potential confounding in our study. Since this was an observational study, we acknowledge this possibility. However, we believe that random sampling of noncrash road segments, as we used for our control, minimizes the chance that such confounders substantially influenced the results.

The continuous video collected by NDS allows for the precise separation of talking on a cell phone with visual–manual tasks associated with cell-phone use, which effectively averts any potential information bias associated with cell-phone use while driving. Young's argument that previous research that was conducted on the basis of cell-phone records was limited to the risk associated with talking on but not with dialing a cell phone has been debated previously.[2] In addition, others have reported that both the beginning and ending of cell-phone conversations, which are not reflected in billing records, require risky visual–manual tasks.[3] Contributing factors leading to crashes typically unfold over time. Since the moment when a crash occurs is difficult to match precisely to time stamps in cell-phone records, the determination of a proximate cause is not possible on the basis of crash reports and cell-phone records.

As noted by Boccardi and Paolisso, more research should be done on the effects of secondary-task involvement on the risk of crashes or near-crashes for drivers of all ages. We also argue that more research on the effects of driver distraction should be conducted on specialty populations of drivers, including emergency responders (e.g., police officers and ambulance drivers), as well as physicians who are using their vehicle as a mobile office. As Silver notes, complex conversation is a distraction for drivers, but the effect of this type of conversation is not yet fully understood.

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1. Dingus TA, Klauer SG, Neale VL, et al. The 100-Car Naturalistic Driving Study, Phase II — results of the 100-car field experiment. Washington, DC: National Highway Traffic Safety Administration, 2006 (http://www.distraction.gov/research/pdf-files/the-100-car-naturalistic-driving-study.pdf).
2. Mittleman MA, Maclure M, Mostofsky E. Cell phone use and crash risk. Epidemiology 2012;23:647-50.
3. Fitch GM, Soccolich SA, Guo F, et al. The impact of handheld and hands-free cell phone use on driving performance and safety-critical event risk. Washington, DC: National Highway Traffic Safety Administration, 2013 (http://www.distraction.gov/download/811757.pdf).

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Sedation and Delirium in Intensive Care

TO THE EDITOR: We agree with Reade and Finfer (Jan. 30 issue)[1] that prevention of delirium in patients in the intensive care unit (ICU) is clearly preferable to treatment after the fact.

Reduction or prevention of sleep deprivation may be an additional measure to reduce the risk of delirium in the ICU.[2] Noise, light, and other factors may be associated with poor sleep quality. A reduction in these factors and promotion of positive sleep-hygiene behaviors are associated with a reduction in the incidence of delirium or coma.[3]

Because most sedatives degrade sleep architecture, their use may actually increase the risk of delirium, rather than reduce it.[2] In addition to minimizing the use of sedative agents, other therapies warrant mention. Critically ill patients have a documented loss of a normal circadian rhythm associated with melatonin secretion.[4] Exogenous melatonin may be an effective countermeasure to reduce abnormalities in sleep architecture, and preliminary data to this effect are encouraging.[5] Data are lacking from studies to evaluate the effects of melatonin on sleep, delirium, and acute brain dysfunction in critically ill patients. We hope that future studies of delirium in the ICU include this therapy.

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1. Reade MC, Finfer S. Sedation and delirium in the intensive care unit. N Engl J Med 2014;370:444-54.
2. Weinhouse GL, Schwab RJ, Watson PL, et al. Bench-to-bedside review: delirium in ICU patients — importance of sleep deprivation. Crit Care 2009;13:234.
3. Kamdar BB, King LM, Collop NA, et al. The effect of a quality improvement intervention on perceived sleep quality and cognition in a medical ICU. Crit Care Med 2013;41:800-9.
4. Bourne RS, Mills GH. Melatonin: possible implications for the postoperative and critically ill patient. Intensive Care Med 2006;32:371-9.
5. Bourne RS, Mills GH, Minelli C. Melatonin therapy to improve nocturnal sleep in critically ill patients: encouraging results from a small randomised controlled trial. Crit Care 2008;12:R52.

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TO THE EDITOR: Delirium in patients in acute care settings is common, underrecognized, costly, and potentially deadly. Pharmacologic approaches to prevent or treat it are modestly successful at best and have clear potential to harm. In contrast, family-based interventions to comfort confused patients predate modern medicine. Their use and feasibility are discussed in the medical literature,[1-3] but data from large, high-quality trials are lacking. As volunteer "specialists" who know and understand the patient, families are often motivated to help prevent and resolve delirium. Future research should focus on this common-sense, pragmatic, inexpensive, and humane approach to prevent and treat delirium.

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1. Wright LM, Leahey M. Families and life-threatening illness: assumptions, assessment, and interventions. In: Leahey M, Wright LM, eds. Families and life-threatening illness. Springhouse, PA: Springhouse, 1987:45-58.
2. Leahey M, Harper-Jaques S. Family-nurse relationships: core assumptions and clinical implications. J Fam Nurs 1996;2:133-51.
3. Rosenbloom-Brunton DA, Henneman EA, Inouye SK. Feasibility of family participation in a delirium prevention program for hospitalized older adults. J Gerontol Nurs 2010;36:22-33.

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THE AUTHORS REPLY: We agree with Flannery et al. that process-of-care interventions to promote sleep in critically ill patients are feasible, although considerable effort may be required to attain at best 60 to 80% compliance.[1] Preliminary data suggest that such efforts may reduce the incidence of delirium,[2] but data from definitive studies are lacking. More effort is warranted both to test the effectiveness of "bundles" of therapies for delirium prevention and management (especially nonpharmacologic approaches) and to optimize methods of translating them into routine clinical practice. A melatonin agonist approved by the Food and Drug Administration has shown promise; it was associated with a reduction in the incidence and frequency of delirium in a small trial in which 24 of the 67 patients enrolled were in the ICU.[3] Once again, more definitive evidence is awaited.

Govig advocates family-based interventions in critical illness, and it is highly likely that these measures can benefit critically ill patients — as has already been shown with family involvement in early mobilization.[4] However, testing this approach in clinical trials poses considerable difficulty, including the assignment of patients to a control group with less family involvement. Cluster-randomization trials or trials using historical controls could facilitate the encouragement of family involvement without affecting a standard-care control group, but they still might not allay concerns about external validity. It seems obvious that the benefit of family involvement is likely and the risk low; thus, without waiting for such evidence, we would encourage critical care practitioners to afford the families and friends of critically ill patients as much access as possible, when feasible, to involve them in efforts to maintain patients' orientation and normal sleep–wake cycles, and to assist in early mobilization as recovery occurs.

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1. Kamdar BB, Yang J, King LM, et al. Developing, implementing, and evaluating a multifaceted quality improvement intervention to promote sleep in an ICU. Am J Med Qual 2013 November 22 (Epub ahead of print).
2. Kamdar BB, King LM, Collop NA, et al. The effect of a quality improvement intervention on perceived sleep quality and cognition in a medical ICU. Crit Care Med 2013;41:800-9.
3. Hatta K, Kishi Y, Wada K, et al. Preventive effects of ramelteon on delirium: a randomized placebo-controlled trial. JAMA Psychiatry 2014 February 14 (Epub ahead of print).
4. Rukstele CD, Gagnon MM. Making strides in preventing ICU-acquired weakness: involving family in early progressive mobility. Crit Care Nurs Q 2013;36(1):141-7.

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