Contesting the Equivalency of Continuous Sedation until Death and Physician-assisted Suicide/Euthanasia: A Commentary on LiPuma

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Patients who are imminently dying sometimes experience symptoms refractory to traditional palliative interventions, and in rare cases, continuous sedation is offered. Samuel H. LiPuma, in a recent article in this Journal, argues that continuous sedation until death is equivalent to physician-assisted suicide/euthanasia based on a higher brain neocortical definition of death. We contest his position that continuous sedation involves killing and offer four objections to the equivalency thesis. First, sedation practices are proportional in a way that physician-assisted suicide/euthanasia is not. Second, continuous sedation may not entirely abolish consciousness. Third, LiPuma’s particular version of higher brain neocortical death relies on an implausibly weak construal of irreversibility—a position that is especially problematic in the case of continuous sedation. Finally, we explain why continuous sedation until death is not functionally equivalent to neocortical death and, hence, physician-assisted suicide/euthanasia. Concluding remarks review the differences between these two end-of-life practices.

Keywords: continuous sedation until death, higher brain death, palliative care, proportionality, reversibility

I. INTRODUCTION

Although “[m]edicine cannot sanitize dying or provide perfect solutions for all clinical dilemmas” (Quill and Byock 2000, 413), recent years have witnessed
considerable effort within the palliative care community to address severe, unrelieved suffering at the end of life. On rare occasions, when symptoms become refractory to traditional palliative interventions, continuous deep sedation may be offered for a period of time that precedes biological death. In a recent article in this journal, Samuel H. LiPuma (LiPuma 2013) presents a spirited case for the equivalency of continuous sedation until death (CSD) and physician-assisted suicide/euthanasia (PAS/E) on the basis of a higher brain (neocortical) definition of death. We contest his equivalency thesis on the basis of several factual, practical, and moral considerations. After clarifying the clinical and ethical terms of the debate, we argue that CSD does not involve killing but may offer an appropriate response to suffering occasioned by refractory symptoms. In this article, we advance four objections to the equivalency thesis proposed by LiPuma. We first examine the ways in which sedation, including CSD, is proportional in a way that PAS/E is not. A second argument casts doubt on the assumption that CSD entirely eliminates consciousness; in this analysis, a brief review of similarities and differences between sedation levels and general anesthesia will be explored. Our third objection to the equivalency thesis pertains to LiPuma’s particular version of the higher brain (neocortical) standard. We show how LiPuma’s account relies on an implausibly weak condition of irreversibility that would present challenges for any standard of human death. This weak condition of irreversibility is especially problematic when applied to cases of CSD. In our fourth and final area of analysis, we explain why CSD is not functionally equivalent to neocortical death. Our commentary concludes with a brief review of the differences between CSD and PAS/E.

II. LIPUMA’S ARGUMENT

The thesis advanced by LiPuma must be understood against the backdrop of a debate that has continued for some time now. The use of sedation for the palliation of refractory symptoms was first described as an emerging (and potentially problematic) intervention in an early Italian study (Ventafridda et al., 1990). One year later, Enck introduced the concept of “terminal sedation” to describe the practice (Enck, 1991). This terminology has been criticized (Jackson, 2002; Broeckaert and Núñez-Olarte, 2002, 167–9) because the adjective “terminal” is ambiguous. Does it refer to a type of sedation that is used for a class of patients with terminal disease, or does it describe instead the end-point of the intervention? If the purpose of “terminal sedation” is to hasten death, there would seem to be little, if anything, to distinguish the practice from that of PAS/E. That the use of sedation might entail a form of covert euthanasia, or “slow euthanasia” (Billings and Block, 1996), has engendered fears on the part of professionals and even the public. And although this view has been highly criticized (Mount, 1996), it seems that
variations on this theme have continued—for instance, it is the premise of the first edited volume on the subject (Tännö, 2004). LiPuma’s own article is yet another variation on this theme, now based on the assumption that permanent loss of consciousness is the only correct standard of death. We first sketch the main thrust of LiPuma’s position and then provide our ethical analysis in the sections that follow.

In his article, LiPuma challenges a distinction, held by many, which states that between two end-of-life options, CSD and PAS/E, only the latter involves killing, whereas the former aims exclusively at relief of pain. LiPuma argues that this distinction is mistaken and that the two are actually equivalent practices—that is, both involve killing based on a higher brain (neocortical) definition of death. For if (1) the permanent unconsciousness that results from CSD meets the criteria for a higher brain definition of death, and (2) there are plausible moral reasons for holding that neocortical death is equivalent to the death of the person (although not the death of the biological organism), then we are led to (3) the conclusion that those patients placed into CSD are (or ought to be considered) dead as a result. This, then, is his equivalency thesis. At issue is a distinction that LiPuma draws between the biological death of the human being and the death of the person; LiPuma’s argument is that the death of the person occurs when unconsciousness is permanent. Finally, LiPuma argues that two possible objections—reversibility and double effect—fail to establish any distinguishing characteristics between CSD and PAS/E. What are his specific claims?

LiPuma first locates the practice of CSD in relation to palliative care in general and sedation practices in particular. He explains what is entailed by palliative sedation therapy—“symptom relief is achieved by lessening or eliminating the consciousness of the patient” (LiPuma, 2013, 191)—and distinguishes CSD from mild, deep, and intermittent sedation. LiPuma adopts the term CSD and clarifies the following. First, his argument “only applies to the practice of CSD where the patient is rendered permanently unconscious until complete biological death” (LiPuma, 2013, 192); he thus excludes cases in which sedation is temporary. Second, for this kind of sedation, the intention generally is “that nutrition and hydration are no longer provided once sedation begins” (LiPuma, 2013, 192). Third, the barbiturates utilized in CSD “produce nonconscious states that can be distinguished from other noncommunicative states such as sleeping and locked-in syndrome where some form of consciousness is maintained” (LiPuma 2013, 193; note omitted). Finally, once the intention of CSD is accomplished, the state of unconsciousness is permanent.

LiPuma next examines the case of “Mrs. B.”—first introduced in Lo and Rubenfeld (2005)—a woman dying of widely metastatic breast cancer who, despite all efforts to control her symptoms, still experiences agonizing pain even as her medications are at already high levels. She eventually suffers myoclonic jerks as a side effect of the medications and receives continuous
sedation. What might have been the *ethical* difference in this case had PAS/E been initiated instead of CSD? LiPuma argues that there would have been none whatsoever: first, because both are “decision[s] of last resort” due to the refractory nature of her symptoms; second, both cases involve the permanent cessation of consciousness; and finally, if “the outcome at the end of each procedure” is the same—that is, “complete biological death”—it would be appropriate to ask Mrs. B.’s family and friends to say their farewells prior to the initiation of CSD or PAS/E (LiPuma, 2013, 193). These all appear to be reasonable points. LiPuma next asserts that “A request for CSD, then, is a request to be relieved of intractable symptoms by first dying an experiential death—that is, chemically and purposefully simulating the condition of one who is dead based on higher brain functioning” (LiPuma, 2013, 193; note omitted). The inducement of sedation “blocks all conscious thought,” as well as “any other possible kind of awareness,” with the further implication that this state is maintained until “complete biological death, without the patient ever returning to a conscious state” (LiPuma 2013, 193). In his estimation, when comparing CSD and PAS/E, “The sequence of events … is practically identical” (LiPuma, 2013, 193).

LiPuma’s line of reasoning hinges fully on the equivalency of a permanent loss of consciousness and the death of the person. He defends this position by (1) finding the other two definitions of death to be unsatisfactory (i.e., the traditional cardiopulmonary standard, and the whole-brain standard); and (2) by contending that reversibility is not morally important in distinguishing a state of permanent sedation from a state of neocortical death (and, hence, CSD from PAS/E). He then turns to a third objection to his equivalency thesis that involves the principle of double effect, but contends that this principle is not applicable (LiPuma, 2013, 201). LiPuma devotes almost all of the remainder of his paper to an elaboration of the first two points, reserving only two paragraphs to the dismissal of double effect. We, too, will reserve most of our response to his first two points. With regard to the issue of double effect, we merely point out that LiPuma’s dismissal relies on the presumption that the aim of CSD is to render the patient unconscious. But this presumption is questionable. Many advocates of CSD who oppose PAS/E will object: unconsciousness is not the aim of CSD, palliation is. Unconsciousness is only the means to achieving that goal. We will examine some of these claims in greater detail below.

**III. CLARIFYING THE TERMS OF THE DEBATE**

In order to contest LiPuma’s equivalency thesis, it is important to be clear as to what his argument entails. The question is not whether PAS/E might be ethically acceptable in certain well-defined circumstances or whether those options are even preferable to CSD. Rather, LiPuma’s thesis is simply that CSD
is equivalent to PAS/E because, in each case, killing is involved. Although LiPuma provides a rigorous line of argument, we contend that important factual and practical considerations have been overlooked in a way that distorts the moral evaluation of the practice. As we show, the equivalency thesis rests on claims—both factual and evaluative—that are misguided. The objective of this section is to clarify these claims first with regard to definitions and, second, with regard to reasons for initiating sedation.

Definitional Issues

LiPuma argues that CSD is distinct from the other subgroups of mild, deep, and intermittent sedation. We wish to clarify the point further. All types of sedation should be classified not only according to level of duration (as his article states) but also according to intensity of sedation. Thus, it is possible to have a sedation that is “mild and continuous,” as well as a sedation that is “deep and intermittent.” Because continuous sedation does not tell us about intensity (whether mild or deep), we suggest that the terminology continuous deep sedation is more accurate. As we show below, the qualifier “until death” is not intrinsic to the act (more on this shortly). In order not to confuse things, however, we retain LiPuma’s terminology.

A further point deserves consideration. Unless it involves a catastrophic emergency—such as massive haemorrhage, asphyxiation, severe terminal dyspnea, or overwhelming pain crisis (Cherny and Radbruch, 2009, 584)—the decision to initiate CSD usually comes after intermittent (either mild or deep) or respite sedation has failed to reduce the severity of the refractory symptom. CSD therefore is an extension of the rationale for initiating sedation in the first place—except in genuine emergencies, it would be quite rare that CSD would be proposed without first having considered intermittent and respite forms of sedation. This point is important when we move to the moral evaluation of the practice.

LiPuma’s definition of continuous sedation until death also requires clarification. When a patient is continuously sedated, it is usually a contingent matter whether sedation is continuous until biological death. If, for example, the patient’s refractory symptoms show any signs of improvement during the movement towards biological death, the intensity of sedation would generally be reduced or even discontinued altogether. Clinical circumstances allow for the possibility of “planned weaning,” including an option to “discontinue sedation” (Cherny and Radbruch, 2009, 585), which means that we cannot exclude these eventualities a priori as LiPuma would lead us to believe. It is often true that the patients who require CSD are so ill by the point that it is initiated that sedation has to remain deep and continuous until biological death in order to achieve the palliation sought. We must be mindful of the reason why this is so. Given the very real possibility that refractory suffering would return, coupled with imminent death, reducing
the depth of sedation and thus awakening the patient would many times be
cruel, analogous to rendering a patient conscious again in the middle of a
major surgery (e.g., to discuss an unexpected finding). The simple fact that
the palliative care doctor and the surgeon are compassionately keeping the
patient unconscious does not mean that they could not awaken the patient.
The aim of sedation is only to relieve refractory symptoms, not to keep the
patient permanently sedated until biological death, even though the latter
might happen in dire circumstances. Even if descriptively sedation may have
to be continued until death, the “until death” does not define the practice.
In the case of End Stage Renal Disease (ESRD), for instance, most ESRD
patients will have to undergo dialysis for the rest of their lives—that is, until
death. However, if a transplant organ unexpectedly becomes available, the
dialysis can be ceased. But that does not mean that we now have to reclassi-
sify the type of treatment the patient was undergoing previously. The same
is true for continuous sedation.²

The final aspect concerning definitions has to do with the decision of
whether to discontinue or withhold artificial nutrition and hydration (ANH).
For sedation in general, and CSD in particular, this is a separate decision.³
Although many cases of CSD are those in which ANH has been previously
withheld or withdrawn, this is not a necessary feature of CSD (as LiPuma
implies) and does not distinguish the practice as such.⁴ Although the guide-
lines in The Netherlands do recommend that deeply sedated patients should
not receive fluids,⁵ in our brief experience in Italy, ANH many times is con-
tinued during CSD, but this too must be decided on a case-by-case basis.⁶

Reasons for Initiating Sedation, Including CSD

Now that we have clarified LiPuma’s definition of CSD, what are the clini-
cal and ethical reasons for initiating sedation, including CSD? Much early
controversy stemmed from a lack of consensus on terminology and well-
designed studies. This gap has been addressed by recent scholarship and
through official position statements by professional associations.⁷ Although
any “consensus” is certainly fragile, we would submit that there is emerging
professional agreement with regard to proper definitions, the clinical and
ethical indications for various types of palliative sedation, and the rationale
for initiating CSD as a last resort. Here, we wish to concentrate on the clinical
and ethical indications for initiating sedation, including CSD, because some
of these considerations were given insufficient attention in LiPuma’s analysis.

Sedation is used in a variety of palliative care contexts.⁸ In the end-of-
life setting, it is generally indicated for patients who experience intolerable
distress from symptoms that have proven refractory to traditional palliative
interventions; this includes both mild and deep forms of intermittent and
respite sedation. Informed consent also must be obtained from either the
patient or the surrogate (Berlinger, Jennings, and Wolf, 2013, 183) in order
to begin sedation. CSD is generally considered clinically indicated and ethically permissible only in certain rare circumstances—that is, when patients are (1) terminally ill, (2) imminently dying, (3) suffering from one or more refractory symptoms, and (4) when either intermittent or respite sedation has been unsuccessful in reducing the severity of the refractory symptom (5) in an acceptable time frame. To briefly define each point:

1. **Terminally ill**: patients must be in the final stages of a “severe, chronic, life-threatening illness” (Krakauer and Quinn, 2010, 1563; emphasis in original).9

2. **Proximity to death**: death is expected to occur within a very short time, usually within two weeks.10

3. **Presence of one or more refractory symptoms**: Refractory symptoms are to be distinguished from difficult-to-manage symptoms. According to Krakauer and Quinn (2010, 1560), “Suffering is refractory when it cannot be adequately relieved despite aggressive and concerted efforts both to determine its causes and to treat them using standard palliative interventions without inducing sedation.” Cherny and Portenoy (1994) also include in this category those therapies that are associated with excessive or unacceptable morbidity.11

4. **Intermittent or respite sedation has failed**: Intermittent sedation allows for periods of alertness, and respite sedation is “time-limited.” These types of sedation are believed to offer short-term relief from discomfort and, as noted by the EAPC, “may be indicated earlier in the patient’s trajectory to provide temporary relief whilst waiting for treatment benefit from other therapeutic approaches” (Cherny and Radbruch, 2009, 584).

5. **Acceptable time frame**: If traditional palliative measures are unlikely to provide relief within a reasonable time frame, the symptom may be considered refractory (see Cherny and Portenoy, 1994). Some treatments—for example, for clinical depression—require more than two weeks of therapy in order to have a satisfactory result. If a patient has a prognosis of death estimated at one week, pharmacotherapy is unlikely to be effective, and therefore, depression is considered refractory.12

We believe LiPuma provides insufficient attention to these clinical indications and realities under which CSD would become an option of last resort. He seems to assume that patients (or their surrogates) would request CSD without first having tried to reduce the severity of the symptom by some other means—for example, by administering high doses of opioids or initiating trials of (mild/deep) intermittent or respite sedation. Yet this is unlikely, unless we restrict our analysis to cases of catastrophic emergencies. On this point, the case study of Mrs. B. is instructive—for she seems to have entered a critical moment in which all other treatments short of compromising consciousness were no
longer effective in controlling her pain and, later, myoclonic jerks. Indeed, her situation was by all accounts rather extraordinary. As Mr. B. explained to the “Perspectives editor” in Lo and Rubenfeld (2005):

My wife and I were saying good-bye to each other when suddenly she began to have spasms, whole, wracking, body spasms. Everything from her waist down would spasm every 3 to 5 seconds. After a couple hours of this, she said, “If anything, just let me sleep. I’m in pain, I can’t die, and this is a nightmare.” (Lo and Rubenfeld, 2005, 1811; emphasis in original)

These details, along with the clinical reality of Mrs. B.’s disease trajectory—that is, death was expected within a short time due to her advanced metastatic cancer—seem to satisfy our criteria delineated earlier. Mrs. B. was closely monitored to ensure that comfort was achieved. Lo and Rubenfeld (2005, 1810) tell us that “She received a loading dose of phenobarbital and was maintained on a continuous phenobarbital infusion. Because her myoclonus persisted after she became unresponsive, intravenous dantrolene was administered.” Mrs. B. died some 4 hours later.

IV. CONTESTING THE EQUIVALENCY THESIS

The case of Mrs. B. provides us with an excellent starting point to consider four possible objections to LiPuma’s equivalency thesis. We first show how sedation in general, and CSD in particular, is proportional in a way that PAS/E is not. Second, the assumption that CSD entirely eliminates consciousness is questioned on the basis of clinical experience, as well as by examining differences between deep sedation and general anesthesia. A third objection aims to expose a structural weakness in LiPuma’s argument for a higher brain standard of death and explains how the notion of irreversibility embraced by his position is misguided in regard to CSD. In our fourth and final objection, we show how CSD is not functionally equivalent to neocortical death and, hence, PAS/E. These four objections provide further support to question the purported equivalency of CSD and PAS/E.

Sedation as Proportional Therapy

We have seen how LiPuma restricts his analysis not only to cases of deep sedation (as to be distinguished from sedation practices in general for the imminently dying) but also to those in which sedation is intended to continue through to actual biological death (an even smaller subset). We have already explained how CSD is part of a broader coordinated approach to symptom management and is used only when all other treatments have failed to alleviate the distress of one or more refractory symptoms. In his restricted version of CSD, we believe LiPuma has done what Broeckaert describes as “turning [CSD] into an autonomous, separate, ‘end-of-life’ decision” which,
unfortunately, “loses sight of the essential *dynamic* quality and *proportional* nature of palliative sedation” (Broeckaert, 2011, 63; emphasis in original). In other words, LiPuma abstracts what are truly exceptional cases of CSD from the larger framework in which sedation practices are not only clinically relevant but also ethically intelligible. We contend that cases of sedation, including CSD, are *proportional* in a way that PAS/E is not.\(^{13}\) The aim of sedation is to reduce the severity of the refractory symptom; it does not cause more harm than necessary to achieve this objective. Because the sedatives used are titrated to effect, there is correspondence between the symptom and the way it becomes controlled. These points emerge from recent clinical experience.

Consider the following: in a recent prospective, longitudinal study from Belgium, Claessens et al. (2011) described the characteristics of 266 patients who were treated in eight Flemish palliative care units (PCUs).\(^{14}\) Of these 266 patients, 7.5\% \((n = 20)\) received one or more forms of palliative sedation—including CSD—and sedation was started, on average, 2.5 days before death. Prior to initiation of palliative sedation, 70\% “were on sedatives …, either for symptom control (55\%), or for sleep disturbances (15\%)” (Claessens et al., 2011, 18). Of particular interest was how, in many cases, the type of sedation evolved over time: “For 40\% of the patients, sedation started as a mild-continuous sedation, and 40\% started with a deep-continuous sedation in nonacute situations. On the day of death, 85\% of the patients received deep-continuous sedation for nonacute situations” (Claessens et al., 2011, 18). Looking at these findings more closely, the authors write:

\[\text{It is clear that in almost half of the patients (45\%) who received palliative sedation, the form of sedation changed over time. In most of these patients (88\%), palliative sedation was started as a mild or intermittent form of sedation, on average, four days before the day of death, and it evolved into deep-continuous sedation on average of two days before the patient’s death. (Claessens et al., 2011, 18)}\]

The authors also note the following:

\[\text{In those patients for whom palliative sedation did not change over time, palliative sedation was started, on average, two days before death. Seventy-three percent of these patients received deep-continuous sedation for non-acute situations, and 27\% received mild-continuous or mild-intermittent sedation. (Claessens et al., 2011, 18)}\]

One may, of course, dispute these findings. LiPuma would likely point out that almost half of the study’s sedated patients received a form of sedation that did not change over time—and 73\% of these patients received CSD. Yet in the context of imminent death, when refractory suffering cannot be managed in any other way, a reasonable interpretation of the study is offered by the authors: “The intensity and nature of the suffering determines which form of sedation, and more specifically, what dosage of sedatives will be administered to the patients. Thus, palliative sedation does not presuppose
that a patient is sedated until unconsciousness” (Claessens et al., 2011, 21). Because sedation is titrated to effect, there is proportionality between the refractory symptom and the way it becomes controlled. This is not the case in PAS/E. Finally, even the group of nonsedated patients had a noticeable drop in their states of consciousness, based on Glasgow Coma Scale (GCS) scores, roughly 7–10 days before death. This same group had continued declines in consciousness until death. Thus, sedated patients are not alone in losing significant levels of consciousness before death approaches; rather, “losing consciousness is often an inherent part of the dying process” (Claessens et al., 2012, 199).

Continuous (Deep) Sedation Does Not Entirely Abolish Consciousness

Returning to the case of Mrs. B., there is a second aspect that allows us to critique LiPuma’s line of reasoning. This has to do with the assumption that Mrs. B. was killed the moment that CSD was started because at that point unconsciousness became permanent. Notice that LiPuma’s equivalency thesis is not based on evidence that the sedatives used in CSD are lethal or known to hasten death. Rather, LiPuma maintains that CSD and PAS/E are equivalent acts on the basis of permanent loss of consciousness. LiPuma assumes that the intensity of sedation utilized in CSD entirely abolishes consciousness. In this section, we suggest that LiPuma’s assumption is misplaced.

We begin by noting a distinction that LiPuma draws between unconsciousness that is temporary and unconsciousness that is permanent. On his account, the former occurs during cases of general anesthesia and non-dreaming sleep, whereas the latter occurs in cases of CSD and PAS/E. LiPuma clarifies his position:

I only propose here that ... some minimum level of consciousness, or the potential for future conscious states, be maintained in order for a human being, qua human being, to be considered alive. A person under general anesthesia is still very much alive because of the potential for future conscious states. A person undergoing CSD never returns to a conscious state. (LiPuma, 2013, 198–199)

According to LiPuma, CSD brings about permanent unconsciousness because the intention is to keep the patient continuously sedated until biological death. We can infer from LiPuma’s position that intermittent deep sedation and continuous deep sedation are not materially different with respect to intensity (because both are deep); rather, the difference is in regard to duration. Because intermittent deep sedation is temporary, whereas CSD is permanent, death only occurs, on LiPuma’s account, when sedation is permanent. A schematic representation of these differences is shown in table 1.

The situation is more complicated in the case of CSD and general anesthesia. On LiPuma’s account, the key difference between CSD and general anesthesia is not at the level of intensity; if it were, general anesthesia would
more closely resemble PAS/E because the depth of unresponsiveness is actually more profound than that of CSD (to be explored below). Rather, the salient difference for LiPuma remains, again, at the level of duration: whereas general anesthesia is temporary, CSD is continuous. Other than their duration, however, there are notable differences between the two interventions. As highlighted by the American Society of Anesthesiologists (2014), during deep sedation a patient has “Purposeful response following repeated or painful stimulation;”19 by contrast, during general anesthesia a patient is “Unarousable even with painful stimulus.” LiPuma presumes that CSD and general anesthesia are similar interventions (because both produce unconscious states) except with respect to duration; yet he overlooks the fact that both are very different with respect to responsiveness. Indeed, his governing assumption is that both CSD and general anesthesia eliminate consciousness. This is misleading because some responsiveness remains in the case of CSD; unconsciousness, therefore, is not entirely permanent (a point that LiPuma overlooks). A schematic representation of these differences between deep sedation (CSD) and general anesthesia is shown in table 2.

LiPuma’s position would be undermined, however, if there is evidence to demonstrate that awareness occurs during either general anesthesia or CSD. There have been published reports of awareness during general anesthesia.20 With regard to palliative sedation, an article by Alexander Kon provides evidence to support the claim that CSD does not entirely eliminate consciousness. As a pediatric ICU physician, Kon explains that his professional experience is limited to sedation for temporary medical procedures after which patients recover. He notes the following:

In my own practice …, I routinely provide minimal, moderate, and deep sedation for patients (aged newborn through 23 years of age) undergoing painful or noxious procedures. After patients recover from sedation, I usually ask those who are old enough what they remember and whether they experienced any pain. Thankfully, the vast majority have no recollection; however, a nontrivial minority report experiencing some pain or dysphoria during the procedure. A few patients have even been able to recall conversations that occurred while they were under moderate or deep sedation, and report feeling pain, fear, or anxiety without the ability to express their symptoms. Such experiences are extremely troubling for patients (and for providers). (Kon 2011, 41)

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**Table 1. Key distinctions in sedation according to LiPuma**

<table>
<thead>
<tr>
<th>Sedation</th>
<th>Intensity</th>
<th>Duration</th>
<th>Unconsciousness</th>
<th>Cause of death?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mild</td>
<td>Intermittent</td>
<td>Temporary</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Deep</td>
<td>Continuous</td>
<td>Permanent</td>
<td>Yes*</td>
<td></td>
</tr>
</tbody>
</table>

*According to LiPuma (2013), sedation that is deep, continuous, and permanent brings about a state of affairs that is equivalent to death based on a higher brain (neocortical) standard; for this reason, CSD is also the *cause* of death when the intention is to maintain this state of unconsciousness until biological death occurs.*
Clearly, for those who seek to palliate patients through CSD, Kon’s findings are problematic. For it could mean that CSD notwithstanding, some patients may still experience pain and distress. This finding, in turn, could be used by advocates of PAS/E to argue that CSD is a flawed palliative strategy and only PAS/E can guarantee that the patient’s suffering will cease. But this line of reasoning at the same time undermines LiPuma’s equivalency thesis. Precisely because the two are not equivalent, it would make sense for PAS/E advocates to reject CSD and instead commit PAS/E. Kon (2011, 42), for instance, maintains that palliative sedation “… does not obviate the need for PAD [physician-assisted dying].”

We wish to conclude with a brief reflection that builds on our observations from the previous section on proportionality. Sedation represents a continuum of therapy. As the American Society of Anesthesiologists (2014, 2) explains, “… it is not always possible to predict how an individual patient will respond. Hence, practitioners intending to produce a given level of sedation should be able to rescue [note omitted] patients whose level of sedation becomes deeper than initially intended.”21 Accordingly, if a patient were to receive deep sedation and lapse into a state of general anesthesia, the patient then would become “rescued” and her sedation level would be reversed to the original state of deep sedation. This would not happen in cases of PAS/E, unless we were dealing with an “attempted suicide” (LiPuma, 2013, 199). The purpose of PAS/E is not to render an individual permanently unconscious; rather, the purpose of the intervention is to end that person’s life. The drugs used in PAS/E guarantee that the person’s life will end. To be sure, if a Dutch physician received a request to perform euthanasia but instead merely caused the patient to slip into unconsciousness, he or she would be convicted of malpractice. By contrast, CSD is not aimed at bringing about death but only relieving pain and suffering—and the stepwise depression of consciousness is the means to that end.22

Table 2. Comparison between deep sedation (CSD) and general anesthesia

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Responsiveness</th>
<th>Duration</th>
<th>Unconsciousness</th>
<th>Does death occur?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deep sedation (CDS)</td>
<td>Purposeful response following repeated or painful stimulation</td>
<td>Continuous</td>
<td>Permanent</td>
<td>Yes</td>
</tr>
<tr>
<td>General anesthesia</td>
<td>Unarousable even with painful stimulus</td>
<td>Temporary</td>
<td>Temporary</td>
<td>No</td>
</tr>
</tbody>
</table>

*aInformation is from American Society of Anesthesiologists (2014).  
bBased on LiPuma’s assumption that the intention in CSD is to keep the patient continuously sedated until biological death.  
cAccording to LiPuma (2013).
Why LiPuma’s Interpretation of Higher Brain (Neocortical) Death and Reversibility Is Questionable

LiPuma argues that human death occurs with the cessation of higher brain functioning. Our third objection against his equivalency thesis will not be based on an alternative conception of death. Indeed, philosophical debates on this topic have been largely inconclusive within the academic community (Youngner and Arnold, 2001, 532), and the mere assertion of what is necessary and sufficient for human life will be unlikely to settle the issue. Our argument will proceed instead based on an analysis of LiPuma’s particular version of the higher brain (neocortical) standard of death. We will argue that even if one is convinced by LiPuma’s arguments in favor of this standard, its applicability to cases of CSD is questionable. We argue that “permanent” loss of consciousness functions in LiPuma’s argument as a condition of irreversibility; after specifying three construals of irreversibility, we show that LiPuma has adopted the weakest construal. Although his position would present challenges for any standard of death, LiPuma’s perspective on irreversibility is particularly problematic in the case of CSD. We conclude that the equivalency thesis as proposed by LiPuma is implausible.

To orient our discussion, several preliminaries are in order. Three distinct levels of discourse animate the determination of death debate: definition of death, criterion, and tests (Bernat, Culver, and Gert, 1981). The definition is a conceptualization of the phenomenon of human death; the criterion identifies the necessary and sufficient conditions for death to have occurred based on a critical loss of function; finally, the tests demonstrate whether or not the criteria have been satisfied. LiPuma’s analysis remains at the first two levels; we argue that his position is vulnerable to criticism at the second level.

The three standards of human death surveyed by LiPuma—the cardiopulmonary, whole-brain, and higher brain (neocortical)—each share a common element: namely, death is a permanent, irreversible state. The three standards part company in terms of how we ought to conceptualize human death. Is it primarily a biological occurrence—that is, the irreversible cessation of the integrative functions of the (human) organism means the death of the human being? Or, alternatively, is death to be based on considerations that are not strictly biological—for instance, the irreversible cessation of psychological continuity? Whereas the cardiopulmonary and whole-brain standards are, essentially, biological understandings of human death,23 the higher brain standard is not.24 In fact, proponents of the higher brain formulations do not base their account on a conception of the human organism but rather the human person. Thus, in the debate over the definition of death, the issues come down to a fundamental distinction between the biological death of a human organism and the death of a human person. One must decide which of the two characterizes best what we mean by human death. LiPuma provides arguments to support the latter interpretation.
There are, indeed, a variety of higher brain approaches. Some scholars have argued that the death of a person is based on the irreversible loss of features that are essential to the nature of persons—either rationality, personal identity, or social interaction, among others. Although there is disagreement regarding which of these constitutes the critical loss, the complete abolition of consciousness would seem to be a necessary component of that loss. LiPuma follows this line of reasoning; his conceptualization of human death is based on the permanent loss of consciousness—a position that may be characterized as “mentalist” because it is consciousness, not mere biological functioning, that has decisive importance in defining human life.

Having clarified these preliminary points, we are now in a position to state explicitly the two components of LiPuma’s conceptualization of human death.

1. **Definition of death**: the permanent loss of the capacity for consciousness.
2. **Criterion of death**: the permanent loss of higher brain (neocortical) functioning.

We have placed emphasis on the adjective “permanent” because it is central to LiPuma’s argument. Yet the stepwise loss of consciousness occasioned by CSD, we would suggest, is not permanent—more specifically, it is not irreversible. There is thus an ambiguity at work in LiPuma’s argument that calls for clarification. Permanent loss of consciousness functions in his argument as a condition of irreversibility—that is, permanent loss of consciousness is irreversible because the patient will not return to consciousness before biological death. More precisely, the reason why a continuously sedated patient will not return to a future conscious state before imminent biological death is not because a critical loss of anatomical function has occurred; rather, the patient will not return to a future conscious state simply because a decision has been made not to reverse the sedation. Before we critique this argument, it is important to clarify that (1) it is technically feasible to reverse a state of deep sedation and (2) a patient who receives CSD before biological death could potentially return to a future conscious state.

The condition of irreversibility is relevant to debates regarding the determination of death because it establishes whether the criterion of death has been met. As Youngner and Arnold explain, “All laws, clinical criteria and philosophic theories about death insist that the essential functions (whatever they are) must be irreversibly lost for death to be declared” (2001, 531; emphasis in original) even though irreversibility is rarely defined explicitly. However, three main construals of the concept of irreversibility have been articulated in the literature. The first holds that “a lost function cannot be restored by anyone under any circumstances at any time now or future” (Cole, 1993, 148–9). The second construal of irreversibility is less absolute;
it holds that the loss of function is “not reversible now” (Cole, 1992, 28; emphasis in original). There is yet a third possibility: the loss of critical function is irreversible because “the possibility of reversal is not ethically significant” (Tomlinson, 1993, 161).

Each of the three construals of irreversibility may be subjected to criticism. Whereas the first is too dependent on what may or may not be technically possible in the future, the second is hopelessly ambiguous. For what reason is the loss of function not reversible? Is it because physicians (e.g., in this operating room, in our city or country, throughout the world) are unable to reverse the loss of function? Or, alternatively, is the function not reversible simply due to limitations with our current medical equipment? The third account of irreversibility, however, presents the greatest challenge to the definition of death debate—and, by extension, to the judgment that CSD entails killing.

Consider the following thought experiment, related by Youngner, Arnold, and DeVita (1999, 17):

A seventy-year-old patient with end-stage metastatic cancer disease is rushed to the hospital comatose. She meets all other clinical criteria for brain death but is found to have high levels of barbiturates in her blood. A note is found that says the patient took an intentional overdose of barbiturates and wants to be allowed to die. Based on our current medical standards for whole-brain death, “such a patient could not be declared brain dead until after the barbiturates had disappeared from her blood, since patients with heavy barbiturate overdoses may mimic the clinical picture of brain death but fully recover once barbiturates have been cleared from the blood” (Youngner, Arnold, and DeVita, 1999, 17). According to the weakest construal of irreversibility, however, we would be forced to admit that “the patient could be declared dead despite the high level of barbiturates if we thought her suicide attempt was morally justified” (Youngner, Arnold, and DeVita, 1999, 17). This, of course, introduces an element of relativity into our discourse. On the one hand, there are many in our society who would argue that suicide is morally objectionable; others, to be sure, will arrive at the exact opposite conclusion. Basing the determination of death on whether or not the action is deemed morally justifiable creates a dilemma because it assumes that death may be determined in the absence of any accepted standard or criterion. Another problem, as Youngner and colleagues (1999, 17) explain, is that the weakest construal of irreversibility is “counterintuitive because it allows biologically identical cases to be treated differently.” Although there are certainly epistemological difficulties in locating the precise moment of death, it is important to recognize a metaphysical limit—for a patient cannot be declared dead and alive simultaneously. This metaphysical limit is denied when the condition of irreversibility is based on a moral judgment and not on human physiology—that is, anatomical structure.
Because of these difficulties, we wish to pursue a modest point with regard to the criterion of death: it is philosophically more plausible to declare a human being dead after that individual has lost, irreversibly, the anatomical structure responsible for maintaining whichever essential function(s) we hold to be morally significant. If one embraces the cardiopulmonary standard, a human being will be declared dead upon the irreversible loss of the heart and lungs because the capacity to maintain vital fluid flow has ceased. Similarly, according to the whole-brain standard of death, one will be declared dead upon the irreversible loss of the entire brain (including the brainstem) because the capacity to maintain somatic integrative unity has ceased. This reasoning also applies to the standard of death preferred by LiPuma: *a person is dead only upon the irreversible loss of the neocortex because the capacity to maintain consciousness has ceased.* The converse also holds: a human being may be classified as alive as long as his or her neocortex retains the capacity to support consciousness. Another way of making the same point is to maintain that loss of consciousness, in and of itself, is necessary but not sufficient to determine that human death has occurred. Only when the capacity to maintain the critical function of consciousness has been irreversibly lost may the human individual be classified as dead according to the higher brain approach.

Up until this point, we have argued that sedation is proportional to refractory symptoms, does not entirely eliminate consciousness, and represents a continuum of therapy. In this section, we have provided a further reason to question LiPuma’s equivalency thesis: on any reasonable standard of death, it is irreversible loss of anatomical structure—not permanent loss of function—that determines whether death has occurred.

**Why CSD Is Not Functionally Equivalent to Neocortical Death**

In this final section, we anticipate a potential objection to our analysis. After all, one might argue that, although the neocortex remains intact during CSD, from the subjective experience of the patient, death commences at the moment in which unconsciousness becomes permanent. Thus, even if CSD does not satisfy the criteria for the definition of higher brain (neocortical) death, as we detailed in the last section of this article, CSD may be said to bring about that same state of affairs because continuous deep sedation negates any experience of the world before biological death occurs. LiPuma (2013, 199) states it this way: “CSD permanently eliminates consciousness. In so doing, it also eliminates human life.”

According to this line of reasoning, CSD brings about the social death of the patient because personhood will have been effectively lost. As van Delden (2013, 223–4) explains, the patient undergoing CSD is “in a state of social death, deprived of any social interaction. … The moment of goodbye is separated from the moment of death. To the patient, deep continuous
sedation, just like euthanasia, means the end of (conscious) life.” The distinction here is, once again, between mere biological life and the biographical life of a person. During CSD, although the patient is biologically alive, “we cannot argue that she still leads ‘a life”’ in the fullest sense of the term (van Delden, 2013, 224); the reason is because CSD brings “an end to conscious, i.e. biographical, life” (van Delden, 2013, 224).

LiPuma makes a similar argument when he writes that the induction of CSD is a kind of *experiential death* from the perspective of the patient:

A request for CSD, then, is a request to be relieved of intractable symptoms by first dying an experiential death—that is, chemically and purposefully simulating the condition of one who is dead based on higher brain functioning. The sedation blocks all conscious thought and any other possible kind of awareness. This is then followed by the process right up to complete biological death, without the patient ever returning to a conscious state. The sequence of events, then, for both CSD and PAS/E is practically identical. (LiPuma 2013, 193; note omitted)

In holding that the sequence of events for both CSD and PAS/E is practically identical, LiPuma is making an argument for their *functional equivalence* based on a neocortical criterion of death. “Because CSD and neocortical death are functionally equivalent,” he contends, “there is no morally significant distinction between these states” (LiPuma, 2013, 201). Thus, CSD is functionally equivalent to PAS/E if the former either “aims at and achieves the same goals or has the same consequences” (Holm, 2013, 234) as the latter. In LiPuma’s estimation, this is exactly what occurs. If one’s intention is never to reverse the sedated state, there is no sharp boundary to be drawn between CSD and neocortical death from the perspective of the patient; similarly, there is no sharp boundary to be drawn between CSD and PAS/E. In both cases, consciousness ceases; in both cases, the patient permanently lacks awareness; and importantly, in both cases, meaningful engagement with one’s world will have been irretrievably lost.

Is this argument convincing? Although LiPuma’s position appears plausible, we argue that it is unsound. Its initial plausibility derives from a consideration made by Holm (2013, 236): “Phenomenologically (from the first person perspective), … [t]he last time I am conscious is the last time I will experience myself as alive.” There are at least two structural problems at work in LiPuma’s position, however. The first follows from our argument made in the last section: in the definition of death debate, the paramount question is whether the loss of critical function—in this case, consciousness—has become irreversible. Although the unconsciousness that occurs in CSD may be described as permanent, it is not, strictly speaking, irreversible (Holm, 2013, 236). CSD may be considered truly irreversible only according to the weakest construal of irreversibility; we have provided reasons for calling this strategy into question. There is yet a second weakness in LiPuma’s position. In the case of CSD, unconsciousness must be *maintained* in order to qualify
as permanent; it is not a one-time event, as is the ingestion of lethal medication or a lethal injection. For this reason, there is a qualitative difference between CSD and PAS/E: loss of consciousness is not a necessary feature of CSD, but rather a contingent one. This means that loss of consciousness “can be reversed either deliberately or as a result of mistakes” (Holm, 2013, 236). Loss of consciousness can be reversed deliberately because it is technically possible to return a deeply sedated patient to consciousness—this happens regularly in the case of deep intermittent sedation. Alternatively, loss of consciousness can be reversed as a result of mistakes on the part of clinicians. This might occur, for example, if clinicians are not careful when they move, rotate, clean, or administer further sedatives to patients who are undergoing CSD. We must recall a point we made earlier: a patient undergoing deep sedation has purposeful response following repeated or painful stimulation (American Society of Anesthesiologists, 2014). If these contentions hold, we would suggest that a patient who undergoes CSD is not to be declared dead at the moment in which unconsciousness is permanent but only after biological death has occurred. Only then can we be certain that death has become truly irreversible.

We offer a brief reflection in closing. When continuous deep sedation is used proportionately—that is, titrated to effect—sedation does not cause or even hasten death (Sykes and Thorns, 2003; Maltoni et al., 2009). For this reason alone CSD cannot be considered equivalent to PAS/E. Moreover, patients who are continuously sedated are still arousable, which makes CSD different from general anesthesia (see American Society of Anesthesiologists, 2014). In light of these remarks, perhaps it would be more appropriate to understand CSD as analogous to dying in one’s sleep. It is common to sleep without dreaming; for the person who sleeps without dreaming, there is no awareness of her existence until she wakes up the next day. We can certainly imagine a situation in which a person falls asleep and never wakes up. What might be the practical consequences of this situation? Suppose that an elderly gentleman, Mr. S., is soon to die from an underlying lethal disease. One evening, as usual, he goes to bed at 11 p.m. Throughout the night, he does not dream. Mr. S. undergoes cardiac arrest at 3:00 a.m. and dies. Since Mr. S. did not dream between 11 p.m. and 3 a.m., he did not have any awareness of his existence before he died at 3:00 a.m. If one were to adopt a weak construal of irreversibility, similar to LiPuma, for all practical purposes Mr. S. would have socially died from the moment he could not return to a future conscious state. If Mr. S. happened to be home alone for the evening, Mr. S. died socially at 11 p.m. Yet this conclusion seems hasty. Suppose Mr. S.’s wife were home and entered the bedroom around midnight; if she happened to make too much noise around her husband, it is likely that Mr. S. would have awakened. Alternatively, if Mr. S.’s cat jumped on his bed around midnight and then scratched Mr. S., Mr. S. most certainly would have awakened from the pain. In both cases, Mr. S. would have awakened prior
to his imminent cardiac arrest at 3:00 a.m. The conclusion we would draw from this example is the following: a state of dreamless sleep before death is not death itself. Analogously, why would CSD—that is, the induction of unconsciousness before biological death—be any different if it is, in principle, reversible? Instead of a social death, perhaps a more apt metaphor for CSD is the following: the induction of a continuous, noncommunicative sleep until biological death.

V. CONCLUSION

LiPuma ends his analysis by stating that “The thesis being defended here does not involve moral evaluation” (LiPuma, 2013, 201). Perhaps we ought to draw the moral conclusion for him. In declaring a patient dead, we not only make a clinical determination of irreversibility of critical function, we also make a judgment that certain death behaviors (Veatch, 2005, 358–9) are now appropriate. Some of these death behaviors might include “procuring ‘life-prolonging’ organs, beginning the mourning process (in a manner that is psychologically different from anticipatory grief), reading the will, initiating the funeral and burial ritual” (Veatch, 2005, 358), and so forth. Yet because sedation must be maintained through to biological death (in order to qualify as death), sedation would have to be maintained during each of these death behaviors. In many cases, this would present considerable difficulties. A full articulation of these challenges is beyond the scope of this article.

Having shown that LiPuma’s equivalency thesis is untenable, it may be instructive to conclude with a brief review of the differences between CSD and PAS/E. Although both deal with patients who have a terminal condition, many patients who request PAS/E are neither (1) imminently dying nor (2) reporting one or more refractory symptoms (as defined in § III). This is because PAS/E is used primarily in an anticipatory way: it is the fear of the pain, suffering, loss of autonomy, and complete dependency which motivates requests for PAS/E. By contrast, palliative sedation, including CSD, usually takes place at the very end of a disease trajectory when all kinds of other approaches to relief of current pain and suffering have failed, and death is expected within hours, days, or at most two weeks. As Broeckaert (2011, 63) reminds us, “The point of palliative sedation is not to reach a certain level of consciousness (e.g., coma)” but rather to find “a solution for a refractory symptom and therefore lowering the level of consciousness only as much as needed.” CSD must be understood as an extension of this approach. The proof of this is that the means used are sedatives titrated to effect; one begins with the lowest possible dose and deepens the intensity of the sedative stepwise only as much as is warranted by the severity of the refractory symptom. PAS/E, which uses a combination of drugs with the explicit purpose of compromising respiratory function, does not entail
titration. In palliative sedation and CSD, the plan of action is to monitor the patient to ensure comfort until biological death occurs, and until that point, there is always the possibility of lightening sedation levels if needed. This is usually not the case in PAS/E unless we are dealing with an attempted suicide. Given these points, the ethical relevance should be clear: in cases of sedation, including CSD, patients die of their underlying terminal diseases; in cases of PAS/E, patients die either at their own hands (by ingesting lethal medications) or having their deaths administered by their physicians (through a lethal injection).

NOTES

1. “Continuous deep sedation,” as noted by the European Association for Palliative Care (henceforth, EAPC), “could be selected first if (1) the suffering is intense; (2) the suffering is definitely refractory; (3) death is anticipated within hours or a few days; (4) the patient’s wish is explicit; and (5) in the setting of an end-of-life catastrophic event such as massive hemorrhage or asphyxia” (Cherny and Radbruch, 2009, 586).
2. We would like to thank Jos Welie for suggesting this example.
3. The following guidelines support this position: the Veterans Health Administration (National Ethics Committee, 2007, 486–7); the EAPC (Cherny and Radbruch, 2009, 587); and the National Hospice and Palliative Care Organization (henceforth, NHPCO) Ethics Committee (Kirk and Mahon, 2010, 918). For similar statements, see also Berlinger, Jennings, and Wolf (2013, 184), Porta-Sales (2013, 76), and Sykes (2013, 87, 96–98). Some commentators, however, argue that CSD, when combined with the forgoing of ANH, is to be evaluated as a single decision; see van Delden (2013, 219–20).
4. As is commonly pointed out, when patients arrive at the point at which CSD becomes necessary, many of them would have already stopped eating or drinking on their own, or suspended ANH altogether, because it does not offer further benefit or is unduly burdensome.
6. For example, a high percentage of cases of continuous deep sedation has been identified in Italy compared with several other European countries (Miccinesi et al., 2006). In a recent study (Maltoni, Miccinesi et al., 2012), one of us (GM) examined the casemixes of 327 patients admitted to two hospices in Florence where palliative sedation was used to relieve refractory suffering in 22% ($n = 72$) of these patients. In the group of sedated patients, sedation was continuous in 94.4% of cases. The authors note that “Hydration was continued in most of the patients, albeit with a decreasing median volume (875 cc/diem; range 0–1,600 cc/diem)” (Maltoni, Miccinesi et al., 2012, 2832).
7. For example, Morita, Tsuneto, and Shima (2002) proposed a definition of sedation that has become widely used, and Claessens et al. (2008), as well as Krakauer and Quinn (2010), have provided helpful reviews. Official position statements by professional associations include the Veterans Health Administration (National Ethics Committee, 2007), the American Medical Association (Council on Ethical and Judicial Affairs, 2008), the EAPC (Cherny and Radbruch, 2009), the NHPCO (Kirk and Mahon, 2010), and the Royal Dutch Medical Association (2009).
8. Some of these settings include “(1) transient sedation for noxious procedures; (2) sedation as part of burn care; (3) sedation used in end-of-life weaning from ventilator support” (Cherny and Radbruch, 2009, 581).
9. In terminal illness, life expectancy is six months or less (Kirk and Mahon, 2010, 917).
10. According to the EAPC, death must be expected within “hours or days at most” (Cherny and Radbruch, 2009, 584). Other guidelines provide a longer time frame but not more than two weeks. The guidelines in The Netherlands state that “A precondition of [CSD] is that the patient’s life expectancy should not exceed one to two weeks” (Royal Dutch Medical Association, 2009, 57); the position statement of the NHPCO (USA) defines imminent death as “a prognosis of death within 14 days” (Kirk and Mahon, 2010, 916).
11. LiPuma (2013, 192–3) explains that, in addition to myoclonus, other refractory symptoms include pain, nausea, delirium, restlessness, and respiratory distress. To this list, we would also add vomiting, as well as what Krakauer and Quinn (2010, 1560) define as “severe, refractory neuro-psychiatric problems” (e.g., seizure, anxiety, and depression). CSD also may be indicated during emergency situations—for example, massive hemorrhage, asphyxiation, severe terminal dyspnea, or overwhelming pain crisis—as noted by the EAPC (Cherny and Radbruch, 2009, 584).

12. On this point, Wilson et al. (2000, 38) note the following: “Factors such as prognosis and the time frame for treatment may play an important role in determining the time of pharmacotherapy for depression. A depressed patient with several months of life expectancy can afford to wait the two to four weeks it may take to respond to a tricyclic antidepressant. The depressed dying patient with less than three weeks to live may do best with a rapid-acting psychostimulant. Patients who are within hours or days of death and in distress are likely to benefit most from the use of sedatives or narcotic analgesic infusions.”

13. Although the concept of proportionality was used originally in connection with double effect, it may also be considered separately. See Jansen and Sulmasy (2002, 323, n. 2).

14. These eight PCUs represented 27% of all PCUs (n = 29) in the northern part of Belgium (Flanders).

15. This latter observation is from their companion study (Claessens et al., 2012), which examined how sedation affected the consciousness levels of the previous study’s sedated (n = 20) and nonsedated patients (n = 246), based on the GCS. The group of nonsedated patients were all fully conscious at admission to the PCU but, around 10 days prior to death, had a score on the GCS that had substantially declined; on day of death, these nonsedated patients had a median GCS score of 9, which indicated a state of near coma (a score of 8 was the cutoff). By contrast, in the group of sedated patients (n = 20), 90% entered the PCU fully conscious and 10% were comatose upon arrival (with GCS scores of 3 and 7). Those patients who arrived in full consciousness remained in that state until palliative sedation was begun. As predicted, those patients experienced a significant decrease in consciousness. In patients receiving CSD, the GCS score dropped from 15 to 3 once sedation commenced. The GCS score for intermittent sedation was 12, illustrating that patients were not fully aware but also were not comatose. It is interesting to note that 70% of those patients who received some form of palliative sedation had also received sedatives prior to palliative sedation, and this was not reflected in their GCS scores. See Claessens et al. (2012, 197–8).

16. For similar statements, see Jones (2013, 53, 60) and Sykes (2013, 92).

17. When sedation is used in appropriate doses and titrated to effect, there is little evidence that CSD is lethal and hastens death. For two original studies, see Sykes and Thorns (2003) and Maltoni et al. (2009). For a recent systematic review, see Maltoni, Scarpi, et al. (2012).

18. In another article, LiPuma notes that cases of nondreaming sleep or general anesthesia are quite common: “People often find themselves in such states … No one reasonably contends these are identical with death or that anyone who induces such states has committed an act of killing” (LiPuma, 2011, 48).


20. A multicenter prospective study in the United States conducted by Sebel et al. (2004) identified 25 cases (out of 19,575 total) in which patients had awareness with recall after general anesthesia. This corresponded to a 0.13% incidence rate. As the authors note, “Awareness during anesthesia occurred at a fairly consistent rate of 1–2 cases per 1,000 patients interviewed at each institution” and the “range by site” varied from 0.09% to 0.21% (Sebel et al., 2004, 836). There were an additional 46 cases (0.23%) of “possible awareness” and 1,183 cases of “intraoperative dreaming,” which corresponded to 6.04% (Sebel et al., 2004, 836). With respect to the group of 25 patients who had awareness with recall after general anesthesia, almost half described auditory perceptions, and being unable to move or breathe; other descriptions of awareness included anxiety/stress, pain, sensation of the endotracheal tube, and feeling surgery without pain (Sebel et al., 2004, 836).

21. In the footnote to this statement, the American Society of Anesthesiologists (2014, 2) clarifies the following: “Rescue of a patient from a deeper level of sedation than intended is an intervention by a practitioner proficient in airway management and advanced life support. The qualified practitioner corrects adverse physiologic consequences of the deeper-than-intended level of sedation (such as hypoventilation, hypoxia, and hypotension) and returns the patient to the originally intended level of sedation. It is not appropriate to continue the procedure at an unintended level of sedation.”

22. We would like to thank Jos Welie for the example of the Dutch physician.
23. The whole-brain standard of death, as described by Shewmon, is “Essentially biological, predicated of the ‘organism as a whole’ by virtue of loss of somatic integrative unity” (Shewmon, 2001, 458; emphasis in original). Bernat has argued the point this way: “Although the totality of beliefs, customs, and practices surrounding death throughout cultures in recorded human history can be viewed as a rich and colorful tapestry composed of social, cultural, anthropological, religious, spiritual, and legal threads, death like life always has been fundamentally a biological phenomenon. Thus, only living organisms can die, and all living organisms must die. Use of the word death or die outside of this strict biological context is acceptable but is metaphorical” (Bernat, 1998, 15; emphasis in original). Other scholars who have defended a biological conception of human death, based on the whole-brain standard, include Bernat, Culver, and Gert (1981), Bernat (2002), and Lamb (1985).

24. The higher brain formulation, as described by Shewmon, is “Essentially psychological, predicated of the human person (equated with mind) by virtue of irreversible loss of consciousness” (Shewmon, 2001, 458; emphasis in original).

25. As Robert Veatch (2005, 370) explains, a mentalist is “one who believes that the only feature that gives life full moral standing is mental—consciousness, awareness, self-consciousness, self-awareness, capacity to think rationally or the like.”

26. This reasoning helps to explain why LiPuma’s distinction between temporary and permanent states of unconsciousness fails in the case of anesthesia and CSD. One only needs to consider the very real possibility of a patient dying midway during a dangerous operation to see the logical problem. LiPuma would have us believe that when the surgeon started to operate, the patient was already dead. On the death certificate, the surgeon would have to note as the patient’s time of death the time the patient was rendered unconscious by the anesthesiologist (and not the moment, many hours into the surgery, when the patient suffered an irreversible cardiopulmonary arrest or multisystem failure).

27. Green and Wikler (1980, 127), advocates of a higher brain definition, argue persuasively for a similar interpretation: “a given person ceases to exist with the destruction of whatever processes there are which normally underlie that person’s psychological continuity and connectedness.” The main difference between their position and the one defended by LiPuma has to do with whether the anatomical structure that supports consciousness is irreversibly lost. Green and Wikler remark that “Of course, our view does not imply that a person dies with his last moment of consciousness. What matters is the preservation of the substrate, not the psychological states which it produces” (Green and Wikler, 1980, 128).

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