Strengthening communication to overcome lateral violence

DIANE J. CERAVOLO RN, MS1, DIANE G. SCHWARTZ MLS, AHIP, FMLA2, KELLY M. FOLTZ-RAMOS MS, RN, FNP-BC, RHIA3 and JESSICA CASTNER RN, MS, CEN4,5

1Senior Director, Nursing Practice, 2Director of Libraries, 3Core Clinical Nurse Educator, Kaleida Health, Buffalo, NY, USA, 4Independent Health Care Consultant, Healthcare Research Consulting and 5Assistant Professor, D’Youville College, Buffalo, NY, USA

Introduction and purpose

Lateral violence is a profound and pervasive source of occupational stress with physical, psychological, and organizational consequences (Hutton & Gates 2008, Hauge et al. 2010). Research demonstrates that up to 90% of nurses experience lateral violence (Smith et al. 2010). Inclusive of bullying, incivility and social acts of disrespect, lateral violence is a nurse-to-nurse social devaluation or control of a peer through overt and covert verbal, physical and emotional abuse (Embree & White 2010). The purpose of this quality improvement project was to reduce nurse-to-nurse lateral violence and create a more respectful workplace culture in our organization through a series of strengthening communication workshops.

Aim This quality improvement project aims to reduce nurse-to-nurse lateral violence and create a more respectful workplace culture through a series of workshops. Background Lateral violence is common and pervasive in nursing, with detrimental physical, psychological and organizational consequences. Methods This project describes the organization-wide pre- and post-intervention survey of registered nurses’ perception of lateral violence and turnover. Results After the workshop series, nurses who reported experiencing verbal abuse fell from 90 to 76%. A greater percentage of nurses perceived a workplace that was respectful to others and in which it was safe to express opinions. After the workshop series, a greater percentage of nurses felt determined to solve the problem after an incident of lateral violence, while a smaller percentage felt powerless. Nursing turnover and vacancy rates dropped. Conclusions Educational workshops that enhanced awareness of lateral violence and improved assertive communication resulted in a better working environment, reduction in turnover and vacancy rates, and reduced incidence of lateral violence. Implications for nursing management Nurse managers must raise awareness of lateral violence with individual and organizational consequences. Nursing leadership can effect organizational change to lesson lateral violence and enhance a healthy workplace culture by replicating our intervention or components of our workshops. Keywords: bullying, communication, incivility, lateral violence, nurse turnover, quality improvement, TeamSTEPPS®, verbal abuse

Accepted for publication: 6 February 2012
Literature review

Research evidence demonstrates that lateral violence is a workplace stressor with personal and organizational consequences (Oore et al. 2010). International occupational health research, using survey and self-report, has amassed a body of evidence about lateral violence across workplaces. Occupational exposure to bullying decreases job satisfaction and commitment (Rodriguez-Munoz et al. 2009). In a cross-sectional survey of over 2500 employees in Northern Europe, Hauge et al. (2010) discovered that lateral violence was a pronounced predictor of employee anxiety and depression, while demonstrating a small but statistically significant impact on job satisfaction, turnover intentions and absenteeism. Lateral violence has a more profound effect on job satisfaction and workplace culture for staff that are less likely to accept hierarchical power differences (Loh et al. 2010). Men are more likely to self-report bullying than women, but it is unclear if men experience bullying more often or if they are less likely to normalize and accept the behaviours (De Cuyper et al. 2009).

The cyclical nature of lateral violence can become so normalized and accepted by workgroups that the presence of lateral violence is not noticed by many employees. If a person has been the target of lateral violence, the odds that she/he will perpetrate workplace bullying increase approximately 10-fold over those who are not targeted (Hauge et al. 2009). Individuals are more likely to perpetrate lateral violence if they perceived job insecurity in their current position but felt confident that their skill set qualified them for employment elsewhere (De Cuyper et al. 2009). Unresolved role and interpersonal conflict increased the chances that one would perpetrate lateral violence on colleagues (Hauge et al. 2009).

Lateral violence in nursing has been extensively studied through the self-report of research participants. About 64–90% of nurses have reported, in very recent studies, experiencing or witnessing lateral violence (Haines et al. 2007, Smith et al. 2010). Moreover, Haines et al. (2007) identified a moderate correlation of lateral violence with diminished patient safety and incomplete coworker communication. Lateral violence affects job satisfaction, organizational commitment and intention to leave in nurses (Johnson & Rea 2009, Spence Laschinger et al. 2009). Coworker incivility exacerbates mental health strain as a result of job stressors, high workload and low job control (Oore et al. 2010). New graduate nurses are particularly vulnerable to the impact of lateral violence (Smith et al. 2010). Simons and Mawn (2010) identified that lateral violence is often exacerbated by the workplace depen-

dence of new employees and new graduates, by withholding information or ridiculing skill acquisition. Griffin (2004) concluded that up to 60% of new graduate nurses left their first job because of lateral violence and poor resolution of coworker conflict.

Studying 370 registered nurses (RNs) from several practice settings, Hutchinson et al. (2010) found that nursing work teams normalize (accept as normal) lateral violence after being exposed to bullying from a supervisor. Normalizing a cycle of lateral violence leads to perceived distress and avoidance at work and negative health effects for nurses, such as anxiety, sleeplessness and depression (Hutchinson et al. 2008). Lindy and Schaefer (2010) found that nurse managers tolerated lateral violence from bedside nurses who excelled clinically. Nurse managers in this study also experienced an ethical dilemma in determining if lateral violence behaviours were used to catch legitimate errors or devalue other nurses. Hutton and Gates (2008) found that while supervisor and patient incivility weakly correlated with decreased productivity, peer to peer lateral violence did not have an impact on the productivity of hospital workers.

Raising awareness about the presence and impact of lateral violence, along with assertive conflict resolution among nurses, can improve nursing retention rates (Jackson et al. 2007, Stagg & Sheridan 2010). A study by Wagner (2006) determined that committed nurse leaders who used effective process and team building skills could have a positive impact on a hospital’s nursing culture. Stanley et al. (2007) found that nurses who work in areas where lateral violence is normalized may not be aware of their own perpetration of disrespectful behaviours.

Project background and setting

The quality improvement project described in this paper took place to combat a challenge with lateral violence in a five-hospital integrated health-care delivery system in the north-eastern USA from 2008 to 2011. Over 2000 inpatient bedside nurses were employed in the health system’s hospitals, which included a specialty children’s hospital, two tertiary-care urban hospitals and two suburban community hospitals. In the years before the project began, registered nursing turnover was as high as 11.5%, bearing an estimated annual price tag of 19 million dollars (PriceWaterhouseCoopers’ Health Research Institute 2007). Forty four per cent of the turnover represented nurses who had been employed <1 year. Based on internal quality data, nursing research literature and experiential knowledge from nurse managers and nurse educators, prevalence of lateral violence became evident as a root cause of bedside nurse turnover.
The health system had been created 11 years ago when five independent hospitals merged to control escalating costs. System pressures associated with financial problems and downsizing leveraged the foundation for nursing lateral violence (Embree & White 2010). As a result of the early fiscal problems, the system made many financially driven decisions that gave little consideration to the empowerment of bedside nurses. The outcome was a serious problem regarding staff satisfaction and retention. Moreover, there was little evidence that front-line managers had the knowledge, skills and abilities needed to improve staff satisfaction and support new graduates who are most vulnerable to lateral violence. The system experienced widespread turnover of both new graduates and senior, experienced nurses, with little in place to break the cycle of lateral violence, the normalization of lateral violence and the resulting nurse turnover.

Method

Workshop intervention

Within 3 years, 203 workshops on strengthening communication were delivered to over 4000 practicing nurses. Nurses who were employed in outpatient settings or outside of the system were also invited to attend. Workshops (Table 1) were also delivered to over 1100 regional nursing students and faculty who were not included in the survey described in this article (Table 2).

The 60- to 90-minute workshops were designed to enhance assertive communication skills and raise awareness about the impact of lateral violence behaviour. Emphasis in all of the workshops was placed on healthy conflict resolution and eliminating a culture of silence for nurses. Helpful acronyms as memory aids were shared and practiced to strengthen effective communication and conflict resolution. The memory aids and acronyms were designed to assist nurses to standardize communication about their concerns and needs in a succinct and assertive manner. The tools provided a professional and effective alternative to using lateral violence to communicate expectations, needs and conflicts.

Nurse managers were the first to attend the workshops. The managers were expected to serve as role models for their staff and to demonstrate to their employees the behaviours they had learned in the workshop. The next group of nurses that were trained

<table>
<thead>
<tr>
<th>Topics</th>
<th>Lateral violence</th>
<th>Conflict resolution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goals</td>
<td>Identify lateral violence</td>
<td>Identify assertive communication</td>
</tr>
<tr>
<td></td>
<td>Recognize the negative impact of lateral violence</td>
<td>Use communication tools to enhance effective and assertive communication</td>
</tr>
<tr>
<td></td>
<td>Respond to lateral violence with assertive conflict resolution</td>
<td>Identify communication components in good working relationships with coworkers</td>
</tr>
<tr>
<td></td>
<td>Relate the importance of depersonalizing communication</td>
<td>Promote safe and optimal patient care through assertive communication</td>
</tr>
<tr>
<td></td>
<td>Verbalize self-awareness of non-verbal communication</td>
<td></td>
</tr>
<tr>
<td>Teaching and</td>
<td>Electronic slide presentation</td>
<td></td>
</tr>
<tr>
<td>facilitation</td>
<td>Storytelling from personal experience</td>
<td></td>
</tr>
<tr>
<td>methods</td>
<td>Video vignettes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Role-play</td>
<td></td>
</tr>
<tr>
<td>Content</td>
<td>Examine overt and covert lateral violence behaviours in self and others</td>
<td>Examples for root causes of poor and assertive communication</td>
</tr>
<tr>
<td></td>
<td>Impact of lateral violence</td>
<td>Reasons for communication breakdown</td>
</tr>
<tr>
<td></td>
<td>Patient safety</td>
<td>Expected communication behaviours of professional nurses</td>
</tr>
<tr>
<td></td>
<td>Work environment</td>
<td>Assertive communication tools*: LEARN, DESC, SBAR</td>
</tr>
<tr>
<td></td>
<td>Retention</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Depersonalizing lateral violence and poor communication</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Handling disruptive behaviour</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Techniques when witnessing lateral violence</td>
<td></td>
</tr>
<tr>
<td>Evaluation</td>
<td>Immediate formative evaluation at end of presentation to evaluate satisfaction</td>
<td></td>
</tr>
<tr>
<td></td>
<td>with presentation and summative organization-wide survey.</td>
<td></td>
</tr>
</tbody>
</table>

*LEARN: Listen to others perception, Explain your perception, Acknowledge differences and similarities, Recommend an action and Negotiate agreement (Berlin & Fowkes 1989). DESC, Describe the situation, Express concerns, Suggest alternatives and express anticipated consequences of action and inaction (Agency for Healthcare Research and Quality 2006); SBAR, Situation (what is going on with the patient), Background (clinical context, information), Assessment (what do you think the problem is) and Recommendation (how do you think the problem should/can be corrected) (Agency for Healthcare Research and Quality 2006).
was staff working in units with high turnover rates. Based on formative evaluations of the workshop from attending nurses, the focus of the workshops changed to require every newly hired nurse to attend a workshop.

The workshops expanded the emphasis to nurses who agreed to serve as mentors or preceptors to newly hired nurses. We created a ‘train the trainer’ workshop, training 20 staff nurses and educators on the content and presentation skills. Trainers were selected with input from managers and were seen as informal leaders and role models for professional behaviour and clinical competency. Staff nurse trainers co-presented the workshops in teams of two in order to grow confidence in our new trainers and minimize anxiety regarding presenting to their peer group. One of the positive outcomes of the workshops was creating a cadre of bedside nurses with 1–20 years of experience who were able to stand up in front of their peers and offer a presentation on lateral violence in the workplace.

During the first training workshop, staff gave the presenters feedback that they felt singled out because of the perception of lateral violence in their unit. Presenters noted rude and inappropriate behaviour from participants. Subsequent workshops used a more general and descriptive introduction about how lateral violence was common and problematic to the profession, and that the workshops would be offered to all nursing units. Each presenter was assured that rude or hostile behaviour would not be tolerated and that disruptive employees would be given the option to leave the session. When inappropriate behaviour did occur, most presenters learned how to manage the disorderly individuals and the session was completed without further interruption. After the first year of workshops, in 2009, a presenter debriefing session was held to provide an opportunity for nurses to learn from one another. Examples of effective presentation skills also were shared and a commitment to the initiative was reinforced.

As interest in the programme grew within the hospitals as well as with affiliated academic partners, the number of trainers was expanded by recruiting nurse managers and staff who had a reputation for being competent, friendly, highly professional, and willing to stand in front of their peers and speak on issues of empowerment and accountability. After a formal train-the-trainer workshop and a manual were created, the growing group of trainers included one educator, three managers and 14 staff nurses whose professional experience ranged from 1 to 20 years. As the project gained momentum, workshops were presented around the clock and scheduled based on managers’ perception of when staff nurses would attend. The workshops were also presented at area nursing schools at the request of faculty. After 2009, the conflict resolution and lateral violence content of the workshop was assimilated with the adoption of the nationally recognized TeamSTEPPS® curriculum (Agency for Healthcare Research and Quality 2006).

### Design and survey

Surveys were conducted before and after introduction of the programme to measure the outcomes of a system-wide quality improvement project. Questionnaires were administered electronically through a web-based survey. Survey items were adapted from the Verbal Abuse Inventory, a survey developed for the purpose of measuring verbal abuse in the workplace. The instrument has been used in two nation-wide studies and several other scholarly works on lateral violence in the nursing literature (Rowe & Sherlock 2005). In the adapted instrument, nine item responses on a five-point Likert-type scale from ‘Strongly Agree’ (=5) to ‘Strongly Disagree’ (=1) are used to address perceptions of respect and lateral abuse within the nursing workgroup. Yes (1)/No (0) answers are provided for 10 items that addressed the presence of verbal abuse and feelings in response. Finally, participants are asked to rank their self-esteem and control over practice as ‘Low’ (1), ‘Medium’ (2) or ‘High’ (3). The participant can leave questions blank and continue to advance through the survey if they do not wish to answer items. Turnover and vacancy data was retrieved from the human resources administrative database.

### Data collection

After the study protocol was approved for the appropriate protection of human subjects, through the State University of New York at Buffalo Social and Behavioral Sciences Institutional Review Board (protocol #4221), bedside registered nurses working in the five hospitals affiliated with our health system were asked to participate in a survey. Nurse educators recruited par-

---

**Table 2**

<table>
<thead>
<tr>
<th>Year</th>
<th>Presentations</th>
<th>Practicing nurses</th>
<th>Students and faculty</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>70</td>
<td>1321</td>
<td>415</td>
</tr>
<tr>
<td>2009</td>
<td>67</td>
<td>1464</td>
<td>409</td>
</tr>
<tr>
<td>2010</td>
<td>66</td>
<td>1247</td>
<td>336</td>
</tr>
<tr>
<td>Total</td>
<td>203</td>
<td>4032</td>
<td>1160</td>
</tr>
</tbody>
</table>

© 2012 Blackwell Publishing Ltd

Participants by offering to load the electronic survey on a computer workstation or offered the web-based survey access link. The first survey in 2007 elicited 703 responses, for a response rate of approximately 34%. The follow-up survey, conducted in 2011, elicited 485 surveys, for a response rate of approximately 23%. The purpose of the survey was to investigate workplace culture before and after the workshops, not changes in individual nurse perceptions. As shown in Table 3, respondents to the follow-up survey were less experienced in their current role as a result of organizational turnover. Current role entails length of time employed by the current nursing unit as a RN.

### Results

Data were analysed using the Statistical Package for the Social Sciences (SPSS, version 19; Chicago, IL, USA). The proportion of nurses who reported being verbally abused at work decreased from 90% ($n = 634$) to 76% ($n = 370$). As noted on Figure 1, increased proportions of nurses agreed that, in their workplace culture, they felt respected by peers (78%, $n = 616–88%, n = 430$), supported by peers (75%, $n = 590–87%, n = 423$), had the ability to problem-solve through direct conversation (49%, $n = 381–57%, n = 277$), did not gossip (40%, $n = 312–47%, n = 227$), had peers who respected their opinion (65%, $n = 512–74%, n = 356$), had good working relationships (65%, $n = 510–78%, n = 378$) and had a safe environment to express opinions (52%, $n = 408–65%, n = 317$).

In response to a verbally abusive incident, the respondents’ reported feelings were analysed. As shown in Figure 2, a greater proportion of the respondents reported that after the workshop intervention they were determined to solve the problem (pre-survey 29.0%, $n = 194$; post-survey 37.9%, $n = 170$), but an increasing proportion of respondents were also fearful (pre-survey 9.4%, $n = 63$; post-survey 13.8%, $n = 116$) confused (pre-survey 17.3%, $n = 116$; post-survey 21.8%, $n = 98$) and embarrassed (pre-survey 41.0%, $n = 98$) after the workshop intervention.

The proportion of participants who reported high levels of self-esteem unexpectedly decreased over the study period. Forty-nine per cent ($n = 348$) of the pre-intervention respondents reported high self-esteem, while only 43% ($n = 208$) of the post-intervention participants reported high self-esteem. The proportion of nurses who felt high levels of control over practice increased slightly from 40% ($n = 276$) to 42% ($n = 204$).

### Table 3

Registered nurse years of experience in current role

<table>
<thead>
<tr>
<th>Years of experience</th>
<th>% Baseline (2008)</th>
<th>% Post-intervention (2011)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0–9</td>
<td>21.1</td>
<td>44.9</td>
</tr>
<tr>
<td>10–19</td>
<td>21.1</td>
<td>17.9</td>
</tr>
<tr>
<td>20–29</td>
<td>34.2</td>
<td>25.7</td>
</tr>
<tr>
<td>&gt;30</td>
<td>23.7</td>
<td>11.5</td>
</tr>
</tbody>
</table>

### Figure 1

Nurses who ‘Agree’ and ‘Strongly Agree’ (pre-intervention and post-intervention surveys).

### Figure 2

Lateral violence: nurses (%) responses (pre-intervention and post-intervention surveys).
The proportion of nurses who reported that verbal abuse had an impact on their morale, workload, productivity and potential for errors demonstrated little change between baseline and after intervention. However, the proportion who believed that verbal abuse would influence their overall delivery of nursing care increased from 42% \( (n = 276) \) to 63% \( (n = 204) \), demonstrating heightened awareness.

The vacancy and turnover rates were both 8.9% before the start of the workshop intervention (i.e. baseline). The vacancy rate decreased to 3.0% and our turnover rate to 6.0% after 3 years of workshops. This finding may also be partly a result of economic conditions and a decrease in external opportunities.

**Discussion**

This study corroborates previous studies that lateral violence is pervasive in the contemporary workplace for nurses (Smith *et al.* 2010). Our baseline finding that 90% of RNs experience peer verbal abuse is similar to results from the Rowe and Sherlock (2005) paper in which 96% of participants experienced verbal abuse. Nurse managers can use this, and other similar research findings, to support the notion that lateral violence is a likely occurrence in any hospital setting and must become a priority for action in their workplaces.

Recall nurses who perpetuate lateral violence may not be aware of their own negative contribution to workplace culture (Stanley *et al.* 2007). Raising awareness about lateral violence is essential among nurse managers and staff nurses. The findings of this paper may be used to initiate informal dialogue or journal club discussion among RNs to raise awareness that lateral violence exists and is highly problematic across many hospital work settings, and must become a priority for action in their workplaces.

Our series of educational workshops affected organization-wide change in the workplace culture as shown by the proportion of nurses who reported that verbal abuse decreased to 76%. In addition, positive trends in the nurses’ perceptions of workplace respect supported the utility of our workshops in creating a respectful workplace culture (Figure 1). These finding support Wagner’s (2006) argument that committed nurse leaders can role-model and share team-building skills that enhance the entire hospital’s nursing culture. Unfortunately, 76% of RNs were still experiencing verbal abuse after our workshops. This figure remains unacceptably high and further intervention, research and sustained culture change is necessary.

Transformational changes of workplace culture, such as eliminating lateral violence, are expected to take lengthy and concerted effort (Cummings & Worley 2009). Our findings signal the need for continued persistence and commitment in combating lateral violence.

**Limitations**

Limitations of this quality improvement project include a lower response rate on the post-surveys (compared with pre-workshop surveys), utilizing only one hospital system and economic conditions that confound vacancy and turnover metrics.

**Conclusions**

Creating a culture change toward a respectful and healthy work environment is possible if each nurse focuses on reducing lateral violence. Nurse managers are in a key position to lead culture change to respectful work environments. We noted that our nursing turnover and vacancy rates decreased. Certainly, some of the changes in turnover can be attributed to overarching economic changes and fewer external job opportunities. However, the impact of our comprehensive training programme and culture change initiative that empowered nurses to enhance communication and resolve conflicts cannot be overlooked. Our findings demonstrate that fostering an environment of lateral violence awareness, assertive communication and collaboration can have a positive impact on organizational outcomes.

**Implications for nursing management**

Manager-initiated leadership regarding the elevated level of lateral violence is essential. Farrell (2005) reported how staff RNs coped with lateral violence. After experiencing workplace verbal abuse, less than one-third discussed the experience with their manager; few found that sharing the incident with their manager was effective in resolving the problem. Nurse managers, faced with the high likelihood that their staff experiences verbal abuse, can work to develop an effective structure to eliminate lateral violence. Nurse leaders can develop and share a clear vision about a healthy workplace free from lateral violence. Legal and ethical implications about perpetrating lateral violence may be highlighted. Policies and transparent expectations for a workplace free of lateral violence may be established and modelled. Consequences for continued lateral violence can be established and reinforced.
The outcomes of the workshops outlined in this paper indicated preliminary success in breaking the cycle of lateral violence. A culture change within the hospitals after the 3-year series of workshops was evident as positive trends in feeling respected, supported and able to safely express opinions without gossip resulting (Figure 1). The cultural response to lateral violence shifted from powerlessness to feeling determined to solve the problem (Figure 2) signifying healthy assertive communication. Unfortunately, a greater proportion of nurses felt fearful, confused and embarrassed about lateral violence after the workshop series. This evidence suggests that our workshops changed a culture of conflict avoidance and lack of voice to one in which nurses were empowered and determined to solve communication problems. Heightened awareness about the impact of lateral violence on nursing care delivery was also uncovered by the nurses within the organization after the workshop series.

Decreasing lateral violence is a priority for nurse leaders. By diminishing lateral violence and enhancing a workplace culture of respect, it can be inferred that this intervention also enhanced the outcomes for the individual nurse employee as well as the organization. A workplace with lower levels of lateral violence contains nurses with lower stress, higher job satisfaction and organizational commitment (Johnson & Rea 2009, Spence Laschinger et al. 2009, Oore et al. 2010). Patient safety may also be enhanced through better nurse-to-nurse handoff communication and enhanced retention of the nursing workforce (Haines et al. 2007, Simons & Mawn 2010). Our study corroborated the impact of lateral violence and retention as our turnover and vacancy rates decreased. This finding cannot be separated from the confounding impact of changing economic conditions.

Unexpectedly, the proportion of nurses reporting high self-esteem decreased after the workshop series. Potentially, nurses without sound conflict-resolution skills felt they were handling conflict sufficiently before the series of workshops by accommodating or avoiding conflict. Perhaps a heightened awareness of successful conflict resolution skills resulted in a decreased sense of self-esteem with nurses utilizing new knowledge of conflict resolution. Some participants verbalized a new self-reflection and awareness that they had perpetrated lateral violence, and a new awareness that they may have lowered nurses’ self esteem. Finally, the participants in the second organization-wide survey had less experience in their current role, and the lower proportion of high self-esteem might simply reflect a difference in the sample’s characteristics. Nurse leaders who embark on the journey to enhance awareness of lateral violence should be armed with positive solutions and suggestions for a healthy reaction to workplace disrespect, to steer away from a culture of shame and blame.

Acknowledgements

The authors are grateful for the efforts and contributions of the following individuals: Anthony Szarzanowicz, Mary Beth Campo, Robin Frank, Mary Beth Farruggio, Anne Carey, LuAnne Brown, and the nurse educators and nurses who collected the data and participated in the project. The authors would like to state that D.G.S. and J.C. contributed equally to the writing of the manuscript.

Source of funding

In-kind financial support for this study was provided by Kaleida Health. JC disclosed independent consulting fees from Kaleida Health. There are no other financial interests of conflicts of interest.

Ethical approval

The study protocol was approved for the appropriate protection of human subjects, through the State University of New York at Buffalo Social and Behavioral Sciences Institutional Review Board (protocol # 4221).

References


