

BMJ Open Cross-sectional survey of Good Samaritan behaviour by physicians in North Carolina

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ABSTRACT

Objective: To assess the responses of physicians to providing emergency medical assistance outside of routine clinical care. We assessed the percentage who reported previous Good Samaritan behaviour, their responses to hypothetical situations, their comfort providing specific interventions and the most likely reason they would not intervene.

Setting: Physicians residing in North Carolina.

Participants: Convenience sample of 1000 licensed physicians.

Intervention: Mailed survey.

Design: Cross-sectional study conducted May 2015 to September 2015.

Main outcome and measures: Willingness of physicians to act as Good Samaritans as determined by the last opportunity to intervene in an out-of-office emergency.

Results: The adjusted response rate was 26.1% (253/970 delivered). 4 out of 5 physicians reported previous opportunities to act as Good Samaritans.

Approximately, 93% reported acting as a Good Samaritan during their last opportunity. There were no differences in this outcome between sexes, practice setting, specialty type or experience level. Doctors with greater perceived knowledge of Good Samaritan law were more likely to have intervened during a recent opportunity ($p=0.02$). The most commonly cited reason for potentially not intervening was that another health provider had taken charge.

Conclusions: We found the frequency of Good Samaritan behaviour among physicians to be much higher than reported in previous studies. Greater helping behaviour was exhibited by those who expressed more familiarity with Good Samaritan law. These findings suggest that physicians may respond to legal protections.

INTRODUCTION

A Good Samaritan is commonly defined as an individual who intervenes to assist another without a previous responsibility and without compensation. The frequency of Good Samaritan acts is unknown;¹ however, there have been studies of the incidence of

Strengths and limitations of this study

- Sample drawn from all physicians licensed to practice in state of North Carolina.
- Examines physician responses to out-of-office emergencies across specialties, degree of experience as physician, age and personal beliefs.
- A minority of physicians (26.1%) responded to the survey and these responses may reflect selection bias.
- Physician knowledge of Good Samaritan laws was not directly assessed.

these events on airplanes.²⁻³ Studies of Good Samaritan behaviour have concluded that nearly three-quarters of physicians encounter an opportunity to intervene outside of routine clinical care in their career.⁴⁻⁵ However, the willingness of physicians to intervene varies in the literature.⁴⁻⁸

In order to increase the likelihood of intervention, individual states in the USA have passed laws to immunise healthcare providers from claims of negligence under such circumstances.⁹ There has been limited study of the effect of these laws. In the 1960s, the American Medical Association (AMA) found that physicians in states that had passed Good Samaritan laws were no more likely to render assistance to a stranger in need.⁸ Despite the lack of research demonstrating an effect of legal protection, all 50 states in the USA have Good Samaritan laws.⁹ Laws differ in the specific nature of their protections: the definition of the site of the emergency, the type of provider who receives protection, and the standard for negligence all vary by state.¹ Three states (Rhode Island, Vermont, Minnesota) require citizens to assist in emergencies.¹ North Carolina (NC) law (NC General Statutes §90–21.14) states that a healthcare provider who intervenes in an emergency will not be liable for negligence when acting in good faith and without expecting compensation.¹⁰ According to a paper from 2008, there is no history of a

plaintiff winning a case against a doctor who sought Good Samaritan protection for emergency medical treatment in the USA.⁹ Additionally, the federal Aviation Medical Assistance Act provides protection to physicians who provide assistance on all airplanes registered in the USA.^{11 12}

A large scale study of the attitudes and behaviour of American physicians from different specialties has not been performed since the 1960s.⁸ Physicians may differ in their willingness to provide care. This may be due to training; for instance, a psychiatrist may not feel as comfortable performing chest compressions as a critical care specialist. The setting of the emergency may also affect physician willingness to intervene. A physician who encounters a car accident on a deserted road might behave differently than a doctor who passes an urban car accident. Similarly, the characteristics of the injuries may affect the response. More physicians might feel comfortable treating simple dehydration than decompressing a tension pneumothorax at 10 000 feet.

The primary goal of the NC Good Samaritan Study was to determine the willingness of physicians to render assistance outside of routine clinical care. Routine clinical care in this context refers to a pre-established patient-provider relationship taking place in a formal healthcare venue subject to typical standards of professional responsibility, documentation and billing. Secondary goals included estimating the incidence of Good Samaritan events in the career of physicians, establishing the factors that contribute to physician willingness to intervene and assessing the level of comfort of physicians with different interventions with respect to differences in training and knowledge of Good Samaritan laws. Gaining more understanding of the characteristics of Good Samaritan behaviour can inform policy and thereby increase the frequency that physicians assist in emergencies.

METHODS

Survey development

An initial version of the survey was developed by members of the study team (WG, AV) and piloted with physicians and medical students. Survey questions were refined based on feedback. The survey covered demographic information, respondent's moral attitudes and legal knowledge, previous experience with Good Samaritan events, comfort with various forms of interventions, as well as responses to hypothetical scenarios (see online supplementary appendix A). The scenarios were chosen in order to vary the number of bystanders, the nature of the injury, and the relationship between the victim and the respondent. The Office of Human Research Ethics of the University of North Carolina at Chapel Hill deemed this study exempt from review.

Sample and survey procedures

Our target population was licensed physicians in NC. We obtained a full database of physicians from the North

Carolina Medical Board. A random sample of 1000 physicians from this list were selected to receive the survey. Only physicians with a primary address in NC were included. Surveys were mailed to physicians and a follow-up postcard was delivered approximately 1 week later. The identity of individual respondents was unknown to the study team. Responses were entered into a database by members of the study team. Invalid and missing responses were omitted from analysis.

Analysis

Statistical analysis was conducted using Stata, V.14 (StataCorp, College Station, Texas, USA). *p* Values are reported where applicable. Physicians in the sample were assigned to a specialty based on their primary practice as listed by the North Carolina Medical Board. The assignment of groups for primary care, medical specialty and others are listed elsewhere (see online supplementary appendix B). We compared the report of acting as a Good Samaritan at most recent opportunity across variables including sex, medical specialty, previous Good Samaritan experience, training in emergency life support, practice setting and beliefs regarding Good Samaritan behaviour and tested for significance using χ^2 and analysis of variance. For analysis, response categories of agree and strongly agree were combined as agree, and disagreement categories were likewise combined. In determining the years elapsed since training for the sample, we used an average length of training of 4 years after completion of medical school.

RESULTS

Of the 1000 mailed surveys, 30 were returned as not deliverable. A total of 253 surveys were returned (26.1%). Respondents were predominantly male, primary care providers and in private practice (table 1). Physicians who responded were similar to the sample population in years of experience and age. Almost all physicians had some form of life support certification (93.6%).

Four in five reported a previous opportunity to act as Good Samaritan (79.4%), and over 90% intervened at the last occasion (92.7%; table 2). The most common specific site of assistance was an airplane. A vast majority of physicians were confident in their ability to render emergency care and stated that it was a moral obligation to provide assistance (table 3). Half of respondents were confident in their knowledge of the legal protection of Good Samaritans. There was no difference between active physicians and those who no longer saw patients in responding to a recent opportunity to be a Good Samaritan (table 4). Likewise, factors including sex, specialty type, length of time since completing training >10 years or age >45 years did not affect responses. However, there was a statistically significant difference between those with greater perceived knowledge of the

Table 1 Characteristics of respondents and sample (n=253)

	n	Respondents (%)	Sample (%)
Currently seeing patients	251	93.6	
Male	246	64.2	
Age group (years)	253		
26–35		12.3	12.0
36–45		24.9	26.1
46–55		26.5	26.4
56–65		23.3	23.8
66–75		9.5	9.0
>75		3.6	2.7
Practice setting	243		
Community hospital		20.2	
Federally qualified health centre		1.7	
Large academic hospital		18.9	
Private practice clinic		44.9	
Public health department		0.8	
Veterans health administrative facility		1.7	
Other		11.9	
Years since completed training	251		
0–5		22.7	14.5
6–10		12.0	13.3
11–20		23.9	26.3
21–30		23.1	25.6
>30		18.3	20.4
Specialty	250		
Primary care		37.2	30.9
Medical specialty		8.0	18.4
Emergency medicine		4.0	7.3
Surgical specialty		21.6	16.1
Other		29.2	27.3
Previous life support certification?	249		
Yes		93.6	
No		6.4	

law and those without perceived knowledge of the law (98.0% vs 89.9%, $p=0.02$).

A higher number of physicians would definitely help a friend or neighbour compared with a stranger (table 5). The scenario in which the greatest number of physicians would definitely assist was a man collapsed on a plane (90.4%), while the fewest doctors would definitely assist a man placed on stretcher by emergency responders (2.8%). Only 39.6% of physicians stated they would definitely stop to assist at the site of a traffic accident.

In sharing the level of care that they would be comfortable providing, 79.5% of physicians would definitely take a history (table 6). A similar majority would definitely perform chest compressions and use an automated external defibrillator (AED) if available; however, less than one-third would definitely provide mouth-to-mouth resuscitation or use emergency medications. There was marked reluctance to reduce a dislocated elbow in a child, with only 8.9% of physicians stating they would definitely provide this care. Likewise, a minority of doctors would perform more invasive procedures like performing a tracheostomy (14.4%). The most commonly cited answer for not intervening was that another

person was in control (42.2%; table 7). The second most commonly cited reason was a lack of emergency training (20.4%). Concern for legal liability was the third most common reason, cited by 13.3% of respondents.

DISCUSSION

The NC Good Samaritan Study found that a majority of physicians encounter opportunities to provide emergency medical assistance outside routine clinical care. Research by DiMaggio *et al*⁵ and Williams⁴ found that nearly three-quarters of physicians have had prior opportunity to act as a Good Samaritan which agrees with our findings. This consistency across countries suggests that out-of-office emergencies are not uncommon in the life of a physician. Our study found that over 90% of physicians responded to the last Good Samaritan emergency encountered, a similar result to the Sheffield Good Samaritan Survey in the UK which found that doctors had acted in all but 1 of 329 previous experiences.⁴ This result reveals an encouraging level of physician assistance; however, it likely reflects measurement bias as it depends on self-report.

Table 2 Previous Good Samaritan experience

	n	Respondents (%)
Previous opportunity to act as Good Samaritan	247	
Yes		79.4
No		20.6
Acted as Good Samaritan last time had chance	193	
Yes		92.7
No		7.3
Number of times acted as Good Samaritan	200	
1		18.5
2		23.0
3–5		41.5
6–10		10.5
>10		6.5
Setting of most recent Good Samaritan act	179	
Airplane		28.5
Traveling by car		16.2
Public transportation		0.0
While at shopping centre or store		10.6
While at a performance (sports event, concert)		16.2
Other		28.5

Multiple studies have examined the hypothetical response of physicians to a traffic accident. The NC Good Samaritan Study found that 7 in 10 NC physicians would likely stop to render assistance at the scene, a higher response rate than the 1964 AMA study in which 57.4% of NC physicians would intervene.⁸ These results are more in line with the findings of Gray *et al*⁶ who found that over 90% of doctors in Ontario would intervene. However, the percentage who stated they would definitely respond (39.6%) is slightly lower than the 44% rate reported by Gross *et al*⁷ in a study of New York physicians.

There were no differences in the response to a recent emergency between sexes which agrees with previous findings.^{4 7} The rate of Good Samaritan interventions during the most recent opportunity did not differ between specialty types in contrast to previous research

which found that general practitioners were more likely to intervene compared with hospitalists.⁴ It should be noted that the categories of doctors in this study were broad, for example, anaesthesiologists and psychiatrists are both categorised in the 'other' category. A more detailed comparison of individual specialties may reveal differences in behaviour.

Experience as a physician has generally not previously been associated with differences in Good Samaritan behaviour;⁴ however, Gross *et al*⁷ found attending physicians were less likely to intervene at the scene of a hypothetical car accident. This is the first study to find that older physicians are as likely to have previously acted as a Good Samaritan at the last opportunity.

The vast majority of physicians responding to this survey reported confidence in their emergency skills; however, this may be skewed by the population completing the survey. Previous research, such as a 1992 study of family practitioners in Canada, demonstrated a lower level of confidence in emergency care skills.¹³ Only 50% of physicians stated that they were knowledgeable about Good Samaritan law in NC which highlights the importance of education regarding the legal protection of physicians. This finding is consistent with previous studies that have found low levels of physician knowledge of the law.^{4 6 7} Reassuringly, almost 90% of doctors believed it was a moral obligation to intervene, which accords with the AMA Code of Medical Ethics and is consistent with findings reported by Williams.^{4 14} Only 2% strongly disagreed with the concept of a moral obligation to provide assistance.

The rate of physician intervention varied with knowledge of Good Samaritan laws. This finding is in contrast to the 1964 AMA study which indicated that physicians in states with protections for Good Samaritans were no more likely to respond to an emergency.⁸ Two previous studies have found that knowledge of the law and interventionism were not positively associated.^{4 7} However, both of these studies used the doctors' responses to hypothetical scenarios instead of past self-reported behaviour. In the current study, physicians were asked about their perceived knowledge of the law, whereas in previous studies, doctors' knowledge of Good Samaritan laws was directly assessed. The finding in this study suggests that laws, or more precisely, doctors' perceived knowledge of laws, can affect behaviour.

Table 3 Knowledge and beliefs about Good Samaritan behaviour

	n	Strongly disagree (%)	Disagree (%)	Not sure (%)	Agree (%)	Strongly agree (%)
Confident in ability to provide emergency care	249	2.4	14.9	2.8	51.4	28.5
Knowledgeable about Good Samaritan law	250	4.4	34.0	10.8	41.6	9.2
Believe physician is morally obligated to intervene	251	2.0	6.0	2.8	56.2	33.1

Table 4 Characteristics of physicians who acted as GS at last opportunity

	n	Acted as GS (%)	p Value
Currently seeing patients	192		
Yes		92.7	0.954
No		92.3	
Sex	188		
Male		95.0	0.184
Female		89.9	
Specialty	192		
Primary care		96.0	0.2541
Medical specialty		81.3	
Emergency medicine		100.0	
Surgical specialty		90.0	
Other		92.5	
Age group (years)	193		
≤45		97.0	0.103
>45		90.6	
Years in practice	191		
≤10		96.7	0.141
>10		90.8	
Advanced life support training	189		
Yes		92.7	0.826
No		90.9	
Practice setting	185		
Community hospital		97.2	0.7483
Federally qualified health centre		100.0	
Large academic hospital		93.6	
Private practice clinic		89.5	
Public health department		100.0	
Veterans health administrative facility		100.0	
Other		95.5	
Confidence in providing emergency care	183		
Yes		92.8	0.641
No		90.3	
Knowledgeable about GS laws in NC	169		
Yes		98.0	0.020
No		89.9	
Believe physicians have moral obligation to provide GS care	187		
Yes		94.2	0.212
No		85.7	

GS, Good Samaritan; NC, North Carolina.

The scenario that would prompt the most persons to definitely intervene was aboard an airplane; however, this was the only scenario in which it was explicitly stated that the respondent was the only doctor, which may have contributed urgency. Over 90% of doctors in the present study would definitely assist a passenger on an airplane which is a rate far higher than physicians surveyed by Gross *et al*⁷ who found only 54% would definitely respond; however, the nature of the request was not specified which may explain the discrepancy. These findings are reassuring as emergencies on airplanes were also the most common specific site of Good Samaritan acts, a finding that agrees with previous research.⁵ Medical emergencies occur on approximately 1 in 600 flights and doctors are present in nearly 50% of these flights,³ which helps account for this finding in the

current study. It is also likely that these events are more memorable and may be recalled readily by physicians.

Unsurprisingly, the least number of doctors would definitely respond to the scenario in which emergency assistance had already arrived. This conforms to findings from DiMaggio *et al*⁵ who found lower volunteerism in settings in which physicians perceived other potential sources of medical care. The overall message is that physicians will intervene when they feel their assistance is more urgently needed. However, in the present study, an unexpectedly large number of physicians would intervene to help a woman who was collapsed on a busy city street. A prior study posed a similar scenario in which a physician encounters a man presumably passed out from intoxication on a dangerously cold morning. However, only 2% reported that they would definitely help.⁷ Both studies

Table 5 Hypothetical scenarios

	N	Definitely not intervene (%)	Probably not intervene (%)	Not sure (%)	Probably intervene (%)	Definitely intervene (%)
Female friend collapses at mall	250	0.0	0.4	0.0	12.0	87.6
Female neighbour collapses at the mall	250	0.0	0.4	0.0	13.2	86.4
Female stranger collapses at mall	252	0.0	2.4	0.8	20.2	76.6
Man suffers spinal injury at baseball game	248	1.2	8.9	2.4	24.6	62.9
Woman in anaphylactic shock at baseball game	251	0.0	0.4	1.2	16.3	82.1
Man suffering heart attack at baseball game	250	0.0	0.4	0.8	22.8	76.0
Female baby choking at baseball game	252	0.8	0.4	0.8	13.9	84.1
Man collapses on flight	250	0.0	0.4	0.4	8.8	90.4
Woman collapsed on city street	250	0.0	3.6	1.6	33.2	61.6
Man collapses on public bus	252	0.0	0.8	0.0	19.4	79.8
Victims of traffic accident	250	1.6	19.2	6.8	32.8	39.6
Man placed on stretcher by EMS	252	37.3	53.2	0.4	6.4	2.8

EMS, emergency medical service.

defined intervention as potentially including mouth-to-mouth resuscitation. This discrepancy may reflect the high level of Good Samaritan behaviour that was observed generally among respondents in NC as well as greater reluctance to provide medical services to strangers among urban physicians in New York City.

Physicians were willing to provide a range of services which conforms to previous research.⁵ However, slightly less than one-third of respondents would definitely provide mouth-to-mouth resuscitation. This is a finding

that agrees with the cardiopulmonary resuscitation literature, in which rates of providing mouth-to-mouth resuscitation vary from 70% to 80% for babies or children to 20–30% for possibly homosexual men or patients who suffered a trauma.¹⁵ Interestingly, very few doctors were willing to reduce a dislocated elbow in a child or suture a superficial wound. A possible explanation for this finding is that a dislocated elbow or superficial wound may not be immediately life-threatening and may be more appropriate to defer to the clinical setting.

Table 6 Level of care willing to provide

	n	Definitely not provide (%)	Probably not provide (%)	Not sure (%)	Probably provide (%)	Definitely provide (%)
Obtain history	244	0.4	0.4	0.8	18.9	79.5
Perform physical examination	245	0.8	2.9	1.6	27.8	66.9
Provide mouth-to-mouth resuscitation	243	6.2	14.0	11.9	37.9	30.0
Perform chest compressions	248	0.8	0.8	0.8	21.8	75.8
Utilise AED if available	247	0.8	1.6	5.7	17.4	74.5
Administer emergency medications	247	6.5	19.8	10.1	32.0	31.6
Suture superficial wound	244	41.4	27.5	5.3	12.7	13.1
Reduce a dislocated elbow in a child	246	46.8	26.0	5.7	12.6	8.9
Perform an emergency tracheostomy	243	30.5	26.3	6.2	22.6	14.4
Insert needle to treat pneumothorax	246	26.4	27.2	4.5	24.8	17.1
Accompany patient to treatment	245	8.2	29.0	13.5	32.2	17.1

Table 7 Primary reason for not intervening

	n	Respondents (%)
Another person took charge	95	42.2
Concern for legal ramifications	30	13.3
Fear of infectious disease	15	6.7
Lack of emergency training	46	20.4
Lack of medical equipment	27	12.0
Other	12	5.3

Over 40% of physicians stated that they would not intervene because someone else was in charge, which is a similar finding to previous research.⁴ Interestingly, fear of legal liability was only cited by 13.3% of doctors, which has previously been found to be a more important factor in physician judgement.⁶

Importance

There have been limited studies of the views and experiences of American physicians with Good Samaritan situations. The present study also belongs to the broader category of research on the effectiveness of laws on physician behaviour. For instance, laws governing medical liability may encourage doctors to practice defensive medicine; however, it has not been shown that injuries are reduced by these laws.¹⁶ Our study found that perceived familiarity with the law lead to greater intervention; however, we did not assess whether physician intervention improved outcomes. The medical literature is mixed regarding the effect of laws on patient outcomes.^{17 18} Another caveat to this finding is that doctors were only assessed on their perceived knowledge of the law. This finding does suggest that efforts to provide doctors with education on Good Samaritan law may be an important way to increase this behaviour. In contrast, greater confidence in emergency skills was not associated with greater intervention rates. This research demonstrates that opportunities to act as a Good Samaritan are not uncommon and that physicians are willing to respond. Our study found that physicians who feel well informed with Good Samaritan protections are more likely to intervene. These findings may be used in crafting policy and lead to improvements in the training of physicians.

Limitations

While our study is one of the largest and most up-to-date studies of Good Samaritan behaviour in the USA, we acknowledge several limitations. The response rate to our survey was 26.1%. While the distribution of age and training do not suggest that the respondents were significantly different than the sample, there was a lower participation rate of medical specialists and higher rates among primary care physicians. The sampling was performed in order to gather a random selection of NC physicians; however, the findings from individual specialists may over-represent or under-represent the views of certain specialties. For instance,

the respondents included a smaller percentage of emergency medicine physicians than our initial sample, which may bias the results towards the null as these doctors would be expected to react readily to Good Samaritan scenarios.

Those who responded may be more likely to have acted as a Good Samaritan previously. One implication of this possible selection bias is that our finding that physicians with greater knowledge of the law were more likely to have acted as a Good Samaritan is likely biased towards the null; thus, the true relationship may be stronger if the respondents had included more physicians with less Good Samaritan experience. In contrast to other studies, the NC Good Samaritan Study relied on respondents' appraisal of their knowledge of local law and did not test their understanding as in other studies. Lastly, this survey did not ask respondents to disclose previous lawsuits which may contribute to physician behaviour.

Further study

Future directions of study include the effect of legal knowledge on physician behaviour compared between states using the same survey instrument. A larger study could provide more definitive conclusions regarding the way that policy can be designed to maximise physician humanitarianism as well as help illustrate differences between specialties. Lastly, as the ability of physicians to effectively intervene is dependent on their training, developing further studies to delineate if recent training in life support improves willingness to intervene would highlight how physicians could better serve as Good Samaritans.

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Contributors WMG prepared the manuscript, conceived study, provided design of study, managed acquisition of data and provided analysis. DMH provided editorial support. AJV obtained funding, assisted with design of study, provided administrative support, provided editorial support and supervised project.

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