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Untangling ICU delirium: is establishing its prevention in high-risk patients the final frontier? Reply to van der Jagt et al.

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Dear Editor,

We thank van der Jagt et al. [1] for their interest in our ICU delirium prediction model [2, 3]. We did not intend to imply that prediction of delirium, and the subsequent identification of high-risk groups, would make implementation easy. We acknowledge that changes in behavior are difficult to achieve, also for medical professionals, and that a multifaceted approach using different techniques and ways of feedback appears most successful. Nevertheless, we feel that identification of ICU patients with a high chance of developing delirium is essential for successful implementation of preventive measures. We have three reasons for this. First, use of a prediction model in future trials will facilitate comparability between groups and this will improve the validity and clinical acceptance of these trials. Second, clinicians could choose to focus on those patients with a high risk of developing delirium. We think that this will facilitate implementation, as no preventive measures, time, or money 'are wasted' on low-risk patients that do not need them. In preventive medicine in particular, identification of high-risk groups is paramount. Third, acceptance by family members as well as health-care workers to apply preventive measures is more likely if the chance to develop

delirium in that particular patient is known. In our clinic we inform family members if the patient has a high risk for delirium, what the consequences can be, and how we try to prevent and eventually treat this.

We do not agree with van der Jagt that because 'no one has seen a patient die as a direct consequence of delirium' this would make implementation more difficult. It is now clear that the presence of delirium is not merely an epiphenomenon of disease severity and therefore related to lower survival rates, but that there is clear attributable mortality [4]. Furthermore, if prevention is effective, the clinical observation of less patients suffering from delirium is likely to motivate caregivers to continue their preventive measures in addition to the effect of deleterious consequences of delirium that can be identified [5]. This might especially be true in patients suffering from hyperactive and mixed delirium, compared to hypoactive delirium, as the clinical picture is easier to recognize and more impressive. It remains true, however, that implementation of preventive measures during the complete ICU length of stay is likely more labor-intensive than implementation of other care bundles in ICU patients and we advocate the use of simultaneous techniques of implementation. Clinical intervention studies that demonstrate that prevention of delirium improves the outcome of critically ill patients would be most helpful for the implementation of measures to prevent delirium. We are currently conducting a randomized double-blind placebo-controlled trial in which haloperidol is tested to prevent delirium in ICU patients [6]. In 20 hospitals over 2,000 patients will be included, and the trial is powered to demonstrate an effect on patient survival. Finally, we found that over 20 ICU delirium prevention studies are currently listed in ClinicalTrials.gov, suggesting that more evidence to prevent delirium will become available in the coming years.

References

1. van der Jagt M, Trogrlic Z, Ista E (2014) Untangling ICU delirium: Is establishing its prevention in high-risk patients the final frontier? *Intensive Care Med*. doi: [10.1007/s00134-014-3383-8](https://doi.org/10.1007/s00134-014-3383-8)
2. van den Boogaard M, Schoonhoven L, Maseda E, Plowright C, Jones C, Luetz A, Sackey PV, Jorens PG, Aitken LM, van Haren FM, Donders R, van der Hoeven JG, Pickkers P (2014) Recalibration of the delirium prediction model for ICU patients (PRE-DELIRIC): a multinational observational study. *Intensive Care Med* 40(3):361–369. doi: [10.1007/s00134-013-3202-7](https://doi.org/10.1007/s00134-013-3202-7)
3. van den Boogaard M, Pickkers P, Slooter AJ, Kuiper MA, Spronk PE, van der Voort PH, van der Hoeven JG, Donders R, van Achterberg T, Schoonhoven L (2012) Development and validation of PRE-DELIRIC (PREdiction of DELIRium in ICU patients) delirium prediction model for intensive care patients: observational multicentre study. *BMJ* 344:e420
4. Zhang Z, Pan L, Ni H (2013) Impact of delirium on clinical outcome in critically ill patients: a meta-analysis. *Gen Hosp Psychiatry* 35(2):105–111
5. van den Boogaard M, Schoonhoven L, van der Hoeven JG, van Achterberg T, Pickkers P (2012) Incidence and short-term consequences of delirium in critically ill patients: a prospective observational cohort study. *Int J Nurs Stud* 49:775–783
6. van den Boogaard M, Slooter AJ, Bruggemann RJ, Schoonhoven L, Kuiper MA, van der Voort PH, Hoogendoorn ME, Beishuizen A, Schouten JA, Spronk PE, Houterman S, van der Hoeven JG, Pickkers P (2013) Prevention of ICU delirium and delirium-related outcome with haloperidol: a study protocol for a multicenter randomized controlled trial. *Trials* 14:400

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