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LETTER TO THE EDITOR

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Authors' response to comment on "International consensus on pressure injury preventative interventions by risk level for critically ill patients: A modified Delphi study"

Dear Editors,

We thank the authors of this commentary for their interest and feedback on our paper,[1] and the *International Wound Journal* for the opportunity to respond. We agree that pressure injury (PI) prevention in clinical practice is complex and challenging. Given the negative impacts of PI[2-4] and the ongoing occurrence of PI in hospital[5] and intensive care[6] settings, further research targeted at guiding and improving PI prevention within these settings is much needed. We believe that our work contributes to the relevant evidence base and advances knowledge in this area.

With regard to our statement that "PI prevention begins with a risk assessment, which should be undertaken using a structured risk assessment scale combined with clinical judgement", we would like to highlight that this was not a direct quotation from the international clinical practice guideline.[7] Rather, in making this statement, we sought to emphasise that risk assessment scales must be used in combination with clinical judgement, which we believe is consistent with the international recommendations.[7] However, we acknowledge how it may be misinterpreted and thank you for bringing this to our attention.

The international guideline[7] clearly states, "When conducting a pressure injury risk assessment: use a structured approach" and "...expert consensus suggests that the approach be 'structured' in order to facilitate consideration of all relevant risk factors" (p. 60). It is also stated that "When conducting a pressure injury risk assessment: supplement use of a risk assessment tool with assessment of additional risk factors" (p. 60), "...a risk assessment tool offers a structured approach to assessment but does not replace a comprehensive assessment..." and "a risk assessment tool is one form of assessment on which a health professional draws when using their clinical judgement" (p. 61). We agree wholeheartedly with these statements. In this context, we selected a risk assessment scale to structure and ground risk assessment within our research,[1] and emphasised that "...clinicians must also employ their clinical judgement in recognising additional individual patient risk factors..." (p. 1123). We contend that use of a risk assessment scale assists in replicability, and furthermore, the selected scale (COMHON Index) is setting-specific and targeted at the relevant PI risk factors of the intended population (critically ill individuals admitted to intensive care). Use of this tool is congruent with the international guideline,[7] which states "...pressure injury risk screening should follow a structured and replicable approach, which considers relevant pressure injury risk factors in the target population..." (p. 59).

In their commentary, the authors contend that "there is no evidence that [risk assessment tool] use improves clinical decision making", citing the Cochrane review by Moore and Patton[8] in support of this statement. This is a misrepresentation of this review, which investigated the "effect the use of risk assessment tools has on the development of new pressure ulcers" (p. 2). In fact, the review provides no evidence at all, either for or against, of their effect on clinical decision-making, as this was not investigated. A reference was made by Moore and Patton[8] (p. 22) to measured processes of care implemented following a PI risk assessment in one included study,[9] in which three groups were compared. Two groups were assessed for PI risk using different risk assessment tools, and a third was assessed for PI risk using clinical judgement alone. There were no significant differences in measured processes of care between the groups. However, the primary outcome was PI incidence; and, clinical decision-making based on risk assessment tool usage was not studied directly, nor were all processes of care measured.

Yet, the conclusion of Moore and Patton that there is no evidence that conducting a structured risk assessment makes any difference to PI incidence is important to note.

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However, the idea that they might be effective in reducing PI is a fundamentally flawed concept, which has the potential to confound studies testing risk assessment scales. Risk assessment alone does not prevent PI, it is the preventative interventions, which are selected and implemented based on the risk assessment which act to mitigate identified PI risk factors. This concept is supported in one of the papers cited by the commentary authors,[10] and we are pleased that it is clearly noted in the international guideline (pp. 62–63).[7] Furthermore, we wish to emphasise that risk assessment should *always* be matched with preventative interventions. In this context, if the "effectiveness" of using a PI risk assessment tool on PI as an outcome is to be tested, the intervention should always be considered as "PI risk assessment *plus* associated interventions", which should be tested against the absence of PI as an outcome. In fact, a risk assessment tool should never be tested in isolation as it would be unethical to identify clinical risk without responding to it appropriately. Theoretically, if the risk is mitigated, PI should be prevented. This theme underpins much of our previous work.[11-14] Studies testing the "effect" of risk assessment scales must examine whether and how their use influences the subsequent application of all preventative interventions. To date, their influence on preventative intervention use has not been clearly established as positive, negative, or otherwise.

Risk assessment scales should be used to prompt the use of preventative interventions, rather than predict PI. Nonetheless, we have noted the predictive validity of the COMHON Index in our introduction (p. 1113),[1] as reported by its originating authors. In terms of the use of risk assessment scales to identify "risk levels", the commentary authors contend that this is neither reliable nor valid, citing Kottner and Balzer.[10] However, in the main, this article is a discussion paper, and all literature referred to is at least a decade old. Essentially, based on measurement error, Kottner and Balzer challenge the reliability of cut-off scores to determine risk level. However, more recently, research has demonstrated that the COMHON Index has greater instrument precision and sum scores and corresponding risk levels have better inter-rater reliability than other scales used commonly in intensive care, such as the Braden Scale.[15]

Despite contention around the "effectiveness" of risk assessment scales, such scales are in widespread clinical use. However, our previous work has indicated that preventative interventions are *not* adequately prescribed and implemented following PI risk assessment[11,14] nor are these steps of PI prevention (risk assessment, preventative intervention prescription, and implementation) adequately linked in research.[12] As stated in the international guideline,[7] "...use of the risk assessment tool to develop and implement risk-based preventative interventions is an essential step in achieving a positive outcome" (p. 62) and "...appropriate application of a risk tool requires the findings to inform the development and implementation of a risk prevention plan" (p. 63). Consequently, we identified a need for further research to be conducted to promote the appropriate application of preventative interventions based on a timely PI risk assessment.

We certainly agree with the assertion that PI preventative interventions should be individualised and targeted at identified individual PI risk factors. Pragmatically though, we also recognise that there are barriers to PI prevention within intensive care, such as heavy workload, time demands, high patient acuity, insufficient knowledge and secondary prioritisation, and limited access to evidence and resources.[16-18] Furthermore, clinical judgement may not always be exercised effectively, as it is inextricably linked to an individual's knowledge and experience. Thus, in the real world of clinical practice, preventative interventions may not always be appropriately selected and implemented according to individual risk factors in a timely manner. As such, providing more specific guidance to ensure that, *at a minimum*, preventative interventions are applied relative to assessed risk level, is certainly warranted and highly relevant.

To reiterate, we agree that preventative interventions should be individualised and targeted. We also agree with the international guideline[7] statement, "Do not rely on a total risk assessment tool score alone as a basis for risk based prevention" (p. 60). Accordingly, in our paper,[1] we explicitly state that "...it is imperative that individual patient factors are also taken into account, and PI preventative interventions are tailored to address factors pertinent to each person", "...clinicians must also employ their clinical judgement in recognising additional individual patient risk factors and selecting further mitigating interventions" and "...additional interventions should *always* be implemented as clinically indicated by individual patient needs, regardless of assessed risk level" (p. 1123). Furthermore, we provide examples of the appropriate addition and exclusion of preventative interventions outside of the proposed intervention set, as indicated by individual need (p. 1123).

Our approach has been to develop evidence, based on international expert consensus, using a formal and rigorous research method, as described in our paper (p. 1114).[1] In the intensive care setting, our results demonstrated expert consensus that as risk level increases, so too should the number and intensity of preventative interventions. This is also consistent with our previous findings, which indicated that as risk level increases,

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nurses prescribe (plan) more preventative interventions.[11,14] This aligned increase in interventions within the proposed intervention set may serve to reduce the overuse of PI preventative resources at lower risk levels. Conversely, our proposed intervention set has the potential to ensure that, *at a minimum*, preventative interventions are implemented relative to assessed risk level, even where other clinical priorities or barriers may have impeded individualised PI prevention. Use of the proposed intervention set helps to reduce over-, under-, and inappropriate use of PI preventative resources.

In essence, our minimum preventative intervention set is both an overall PI prevention bundle and a set of three separate bundles, each targeted at a different level of risk. Furthermore, since it was first proposed by Berenholtz et al,[19] the conceptualisation of bundled evidence-based interventions to improve clinical outcomes is well understood and applied within the intensive care setting.[20] Many bundles have since been implemented and the effectiveness of PI prevention bundles (multicomponent PI prevention programs) has been demonstrated within intensive care.[21] In addition, in the international guideline[7] PI prevention bundle (multifaceted quality improvement program) evidence is synthesised in support of their development and implementation at an organisational level (pp. 326–327). Notably though, a number of the cited bundles[7,21] appear to have a nonselective approach, in which the included interventions are applied either to *all* individuals or to all those at PI risk, regardless of individual risk level. We strongly contend that our proposed intervention set, which is targeted at each patient's assessed level of risk, is more individualised, and would promote more appropriate resource allocation than "catch all" approaches. However, we reiterate our statement that "...higher level research is required into the use of PI preventative bundles, and more specifically, the minimum PI preventative intervention set determined in this study" (p. 1124).[1] To this end, we are planning further research to investigate the effectiveness of the proposed intervention set to reduce PI in the intensive care setting.

DATA AVAILABILITY STATEMENT

Not applicable

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