



## Letter from the editors

### *Where to now with Rapid Response Systems?*

Ged Williams, RN, Crit. Care Cert., LLM, MHA, FACN, FACHSM, FAAN; Elizabeth Papathanassoglou, PhD, RN, MSc; Patricia A. Zrelak, PhD, RN, NEA-bc, SCRN, CNRN, FAHA

**Citation:** Williams G, Papathanassoglou E, Zrelak PA (2022). Where to now with rapid response systems? *International Journal of Critical Care* 16 (2); 1-4. doi pending.  
[www.wfccn-ijcc.com](http://www.wfccn-ijcc.com)



#### **Academic Editors:**

Ged Williams, RN, Crit. Care Cert., LLM, MHA, FACN, FACHSM, FAAN; Elizabeth Papathanassoglou, PhD, MSc, RN

#### **Managing Editor:**

Patricia Zrelak, PhD, RN, NEA-bc, SCRN, CNRN, FAHA

**Published:** September 14, 2022

**Acknowledgements:** WFCCN leadership, the IJCC Editorial Board, present and future IJCC peer reviewers and authors, WFCCN members, and journal sponsors.



**Copyright:** © 2022 by the authors. Open access publication under the terms and conditions of the Creative Commons Attribution (CC BY NC) license (<https://creativecommons.org/licenses/by-nc/4.0/>).

Winterbottom et al (2022) remind us of the importance of rapid response systems (RRS) in our hospital settings and demonstrate the impact that their initiative has been able to have on their healthcare system. Worldwide, hundreds of patients are saved from significant harm and potential death annually through the use of RRS. Well done to all those who have advocated for and participated in such initiatives.

The seminal paper of Lee et al (1995) described the benefits of the Medical Emergency Team (MET) in Australia, explaining the antecedent measures required to trigger the mobilisation of the MET (which included nurses as significant and essential members) from the ICU as an outreach rapid response team to help ward staff with patients who were showing signs of deterioration. We have come a long way with this concept and the level of sophistication we can now apply to developing these system processes.

Many different models of Critical Care outreach and rapid response have been tried and shown success. Some are entirely nurse-led (Massey et al 2015; Pirret, 2008; Williams et al 2022a) some are nurse-led with medical backup (Aitken et al, 2015; So et al, 2019), others are medically led with nurse back up (Lee et al 2021) and some truly multidisciplinary (Al-Omari et al, 2019).

There are now sufficient years of experience and a body of knowledge available to us to know the important principles necessary to implement MET and RRS systems (Jones D. 2022, Williams et al 2022b). Emerging evidence shows that such models can be successfully implemented in newer and emerging health care systems (Alberto et al 2014; Williams et al, 2022b). So why ask the question, where to now with rapid response questions? Is this not enough?

We believe we have only just started to get this concept embedded into mainstream practice. But there is so much more yet to come! For example, despite the evidence on critical care outreach and rapid response teams in low-resource settings worldwide, such practices have yet to be established. In a 2015 meta-analysis, only 1 study from low to middle-income countries was included. It is, therefore,



uncertain whether the practices and outcomes established in high-income countries would be transferable to low-resource settings (Maharaj et al., 2015). Further, more remains to be learned as data on the impact of rapid response teams in the COVID-19 pandemic response are emerging.

Winterbottom et al explored the benefits of an electronic medical record (EMR) to identify patients at risk; this approach has also been used by others fortunate to have an EMR in place (Williams et al, 2022b). The EMR can be used to screen any patient with known antecedent clinical parameters outside the norm and notify the bedside clinician or, better still, initiate the RRS automatically.

Applications of artificial intelligence and deep learning to refine tools as precursors or adjuncts to clinical decision-making are with us now, although our reticence to fully embrace these options over our tried-and-true human ways remains a barrier to fully embracing these new tools (Bates et al, 2021). Google glasses and similar products can also be applied to the solution tool kit. Nurse-led outreach teams may wear the glasses to beam back to the intensivist who can see, hear, and interact with all that is in front of the RRS nurse, allowing medical input into decision-making virtually.

Many of us know about these new technologies but are hesitant to rush into applying them immediately. The sensitivity and regulation around data management, personal privacy, and confidentiality must be balanced against the speed of decision-making and action in a rapidly deteriorating clinical scenario. These are not insignificant hurdles that face clinicians, executives, and community advocacy groups alike. Further work is required to help us understand and mitigate the social, policy, and legal risks while advancing the science that can ultimately save more lives than our current applications. Moreover, more work is needed to understand how these innovations can be sustainably transferred and benefit low-resource settings.

Finally, there remains a very nuanced discussion about nomenclature, efficiency models, consistent measures, and consistency of best/better practices. As alluded to, there are many different RRS models in place in many countries, and many of them show great benefit and potential, but we seem to be no closer to standardising.

In June 2005, an International Conference on Medical Emergency Teams (ICMET) included experts in patient safety, hospital medicine, critical care medicine, and METs, met to examine what was then known as a medical emergency team (MET), rapid response team (RRT), or critical care outreach (CCO) and to explore consensus around questions of standardised definitions, measures, and barriers to implementation (DeVita et al, 2005). However, concern remains that we still have too much variation in nomenclature and practice, which makes comparison studies very difficult.

The International Society for Rapid Response Systems (<https://rapidresponsesystems.org>) is well placed to facilitate similar international conferences such as the 2005 meeting described by DeVita and

we encourage them and others to help inform the future approach to RRS so we can refine with more certainty and consistency exactly what models and approaches work best. In the meantime, we can use studies such as Winterbottom et al and others to add to the body of knowledge we have so that at least the immediate concern of deteriorating patients in our hospitals right now are receiving the best response possible.

Thank you to all our readers who have implemented and supported RRS in your hospitals.

## REFERENCES

- Aitken LM, Chaboyer W, Vaux A, Crouch S, Burmeister E, Daly M, et al. (2015). Effect of a 2-tier rapid response system on patient outcome and staff satisfaction. *Australian Critical Care* 28(3):107-114. doi: 10.1016/j.aucc.2014.10.044
- Alberto L, Zotáñez H, Cañete ÁA, Niklas JEB, Enriquez JM, Gerónimo MR, Martínez Mdel C, Chaboyer W (2014). A description of the ICU liaison nurse role in Argentina. *Intensive and Critical Care Nursing* 30(1):31-37. doi: 10.1016/j.iccn.2013.07.001
- Al-Omari A, Al Mutair A, Aljamaan F (2019). Outcomes of rapid response team implementation in tertiary private hospitals: a prospective cohort study. *International Journal of Emergency Medicine* 12(1):31. doi: 10.1186/s12245-019-0248-5
- Bates DW, Levine D, Syrowatka A, Kuznetsova M, Craig KJT, Rui A, Jackson GP, Rhee K (2021). The potential of artificial intelligence to improve patient safety: a scoping review. *Nature partner journals digital medicine (NPJ digital medicine)* 4(1):1-8. doi: 10.1038/s41746-021-00423-6
- Devita MA, Bellomo R, Hillman K, Kellum J, Rotondi A, Teres D, Auerbach A, Chen WJ, Duncan K, Kenward G, Bell M, Buist M, Chen J, Bion J, Kirby A, Lighthall G, Ovreveit J, Braithwaite RS, Gosbee J, Milbrandt E, Peberdy M, Savitz L, Young L, Harvey M, Galhotra S (2006). Findings of the first consensus conference on medical emergency teams. *Critical Care Medicine* 34(9):2463-2478. doi: 10.1097/01.CCM.0000235743.38172.6E
- Jones D. Fact Sheet. Tips from the real world: The intensive care specialist. <https://www.safetyandquality.gov.au/sites/default/files/2019-06/top-tips-daryl-jones-approved-pdf.pdf> Accessed 30 July 2022.
- Lee A, Bishop G, Hillman KM, Daffurn K (1995). The Medical Emergency Team. *Anaesthesia and Intensive Care* 23(2):183-186. doi: 10.1177/0310057X9502300210
- Lee SY, Ahn JH, Kang BJ, Jeon K, Lee SM, Lee DH, Lee YJ, Kim JS, Park J, Moon JY, Hong SB. (2021) A physician-led medical emergency team increases the rate of medical interventions: A multicenter study in Korea. *PLoS One* 16(10):e0258221. doi: 10.1371/journal.pone.0258221



- Massey D, Aitken LM, Chaboyer W (2015) The impact of a nurse led rapid response system on adverse, major adverse events and activation of the medical emergency team. *Intensive and Critical Care Nursing* 31(2):83-90. doi: 10.1016/j.iccn.2014.11.005
- Pirret AM (2008) The role and effectiveness of a nurse practitioner led critical care outreach service. *Intensive and Critical Care Nursing* 24(6):327-384. doi: 10.1016/j.iccn.2008.04.007
- So HM, Yan WW, Chair SY (2019). A nurse-led critical care outreach program to reduce readmission to the intensive care unit: A quasi-experimental study with a historical control group. *Australian Critical Care* 32(6):494-501. doi: 10.1016/j.aucc.2018.11.005.
- Williams G, Du Plessis J, Rotering L, Samuel A, Abdel Khaleq MH, Sweeney A (2022a). Evaluation of an Intensive Care Outreach Nurse programme in 4 UAE Hospitals. *Journal of Nursing Care Quality* 37(4):E73-E79. doi: 10.1097/ncq.0000000000000620
- Williams G, Pirret A, Credland N, Odell M, Raftery C, Smith D, Winterbottom F, Massey D (2022b). A practical approach to establishing a critical care outreach service – An expert panel research design. *Australian Critical Care* Mar 24; S1036-7314(22)00009-1. doi: 10.1016/j.aucc.2022.01.008