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A Quality Improvement Project: Adapting the Joy-in-Work framework in a Neonatal Fellowship Program To Improve Burnout

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Research Article

Keywords: Psychological Safety, Burnout, NICU, Wellbeing, Professional fulfillment, Healthcare, Job satisfaction, Medical Graduate Education, Fellowship and Residency

Posted Date: March 8th, 2026

DOI: https://doi.org/10.21203/rs.3.rs-8313164/v1

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Additional Declarations: No competing interests reported.

Abstract

Background

Health systems are strained by workforce shortages, administrative burdens, rising patient acuity, and economic instability. Fellows/residents have higher burnout rates as they navigate a system, they cannot control which erodes psychological safety, retention and impairs learning. Fellowship/residency program directors are accountable for maintaining fellows/residents' well-being and education while lacking the influence to improve clinical demands, posing a threat to accreditation. The Joy-in-Work Framework, developed by the Institute for Healthcare Improvement, is a quality improvement approach that shifts the paradigm by targeting system-level changes and engaging fellows/residents as "change makers" leading to improved psychological safety, well-being and agency. Joy-in-Work has been implemented successfully in clinical units but no evidence for implementation within a residency/fellowship training program. Our objective is to adapt the Joy-in-Work Framework into a fellowship training program, and report on its implementation and impact on physicians' well-being.

Methods

In this quality improvement study, we implemented the 4 steps of Joy-in-Work Framework in a neonatal fellowship training program in an NICU. Fellows engaged in "what matters" conversations through surveys and focus groups, identified impediments to Joy-in-Work, co-created ideas to address impediments, and prioritized implementation of two interventions. We assessed well-being indicators through a questionnaire administered at baseline and post-implementation, process and contextual measures.

Results

Survey response rates were 18/23 (78%) and 8/16 (50%). There was significant improvement in sense of control over workload from 28% (95% CI = 10%-53%) to 88% (95% CI = 47%-100%), burnout (emotional exhaustion) from 78% (95% CI = 52%-94%) to 50% (95% CI = 16%-84%) and notable increase in psychological safety, from 39% (95% CI = 17%-64%) to 75% (95% CI = 35%-97%).

Conclusion

Joy-in-work implementation is feasible and engaging. Making small changes within the scope of a program director at a low cost that focus on what matters to fellows, could have a significant impact on their autonomy, burnout, and psychological safety. Joy-in-Work Framework could be an effective path for improving well-being and safety within post-graduate training programs while maintaining operational excellence. Future research is required to evaluate generalizability, effectiveness and sustainability.

Background

Occupational Burnout is a serious phenomenon that affects physicians worldwide and impacts patient care and healthcare systems negatively which has been exacerbated by COVID-19 Pandemic. Medical trainees experience burnout more intensely due to lack of autonomy and self-efficacy, social isolation and at times, exposure to mistreatment.[1] In the 2021 Canadian Medical Association survey, medical fellow/residents reported a notable 1.5 folds increase in burnout and suicidal ideation in comparison to 2017 (CMA 2021 National Physician Health Survey).[2] Awareness of occupational distress and burnout among physicians and efforts to cultivate physician well-being have increased in recent years.[3] Multiple regulatory organizations like the Ontario Medical Association and Royal College of Physicians and Surgeons of Canada[4] and other organizations have declared addressing burnout among physicians as a top priority with a call for action to implement system-level changes.[5]

Burnout is multifactorial, originating from systemic issues, organizational culture and individual resilience skills. Many organization-led and physician-led strategies exist for tackling these factors of burnout, such as mindfulness and meditation, change in work schedule, communication skills training, and self-help workshops.[6,7] Leadership engagement has been described as the “antithesis” to burnout and has demonstrated effectiveness in improving physician well-being.[8]

A framework for improving engagement between leaders’ and healthcare providers is Joy-in-Work, which was developed by the Institute for Healthcare Improvement.[9] Joy-in-Work aims to tackle burnout by guiding organizational leaders to look beyond burnout as a transactional issue, and towards focusing on helping physicians find joy, meaning, and purpose in their work, and thus, build a positive work environment and foster team resilience. This framework empowers healthcare providers and restores their agency to undertake an active role in developing interventions that align with their values and focuses on what matters to them. Joy-in-Work framework incorporates an appreciative inquiry approach which involves the art and practice of asking questions that strengthen a system’s capacity to heighten positive potential. It mobilizes inquiry through crafting an “unconditional positive question” and leads to the co-creation of inspiring future images. The process of the appreciative inquiry naturally leads to the identification of the “pebbles in their shoes”, co-developing change ideas and applying improvement science to move from ideation to implementation. Joy-in-Work has been implemented at different clinical institutes and units and has been shown to be effective in improving the well-being of healthcare providers.[9–11] The objective of the current study is to describe the implementation of Joy-in-Work in an academic neonatology fellowship training program to foster a culture of well-being and psychological safety among fellows.

Materials and Methods

Setting

The NICU at McMaster Children's Hospital is a 72 bed Level 3 NICU that serves the Hamilton-Niagara region in Ontario, Canada. It is a referral academic centre with transport service and high-risk deliveries that serves a catchment population of around 2,700,000. McMaster NICU is one of the busiest NICUs in Canada with an average of 1300–1500 admissions and 3500 to 4000 deliveries annually. At McMaster NICU, staff medical coverage is provided by acute care neonatal nurse practitioners and physicians including neonatologists, neonatal fellows and pediatric residents rotating in the NICU.

Participants

Fellows enrolled in the Neonatal-Perinatal Medicine Fellowship Program (NPM) at McMaster University were included in this study. This is a two-year subspecialty pediatric fellowship program. Physician fellows in the program join after completing their pediatric residency and spend 80% of their rotations at the NICU at McMaster Children's Hospital. Our study did not include pediatric residents as they rotate in our NICU for only two months over four years of training.

Intervention

Our intervention was the adaptation and implementation of the Joy-in-Work framework into the Neonatal-Perinatal Medicine Fellowship Program (NPM) at McMaster University to improve engagement, burnout and psychological safety (Fig. 1). To prepare for the implementation, we started by identifying champion leaders who participated in a Joy-in-work workshop. Champion leaders were invited to participate based on their leadership roles including the NPM Program Director, Neonatology Division head, NICU clinical manager, and the chief fellows. In addition, two neonatologists and two fellows responded to a call of interest to join the Joy-in-Work team.

We followed the four steps of implementation as outlined in the Joy-in-Work framework. First, we engaged neonatal fellows to identify what matters to them through an appreciative inquiry approach.[12] Our engagement strategies included conducting an anonymous pre-implementation survey to all neonatal fellows followed by semi-structured focus groups. The survey included questions to assess burnout, psychological safety, teamwork and control over workload. We added other questions to collect qualitative data about what matters to neonatal fellows at work, contributing factors to burnout (barriers to joy) and suggestions to mitigate burnout in the pre-implementation survey.

As a second step, we discussed the survey results in the focus groups, which led to further exploration of neonatal fellows' perspective on impediments to Joy-in-work, by identifying "the pebbles in their shoes". We mapped the contributing factors to burnout[13] using a fishbone diagram (Fig. 2). The neonatal fellow group brainstormed different change ideas (interventions) and engaged in developing a driver diagram (Fig. 3). Subsequently, the neonatal fellow group selected 2 change ideas (interventions), prioritizing what matters to them, and focusing on what we can change within the scope of our influence as a fellowship program. This task required about four group meetings over a period of one month.

Ultimately, the focus groups identified two priority change ideas:

1. Change the neonatal fellows' on-call schedule according to their preference to enable a sense of autonomy.
2. Improve work-life integration by moving the afternoon handover time by 30 min. earlier which would allow fellows to spend more time with their families.

In the third step, we committed to a system-approach for implementing Joy-in-Work. We formed interprofessional working groups of relevant stakeholders to implement the two change ideas consecutively using Plan-Do-Study-Act (PDSA) cycle. By involving fellows as stakeholders, we ensured shared responsibility at all levels. Finally, we tested our approach to improving Joy-in-Work by conducting a post-implementation survey and by examining process measures, contextual factors and engagement.

Measures

Outcome measure

We had two primary outcomes; 1) Burnout-emotional exhaustion domain, measured by an abbreviated single-item question based on Maslach Burnout Inventory.[14–16] This was defined as a response of "strongly agree" or "agree" on the question "I regularly feel burned out from my work", and 2) Sense of control over workload, also defined as a response of "strongly agree, agree or neutral" on the question "I feel I do have control over my daily workload".

Our secondary outcomes included: Other domains of burnout: depersonalization and personal achievement, psychological safety, perception of organization, teamwork and sense of recognition. These outcomes were assessed using a 12-item survey developed by the Institute of Health Improvement aimed at assessing the overall state of Joy-in-Work in an organization (Supplementary File). Each item in the survey was assessed on a 5-point Likert scale with response options ranging from "Strongly agree" to "Strongly disagree" (Fig. 4). The survey was conducted pre- and post-implementation.

Data was collected at two time points, baseline pre-implementation in October, 2018 and post-implementation in July, 2029 (9 months after the initiation of Joy-in-Work process). The positive connotation questions (such as teamwork and recognition) were counted if the participants scored neutral, agree, and strongly agree; the negative connotation questions (such as burnout and feeling tired) were counted if participants responded with "agree" and "strongly agree". We also assessed fellows' satisfaction of the new scheduling (on a scale of 1 to 100) using an anonymous pulse survey mid-way between the first and second intervention.

Process measures

We identified process measures for the two change ideas that were implemented. For the preferred on-call schedule change idea, we assessed the adherence to the new schedule rules, defined as the

percentage of fellows that the neonatal program was able to assign according to the new schedule rules. Data was collected for each 4-week time block over the entire study period.

For the second change idea, moving the handover time 30 min earlier, we assessed handover compliance through an unstructured journal kept on the NICU to record feedback from all stakeholders, regarding any deviation from the handover schedule. The journal was reviewed on a weekly basis by members of the working group.

Contextual factors: physician workload

We monitored fellows' workload throughout the study period using two surrogate measures:

(1) the average number of daily admissions and discharges of the two months preceding each survey, and during the month of survey, and (2) the average staffing shortage rate per month for each shift (weekdays, weekend/holiday day shifts and night calls). In this context, staffing pertains to nurse practitioners and fellows. We defined daily staffing shortage rate as: *Daily staff shortage rate (%) = (minimum staff required- actual staff)/ minimum staff required x100. An interdisciplinary group of medical staff* leaders defined the minimum number of staff required a-priori for weekdays, week-end day shifts, and night calls to be 11, 6 and 3, respectively. The data was collected retrospectively through the scheduling electronic software Qgenda (Qgenda LLC, Atlanta, GA, USA).

Balancing measures

As fellows and nurse practitioners share the same handover time, to monitor if the change in handover time had any unintended effects on nurse practitioners, we assessed nurse practitioners' satisfaction through a journal kept on the NICU, and through seeking input from the nurse practitioners' lead. The journal had an unstructured free text format, participants could leave their contact information or write anonymous comments. The journal was checked on a weekly basis for three months post-implementation. Furthermore, unintended consequences and fellows' satisfaction were captured in a pulse anonymous survey conducted two months after implementation started.

Data analysis

For our outcome measures, the responses of all 12 questions from the Joy-in-Work survey were tabulated in each of the two surveys. We calculated the proportion of individuals who responded agree or strongly agree (i.e. "affirmative") for each question, and computed the 95% confidence interval of this proportion, using the Clopper-Pearson method.[17]. For process measures, we graphed the adherence to work schedule using a run chart and reported other measures descriptively. For workload measures, we likewise graphed the staff shortage over time. Finally, the 95% CI for average daily admissions and discharge in the two months preceding each Joy-in-Work survey were calculated using the student-t test. All analyses were conducted for exploratory purposes in Microsoft Excel (Microsoft Inc, Redmond, WA, USA).

Ethical consideration

Ethics review was waived by the Hamilton Integrated Research Ethics Board (HiREB), Hamilton, Ontario, Canada, as the project was deemed to be quality improvement and therefore did not require formal research ethics review, in accordance with the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans (TCPS-2). Verbal informed consent was sought from all participants, participation was voluntary, and all survey responses were collected anonymously. All procedures were conducted in accordance with the Declaration of Helsinki.

Results

Demographic characteristics of participants

The neonatal perinatal fellowship program is a small postgraduate training program. In 2018–2019, female fellows represented 44% of the fellows in the program. To protect the confidentiality and anonymity of responses, we chose to limit the collection of demographic data from respondents. A total of twenty-three and sixteen neonatal fellows were invited to fill out the Joy-in-Work surveys in October 2018 and July 2019, respectively. Of note, July is the start of the academic year, and thus, 7 fellows of our initial cohort graduated and were not able to participate in the second survey. Of those, the response rates were 78% (18/23) and 50% (8/16) respectively.

Focus groups

We conducted a baseline survey where fellows identified factors contributing to burnout which mostly focused on systemic organizational factors; notably, fellows did not identify personal individual factors as drivers of their burnout. In the same survey, fellows generated over 20 ideas for improving burnout and well-being, predominantly centering on expensive, long-term interventions such as hiring new staff. In the second step, we organized four focus groups, ensuring the participation of every neonatal fellow in at least one session. In the focus groups, we shared the survey results transparently, and we engaged the fellows in co-creation. During the co-creation of solutions in the focus groups, we redirected the discussion to emphasize "What matters conversations" and to focus on interventions within the scope of the NPM fellowship program. Consequently, fellows prioritized aspects like work-life integration and a sense of autonomy.

Outcome measures

The findings from the Joy-in-Work surveys are shown in pre-implementation and post-implementation surveys are shown in (Fig. 4). Sense of control over workload increased significantly from 28% (95% CI = 10%-53%) to 88% (95% CI = 47%-100%). Burnout in the emotional exhaustion domain decreased from 78% (95% CI = 52%-94%) to 50% (95% CI = 16%-84%) between the first and second surveys. We observed improvement in other burnout-emotional exhaustion related-attributes and personal achievement: feeling tired in the morning, ability to participate in improvement efforts, having positive influence on people, where an improvement was observed between the first and second survey. On the other hand, the

burnout-depersonalization domain increased from 28% (95% CI = 10%-53%) to 38% (95% CI = 9%-76%). Attributes related to organizational culture show more mixed trends. Participants felt better informed (44% versus 50%), better supported by their team (83% versus 88%), having more opportunities for feedback about change (67% versus 75%), and more recognized for their contributions (67% versus 88%). However, their perception of the organization's excellence decreased (94% versus 75%). We also observed a 1.5-fold increase in self-perception of psychological safety, from 39% (95% CI = 17%-64%) to 75% (95% CI = 35%-97%). Fellows' satisfaction with the new call schedule was assessed using a pulse survey, fellows were extremely satisfied and reported a median satisfaction score of 99.5 (not a percentage) out of 100.

Process measures

The percentage of fellows who were scheduled according to the new call schedule preference was evaluated monthly from July 2018 to July 2019. Adherence to the new call schedule ranged from 36.8% to 66.7% pre-implementation, and 59% to 88% post-implementation (Fig. 5).

Workload (contextual factors)

Workload in the two months preceding the pre-implementation and post-implementation Joy-in-Work surveys was similar assessed by average daily admissions and discharges was 3.7 and 3.8 before October 2018, 3.6 and 3.7 before July 2019. Our unit was consistently short-staffed (Fig. 6). Notably, staffing shortage was particularly acute in June 2019, which preceded the 2nd Joy-in-Work survey,

Balancing measures

This is to assess unintended consequences, as Nurse practitioners' input was sought prior to implementation, Nurse practitioners did not express any complaints regarding their work schedule during the implementation of this intervention. Project stakeholders did not report any concerns about the change in the handover schedule in the NICU journal.

Discussion

In this study, we described the implementation of the Joy-in-Work framework into a fellowship training program that demonstrated good fidelity to interventions, feasibility, and acceptability. Our approach showed improvement in control over workload, burnout, psychological safety, and fellows' satisfaction. Despite burnout improvement, the increase in the depersonalization domain highlights the necessity for a multi-faceted approach to address the diverse needs of learners, including programming for identification and early interventions for severe burnout and mental health concerns. The process also aims to foster a shared sense of purpose among multidisciplinary stakeholders.

A key finding of our study is the sharp improvement in psychological safety. The process of implementation itself may have triggered a culture shift towards a more positive attitude and improved perception of psychological safety over time. Joy-in-Work framework highlights the leader's role in cultivating psychological safety by providing the safe space required to empower fellows to share ideas

and have agency. In addition, engaging fellows as essential stakeholders and partners in leading and implementing change may be hypothesized as a key driver for achieving positive psychological safety outcomes.[10–12]

Another key finding is the association between implementation of Joy-in-Work Framework with significant improvement in burnout rates despite similar workloads and short staffing at both times. This finding suggests that the Joy-in-Work is likely the reason for the observed decline in burnout rates.

What we observed is that the change ideas (interventions) that have been implemented were small, limited in scale and cost, and within the scope of the fellowship training program yet had a significant impact on fellows' well-being. We hypothesize that engaging fellows in the process of selecting, prioritizing, co-creating, and implementing interventions that focus on what matters to them, can improve their well-being. System-level strategies to improve control over workload and work-life integration could ameliorate stress associated with managing the competing priorities of being both a healthcare provider and an aspiring medical learner.[19]

We observed some increase in callousness and a worsening in the perception of the organization's excellence. A potential explanation might be that the NICU leaders lack control over higher-level organizational factors, including short staffing and rising economic challenges restricting their ability to address systemic issues effectively. This finding suggests that increasing psychological safety and seeking input from healthcare providers should be coupled with actionable strategies to address challenges at multiple levels of an organization.

A limitation of our study is that, by design of a fellowship program, we have a small sample size, and our staff changes every 1–2 years. Thus, we cannot say that our study provides "strong" evidence of the effectiveness of these interventions, in the context of evidence-based medicine. Rather, our study describes a path for integrating the Joy-in-Work framework into quality improvement initiatives to enable embedding well-being into all aspects of the organization.

Finally, we must clarify that Joy-in-Work is not designed as a prescriptive intervention, but rather a guiding framework for leaders on how to create a safe, engaging, and invigorating organization. Joy-in-Work principles foster and promote autonomy, agency, and collaboration in a shared accountability model.

Conclusion

This study provides a thorough inquiry on the process of the implementation and adaptation of the Joy-in-Work framework in a physician fellowship training program, and its perceived impact on various aspects of physicians' well-being and psychological safety. Joy-in-Work framework provides an approach for shared accountability and empowers frontline clinicians to identify and address what matters to them. Implementing small incremental systemic changes can have a significant positive impact when they focus on what matters to the fellows. A key success was an improvement in

psychological safety, which may justify future studies for improving safety culture. To foster a sustainable health promoting learning and work environment, future studies should evaluate integrating Joy-in-work in continuous quality improvement strategies, which may present a path for embedding well-being initiatives in medical education programs.

Abbreviations

Neonatal-Perinatal Medicine Fellowship Program (NPM)

Declarations

Ethics approval and consent to participate

Ethics review was waived by the Hamilton Integrated Research Ethics Board (HiREB), Hamilton, Ontario, Canada, as the project was deemed to be quality improvement and therefore did not require formal research ethics review, in accordance with the *Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans (TCPS-2)*. Verbal informed consent was sought from all participants, participation was voluntary, and all survey responses were collected anonymously. All procedures were conducted in accordance with the Declaration of Helsinki.

Consent for publication

Not applicable

Availability of data and materials

The datasets generated and/or analyzed during the current study are available from the corresponding author upon reasonable request.

Competing Interests

The authors declare that they have no competing interests.

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Authors' contributions

E.E.G., S.e.H. and L.T. contributed to the conceptualization and design of the study. Data acquisition was performed by E.E.G. and Z.J.H. Statistical analysis and interpretation were carried out by Z.J.H., L.T. and G.F. The original manuscript draft was prepared by Z.J.H., G.F. and E.E.G., while S.e.H., T.C., L.T. critically reviewed and revised the manuscript. All authors read and approved the final version of the manuscript.

Acknowledgements

We express our sincere thanks to Ms. Marina Boutros Salama for designing the infograph.

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Figures

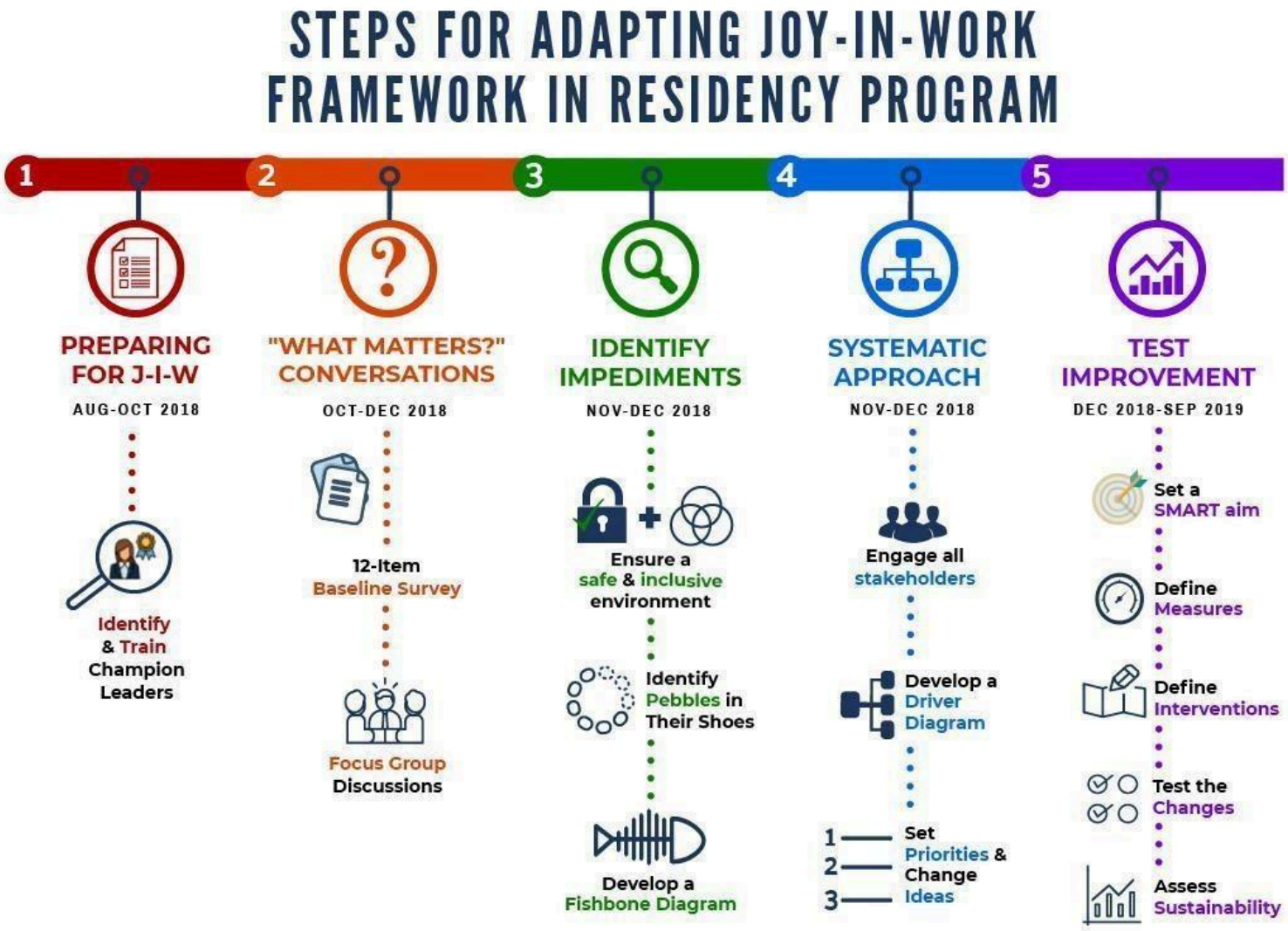


Figure 1

Joy-in-Work implementation steps, timeline, and interventions implemented

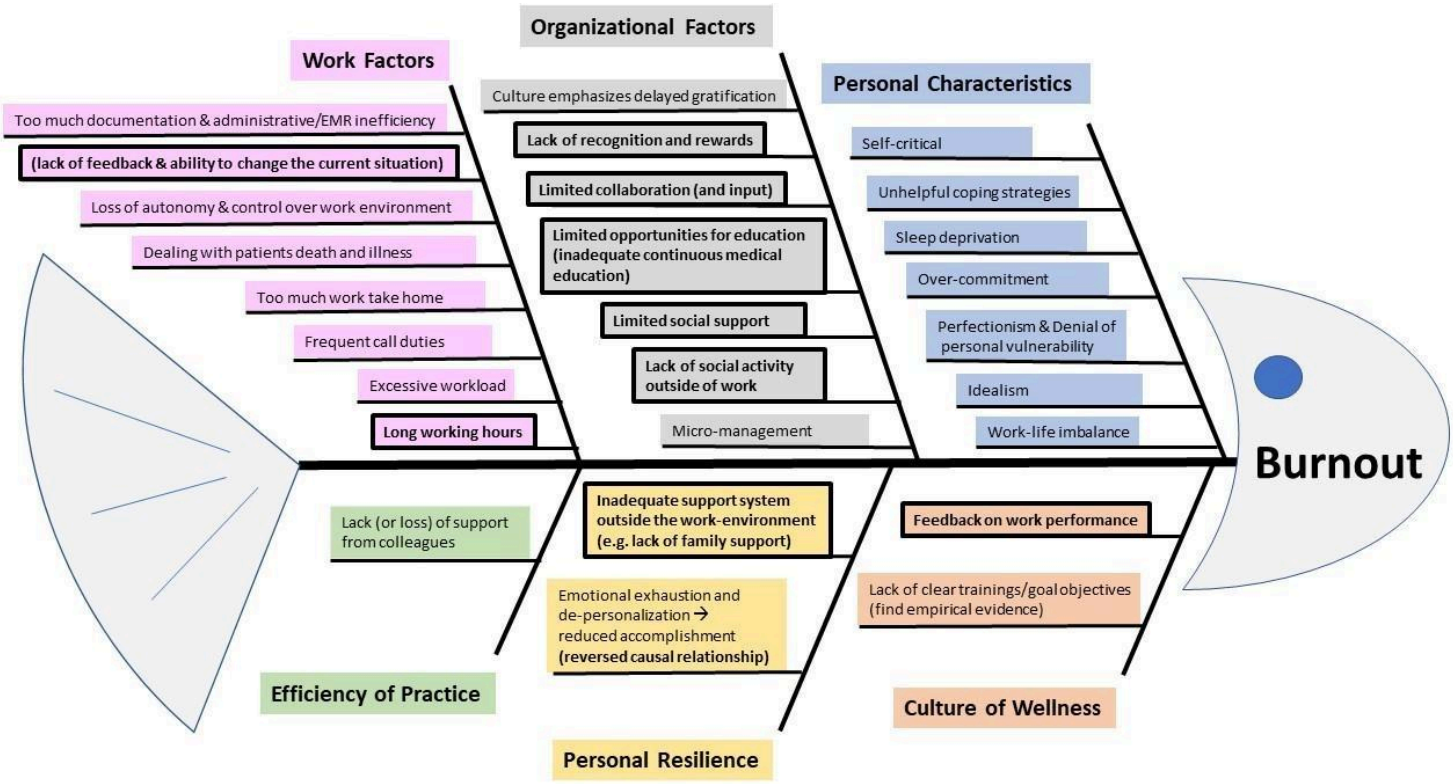


Figure 2

Fishbone diagram of burnout determinants. Factors aligned with the literature highlighted in a black frame.

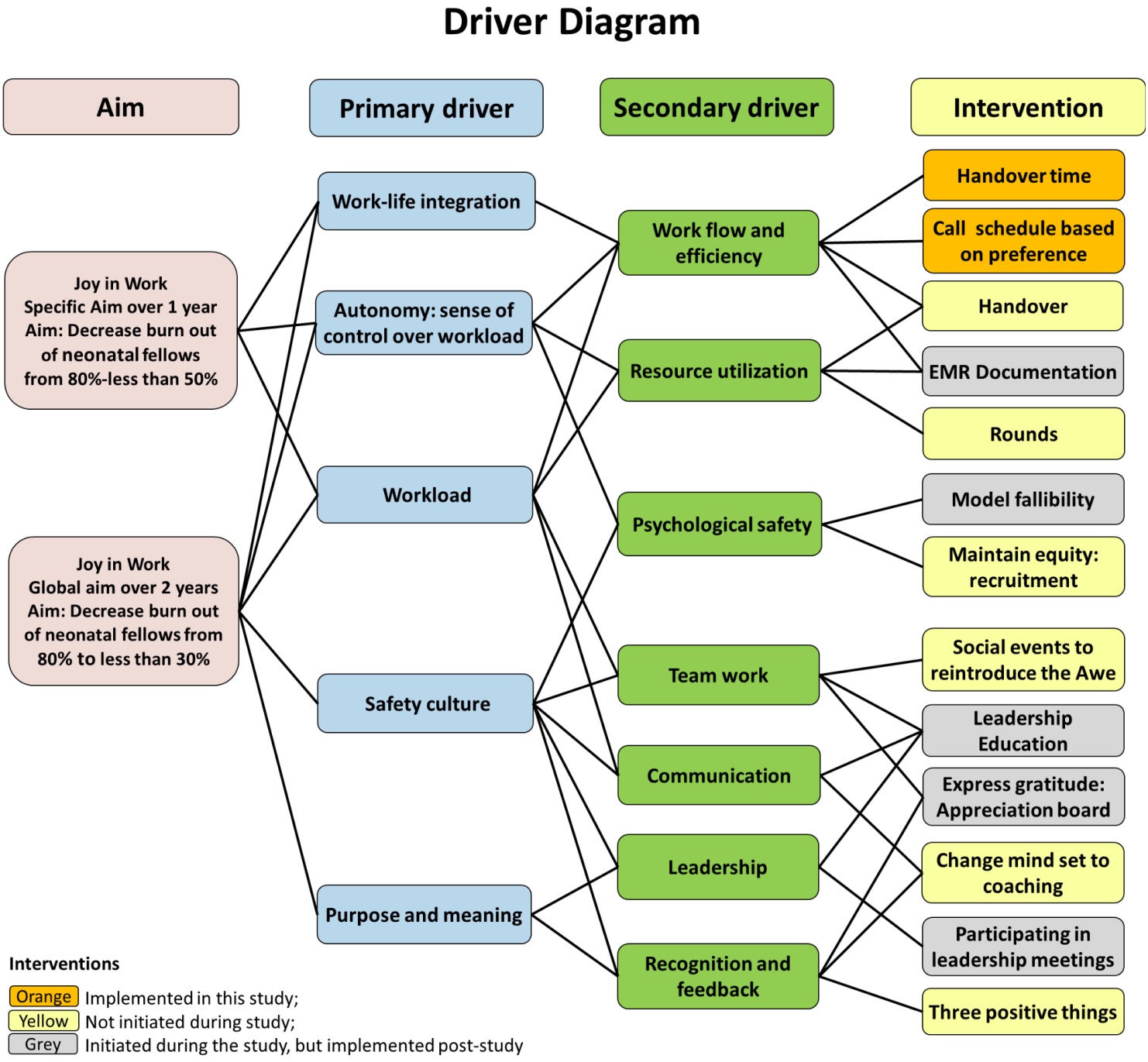


Figure 3

Driver diagram of global aims, specific aims, drivers and interventions to improve burnout rates

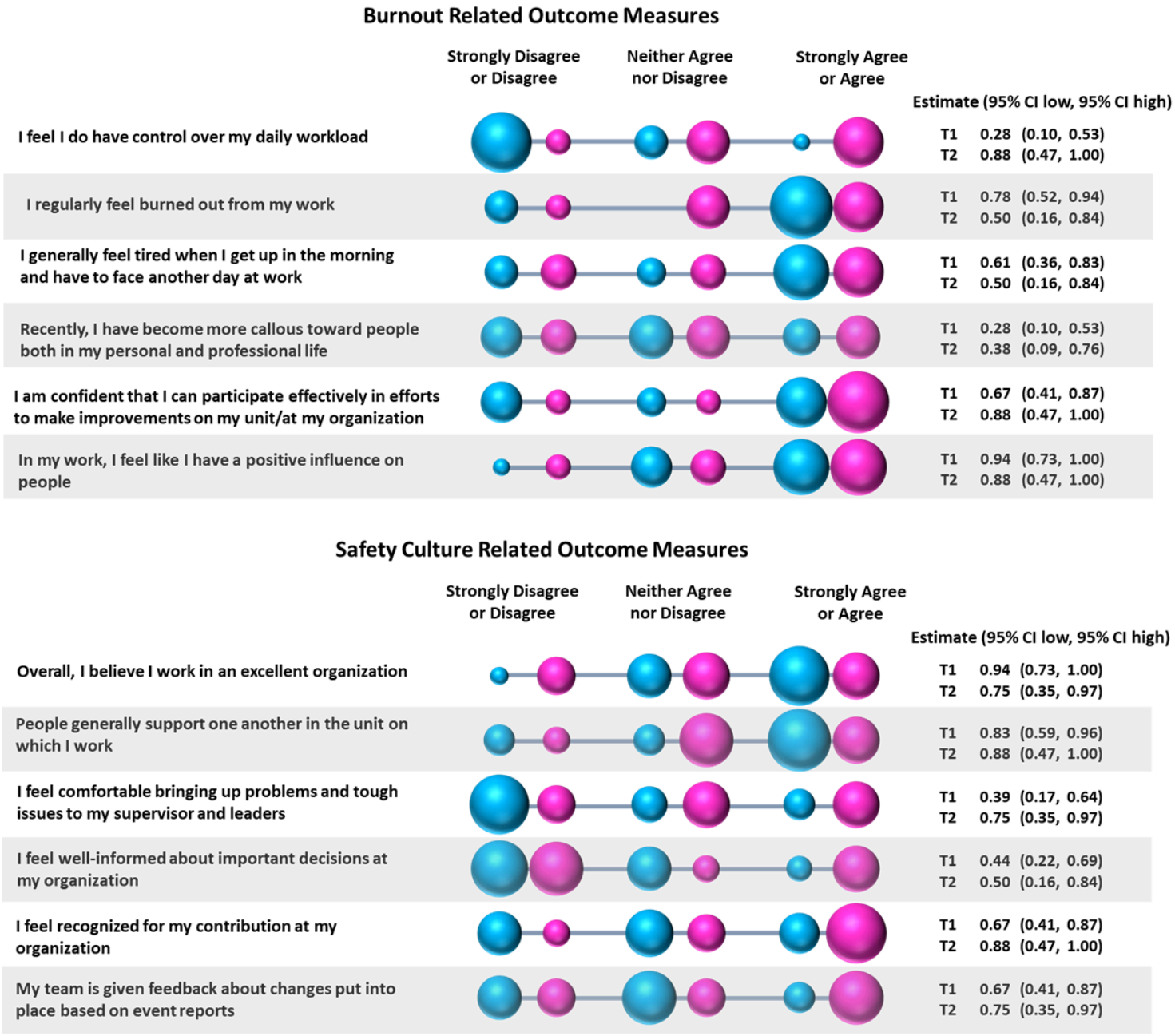


Figure 4

Results of pre- (T1) and post-implementation (T2) Joy-in-Work surveys presented as proportions (95% CI)

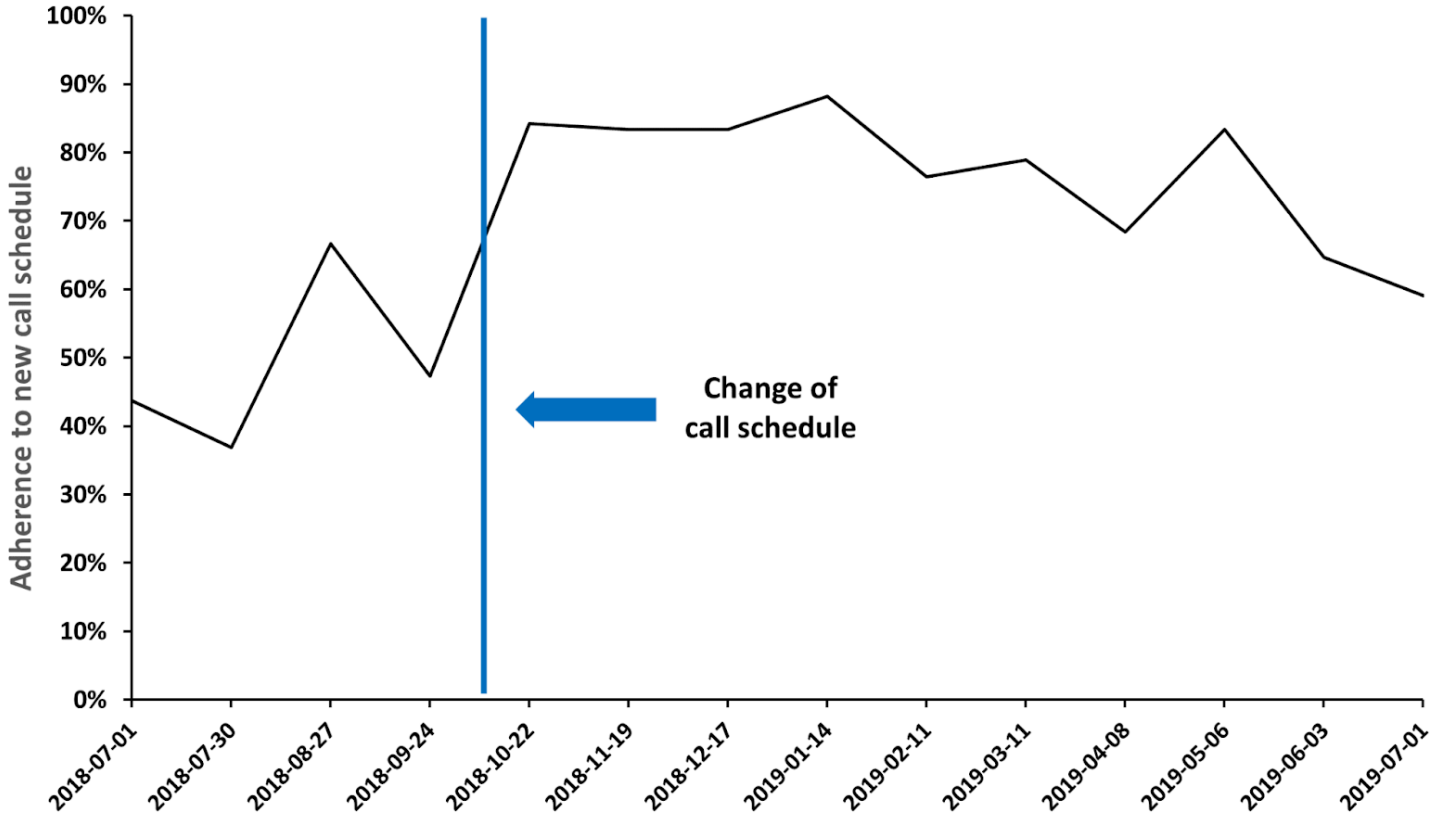


Figure 5

Adherence to call schedule

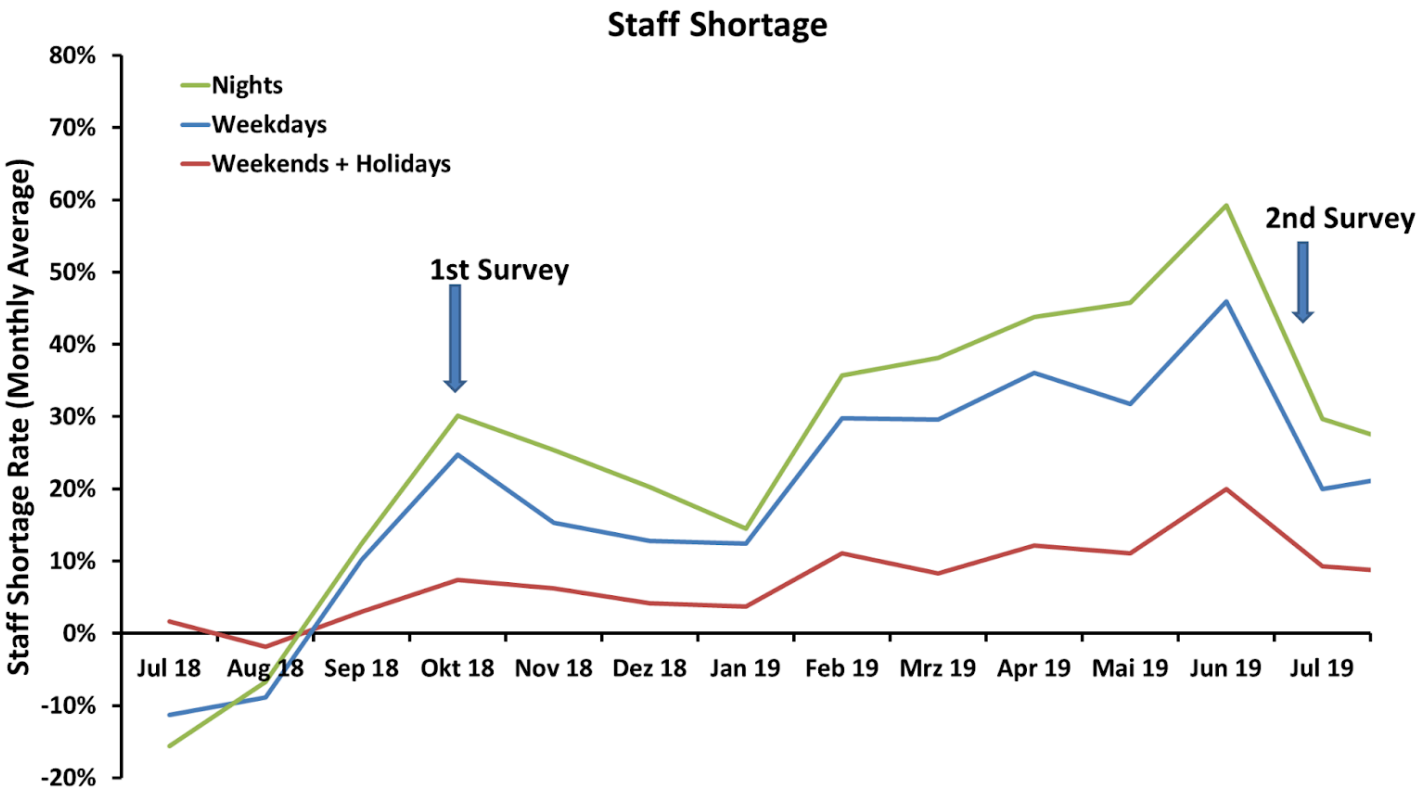


Figure 6

Staffing shortage of fellows and nurse practitioners between July 2018 and July 2019

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- PreimplementationJoyinWorksurvey.pdf