementation of the TSN and includes highlights for key intervention opportunities. Two different approaches to implementation were identified in the data: a "Champion Driven" model and a "Top Down" model. In the Champion Driven model, a staff member attends the program training and returns to the institution to begin dissemination efforts. Through these efforts, the hospital leadership recognizes the need for the program and, buying into the value of implementation, allocates resources. The Champion works with hospital leadership to ensure the program's success and overcome further barriers to implementation together. While Champions are likely at least partially driven by their own internal

TABLE 6	Common Barriers to Implementing the Trauma Survivors Network	
Moderate or Significant Barrier to Implementation Indicated	Respondents, N (%) (n = 26)
Lack of time to conduct activities	21 (80.8)
No dedicated funding for activities	21 (80.8)
Lack of institutional mandate to conduct activities	14 (53.9)
Concerns about engaging survivors in peer counseling role	14 (53.9)
Limited communication between departments	14 (53.8)
Little commitment to TSN activities by institution's leadership	12 (46.2)
TSN Web site cumbersome to work with	11 (42.3)
Lack of institutional recognition for "nonclinical" work (missing = 1)	9 (36.0)
Institution's cost of joining the ATS or paying dues for the TSN (missing = 1)	8 (32.0)
Not enough information about how to start a TSN program	7 (26.9)
Institution's difficulty coming to legal agreements with the ATS (missing = 5)	4 (19.1)

Abbreviations: TSN, Trauma Survivors Network; ATS, American Trauma Society.
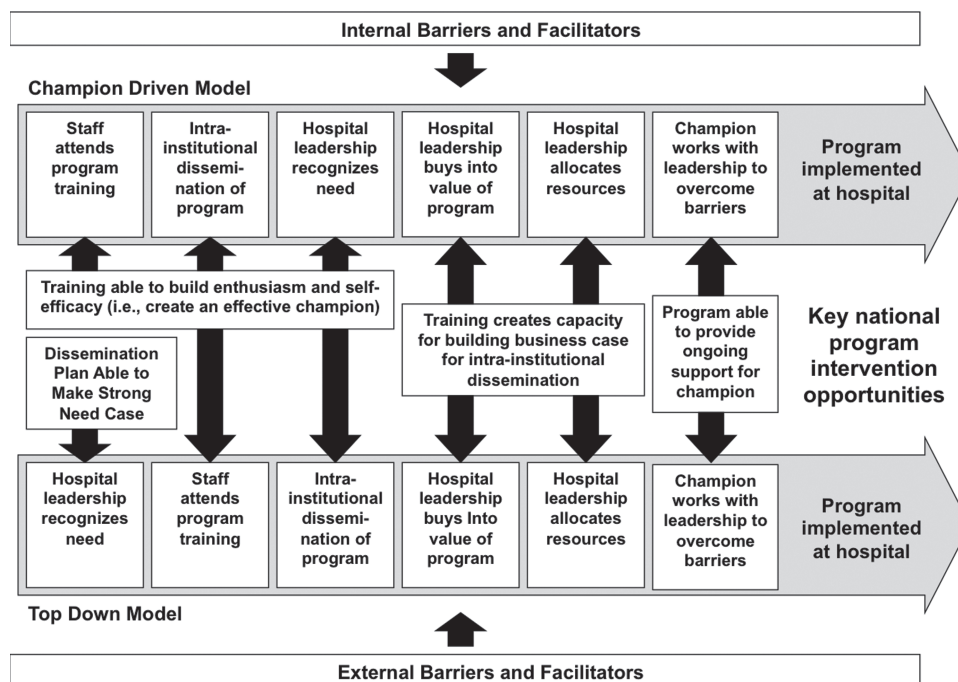
Figure 2. Updated implementation logic model.

characteristics, the literature suggests that the core skills and competencies of effective Champions can likely be developed through training and support.[34] In the Top Down model, the leadership directs the staff to attend program training based on recognizing a need for the program. The trained staff member, in concert with hospital leadership, works to disseminate the program throughout the hospital or system until the administration has bought into the value of the program and allocates resources. At this point, staff and leadership work together toward successful program implementation.

Lessons Learned for Future TSN Implementation Efforts

Given these results and our updated model, we recognize the need for changes to the implementation process initially fielded. First, we plan to incorporate self-efficacy assessments into trainings and gear future trainings to increase participants' confidence in their abilities to implement the TSN. Second, we will include a more careful assessment of trainees' roles in their institutions and target training and follow-up communication accordingly. Finally, we will expand the trainings to include program advocacy and implementation skills. These additions could serve to both identify and develop potential program Champions.

Widespread implementation of programs like the TSN requires time and funding for implementation at the hospital level. As assessment of the TSN continues, future trainings may be able to provide trainees with evidence of program effectiveness, helping them create a business case. Such evidence could help justify investment in the TSN to hospital administration. Focusing on program advocacy skills will also help implementers in this regard. Finally, improved follow-up guidance to implementers as they develop their programs will likely increase implementation success. Guidance can take the form of monitoring progress in implementation as well as program fidelity, helping implementers work through barriers, addressing questions about the program itself to develop the role of institutional expert, and identifying training gaps.

The results of this study must be interpreted in light of its limitations. One limitation is the possibility that the subjects included in phase I of this study were unusual in several respects, including their willingness to participate, their levels of experience in their professions, and their training. We are particularly sensitive to this possibility, given that interviewees did not cite confidence as a barrier to implementation, which was a significant predictor of implementation success among survey respondents. This difference suggests that those who agreed to participate may have been more confident in their abilities and/or unwilling to share this barrier in the nonanonymous format of the in-depth interview. With regard to the survey respondents, it is unlikely that the subjects, with their extensive training and experience, represented the norm. All had been involved in staff training and patient education; several had implemented programs and provided

leadership in the nursing or social work communities. This professional and institutional history meant that subjects were well connected to resources and contacts that could facilitate program implementation. This suggests that implementation challenges could be even greater with a more representative group of trainees.

A second limitation is the small sample size, which was limited to participants in the TSN's early dissemination efforts. While the results of this analysis may not be generalizable to more mature interventions, a strength of this study may be that it captures a unique population of early adopters of a nascent program. The small sample size is also evidenced in the large confidence intervals around the finding of a significant relation between self-efficacy and program implementation, which reflects the limited certainty in this observation. Finally, the dual role of the researchers as participants in program development may have resulted in overly positive responses from study participants. Despite these limitations, our findings offer an important contribution to the implementation literature by providing an example of how implementation processes can be studied with the goal of improving future implementation activities.

CONCLUSION

Hospitals need a business case to decide to implement the TSN, as well as financial resources to dedicate staff to focus on implementation. Trauma Survivors Network coordinators benefit from training, strong collaboration and communication skills, and having good support from within the system and from the ATS. More research is needed to identify potential facilitators of successful program implementation.

Training and implementation support need to account for the institutional priorities and resources of the trainee to be successful. Widespread dissemination of comprehensive patient support programs such as the TSN requires the availability of time and funding for implementation at the hospital level. In addition to providing tools and training, program developers must give additional attention to creating a business case and providing follow-up to ensure successful implementation. Through such activities, we can imagine a day when effective programs are more readily implemented than is currently the case.

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