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3 **Understanding the physician and administrator experience of preparing to implement**
4 **Ontario's ICU Triage Emergency Standard of Care during the COVID-19 Pandemic: a**
5 **qualitative study**
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42
43 the Adult Critical Care Clinical Emergency Standard of Care for Major Surge and were
44
45 responsible for the development of resources to support its implementation on behalf of the
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47 Ontario Covid Critical Care Command Centre from October 2020 to May 2021. The remaining
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49 authors have disclosed they do not have any competing interests.
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ABSTRACT

Background: The COVID-19 pandemic created an unprecedented surge in demand for critical care resources. In response, the Ontario Critical Care COVID-19 Command Centre released the “Adult Critical Care Clinical Emergency Standard of Care for Major Surge” (ESoC). This was a triage framework to guide the allocation of scarce critical care resources in anticipation of intensive care units being overwhelmed. While this framework was never implemented, hospitals and regions across Ontario underwent implementation planning. Through qualitative interviews, we aimed to understand the experiences and perceptions of leaders who prepared to implement the ESoC in Ontario. We also aimed to identify ways to improve the ESoC in preparation for future pandemics.

Methods: We conducted semi-structured qualitative interviews with 11 physicians and 10 hospital administrators involved in ESoC implementation planning at the hospital or regional levels in Ontario. Interviews were conducted virtually between April and October of 2021, and were analyzed using thematic analysis.

Results: We identified four themes: 1) Infrastructure to enable effective triage implementation; 2) Social, medical, and political supports to enable effective triage implementation; 3) Moral dimensions of triage implementation, and 4) Communication of triage results. Suggested improvements to the ESoC and STMR are also presented.

Interpretation: The implementation of a jurisdiction-level triage framework poses moral challenges for a healthcare system, but it also requires dedicated infrastructure, as well as social, medical, and political supports. Lessons learned from Ontario’s implementation preparation process, as well as participants’ suggestions, can be leveraged for current and future pandemics.

INTRODUCTION

The COVID-19 pandemic produced an unprecedented demand for critical care around the world(1), occasionally exceeding capacity limits. Triage frameworks were developed to guide critical care resources rationing.(2,3) In March 2020, Ontario developed a triage framework⁴ forming the basis of an Emergency Standard of Care (ESoC) to be applied if critical care triage was initiated. The ESoC was intended to balance ethical principles (e.g., utility, fairness) to save the most lives. The ESoC defines three levels of triage, depending on the degree of demand surge. It incorporates a clinical judgment of Short-Term Mortality Risk determining which patients would be prioritized to receive critical care resources. To date, this ESoC has not been used, nor has any formal triage system been used in Canada.

Previous studies examined physicians' perspectives regarding the use and structure of triage protocols.(4,5) However, implementing an ESoC involves considerable preparation. Little is known about the barriers health system leaders face preparing for implementation.

In May 2021, at the peak of wave 3, the number of patients requiring mechanical ventilators in Ontario ICUs reached 180% of the pre-pandemic average.(6) Accordingly, the province instructed physicians and hospital administrators to prepare for the implementation of the ESoC. In this study, we sought to understand the experiences and perceptions of physicians and administrators who prepared to implement the ESoC, and we identified opportunities for improvement of critical care triage processes for future pandemics.

METHODS

Study Design and Participants

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3 We conducted semi-structured interviews with critical care, emergency, and internal
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5 medicine physicians, and hospital administrators involved in their hospital's or region's
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7 implementation planning.
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10 *Setting*

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13 Ontario is Canada's most populous province, with 15 million people.(7) The coordination
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15 of health services within Ontario is regional; Ontario was previously organized into 14 distinct
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17 Local Health Integration Networks, but these were being consolidated into five "zones" when
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19 the pandemic began.
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23 *Recruitment*

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26 We used purposive and snowball sampling. The Incident Commander of the Ontario
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28 Critical Care COVID-19 Command Centre e-mailed potential participants, who were instructed
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30 to contact the research coordinator to schedule their interview. We then asked study participants
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32 to discuss the study with their colleagues and give them the research coordinator's contact
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34 information.
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39 *Data Collection*

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42 We conducted 30- to 60-minute semi-structured interviews using Zoom.(8) After
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44 obtaining verbal consent, the interviewer administered a demographics survey. We developed the
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46 interview guides (**Appendices 1 and 2**) through discussions with a bioethicist, physician, and
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48 researcher with expertise in qualitative methods. Interviews were audio-recorded and transcribed.
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51 *Data Analysis*

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3 We analyzed transcripts using reflexive thematic analysis developed by Braun and
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5 Clarke, wherein data was coded and categorized into recurring themes.(9,10) The researchers
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7 took field notes and wrote memos.
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10 Researchers engaged in close readings of transcripts to thoroughly understand the dataset.
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12 Upon reaching a common conceptualization of content, preliminary codes were arranged into a
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14 coding frame. The codebook evolved as new interviews were transcribed. Once no new codes
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16 were developed based on the transcripts, we determined that thematic saturation had been
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18 reached.(11) We inserted the finalized codebook into qualitative analysis software
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20 (MAXQDA)(12) along with the interview transcripts.
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25 Analysis underwent two rounds. Researchers individually coded eight transcripts and
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27 then consensus coded them, adjusting the coding frame. The remaining thirteen transcripts were
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29 double coded. We then compared the patterns across transcripts, categorized the data into
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31 recurring themes, and identified exemplary quotations of the themes.
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35 RESULTS

36 *Participant Characteristics*

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41 Recruitment and data collection occurred from April 2021 to October 2021. Forty-two
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43 potential participants were contacted, 22 responded, and 21 participated, including 11 physicians
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45 and 10 hospital administrators. There were nine health regions in Ontario represented: Erie St.
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47 Clair, South West, Hamilton Niagara Haldimand Brant, Mississauga Halton, Toronto Central,
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49 Central, Central East, Champlain, and North East. Participant demographics appear in **Table 1**.
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51 The average interview length was 48 minutes (range 27 – 75 minutes).
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55 *Themes*

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3 We identified four major themes relating to participants' perspectives and experiences
4 with preparing to implement the ESoC: 1) Infrastructure to enable effective triage
5 implementation; 2) Social, medical, and political supports for effective triage implementation; 3)
6 Moral dimensions of triage implementation; and 4) Communication of triage results. Subthemes
7 and supporting quotations appear in **Table 2**.

15 ***1) Infrastructure to enable effective triage implementation***

18 Participants discussed how infrastructure (e.g. human resources) can enable effective
19 triage implementation. The most challenging aspects of implementing the ESoC were the
20 logistical and administrative processes necessary to triage patients, including managing
21 documents, creating personnel schedules and after-hours processes. To address these challenges,
22 one region appointed a project manager.

25 For many, information technology (IT) processes were essential in reducing
26 administrative barriers. These include using secure messaging apps and integrating the STMR
27 into electronic health records. Multiple participants noted that provincially-created IT solutions
28 would prevent duplication of efforts across regions.

31 A frequently discussed IT concept was the "real-time bed map", a means of identifying
32 the availability of local ICU beds. Participants stressed having this information easily accessible.

35 Hospitals and regions were at varying stages of readiness to implement the ESoC.
36 Participants discussed developing local ESoC policies, goals of care discussion resources for
37 physician, and early IT department engagement. Some participants highlighted that smaller
38 hospitals were less prepared than larger hospitals.

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3 Participants had concerns regarding the feasibility of implementing the ESoC in smaller
4 hospitals (i.e., difficulty with after-hours staffing, forming triage committees providing
5 oversight, and creating resources supporting frontline clinicians).
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10 Practicing end-to-end simulations helped some participants feel ready for
11 implementation.
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16 Finally, some participants indicated a lack of information regarding how the ESoC would
17 be operationalized provincially, thus hampering their ability to prepare. Participants also
18 discussed increasing transparency of official provincial ESoC documents with staff and the
19 public. As the ESoC policy was not publicly released, some participants noted that staff heard
20 updates about ESoC policy from the media before receiving internal updates, causing confusion.
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28 ***2) Social, medical, and political supports to enable effective triage implementation***

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31 Participants often discussed the social, medical, and political supports that enable
32 effective triage implementation by empowering participants and reducing ESoC impact on
33 workflow.
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39 Several participants discussed how leaders took charge of ESoC operationalization,
40 overcoming institutional and communication-related barriers. These supported a hospital-wide
41 multidisciplinary rollout. Leadership also motivated “burned-out” staff to participate in
42 implementation preparations. Finally, leaders discussed the ESoC rationale with staff, thereby
43 diminishing distress.
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51 Participants noted educating staff ensured effective triage implementation through
52 working groups, roleplays, and information packages. One hospital developed an ESoC
53 “Frequently Asked Questions” document. The Critical Care Secretariat of Ontario offered
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3 webinars, which some participants mentioned as helpful. However, some hospitals postponed
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5 educating their staff on the ESoC to prevent moral distress.
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9 Multiple participants discussed how ESoC-related documents and processes were shared
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11 between regions, preventing duplication of efforts. Intraregional collaboration was also common,
12
13 with larger hospitals sharing resources with smaller hospitals.
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17 Hospitals planned varying degrees of psychosocial support for staff due to the anticipated
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19 impact of the ESoC. Supports included spiritual care, social workers, ethicists, and physicians
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21 experienced in having difficult conversations.
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25 Multiple participants mentioned that, due to its complexity, staff require time to
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27 understand and morally accept the ESoC. Additionally, participants mentioned that the ESoC
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29 document is lengthy and takes time to process.
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33 Participants discussed how palliative care resources were being used to ensure
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35 deprioritized patients received adequate care. At some hospitals, palliative care physicians
36
37 prepared to deliver bad news to triaged patients' family members and supported colleagues to
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39 have these conversations. Participants expressed the value of documenting patient goals of care
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41 early and systematically to reduce ESoC-related workload.
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45 To feel comfortable initiating triage, some participants also discussed that it was vital to
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47 know they had liability protection. However, others did not share these concerns.
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50 51 ***3) Moral dimensions of triage implementation***

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53 Throughout the interviews, participants discussed ethical and moral considerations of the
54
55 ESoC and how these might affect its implementation.
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3 Some participants were concerned about whether the ESoC would be equitable across
4 health regions and populations. Others were concerned with not implementing the ESoC early
5 enough, leading to delays in care that could be fatal to non-COVID patients.
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10 For many, the use of the ESoC would have been such a departure from normal practice
11 that it would have led to “moral distress”. Some participants anticipated moral distress if patients
12 were denied care at one hospital due to a surge, while there was capacity at another hospital.
13 Others expressed concern that some physicians lack the clinical expertise or resources to
14 complete the STMR adequately, particularly at smaller hospitals, increasing distress.
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18 There were concerns about physicians conscientiously objecting to the ESoC.
19 Participants noted that this would result in inconsistent application of the ESoC, leading to a
20 disproportionate burden on physicians at centres that were implementing the ESoC consistently.
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23 Although the ESoC allows withholding care, withdrawing care from ICU patients would
24 be illegal unless an emergency order from the provincial government allowed withdrawal of
25 critical care without consent. This issue was an area of ethical concern for almost all participants,
26 who argued that withdrawal of intensive care should be a necessary component of the ESoC to
27 ensure equal access for patients with a chance of benefit, rather than allowing patients already in
28 the ICU to avoid being triaged.
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32 Some participants were worried about the legal ramifications of denying a patient access
33 to critical care. Some hospital administrators were concerned that the legal protection offered by
34 some professional bodies would not protect them.
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38 Finally, participants noted that staff in their hospitals were uncertain if and how timely
39 appeals processes would be included in the ESoC.
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4) *Communication of triage results*

Participants were concerned with their staff having discussions with the family of triaged patients. Many foresaw these conversations as one of the most challenging aspects of the ESoC. Participants mentioned that some staff did not have the expertise to have these conversations. However, simulations helped improve physicians' comfort in having these conversations.

There was a common concern that nurses and social workers would be “abandoned”, left with the burden of caring for the deprioritized patient and their family.

Some physicians indicated that the process of telling family members that their loved one was not eligible for critical care was part of their regular job, and thus did not concern them. However, they noted that there was no mechanism to manage the “blowback” from family and that the stress and extra workload could impact their workflow. They also acknowledged that these conversations would be quite distressing when patients would be deprioritized despite having less than a 30% chance of mortality.

Improvements

Participants had suggestions for improvements to the ESoC implementation process, ESoC document, and STMR (**Table 3.**).

INTERPRETATION

This study identifies four themes integral to the experiences and perceptions of physicians and hospital administrators who prepared to implement the ESoC in Ontario, Canada. First, infrastructure and lack thereof acted as both an enabler and barrier to implement the ESoC. Preparation was also facilitated through social, medical, and political supports. Third, ethical and

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3 moral considerations were prevalent throughout the implementation planning process. Finally,
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5 leaders were concerned about communicating triage results. In **Table 3**, we presented suggested
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7 improvements to the current ESoC.
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11 Of the four themes, infrastructure-related barriers is discussed the least in the literature.
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13 We anticipate this relates to our focus on leaders who prepared to implement these policies(4),
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15 whereas previous literature focussed on clinicians.(5,13) In our study, participants highlighted
16
17 the importance of having logistical, administrative, and IT processes to support triage
18
19 implementation. This finding was not previously identified as a barrier in the literature,
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21 suggesting that ground-level implementation planning for ICU triage policies reveals
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23 unanticipated barriers. Many participants highlighted the importance of having a “real-time bed
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25 map”, which was also mentioned as a barrier in a South African study of regional triage
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27 committees.(14) This concept was also in the Brigham and Women’s Hospital triage plan.(15)
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33 Hospitals and regions within Ontario were at varying degrees of readiness to fully
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35 implement the ESoC. Although the CHEST Implementation Guide (a guideline for implementing
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37 regional triage) underlines the importance of consistent application within regions(16),
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39 participants identified lower levels of preparedness at smaller hospitals, consistent with the
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41 previous literature.(14) Participants often discussed the importance of “end-to-end” simulations,
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43 confirmed by past studies.(15,17)
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47 Many participants expressed frustration with their inability to access up-to-date
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49 provincial ESoC information, and the lack of transparency regarding metrics for its activation.
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51 Past triage policies in Austria and elsewhere, emphasize transparent communication.(2)
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3 Participants also discussed how social, medical, and political supports enable effective
4 triage implementation. They discussed procedures undertaken at their hospitals for documenting
5 goals of care for all inpatients early and systematically, consistent with recommendations for the
6 provision of palliative care in pandemics.(18,19) Finally, liability protection was critical in
7 ensuring leaders felt comfortable implementing the ESoC, consistent with the literature.(13,20)
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15 Participants frequently discussed the ethical and moral considerations of triage
16 implementation. Most of the moral issues raised by participants speak to the psychological
17 trauma anticipated for clinicians and leaders who implement triage. Thus, effective triage
18 implementation requires leaders to acknowledge this reality and develop appropriate supports
19 (such as debriefing, psychological first aid at the front lines, etc.) using a trauma-informed
20 approach.(13) A particularly distressing issue for leaders was the lack of provincial legislation to
21 support withdrawal of ICU treatment without the patient's consent.(16) Many jurisdictions have
22 included withdrawal of ICU treatment in their ESoC implementation(2,14,21,22), and in a study
23 in the United Kingdom, a majority of the general public surveyed during the pandemic supported
24 such a withdrawal policy.(23) Although previous research points to the morally distressing
25 nature of withdrawing critical care resources(24), a unique finding in our study was that
26 implementation leaders indicated they experienced moral distress due to the lack of this policy
27 because of resulting inequities in access.
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46 Finally, consistent with previous literature,(5,13) many participants in our study felt
47 unprepared to have conversations with family of patients deprioritized to receive critical care.
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51 While our study provides a thorough understanding of physician and hospital
52 administrator experiences of implementation planning, a key perspective missing is that of the
53 patient and caregiver. Therefore, future studies should explore patient and caregiver perspectives
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3 on the ESoC. Further, in jurisdictions where triage protocols have been implemented, evaluations
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5 of the barriers and facilitators of their success are grossly needed.
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8 ***Limitations*** 9

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11 Our study limitations concern the transferability of our findings due to the regional
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13 implementation structure in Ontario, making our findings less relevant to implementing
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15 institution-level triage protocols. Furthermore, two of the authors of this paper, A.F. and J.D.,
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17 were interviewed as study participants, and the interviewers had a prior professional relationship
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19 with these two participants. To mitigate bias, they did not review transcripts nor code.
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23 ***Conclusion*** 24

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26 Published ICU triage protocols were generally designed for sudden mass casualty events.
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28 However, practical considerations for triage due to infectious illnesses are different,(25) as
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30 hospitals have time to prepare for triage, with modelling providing advance notice.(26) Our
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32 study has shown how multifaceted implementation planning unfolded across the province with
33
34 varying levels of readiness. Key lessons learned from these regional experiences and the
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36 suggestions provided by our participants can be leveraged for current and future pandemics.
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<http://www.equator-network.org/reporting-guidelines/srqr/>

Page/line no(s).

Title and abstract

<p>Title - Concise description of the nature and topic of the study Identifying the study as qualitative or indicating the approach (e.g., ethnography, grounded theory) or data collection methods (e.g., interview, focus group) is recommended</p>	1
<p>Abstract - Summary of key elements of the study using the abstract format of the intended publication; typically includes background, purpose, methods, results, and conclusions</p>	2

Introduction

<p>Problem formulation - Description and significance of the problem/phenomenon studied; review of relevant theory and empirical work; problem statement</p>	3
<p>Purpose or research question - Purpose of the study and specific objectives or questions</p>	3

Methods

<p>Qualitative approach and research paradigm - Qualitative approach (e.g., ethnography, grounded theory, case study, phenomenology, narrative research) and guiding theory if appropriate; identifying the research paradigm (e.g., postpositivist, constructivist/ interpretivist) is also recommended; rationale**</p>	5
<p>Researcher characteristics and reflexivity - Researchers' characteristics that may influence the research, including personal attributes, qualifications/experience, relationship with participants, assumptions, and/or presuppositions; potential or actual interaction between researchers' characteristics and the research questions, approach, methods, results, and/or transferability</p>	Not included
<p>Context - Setting/site and salient contextual factors; rationale**</p>	4
<p>Sampling strategy - How and why research participants, documents, or events were selected; criteria for deciding when no further sampling was necessary (e.g., sampling saturation); rationale**</p>	4
<p>Ethical issues pertaining to human subjects - Documentation of approval by an appropriate ethics review board and participant consent, or explanation for lack thereof; other confidentiality and data security issues</p>	4
<p>Data collection methods - Types of data collected; details of data collection procedures including (as appropriate) start and stop dates of data collection and analysis, iterative process, triangulation of sources/methods, and modification of procedures in response to evolving study findings; rationale**</p>	4

1 2 3 4 5	Data collection instruments and technologies - Description of instruments (e.g., interview guides, questionnaires) and devices (e.g., audio recorders) used for data collection; if/how the instrument(s) changed over the course of the study	4
6 7 8	Units of study - Number and relevant characteristics of participants, documents, or events included in the study; level of participation (could be reported in results)	5, Table 1
9 10 11 12	Data processing - Methods for processing data prior to and during analysis, including transcription, data entry, data management and security, verification of data integrity, data coding, and anonymization/de-identification of excerpts	5
13 14 15 16	Data analysis - Process by which inferences, themes, etc., were identified and developed, including the researchers involved in data analysis; usually references a specific paradigm or approach; rationale**	5
17 18 19 20	Techniques to enhance trustworthiness - Techniques to enhance trustworthiness and credibility of data analysis (e.g., member checking, audit trail, triangulation); rationale**	5

Results/findings

23 24 25 26	Synthesis and interpretation - Main findings (e.g., interpretations, inferences, and themes); might include development of a theory or model, or integration with prior research or theory	5-10
27 28 29	Links to empirical data - Evidence (e.g., quotes, field notes, text excerpts, photographs) to substantiate analytic findings	Table 2

Discussion

32 33 34 35 36 37	Integration with prior work, implications, transferability, and contribution(s) to the field - Short summary of main findings; explanation of how findings and conclusions connect to, support, elaborate on, or challenge conclusions of earlier scholarship; discussion of scope of application/generalizability; identification of unique contribution(s) to scholarship in a discipline or field	10-13
38 39	Limitations - Trustworthiness and limitations of findings	13

Other

42 43 44	Conflicts of interest - Potential sources of influence or perceived influence on study conduct and conclusions; how these were managed	1
45 46	Funding - Sources of funding and other support; role of funders in data collection, interpretation, and reporting	1

*The authors created the SRQR by searching the literature to identify guidelines, reporting standards, and critical appraisal criteria for qualitative research; reviewing the reference lists of retrieved sources; and contacting experts to gain feedback. The SRQR aims to improve the transparency of all aspects of qualitative research by providing clear standards for reporting qualitative research.

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**The rationale should briefly discuss the justification for choosing that theory, approach, method, or technique rather than other options available, the assumptions and limitations implicit in those choices, and how those choices influence study conclusions and transferability. As appropriate, the rationale for several items might be discussed together.

Reference:
O'Brien BC, Harris IB, Beckman TJ, Reed DA, Cook DA. **Standards for reporting qualitative research: a synthesis of recommendations.** *Academic Medicine*, Vol. 89, No. 9 / Sept 2014
DOI: 10.1097/ACM.0000000000000388

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Table 1. Demographic characteristics of hospital administrator and physician participants.

Demographics	Hospital Administrators (<i>N</i> = 10)	Physicians (<i>N</i> = 11)
Age in years, mean (range)	48 (34 – 60)	47 (36 – 61)
Female sex, <i>n</i> (%)	8 (80)	2 (18)
First language, <i>n</i> (%)		
English	10 (100)	9 (82)
Other	0 (0)	2 (18)
Racial or ethnic group, <i>n</i> (%)		
White European	9 (90)	10 (91)
Other	1 (10)	1 (9)
Religious or spiritual affiliation <i>n</i> (%)		
Christianity/Roman Catholic	3 (30)	0 (0)
No religious/spiritual affiliation/atheism	4 (40)	7 (64)
Other	3 (30)	3 (27)
Prefer not to answer	0 (0)	1 (9)
Religiosity ^a , mean (standard deviation)	3.1 (1.4)	0.6 (1.0)
Years in current role, mean (range)	6.5 (1 – 20)	11.2 (3 – 26)
Years in profession ^b , mean (range)	12.1 (6 – 20)	18.4 (4 – 35)
Clinical duties as a percentage, mean (range)	9.0 (0 – 30)	69.1 (50 – 100)
Type of physician, <i>n</i> (%)		
Critical Care	N/A	7 (64)

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Internal Medicine	N/A	2 (18)
Emergency Medicine	N/A	1 (9)
Palliative Care Medicine	N/A	1 (9)

^a “How important or unimportant is faith, religion or spirituality to you, personally, in your everyday life? 1 – Very unimportant, 2 – Somewhat unimportant, 3 – Neutral/No opinion, 4 – Somewhat important, 5 – Very important”

^b For Hospital Administrators: Number of years working as a hospital administrator. For Physicians: Number of years working in healthcare.

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Table 2. Themes, subthemes, and exemplary quotations identified through qualitative analysis.

Theme 1: Infrastructure to enable effective triage implementation	
Administrative logistics of implementation – processes	“[...]who’s our administrator on call? How does this interact with our electronic medical record? Who’s on our [triage] committee? How often does it meet? Who’s chairing it. [...]Like it's all of those kinds of things that I think would be challenging.” (Hospital Administrator (HA)-7)
Administrative logistics of implementation – human resources	“Well, I think the plans required pretty extensive resources to be able to implement, particularly in terms of [human resources] and also administrative support. [...] And so, I think there was a lot of need to depend on very small number of people who are already likely going to be overtaxed with clinical responsibilities.” (Physician (P)-10)
Project manager	“All those logistic things have actually been handled by a project manager at the regional level. I have a ton of respect for that person and faith that we would figure it out because we have that knowledge translation skillset available to us.” (HA-1)
IT processes	“Our EMR team was very impressive because they, in a week, got things organized, got our STMR all put into a document online, had an order put in so that [it was] similar to our advanced directives category status, you could just put STMR Level I, II, III, color-code it, bring the reports over.” (P-2)

Real time bed map	<p>“But my concern was always that if we have one bed and two deteriorating patients, how do we communicate as an organization that we only have one bed? Because I’ve got three different ICUs plus three to four different surg spaces for critical care. So, how do we [...] communicate if there is a bed, yes or no? How do we then communicate to all of the various stakeholders involved?” (HA-3)</p>
Readiness to implement the ESoC - ready	<p>“We would be very well prepared to enact [the ESoC] in [Health Region] and the hospitals that are affiliated with that. I mean, we put so much work and time into understanding the tool, doing various case scenarios, role plays, problem-solving, troubleshooting, information packages are out, resources about goals of care, advanced care planning. I think we would do very well.” (P-1)</p>
Readiness to implement the ESoC – not ready	<p>“I think there was a little bit of variability between the hospitals within the subregion with their levels of preparedness. So, I'd estimate it varied between 60% ready versus 90% ready. The smaller hospitals with the Level 2 Critical Care Unit or hospitals without Critical Care Units at all with, you know, less resources [...] they weren't quite as ready and probably needed some more time and support. But the larger hospitals [...] were around that sort of 90% threshold, that with a little bit of notice, [...] they would've been able to [...] be ready for it.” (P-10)</p>

<p>1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16</p> <p>Applicability of the ESoC to smaller institutions</p>	<p>“There [are] other hospitals where the physician is not even in-house. So, how would something like this look in communities that don't have a tertiary care structure, and how would those inequities across the different healthcare settings be addressed, both for supporting the healthcare providers but also ensuring that patients in those settings were not disadvantaged or vice versa?” (P-3)</p>
<p>17 18 19 20 21 22 23</p> <p>Simulations</p>	<p>“I think we need to do a better job of educating and simulating and having people truly prepared. And I think you can only do that through the simulation.” (P-10)</p>
<p>24 25 26 27 28 29 30 31 32 33 34 35 36 37</p> <p>Provincial leadership</p>	<p>“We weren't clear on what was coming out from [...] the province, what could be shared, what was not being shared. So, even when we were included, it was late in the day or not in the right way. And we certainly weren't able to have safe conversations with a reasonable size of people about [ethical] questions. And that all would've been easier if the document had been released publicly.” (HA-10)</p>
<p>38 39 40 41</p> <p>Theme 2: Social, medical, and political supports to enable effective triage implementation</p>	
<p>42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60</p> <p>Leadership</p>	<p>“So, what helped us was getting a triage physician leader [...] who was trustworthy and trusted, less hierarchical, and allowed opportunities in our simulations for expression of uncertainty or a very inclusive conversation about how to resolve uncertainty.” (HA-10)</p>

Education on the ESoC	“Given the uncertainty of whether or not it would be enacted, [we assumed] giving them the information [...] will immediately likely cause them to have that moral distress. We chose not to fully educate people on it.”(HA-4)
Interregional collaboration	“So, it was nice to be able to have material that other [regions] had already tried. Because there's so much potential duplication of effort, and in a moment like this, that's going to be really problematic.” (P-9)
Intraregional collaboration	“I think I would hate to be a lone hospital trying to do this on our own and not having the support of the hospitals in our region.” (HA-4)
Psychosocial impact on staff	“I think nurses, PSWs, anybody who isn't a physician has a much higher risk of being treated like absolute crap by patients and family members. So, in all honesty, the moral distress, the risk factor for that, educated guess, is higher than it would be even for the people filling out something like the tool.” (P-1)
Psychosocial support	"We have the resilience team. We have the ethics team. We have social workers that will help. We have physicians who are experts both in STMR, but also in those difficult conversations like rules of care that are available to other physicians. We have, as an administrator, I'm available through the region because I have a very good understanding of the process, but also within the organization, I would support anybody on call.” (HA-5)

<p>Time to process the ESoC</p>	<p>“Because if we don't give them time to process it and we just make them do it, I think the risk of traumatization and post-traumatic stress from having to implement something that they haven't had time to digest is going to be really profound. [...] I think it runs a real risk of traumatizing people who have to make those decisions without understanding why they're making those decisions or understanding some of the [...] ethics behind it. (P-3)</p>
<p>Palliative care</p>	<p>“I think since day one I was a big proponent of the abandonment issue and making sure patients were not abandoned. And then appropriate palliative care was done. And I know we worked on a palliative care order set.[...] Making sure that the patients were not abandoned, and they were getting appropriate symptom management.” (HA-6)</p>
<p>Liability protection</p>	<p>“I'm not very concerned about ending up in court two years from now over this, personally, as an individual. However, many people in my region and subregion have articulated that as a concern or even a complete impediment for starting to use the ESoC. And so, as an administrator or a leader, it's a concern, but as a professional, it's not.” (P-5)</p>
<p>Theme 3: Moral dimensions of triage implementation</p>	
<p>Ethical concerns</p>	<p>“I don't have ethical qualms about the ESOC. I have qualms about not implementing it in a timely manner. I have qualms about our risk threshold keeps getting higher [...] in terms of how much we're</p>

	<p>expected to surge. And [...] we've become blind to the fact that people will die as we build this capacity. And we have blindness to the people we're invisibly triaging.”(HA-1)</p>
Moral distress	<p>“It would have put physicians in a position of practicing in a way that they have never practiced before in their careers. And is in direct conflict with their standard medical ethics. And I think that would've caused significant distress [...]. I mean there would've been post traumatic stress for sure. Burnout. People leaving the profession. Like I just think it would've been disastrous, to be honest with you.” (HA-8)</p>
Conscientious objection	<p>“A big concern I have is that some providers may refuse to [triage], which would lead, again, to inconsistency of implementation.” (P-5)</p>
Withdrawal of care – moral distress	<p>“I do not, I absolutely do not believe it could be done without [withdrawal of care]. That would be morally distressing to the frontline staff, the physicians and the staff, having a patient in a bed who will not survive because the family don't want to turn them off the ventilator. And yet we're turning away other people who do have a chance of survival.” (HA-5)</p>
Withdrawal of care – liability concerns	<p>“So I actually think [physicians] have a lot of backing for the ESoC. Now, withdrawal of treatment is a whole other ballgame, and that would require an executive order. But the ESoC, I feel like</p>

	physicians are well covered. It's us, as administrators, who I think are more at risk." (HA-1)
Appeals process	"There was this ongoing discussion around appeals processes for patients who would be denied critical care. [...]I think there was a big divide around that piece because it makes sense from a procedural point of view, but it's hard to imagine how that could ever work in practice." (HA-7)
Theme 4: Communication of triage results	
STMR-communications between staff	"We were doing a lot of this via teams. And, you know, one of the things that's really essential to this process is very rapidly trusting the other people on your team and being able to have frank conversations and raise concerns. And the greatest barrier was actually not knowing each other in advance and building that kind of environment of trust right away when we're remote from one another." (HA-10)
Communications with deprioritized patients' family	"It's going to be awful to just have to go and tell them and say, "We're not doing this." [...] I do think I have the skillset to have that conversation. I don't want to have that conversation." (P-3)
Non-physician staff being abandoned	"That physician does not want to have that bad news conversation alone with the patient. They want the social worker with them, the bedside nurse with them. And then, guess what? The physician walks away, but who is left taking care of that patient, who now

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	feels abandoned? It's that nurse, that social worker, and that family." (HA-1)
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Table 3. Improvements to the ESoC implementation process, the ESoC document, and the STMR as suggested by participants.

<p>Administrative and implementation improvements</p>	<ul style="list-style-type: none"> • Create a provincial centre that facilitates the sharing of ESoC-related resources between health regions, instead of the onus being on individual regions and hospitals. • Create billing codes for the ESoC, including STMR assessments, having discussions with deprioritized patients and family members, and after-hours care. • Include resources or a plan for supporting smaller hospitals with fewer resources (e.g., guidelines around the use of telemedicine). Include documentation in the ESoC regarding remote STMR assessments in these situations. • Provide provincial-level support for staff implementing the ESoC who have questions regarding processes (e.g., a provincial hotline).
<p>ESoC supports and quality improvement</p>	<ul style="list-style-type: none"> • Include discussion points and prompts related to moral distress in the ESoC. • Designate a regional ethicist in each health region who supports hospitals with ESoC-related ethical concerns and moral distress. • Clarify the intention to or process for retrospectively validating the mortality prediction tools on patient populations, and calibrating

and improving the tools over time. This quality improvement process should be transparent and included in the ESoC.

- Create a shorter, consolidated ESoC document, or break it up into two documents – one focussed on the background and one focused on the implementation.
 - Include resources to help physicians to have conversations with triaged patients and family members (e.g., scripts, the inclusion of “physician extenders” to be the ones talk to family members)
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- Include clinical resources for physicians determining the STMR who do not have critical care expertise – either at the provincial or regional levels.
 - Release a centralized, provincially created app that can be used to standardize the scoring of tools used to calculate STMR.
 - Create IT solutions at the provincial level to help hospitals add the STMR tools in EHRs, and include a dashboard, to prevent duplication of effort.
 - Create a way to prepopulate the STMR tools with patient information already in EHRs.
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STMR efficiency

Appendix 1. Qualitative Interview Guide for Hospital Administrators

This interview session will be audio recorded.

The session will take between 30 and 60 minutes to complete.

Questions

- Describe your role as a hospital administrator?
- How are you involved with implementation planning?
 - Are you involved at the hospital, regional, or provincial level?
 - What has been useful?
 - Are there any gaps in that planning?
 - Do you feel prepared for initiating the ESoC? Why or why not?
 - What would help you feel more prepared?
- What is your familiarity with the Triage ESoC?
- What is your overall impression or perception of the Triage ESoC?
 - How have the different waves affected your perception of the Triage ESoC?
- What has been the reaction of your physicians and hospital staff to the Triage ESoC?
- How do you think implementing the ESoC will affect the healthcare professionals involved?
 - How might it affect physicians? Nurses? Social workers? Other hospital staff?
 - Prompt: negative psychological impacts, such as moral injury or emotional exhaustion
- Has your hospital provided supports to you or non-physician staff regarding the use of the ESoC? / Does your hospital intend to provide additional supports to physicians and other hospital staff who might intend to implement the ESoC in the event of a surge?
- Have you received any feedback from patients or caregivers regarding the potential implementation of the Triage ESoC?
 - [If no] – Why haven't patients or caregivers been included in the implementation planning process?
- What aspects of the Triage ESoC do you think will be most challenging to implement logistically or operationally?
 - Prompt: time to complete
 - Prompt: how to get people into beds after STMR is done
- What aspects of the Triage ESoC do you think will be least challenging to implement logistically or operationally?
 - Prompt: assessing STMR
 - Prompt: communication with the family
- Do you have concerns about liability protection surrounding the use of the ESoC? Can you describe these?
 - Did you have concerns about the medicolegal consequences of implementing it?
- Do you have ethical concerns about implementing the Triage ESoC? Can you describe these?
- How do you hope the process of ICU resource allocation could be improved, based on this experience during the COVID-19 pandemic?

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- How do you think the Triage ESoC could be improved?
- Do you have any other thoughts you would like to share regarding your perceptions the Triage ESoC?

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Appendix 2. Qualitative Interview Guide for Physicians

This interview session will be audio recorded.

The session will take between 30 and 60 minutes to complete.

Questions

- Describe your role in the hospital?
- How are you involved with implementation planning?
 - Are you involved at the hospital, regional, or provincial level?
 - What has been useful?
 - Are there any gaps in that planning?
 - Do you feel prepared for initiating the ESoC? Why or why not?
 - What would help you feel more prepared?
- What is your familiarity with the Triage ESoC?
- What is your overall impression or perception of the Triage ESoC?
 - How have the different waves affected your perception of the Triage ESoC?
- What has been the reaction of your physicians and hospital staff to the Triage ESoC?
- How do you think implementing the ESoC will affect the healthcare professionals involved?
 - How might it affect physicians? Nurses? Social workers? Other hospital staff?
 - Prompt: negative psychological impacts, such as moral injury or emotional exhaustion
- Has your hospital provided supports to you or non-physician staff regarding the use of the ESoC? / Does your hospital intend to provide additional supports to physicians and other hospital staff who might intend to implement the ESoC in the event of a surge?
- Have you received any feedback from patients or caregivers regarding the potential implementation of the Triage ESoC?
 - [If no] – Why haven't patients or caregivers been included in the implementation planning process?
- What will be your function in doing the STMR (short-term mortality risk assessment)?
 - How do you feel about this role?
- What aspects of the Triage ESoC do you think will be most challenging to implement logistically or operationally?
 - Prompt: timing to implement
 - Prompt: developing mastery over the process
 - Prompt: how to get people into beds after STMR is done
- What aspects of the Triage ESoC do you think will be easiest to implement logistically or operationally?
 - Prompt: assessing STMR
 - Prompt: communication with the family
- Do you have concerns about coming to an agreement with the other assessor regarding the Triage ESoC?

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- 4 • Given a hypothetical circumstance that a patient was not prioritized for critical care at
- 5 any level of triage, can you please tell us some of your concerns regarding
- 6 communicating this decision to the patient and/or substitute decision-maker?
- 7 • Do you have concerns about liability protection surrounding the use of the ESoC? Can
- 8 you describe these?
- 9 ○ Did you have concerns about the medicolegal consequences of implementing it?
- 10 • Do you have ethical concerns about implementing the Triage ESoC? Can you describe
- 11 these?
- 12 • How do you hope the process of ICU resource allocation could be improved, based on
- 13 this experience during the COVID-19 pandemic?
- 14 ○ How do you think the Triage ESoC could be improved?
- 15 • How has the pandemic changed how you make decisions regarding whether to offer
- 16 someone admission to the ICU/critical care/ventilator?
- 17 • Do you have any other thoughts you would like to share regarding your perceptions of
- 18 the Triage ESoC?
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