Peer Review File

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Reviewer A:

1. Please provide more explicit comparisons the rates of discharge of patients with more severe neurologic compromise (NIHSS > 15, neurologic deficit on presentation, altered mentation, etc) to hospice facilities. How does Germany differ from other nations when it comes to this subpopulation?

Reply:

We made a special effort when preparing the manuscript to analyze the maximum available information from the registry data. In this context, the association between the severity of stroke and the frequency of hospice transfer from hospitals was also emphasized.

The reviewer rightly wants the NIHSS Stroke Scale to be specifically listed. We have therefore now carried out an NIHSS analysis, the results of which are shown in a new figure (Figure 2).

> Figure 2

Comparative data for the subgroup “patients with severe stroke” are scarce in the literature. Chauhan et al. reported different NIHSS scores in stroke patients with vs. without hospice transfer (median score: 19 vs. 6). We found similar values in our study (median score: 13.8 vs. 6.4). No significant differences in NIHSS scores between stroke patients in Germany and the United States were therefore evident.

> Page 13, lines 275-277

> Page 49, lines 907-912

2. What are some factors that contribute to a lack of/delayed inclusion of palliative care services in Germany? How can this be changed/improved?

Reply:

In the revised version, we have tried to discuss the absence of palliative care service involvement and delays in providing it in greater detail. We have specifically focused on the hospital sector here. The following points are now explicitly mentioned:

- Palliative care is primarily regarded as meaning care for cancer patients and less as involving care for noncancer patients. Physicians’ perception of requirements for

palliative care among stroke patients is consequently sometimes inadequate. (Page 16, lines 358–372.)

The following suggestions for improvement have been drawn from the above points:

- Joint physician rounds involving palliative care staff should be established in stroke units and neurological/neurosurgical ICUs.
- Interdisciplinary case conferences should be available.
- Palliative care services and palliative care wards should be further developed in Germany.
- Palliative care services and palliative care wards should be further developed in Germany.

> Page 16, lines 358–372

> Page 18, lines 395–408

3. Do any data exist regarding differences in patient/family satisfaction metrics or healthcare costs for discharge of stroke patients to free-standing hospice facilities vs nursing homes/ inpatient facilities? We realize that direct examination of these factors is beyond the scope of the authors' analysis (which is reasonable). However, a brief discussion of existing literature on these topics may provide additional impetus for the expansion of hospice/palliative care service availability in Germany.

Reply:

In accordance with the reviewer's comments, we have attempted to compare the nursing, palliative medical care, and financial aspects of nursing home care vs. care in a hospice. The aim was to show that hospice care provides clear advantages over in-patient nursing care in hospitals.

> Page 17-18, lines 372–394

Reviewer B:

1. Chief among these being that while only a small percentage of patients are discharged to "free standing" hospice facilities there is not a clear indication for why this is more appropriate for stroke patients than other locations that may provide compassionate and

appropriate end of life care, ie a nursing home that is capable of providing comfort directed care

Reply:

Reviewer B also asks why hospice transfer provides benefits in comparison with transfer to a nursing home for stroke patients. We would refer here to the detailed comments on this in the Discussion section.

> Page 06, lines 111-122

> Page 17-18, lines 372-394

2. I would be very interested to learn more about the characteristics of these patients identified and destined for palliative treatment goals as compared to the remainder of stroke survivors especially those that might be returning to a prior nursing facility.

Reply:

The reviewer is focusing here on stroke patients for whom a palliative treatment goal was identified during the course of their hospital stay. To be able to characterize this group more precisely on the basis of the available registry data, we have now included a new table, in which stroke patients with a palliative treatment goal are now contrasted with those without it, additionally stratified by life status (Supplementary Table C). Our data show that nursing home residents with stroke, in whom a need for best supportive care was established and who were discharged after the hospital stay, were transferred back to the nursing home in 42.5% of cases and transferred to hospice in only 1.1% of cases.

> Page 12, lines 266–268

> Page 17, lines 392–394

> Page 54-55, lines 945–947

4. Finally, in preparation for additional submissions would recommend working to eliminate superfluous sentences and descriptions of prior works in the manuscript. Flow of individual paragraphs and some wording choices (ie subarachnoid bleed instead of subarachnoid hemorrhage) limit readability and distract from main point of manuscript.

Reply:

We have tried to clarify the wording.

Reviewer C:

1. Was the unstated objective of this study to validate that German healthcare providers should be more aggressive in discharging stroke patients to hospice care?

Reply:

The real objective of the study was to determine the prevalence of hospice transfer of hospitalized stroke patients. The aim was to identify potential shortcomings. More indirectly, we wished to point out the advantages of hospice care. The advantages are mentioned in the Introduction and also in the Discussion.

> Page 6-7, lines 111–136

> Page 17, lines 372–383

2. I understand the limitations of data collection from e-record systems. However, the importance of comorbidities in evolution, treatment and ultimate disposition of stroke patients should not be ignored simply because the study (University of Arkansas study) that was used for comparison did not include those fields. (lines 257-260, for example).

Reply:

The stroke registry data unfortunately provided little information about comorbid conditions. The data that were available (arterial hypertension, diabetes, atrial fibrillation, previous stroke) are listed. We have now mentioned the lack of a detailed listing of comorbidities in greater detail in the Limitations section.

> Page 19, lines 435–436

3. Healthcare in the US displays extremely complicated incentives, rules, and outcomes that may vary between states. Even among large cities, DNRs are assigned differently from facility and provider.

Reply:

Unfortunately, the registry data did not provide any information on DNR/DNI status of stroke patients, and we have mentioned this lack in the Limitations section.

> Page 19, lines 435–438

4. Also, there is no mention of the costs of classic inpatient vs. palliative care. Does Germany have a healthcare system that is totally taxpayer subsidized? Are physician salaries calculated

by RVUs like they are in the US?

Reply:

On the subject of health-care costs, it has been pointed out that hospices, in contrast to nursing homes in Germany, are almost entirely covered by health insurance. It is also noted that the implementation of palliative care structures in hospitals has in some cases led to cost savings. Aspects of the financing of the German health-care system and remuneration for physicians were not addressed, as we were not trying to compare health-care systems in general between the USA and Germany, only hospice care.

> Page 17, lines 372–378

> Page 18, lines 407–408

5. How many had a concurrent malignancy? How many developed pressure ulcers, sepsis? Shouldn't there be a sentence acknowledging that comorbidities were not included but could be seen as a limitation?

Reply:

The registry data did not provide information on this. The lack of this information has been specifically stated in the Limitations section.

> Page 19, lines 435–438

6. Line 364: ' One reason why stroke patients are rarely transferred to a hospice is the acute course of the disease.' Why is a stroke then different in Germany than the US where many more are transferred? The acute treatment?

Reply:

We have tried to present the reasons why only a small proportion of stroke patients were transferred from hospital to hospice in detail in the Discussion. Whether a therapeutic effect of acute treatment also led to increased hospice enrollment cannot be inferred from the registry data. We were only able to show that patients with hospice transfer received systemic lysis in 10.9% of cases and arterial lysis/thrombectomy in the hospital in 7.0%. The US figures (Chauhan et al.) are not very different here, at 5% each.

> Page 45 (Table 3)

7. Line 440. ‘Closer collaboration would be desirable here between a wide variety of disciplines —for example, neurology, neurosurgery, intensive-care medicine — and palliative medicine AND << family, friends, clergy and selected counselors>> in order to contribute to improved care for critically ill patients at the end of their lives.’

Reply:

I might add…family, friends, clergy and selected counselors. Grieving is hard enough when it is locally contained but unbearable when it is forced to be scheduled, sterile and distant.

Not a single word about patient dignity in the entire paper…..

The holistic aspect of palliative care, with explicit inclusion of spiritual care, has now been explicitly mentioned in the Conclusions section.

> Page 20, lines 445–449

Respect for the patient’s dignity as an essential standard for all patient care has also been explicitly mentioned.

> Page 05, lines 101–102