International Journal of Africa Nursing Sciences 20 (2024) 100651

Contents lists available at ScienceDirect

International Journal of Africa Nursing Sciences

journal homepage: www.elsevier.com/locate/ijans

Application of Kotter's 8-steps model to reduce maternal mortality due to third delay in sub-Saharan Africa

Mpumelelo Sibanda [a], Enos Moyo [b], Tafadzwa Dzinamarira [c,*], Grant Murewanhema [d]

[a] National University of Science and Technology, Department of Obstetrics and Gynecology, Zimbabwe
[b] University of KwaZulu-Natal, School of Nursing and Public Health, South Africa
[c] School of Public Health, University of Pretoria, South Africa
[d] Unit of Obstetrics and Gynaecology, Faculty of Medicine and Health Sciences, University of Zimbabwe, Zimbabwe

ARTICLE INFO

Keywords:
Maternal mortality
The 3 delays
Third delay
Kotter's model

ABSTRACT

Maternal mortality remains a significant public health challenge globally, with most deaths occurring in lower-to-middle-income countries. Sub-Saharan Africa (SSA) accounted for 70% of global maternal deaths in 2020. The three-delays model is widely used to account for maternal deaths, with the third delay, which is attributed to delays in receiving intervention in healthcare institutions, being the most common cause. The third delay is attributed to several factors. Implementation of the interventions that can be used to address these factors can make use of Kotter's 8-step change model. Although there is limited evidence on the use of this model to reduce maternal mortality, it has been used in several industries with great success. In this article, we discuss the application of Kotter's model in addressing the third delay in SSA, as well as the challenges and recommendations in the application of the model. The use of the model in trying to reduce the third delay as a cause of maternal mortality may lead to some challenges. Some of the challenges include its paucity of information on how to sustain change, its numerous steps which are laborious and time-consuming, and its lack of usefulness when change requires a bottom-up approach. However, with some adjustments to the model, we believe that SSA can successfully use the model to reduce third delays as a cause of maternal mortality in the region.

1. Introduction

Maternal mortality remains a significant public health challenge, despite several advances in pregnancy care globally. According to the World Health Organization (WHO), there were an estimated 287 000 maternal deaths in 2020 globally, 95 % of which occurred in lower-to-middle-income countries (LMICs) (WHO,2023). Sub-Saharan Africa (SSA) accounted for 70 % of global maternal deaths in 2020. Disparities in maternal mortality ratios (MMR) between the poor and affluent populations have continued to highlight the differences in the quality of care in these different groups (UNICEF, 2019). Reducing maternal mortality (MM) remains a key global health priority and is well outlined in the Sustainable Development Goals (SDGs) (UNDP, n.d). Although the MMR reduced from 339 deaths/100 000 live births in 2000 to 223 deaths/100 000 live births in 2020 globally, SSA is still lagging. In SSA, MMR reduced from 802 in 2000 to 536 in 2020, which is still more than double the global MMR (UNICEF, 2019). All the countries in SSA are still a long way from realizing SDG 3.1 targets of reducing the global MMR to less than 70 deaths per 100 000 live births by 2030 and leaving no country with greater than the global average (UNDP, n.d).

Thaddeus, and Maine (1994) coined the three-delays model conceptual framework, which is now widely utilized in accounting for maternal deaths. The first delay is attributed to the delayed decision-making to seek help after a complication has occurred, the second delay is the delay incurred in reaching the healthcare institution, and the third delay is the delay incurred whilst awaiting intervention in the health institution (Thaddeus & Maine, 1994).

About 96.8 % (Fig. 1) of all maternal deaths are attributed to the third delay (Mgawadere, et al., 2017). The third delay is attributed to several factors. These include healthcare worker (HCW) shortages, with inadequately skilled clinicians who carry poor attitudes, perennial unaddressed drug and equipment shortages, paucity of guidelines and unclear policies, poor infrastructure, and undependable water and electricity (Fig. 2) supplies (Knight & Self, 2013). Human resources issues are noted to be the most common barrier in addressing the third delay. They have been cited to arise from inadequately trained

* Corresponding author.
E-mail address: u19395419@up.ac.za (T. Dzinamarira).

https://doi.org/10.1016/j.ijans.2023.100651
Received 3 June 2023; Received in revised form 14 October 2023; Accepted 23 December 2023
Available online 29 December 2023

personnel who ideally should benefit from in-service emergency maternal and neonatal training and continuous career advancement (Wanaka, et al., 2020). This delay is also seen in understaffed units, that have highly demotivated clinicians because of being overworked and poorly remunerated (Actis Danna, et al., 2020). The COVID-19 pandemic exacerbated pre-existing HCW shortages as workers from countries in SSA migrated to the West for better working conditions. This delay can also result from shortages of medical sundries, unavailability of essential equipment, and lack of timely access to blood products (Md Illias, et al., 2019). The delay can also occur in units with poor clinical guidelines and policies, where clinicians adhere to obsolete, non-evidence-based policies and interventions (Knight & Self, 2013). Facility infrastructural deficiencies cause delays through disruption of theatre services, perennial water rationing, and electricity outages result in mothers not benefiting from interventions like Caesarean sections when they are meant to (Actis Danna, et al., 2020).

Some interventions that can be used to address the third delay include having adequate institutional infrastructure that allows for easy provision of emergency obstetrics and neonatal care, consistent availability of medical sundries and well-equipped units, well-trained and highly motivated clinicians, evidence-based care with an emphasis on improved quality, regular surveillance of maternal morbidity and mortality (Morof, et al., 2019). Using Kotter's 8-step change model, implementation of the above interventions may subsequently reduce unnecessary delays and hence prevent avoidable maternal deaths. Kotter's model of change management is a popular framework used to guide organizational change. The model consists of eight steps that organizations can follow to successfully implement change (Pollack & Pollack, 2014). While Kotter's model has been successfully applied in various industries (Pollack & Pollack, 2014), a brief literature review revealed that there is a paucity of evidence for its implementation in maternal mortality reduction strategies. Below is the diagrammatic illustration of Kotter's 8 steps.

In this article, we discuss the application of Kotter's model in addressing the third delay in SSA, as well as the challenges and recommendations in the application of the model.

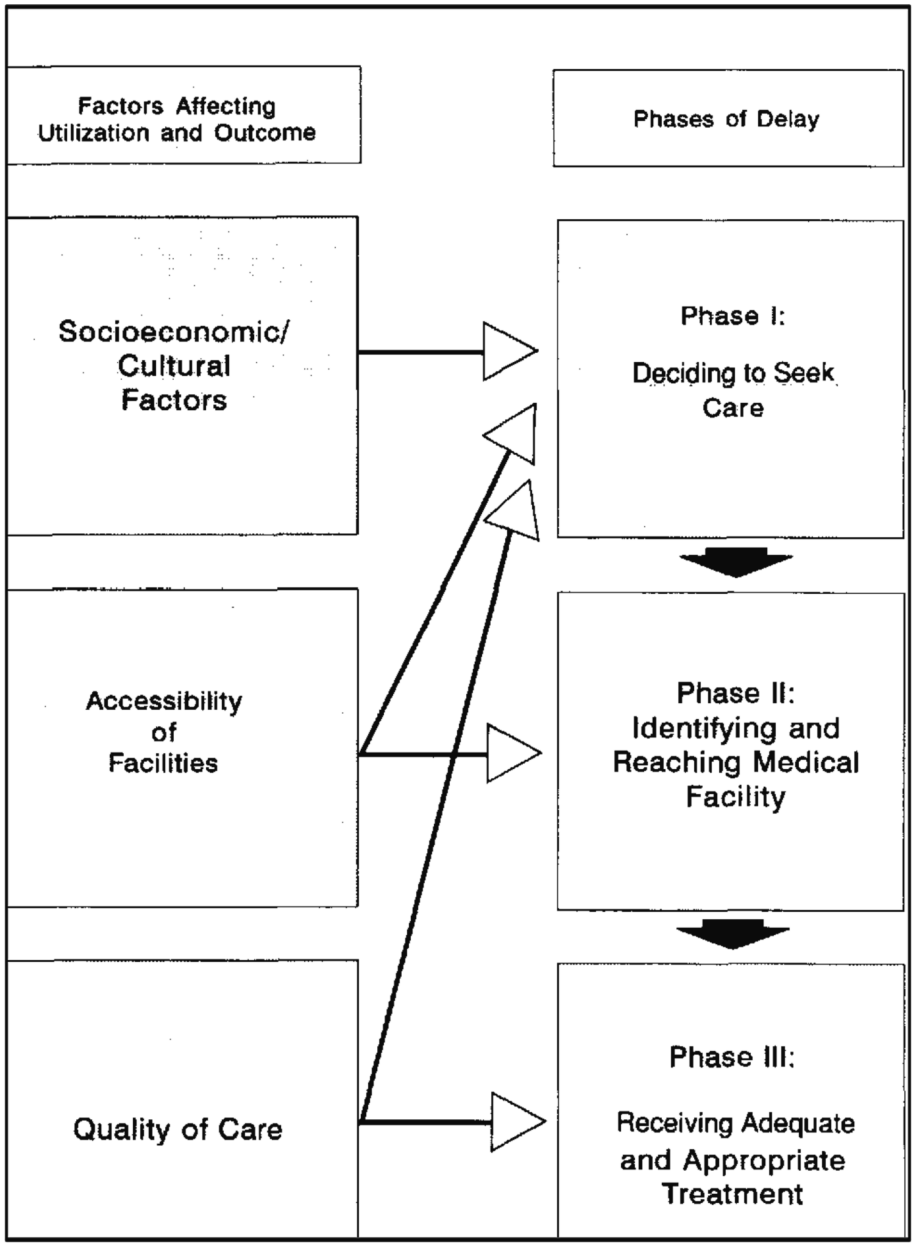

Fig. 1. The three delays model (Adapted from Thaddeus, and Maine, 1994).

2. Application of Kotter's 8-steps model to reduce the third delay

Implementation of change has always been a difficult task and success is achieved when there has been meticulous planning and involvement of key stakeholders (Ranasamy & Ramaswamy, 2017). Change management is the re-invention and growth of an organization to suit the changing environment and subsequently remain viable and sustainable. This transition is from the current status quo to the required state (Siddiqui, 2017). Failure follows any attempted implementation when there is inadequate planning, and obscurity of the methodology of change (Ranasamy & Ramaswamy, 2017). Complacency, failure to create a coalition, undervaluing the effect of the vision, and subsequently under-communicating it, allowing obstacles to engulf the vision, unable to create short-term victories, and celebrating too early, are factors that have been identified as barriers to effective change (Edwards & Saltman, 2017).

2.1. Step 1: Create urgency

Kotter's model is founded on the principle that organizations and people become complacent and resistant to change, and if the change process is initiated, they tend to ignore some important steps that are necessary for change (Kotter, 2012). Creating a sense of urgency entails the leader, in this case, the head of the department, conscientizing his/her colleagues, who are essentially fellow clinicians, of the unacceptably high maternal mortality in their unit due to delays in interventions at the institution. The maternal deaths can be urgently reviewed, and the review meeting can be used to cultivate a sense of urgency in the department in dealing with the deaths by addressing the third delay.

2.2. Step 2: Form a powerful coalition

For significant changes to occur, buy-in from multiple stakeholders is necessary, and this coalition should be made up of key leaders of respective arms of the auxiliary departments, those with different expertise, credibility, reputation, and skills for change (Carman, et al., 2019). In a maternity unit, the team should be made up of the Head of the hospital, the Clinical Director, the Head of the Department, the Head of Nursing Services, the head of the accounting department, the head of human resources, the head of procurement, the head of pharmaceuticals, the head of operations department, Consultant Obstetrician-Gynecologists, Hospital Medical Officers, and Midwives.

2.3. Step 3: Create a vision for change

Vision creation is important in establishing change, it gives clarity of purpose and enables the team to have a clear perspective of the future (Kotter, 2012). Moulding the vision with the rest of the team allows for buy-in from the onset and increases the chances of success (Harrison, et al., 2021). The vision statement should be pliable, doable, conceivable, focused, communicable, and desirable (Ranasamy & Ramaswamy, 2017). The vision of the unit should be congruent with the 2030 United Nations SDG target of reducing the maternal mortality ratio to less than 70/100000 live births (UNDP, n.d). The vision to reduce maternal deaths attributed to the third delay in maternity units should be realized by offering appropriate, timeous care during delivery (Morof, et al., 2019).

2.4. Step 4: Communicating the vision

Creating a vision alone is not sufficient; rather it should be coupled with an unabated drive highlighting the new strategies. Although communication was identified by Kotter as one of the important ingredients to the successful implementation of a vision, it is often poorly done (Lv & Zhang, 2017). This is often achieved through a mixture of visual messages, audio messages, and kinesthetic messages (Ranasamy & Ramaswamy, 2017). In maternity units, pictures of women with cases that were near misses due to timeous interventions can act as strong visual stimuli, and auditory messages re-emphasizing the need for timeous intervention from the hospital leadership can strengthen the belief in the vision. The message should be continuously repeated until everyone buys into it.

2.5. Step 5: Empower action

No leader should believe that they can transform an organization alone, but rather empowerment of the followers allows for success, by allowing designated auxiliary departments to perform their assigned tasks. When staff members feel empowered, their autonomy develops, and trust is established. Training is an essential part of empowering staff to change (Salmela, et al., 2012). In the context of a maternity unit at a hospital, the head of operations should be assigned to infrastructural improvements, with special attention awarded to the renovation of dilapidated theatres, which are common in LMICs, and the same department should ensure the continuous, uninterrupted availability of water and electricity (Morof, et al., 2019). The procurement and pharmacy department should strengthen supply chains including surgical equipment. The health ministries should facilitate the recruitment of

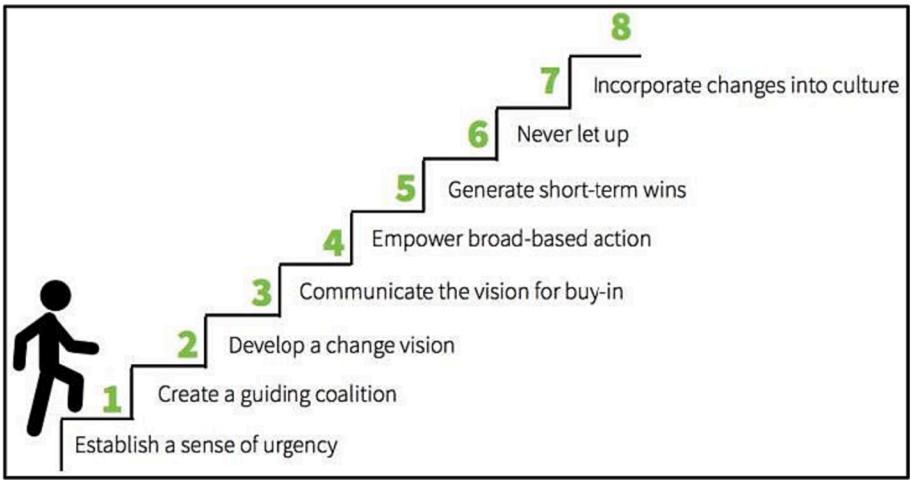

Fig. 2. Kotter's 8-steps model (Adapted from: Nakigudde, 2019).

more nurses, doctors, and midwives, including the improvement of workers' welfare through better salaries and improved working conditions. A Specialist Obstetrician-Gynecologist should be assigned to oversee the implementation of evidence-based practices and the chairing of maternal death audit meetings which should be conducted monthly (Morof, et al., 2019).

2.6. Stage 6: Generating short-term wins

The celebration of short-term wins helps in propelling momentum and helps solidify the change narrative. These should be clear for everyone to see and be related to the injected changes (Crain, et al., 2022). One way of raising awareness of these wins is through storytelling, as opposed to abstract and PowerPoint presentations. Improvements in the presentation to Caesarean section time should be celebrated. Monthly maternal mortality audits should highlight a reduction in deaths and respective departments should highlight their victories in supporting the vision through their respective interventions.

2.7. Stages 7 and 8: Consolidating gains and producing more change, and anchoring new approaches in the culture

Long-term achievements are dependent on persistent short-term wins. Leaders as well as key stakeholders are central to cultivating the change narrative, and they should continue to call for continuous improvement (Kotter, 2012). Continuous and sustained improvements in the maternity units reflected by timeous interventions that contribute to a reduction in maternal mortality should be a new culture that needs cultivation.

3. Challenges and recommendations in the application of Kotter's 8-steps model

The Kotter model is regarded as a preparatory initiative with more emphasis ploughed on building acceptability for change rather than emphasizing the actual change process (Kotter, 2012). The model has often been viewed as a great change initiator, good at starting changes, but a rather poor change maintainer and struggles to maintain change, with a paucity of information on how to sustain change (Siddiqui, 2017). One of the major merits of the Kotter's 8-step model is its clear description and guidance in various steps to be followed, which allows for easy application, although some may view this as a mechanical model. These numerous steps can be regarded as a major demerit that requires that all the steps to be followed and skipping any of these steps can result in a ripple effect and subsequent failure of implementation. This results in a laborious exercise which is time-consuming (Kotter, 2012). It is regarded as a top-down initiative that hardly allows for participation from subordinates and is not very useful when change requires bottom-up approaches (Siddiqui, 2017). However, multi-stakeholder leadership engagement may cultivate a buy-in for the respective auxiliary leadership and increase the chances of success during implementation (Kotter, 2012). Supplementation of the Kotter's 8-steps model includes the creation of a step zero, where the maternal deaths happening in the institution are highlighted, and to avoid a top-down narrative, the drivers of change identified from the stakeholders as well, who include nurses and junior doctors, eventually become the primary implementers of the change narrative. This inclusion from the onset enables easy communication and allows a buy-in from the members through the incorporation of their ideas and perspectives in problem-solving, and this may eventually enable easy urgency consciousness creation (Norin, 2019).

The Kotter model has often been criticized for its linearity. Its dependence on the previous step might derail progress especially if decisions depend on numerous offices, with individuals who are not entirely convinced of the change narrative (Weiss & Li, 2020). A feedback loop has been suggested as a possible solution (Weiss & Li, 2020). Although Kotter suggests coalition members of between 5 and 50 members, he doesn't clarify instances when more than one coalition is needed (Norin, 2019). Some challenges may need solutions beyond the institution, like the hiring of more nurses and doctors, the improvement of the workers' welfare, the acquisition of more medical equipment, and the constant availability of blood products. Hence, this coalition might not be sufficiently powered to address all these issues and would probably benefit from additional coalitions that are problem specific. Additional coalitions to develop new solutions might be needed as more challenges emerge.

4. Conclusion

Kotter's 8-step change model can be utilized as a vehicle for change in addressing challenges attributed to the third delay. Implementation of the interventions that can be used to address these factors associated with the third delay can make use of Kotter's 8-steps change model. Although there is limited evidence on the use of this model to reduce maternal mortality, it has been used in several industries with great success. The use of the model in trying to reduce the third delay as a cause of maternal mortality may lead to some challenges. Some of the challenges include the paucity of information on how to sustain the change, the laboriousness of the exercise since it requires all the steps to be followed consecutively to avoid failure of the change implementation, and its lack of clarification in instances where more than one coalition is required. However, with some adjustments to the model, we believe that SSA can successfully use the model to reduce third delays as a cause of maternal mortality in the region.

Funding

This study was not funded.

CRediT authorship contribution statement

Mpumelelo Sibanda: Conceptualization, Writing – original draft. **Enos Moyo:** Writing – review & editing. **Tafadzwa Dzinamarira:** Writing – review & editing. **Grant Murewanhema:** Writing – review & editing.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgement

None

References

Actis Danna V, Bedwell C, Wakasiaka S, Lavender T. Utility of the three-delays model and its potential for supporting a solution-based approach to accessing intrapartum care in low- and middle-income countries. A qualitative evidence synthesis. Glob Health Action. 2020; 13(1):1819052. https://doi.org/10.1080%2F16549716.2020.1819052.

Carman A, Vanderpool R, Stradtman L, Edmiston, E. 2019. A Change-Management Approach to Closing Care Gaps in a Federally Qualified Health Center: A Rural Kentucky Case Study. Prev Chronic Dis. 19; 16:E105. https://doi.org/10.5888%2Fpcd16.180589.

Crain, M. A., Bush, A. L., Hayanga, H., Boyle, A., Unger, M., Ellison, M., et al. (2022). Healthcare Leadership in the COVID-19 Pandemic: From Innovative Preparation to Evolutionary Transformation. *J Healthc Leadersh., 13*, 199–207. https://doi.org/10.2147/JHL.S319829

Edwards, N., & Saltman, R. (2017). Re-thinking barriers to organizational change in public hospitals. *Israel Journal Health Policy Research, 6*, 8. https://doi.org/10.1186/s13584-017-0133-8

Harrison, R., Fischer, S., Walpola, R. L., Chauhan, A., Babalola, T., Mears, S., et al. (2021). Where Do Models for Change Management, Improvement and

Implementation Meet? A Systematic Review of the Applications of Change Management Models in Healthcare. *J Healthc Leadersh., 13*, 85–108. https://doi.org/10.2147/JHL.S289176

Knight H, Self A, Kennedy S. 2013. Why Are Women Dying When They Reach Hospital on Time? A Systematic Review of the 'Third Delay'. PLoS ONE. 2013; 8(5):e63846. https://doi.org/10.1371/journal.pone.0063846.

Kotter, J. (2012). *Leading Change* (Illustrated ed.). Boston, Massachusetts: Harvard Business Review Press.

Lv, C., & Zhang, L. (2017). How can collective leadership influence the implementation of change in health care? *Chinese Nursing Research, 4*(4), 182–185.

Md Illias, K., Paswan, B., Anand, A., & Mondal, N. (2019). Praying until death: Revisiting three delays model to contextualize the socio-cultural factors associated with maternal deaths in a region with high prevalence of eclampsia in India. *BMC Pregnancy and Childbirth, 19*, 314. https://doi.org/10.1186/s12884-019-2458-5

Mgawadere, F., Unkels, R., Kazembe, A., & van den Broek, N. (2017). Factors associated with maternal mortality in Malawi: Application of the three delays model. *BMC Pregnancy and Childbirth, 17*, 219. https://doi.org/10.1186/s12884-017-1406-5

Morof, D., Serbanescu, F., Goodwin, M. M., Hamer, D. H., Asiimwe, A. R., Hamomba, L., et al. (2019). Addressing the Third Delay in Saving Mothers, Giving Life Districts in Uganda and Zambia: Ensuring Adequate and Appropriate Facility-Based Maternal and Perinatal Health Care. *Glob Health Sci Pract., 7*(Suppl 1), S85–S103. https://doi.org/10.9745/ghsp-d-18-00272

Nakigudde, S. (2019). Change Management in Information System Development and Implementation Projects. Available at: *ResearchGate.* https://doi.org/10.13140/RG.2.2.13973.27365.

Norin, I. (2019). *How relevant is Kotter's change theory on organizational change in meta-organizations*. University of Adger. Available at:.

Pollack, J., & Pollack, R. (2014). Using Kotter's Eight Stage Process to Manage an Organisational Change Program: Presentation and Practice. *Systemic Practice and Action Research, 28*(1). https://doi.org/10.1007/s11213-014-9317-0

Ranasamy, R., & Ramaswamy, G. (2017). A critical analysis of John P. Kotter's change management framework. *Asian J Res Bus Econ Manag., 7(7):181*. https://doi.org/10.5958/2249-7307.2017.00106.2

Salmela, S., Eriksson, K., & Fagerström, L. (2012). Leading change: A three-dimensional model of nurse leaders' main tasks and roles during a change process. *Journal of Advanced Nursing, 2012*(68), 423–433. https://doi.org/10.1111/j.1365-2648.2011.05802.x

Siddiqui S. 2017. A Critical Review of Change Management Strategies and Models. Int J Adv Res. 2017; 5(4):670-676.

Thaddeus, S., & Maine, D. (1994). Too far to walk: Maternal mortality in context. *Social science and medicine, 38*(8), 1091–1110. https://doi.org/10.1016/0277-9536(94)90226-7

United Nations Development Programme (UNDP). Sustainable development goals. UNDP; n.d.Available at: https://www.undp.org/sustainable-development-goals.

United Nations International Children's Emergency Fund (UNICEF). Maternal mortality. UNICEF; 2019. Available at: https://data.unicef.org/topic/maternal-health/maternal-mortality/.

Wanaka S, Hussen S, Alagaw A, Tolosie K, Boti N. Maternal Delays for Institutional Delivery and Associated Factors Among Postnatal Mothers at Public Health Facilities of Gamo Zone, Southern Ethiopia. Int J Womens Health. 2020; 12:127-138. https://doi.org/10.2147%2FIJWH.S240608.

Weiss, P., & Li, S. (2020). Leading Change to Address the Needs and Well-Being of Trainees During the COVID-19 Pandemic. *Academic Pediatrics, 20*(6), 735–741. https://doi.org/10.1016/j.acap.2020.06.001