

Implementing an inpatient postpartum depression screening, education, and referral program: a quality improvement initiative



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BACKGROUND: Perinatal mood and anxiety disorders are common and may interfere with pregnancy, delivery, and the postpartum period. Best practice includes symptom screening, patient education, and appropriate referrals; however, many hospitals struggle to identify and support perinatal mood and anxiety disorders patients.

OBJECTIVE: Therefore, the Cedars-Sinai Postpartum Depression Screening, Education and Referral Program was initiated and evaluated.

STUDY DESIGN: Using the Standards for QUality Improvement Reporting Excellence 2.0 guidelines, we reported outcomes (N=19,564 deliveries) from 4 interventions: (1) nurse-champion training; (2) use of the 9-item Patient Health Questionnaire-9 in the postpartum unit; (3) a series of brief in-service trainings; and (4) a 10-minute video training. We collected data including nurse feedback, screening rates, screen-positive rates, and social work consultation rates.

RESULTS: The 4 interventions increased: (1) nurse-champion screening comfort and perinatal mood and anxiety disorder knowledge; (2) Patient Health Questionnaire-9 screening rates from 10% to 99% and screen-positive rates from 0.04% to 2.9%; and (3) rates of social work consultation from 1.7% to 8.4%.

CONCLUSION: Quality improvement results from the first 3 years of the program suggest that 4 interventions improved screening rates, screen-positive rates, and social work consultation rates. Future work will focus on method of screening, patients at highest risk of perinatal mood and anxiety disorders, and ongoing nurse training.

Key words: depression, perinatal mood and anxiety disorders, postpartum depression, quality improvement, screening

Introduction

Perinatal mood and anxiety disorders (PMADs) are a broad group of disorders including minor to major depression and several forms of anxiety. The symptoms occur during pregnancy and the first year after delivery. Approximately 10% to 15% of women experience PMADs,¹ a higher rate of women experience subclinical symptoms, and this rate triples in women of color.^{2–5} Postpartum depression (PPD) is diagnosed when women exhibit symptoms of major depression, such as feelings of worthlessness, agitation, and/or reduced interest in activities.⁶ Postpartum anxiety (PPA) is characterized by excessive worry, irritability, difficulty sleeping, and intrusive negative thoughts.⁷ In the setting of maternal and neonatal complications, rates of PPD are as high as 40% and can be life-threatening.^{8,9} The

symptoms can result in devastating effects in both the mother and child if they go undetected and untreated. Immediate adverse effects of PMADs include preterm birth, poor infant outcomes, and lack of maternal efficacy,^{7,10} and long-term effects can severely affect children beyond the neonatal period.^{11–15}

Unfortunately, PMADs are heavily stigmatized and often overlooked disorders that are treatable once identified. Multiple guidelines recommend screening for PMADs at least once in pregnancy and once afterwards, and can help identify women at risk for PPD and steer them toward treatments such as cognitive behavioral therapy and antidepressants.^{16,17} Yet, 50% of all persons with PMADs are never identified, likely because perinatal depression screening is oftentimes not conducted.¹⁸ In 2018, California Assembly Bills Nos. 2193 and 3032 made it imperative that California birthing hospitals properly screen, educate, and refer women at PMAD risk to mental health care.^{19,20}

Problem description

Despite these state laws, many California hospital systems fail to meet the standards because of screening barriers.

Healthcare providers report time pressure, lack of knowledge on assessment tools, poorly defined referral pathways, and lack of mental healthcare services as constraints.⁶ Patient-specific barriers such as stigma, lack of motivation, and inadequate insurance are also important.^{6,21} Birthing hospitals often screen in the immediate postpartum period (1–2 days following delivery) to ensure that screening occurs at least once in the perinatal period, because individual private practitioners do not consistently screen, educate, and refer their patients to care. In addition, research suggests that immediate screening scores can predict the development of an episode of depression or anxiety 2 to 8 weeks after delivery.^{22,23} Hospitals must therefore do their best to conduct PMAD screening, patient education and referral, and collect data to ensure that screening programs are effective in connecting women to care.

Available knowledge

Successful attempts at improving screening and referral rates across the United States have been demonstrated.^{10,24} At the Northwestern University, screening

Cite this article as: Accortt EE, Haque L, Bamgbose O, et al. Implementing an inpatient postpartum depression screening, education, and referral program: a quality improvement initiative. *Am J Obstet Gynecol MFM* 2022;4:1–10.

2589-9333/\$36.00

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<https://doi.org/10.1016/j.ajogmf.2022.100581>

AJOG MFM at a Glance

Why was this study conducted?

To evaluate an inpatient Postpartum Depression Screening, Education and Referral Program at a major US birthing hospital.

Key findings

Four quality improvement interventions increased: (1) nurse screening comfort and perinatal mood and anxiety disorder knowledge; (2) Patient Health Questionnaire-9 screening rates from 10% to 99% and screen-positive rates from 0.04% to 2.9%; and (3) rates of social work consultation from 1.7% to 8.4%.

What does this add to what is known?

Mental health programs that include routine depression screening, education, consultation, and referral to treatment should be a part of comprehensive care for all pregnant women to achieve better birth and postpartum outcomes. Such practices may enable early detection, referral, and timely treatment to potentially reduce risk for adverse birth outcomes.

results and treatment referrals increased dramatically after an institutional policy enforced depression screening and education. Prenatal screening rate improved by 65%, postpartum screening rate improved by 20%, and treatment recommendations improved by 33%.¹⁰ Similarly, a Texas-based hospital introduced standardized screening guidelines and a 1-hour training video for all healthcare professionals and saw screening rates improve from 33.5% to 82.7%.²⁴ These quality improvement (QI) projects demonstrate that with proper training, screening tools, and guidelines, screening and referral rates increase considerably and more women receive adequate treatment.

Rationale

In 2014, Cedars-Sinai began hospital-wide depression screening on admission across all departments using the first 2 items of the Patient Health Questionnaire (PHQ)-9.²⁵ If someone endorsed one of these 2 items, then the final 7 PHQ-9 questions populated. Pregnant women were screened in the Labor and Delivery (L&D) triage unit, when women were often in no condition to be screened. There was no formal nurse training to ensure comfort when screening, nor was there any standardized method for educating and referring patients who screened high-risk for depression. This resulted in only 10% of women being screened in L&D

and only 0.04% screening positive for depression risk (PHQ-9 \geq 13). To improve the hospital's screening rates and positive screening rates for PPD risk (eg, in line with epidemiologic rates), our team implemented a new postpartum screening, education, and referral program (Appendix 1).¹⁸ On the basis of the Plan-Do-Study-Act (PDSA) framework for QI (Agency for Healthcare Research and Quality [AHRQ], 2015; <https://www.ahrq.gov/health-literacy/improve/precautions/tool2b.html>) (Figure 1), we defined the goals for the project and then met with clinic staff and stakeholders to determine a timeline for implementing the PHQ-9 into the Postpartum Unit (PPU) encounter and initiating nurse training. After preparing nursing staff for implementing the interventions, the intervention period ran from January 2017 through December 2018; however, as a process change, the clinic administrators approved the PHQ-9 to be implemented as a permanent change to clinic practice.

Specific aims

The primary aims of this project were to determine if 4 QI interventions (Figure 1) improved the PPD screening rate, PPD screening positive rate, and related social work referrals and resulting consultation rate at Cedars-Sinai's

postpartum and maternal-fetal care units.

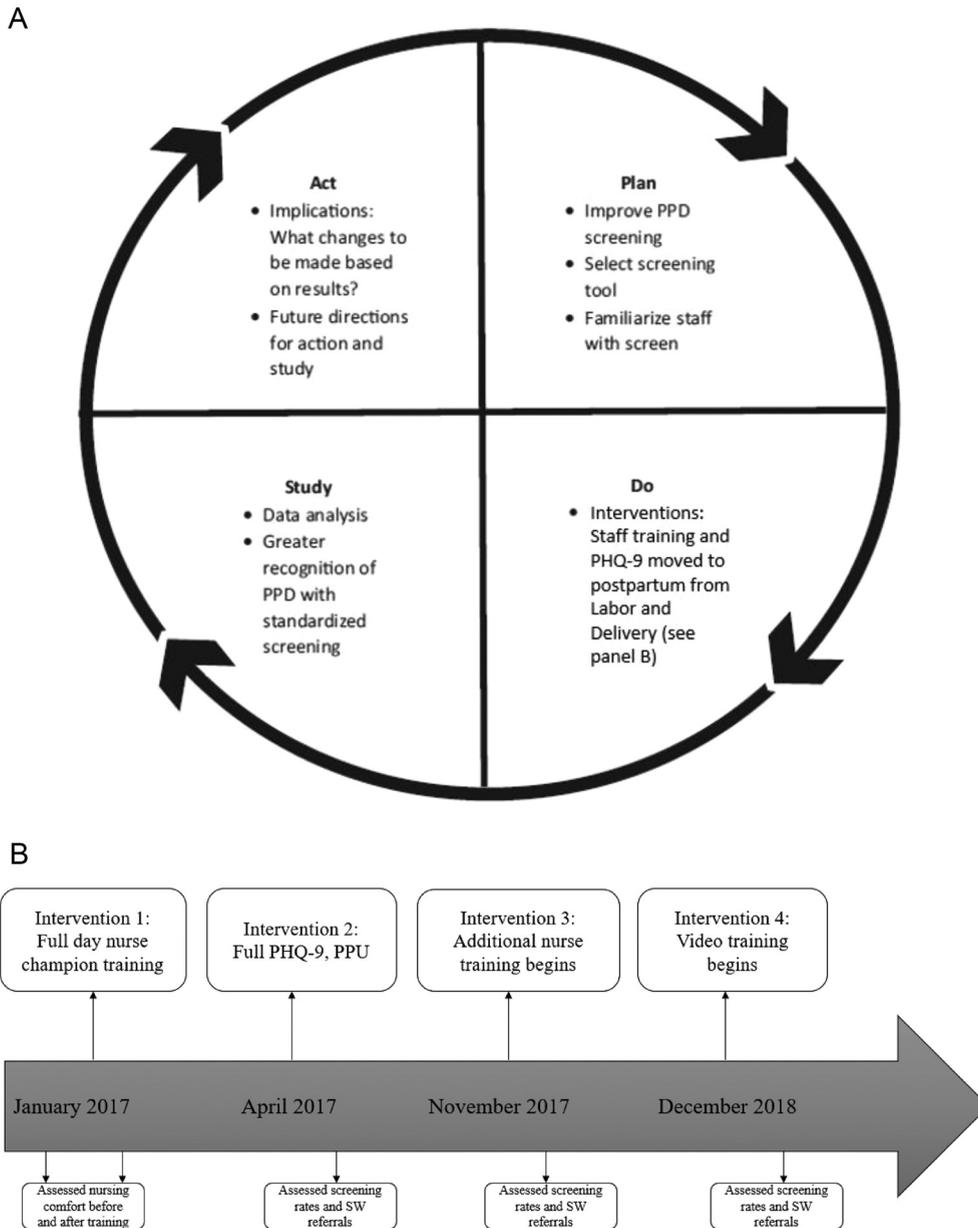
Materials and Methods**Population**

Screening data from birthing individuals at Cedars-Sinai were included in this study whether they were admitted to the PPU or the Maternal-Fetal Care Unit (MFCU) after delivery. Our dataset does not include screening data from the prenatal/predelivery time point or from those who experienced miscarriage if they were never admitted to the MFCU or PPU. The hospital's Institutional Review Board reviewed this project and approved the use of deidentified patient data.

Materials

The PHQ-9 has the potential to be a dual-purpose instrument for establishing tentative diagnoses of depressive episodes and depressive symptom severity.²⁵ Each question in the scale has 4 response choices: "not at all," "several days," "more than half the days," and "nearly every day." The continuous measure is a summary score ranging from 0 to 27 and is calculated by adding up the responses to the 9 questions, which assesses the presence and severity of a depressive episode.²⁶ Regarding severity, the PHQ-9 comprises 5 categories, where a cutoff point of 0 to 4 indicates no depressive symptoms, 5 to 9 mild depressive symptoms, 10 to 14 moderate depressive symptoms, 15 to 19 moderately severe depressive symptoms, and 20 to 27 severe depressive symptoms.²⁶ The cutoff points for immediate PPD risk (1–3 days after delivery) proposed by the Psychiatry team in the original working group was a PHQ-9 \geq 13 for postpartum depression risk. The decision to use a cutoff of 13 for intervention (ie, social work consultation), as opposed to a 10 (commonly used), for immediate PPD risk was because the PHQ-9 does not take into account commonly experienced somatic symptoms of late pregnancy and delivery. The concern was that these symptoms could increase our false-positive rate by masquerading as depression symptoms;

FIGURE 1
PDSA chart and 4 Quality Improvement Interventions (2017–2018)



A, Representation of PDSA chart related to quality improvement of implementing standardized postpartum depression screens. Adapted from “PDSA Cycle” from the Agency for Healthcare Research and Quality, 2013, Retrieved from <https://innovations.ahrq.gov/qualitytools/plan-do-study-act-pdsa-cycle>. **B**, Four quality improvement interventions (2017–2018).

PDSA, Plan, Do, Study, Act.

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therefore, the Psychiatry team suggested a higher cutoff.

Intervention 1: nurse-champion training. Nursing staff provided feedback that lack of comfort with screening

tools may act as a barrier to routine screening. Maternal Mental Health Now (MMHN) partnered with Cedars-Sinai in January 2017 in designing and facilitating 8-hour training for nurses that addressed PMAD prevalence, risk

factors, symptoms, and negative outcomes (<https://www.maternalmentalhealthnow.org/providers/#online-training>). Twenty nurse champions attended in-person training and learned how to effectively administer

the PHQ-9 by observing a model interaction. Following training, nurse champions were tasked to educate the rest of the nursing staff. Nurse champions were surveyed (Appendix 2) before and after the training regarding the key measures of screening comfort level, discussing PMADs, providing referrals, and distributing materials in relation to screening patients for maternal depression.

Intervention 2: standardized depression screening. In April 2017, the PPU and MFCU nurses began routine depression screening within 2 days after a woman delivered with a new PHQ-9 screening workflow (Appendix 1).¹⁸ Data regarding the quality of nurse mental health training, perceived barriers, and process outcomes were also collected using structured surveys. The second intervention was the development and implementation of this new PHQ-9 screening workflow that was administered to patients in the PPU and MFCU, as opposed to their initial presentation to L&D triage. The Edinburgh Postnatal Depression Scale (EPDS)²⁷ was considered for depression screening because it is commonly used in the field and includes assessment of anxiety and depression, but ultimately the decision was made to use 1 tool consistently across the hospital system. Therefore, this program has focused only on perinatal depression, by using the PHQ-9 (Appendix 3), a 9-item depression scale used for screening, diagnosing, monitoring, and measuring the severity of depression. The PHQ-9 is a viable option for perinatal depression screening with operating characteristics similar to the legacy EPDS.²⁸ As described above, the PHQ-9 items are each assigned a score from 0 to 3, with a maximum score of 27, and are based directly on the diagnostic criteria for major depressive disorder in the Diagnostic and Statistical Manual of Mental Disorders (fifth edition, DSM-V). Patients who scored between 5 and 12 were considered to have mild-to-moderate depression risk, whereas those who scored 13 or higher were considered to have a high depression risk, and

therefore be more likely to meet DSM-V criteria for a major depressive episode.

The initial timing of the screening in L&D triage was identified as a barrier because of the urgent and time-pressed circumstances. Nursing staff therefore administered the full PHQ-9 within 2 days after delivery. Given the potential consequences of untreated symptoms, identification of mild risk resulted in the nurse providing the MMHN brochure (Appendix 4), educating the patient about the online referral resource, and offering a social work consultation. If a patient scored 13 or higher (high risk), the nurse followed the same protocol and immediately consulted social work and notified the patient's obstetrician (OB). If a patient endorsed suicidal ideation, regardless of PHQ-9 score, the nurse notified the patient's OB, who decided whether to consult Psychiatry. Patients were also offered social work referrals for: concern for abuse, neglect, or substance use disorder; bereavement owing to pregnancy loss; and known history of depression. Analyses included the variable "social work consultation" only once all of these steps were completed: (1) an order was placed, (2) social worker met with patient, (3) social work consults deemed completed, and (4) a social work note was placed in the chart. There were no previous Cedars-Sinai data about screening postpartum, so key measures abstracted from the electronic medical record (EMR), including the number of PHQ-9 screenings completed, positive screenings identified, and social work consultations completed, were assumed to be attributable to the intervention.

Intervention 3: 20-minute in-service training. Feedback solicited from the nurses revealed that they did not universally understand proper PHQ-9 administration. Therefore, a series of 20-minute in-service trainings were offered. Training focused on how to administer the PHQ-9 by modeling a sample interaction between a "patient" and a clinical psychologist. In addition, nurse champions made themselves

available in real-time (on the unit) so that recently trained nurses could be observed while screening patients and ask questions. Baseline screening rates were compared with new screening rates, screen-positive rates, and completed social work consultation rates after 2 months of multiple in-service sessions. In addition, nurse comfort with screening and referring patients was measured after the training.

Intervention 4: video training. Despite the additional in-service trainings, ongoing data review showed that screening and screen-positive rates remained at low levels. We hypothesize this may be partially related to night shift nurses and traveling nurses who may not have been on campus, in-person available for in-service trainings. To address this, brief video training was implemented for nursing staff. The 10-minute training video was created in partnership with MMHN and demonstrated the PHQ-9 screening process depicting a model encounter between a nurse and a "patient." The nurse began the encounter by preparing the room for screening (politely but firmly asking family members to leave), normalizing the process, and framing private screening as standard protocol. The nurse reassured the patient that her responses are confidential unless she indicated that she or someone else is in danger. The nurse then explained and administered the PHQ-9 rating scale. Finally, the nurse provided an educational brochure explaining the symptoms of PPD (Appendix 4) and the available resources. She provided the patient with the option of a social work referral and reminded her to follow-up with her OB. At the end of the patient encounter, the viewers were reminded that a "yes" response to question #9 on the PHQ regarding suicidal thoughts requires social work follow-up, alerting the physician, discussing protective factors with the patient, and following hospital safety protocols. The video was not formally evaluated before use. Indeed, the video's training effectiveness is to be evaluated as part of the larger QI project (data not presented here).

Statistical analysis of interventions 1 to 4

Deidentified data on PHQ-9 scores, including screening rates, identified positive screenings, and social work consultations were extracted from the EMR from deliveries that occurred between January 1, 2017 and January 1, 2020. Nurse training data were extracted from the REDCap database.²⁹ Statistical process control (SPC) was performed to identify outliers and compare variables following initiation of the PPD screening program. PHQ-9 screening rates were plotted by month and the SPC proportion chart (*p*-chart) was used to find the *p*-bar, upper control limit (UCL), and lower control limit (LCL). PHQ-9 screening became standard of care on April 1, 2017, so screening rates before this (January 1, 2017 to March 31, 2017) were not included in the *p*-chart. The *p*-chart compared the total PHQ-9 screens completed with the total of delivered patients in a given month. Total number of PHQ-9 screens requiring follow-up (scores ≥ 5) were

converted into a percentage of total screens completed and plotted by month.

Results Characteristics of the sample

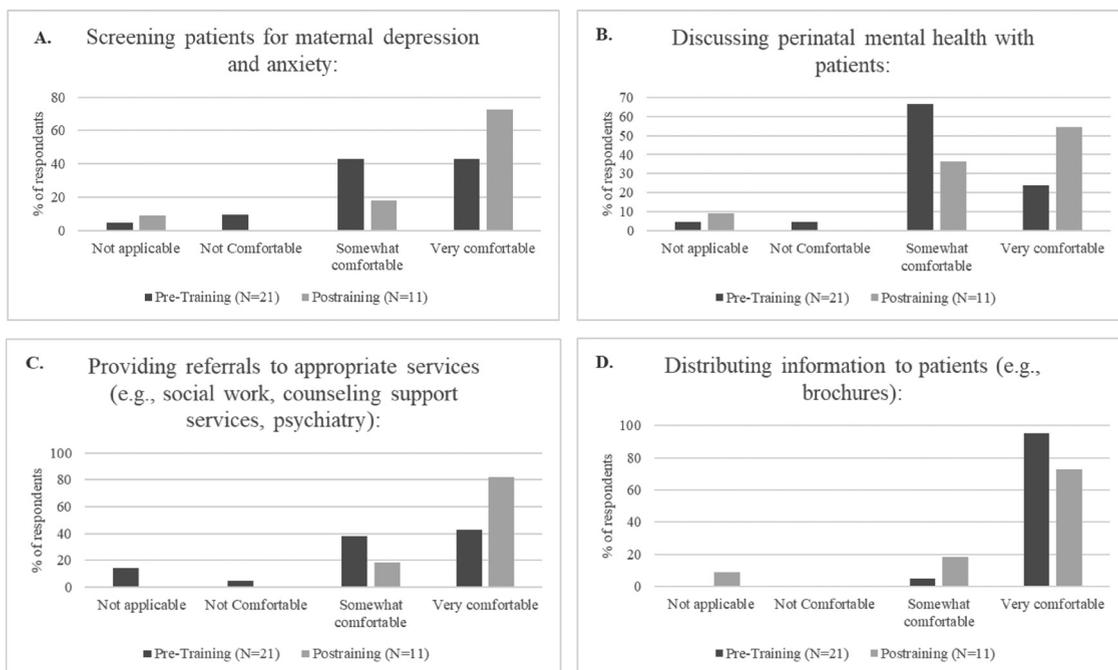
Cedars-Sinai is a nonprofit hospital located in Beverly Hills, California. Approximately 6500 women deliver their babies at Cedars-Sinai every year, and 19,564 were included in this sample. According to most recent data available, 70% of women identified as White, 15% as Hispanic (and having overlap with other races), 12% as Asian/Pacific Islander/Native Hawaiian, 8% as “other race,” 7% as Black, 2% as “mixed race or multiracial,” and the race of 1% of patients was unknown. The average patient age was 33.95 (± 4.87) years old. Patients were mostly covered by private insurance, with only 4.6% of patients using publicly funded insurance. Over the course of 2 years and 4 interventions (Figure 1, B) most of the nursing staff was trained about PMADs and how to properly administer the PHQ-9.

Together, all 4 interventions successfully improved nurse comfort and ability in screening and resulted in improved rates of screening, screen positives, and social work consultations.

Intervention 1: full day in-person nurse-champion training

Before training, 43% of surveyed nurses felt “very comfortable” screening patients for depression. After training, overall comfort increased to 73% (Figure 2). Nurse champions showed increased comfort discussing perinatal mental health, facilitating mental health referrals, and providing information to patients. Nurse champions were also asked about their ability to assess when a patient would benefit from a mental health referral and how to facilitate that process. Before training, 24% of nurse champions felt that connecting patients to mental healthcare was not applicable to their job (Figure 2). After training, 90% of nurse champions felt they would be able to identify patients who would

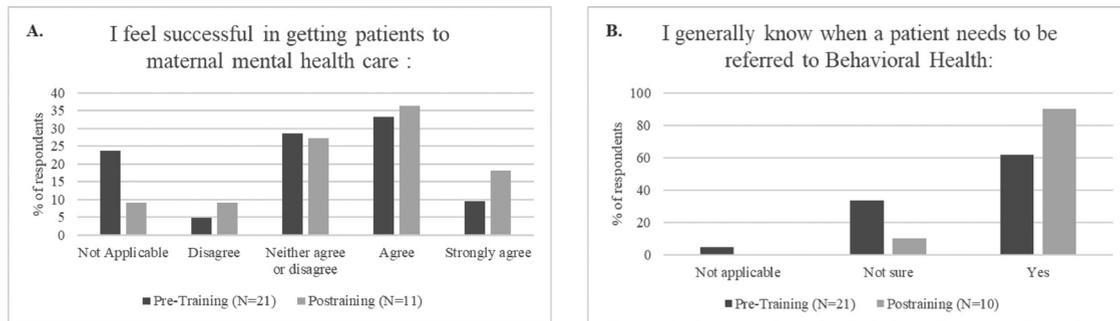
FIGURE 2
Nurse champions reported their comfort screening, discussing, and referring for PMADs



PMAD, perinatal mood and anxiety disorder.

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FIGURE 3
Nurse champions reported their ability to connect patients to care



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benefit from mental health referrals (Figure 3).

Intervention 2: standardized depression screening

When initial hospital-wide screening began in 2014, the baseline screening rate was 10% and screen-positive rate was 0.04%. By August 2017, depression screening moved from L&D to PPU, initial screening rates improved to 67%, and the screen-positive rate improved to 4% (Figure 4).

Intervention 3: 20-minute in-service trainings

The 20-minute in-service trainings were offered to additional nurses (N=50) and subsequent patient screening rates improved to 99%. Before training, 25% of nurses rated themselves as “very comfortable” screening patients, which increased to 75% after training (Figure 5, A). Similarly, 27% of nurses were “very comfortable” discussing perinatal mental health with patients before training, which increased to 56% after training (Figure 5, B). In addition, before training, 17% of nurses reported being “very comfortable” in providing referrals to social work, which increased to 67% after training (Figure 5, C). Lastly, 25% of nurses reported being “very comfortable” distributing information to patients before training, which increased to 89% after training (Figure 5, D). Nurses were also asked about their ability to assess when a patient would benefit from a

mental health referral and how to facilitate that process (Appendix 5).

Intervention 4: video training

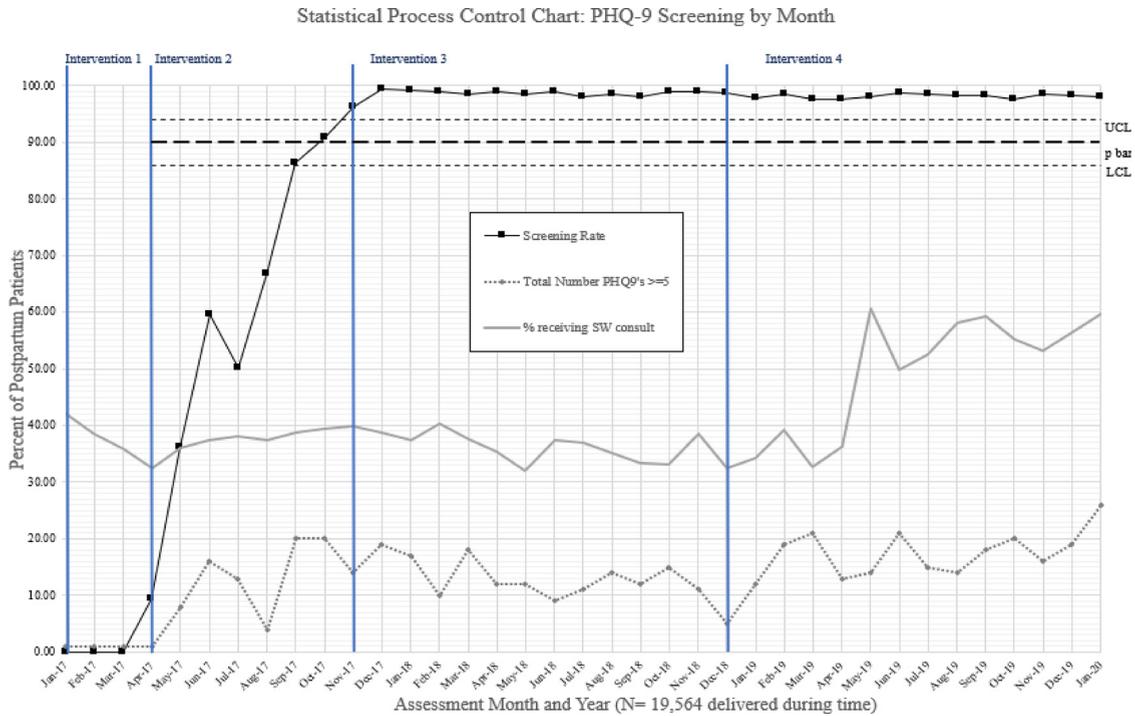
After the first 3 interventions, the percentage of patients being screened increased from baseline screening of 10% to 98%; however, screen-positive rates were much lower than the expected epidemiologic rates. Therefore, a training video was created for the staff. The 10-minute training video was viewed by 113 nurses over a 5-month period. Not all the nurses who viewed the training responded to every survey question. Seventy-seven nurses responded to a question about how informative and helpful the video was and rated it as helpful and informative with a mean rating of 8.9 out of 10. The nurses who responded to the survey (N=106) were asked questions about their comfort with screening and discussing PMADs and referring patients to mental health resources after viewing the video; they were not surveyed before viewing the video. After the video training, nurses were asked about their ability to know when and how to connect a patient to mental health care (Appendix 6), and most indicated that they “strongly agreed.” When asked if they knew when a patient should be referred, 92% noted “yes.” After the first week of video training, the PHQ-9 screening rate increased from 96% to 99%. Of those screened, 14% screened positive and 35% were referred to social work. After completion of 5 months of video

training, the screening rate remained at 99%. Of those screened, 19% screened positive and as many as 39% of them consulted with social work (Figure 4).

Statistical process control chart results

The SPC chart allows us to visualize the screening rate, total number of PHQ-9 surveys that resulted in a score ≥ 5 , and the percentage of patients receiving a social work consult (Figure 4). The lines visualized on the chart include the p-bar, the UCL, and the LCL of PHQ-9 screening rates only. The center line, or p-bar, represents the averages of the entire data set. The UCL and LCL were determined by adding 1 standard deviation above and below the p-bar and represent threshold values between which most screening rates are predicted. SPC can be beneficial because screening rates that are routinely above the center line and even above the UCL are encouraging. In contrast, noting that the screening rate falls below the center line or below the LCL can alert the need to implement ways to improve protocols.³⁰ On the basis of these limits we could assess whether our interventions (represented by 4 solid vertical lines) were successful in achieving our 3 main outcomes: increase in the screening rate, increase in the screen-positive rate (Appendix 7), and an increase in the social work consultation rate. As visualized in the SPC, screening rates had a sharp increase between March 2017 and June, 2017 from 0.01% to 59.54%.

FIGURE 4
Statistical Process Control chart

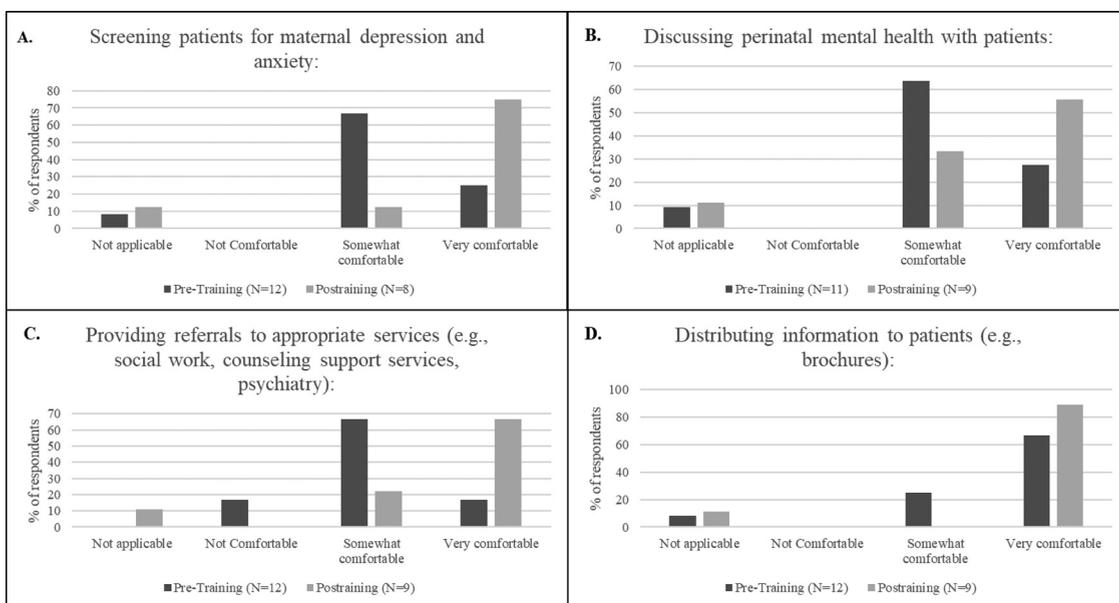


PHQ-9 screening, screen-positive, and social work consult rates by month. UCL, p-bar, and LCL available only for the PHQ-9 screening rate data.

PHQ-9, Patient Health Questionnaire-9; UCL, upper control limit; LCL, lower control limit.

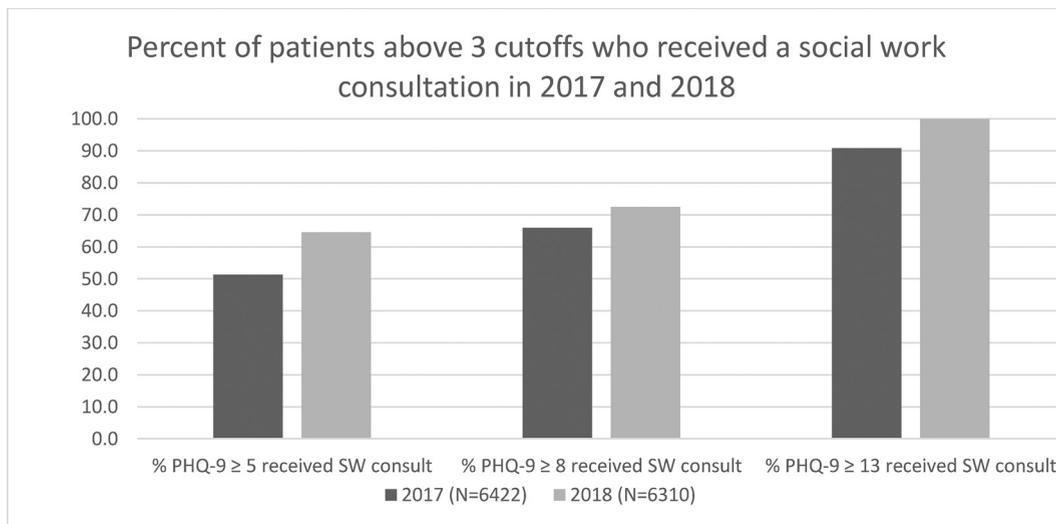
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FIGURE 5
Nurses reported their comfort level screening patients and providing referrals



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FIGURE 6
Percent above three PHQ-9 cutoffs who received a social work consultation



PHQ-9, Patient Health Questionnaire-9.

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Between June 2017 and July 2017, there was a slight decline in screening rates of approximately 9.45%, but this rapidly increased in August 2017. The screening rates from August 2017 to December 2017 experienced steady inclines. From December 2017 onwards, screening rates were relatively stable at an approximate average of 98.44%. Consequently, there seems to have been an increase in the number of PHQ-9 positive scores (≥ 5) (Appendix 7), especially from April 2019 to January 2020. Social work consultations also demonstrated an increase from April 2017, but remained fairly steady thereafter, with small increases after each intervention. Most importantly, inpatient social work consultation rates increased each year (during these 4 interventions) for women who screened positive on the PHQ-9 (Figure 6). In 2017, of those with PHQ-9 ≥ 5 (lowest cutoff, provided in the SPC chart, Figure 4), 61 of 119 (51.3%) received social work consultation. Of those with PHQ-9 ≥ 8 (which results in later outpatient follow-up), 31 of 47 (66%) received social work consultation. Of those with PHQ-9 ≥ 13 (highest cutoff, which results in immediate inpatient social

work consultation), 10 of 11 (90.9%) received social work consultation. In 2018, of those with PHQ-9 ≥ 5 , 95 of 147 (64.6%) received social work consultation, of those with PHQ-9 ≥ 8 , 29 of 40 (72.5%) received social work consultation, and of those with PHQ-9 ≥ 13 , 7 of 7 (100%) received social work consultation.

Discussion

All 4 interventions were successful in achieving our 3 main outcomes: (1) increasing our screening rate; (2) increasing our screen-positive rate; and (3) increasing our social work consultation rate. We were consistent with other institutions that increased efforts to screen their patients for PMADs, and achieved even higher screening rates of up to 99%. Even after the first 2 interventions, our screen-positive rates remained lower than the expected epidemiologic rates. For example, the California Department of Public Health data suggest that 13.6% of postpartum patients in Los Angeles experience depressive symptoms.³¹ Therefore, it was clear that our initial protocol change in 2017 still fell short of

addressing the mental health concerns of Cedars-Sinai birthing patients. These first 2 interventions moved away from the standard use of “clinical judgment” and initiated routine screening with a reliable and validated measure of depression. Long et al concluded that clinical judgment of the healthcare provider often improperly substitutes appropriate protocols. The authors encouraged QI projects like ours, which focus on PMAD-related competency and pre- and postintervention assessments to enhance the rigorous testing of interventions.³² The 4 interventions we used had a substantial impact on people and systems at Cedars-Sinai. The obstetrical nurses gained significant knowledge about PMADs and became more comfortable screening and discussing mental health with patients. The increased rate of screen positives and consultation with social work allows more at-risk patients to be connected with care. We noted a difference between observed and anticipated outcomes, specifically in the low rates of positive screens, which suggests variability in how screenings are conducted. We hypothesize this may be related to

the heterogeneity of nursing staff attributable to night shift nurses, traveling nurses, and high staff turnover rate. The SPC reflects the timing of our trainings, which occurred in phases, thus resulting in peaks in screening rates after various trainings followed by valleys.

Strengths and limitations

Notable strengths of our project include: nursing staff commitment to improving PMAD screenings among our patients; our team's solution-focused approach to addressing difficulties; and a large dataset (N=19,564) including women from moderately diverse racial and ethnic backgrounds (15% Hispanic, 12% Asian/Pacific Islander/Native Hawaiian, 8% "other race," 7% Black, and 2% "mixed race or multiracial"), suggesting the generalizability of these interventions. One limitation is the timing of our PPD screening. Ideally, women would be screened by their OB-gynecologist physicians during the pregnancy and again 2 to 4 weeks after delivery. Recent research suggests that immediate PPD screening scores (ie, 1–2 days after delivery) can predict the development of an episode of depression or anxiety 2 to 8 weeks after delivery.^{22,23} In addition, only 5% of our patients used publicly funded insurance, and it is well-known that socioeconomic status negatively correlates with mental health, which could affect generalizability. Another possible limitation is that some patients may have declined screening questions, but still accepted a social work consult, which would have resulted in fewer PHQ-9 positive screens while increasing the number of social work consultations. Similarly, some women accept a social work consultation not for current depression but for other reasons, such as intimate partner violence, substance use, or bereavement. Women in the MFCU and those whose babies are in the neonatal intensive care unit (NICU) also automatically receive social work consultation. All of these indications, however, place women at higher risk for current depression, therefore meeting our goal of connecting women at risk for PPD to

care. Another limitation is the inability to know for certain that patients were asked the screening questions using the demonstrated techniques because patient interactions with nurses are generally not observed. Some patients may hesitate to answer questions truthfully, and some nurses, being busy and rushed, may miss potential positive screens. The frequent offering of in-service and video trainings was done to address this limitation. Finally, although anxiety is very common in the postpartum period, we could not administer the EPDS, which includes 3 items assessing anxiety symptoms. One of our future directions is to replace the PHQ-9 with the EPDS in the postpartum screening workflow, and to allow women to self-administer.

Ongoing and future work

We continue to make improvements to this program. For example, interventions implemented between 2018 and 2020 include a staff-wide cultural humility training, an outpatient follow-up program (rescreening anyone who scored >8 on the PHQ-9 at delivery), an intensive care unit (ICU) and stillbirth screening initiative, and a more robust 1-hour virtual nurse training program implemented by the Hospital Quality Training Institute (<https://www.hqinstitute.org/>). The progress achieved by the first 4 interventions detailed in this report is being sustained, and data from these next 4 interventions are currently being analyzed. We will also begin inviting patients to complete the screening on hospital-provided iPads in 2022, which may provide more privacy after the nurse has introduced the concept of family wellness. We recognize that nurses are busy and may not always properly conduct the screening. We have considered that incorporating this training as part of the standard curriculum for nurses would help standardize PHQ-9 administration. We have also noted the need for consistent and frequent training, given the observed peaks and valleys in improvements. Next, we will focus on populations at greatest risk of developing PMADs: patients in the MFCU, ICU, NICU, and women of color.

Conclusions

The Postpartum Depression Screening, Education and Referral Program has improved depression screening and increased social work referral rates (resulting in increased social work consultation) at Cedars-Sinai. This program is sustainable, especially with ongoing use of the training video. Mental health programs that include routine depression screening, education, consultation, and referral to treatment should be a part of comprehensive care for all pregnant women to achieve better birth and postpartum outcomes. Such practices may enable early detection, referral, and timely treatment to potentially reduce the risk of adverse birth outcomes, especially lower birthweight and preterm birth, and can certainly help to reduce the risk of PPD. ■

ACKNOWLEDGMENTS

We would like to acknowledge the Nursing administration at Cedars-Sinai for their enthusiastic support and cooperation in implementing this Quality Improvement project. Likewise, we would like to thank the chairs of the Obstetrics & Gynecology, Psychiatry, Nursing, and Case Management departments, and the Nursing Healthcare Teams in the units putting this plan into action. We would like to thank Maternal Mental Health Now for the long-term collaboration and the offered nurse training programs and educational materials for our patients. We would like to thank Siobhan Ford, LCSW, and Sarah Smithson, DO, for assisting in previous poster presentations of subsets of these data. We are grateful for the technical assistance provided by the Research Informatics and the Biostatistics Cores at Cedars-Sinai who also supported this work. Finally, we are greatly indebted to the Helping Hand, who believe women's mental health care is part of total health care for all women, for financially supporting our efforts.

Supplementary materials

Supplementary material associated with this article can be found in the online version at [doi:10.1016/j.ajogmf.2022.100581](https://doi.org/10.1016/j.ajogmf.2022.100581).

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Received Oct. 19, 2021; revised Jan. 11, 2022; accepted Jan. 28, 2022.

The authors report no conflict of interest.

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