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LETTER TO THE EDITOR

## Clinical implications and quality of evidence in metaanalysis about effects of palliative care in critically ill patients in the intensive care unit

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ALEX WONNAPARHOWN, B.S., AMAAN SHAFI, B.S., XIBEI LIU, B.S.,  
ANGELA H. VILLAMAGNA, M.D., MICHAEL LEE, M.D., SHUNICHI NAKAGAWA, M.D.,  
AND JI WON YOO, M.D., M.S.

Martins and colleagues (2016) analyzed the effect of hospital palliative care on hospital length of stay (LOS) and in-hospital mortality among seriously ill patients in an intensive care unit (ICU). Their results revealed a significant decrease in both hospital LOS and in-hospital mortality after hospital palliative care in the ICU. These findings may be explained by increased home care or nursing home referrals in critically ill Medicare patients, which results in more deaths outside of the hospital (Teno et al., 2013; Yoo et al., 2013). Further, the recent increase in completion of advance directives among the elderly might have increased the number of deaths outside the hospital (Silveira et al., 2014; Yoo et al., 2013).

Two recent national Medicare studies revealed that earlier hospice enrollment can reduce hospital LOS (Zuckerman et al., 2016) and save on costs (Kelley et al., 2013) until death. In spite of these data, a recent Hartford Foundation report showed that less than 20% of primary care physicians discuss advance directives with patients and bill this discussion to Medicare (The John A. Hartford Foundation, 2016). In lieu of a lack of end-of-life discussions in the primary care setting, hospital palliative care is still the initial discussion point on palliative care for seriously ill patients. Reduction of in-hospital mortality and LOS in the ICU by palliative care might influence earlier hospice referral and lead to a lessening of public healthcare cost burdens.

There are a few challenges involved in disseminating hospital palliative care to critically ill patients in the ICU. In their assessment of statewide hospital-based palliative care structures and services, Gibbs et al. (2015) noted widespread variation in hospital-based palliative care initiation time and delivery type. Midlevel practitioners or training physicians participated in the initial history or setting up of family meetings up to 80% of the time. Curtis et al. (2013) illustrated the challenges involved in trainees acquiring communication skills, and Carson et al. (2016) showed that communication can be counterproductive if the information is not delivered meticulously, or without having built a relationship with patients and their family members. Future studies are urgently required in order to standardize hospital palliative care service and improve communication skills training.

In the Martins et al. (2016) study, the methods section did not discuss the quality of evidence for each outcome. The Grading of Recommendations Assessment, Development, and Evaluation (GRADE) system (see Table 1) could be employed to evaluate the quality of evidence for each outcome (Guyatt et al., 2008). The GRADE system is a new and comprehensive tool for assessment of the quality of evidence of metaanalyses (high, moderate, low, and very low). Because only one study (Cheung et al., 2010) was a randomized controlled study, it was removed from the GRADE system. The metaanalysis from observational studies begins at a low quality of evidence. In our metaanalysis, serious publication bias and extensive heterogeneity significantly lowered the quality of evidence, revealing the need to gather high-quality data on the effects of hospital palliative care on length-of-stay and in-hospital mortality (Table 1).

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Address correspondence and reprint requests: to Ji Won Yoo, Department of Internal Medicine, University of Nevada School of Medicine, 1701 West Charleston Boulevard #230, Las Vegas, Nevada 89102. E-Mail: [jwyo@med.unr.edu](mailto:jwyo@med.unr.edu).

**Table 1.** GRADE quality of evidence

<b>Hospital palliative care compared to control for length of stay in the intensive care unit and in-hospital mortality</b>						
<b>Patient or population:</b> length of stay in the intensive care unit and in-hospital mortality						
<b>Intervention:</b> Hospital palliative care						
<b>Comparison:</b> Control						
Outcomes	Anticipated absolute effects (CI <sub>95%</sub> )		Relative effect (CI <sub>95%</sub> )	№ of participants (studies)	Quality of evidence (GRADE)	Comments
	Risk with control	Risk with hospital palliative care				
In-hospital mortality	216 per 1,000	<b>167 per 1,000</b> (150 to 188)	<b>OR = 0.73</b> (0.64 to 0.84)	5,409 (3 observational studies)	⊕○○○ VERY LOW	Cheung et al. (2010) was removed because of different study design, randomized controlled study. Adjusted I2 improved to 27.26%. Due to serious publication bias, quality of evidence was lowered.
Length of stay in the intensive care unit	The mean length of stay in the intensive care unit was <b>9.48</b> days	The mean length of stay in the intensive care unit in the intervention group was 2.44 days lower (4.41 lower to 0.48 lower)	–	915 (5 observational studies)	⊕○○○ VERY LOW	Due to serious heterogeneity, quality of evidence was lowered.

\*The risk in the intervention group and its 95% confidence interval (CI<sub>95%</sub>) are based on the assumed risk in the comparison group and the **relative effect** of the intervention (and its CI<sub>95%</sub>). *OR* = odds ratio.

## CONFLICTS OF INTEREST

The authors hereby declare that they have no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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