**Supplemental Table 27. Summary of Outcomes Data Associated with ICU Delirium**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Multivariable**  **analysis** | | | **Univariable Analysis** | | |
| Variables | **Positive association** | **Negative association** | **No**  **association** | **Positive**  **association** | **Negative association** | **No**  **association** |
| **Outcome variables:** |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
| **Discharge Disposition**  (discharge to other than home) | \*Balas CHEST 2009; 135, OR 7.2 (1.93-26.82), p .003 N = 114 [1] |  |  | \*Robinson Arch Surg 2011;146 39.1 vs 3.1%, p <.001, N = 172 [2] |  | \*Balas J Gerontol Nurs 2011; 37, OR 3.6  (0.7-17.76), p = .12,  N = 43  \*Mehta Crit Care Med 2015;43, 50 vs 46%, p = .34, N = 389 [3] |
| **Cognitive Impairment** | \*Ely JAMA 2004; 291, HR 9.1 (2.3-35.3), p .002 at hospital discharge [4]  \*Girard Crit Care Med 2010;38, at 3 and 12 months evaluating delirium duration. Point estimates = -4.6 and -6.9 with p = .02 and .03 respectively [5]  \*Pandharipande NEJM 2013;369. at 3 and 12 months evaluating delirium duration. See text  \*Wolters Crit Care 201418:R125. at 1 yr (self report) OR 2.41 and 3.1 for mild to moderate impairment. P <.001 and .03 [6] |  | Guillamondegui J Trauma 2011;70 at 12 months  Van den boogaard Crit Care Med 2012;40. at 18 months (self report), some aspects correlated with delirium and delirium duration, but others did not. See text. [7, 8] |  |  |  |
| **PTSD** |  |  | \*Jackson Lancet 2014 May at 3 and 12 months evaluating delirium duration [9]  \*Girard Crit Care 2007, 11R28 at 6 months evaluated with delirium duration [10]  \*Patel 2016 missed cut off but no relationship of PTSD and delirium duration AJRCCM [11] |  |  | \*Roberts. Crit Care 2007;18.[12] |
| **Depression** | \*Jackson Lancet 2014 May at 12 months evaluating delirium duration. Point estimate 2.31 (1.25-4.27) p 0.05 [9] |  | \*Abraham Arch Phys Med Rehab 2014; 19 [13]  \*Jackson 2014 at 3 mon.evaluating delirium duration. 1.63 (.94-2.85) p .38 [9] |  |  |  |
| **Dependence/functionality**  May be overlap with disposition  Usually measured by personal or instrumental ADLs or Barthel Index | \*Abelha Crit Care 2013, 17 for personal ADL at 6 mos, OR 2.2 (1.1-4.4) [14]  \*Brummel Crit Care Med 2014; 42 for personal ADL at 12 months evaluating delirium duration, no point estimate offered but p = .002 [15] |  | \*Abelha Crit Care 2013, 17 for instrumental ADL at 6 mos, OR 0.8 (.4-1.6) [14]  \*Balas CHEST 2009; 135 at 1-2 d post discharge, OR 3.41 (.95-12.19), p .059 [1]  \*Brummel Crit Care Med 2014; 42 for instrumental ADL at 12 months evaluating delirium duration, point estimate -.7 (-3.2-1.8) p .15 [15]  \*Jackson Lancet 2014 May at 3 and 12 months evaluating delirium duration [9]  \*Van den boogaard Crit Care Med 2012;40. using the SF 36 and checklist individual strength fatigue at 18 months. No relationship with delirium duration as well.  \*Norman 2016 missed cutoff, but did not find relationship between delirium duration and unemployment at 3 and 12 months [16] | \*Yamaguchi Gen Hosp Psychiatry 2014;36. using the need for social worker consultation at discharge as surrogate for dependence [17] |  | \*Balas J Gerontol Nurs 2011; 37 within 1  -2 days prior to hospital discharge,  OR 2.44 (.49-12), p .27 [3]  \*Svenningsen J Clin Nurs 2014;23 at 1 wk, 3 and 6 months, “all p  values  nonsignificant” [18] |
| **Distress**  Encompasses measurements of health status (SF36), health related quality of life (EQ5D), delusional or factual memories |  |  | \*Van den boogaard Crit Care Med 2012;40. using SF 36 at 18 months, duration of delirium also had no effect on SF36  \*Wolters Crit Care201418:R125., EQ5D at one year [19]  \*Roberts. Intensive Crit Care Nurs 2006; 22 at 18-24 months, no effect on recall of ICU dreams [20] | Svenningsen J Clin Nurs 2014;23 (more frequent delusional memories at 1 wk, 2 and 6 months) [18] |  | Van Rompaey. J Clin Nurs 2009;18. SF 20 at 3 and 6 months [21]  Roberts Crit Care 2007; at  two years, less  factual memories  but no effect on dreams nor PTSD [12] |
| **Hospital LOS** | \*Ely Intensive Care Med 2001; 27 [22]  \*Ely JAMA 2004; 291 [23]  \*Lat Crit Care 2009;37 [24]  \*Naidech Am J Respir Crit Care Med 2013;188. [25]\*Thomason Crit Care 2005,9:R375. [26] |  |  | \*Alexander Am J Crit Care 2014; 23 [27]  \*Guenther Ann Surg 2013 ;237 [28]  \*Mehta Crit Care Med 2015;43 [29]  \*Milbrandt Crit Care Med 2004;32 [30]  \*Mu Crit Care 2010,14:R238 \*Ouimet Intensive Care Med 2007;33.[31]  \*Robinson Arch Surg 2011;146 [2] \*Serafim Ann Intensive Care 2012;2. [32]  \*Shi Chinese Med J 2010;123 [33]  \*Tomasi J Crit Care 2012;27 [34]  \*Van den boogaard. Crit Care 2010,14:R146. [35]  \*Van den boogaard Crit Care Med 2012;40.  [8]  \*Veiga Rev Bras Anestesiol 2012;62. [36]  \*Yamaguchi Gen Hosp Psychiatry 2014;36. [17] |  | \*Lin J Crit Care 2008;23 [37]  \*Mardani Int J Prevent Med 2012 ;3 [38]  \*Micek Crit Care Med 2005;33. [39]  \*Roberts. Australian Crit Care 2005;18. [40] |
| **Mortality** | \*Abelha Crit Care 2013, 17 [14]  \*Ely JAMA 2004; 291 [41]  \*Lin J Crit Care 2008;23 [37]  \*Lin Crit Care Med 2004;32 [42]  \*Ouimet Intensive Care Med 2007;33.[31] \*Pisani Am J Resp Crit Care Med 2009;180 [43]  \*Salluh Crit Care 2010,14:210 [44]  \*Shehabi Crit Care Med 2010;38. [45]  \*Van den boogaard. Crit Care 2010,14:R146. [35]  \*Van Rompaey. J Clin Nurs 2009;18. for 3 and 6 month mortality [21]  \*Veiga Rev Bras Anestesiol 2012;62.[36] |  | \*Klein Klouwenberg BMJ 2014;349 [46]  \*Lat Crit Care 2009;37 [24]  \*Mehta Crit Care Med 2015;43 [47]  \*Thomason Crit Care 2005,9:R375. [26]  \*Tsuruta J Crit Care 2014;29. [48]  \*Van Rompaey. J Clin Nurs 2009;18. for ICU mortality [49] | \*Alexander Am J Crit Care 2014; 23 [27]  \*Caruso Crit Care Med 2014; 42 [50]  \*Robinson Arch Surg 2011;146 [2]  \*Serafim Ann Intensive Care 2012;2.  \*Sharma Gen Hosp Psych 2012;34 [51]  \*Simons J Crit Care 2014;29. [52]  \*Tomasi J Crit Care 2012;27 [34] |  | \*Dubois Intensive Care Med 2001; 27 [53]  \*Micek Crit Care Med 2005;33.[39]  \*Roberts. Australian Crit Care 2005;18. [40]  \*Shi Chinese Med J 2010;123 [33] |
| **ICU LOS** | \*Ely Intensive Care Med 2001; 27 [54]  \*Lat Crit Care 2009;37 [24]  \*Naidech Am J Respir Crit Care Med 2013;188. [25]  \*Shehabi Crit Care Med 2010;38. [55] |  | \*Thomason Crit Care 2005,9:R375. [26]  \*Tsuruta J Crit Care 2014;29. [48] | \*Alexander Am J Crit Care 2014; 23 [27]  \*Caruso Crit Care Med 2014; 42 [50]\*Guenther Ann Surg 2013 ;237 [28]  \*Guillamondegui J Trauma 2011;70 [7]  \*Mardani Int J Prevent Med 2012 ;3 [38]  \*Mehta Crit Care Med 2015;43 [29]\*Milbrandt Crit Care Med 2004;32  \*Mu Crit Care 2010,14:R238 [56]\*Ouimet Intensive Care Med 2007;33. [31]  \*Roberts. Australian Crit Care 2005;18. [40] \*Robinson Arch Surg 2011;146 [2]  \*Salluh Crit Care 2010,14:210 [57]  \*Serafim Ann Intensive Care 2012;2. [58]  \*Sharma Gen Hosp Psych 2012;34 [51]  \*Simons J Crit Care 2014;29. [52]\*Van den boogaard. Crit Care 2010,14:R146. [59]  \*Van den boogaard Crit Care Med 2012;40. [8]  \*Wolters Crit Care 201418:R125. [19]  \*Yamaguchi Gen Hosp Psychiatry 2014;36. [17] |  | \*Dubois Intensive Care Med 2001; 27 [53]  \*Lin J Crit Care 2008;23 [60]  \*Micek Crit Care Med 2005;33.[39] |

All data were derived from univariate or multivariate analyses and varied in study design, patient populations, interventions, and methodologic approaches to outcomes analyses. Disparate results were likely related to the existence of a variety of identified confounders and even when these were considered using sophisticated statistical analyses, the influence of residual confounders could not be estimated.

Examples of these unaccounted confounders include the:

* + nonspecific nature of delirium evaluations and the inability to discriminate between delirium and pharmacologically-induced-delirium
  + use of chart reviews or antipsychotic use in lieu of actual delirium assessments
  + use of self-report to evaluate cognitive dysfunction
  + use of an ever/never approach to identifying delirium without regard to its severity, duration and etiology
  + use of APACHE II for estimates of acuity of illness instead of its more contemporary versions
  + assumption that the severity of illness at admission represents acuity throughout the ICU stay
  + influence of ARDS and sepsis (and probably other critical illnesses) on outcomes of importance (particularly cognitive function and discharge disposition)
  + influence of availability of step-down beds or LTACHs on duration of stay
  + effect of death on duration of stay

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