Peer Review File

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Response to Comments by Reviewer A

It was my pleasure to review this important article which investigated the potential impact of Well-Dying Law implementation on the ICU utility. The reported data had important value for the end-of-life care service development, especially amongst East Asia countries. The issues outlined below probably worth review to improve the manuscript.

Comment #1. introduction session intended to give an outline on the Well-Dying Law. However, the issue was still unclear to probably most of the readers outside Korea. What was the exact impact of this law on frontline clinical practice? I think a qualitative review on the reactions of frontline colleagues to the law is important. Has any surveys been done in this topic in Korea? How did the law affect the implementation of DNACPR / Advance directive / Advance care planning? Was this equal to "letter of intent to advance life"? this will give better background knowledge for the readers to interpret the manuscript's data.

[Response] We appreciate reviewer's comment.

In Korea, after the *Case of Boramae Hospital*, which decreed the stop of the life-sustaining treatment of patients suffering from brain hemorrhage according to the will of family members as a murder, life-sustaining treatment has been accepted as contraindication in clinical practice regardless of patient's own will. After about 10 years from the sentinel case, the Kim Grandma case, issued the discussion about life-sustaining treatment, and applicable to patients who were fully impossible to recover from current medical status, issued social agreement and legal enactment.

Before the establishment of the Well-dying Law, medical society in Korea has discussed about how to provide objective medical status to patients to assist for making their own decision for future life-sustaining treatment based on current medical status and their

prognosis. Even though the DNR form had been documented and widely accepted in clinical field, it was not free from further legal issues.

Regarding oriental (Confucianism) cultural background that family members do prefer to involve in the discussion about the patient's own decision, patients' self-decision might be ignored at sudden situation and the clinicians should face that whether they do reflect patient's will or not. Moreover, clinicians should worry about legal problems issued by patients' family members. As a result, there was consensus to make certain patient's own will to decide their life-sustaining treatment with legal establishment in Korean society through sluggish discussion about the life-sustaining treatment or self-determination of death.

After the failure of several attempts to legislation until 18th National Assembly (2008-2012), a bill on the use of hospice and palliative care and the decision on life-sustaining treatment for patients at the end of life was enacted in 19th National Assembly (2012-2016). Finally, Hospice, palliative care, and end-of-life patients' life-sustaining care laws were promulgated February 2016. Hospice and Palliative care Act was implemented in August 4th in 2017 and the well-dying law was implemented since February 4th in 2018.

By this law, AD and POLST became to be operated as official document. Moreover, the document representing patient's own will for those who were not available to reveal their own will (i.e., unconsciousness, or lack of mental capacity) became valid in clinical field to protect unnecessary determination by cultural or familial circumstance against patients' own will. We further described flow as **Figure 1**.

We further described this point and clarified description in the **Introduction section.**

Revised manuscript

Introduction section (Page 4, Line 69-71).

Medical society in Korea became embarrassed and be reluctant to the discussion for life-sustaining treatment since the court decision.

Introduction section (Page 4-5, Line 72-90).

Since then, there have been discussions among medical staff and social actors regarding the best choice for terminally- ill patients and how these decisions should be made in the medical field. Through these discussions, the need to complete Physician Orders for Life-Sustaining Treatment (POLST) or Advance Directives (AD) to guarantee patients' self-determination and to activate the discussion has been suggested to be legally adopted in Korea (5,6) to replace DNR (Do Not Resuscitate) form which was the only document to be used in clinical fields.

The Well-Dying Law suggested the three key points; 1) the definition of medical status that was applicable to suspend life-sustaining treatment. Patients whose health was in worsening regardless of active medical treatment and those who were expected hardly to recover from their underlying diseases were defined to be in terminal status. Life-sustaining treatment can also be defined as all the treatments that propose a prolonged length until passing away without any cure for their underlying disease, 2) legal adaptation of documentation (AD and POLST), which was not accepted in clinical field in Korea, and 3) the definition how to handle for patients not documented for their will in clinical fields.

Comment #2. The hypothesis of the study were not well outlined. What was the hypothesised impact of the law on ICU use?

[Response]

Regarding any legal support was available in clinical practice, clinicians could not allow to stop life-sustaining treatment even though the patient requested to support their own will. As we described in Comment #1, under oriental family-centered circumstances or confucianism which operated as cultural backgrounds in Korea, interference (or discussion) by family members exacerbate the situation even more treated as usual or as a duty. Moreover, the complexed and uncertain priority among family members make it more complicated when someone overturns the decision between medical doctors and family members.

After the implementation of Well-Dying Law, the risk of legal problem has been reduced and

clearly set up the process of maintaining patient's own will. Legal guarantee make discussions about the suspension of life-sustaining treatment become more active.

For this point, we aimed to investigate the use of intensive care without clear purpose of medical improvement by intensive care, representative for decrease in inappropriate life-sustaining treatment (might be reduced) as a hypothesis of the present study. We hypothesized that inappropriate ICU admission of patients according to chronic diseases, which would not expect medical improvement, might be reduced.

We clarified the description of study hypothesis in the **Introduction section** (Page 6, Line 102-105).

Revised manuscript

In this study, we aimed to compared the clinical characteristics and outcomes of patients admitted to the medical intensive care unit (ICU) to investigate medical factors changed before and after applying the Well-Dying Law in Korea.. In addition, the changes in appropriateness of ICU admission for individual patients was also investigated.

Comment #3. A "grace period" of two years were given before the formal implementation of the law. What was the potential impact of this on the study results?

[Response] In fact, the two year of grace period was applied for supplement for the details; expansion for the institutions or facilities for palliative care; economic support for the patients in hospice care; special support for socially disadvantaged.

Most of all, inclusion of non-cancerous disease in the law for palliative care needed more discussion for the case definition and their prognosis. During the grace period, cancers, AIDS, COPD, and LC were included as target diseases which fulfill the basic requirements in the discussion of hospice care or life-sustaining treatment.

We assumed that the preparation for this law might be followed by immediate changes in the

medical characteristics in intensive care. Patients with chronic diseases (cancer and non-cancerous diseases) might have time to discuss about their future decision for life-sustaining treatment. After all, we hypothesized that inappropriate ICU admission of patients according to chronic diseases, which would not expect medical improvement, might be reduced.

Comment #4. Two qualified intensivists were invited to rate the appropriateness of ICU admission. However, the inter-rater agreement was very low. What were the possible reasons behind this? Would this affect the validity of the results?

[Response] Agreeing with reviewer's comment, it is complicated to define the appropriateness of ICU admission.

In our study, the appropriateness for ICU admission was defined according to the guideline of the American College of Critical Care Medicine and Society of Critical Care Medicine [Nates JL et al, 2016], in the concept of 'Priority' in medical status. However, in clinical practices, several external circumstances affect the situation and the decision of medical staff can be crucial to the final decision of ICU admission**.** There would be a virtual gap in the decision by medical priority and by the influence of other specific causes, and we further classified 'indeterminate/not definite'. In addition, facilities were not evaluated or controlled for their own standard for priority of ICU admission and the doctors do not debate about the quality of priority that are used in their facilities. Overall, most depends on medical staff's decision.

In the present study, there was no change except the admission of LC patients around the law implementation. As we expected, the results would be due to short-term period observation. However, we also thought that other indefinite causes could affect the potential chance for intensive care which might influence on study outcome representing life-sustaining treatment.

We further described the flow of decision for the priority classification in ICU admission in **Figure 1** and we clearly re-described this in the **Methods section.**

Revised Manuscript

(**Methods section**, Page 7-8, Line 141-151)

'Appropriateness' at ICU admission: Priority

Because there have been few evidences for how these guidelines do operate in clinical field have been explored, most decisions seemed to depend on medical staff's decision in Korea. Regarding that priority or guidance to ICU admission without consideration of individual details also affect the potential chance for intensive care which might influence on study outcome representing life-sustaining treatment. In this regards, we compared the overall status for ICU admission for individual patient.

The Priority Model in that guideline classifies five groups by patients' status including their clinical diagnoses and expected treatments that widely adopted for intensivists should assess (Figure 1) according to the Guidelines for Intensive Care Unit Admission by the American College of Critical Care Medicine and Society of Critical Care Medicine (7).

(**Methods section**, Page 8, Line 151-163)

By retrospective review of patients who had already admitted to ICU by the two qualified intensivists, patients with Priority 4 or more were defined as 'inappropriate' to ICU admission (Figure 2). Raters have also described the cause of inappropriateness with detailed medical records with four categories as follow; 1) admission for life-sustaining treatment; 2) patients who were expected deterioration of life quality after treatment; 3) inappropriate multiple invasive procedures; or 4) patients who were unaffordable to cost. Patients with Priority 3 or less, but having other causes for not receiving intensive care were classified as 'intermediate/not definite' for ICU admission; 1) patients who were unwilling to receive intensive care, but not documented that, 2) patients without family or caregivers' support and unavailable to seize their wills to receive intensive care or not, or 3) Family members or caregivers want to receive patients' intensive care against patients' own will. Patients with Priority 3 or less were defined as 'appropriate' for ICU admission.

References

1) Nates JL, Nunnally M, Kleinpell R, et al. ICU Admission, Discharge, and Triage Guidelines: A Framework to Enhance Clinical Operations, Development of Institutional

Policies, and Further Research. Critical Care Medicine. 2016;44:1553-1602.

Comment #5. Liver cirrhosis (LC) was the only factor which was (just) found to be statistically significantly different between the pre- and post-group. Do you think this is just a random finding due to multiple comparison? If not, why under non-cancer causes of ICU admission did not show similar changes?

[Response] We appreciate for reviewer's comment. As we expected, future studies will find that patients with non-cancerous diseases rather than LC be reduced regarding the cause of inappropriate ICU admission.

Among non-cancerous chronic diseases, prognostic prediction for LC has been well-developed as well as that of cancers [Peng Y et al, 2016; Ramzan M, 2020]. In addition, LC was one of the target diseases that can be included for regarding end-of-life care in Well-dying Law in Korea. Compared to other chronic diseases, patients with LC would have more chance to document their own will to future life-sustaining treatment during the grace period. We thought that if the use of the intensive care unit is reduced due to documentation in advance for those who are expected to deteriorate. We think that the results of this study are in line with the purpose of the law and the results will be found in other chronic disease in the near future.

We further described this point and clarified description in the **Discussion section** (Page 12, Line 243-250).

Revised Manuscript

Our study found that the ICU admission due to aggravation of LC as a direct cause of illness for ICU admission decreased implementing legislation in this study. Predicting the mortality of LC patients at the time of referral is complicated. However, various scores have been used to forecast their prognosis to decide the appropriateness of ICU use based on their predicted prognosis (i.e., mortality) (8,9). In addition, in the grace period for this law implementation, LC was one of the target diseases that were encouraged to discuss about end-of-life care in

Korea (cancers, AIDS, COPD, and LC).

References

1) Peng Y, Qi X, Guo X. Child-Pugh Versus MELD Score for the Assessment of Prognosis in Liver Cirrhosis: A Systematic Review and Meta-Analysis of Observational Studies. Medicine (Baltimore) 2016;95:e2877.
2) Ramzan M, Iqbal A, Murtaza HG, et al. Comparison of CLIF-C ACLF Score and MELD Score in Predicting ICU Mortality in Patients with Acute-On-Chronic Liver Failure. Cureus 2020;12:e7087.

Comment #6. The post-group showed significantly longer total length of stay in hospital - how would you interpret this? You had shown that mortality rate were similar for both groups - how about the 30-day survival rate? Did the law improve the appropriateness of ICU admission so the ICU survival became longer?

[Response] The total length of hospital stay might be prolonged from various conditions as well as the law implementation. The patients who had received intensive care usually need further medical support after ICU discharge. In case of referrals to other hospitals, the capacity of facility and personal ability to prepare for referral also influence for the stay in general ward after ICU discharge in primary hospital.

Instead, the length of stay in ICU or ICU mortality did not differ between before and after the law implementation. We though that this result was reasonable because there was no difference in the medical treatment and the law did not signify any change in the direction of medical treatment.

Comment #7. I think it was indeed quite a good result that only 10-15% of ICU admission carried the diagnosis of solid cancer ... were they all late stage cancer? they prognosis or "appropriateness" for ICU admission could be very different depends on the stage of cancer

[Response] We appreciate for reviewer's comment. However, unfortunately, we did not include the stage of cancer patients in this study.

In usual, patients in terminal stage with metastatic cancer without any options for further therapy including chemotherapy or radiotherapy would not be acceptable for intensive care. However, the priority defined in ICU care adopted in the present study did not differ according to cancer stage. Acute deterioration with reversibility might be treatable for intensive care even in patients with cancer with stage 4 or metastatic cancers.

Nevertheless, we described this point in the **Limitation section** (Page 15, Line 320-321).

Revised manuscript

Third, relatively fewer cancer patients were included, and the stage of individual patients was unavailable. The results of this study are hardly applicable to cancer patients.

Comment #8. Did the Well-Dying law legalise or authorise "termination of life-sustaining care"? Was there any increase in the rate of elective extubation in ICU?

[Response] As reviewer's comment, the Well-Dying Law authorized the termination of life-sustaining care in Korea. After the implementation, elective extubation cases have been reported, which had not been permitted in Korea before the law enactment.

Response to Comments by Reviewer B

Overall a piece of useful information reflecting the phenomena of the clinical practices.

Comment #1. Use of sub-headings may help to have better illustration of the situation.

[Response] Agreeing with reviewer's comment, we added subheading in **Methods** and **Discussion section.**

Comment #2. More background information for the 'Letter of Intent to advance life' can help the reader have a better understanding of Korea's situation.
Any objectives criteria to define the appropriateness of ICU admission?

[Response]
1) In Korea, after the *Case of Boramae Hospital*, which decreed the stop of the life-sustaining treatment of patients suffering from brain hemorrhage according to the will of family members as a murder, life-sustaining treatment has been accepted as contraindication in clinical practice regardless of patient's own will. After about 10 years from the sentinel case, the Kim Grandma case, issued the discussion about life-sustaining treatment, and applicable to patients who were fully impossible to recover from current medical status, issued social agreement and legal enactment.

Before the establishment of Well-dying Law, medical society in Korea has discussed about how to provide objective medical status to patients to assist for making their own decision for future life-sustaining treatment based on current medical status and their prognosis.
Even though the DNR form had been documented and widely accepted in clinical field, it was not free from further legal issues.

Regarding oriental (Confucianism) cultural background that family members do prefer to involve in the discussion about the patient's own decision, patients' self-decision might be ignored at sudden situation and the clinicians should face that whether they do reflect patient's will or not. Moreover, clinicians should worry about legal problems issued by patients' family members. As a result, there was consensus to make certain patient's own will to decide their life-sustaining treatment with legal establishment in Korean society through sluggish discussion about the life-sustaining treatment or self-determination of death,

After the failure of several attempts to legislation until 18th National Assembly (2008-2012), a bill on the use of hospice and palliative care and the decision on life-sustaining treatment for patients at the end of life was enacted in 19th National Assembly (2012-2016). Finally,

Hospice, palliative care, and end-of-life patients' life-sustaining care laws were promulgated February 2016. Hospice and Palliative care Act was implemented in August 4th in 2017 and the well-dying law was implemented since February 4th in 2018.

By this law, AD and POLST became to be operated as official document. Moreover, the document representing patient's own will for those who were not available to reveal their own will (i.e., unconsciousness, or lack of mental capacity) became valid in clinical field to protect unnecessary determination by cultural or familial circumstance against patients' own will. We further described flow as **Figure 1**.

We further described this point and clarified description in the **Introduction section.**

Revised manuscript

Introduction section (Page 4, Line 69-71).

Medical society in Korea became embarrassed and be reluctant to the discussion for life-sustaining treatment since the court decision.

Introduction section (Page 4-5, Line 72-90).

Since then, there have been discussions among medical staff and social actors regarding the best choice for terminally- ill patients and how these decisions should be made in the medical field. Through these discussions, the need to complete Physician Orders for Life-Sustaining Treatment (POLST) or Advance Directives (AD) to guarantee patients' self-determination and to activate the discussion has been suggested to be legally adopted in Korea (5,6) to replace DNR (Do Not Resuscitate) form which was the only document to be used in clinical fields.

The Well-Dying Law suggested the three key points; 1) the definition of medical status that was applicable to suspend life-sustaining treatment. Patients whose health was in worsening regardless of active medical treatment and those who were expected hardly to recover from their underlying diseases were defined to be in terminal status. Life-sustaining treatment can also be defined as all the treatments that propose a prolonged length until passing away without any cure for their underlying disease, 2) legal adaptation of documentation (AD and

POLST), which was not accepted in clinical field in Korea, and 3) the definition how to handle for patients not documented for their will in clinical fields (Figure 1).

2) In our study, the appropriateness for ICU admission was defined according to the guideline of the American College of Critical Care Medicine and Society of Critical Care Medicine [Nates et al, 2016] , in the concept of 'Priority' in medical status. However, in clinical practices, several external circumstances affect the situation and the decision of medical staff can be crucial to the final decision of ICU admission**.** In addition, clinical evidences for how these guidelines do operate in clinical field have not been explored.

There would be a virtual gap in the decision by medical priority and by the influence of other specific causes, and we further classified 'indeterminate/not definite'. In addition, facilities were not evaluated or controlled for their own standard for priority of ICU admission and the doctors do not debate about the quality of priority that are used in their facilities. Overall, most depends on medical staff's decision.

In the present study, there was no change except the admission of LC patients around the law implementation. As we expected, the results would be due to short-term period observation. However, we also thought that other indefinite causes could affect the potential chance for intensive care which might influence on study outcome representing life-sustaining treatment.

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Revised Manuscript

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Response to Comments by Reviewer C

The authors have chosen to address a topic of interest and importance. They are looking at

differences in characteristics of ICU admissions before and after the implementation of the well-dying law in Korea.

The study suffers from significant methodological limitations, however, and the resulting manuscript lacks clarity and focus. Some specific concerns:

Comment #1. The rationale for the study is incompletely elucidated. The authors do not articulate specific areas of concern they hope to investigate related to implementation of the law, instead saying that the law might affect patients' decisions by offering "clear guidance." What is meant by clear guidance? My understanding is that the law supports patients' autonomy - this is different from guiding patients to make one decision or another. The authors might consider framing the rationale in terms of describing an outcome that, if observed, would surprise or concern them.

[Response] We appreciate for reviewer's comment.

1) In Korea, suspension for life-sustaining treatment has been practically impossible before the law implementation due to the legal issue.

In Korea, after the *Case of Boramae Hospital*, which decreed the stop of the life-sustaining treatment of patients suffering from brain hemorrhage according to the will of family members as a murder, life-sustaining treatment has been accepted as contraindication in clinical practice regardless of patient's own will. After about 10 years from the sentinel case, the Kim Grandma case, issued the discussion about life-sustaining treatment, and applicable to patients who were fully impossible to recover from current medical status, issued social agreement and legal enactment.

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Even though the DNR form had been documented and widely accepted in clinical field, it

was not free from further legal issues.

Regarding oriental (Confucianism) cultural background that family members do prefer to involve in the discussion about the patient's own decision, patients' self-decision might be ignored at sudden situation and the clinicians should face that whether they do reflect patient's will or not. Moreover, clinicians should worry about legal problems issued by patients' family members. As a result, there was consensus to make certain patient's own will to decide their life-sustaining treatment with legal establishment in Korean society through sluggish discussion about the life-sustaining treatment or self-determination of death,

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Comment #2. There is no clearly stated hypothesis. Did the authors expect to see a decrease in inappropriate admissions?

[Response] First, we thought that the guidance for legal documentation was clarified by the Well-dying Law implementation.

With this legal confirmation, patients can maintain their own will and physicians can support the decision to life-sustaining treatment. In addition, there occurred more chance to have discussion with in legal to discuss and have documentation before the deterioration of as the purpose of the Well-Dying Law in Korea as AD or POLST in other countries. We though that this law ensured patients' autonomy more than previously before in Korea.

Regarding any legal support was available in clinical practice, clinicians could not allow to stop life-sustaining treatment even though the patient requested to support their own will.

As we described in Comment #1, under oriental family-centered circumstances or confucianism which operated as cultural backgrounds in Korea, interference (or discussion) by family members exacerbate the situation even more treated as usual or as a duty. Moreover, the complexed and uncertain priority among family members make it more complicated when someone overturns the decision between medical doctors and family members.

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Revised manuscript

In this study, we aimed to compared the clinical characteristics and outcomes of patients admitted to the medical intensive care unit (ICU) to investigate medical factors changed before and after applying the Well-Dying Law in Korea. In addition, the changes in appropriateness of ICU admission for individual patients were also investigated.

Comment #3. The methodology for assessing appropriateness of ICU admission is convoluted - specifically it is unclear what is meant by determining the "cause of inappropriateness." By cause of inappropriateness, do the authors mean the reason the ICU attending categorized the admission as inappropriate? "Cause of inappropriateness" suggests something else - specifically a theorized mechanism or explanation for why the admission

occurred - and how this could be assessed in the context of this study is unclear.

[Response] As reviewer's comment, it is complicated to define the appropriateness of ICU admission.

In our study, the appropriateness for ICU admission was defined according to the guideline of the American College of Critical Care Medicine and Society of Critical Care Medicine [Nates JL et al, 2016], in the concept of 'Priority' in medical status. However, in clinical practices, several external circumstances affect the situation and the decision of medical staff can be crucial to the final decision of ICU admission**.** There would be a virtual gap in the decision by medical priority and by the influence of other specific causes, and we further classified 'indeterminate/not definite'. In addition, facilities were not evaluated or controlled for their own standard for priority of ICU admission and the doctors do not debate about the quality of priority that are used in their facilities. Overall, most depends on medical staff's decision.

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overall status for ICU admission for individual patient.

The Priority Model in that guideline classifies five groups by patients' status including their clinical diagnoses and expected treatments that widely adopted for intensivists should assess (Figure 1) according to the Guidelines for Intensive Care Unit Admission by the American College of Critical Care Medicine and Society of Critical Care Medicine (7).

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Comment #4. The authors do not specify whether the ICU attendings were blinded as to the timing of the admission under their consideration. Lack of blinding (i.e., if the attending knows the admission under consideration is pre or post implementation of the law) risks introducing bias.

[Response] We appreciate reviewer's comment.

1) Unfortunately, because the implementation has been scheduled and announced, and urgency in the decision of intensive care involving other external circumstances, we performed the retrospective observational study to investigate the difference in the medical factors to be associated with the difference in ICU admission between before and after the law enactment.

In fact, during the two years of grace period, several educational and announcement program had been operated. A specialized department in charge of registration and management of patients according to the law had been established.

2) We thought that overall clinical practice in ICU care had operated regardless of the law implementation. However, other external circumstances (capacity of ICU beds, utilization type of ICU [open or closed type], human resources, etc) which affect the decision of medical staff and crucial to the final decision of ICU admission were not included.

Comment #5. Additionally, there are ways the manuscript could be improved:
There are many moments where phrases are unusual and their meaning unclear. For example:

65: "A Well-Dying decision is to help patients from a miserable and painful death, which is not a part of the natural dying process." Do the authors mean to suggest that pain is not a part of the natural dying process?

[Response] We thought that the description was unclear. We clarified the sentence that a miserable pain derived from unnecessary life-sustaining treatment should be avoided as we initially intended.

Revised Manuscript
A Well-Dying decision is to help patients from a miserable death, which occurred during undesirable life-sustaining treatment (Page 4, Line 57-59).

Comment #6. 69: "the first law on the suspension of life expectancy..." Life expectancy refers to the expected amount of time an individual will survive, and cannot be "suspended" - perhaps the authors mean suspension of life-sustaining therapies?

[Response] We thank for reviewer's suggestion. We clearly revised the sentence as below

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"the first law on the suspension of life-sustaining treatment ..." (Page 4, Line 60).

Comment #7. The authors do not describe what implementation actually entailed in their own ICU.

[Response] As the purpose of Well-Dying Law, ICU in study hospital had prepared and trained to face the situation that more patients had documented their own will or discussed about that.

1) During the two years of grace period, several educational and announcement program had been operated. A specialized department in charge of registration and management of patients according to the law had been established. They recommended to physicians to have discussion about life-sustaining treatment whenever stage of chronic diseases of individual patients.

2) In clinical practice, patients and doctors should discuss about life sustaining treatment. After all, by the increase in participation to decision on future life-sustaining treatment, we hypothesized that ICU admission due to the purpose of life-sustaining would be reduced. We aimed to investigate medical factors to be associated with this change after the las implementation.

Comment #8. The study design section could be shortened and focused. The authors could consider a table or figure to describe the methodology for determining appropriateness. The results section is lengthy and lacks clarity regarding the what the authors feel is most important.

[Response] We appreciate reviewer's comment. Regarding the complexity to define appropriateness of ICU admission, we further described the flow of decision for the priority classification in ICU admission in **Figure 2** and we clearly re-described this in the **Methods section.**

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(**Methods section**, Page 7-8, Line 141-151)

'Appropriateness' at ICU admission: Priority

Because there have been few evidences for how these guidelines do operate in clinical field have been explored, most decisions seemed to depend on medical staff's decision in Korea. Regarding that priority or guidance to ICU admission without consideration of individual details might also affect the potential chance for intensive care which might influence on study outcome representing life-sustaining treatment. In this regards, we compared the overall status for ICU admission for individual patient.

The Priority Model in that guideline classifies five groups by patients' status including their clinical diagnoses and expected treatments that widely adopted for intensivists should assess (Figure 2) according to the Guidelines for Intensive Care Unit Admission by the American College of Critical Care Medicine and Society of Critical Care Medicine (7).

(**Methods section**, Page 8, Line 151-163)

By retrospective review of patients who had already admitted to ICU by the two qualified intensivists, patients with Priority 4 or more were defined as 'inappropriate' to ICU admission (Figure 2). Raters have also described the cause of inappropriateness with detailed medical records with four categories as follow; 1) admission for life-sustaining treatment; 2) patients who were expected deterioration of life quality after treatment; 3) inappropriate multiple

invasive procedures; or 4) patients who were unaffordable to cost. Patients with Priority 3 or less, but having other causes for not receiving intensive care were classified as 'intermediate/not definite' for ICU admission; 1) patients who were unwilling to receive intensive care, but not documented that, 2) patients without family or caregivers' support and unavailable to seize their wills to receive intensive care or not, or 3) Family members or caregivers want to receive patients' intensive care against patients' own will. Patients with Priority 3 or less were defined as 'appropriate' for ICU admission.

Response to Comments by Reviewer D

The authors of this paper should be applauded for attempting to study the impact of an important piece of end-of-life legislation.

Comment #1. However, I cannot recommend this paper for further review at this time due to issues with academic English that impair my ability to understand it. Although I note that two native-speaking English editors were employed to review this paper prior to submission, I still am uncertain about the authors' intended meaning in nearly every paragraph of the manuscript. I am not able to provide specific feedback because the problem is so widespread throughout the manuscript. I wish this was not the case as the authors are clearly intelligent and put forward a great deal of effort to pre-empt this issue, but I unfortunately cannot review this paper at this time due my lack of ability to understand the argument at several key points in the paper.

[Response] We apologize for the lack of readability in our manuscript. In this revision, we strengthened the background of decision on life-sustaining treatment in Korea and the appropriateness decision in this study to improve the readability according to reviewer's valuable comments.

Please find this manuscript again.

Comment #2. There are secondary issues with organization throughout the manuscript. For example, the solitary significant finding of the manuscript -- that patients with liver cirrhosis were admitted to the ICU less frequently following the implementation of the new legislation -- is not mentioned in the results section of the abstract, but is referred to the in the conclusion section of the manuscript. By breaking standard academic convention, this makes the paper even harder to follow. There are multiple examples such as this throughout the manuscript that would also need to be addressed prior to any re-submission of this paper to another journal.

[Response] We apologize for the vagueness in description in our manuscript.