Overview of FS-ICU item reduction

The original FS-ICU had 34 items.[1] In 2006, we refined and shortened the FS-ICU to 24 items. Based on *a priori* criteria, the following items were tagged for potential removal and discussed with the instrument's original developers. We describe our rationale for each item's retention or removal. For additional details on this process, also see the manuscript published in *Critical Care Medicine*.

Item # 18: *Overall satisfaction with your experience in the ICU.*
Item # 34: *Overall satisfaction with your role in the decision-making related to the care of your family member in the ICU.*
Rationale
These two global rating items had been included for internal validity testing during instrument development and were intentionally redundant. Both were dropped.

Item #3: *How well the ICU staff assessed and treated your family member's breathlessness.*
Item #4: *How well the ICU staff assessed and treated your family member's agitation.*
Rationale
These two items were tagged because they had >10% non-response rates. Since breathlessness and agitation are common ICU symptoms and potentially distressing to family members, however, the items were retained.

Item #7: *How well the ICU staff met your spiritual/religious needs.*
Item #14: *How well the ICU social workers assisted and supported you.*
Item #15: *How well the ICU chaplain assisted and supported you.*
Rationale
These items were tagged because each had >10% non-response rates (28%, 37%, and 40% missing, respectively). This high rate of missing responses was consistently noted across all seven sites. Although we believe these items are important for improving the quality of ICU care,[2] the high non-response rates threaten FS-ICU scaling assumptions. For this reason, these three items were dropped.*

Item #31: *Was there agreement within your family regarding the care that your family member received?*
Rationale
This item was tagged because its principal component loading was 0.32, suggesting it measured a different construct than the rest of the FS-ICU. In factor analysis, its rotated loadings were 0.21 and 0.24, respectively. A three factor model neither resolved this divergence nor improved interpretability. Given its inability to meet scaling assumptions, the item was dropped.*

Item #10: *How well the nurses cared for your family member.*
Rationale
This item was tagged because it revealed a ceiling effect in >70% of respondents. However, only one other FS-ICU question directly assesses satisfaction with nursing care. Given the importance of nurses in the ICU, this item was retained.

Item #30: *Were you given the right amount of hope that our family member would recover?*
Rationale

This item was tagged because it revealed a ceiling effect in >70% of respondents. In factor analysis, its rotated loadings were 0.21 and 0.44, respectively. A three factor model neither resolved this divergence nor improved interpretability. In reliability testing, the item also showed consistently weak correlations with all other items, suggesting the item measured a different conceptual construct. Given its inability to meet scaling assumptions, the item was <u>dropped</u>.*

Item #25: *Were you involved at the right time in the decision making process?*
<u>Rationale</u>
This item was tagged because it revealed a ceiling effect in >70% of respondents. In addition, the item was recoded to a Likert-3 response scale to facilitate scoring. Given the low likelihood that it would provide meaningful information in future administration, the item was <u>dropped</u>.*

Item #26: *Did you receive an appropriate amount of information to participate in the decision making process?*
<u>Rationale</u>
This item was tagged because it revealed a ceiling effect in >70% of respondents. In addition, the item was recoded to a dichotomous scale to facilitate scoring. Given the low likelihood that it would provide meaningful information in future administration, the item was <u>dropped</u>.*

Item #27: *Did you feel you had enough time to think about the information provided?*
Item #32: *When making decisions, did you have adequate time to have your concerns addressed and questions answered?*
<u>Rationale</u>
These items were tagged because they revealed a ceiling effect in >70% of respondents. There was significant correlation between the items (Spearman's rho = 0.49, p<0.001) and the items appeared to measure a similar concept. Given the importance of information exchange during the decision-making process, several of the FS-ICU developers felt we should retain at least one of the items. Therefore, we <u>retained</u> the more actionable item (#32) and <u>dropped</u> the other item (#27).*

Item #1: *The courtesy, respect and compassion your family member (the patient) was given.*
<u>Rationale</u>
This item was tagged because it revealed a ceiling effect in >70% of respondents. In a prior regression analysis, however, this item was one of only 4 items significantly associated with overall family satisfaction.[3] In addition, the item demonstrated a large degree of between-site variability in a prior study, suggesting it is a worthwhile target for improvement efforts.[4] For these two important reasons, the item was <u>retained</u>.

* Our overall goal was to develop an empirically supported scoring approach for the FS-ICU, and we dropped items that threatened scale integrity. The retained items are not necessarily more important than the dropped items, but rather provide the most meaningful (sub)scale scores. Since the dropped items are potentially useful for improving the care of ICU families, the full set of original FS-ICU items (including the dropped items) are available on this website.

References

1. Heyland DK, Tranmer JE. Measuring family satisfaction with care in the intensive care unit: the development of a questionnaire and preliminary results. *J Crit Care* 2001;**16**(4)**:**142-9.
2. Clarke EB, Curtis JR, Luce JM, et al. Quality indicators for end-of-life care in the intensive care unit. *Crit Care Med* 2003;**31**(9)**:**2255-62.
3. Heyland DK, Rocker GM, Dodek PM, et al. Family satisfaction with care in the intensive care unit: results of a multiple center study. *Crit Care Med* 2002;**30**(7)**:**1413-8.
4. Dodek PM, Heyland DK, Rocker GM, Cook DJ. Translating family satisfaction data into quality improvement. *Crit Care Med* 2004;**32**(9)**:**1922-1927.