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7 TITLE: Emergency Medical Services: A Resource for Victims of Domestic Violence?

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21 ABSTRACT

22 Background: Domestic violence (DV), also known as intimate partner violence (IPV), is
23 one of the leading causes of serious injury among women of childbearing age, accounting
24 for between 2-24% of emergency department visits depending upon the specific criteria
25 used to measure incidence. As first responders on the scene during domestic violence
26 calls where personal injuries have occurred, emergency medical services (EMS) could
27 routinely identify, report and assist victims of violence. Yet, little is known of the
28 prevalence of DV calls in EMS practice, emergency medical technicians' (EMT)
29 knowledge and comfort in responding to such calls, or how they care for victims.

30 Study Objectives: The objectives of this study were to assess Emergency Medical
31 Technicians' knowledge of and experience with providing care to victims of DV in the
32 province of Ontario, Canada.

33 Method: Data were gathered through an online, short-answer survey. Survey data were
34 analyzed using basic frequency displays, and descriptive statistics are reported.

35 Results: Almost 500 EMTs participated in this study, the vast majority of whom (90%)
36 attended at least one DV call in the preceding year, with 65% attending between 10 and
37 20 DV calls. The majority of respondents (84.5%) wished for more education and
38 training on the issue.

39 Conclusion: EMTs have frequent contact with victims of DV and require specific
40 education and training in order to develop competency and comfort in responding to
41 patients who have experienced DV.

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45 INTRODUCTION

46 Domestic violence (DV) is a serious public health issue affecting untold numbers of
47 women worldwide. In Canada, 7% of women, some 653,000 individuals, experienced
48 physical or sexual assault by their intimate partners in the 5 years preceding the most
49 recent survey; 2% had experienced an assault in the previous 12 months (1). Of those
50 assaulted by a current or ex-partner 44% reported receiving injuries, 13 % required
51 medical attention and 2% were hospitalized (1).

52

53 The prevalence of DV in hospital emergency department patients has been repeatedly
54 studied, although variability in the criteria used (for example, current or past violence;
55 physical and sexual or physical/sexual and psychological) and the fact that women may
56 not disclose the first time they are asked, have led to conflicting findings regarding
57 prevalence. For example, one cross sectional study of women presenting in American
58 emergency departments reported 11.7% had injuries or stress-related issues resulting
59 from DV (2) while a recent study of a hospital in the UK used narrower parameters to
60 assess DV (acute injury or condition directly related to DV) and reported 1% of female
61 ED patients presented with DV related issues (3). The most recent Canadian study
62 conducted in a smaller, urban emergency department reported 2% of female patients
63 presented with DV related issues (4).

64

65 Given the high prevalence of DV and its associated health sequelae, it is not surprising
66 that governmental organizations and medical governing bodies and colleges have
67 repeatedly called for the development of DV related policies and protocols and additional

68 training and education for health care professionals. As a result a number of education
69 and training initiatives for medical students, residents, and practitioners have been
70 developed (5-10).

71

72 Despite this focus on emergency care for victims of DV, the prehospital setting has
73 garnered little attention. A general estimate of the prevalence of DV among Emergency
74 Medical Service (EMS) calls was calculated by The US Centers for Disease Control in
75 2003; they estimated 95,000 ambulance visits are made annually due to DV (11). There
76 has been very little additional research. We found just one study of the prevalence of DV
77 in a specific EMS jurisdiction and those authors noted there were no other peer reviewed
78 English language publications (12). In that study, Boston area ambulance run sheets
79 from a non-consecutive, convenience sample from July to December 1995 were obtained
80 and reviewed to assess positive, probable and negative cases of DV (N= 876). The
81 authors reported that 5.4% (N=47) of women transported by paramedics were positive for
82 DV while 10.8% (N=95) were probable cases that went unidentified. The authors
83 concluded that EMS personnel have unique training needs and require educational
84 programs to increase their awareness, knowledge and documentation of the issue.

85

86 In 2005 the Sunnybrook-Osler Centre for Prehospital Care in Toronto, Canada received
87 funding from the province of Ontario to develop a curriculum on Domestic Violence
88 specific to EMS practice. (In our jurisdiction all EMTs who provide care under the
89 supervision of a medical director are referred to as paramedics, regardless of the sphere
90 of practice; henceforth we will refer to these providers as paramedics.) To guide and

91 inform curriculum content, we wanted to learn more about current practices on calls
92 where DV was documented. We learned, however, that DV related calls do not have a
93 specific code, making a chart review impossible. Instead, we developed an online survey
94 to learn more about paramedics' current knowledge and daily practices.

95

96 **MATERIALS AND METHODS**

97 **Study Design**

98 An interactive, web-based survey was developed by an advisory committee comprised of
99 paramedics and DV experts to assess paramedics' practice, knowledge of the issue,
100 mistaken assumptions and educational gaps.

101

102 Institutional Ethics Review Board approval for this project was obtained from the
103 Sunnybrook and Women's College Health Sciences Centre.

104

105 **Study Population**

106 A convenience sample of active paramedics in the province of Ontario was accessed
107 through the Ontario Paramedic Association (OPA) website. The OPA is a voluntary
108 association dedicated to 'enhancing the professional image of paramedics, improving
109 communications between paramedics, and lobbying for improvements to the standards of
110 patient care'. During the data collection period, the OPA membership was 1,326 and the
111 website received an average 650 visits per month.

112

113 **Survey**

114 A brief, short-answer survey was developed based on the available literature and in
115 consultation with the advisory committee. The survey was piloted with 51 paramedics
116 during a provincial conference in September 2005. Participants completed a paper and
117 pencil version of the survey and provided feedback on the instrument. The committee
118 considered the pilot results and participants' feedback and made revisions as necessary;
119 revisions primarily focused on wording and ordering of the questions.

120

121 The survey was comprised of 23 questions divided into three sections: a) demographic (9
122 questions); b) current practice and experience (7 questions), and, c) knowledge about DV
123 from the point of view of paramedic practice (4 questions).

124

125 The survey was uploaded on the OPA website using a free software program
126 (SurveyMonkey) with a banner reading, "We need your help!" Under the banner a
127 description of the curriculum development project was provided with a link to the survey.
128 Data collection took place over a three month period in the winter of 2005-2006. Survey
129 completion was anonymous. As a small incentive, participants were invited to complete
130 and submit a separate email in order to be eligible for one of twenty-five available gift
131 certificates.

132

133 Data Analysis

134 Data were analyzed using the software available through the online program. Descriptive
135 statistics were generated and used for data reporting.

136

137 **RESULTS**

138 On average, 650 visits are recorded on the website each month. The online survey was
139 completed by 480 respondents representing 36% of the total OPA membership; the
140 number of participants relative to the number of website visitors is unknown. Every level
141 of paramedic practitioner (EMT-Defibrillation, EMT-Intermediate and EMT-Paramedic)
142 and every regional base hospital (including those in rural, remote rural, and the provincial
143 air ambulance service) were represented.

144

145 **Demographics**

146 Of the 456 respondents who provided their location, the majority (69%) were employed
147 in urban centres of greater than 100,000 people. One hundred (21%) worked in
148 communities of between 10,000 and 100,000 people and 48 (10%) worked in
149 communities with fewer than 10,000 people. One hundred and eighty-six (40%) of
150 respondents had five years or less experience as an EMT; 49 (24%) had more than 16
151 years, with the remainder having between 6 and 16 years. A majority 358 of the 477
152 respondents (75%) were under 40 years of age reflective of the known average age for
153 paramedics (36.3 years) (19).

154

155 **Current Practice and Experience**

156 Of the 385 respondents who answered the question about the number of DV calls
157 attended in the past 12 month period, 345 (90%) had attended at least one call in that
158 timeframe; 93 (24%) responded to more than 10 such calls while 252 (65%) responded to

159 between 1 and 10 calls. Just 40 respondents (10%) had not attended, or did not remember
160 attending, a DV call in the previous year.

161

162 When EMS providers arrive on the scene they may not know if injuries are due to assault
163 or not, or whether or not the perpetrator is still on the scene. When a 911 call is made and
164 DV is disclosed, or the dispatchers suspect DV, they share this information with the
165 EMS, allowing the team to take necessary precautions to protect themselves. Of 378
166 respondents who described the way dispatchers identify DV calls, one-third (32%)
167 reported that all or most of the DV calls were identified by dispatchers. Slightly more,
168 148 respondents, (39%) reported that few or none of their calls were so identified while
169 107 (28%) reported that just some of the calls were identified.

170

171 On their most recent DV call, 79% (294) of the respondents informed the police. (Calls
172 made to 911, the emergency phone number, are automatically patched through the police
173 services and those identified by the caller as involving DV would also automatically
174 result in police at the scene, however calls for medical aid where there is no disclosure of
175 DV would not automatically result in police attending the scene.) Upon transporting the
176 patient to the hospital 58% of respondents (217) reported their assessment of DV to the
177 hospital's emergency department staff, 18% (69) reported the case to their supervisor and
178 7% (25) told no one. Child protection services were notified by 8% of respondents (31).
179 Twenty-three percent (106) of the respondents left this field blank. Totals add up to more
180 than 100 as respondents could select more than one response.

181

182 In response to the question, ‘how frequently are DV patients transported to hospital?’ the
183 majority of the 375 respondents, 64.3% (241), reported that DV patients are transported
184 to hospital *some of the time* while 29.3% (110) said such patients are transported *most of*
185 *the time*. When patients were not transported to hospital the most frequently cited reason
186 for non transport, was because the *patient refused* 83.5%, (303). In only 6.3% (23) of the
187 cases was the absence of injuries the reason for non transport. One hundred and
188 seventeen respondents left this field blank.

189

190 **Knowledge and Attitudes**

191 Most of the 381 respondents had *some* prior education about DV, obtained through a
192 variety of means. The largest percentage (58.3% or 222) described their prior learning as
193 “informal education including personal learning”; 35.7% (136) attended a conference or
194 other continuing medical education initiative while 17.6% (67) received some formal
195 academic education. Although a “no training” option was not available, there was an
196 “*other*” option with space provided for comments. Thirteen respondents noted they had
197 no prior training or education; some indicated this with multiple exclamation marks. In
198 this same section, 3 respondents said they knew about the issue from “personal
199 experience”. (Totals equal more than 100% as respondents could select more than one
200 response.) Ninety-nine respondents left this field blank. Fully 84.5% of respondents (321)
201 expressed the wish for more formal training on the topic.

202

203 Current knowledge about DV and paramedic practice was assessed through a series of
204 questions beginning with “To your knowledge, does the law require mandatory reporting

205 of DV?" Twenty-two percent (84) of 378 respondents correctly identified that in Ontario
206 mandatory reporting was required only when children had witnessed or heard the assault,
207 however, 43% (163) believed the law required them to file a report when they attended
208 victims of DV.

209

210 Two additional questions focused on perceived risk factors for victimization and
211 perpetration of violence. Two hundred and eighty respondents wrote detailed answers
212 describing factors that put a woman at risk for victimization. Risk factors for increased
213 victimization were noted to be: women and children, low income and education,
214 isolation, a history of past violence, recent immigrants, and involvement of alcohol or
215 drugs. A number of respondents declared all women were equally at risk of victimization,
216 one person noted that wealthier victims may be more adept at concealing DV. Factors
217 related to increased risk of perpetration were identified by 236 respondents. Specific risk
218 factors for perpetration were: former victimization or witnessing family violence, alcohol
219 or drug use, anger issues, personality traits and behaviors such as manipulation, and
220 mental illness.

221

222 **DISCUSSION**

223 To our knowledge, this is the first large, population-based survey of paramedics'
224 experience and knowledge of DV and a first effort to estimate prevalence of DV calls in
225 the EMS environment. Close to 500 paramedics from across the province responded to
226 the survey, providing the first ever, broad based data on the prevalence of DV in
227 paramedics' practice, their knowledge of the issue, mistaken assumptions and educational

228 gaps. As such, this research represents an important contribution to the scant literature on
229 domestic violence in the prehospital environment.

230

231 EMS providers working in the prehospital environment encounter significant numbers of
232 women who experience DV. In fact, almost one quarter of this study's respondents
233 attended more than 10 such cases in the previous year while 9% reported seeing more
234 than 20 DV cases in a one year period. These numbers likely refer to those cases where
235 either the woman has disclosed or the circumstances have made identification of DV
236 evident. Based on experience in other domains, it may be conjectured that an additional
237 substantial number of cases go undetected.

238

239 Despite the volume of DV calls reported by EMS providers, it is surprising how little
240 formal education or training has been developed for the sector. Most study respondents
241 had only informal, personal education or a conference/CME session on the topic. Our
242 scan of the literature revealed little in the way of specific training for EMTs on the topic
243 although the latest version of one of the standard texts addresses the topic somewhat, and
244 the upcoming edition of the textbook published by the National Association of EMS
245 Physicians will have a section on DV (personal communication, Dr. David Cone). A
246 review of the prehospital syllabus for Ontario paramedics revealed a broad section on the
247 topic of abuse, however nothing specific concerning DV
248 (http://www.health.gov.on.ca/english/public/program/ehs/edu/pdf/pcp_syllabus.pdf).

249

250 Although a few earlier studies have addressed EMS providers and the issue of domestic
251 violence, for example, Singleton and colleagues (13) investigated public attitudes about
252 the roles of EMS, and Jezierski (14), as well as Hall and Becker (15), published
253 descriptions of curricula, there have been remarkably few studies of EMS providers'
254 knowledge, attitudes, and experience with the issue. In our review of the literature we
255 found just one evaluation of an educational intervention on DV developed specifically for
256 workers in the prehospital environment (16). In that study, 46 EMTs completed a 12-item
257 paper and pencil survey prior to a 3 hour mandatory lecture. A post test was administered
258 4 to 6 months after the lecture. Although the post test sample was small (n=19),
259 significant improvements in knowledge were reported on most measures. In commenting
260 on the small sample size, the authors note that the EMT population is a highly mobile one
261 as providers move in and out of service. Despite this, the results suggest that instruction
262 on the topic is useful.

263

264 Interestingly, in our study, of the 40 respondents who reported that they had not attended
265 a DV case in the prior year, 14 were recent graduates (those with between 1 and 5 years
266 of practice) and an equal number were amongst the most experienced (more than 21 years
267 of practice). While it is difficult to account for this phenomenon, one possibility is that
268 the less experienced are less likely to recognize subtle indicators of DV while the most
269 experienced were trained at a time when DV was not considered DV a possible or
270 potential health issue.

271

272 Without education on DV tailored to the EMS sphere of practice indicators of abuse are
273 likely to go unrecognized and an opportunity to assist abused women will be missed.

274 Without specialized training there is also a risk that EMS providers may inadvertently
275 further victimize patients by failing to provide much needed support, failing to
276 understand the characteristics of an abusive relationship, and responding inappropriately
277 to disclosures, asking inappropriate and unsupportive questions and offering unrealistic
278 or even dangerous solutions. Even if they do not actually harm their patients, EMTs are
279 missing an opportunity to intervene, to reduce the shame and isolation many abused
280 women experience, and to provide much needed resource and referral information.

281

282 Finally, conducting research with health care professionals is particularly challenging and
283 low response rates are frequently noted. As little survey research has been conducted
284 with EMTs and paramedics an 'average' response rate has yet to be determined.

285 However, in *mail survey research* of health care professionals, response rates of 36% are
286 fairly typical (20). Physicians are known to be particularly resistant to completing
287 surveys in any form (21). Kellerman and Herald in a review of 25 studies of physicians
288 that employed mailed surveys reported response rates ranging between 14% and 38%
289 (22). *Online surveys* have been used with health professionals with varying degrees of
290 success (response rates ranging from 9% to 94%) (23). While the number of studies using
291 the web or email to collect data has been increasing over the past fifteen years, response
292 rates appear to be decreasing. In a review of electronic surveys conducted between 1986
293 and 1998, the author notes: "On average, the 31 studies report a mean response rate of

294 36.83%... The 1998/9 period, in contrast, showed thirteen studies using e-mail surveys
295 with an average response rate of about 31%”(24).

296

297

298 **LIMITATIONS**

299 There are some clear limitations to this study the first being a cautionary note about the
300 generalizability of these findings to all EMTs or paramedics based on the low response
301 rate.

302

303 A second limitation of our study is its reliance on paramedics’ recall of past events, in
304 particular the number of DV related calls each paramedic answered in the past year.

305 Nonetheless, given the scope of paramedic practice and range of medical emergencies
306 encountered on a daily basis, one might argue that the respondents are more likely to
307 underestimate rather than overestimate the number of DV cases seen in a year.

308

309 Finally, our jurisdiction employs a mix of EMT-Defibrillation, EMT-Intermediate and
310 EMT-paramedic providers. We did not differentiate between these categories of EMTs
311 for the purposes of this study. We therefore do not know whether the level of training,
312 as distinguished from the years in practice, is associated with recognition and knowledge
313 of DV.

314

315 **CONCLUSION**

316 EMTs encounter identified victims of domestic violence with some regularity. In
317 addition, it is likely they also encounter victims who are not readily identified or choose
318 not to disclose the cause of injuries. EMS providers are thus uniquely positioned to be
319 useful in identifying, reporting, and assisting abused women. In failing to provide them
320 with the necessary skills and tools to most effectively help victims of DV, EMS
321 personnel miss an important opportunity to provide abused women with much needed
322 support, resources and information, either themselves or through information provided to
323 Emergency Department staff.

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