UC San Diego
Articles

Title
Suicide Prevention: A Healer Education and Referral Program for Nurses.

Permalink
https://escholarship.org/uc/item/5tv304ps

Journal
The Journal of nursing administration, 48(2)

ISSN
1539-0721

Authors
Davidson, Judy E
Zisook, Sidney
Kirby, Brittany
et al.

Publication Date
2018-02-01

Supplemental Material
https://escholarship.org/uc/item/5tv304ps#supplemental

Peer reviewed

Title: Suicide Prevention: A Healer Education and Referral (HEAR) Program for Nurses

Authors: Judy E. Davidson DNP RN FCCM FAAN; Sidney Zisook MD; Brittany Kirby MSW; Gianni DeMichele MFT; William Norcross MD

Author Affiliations: EBP/Research Nurse Liaison, **(**Dr. Davidson), University of California San Diego Health; Professor, Psychiatry, (Dr. Zisook), University of California San Diego Health, San Diego, California; HEAR Counselor (Ms. Kirby), University of California Health, San Diego, California; HEAR Counselor (Ms. DeMichele), University of California San Diego Health, San Diego, California, Professor Emeritus, Family Medicine (Dr. Norcross), University of California San Diego Health, San Diego, California

Conflicts: None to report

Corresponding author: Judy E. Davidson **,** 200W Arbor Dr.**,** University of California, San Diego Health, 92103 (**jdavidson@ucsd.edu)**

Objective: To describe the pilot expansion of a proactive suicide risk-screening program, initially designed for physicians, to nurses.

Background: The Healer Education, Assessment and Referral (HEAR) program detects at-risk physicians and facilitates referral to mental health care. Nothing similar has been available for at-risk nurses. Local nurse suicides served as the catalyst to extend the HEAR program to nurses.

Method: Education, outreach and an encrypted, online, anonymous, proactive risk screening were conducted to identify and refer nurses with depression and suicide risk.

Results: During the first 6 months of the program, 172 (7%) of 2475 nurses completed questionnaires; 74 (43%) were rated as high risk and another 98 (55%) as moderate risk; 12 (7%) reported current active thoughts or actions of self-harm and 19 (11%) reported previous suicide attempts. Forty-four (26%) received in-person or verbal counseling and 17 accepted referral for continued treatment.

Conclusions: An encrypted, anonymous, proactive, risk screening is effective at identifying nurses at risk and referring them to mental health care.

The World Health Organization reports that 1 person dies every 40 seconds by suicide [1]. Suicide is the

cause of death in approximately 38,000 citizens a year in the United States (U.S.) [2]. It is now the 10th

leading cause of death in the U.S., occurring at a rate of 13 per 100, 000 of the population [3]. While

overall mortality rates are decreasing in the U.S., suicides are on the rise [3]. Healthcare providers may

be at especially high risk [4, 5]. The purpose of this manuscript is to describe the results of a suicide

prevention program developed for nurses.

Though physician suicide is increasingly recognized as an important problem requiring serious

preventative measures [6] far less attention has been accorded to the parallel problem in nurses. Rates of

suicide among U.S. physicians are much higher than those of the general population [7]. The relative risk

for suicide among U.S. physicians was 1.41 for males and 2.27 for females [8]. About 400 U.S.

physicians take their lives each year, a number roughly equivalent to 2 average medical school classes

[9]. In a dated U.S. report using 1990 data on occupational risks, when adjusted for gender, the odds ratio

for a nurse dying of suicide was 1.58 greater than the working-age population. No recent data is available

for nurse suicide in the U.S. Internationally nurse suicide is reported as more prevalent than in other

occupations [10-15]. For example, in a more recent review from Australia, nurse suicide rates were found

to be higher than for individuals in other occupations (incidence rate ratio of 2.65 for women and 1.50 for

men) [16].

There is no one simple cause of suicide. Rather, it most often occurs when stressors exceed current

coping abilities of someone suffering from a mental health condition. Thus, key risk factors for nurse

suicide overlap with risk for the general population: past attempts and past or current mental illness,

especially when mood disorders are untreated or incompletely treated [17]. The additional, elevated

suicide risks for both doctors and nurses may be explained, in part, by factors related to emotional

characteristics of those entering these professions, access to means, knowledge of how to enact lethal

means, and exposure to unique work-related stresses and demands [18]. That many individuals who chose nursing as a career may be compulsive (attention to detail) and perfectionistic is a double edged sword: on the one hand, these are desirable traits in those to whom we entrust our health and our lives, while on the other hand these same traits may make someone especially vulnerable to workplace stress. Entering into the suffering of people with adverse outcomes related to severe, chronic and deadly illnesses takes a toll on the mental health of the nurse. Iatrogenic factors such as witnessing or being involved in medical errors compound the issue further [19]. Like physicians, nurses have enough knowledge of pharmacology and drug toxicity, and access to drugs, to maximize the lethality of drug overdoses, a common method of suicide in the healthcare professions [20]. Nurses also encounter a wide variety of work-related stress that have been implicated in risk for burnout [21] but also likely play a role in suicide risk in vulnerable individuals. These include, but are not limited to: workload, long hours, work compression, lack of autonomy and flexibility, isolation, compassion fatigue, lateral violence, bullying, staffing, lack of resources, disconnect between professional values and work responsibilities, loss of meaning in work, challenges in institutional cultures, perceived lack of support, disengaged leadership limited time with patients and their families, dissatisfied patients, lack of recognition and positive feedback, unending documentation, keeping up with new technology and problems with life-work balance [19-24]. Both individual and institutional attention to these occupational stressors may not only enhance engagement and well-being of nurses working in this uniquely challenging and potentially rewarding calling [25-27] but may also contribute to reducing risk for suicide [28]. To our knowledge there has been no previous research or clinical programs focused on nurse suicide prevention. This purpose of this paper is to report initial results of this first-known nurse suicide prevention program.

Learning from Physician Suicide Prevention: Development of the Healer Evaluation Assessment and Referral Program (HEAR)

At our own organization, prior to 2009, approximately 1 medical student, resident, or faculty member was taking his/her own life annually. A confidential survey demonstrated a self-reported rate of 29% for depression, a >3% rate of current suicidal ideation and a 6% rate of serious drinking among residents and faculty [29]. After digesting this disturbing data, the Physician Well-Being Committee (PWBC) began to investigate options for creating a suicide prevention program. In the summer of 2008, medical faculty in collaboration with the American Foundation for Suicide Prevention (AFSP) founded the Suicide Prevention and Depression Awareness Program [30] which has become better known today as the Healer Education, Assessment and Referral (HEAR) program.

A detailed description of the HEAR program, which is now provided in over 60 medical teaching campuses in 8 medical schools, is provided elsewhere [30, 31]; a brief summary follows. HEAR was designed to provide service to all physicians, residents, and medical students of the organization's hospitals, clinics, and affiliations. After the 1st year, the School of Pharmacy was added. The membership of HEAR represents each of the major constituencies, including faculty representatives from several departments in the School of Medicine, Pharmacy, the PWBC, medical students, residents and program counselors. HEAR is designed with a 2-pronged approach. The 1st is a series of didactic presentations designed to provide education on burnout, depression, and suicide; de-stigmatize depression; and acquaint attendees with the membership and function of HEAR. The 2nd is an encrypted, confidential and anonymous web-based screening and assessment questionnaire, the Interactive Survey Program (ISP), which was developed to proactively identify and refer individuals at risk for depression or suicide [30-33].

At this point, the careful reader will understand that an actively suicidal physician could potentially access the website and we would be helpless to know their identity. Because of this, the dilemma was presented

to a joint council of the leadership of the medical and pharmacy schools, the chief executive officer (CEO) of the medical center, the Medical Ethics Committee, the individual members of HEAR, and a select group of faculty, residents, and medical students. The response was unanimous that the greater good would be served through prioritizing absolute privacy. To date, this has proven to be a wise course without adverse events.

Between May 6, 2009 through May 20, 2016 a total of 1558 medical students (N=519), pharmacy students (N=90), resident physicians and fellows (N=341), and medical school faculty (N=502) completed the anonymous online Stress and Depression Screening Questionnaire [33]. Of these, 112 individuals dialogued with the program counselor online, by telephone (n=49), and/or in person (n=63). These comprise the majority of the 180 individuals who accepted referrals for formal mental health evaluation and/or treatment during that timeframe. The vast majority of referred participants reported that they would not have sought treatment if not for the HEAR Program. Instead of the expected 1 suicide per year, there has been only 1 suicide in the 6 years since the program has been operational. Additionally, 4 original research articles have been published describing HEAR program activities and outcomes [30, 31, 33, 34].

The American Medical Association has called out the HEAR program as an exemplar in suicide prevention [35]; a testimony to the success of the program. Looking back, it is also unclear why HEAR was built initially for only physicians and medical students, rather than all of the healthcare professionals of our medical system, but that deficiency is now being rectified.

Catalyst: Nurse Suicides Within the Workforce

Nurse suicides in our own workforce served as the catalyst for expanding the HEAR program. After a literature review revealed a paucity of research or occupational health guidelines related to prevention of nurse suicide, and then learning about the successful program initiated to abate physician suicide in our

own organization [30], an action plan was set to extend the physician program to nurses instead of replicating it in a parallel structure.

Ethical Oversight

The HEAR program development and expansion was excused from investigational review board (IRB) oversight as a quality improvement initiative (IRB excusal #161812). Oversight for the extension of the HEAR program to nurses was provided by the risk management department and the HEAR Committee. Interim reports were also provided to the Nurse Executive Team and nursing leadership.

Methods

Setting and Sample

This project was conducted in an urban medical-teaching multi-site health system in the southwestern United States serving a heterogeneous population of diverse ethnicities and socioeconomic status. All nurses working at the medical center were invited to participate in the screening. The authors collaborated with the human resources (HR) department to identify all job codes for all nurses of all educational backgrounds in both clinical and non-clinical positions. The HR personnel used the same strategy to identify the nurses as is used to invite nurses to complete mandatory annual training. The email list of these nurses was sent by the HR representative to the Chief Nurse Officer who sent the invitation to participate in the survey.

How the HEAR program works

The HEAR program includes a service of education, outreach and referrals (figure 1). To begin the process education was delivered in 3 iterative grand rounds formats. These were 1-hour offerings describing the risks of burnout, depression and suicide. A member of the nursing staff who had suffered from depression and suicidal ideation offered an emotional testimony about how treatment saved her life.

A presentation was also delivered at the nursing leadership meeting explaining the aims of the program and how it would be implemented. Lastly, a huddle topic fact sheet was developed (SDC #1. In this organization huddle topics are deployed when information needs to be disseminated in a rapid fashion to large numbers. The huddle topic fact sheet is a 1-2 page information sheet. Unit level managers and/or charge nurses then deliver the information at every shift for approximately 2 weeks until all staff have heard the message. Following the huddle efforts, the chief nurse officer (CNO) sent the invitation for screening (SDC # 2).

Proactive vs. Passive

It should be noted that this project proactively reaches out to employees to consider self-screening instead of waiting for them to seek help. This is different from the employee assistance program (EAP), which is a 3rd party contracted service where employees may seek out the help of counselors. There were no changes made to EAP during the pilot. The HEAR program complimented but did not alter or replace EAP.

Staffing

The HEAR program was originally staffed with 2 0.5FTE counselors (Masters of Social Work, Marital Family Therapist, and/or Doctorate of Psychology prepared) to deploy the screening to physicians and house-staff. A psychiatrist provided support to the counselors. To extend the pilot it was anticipated that up to 2.0 FTEs counselors would be required plus 0.35 FTE psychiatry hours for education and treatment. These 3 people also provided educational outreach upon request. Partial financial support ($168,660) for the pilot was received through a 1-year University of California Office of the President Safety Grant.

Survey

Space limitations prohibit a full description of the ISP; more details can be found elsewhere [30, 32]. In brief, the ISP contains the nine- item Patient Health Questionnaire (PHQ-9), a validated depression assessment for community populations in its original form [36]. Scores on this measure range from 0 to 27; a higher score indicates a greater likelihood of depression. The screening tool includes items on past suicide attempts, affective states (i.e., anxiety, panic, rage, hopelessness, helplessness, loneliness, desperation, and loss of control) that have been linked to suicidal depression, alcohol and drug use, eating behaviors, and current psychiatric treatment. Additional questions were added to the ISP to follow the PHQ-9 and are derived from the literature (full list of content reflected in Table 1). The ISP is widely used across the United States by physicians and effectively identifies physicians in need of treatment, yet, does not have published psychometric data to report. The ISP asks respondents to provide 3 demographic questions: gender, profession, and age. The social and demographic information requested is limited in favor of maintaining participant comfort, reducing burden and maximizing anonymity. The ISP provides respondents an opportunity either to describe any other stressful factors that may be contributing to their current emotional state or to pose questions to the counselor in open-ended questions. A final optional item asks the participant to provide an e-mail address, which is encrypted to preserve anonymity. Once a respondent submits a completed screening tool, the software program automatically generates a depression score and then uses this score, along with responses to other items, to classify respondents into one of three tiers, previously developed by AFSP [32]. The categories of risk are based on various combinations of distress, symptom severity, and day-to-day life functioning. A person in Tier 1 is at the highest risk and usually garners a score of 15 or higher on the PHQ-9 or a score of 10-14 plus previous suicide attempt, or current suicidal ideation, inability to function, or scoring 'most or all of the time' for anxiety, rage, panic, loss of control, or desperation. Criteria for Tier 2 (moderate risk) include a PHQ-9 score of 10 to 14 with no prior suicide attempt or current suicidal ideation, but with problems related to alcohol or drug use, disordered eating, or difficulty with daily functioning. Respondents who score below a 9 and indicate no signs of suicidality, problematic drug or alcohol use, disordered eating, or trouble with functioning are designated as Tier 3 (low risk).

When a participant completes the screening, the computer system generates an e-mail to the counselor, indicating the respondent's tier and providing a link to the questionnaire. After reviewing the completed screening tool, the counselor provides a detailed, personalized assessment, following a standardized prototype for each tier. In the assessment, the counselor introduces herself by name and provides complete contact information including the location of her office, her e-mail address, and her phone number. The counselor addresses all of the respondents' questions and comments, and she invites them, if they desire, to communicate with her online, using a website dialogue page that requires no identification other than a user identification (ID).

The counselor uploads completed responses to the password-protected, secure project website. Respondents who provide an e-mail address receive a message regarding the counselor's assessment, which includes a link to the site; respondents can also return independently to the website. Once respondents are on the site, they can view the counselor's assessment by logging in with their user ID and password. In the case of Tier 1 and 2 participants, the counselor's assessment specifically addresses the issues of greatest concern, and it includes a message urging the respondents to schedule an in-person evaluation. Tier 1 respondents are provided crisis numbers and encouraged to use them or go to the nearest Emergency Room, if they are in crisis. For tier 3, the counselor writes that the questionnaire indicated no significant issues at this time; however, the counselor is always available to them to answer questions, or provide support and/or referrals, when needed.

The counselor also offers another way to communicate, via the aforementioned online anonymous dialogue page. The participant may dialogue with the counselor by email, phone or in person at their own preference. The counselor evaluates the respondents who meet in person more fully and discusses treatment options. When appropriate, the counselor provides personalized referrals to faculty or community mental health professionals who have committed to providing prompt care and have been specifically recruited to care for those seeking help through our program. Thoughtful creation of a referral panel is necessary to assure timely treatment because of the high-risk nature of depression and suicide

risk. Because nurses may be covered by their spouse's insurance, and have a broad selection of insurance coverage to choose from within the workplace, the mental health insurance coverage of nurses was unknown. Therefore, the psychiatrist for this project was prepared to support nurses who required treatment but were under-insured for mental health issues in cases where referrals were impeded due to insurance.

The anticipated response rate of nurses to the invitation for screening was unknown. Our goal was to reach those at highest risk, not to obtain a representative sample as is common in research. It could be anticipated that responders would self-sort based upon presumed need, but there was no pre-established evidence with which to predict response volume. The invitation email was sent to nurses following completion of the response to the yearly survey of physicians. Staggering the email distribution was intentionally planned so that the response time by counselors would not be delayed.

Results

Quantitative

During the first 6 months of the program, 172 (7%) of 2475 nurses completed questionnaires; 74 (43%) were rated as high risk (Tier 1) and another 94 (55%) as moderate risk (Tier 2). 12 (7%) reported current active thoughts or actions of self-harm and 19 (11%) reported previous suicide attempts. One hundred fifty-one (89%) were female nurses and the mean age was 43 years. As Table 1 demonstrates, >40% of the respondents had moderate or greater levels of depressive symptoms, seven percent had recent thoughts of taking their own lives and 11% reported previous suicide attempts. The majority endorsed a number of intense, disturbing and distressing feeling states and 28% endorsed "drinking too much". At the time of completing the questionnaire, only 28 (16%) were currently in counseling or therapy. Forty-four nurses (26%) received in-person or verbal counseling. Of these, 6 were phone sessions, 5 were in-person, and 37 were online anonymous dialogues. Seventeen nurses accepted referral for further treatment and resources. Of those that accepted referral for treatment 8 were high risk, 8 were moderate

risk, and 3 were unknown risk as they called without doing the on-line screening, but indicated that they were indeed a nurse.

Qualitative

Stressors were listed in open-ended comments. These were categorized into work, home or mixed. Of the 172 nurses, there were 140 comments disclosing stressors: 32 work-related, 59 home-related and 49 mixed. Work stressors included issues with management, work volume, staffing, resources, changing departments, new hospital opening, health and sleep issues related to shift work, feeling unappreciated at work, stress related to learning new skills or teaching others, lateral violence, fear of harming patients, feelings of incompetence, and emotional burden of caring for patients. Home stressors included wedding stress, marital strain, financial issues, personal, family or pet health issues, grief, current events in the world, lack of purpose in life, childcare, infertility, academic stress, feeling alone after moving to the area, and personal or family drug or alcohol use. No negative comments about the program were received. Positive comments about the program are included (SDC #3).

Feasibility

No nurses who accepted treatment reported an issue with under-insured mental health coverage. No nurses required immediate crisis intervention. Even though the nurse email invitations to take the survey were sent out all at once, and then again in 2 weeks, responses to the screening staggered back over several months, with most coming in the first 2 months. The two 0.5 FTE counselors increased hours to full time following the nurse screening. These 2.0 FTEs were able to manage the responses without delay given the response volume and staggered response times. The 3 grand rounds presentations were modestly attended (10-20 participants each) and could not be relied upon as the only method of

communication for this subgroup of hospital personnel. However, those who attended did help to spread the word about the program to others. Although offered to all departments, only 1 department requested an onsite explanation at the staff meeting. This onsite explanation generated increased responses to the survey. We suspect that the Huddle process was the most comprehensive approach to communicating with nurses, but are not able to formally evaluate this. After the initial first round of screening, the team began to organically, through word of mouth and request, provide group departmental emotional debriefings following significant clinical events. These just-in-time emotional debriefings were better attended than planned educational forums. Emotional incident debriefings have been an effective vehicle for marketing the program, gaining trust with the nurses, and stimulating use of the risk screening while providing a needed service at the point of care.

Discussion

To our knowledge, this is the first report describing a systematic program to help prevent nurse suicide. It does so by educating nurses on burnout, depression and suicide; de-stigmatizing mental health treatment; and proactively reaching out, screening, assessing and referring nurses at risk for suicide. These preliminary results strongly suggest that such a program is enthusiastically welcome, feasible, acceptable and needed. We found nurses who responded to the HEAR survey to report staggering rates of suicidal thoughts, comparable to, if not even greater than, attending level faculty physicians at the same institution taking the same survey [34]. Equally concerning, the vast majority of those at high risk were not receiving any mental health treatment whatsoever.

It was unanticipated that some nurses would prefer to contact the HEAR counselors by phone without doing the screening. However, the outreach and screening process helped them to find the phone number to report their stress and need for treatment. We were gratified to learn that so many nurses took

advantage of the opportunity to dialogue with the HEAR counselors (n=41) and that 17 individuals, accepted referrals for mental health care within such a short time-line.

Although the rate of response to the questionnaire was low in terms of the percentage of all nurses invited to take part in the screening (7%), we did not aim to reach a large, representative segment of the population. Rather, we sought to identify and encourage into treatment nurses with significant depression and related problems, a group known to be at risk for suicide. Considering that the primary targets for the screening method were troubled nurses who were not currently in treatment, the 7% response rate was close to what we had expected. We also expect the response rate will grow as we send repeat invitations, provide more in-service presentations, provide more emotional debriefings following critical incidents, and are better known by nursing staff. The disproportionate percentage of respondents designated as Tier 1 or 2 (98%) and the fact that the vast majority (91%) of the respondents were not currently receiving either counseling or therapy confirmed that the method largely reached the intended target group. For those currently in treatment who were identified as high risk, the results may suggest a possible need for review of the intensity or focus of the pre-existing treatment plan. It is important to emphasize that questionnaire respondents were a self-selected group and are not representative of the nursing community as a whole. Yet, it is clear that the ISP has considerable promise for encouraging previously untreated, at-risk nurses to get help.

The open-ended comments shed further light on the importance of programs like HEAR for nurses. The comments provided insight into root causes of workplace stress and valuable information to inform future action planning. Comments confirmed the need for more support services, attention to team building, efforts to improve relationships between hospital management and front-line staff, staffing considerations, positive feedback and shows of appreciation. Perhaps most meaningful, nurses praised the organizational leadership for inviting them to engage in the survey; caring enough to reach out and providing a resource for those who were suffering.

Limitations

Lack of validation of the complete ISP is a limitation of this project. Low turnout at grand rounds and the relatively low response rate (7%) are also both limitations [29]. While we are not concerned with the ISP's low response rate, as we are reaching the intended target group, we do want to reach even larger numbers of at-risk nurses.

Next Steps

Efforts at increased program marketing are planned to overcome response limitations. Clinical nurses do not have time to attend hour-long mid-shift workshops or presentations, and those who are stressed are not likely to come to work on their days off for voluntary education. In the future, we plan to work with nursing leadership to provide more protected time for staff to attend presentations and also develop briefer interactive presentations geared for small groups. We plan to provide continuing education programs that have been requested by staff for resiliency training advertised through the education department calendar to optimize visibility of the available resources. Shifting the focus of educational programs from burnout and depression to resiliency is hoped to draw larger audiences. Staggered repeated invitations to take the screening will be deployed at regular intervals. The introduction of Schwartz Rounds is now budgeted as an additional strategy within the umbrella of the HEAR program to engage with staff and offer support following difficult emotional cases. Schwartz Rounds is an interdisciplinary forum aimed at enhancing team work, mutual sharing and support, and emphasizing the vital importance of staff emotions in clinical care [37]. These emotional grand rounds are expected to be welcomed in a manner similar to what we have experienced with departmental emotional debriefings, but instead will be open to a house-wide audience. Information about the HEAR program with contact information and an active link to screening is now included in the annual mandatory staff training. In addition, we will send repeat invitations to visit our website at each presentation or workshop.

Budgeted plans for this upcoming year include partnering with the risk management department to offer consistent rapid response for emotional critical incident debriefings following serious clinical events. Themes of staff stressors analyzed from screening comments will be reported back to hospital administration for action planning while protecting anonymity. In response to signals received from open-ended comments, the ISP questionnaire will be updated with additional questions related to burnout. The HEAR leadership will be actively integrated with the Employees Assistance Program (EAP) to optimize reach of these parallel, yet complementary programs. A structured peer-support program, piloted by this same team separately, derived from models that has successful by others, will be implemented within the HEAR program [38, 39]. Regular office hours for staff for immediate assessment and crisis response by the HEAR program counselors and lead psychiatrist, modeled after the program initiated at the University of Oregon, will be initiated [40]. The entire program will now be available to all medical center staff, physicians, house-staff and faculty.

Conclusion

The expansion of the HEAR program to nurses in our institution has been feasible and effective. The HEAR program is a replicable strategy to address mental health risks associated with workplace stress. Thus far, 44 nurses have received counseling and 17 have been referred to treatment who may not have otherwise have sought treatment on their own. Valuable information regarding the depth and breadth of workplace stress has been obtained. After presentation of the results to hospital executives, we are delighted to report that the pilot has been budgeted to maintain the program as a standard service with expanded services as outlined above. The success of this pilot has been recognized at all levels of the organization and is now being considered by the other medical centers within the healthcare system. In conclusion, a coordinated approach to educational outreach, emotional incident debriefings, and proactive screening for depression and suicide risk is well-received, effective at identifying at-risk nurses and successfully referring nurses into mental health care.

References

1. World Health Organization. *Preventing Suicide: A global imperative*. 2014 [cited 2016 January 13].

2. Murphy, S.L., J. Xu, and K.D. Kochanek, *National vital statistics reports.* National vital statistics reports, 2013. **61**(4).

3. *Increase in suicide rates, 1999-2014*. NCHS Data Brief No. 241, April 2016 2016 April 22, 2016 [cited 2016 May 23].

4. Stack, S., *Occupation and suicide.* Social Science Quarterly, 2001. **82**(2): p. 384-396.

5. Milner, A., et al., *Suicide by occupation: systematic review and meta-analysis.* The British Journal of Psychiatry, 2013. **203**(6): p. 409-416.

6. Poças, A. and S.P. Almeida, *Physician suicide prevention.* European Psychiatry, 2016. **33**: p. S604.

7. Center, C., et al., *Confronting depression and suicide in physicians: a consensus statement.* Jama, 2003. **289**(23): p. 3161-6.

8. Schernhammer, E.S. and G.A. Colditz, *Suicide rates among physicians: a quantitative and gender assessment (meta-analysis).* Am J Psychiatry, 2004. **161**(12): p. 2295-302.

9. *Struggling in Silence: Physician depression and suicide*. 2016 [cited 2016 October 31]; Available from: https://store.afsp.org/afsp/product/AD199819-C1DA-4D87-8D2A-41DC746B80CD.

10. Hawton, K., et al., *Risk of suicide in medical and related occupational groups: a national study based on Danish case population-based registers.* J Affect Disord, 2011. **134**(1-3): p. 320-6.

11. Hawton, K., et al., *Suicide in female nurses in England and Wales.* Psychol Med, 2002. **32**(2): p. 239-50.

12. King, A.S., et al., *Mortality among female registered nurses and school teachers in British Columbia.* Am J Ind Med, 1994. **26**(1): p. 125-32.

13. Kolves, K. and D. De Leo, *Suicide in medical doctors and nurses: an analysis of the Queensland Suicide Register.* J Nerv Ment Dis, 2013. **201**(11): p. 987-90.

14. Hem, E., et al., *Suicide rates according to education with a particular focus on physicians in Norway 1960-2000.* Psychol Med, 2005. **35**(6): p. 873-80.

15. Aasland, O.G., et al., *Mortality among Norwegian doctors 1960-2000.* BMC Public Health, 2011. **11**: p. 173.

16. Andersen, K., et al., *Suicide in selected occupations in Queensland: evidence from the State suicide register.* Australian and New Zealand Journal of Psychiatry, 2010. **44**(3): p. 243-249.

17. Franklin, J.C., et al., *Risk factors for suicidal thoughts and behaviors: A meta-analysis of 50 years of research.* 2016.

18. Escribà-Agüir, V., D. Martín-Baena, and S. Pérez-Hoyos, *Psychosocial work environment and burnout among emergency medical and nursing staff.* International archives of occupational and environmental health, 2006. **80**(2): p. 127-133.

19. Moss, M., et al., *A Critical Care Societies collaborative statement: burnout syndrome in critical care health-care professionals. A call for action.* American journal of respiratory and critical care medicine, 2016. **194**(1): p. 106-113.

20.   Milner, A.J., et al., *Suicide by health professionals: a retrospective mortality study in Australia, 2001–2012.* Medical journal of Australia, 2016. **205**(6): p. 260-265.

21.   Schaufeli, W.B., C. Maslach, and T. Marek, *Professional burnout: Recent developments in theory and research*. 2017: Taylor & Francis.

22.   Gomez-Urquiza, J.L., et al. *Prevalence, Risk Factors, and Levels of Burnout Among Oncology Nurses: A Systematic Review*. in *Oncology nursing forum*. 2016.

23.   Fonsêca, L.d.C.T.d., et al., *Vulnerability of the health of nursing professionals acting in the hospital setting: integrative review.* Journal of Nursing UFPE on line, 2016. **10**(7): p. 2687-2695.

24.   Sorenson, C., et al., *Understanding Compassion Fatigue in Healthcare Providers: A Review of Current Literature.* Journal of Nursing Scholarship, 2016. **48**(5): p. 456-465.

25.   Ruotsalainen, J.H., et al., *Preventing occupational stress in healthcare workers.* Sao Paulo Medical Journal, 2016. **134**(1): p. 92-92.

26.   Wei, R., et al., *Active intervention can decrease burnout in ED nurses.* Journal of Emergency Nursing, 2017. **43**(2): p. 145-149.

27.   Leiter, M.P., A.B. Bakker, and C. Maslach, *Burnout at work: A psychological perspective*. 2014: Psychology Press.

28.   Alderson, M., X. Parent-Rocheleau, and B. Mishara, *Critical Review on Suicide Among Nurses.* Crisis, 2015: p. 1-11.

29.   Reinhardt, T., et al., *Survey of physician well-being and health behaviors at an academic medical center.* Medical Education Online, 2009. **10**.

30.   Moutier, C., et al., *The suicide prevention and depression awareness program at the University of California, San Diego School of Medicine.* Acad Med, 2012. **87**(3): p. 320-6.

31.   Downs, N., et al., *Listening to depression and suicide risk in medical students: the Healer Education Assessment and Referral (HEAR) Program.* Acad Psychiatry, 2014. **38**(5): p. 547-53.

32.   Haas, A., et al., *An interactive web-based method of outreach to college students at risk for suicide.* Journal of American College Health, 2008. **57**(1): p. 15-22.

33.   Zisook, S., et al., *Suicidal Ideation Among Students and Physicians at a US Medical School A Healer Education, Assessment and Referral (HEAR) Program Report.* OMEGA-Journal of Death and Dying, 2015: p. 0030222815598045.

34.   Martinez, S., et al., *Alcohol use in an academic medical school environment: A UC San Diego Healer Education Assessment and Referral (HEAR) Report.* Annals of clinical psychiatry: official journal of the American Academy of Clinical Psychiatrists, 2016. **28**(2): p. 85.

35.   Brooks, E. *Recognize and respond to physician distress and suicidal behavior: Preventing Physician Distress and Suicide*. 2016 [cited 2016 10/10]; Available from: https://www.stepsforward.org/modules/preventing-physician-suicide#section-steps.

36.   Spitzer, R.L., et al., *Validation and utility of a self-report version of PRIME-MD: the PHQ primary care study.* Jama, 1999. **282**(18): p. 1737-1744.

37.   Thompson, A., *How Schwartz rounds can be used to combat compassion fatigue: Alison Thompson reflects on an initiative that helps to maintain staff wellbeing and quality of patient care.* Nursing Management, 2013. **20**(4): p. 16-20.

38.   Shapiro, J. and P. Galowitz, *Peer support for clinicians: a programmatic approach.* Academic Medicine, 2016. **91**(9): p. 1200-1204.

39.   Scott, S.D., et al., *Caring for our own: deploying a systemwide second victim rapid response team.* Jt Comm J Qual Patient Saf, 2010. **36**(5): p. 233-40.

40.   Ey, S., et al., *Feasibility of a comprehensive wellness and suicide prevention program: a decade of caring for physicians in training and practice.* Journal of graduate medical education, 2016. **8**(5): p. 747-753.