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1 **ABSTRACT**

2 Introduction: Triage is the process whereby individuals presenting to the Emergency Department
3 (ED) are quickly assessed by a nurse and their need for care and service prioritised. Research
4 examining the care of individuals presenting to EDs with psychiatric and mental health problems has
5 shown that triage has often been cited as the most problematic aspect of the encounter. Three
6 questions guided this investigation: where do the decisions triage nurses make fall on the intuitive
7 versus analytic dimensions of decision-making for mental health presentations in ED and does this
8 differ according to comfort or familiarity with the type of mental health/illness presentation, how do
9 “decision aids” (i.e., structured triage scales) help in the decision-making process, and to what extent
10 do other factors such as attitudes influence triage nurses’ decision-making.

11 Methods: Eleven triage nurses participating in this study were asked to talk out loud about the
12 reasoning process they would engage in while triaging five scenarios based on mental health
13 presentations to the ED.

14 Results: Themes emerging from the data were: tweaking the results (including the use of intuition
15 and early judgements) to arrive at the desired triage score, consideration of the current ED
16 environment, managing uncertainty and risk (including the consideration of physical reasons for
17 presentation), and confidence with communicating with patients in distress and managing their own
18 emotive reactions to the scenario.

19 Discussion: Findings support the preference for using the intuitive mode of decision-making with
20 only tacit reliance on the decision-aid.

21

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22 General hospital Emergency Departments (EDs) are often the first place individuals and families seek
23 assistance in a mental health crisis ¹. However, ED staff are often ill-prepared to care for these
24 psychologically and socially challenging, yet often medically complex patients. Emergency staff may
25 lack of confidence in assessment and treatment ², they may be frustrated with the revolving door
26 nature of the presentations ³, or they may reflect generally negative societal attitudes towards mental
27 illness ⁴. The ED is a rapidly changing environment and external influences such as acuity and
28 capacity problems in the department can exert their effects on a clinician's decision-making or
29 behavior ⁵. The challenge for the triage nurse is to rapidly elicit and synthesize information in a
30 systematic and standardized way, to ensure accurate and consistent decision making occurs for all
31 patients. The conditions under which triage nurses work, however, foster a distinctive set of thinking
32 and problem-solving strategies ⁶ which can lead to error or stereotypically thinking that may not be of
33 benefit to the patient. A better understanding of ED triage decision-making, particularly when
34 working with mental health presentations, has the potential to lead to evidence-informed training and
35 interventions that can increase the accuracy of these often very complex presentations.

36 **Background**

37 Triage, the process whereby individuals presenting to the ED are quickly assessed and their
38 need for care prioritized, has often been cited as problematic for individuals presenting to EDs with
39 mental health problems ^{7,8}. Recent revisions to the Canadian Triage and Acuity Scale (CTAS) have
40 been designed to better accommodate these presentations by adding mental health-related modifiers
41 to the standardized entrance complaints in order to further refine the triage decision ⁹. To illustrate
42 using the mental health entrance complaint of “bizarre behavior”, modifiers are: uncontrolled
43 behavior (Level 1 – immediate attention); uncertain risk for flight or safety (Level 2 – emergent);
44 controlled/redirectable (level 3 – urgent); harmless behavior (Level 4 – less urgent); chronic,

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45 harmless behavior (Level 5 – not urgent). The application further allows the clinician to “override”
46 the computer generated triage level provided they document their rationale ⁹. While these revisions
47 have been shown to be of some use in assigning triage categories ¹⁰, the cognitive processes that
48 resulted in the final decision and the role of the CTAS in that decision are as yet unknown.

49 Studies of clinical decision-making in nursing typically put forward the use of two primary
50 forms of cognition: analytic reasoning or intuition ¹¹. However, because clinical decisions are rarely
51 “either/or” ¹² with neither type of cognition seen as superior, nurses use a combination of both ¹³ with
52 the deciding factor being the context within which the decision-making occurs. Accordingly, this
53 study was guided by the Cognitive Continuum Theory (CCT) ¹³, a decision-making theory which
54 proposes a continuum of modes of inquiry anchored at opposite ends by analytic reasoning and
55 intuition and an adjacent task continuum ranging from well-structured to ill-structured. The theory
56 suggests that individuals move along the continuum preferring one type of decision-making over
57 another depending on the task at hand ²⁰. Whether a nurse at triage uses something that looks like
58 intuition or analytic reasoning or some combination of the two may depend on any number of factors.
59 These factors may include the unique characteristics of the presentation, the nurse’s degree of
60 knowledge, previous experience, attitudes towards or comfort with that type of presentation, and the
61 availability of any decision-aids or tools that may help them make the decision more objectively and
62 accurate ¹³.

63 While the cognitive and procedural aspects of decision-making are well understood,
64 understanding the influence the more ill-defined affective domain has on decision-making is
65 crucial ^{14,15} as emotions in the ED can be powerful. Since mental health patients may also experience
66 stigma and discrimination when they present for care, the degree to which the attitudes of healthcare
67 providers influence clinical decisions is of particular concern.

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68 The aim of this study was to explore, using Think Aloud methodology, how triage nurses in
69 general hospital emergency departments (EDs) make clinical decisions for patients presenting with
70 mental illness related complaints. Three questions guided this investigation: (1.) Where do triage
71 nurses' decisions fall on the intuitive versus analytic dimensions of decision-making for mental
72 health presentations in ED? (2.) How does the CTAS as a "decision aid" help in the decision-making
73 process? (3.) To what extent do other factors such as attitudes and emotions influence triage nurses'
74 decision-making?

75 Methodology

76 Think-aloud, a qualitative methodology, further described below, is used when investigators
77 want to understand participants' thought processes as they conduct a particular task without
78 disturbing ongoing processing¹⁵. The think-aloud method captures the problem-solving process as it
79 occurs by asking participants to verbalize their thoughts as they occur¹⁶.

80 **Sample:** Nurses experienced in triage working at regional EDs in a moderately sized western
81 Canadian city were recruited through letters or emails of invitation, posters in staff areas, and
82 presentations by the researchers. A \$50 honorarium was offered to defray expenses such as travel or
83 child care. Recruitment continued until data saturation was achieved.

84 **Mental health scenarios:** Twenty mental health scenarios based on a range of actual mental health-
85 related triage encounters abstracted from patient charts were developed as part of a previous study¹⁰.
86 These scenarios were vetted by an expert panel and tested under research conditions. All scenarios
87 included primary CTAS modifiers (mode of arrival, vital signs, level of consciousness, and
88 mechanism of injury if any) in addition to a narrative description of the patient and any available
89 assessment data. For purposes of this study, five scenarios with good inter-rater reliability that were
90 typical of a commonly-seen mental health presentation but that also had the potential to elicit some

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91 emotional and affective reaction from the participants were selected.

92 **Data Collection:** Ethical approval was obtained from the Education/Nursing Research Ethics Board
93 at the University of Manitoba with written consent obtained prior to the start of the individual
94 sessions. Participants were given the five paper-based scenarios described above and asked to talk
95 into a digital voice recorder about the reasoning process they would engage in while triaging such
96 presentations, one at a time. Sessions took from 75 to 105 minutes. To more realistically simulate a
97 triage situation, they used the CTAS e-triage computer software.

98 **Data analysis:** Data were transcribed verbatim and analyzed independently by all researchers using
99 thematic content analysis. An ‘open coding’ method was conducted ‘in vivo’ with continuous
100 comparisons (comparative analysis) identifying the same codes occurring elsewhere in the text^{17,18}.
101 Over time and through research team discussions, codes were collapsed into concepts then to
102 categories and finally themes^{17,18}. Themes were reviewed by experienced triage nurses for validity.

103 **Results**

104 Eleven participants, all female, had worked at triage an average of 2.2 years (range from less
105 than one to more than 10). All had received the basic mental health training offered through
106 orientation⁹; three had received Advanced Emergency Training. They were overall mildly to
107 moderately comfortable with mental health presentations, being least comfortable with aggressive
108 and personality disorders and most comfortable with anxiety and depression. The participants rated
109 five scenarios each for a final sample of 55 scenarios. There were no missing data. Inter-rater
110 reliability overall was acceptable at 0.7. Agreement with the expert panel ranged from 40% on a
111 CTAS Level 1 presentation to 80% for a Level 3 scenario. Participants overrode the score on a total
112 of five occasions, four of which resulted in changing the score from the one that agreed with the
113 expert panel to the “wrong” score, typically that of a lower urgency.

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114 Five themes emerged from the analysis across the five scenarios: managing the scores,
115 managing the current ED environment, managing uncertainty and risk, and managing their own
116 distress and confidence in communicating with patients in distress.

117 **Managing the scores**

118 Participants clearly used the CTAS as a guide to assessing the clinical risk of individuals
119 although they struggled to consistently define types of presentation using the list of presenting
120 complaints and modifiers. There was also evidence that, using their clinical judgment/
121 experience, they often tweaked either the entrance complaint or the modifiers to establish a score
122 with which they were comfortable. The tweaking at times appeared to be gambling/ playing/
123 overriding the system until the clinician was satisfied. The CTAS scores appeared to be a blunt
124 instrument with participants using their intuition and or relying on habitual practices.

125 Participant (P) 8 ‘...he comes up as a 3,...*I’m gonna say his behavior’s uncontrolled. That makes*
126 *him a one which is life threatening which I don’t know if I want to triage him as a 1...I want him*
127 *to be a 2.’*

128 P3 ‘..*damn how did I get a 1?...I’m gonna have to override this. I can see her as a 2 possibly,*
129 *that’s my highest score.’*

130 Pressure to come up with an acceptable score also appeared to be exerted by other clinicians or
131 the second guessing about what the clinicians in the treatment area might say.

132 P1 ‘*I’m going to modify this and put his as a 3 ... I don’t usually modify stuff . . .but if I mean*
133 *it’s not appropriate. I’m gonna get crap when I get him to the back (if I send him in as a 1).’*

134 **Managing the environment**

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135 In addition to the CTAS scores, individual patients were moved around the ED based on
136 their perceived risk and hierarchy of need. Wanting to prevent patients leaving before they've
137 been seen motivated their choice of CTAS score on occasion.

138 P3 *'I have a funny feeling that if the police left, uncuffed him, and put him in the waiting room,*
139 *he would have gone.'*

140 The presence of other patients in the waiting room and the availability of family or police
141 seemed to modify/influence the decision regarding where the patient would wait – in the waiting
142 room, the police room, or in a treatment room.

143 P8 *'... I wouldn't want him sitting in the waiting room because maybe other people staring at*
144 *him that might agitate him further...I'd want him in treatment room as soon as I could.'*

145 Participants responded differently to the presence of police. Most were comfortable with a less
146 urgent triage score for patients accompanied by police if the police could wait until the patient
147 had been seen. A couple of participants though, wanted to be able to let the police leave, and thus
148 looked for a more urgent CTAS score.

149 P4 *"I'll put him as a flight risk so if the police go away ..."*

150 ***Managing uncertainty: "What's actually going on here?"***

151 Uncertainty about the nature of a person's presentation arose from a lack of or limited
152 information from the patient, collateral sources and conflicting objective observations of the
153 patient in triage.

154 P9 *"Very little that I could establish from other than what I'm seeing and what she's shouting."*

155 P11 *"...Is it um sadness and not participating like an anhedonic (inability to experience*
156 *pleasure) type of stuff or is it anger and then depression? Which way is he going?"*

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157 Participants indicated that in some circumstances they would attempt to seek further
158 information either by appearing to apply existing knowledge about mental health problems or
159 considering the person's presentation in a systematic way. Participants seemed to want to know
160 the context of a person's presentation (the 'why') as well as 'what' they were presenting with.

161 P11 "Sleep disruption for a week. So does that mean troubles getting to sleep, trouble staying
162 asleep, sleeping during the day and up at night. . ."

163 P9 "*It might well be that the daughter doesn't wanna sort of open up in front of the father, so I*
164 *would ask him to step back. . . . I can clarify any further details afterwards with the dad*".

165 Not all participants sought further information to inform their decision making. Factors
166 influencing this appeared to relate to situations where the patient was not communicating
167 directly, or their level of distress was impeding communication resulting in a greater level of
168 uncertainty about the presentations and associated risks. One approach to manage this
169 uncertainty was to move a person 'further into the ED system' in order to be seen more urgently
170 where more information could be elicited.

171 P9 "*Does she look like she's been taking care of herself. . . that being said some people*
172 *do look well dressed and can have mental health problems. . . She'd probably be someone*
173 *I'd put into a room in the back right away so we could get a little bit more information.*"

174 Participants appeared to appreciate the need to adjust their approach in communicating in
175 order to obtain more information from patients to better inform decision making.

176 P2 "*I would speak to her calmly in a low tone of voice and ask her what she would like for help...*
177 *if she could please not scream and swear at me so that I could help her.*"

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178 Where information could not be elicited directly and non-psychiatric causes were suspected,
179 there was a demonstrated willingness to ensure this was investigated whilst in the ED. This was
180 sometimes before referring to psychiatric colleagues.

181 P4 “*..I can’t rule out head injury versus mental health versus alcohol or drug use*”

182 **Managing their own distress**

183 For some participants the lack of on-site psychiatry services or uncertainty about
184 psychiatry’s availability to respond resulted in uncomfortable feelings from the outset of a triage
185 consultation. Statements suggested an apprehensive feeling of “we can’t deal with this” or “why
186 have you come here?” even before the consultation had been completed.

187 P3 “*...Wrong hospital, honest we don’t have psychiatry in this area*”

188 The nature of a patient’s presentation appeared to influence whether the triage nurse
189 would ask further closed questions in triage. This seemed less likely when a person was acutely
190 distressed or agitated.

191 P3 “*She’s screaming at me okay so unfortunately screaming patients make my heart pound so
192 probably my throat is in my chest at the moment and my hands are starting to shake*”

193 A lack of knowledge or skills in assessing severity of distress left triage nurses feeling
194 that they may not have ‘got it right’. They planned to seek support from psychiatric colleagues.

195 P6 “*...I am unsure if patient is hearing voices cause she’s not answering questions. ... if
196 we have a psychiatric nurse on duty I would ask them to come and help me.*”

197 Furthermore, a lack of confidence eliciting information at triage was reported by participants. It
198 is unclear whether this relates to a lack of confidence in their communication skills, limited
199 time available in triage, or the nature of the patient’s communication. There was also a
200 suggested perception that their psychiatrically trained colleagues were better skilled at this.

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201 P11 *“our (psychiatric) nurses ... usually get way more than I can out of someone out at triage*
202 *cause that’s what they’re trained to do so . . . I’m not what she needs right now.”*

203 **Discussion**

204
205 This study explored the thinking processes triage nurses engage in while triaging and
206 provided some insight into the cognitive processes when confronted with mental health
207 presentations which may have some assessment challenges and /or emotive aspects. Although
208 participants used the decision-aid, they manipulated it in a way so as to have it validate their
209 intuitive judgement. The participants appeared to suggest how their clinical experience could
210 ‘tell them’ what score a person’s presentation should generate and they adjusted their triage
211 accordingly until this matched. This may be due to their perception that CTAS does not provide
212 the necessary modifiers to effectively describe how a person is presenting. However there are
213 limitations to applying such an approach, specifically in relation to psychiatry. There is further
214 risk in that clinical knowledge or experience-based judgments alone can be associated with
215 incorrect conclusions as they are less objective. A combination of the two approaches together is
216 associated with more accurate assessments of risk in particular ¹⁹.

217 This study suggests that, despite revisions, CTAS may still not lend itself to accurately
218 defining a person’s presentation. Triage nurses did not consistently agree with the final CTAS
219 score and responded by adjusting the score. This appeared to be influenced by a number of
220 factors such as prior clinical experience, confidence, environmental pressures in the department,
221 and a wish to avoid negative responses from their colleagues. The latter point is suggestive of
222 ED staff experiencing the influence of their own colleague’s negative attitudes about this patient
223 group. Whilst this is widely reported in literature in relation to patient experience ⁸, it has not
224 been noted as a contributing factor, conscious or unconscious, to decision making by clinicians.

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225 When a person is not speaking or is communicating in an aroused or disturbed manner,
226 the triage nurse can struggle to elicit enough information. In response to this uncertainty, it
227 appears that the subsequent triage assessment may be based solely on objective observations and
228 or informed by prior experiences or knowledge of this client group. Given that many ED
229 clinicians believe that their knowledge and skills in relation to mental health problems is limited
230 ⁷, it might be that decision making is influenced by knowledge informed by prior clinical
231 experience and current observations leading to heuristic decision-making ¹⁹.

232 A common phenomenon within mental health care in the ED is ‘diagnostic
233 overshadowing’¹⁰ where a focus on a person’s mental health diagnosis overrides the
234 consideration of physical health needs. Crosskerry ^{14,19} attributes this to the cognitive bias of
235 “anchoring” (basing a decision on early observations) and can compromise patient safety ¹⁴.
236 Positively, in this study several participants demonstrated an awareness that physical complaints
237 can have apparently psychiatric manifestations, requiring robust investigation either prior to or in
238 parallel to psychiatric care. This, together with a willingness of some participants to obtain
239 collateral information from other sources about a person’s recent history, suggested that for some
240 ED staff there is a motivation to establish with greater certainty ‘what is going on’. However this
241 study did not clearly demonstrate that this informed more accurate decision making.

242 The consultation role of mental health professionals within the ED is perceived as
243 valuable to ED staff ² particularly in terms of communicating with, providing support to, and
244 managing patients with mental health problems in the ED. The actions of participants in this
245 study in involving their mental health trained colleagues to support them in communicating with
246 patients or by taking over their care appears to support this evidence. However in departments

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247 where this service is not resident or only operating within specific times, this resource cannot be
248 relied on as a means of managing this patient group.

249 Participants in this study clearly took the overall environment of the ED into
250 consideration when triaging. Where could the patient wait? Who is available to wait with the
251 patient? Is this appropriate given the level of risk? Who will be available to help given the
252 circumstances? Where are other patients waiting? How busy are they “in the back”? Nugus and
253 colleagues²⁰ have described this as the ED “carousel” where patient flow into, through, and out
254 the department is orchestrated and choreographed in order to optimize resources, reduce risk, and
255 meet patients’ needs effectively and efficiently. The current study provides support for this, with
256 the triage nurse as the one who places the patient in the queue to get on the carousel.

257 **Limitations**

258 The sample was self-selected and very likely attracted those who were more comfortable
259 with mental health presentations. The decision-making processes engaged in by those less
260 confident and less comfortable with this patient population will need to be further investigated.

261 The use of paper-based scenarios, although an accepted research methodology for
262 studying decision-making¹⁰, was frustrating for the participants as they didn’t feel they had
263 enough information to complete the triage. They were however, able to talk about where they
264 might go with further assessment and some were able to imagine themselves in the situation
265 demonstrating feelings of anxiety around presentations that were more emotive than others.

266 As this study did not examine patient outcomes resulting from the triage decisions,
267 whether or not the intuitive decisions were any better or any worse than those that might have
268 been generated from more analytic decision-making cannot be determined. Until further research

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269 examines the outcomes of triage decisions, triage tools may simply remain an algorithm designed
270 to support and validate heuristic thinking^{10,19}.

271 **Implications for practice**

272 Valuable as heuristic thinking and intuitive problem-solving can be, there is a danger of
273 cognitive bias resulting in negative patient outcomes. Education and clinical supervision could
274 be of benefit in raising the awareness of triage nurses about the factors influencing their decision
275 making as well as their confidence in working with people with mental health problems. De-
276 biasing strategies need to be developed to promote more individualized and compassionate care
277 to all patient populations.

278 Difficulties in matching presentations to triage descriptors are possibly related to a lack
279 of knowledge [and or language] of triage nurses about the recognition of specific presentations
280 and clinical risk assessment/management. More accurately recognizing them could result in more
281 appropriate choices of descriptors and therefore priority, particularly if they are more competent
282 and confident in risk assessment and management.

283 Finally, mitigating against the effects of environmental influencing factors is difficult as
284 these can vary day to day and dependent on skill mix and acuity. Being able to justify decision
285 making clinically does not necessarily seem to be enough to manage a perceived need (and
286 associated stress/worry/anxiety) not to put unnecessary pressure on colleagues 'in back'. With
287 this in mind, triage nurses may need more support to be able to manage the emotions evoked by
288 the environment in the ED, including dynamics with colleagues.

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