

The North Carolina Good Samaritan Study

By

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Abstract

Background

In the context of medicine, Good Samaritan behavior refers to actions by health care providers to provide aid to persons in an emergency outside of routine care, such as on a commercial airline flight. Laws have been established in the United States to protect physicians in order to encourage care in emergencies. The goal of the review was to summarize previous studies of physician responses and attitudes towards Good Samaritan behavior.

Methods

A search was carried out of Pubmed, EMBASE, Scopus and Web of Science for previous studies of Good Samaritan behavior by physicians. Additionally, a search of WestLaw and the Hein Online Index to Foreign Legal Periodicals was performed in order to find legal publications. Studies of physician responses to rendering Good Samaritan assistance were included if participation in rendering such assistance was not assumed and assessment of comfort with providing one type of service was not the purpose of the study. Papers were appraised for strengths and weaknesses.

Results:

Five papers were identified that met the criteria for inclusion. These studies ranged in size from approximately 50 to 14,000 participants. Studies found a wide variety of altruism, familiarity with the law, reasons to not intervene and knowledge of the law. There was a nearly identical prevalence of previous experience with Good Samaritan scenarios in the two studies that captured this information. American doctors were less likely to render Good Samaritan

care compared to doctors from Canada and England. There were conflicting reasons given by physicians to not intervene in the different studies. Few studies performed subgroup analysis. No authors controlled for multiple variables.

Conclusion

Previous studies demonstrate varied levels of willingness of doctors to act as Good Samaritans. Reasons cited for not intervening also differ across studies. Gaps in the existing literature include examination of the relationship between training in life support protocols and Good Samaritan behavior. Future directions for research include understanding how context may affect physician intervention, as well as the effect of training level and previous experiences with Good Samaritan situations.

Introduction

In the final episode of the television show *Seinfeld* the cast is sent to jail for failing to act as Good Samaritans in order to stop a robbery. The concept of the Good Samaritan comes from a story in the Bible: a traveler from Jerusalem to Jericho was attacked by thieves who stole his clothing and money. The man was ignored by passersby but was nursed to health by a Samaritan who offered his assistance and sought nothing in return.¹ Beyond television shows and religious parable, the willingness to help another in need has been the subject of American legal jurisprudence and academic discourse for many years.

Starting with California in 1959, states throughout the United States (US) adopted laws protecting physicians acting as Good Samaritans.² However, with the exception of Rhode Island, Minnesota and Vermont, individual states in the US lack a formal duty to rescue.³ Despite the lack of a legal obligation in much of the country to assist, the Code of the American Medical Association makes it an ethical imperative on its members to assist vulnerable persons in an emergency.⁴ While the exhortation “Is there a doctor in the house?” is a common notion in American culture, the true frequency of these events among the nearly 900,000 active physicians in the United States is unknown.^{3,5} There are an estimated 44,000 in-flight emergencies world-wide each year, one subset of bystander emergencies in which a physician may act as a Good Samaritan.⁶

Prior research has focused on the incidence and outcomes of emergencies on airplanes.⁶⁻⁸ There is a related literature examining the behavior of first responders to perform cardio-pulmonary resuscitation, specifically concerns of healthcare providers in using mouth-to-mouth resuscitation.^{9,10} Behavioral research has addressed the effect of laws as imposing

behavioral norms regarding bystander behavior.¹¹ The purpose of this systematic review was to summarize the medical and legal literature concerning the attitudes and behavior of physicians towards intervening outside of the confines of routine clinical care.

Methods

Search Strategy

A search was performed of Pubmed, EMBASE, Scopus and Web of Science. Keywords used in searching the literature included “physician” and “Good Samaritan.” Additionally, a search was performed of the legal literature using Westlaw and the Hein Online Index to Foreign Legal Periodicals. Searches were performed May 13-14, 2015. Specific search strings for this review are listed in Appendix 1. Titles were reviewed for relevance and duplicate titles in the biomedical literature were removed. The search was limited to articles published in English. Articles were reviewed by one member of the research team (WG) to determine if quantitative study of physician behavior or attitude had been undertaken.

Inclusion Criteria

To be included, an article had to describe an original study of physicians acting as Good Samaritans. A Good Samaritan act was defined as rendering care for a person with whom the physician did not have a previous clinical relationship and was not performed for compensation. Studies were included if the sample population contained medical doctors as subjects, specifically analyzed physician responses to providing assistance outside of routine clinical care, and included multiple options for physician intervention.

Exclusion Criteria

Studies with question prompts that presumed intervention including calling for help were excluded. Additionally, studies not published in English were excluded.

Data Abstraction

Information from included studies was abstracted by one team member (WG). The abstracted data included sample size, percentage intervening, reason cited for not intervening, and other findings. The abstracted data were collected in order to facilitate comparison of studies across various criteria. A detailed explanation of the abstraction process is included in Appendix.

Results

A total of 314 articles were found using PubMed, Web of Science, Scopus, and EMBASE. Duplicates and publications in a foreign language were removed yielding 140 unique articles (Figure 1). Titles and abstracts were reviewed for content. Three articles were identified that included studies of Good Samaritan attitudes and behavior of physicians.¹²⁻¹⁴ The search of the legal literature yielded one additional study.² Review of citations and related articles yielded seven additional studies.^{8,15-20} Articles were appraised for quality and six articles were excluded based on this assessment. There is related literature regarding physician comfort with performing mouth-to-mouth resuscitation (MMR) and cardiopulmonary resuscitation (CPR). Two high quality studies^{9,10} of physician willingness to provide MMR and CPR were excluded due to question prompts that presumed intervention.

Quality Assessment

The quality of individual studies was assessed using a standardized template based on the GRADE system.²¹ Quality scores were assigned by one reviewer (WG) derived from factors

including study research design, size of study, number of drop outs, quality of study procedure reporting, and quality of analysis. The rating scale was from one to five with five representing an excellent article with insignificant areas of weakness. Studies with a quality score less than three were not included in detailed analysis in this review. Their findings are summarized below as background. These studies suffered from serious methodological flaws including failing to provide adequate reporting of study procedure, source population, non-respondents or reported only fractions instead of absolute numbers.

Summary of findings

There have been several studies of physician willingness to intervene that suffer from methodological flaws; however, their findings are illustrative of general trends and are briefly summarized as follows. The results of a 1961 Boston University study of physicians in Massachusetts found that 41% of doctors would respond to an emergency in a theater only if there were no other doctors volunteered.¹⁷ Similarly, a 1961 study of 1,209 doctors in the Medical Tribune found that 50% of doctors would stop to render assistance to victims of a traffic accident.¹⁵ In contrast, a 1965 study of Florida physicians found that over one-third would not render assistance to victims of a car accident.¹⁶ Additional studies of behavior of physicians on flights, include a 1977 study of 42 physicians found that over half of the doctors who responded to a request for assistance were reluctant to render aid on a flight typically due to unfamiliarity with the problem.¹⁸ A 1998 study of 850 members of the Aerospace Medical Association found that 62% had been in a situation on a plane in which they had been asked to intervene, and 5% of that group stated they would decline to assist due to fear of legal

consequences.⁸ A 1999 study of 45 Scottish anesthesiologists found that there is some reluctance to provide care to American passengers due to legal liability.¹⁹

Among the five studies included in this review, authors found different willingness to intervene among physicians which ranged from 2% to 92% depending on the scenario. The top-cited reason for not intervening was not consistent among those who were studied. All four studies^{2,12-14} that asked this question found different results. In the two studies^{12,13} that sought to establish previous experience with Good Samaritan situations found nearly the same prevalence (72 - 73%). Different percentages of the physician population had prior malpractice experience (4 - 21%) and knowledge of the law similarly varied in these studies (15% - >60%). A detailed consideration of individual studies better illustrates individual differences and trends within the literature.

Gross et al. (1998)

Gross et al.¹⁴ conducted a study of the attitudes and knowledge of 52 internal medicine residents and attending physicians at two academic medical centers in New York City. The survey sought to characterize behavior given hypothetical situations, familiarity with Good Samaritan laws, as well as barriers to intervention. The scenarios varied by the setting of the emergency as well as the likely etiology.

Sixty nine percent of those surveyed stated they would “definitely” respond to a man suffering a heart attack in a restaurant. This scenario produced the highest altruistic response. Only 44% displayed the same confidence they would provide assistance to victims of a car accident while driving on the highway when no one else was present. The lowest number of

similar responses (2%) was in response to encountering a man passed out presumably from intoxication on a city street on a cold day.

Providing mouth-to-mouth resuscitation was the most commonly cited reason for not intervening. A high percentage of the participants were aware of the Good Samaritan statute (89% of residents and 100% of attending physicians); however, just 15% accurately understood its substance. Knowledge of the law did not change behavior. There was a statistically significant difference between the behavior of attending and residents to victims of a car accident. The authors suggest that class empathy may account for the higher willingness to intervene in a restaurant or on an airplane.

Strengths of the study include a low level of selection bias (52 of 54 invited physicians participated) reducing the likelihood that only those with previous Good Samaritan experience would participate. However, the recruitment process was not described.

The study was anonymous, but given the small sample size and familiarity of the group studied there is the possibility that self-reported behavior may have emphasized a greater degree of altruism. Bivariate analysis examining level of training, gender, and knowledge of the New York Good Samaritan law were performed. Overall, the study was of fair quality. External validity is limited by the population studied (internists) as well as the location of their practice (urban academic centers) which may not be representative of physicians as a group.

DiMaggio et al. (1994)

DiMaggio et al.¹³ studied the Good Samaritan responses of members of the International Society of Travel Medicine. Researchers collected information on medical background,

emergency preparedness habits as well as responses to hypothetical scenarios. The population included members in North America as well as other continents.

Seventy-three percent of the respondents stated they had provided Good Samaritan assistance previously. Important factors affecting participation were the distance from medical care as well as the physician's familiarity with local practice. Very few respondents indicated a willingness to provide care in a resort while a majority was willing to intervene in the wilderness. A high percentage of the doctors surveyed (78%) carried some medical supplies. This study found that doctors will assist in times of need; however, a large portion (45%) would only assist if there was no other option for the patient. The location of providing emergency assistance most cited by physicians was on an airplane. The most commonly cited reason for not intervening was the physician's perception of competence to provide care.

The survey is strong in representing the attitudes and behavior of physicians from multiple countries. Responses were recorded for a large number of physicians. Survey questions sought to capture how responses were affected by cross-cultural issues. The study collected a wide variety of data including the willingness to intervene and previous experiences as well as level of care that physicians would be comfortable with providing.

Weaknesses of the study included a low response rate (37%) which suggests there may be selection bias which may favor persons who have previous Good Samaritan experience. Response rates may also be affected by the reliability of postal services among members' country of residence. All the responses to the French version of the survey were lost, representing another source of selection bias. The study does not provide the precise details of the various scenarios so it is difficult to judge what factors may contribute to physician

responses except what is stated in the paper. Limited bivariate analysis was conducted by the authors (e.g. rate of intervention by those with and without experience with Good Samaritan situations).

The findings of the study may be confounded by the habits of the population studied. The group of physicians surveyed represents a specific subset who are likely more interested in rendering assistance outside of routine care given the very high percentage that carry medical supplies. This finding limits the external validity of the results. Likewise, the finding that the most common site that traveling physicians render emergency care is an airplane likely reflects trends within the specific population.

Williams (2003)

The Sheffield Good Samaritan Survey¹² was conducted in 2001 among National Health Service general practitioners (GP) and hospitalists in Sheffield, England. Participants responded to a variety of emergency scenarios as well as previous Good Samaritan experiences. The study was a research project led by a reader of law at Sheffield Hallam University. To the author's knowledge it was the first of its kind in the United Kingdom.

Over one third of the surveys were returned (459/1271), and the same response rate was recorded for general practitioners and hospitalists. The survey found that the location where the emergency took place did not largely alter the likelihood of intervening. Seventy two percent of the respondents had previously been asked to provide Good Samaritan assistance, with more than half reporting multiple prior experiences. Only one physician who reported previously being asked to assist had declined completely. Eighty-eight percent had offered

some form of treatment which was not specified. Nearly one-fifth of the participants (18.8%) was unsure or would decline to render assistance in the case of a hypothetical emergency involving an elderly woman who collapsed in public. Almost half of the physicians correctly responded to a majority of the questions regarding Good Samaritan law. The most commonly cited reason for not intervening was that it was the responsibility of ambulance/emergency services. A very high percent of doctors who would intervene in an emergency attributed responding to Good Samaritan scenarios to moral responsibility (99%) and professional ethical responsibility (95%). Ninety five out of 450 physicians in the study reported they had previously been involved in an action for negligence or malpractice. Only around one quarter of the doctors who stated they would not help in a hypothetical situation cited malpractice as a rationale. The study found no differences in willingness to help between men and women or length of time in practice. There was also no relationship between previous experience rendering care or malpractice claims and willingness to help.

The study captured the attitudes and experiences of a large number and wide variety of physicians in Sheffield, England. The study delineated differences between general practitioners and those working in the hospital setting. It also captured information regarding the previous experiences of physicians with malpractice suits. Several survey questions were provided for illustration purposes.

The author does not provide information regarding a pre-specified plan for data analysis. The author performed bivariate analysis of variables examining the response to a Good Samaritan emergency by gender, experience in medicine, previous malpractice actions, knowledge of the law, and hospitalist versus GP. None of these factors were found to affect

behavior. As in other surveys, the responses may represent a population of persons more likely to have previously acted as a Good Samaritan. Given the extraordinarily high rate of some form of intervention mentioned (328/329) there is likely recall bias among those physicians who report previous experience with Good Samaritan emergencies. One unique form of measurement bias may include the desire of those who responded to appear altruistic given the source of the survey was a lawyer. It is unclear from the paper whether subjects were blinded or responses were anonymous.

The author suggests that additional Good Samaritan protections would be unlikely to make it more likely for providers to intervene. This notion is supported by the fact that physician knowledge of Good Samaritan laws are less than expected given random chance; however, it should be noted that the question difficulty may partially explain this finding. The finding that there is no difference in the likelihood of rendering aid in different contexts may similarly be related to the way the question was asked. Doctors were questioned whether they would respond to an elderly woman who had collapsed. A series of questions was then asked whether changing the setting of that emergency would shift their desire to intervene. The finding that the largest percentage of responses was that changes would make “no difference” may be partially explained by this framework.

Participants in this study were employed by the National Health System which is a completely different organizational framework compared to the United States and other countries. There are similarities between the US and the UK in that there is no duty to rescue. This policy is in contrast to countries such as France where it is a crime to fail to provide assistance in an emergency.² The study was of high quality overall. The most important threat

to external validity was that the study was carried out in a country with a national health system where the basis of doctor-patient relationships may be fundamentally different.

Gray and Sharpe (1973)

Gray et al.² performed a survey of 10,000 physician members of the Ontario Medical Association in the summer of 1971. The survey posed the question of whether a physician would stop to render assistance to victims of a car accident on a highway. Physicians were also queried for the most likely reason why one would not stop at the scene of an accident. Many of the other questions dealt with physician knowledge of the law as well as thoughts regarding what would be appropriate legal remedies for increasing Good Samaritan behavior. Examples included: is the doctor liable for not stopping at the scene of an accident? Another question was should the doctor be responsible for damages resulting from an egregious error in diagnosis or treatment?

The authors received 2,200 surveys but were constrained in their ability to process all these responses, and their results only reflect 1,900 of those returned. The survey found that 91.9% of doctors were willing to stop and offer assistance to a motorist who was injured on the highway when no other help was present. Approximately one half of the physicians stated that fear of a lawsuit would be the most likely reason for not stopping. The next most often cited reason for passing the accident was being unable to assist the victim, which nearly one quarter of the physicians listed. Over three quarters of the physicians stated they believed that a doctor who made an “understandable error” in offering care in this context should not face civil liability. Nearly 80% of physicians “strongly agree” with the proposal that Ontario adopt legal

protections for Good Samaritans. In contrast, only 52.6% of the physicians believed that there should be a positive duty for all citizens to respond to emergencies to provide aid.

The source population represents nearly the entire range of physicians practicing in Ontario. There is a low likelihood of confounding due to differences in the physician groups surveyed. The number of surveys reported was nearly 2,000. For the questions that were included, the exact text is published as well as the number of corresponding responses. The survey establishes both the doctor's opinions and knowledge of current laws.

While the entire membership of the Ontario Medical Society was queried by the survey, 1,000 physicians practicing in the province were not members. This difference raises two questions – do these physicians represent a distinct population from those doctors who are members of the OMS, and would they respond in the same manner to the survey? The entire survey instrument was not presented in the paper and it is unclear what other questions were asked. There is also no reporting of the demographics of the participants and how these represented the source population. The study does not mention any blinding or anonymity for respondents. The reader is unaware of the nature of the other medico-legal questions posed to physicians which may have affected the responses. The survey suffers from selection bias in that the physicians most likely to return the survey may be the ones who have previously served as Good Samaritans. Filling out a survey about Good Samaritan behavior is a form of volunteerism and may introduce bias in the results. Like other surveys about Good Samaritan behavior, it is likely that the actual behavior and responses to hypothetical scenarios is not identical. Another potential source of measurement bias is that the self-reported behavior of physicians may be affected by the knowledge that a lawyer is conducting a survey; it is not clear

if the survey's source was blinded from the respondents. It is unclear what effect was caused by the loss of 300 surveys which were not reported. However the measurement bias effect of the loss is likely to be nondifferential.

The authors did not control for variables in their analysis and it is unclear what demographic data was captured for each respondent. The authors tabulated the results but did not include any analysis of the subgroups. No comparisons or relationships between subpopulations were included in the paper. There was no plan for data analysis listed in the paper.

The Ontario Medical Association survey found an astonishingly high percentage of doctors who would stop and render assistance. The authors note that it is surprising that while over 90% of doctors would offer assistance, they still advocate for protection for doctors from claims arising from Good Samaritan care. This finding is reflected in the fact that doctors believe the most likely reason not to intervene is fear of a lawsuit. Overall, the study is of moderate quality – results are clearly presented; however, the authors did not perform subgroup analysis and over 10% of the study's data was not recorded. The findings reflect the opinions of nearly the entire physician community of Ontario, which is a strong achievement increasing the external validity of the study. The applicability of its findings to a country like the United States is limited given that the US did not have a universal health care system as in Canada or single payer provisions when this survey was conducted.²² The findings of the study reflect a high degree of social solidarity. The authors argue for positive laws imposing a duty to rescue which was supported by over half of the physicians surveyed.

AMA (1964)

In 1963 the American Medical Association surveyed 20,000 members throughout the United States to determine physician behavior and attitudes regarding liability insurance.²⁰

Recruitment aimed to reflect differences in the numbers of physicians between states. The survey was focused on physician experience with malpractice lawsuits as well as the amount of liability coverage that physicians carried. The survey also contained a single question that probed whether physicians were reluctant to provide emergency services outside of routine care due to concern with liability exposure.

Close to three quarters of those contacted returned the survey for a total of 14,616 respondents. Over half of the doctors (53.3%) who responded to this question were willing to stop and offer assistance. The authors of the survey divided the respondents into groups based on whether the state had adopted legislation to protect physicians from claims arising from Good Samaritan behavior. The results of this analysis showed that physicians in states with Good Samaritan protection were slightly less likely to stop for an accident, and the opposite for physicians in states that had not adopted these laws; however, the difference was described as negligible. The authors provide the results from individual states: physicians from North Dakota were the least likely to fear the liability arising from providing Good Samaritan care (25.4%), and doctors from New Jersey were the most concerned (60.4%). Just over 57% of North Carolina doctors would not be deterred by liability and would be willing to stop, several percentage points higher than the national average.

The study reflects a very large sample reflecting the broad membership of the American Medical Association. Around three quarters of American physicians were members of the AMA

during the 1950s,²³ and findings from this survey can be interpreted to represent the majority of American physicians at the time. The study designers also sampled according to population to better control for biases from smaller groups.

The study was attempting to describe the sufficiency of physicians' liability coverage and this influenced the way that the survey approached Good Samaritan acts. The question asked whether liability coverage affected the physicians' decision to stop to render aid. This is a different question than asking if the physician would stop for an emergency, although the two are related. The question was also posed in the context of a larger survey of the satisfaction of physicians with their liability protection and their experience with past lawsuits. It can be reasonably inferred that this topic is less likely to engender feelings of altruism and focuses the respondent on the potential negative consequences of providing medical care.

This format creates the possibility of at least moderate measurement bias. Additionally, the survey suffers from the usual methodological issue of selecting out those persons who care more deeply about Good Samaritan issues who may be more likely than others to have previously volunteered their services. Likewise, those who responded to the surveys are a subset who may be more altruistic. Lastly, the authors did not comment on demographics of those who responded. We are to assume that the sample reflected the source population of American physicians, however there may be differential response rates particularly among different specialties. In reporting results the authors corrected for physicians who were active in practice; however, they did not perform additional multivariate analysis to control for differences which may exist within subgroups of the population. The authors also did not specify a plan for their analysis.

In the subgroup analysis of states that had Good Samaritan protections and those that did not there was no discussion of the manner in which the authors determined states that had Good Samaritan protection. These statutes are not universal and the specific immunity as well as conditions vary by state.

Half of Americans physicians had concerns regarding their liability protection that would prevent them from providing emergency care as a Good Samaritan. The study also found that behavior was not changed by law. The internal validity of the survey is challenged by the lack of controlling variables and the format of the question. The study also did not explore other reasons that a physician might be unwilling to provide emergency services such as lack of knowledge or concern for infectious disease. Overall, the study has high external validity as it was representative of the entire country however the findings may be reflective of individual societies and may not apply to countries with different legal frameworks and levels of social solidarity.

Discussion

During the 1960s there was a proliferation of studies of Good Samaritan behavior that coincided with a wave of states adopting laws protecting physicians. Since that time researchers from the legal world have conducted large studies of physician behavior and there have been smaller studies in the biomedical literature looking at the behavior of subgroups of physicians.

The quality of many of the earlier studies was poor; however, the American Medical Association study from 1963 is remarkable for the scope of providers who participated. Several

trends and conflicts are noted in the literature. Two patterns emerged in the reviewed research. The first was a lower willingness among American doctors to act as Good Samaritans compared to physicians in other countries as found by two included studies. Canadian and British physicians appear much more solicitous compared to Americans. The survey by Gray et al. was notable for finding that over ninety percent of Canadian physicians would intervene whereas the large AMA survey found that only fifty percent of American doctors would provide the same. It is important to note that the legal systems in Canada and the United States at the times these studies were undertaken were very different. In the current Canadian legal environment a variety of factors including the insurance system managed by the Canadian Medical Protective Association effectively discourage malpractice claims.²⁴ Thus, it is surprising that the study by Gray et al. found that malpractice was the number one reason cited for not intervening.

A remarkably similar percentage of physicians who had been involved in Good Samaritan acts – both DiMaggio et al. and Williams found that close to three quarters of physicians had previous experience. While studies have found similar proportions of doctors with previous Good Samaritan experiences, the most common reason for not intervening differed between each of the four studies that included this question. Only the study by Gray et al. of Canadian physicians found that fear of a lawsuit was the most common reason for not intervening. This finding contradicts a commonly-held opinion that there is a greater degree of fear in America of lawsuits arising from Good Samaritan behavior. Likewise, there was no consensus in the literature of the percentage of physicians who had previously faced legal action for malpractice. Interestingly the highest rate of prior legal claims was not recorded in

studies in the United States but in the British study, however the studies were conducted nearly forty years apart. Possibly connected to fear of lawsuits is length of time in practice: Gross et al. found that doctors who had been in practice longer were less likely to assist in the roadside trauma scenario; however, this connection was not demonstrated in the Williams study.

The study by Gross et al found that the most common reason for not intervening was not legal ramifications but performing mouth-to-mouth resuscitation. This finding is supported by research demonstrating physician reluctance to provide mouth-to-mouth resuscitation.^{9,10} The studies included in this review also fit into the larger category of research directed at the empirical effect of law on medical outcomes. In fact, the reviewed literature revealed a range of knowledge of Good Samaritan laws: doctors' limited awareness may limit the effect of legal protection on behavior. This phenomenon is suggested by the findings from the AMA survey that physicians were marginally less likely to intervene in states with Good Samaritan protections. There is a mixed literature on the effect of law and health outcomes. For example, authors have questioned the effects of laws mandating minimum length of stay for postpartum mothers which did not find improvements in health outcomes for babies under such a law.²⁵ In contrast, the literature on mandated nurse staffing requirements has found that lower ratios improve outcomes;^{26,27} however, additional research has contradicted the assumption that staff level mandates by themselves lead to better outcomes such as patient safety.²⁸ Furthermore, research on the impact of different liability regimes on physicians' disclosure of medical errors did not find differences between Canada and the United States.²⁹

Helping behavior likely depends on a variety of factors. In a famous experiment, Darley and Batson measured the responses of seminary students to strangers requiring assistance.³⁰

Some of the seminary students were assigned to deliver a sermon on the parable of the Good Samaritan while others would speak on a different topic. The sermon would be delivered at a second location and the researchers varied how urgently the student needed to proceed to the talk. On their way students came across a man hunched over in distress. Darley and Batson found that stopping to help was not related to the religiosity of the bystander but was affected by how rushed the student was to give the talk. Research by Zeisel found that helping behavior varied between countries.¹¹ In Germany, a country with duty to rescue requirements, respondents were less likely to approve of passersby who failed to assist strangers in need compared to the United States. It is not clear if this reflects the influence of the law or a higher baseline level of social solidarity led to the passing of such a law. These differences likely explain some of the differences observed by researchers looking at the behavior of doctors in different countries. Another major factor that varies by country is national medical systems and tort laws which may incentivize Good Samaritan behavior to different extents.

Other differences in the source populations, such as the specialties represented, likely contributes to the varying results. Similarly, one must consider the different levels of specialization among physicians in the 1960s compared to forty years later. This temporal difference corresponds with a shifted medico-legal landscape. Prior legal claims concerns are a particularly sensitive subject and differential rates of reporting may also contribute to observed differences.

Perhaps the most important explanatory factor concerns the manner in which the questions were posed. The AMA survey specifically mentioned fear of liability as the reason for not stopping to render aid while the Gray et al. survey, which had a much higher rate of

volunteerism, asked simply if a doctor would offer assistance. The exact type of scenario may strongly affect responses – for instance the same sample of doctors responding to the survey by Gross et al. would definitely intervene at a rate between 2% and 69% depending on the context of the request for help. Respondents were also answering hypothetical scenarios, and actual behavior may not align. Williams found that out of over three hundred physicians who had faced an actual Good Samaritan situation, only one had declined to participate, which is a response rate much higher than described for hypothetical scenarios.

There is a dearth of subgroup analysis in the published literature. Additionally, there has been limited exploration of topics such as the rate of Good Samaritan behavior in states with malpractice protection laws and among physicians who have been subject to previous negligence claims. There are conflicting findings regarding the link between length of time in practice and willingness to assist. More research is needed in this respect. No study has performed sophisticated multivariate analysis of responses to account for possible confounding. There has not been adequate study of differences between specialties. Another direction of future research would be to examine the effect of training in various emergency life support protocols and willingness to act as a Good Samaritan. Research should also seek to evaluate physician comfort level with varying degrees of intervention in Good Samaritan situations as well as differences in physician response linked to context.

Limitations

The current review has many strengths being the first study to perform a systematic review of legal publications, journalistic sources and the medical literature on Good Samaritan behavior by physicians. Notable limitations in the current review include a lack of access to

primary survey instruments used in previous studies. The literature search was limited to articles in English which eliminated at least one study from review.³¹ The literature search did not include terms to include bystander CPR or MMR, which is a related field to Good Samaritan behavior. In conducting this review data abstraction and quality assessments were performed by only one member of study team. Analysis of studies was also negatively affected by the limited reporting of primary data in the selected studies. The review did not undertake additional research of the legal protections in countries and states at the time of each study due to limited legal research resources.

Conclusion

It is tempting to link Good Samaritan behavior to a society's altruistic tendencies. This review summarized features that complicate this comparison. Multiple factors are likely responsible for helping behavior by physicians. In examining the diverse literature concerning physician interventions one must be careful to control for social and legal factors before drawing conclusions. The manner in which questions are written can affect responses. It is surprising that neighboring countries like the United States and Canada could have such vastly different rates of physician willingness to intervene in an emergency. A more convincing case for country-wide comparisons would come from an international survey. This review has focused on trends and differences within the literature. However the manner that questions have been framed, different populations sampled, and the wide span of time covered in this review makes comparison more tenuous. Areas of uncertainty include the relative importance of different variables in decision making. More detailed subgroup analysis in future studies is needed. A better understanding of the factors that contribute to physician behavior and

attitudes may be utilized in framing policy in order to encourage more Good Samaritan behavior by doctors and other health care providers.

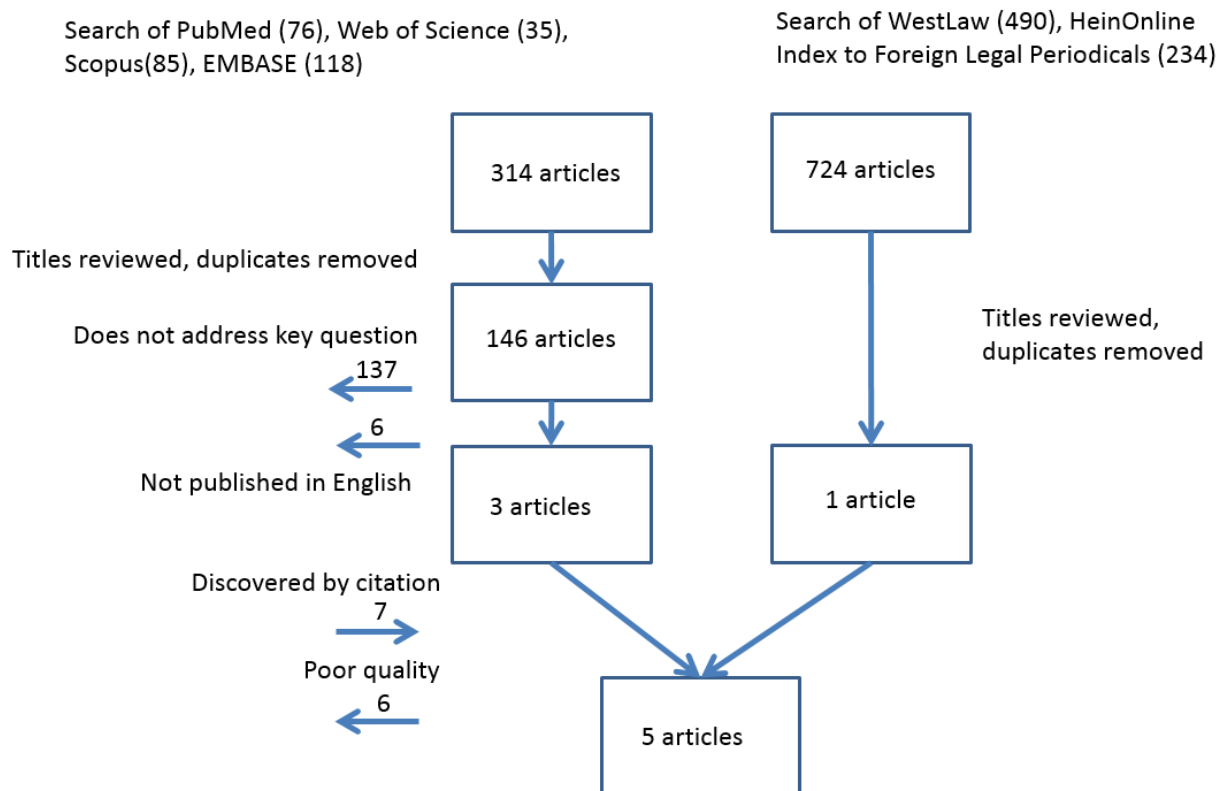
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Figure 1: Literature Search



Appendix A: Summary of Included Studies^{2,12-14,20}

Author	AMA	Gray and Sharpe	DiMaggio et al.	Gross et al.	Williams
Year	1964	1973	1994	1998	2003
Country	USA	Canada	International	USA	England
Size	14,616	1,900	261	52	459
Intervene	53%	92%	>80%	2-69%	81%
#1 Reason Not To Intervene	-	Fear of lawsuit	Outside area of expertise	Mouth-to-mouth resuscitation	Ambulance's responsibility
Previous Experience	-	-	73%	-	72%
Prior Malpractice	14%	4%	-	-	21%
Knowledge of Law	-	>60%	-	15%	47%
Quality	3/5	4/5	3/5	4/5	4/5

AMA:²⁰ Size reflects the number of surveys returned to the authors. Intervention was determined by response to whether physicians would stop to render aid at a traffic accident or other emergency in spite of danger of legal action. Prior malpractice rate was defined as percentage of active physicians with a previous professional-liability claim.

Gray and Sharpe:² The size refers to the number of surveys reported. The authors received 2,200 but only included 1,900 responses in the paper. Intervention was defined as percentage of persons who would stop to render assistance to an injured man on the highway when no medical help had arrived. Prior malpractice was defined as those persons with a previous malpractice action. The respondents answered correctly greater than 60% of questions related to the content of the Good Samaritan law.

DiMaggio et al.:¹³ The size reflects the number of surveys that were returned. The authors note that all French language surveys were lost and not recorded in the results. Intervention was defined as providing services such as examination, using oxygen and providing cardiopulmonary resuscitation. Previous experience was those persons who did not answer positively to having not been in a scenario requiring Good Samaritan care.

Gross et al.:¹⁴ Size refers to the number of physicians who completed the survey. Intervention varied among the given scenarios. Knowledge of the law reflects the percentage of physicians who correctly responded to questions on the general content of the Good Samaritan law.

Williams:¹² Size refers to the number of surveys that were completed by physicians. Intervention was defined as those physicians who stated they would assist an older woman who collapsed on the street. Previous experience with Good Samaritan situations was abstracted from the number of persons who reported at least one previous claim of malpractice or negligence. Knowledge of law refers to the percentage of doctors who correctly answered the majority of questions pertaining to the content of the Good Samaritan law.

Appendix B: Summary of Studies Not Included in Review^{8,15-19}

Author	New Medical Materia	Medical Tribune	Middelthton	Hays	Rayman	Booth et al.
Year	1961	1961	1965	1977	1998	1999
Country	USA	USA	USA	Unknown	International	Scotland
Size	Unknown	1,209	Unknown	Unknown	850	45
States number surveyed		✓			✓	
States number of physicians who would respond						
Quality	1/5	2/5	2/5	1/5	2/5	1/5

New Medical Materia:¹⁷ Percentages of doctors are given rather than number of responses. The absolute number of doctors surveyed and their responses is not given. Physicians were asked to respond to an emergency occurring at a theater.

Medical Tribune:¹⁵ Size refers to the number of physicians who responded to the survey. The survey reports the percentage that would respond to an accident on the highway or another type of emergency.

Middelthton:¹⁶ The number of physicians surveyed is reported as more than 130. The survey does not state the percentage or absolute number of those respondents who would stop to give aid to victims of an automobile accident.

Hays:¹⁸ Size reflects the number of physician responses which is reported. The author does not state how many physicians were surveyed. The study does not report the number or percentage of physicians who responded to an emergency onboard an airplane.

Rayman:⁸ Size refers to the number of physicians who responded. The survey does not assess the number or percentage of physicians who would respond to a hypothetical emergency. Physicians were asked if they had previous experience and only those with prior experience were asked if they had not rendered assistance due to fear of legal liability.

Booth et al.:¹⁹ The number of physicians who were surveyed is not stated. Size refers to the number of responses that were reported. Physicians were asked if they would attend to an emergency involving a North American passenger. The number of physicians who would respond to this type of Good Samaritan situation is not stated.

Appendix C: Search Strategy

Database	HeinOnline Index to Foreign Legal Periodicals
Date	5/13/2015
Search terms	("good samaritan" OR "good samaritans" AND doctors OR physician OR physicians OR doctor)
Results	234 results
Note:	

Database	WestLaw
Date	5/14/2015
Search terms	adv: ("good samaritan!" OR samaritan!) /p AND (doctor! OR physician!)
Results	490 results
Note:	Restricted to Secondary Sources/Law Reviews and Journals

Database	PubMed
Date	5/13/2015
Search terms	("good samaritan"[tw] OR "good samaritans"[tw]) AND (physicians OR physician OR doctor OR doctors)
Results	76 results
Note:	

Database	Web of Science
Date	5/13/2015
Search terms	("good samaritan" OR "good samaritans") AND (physician* OR doctor*)
Results	35 results
Note:	Core Collection

Database	Scopus
Date	5/13/2015
Search terms	("good samaritan" OR "good samaritans") AND (physician* OR doctor*)
Results	118 results
Note:	

Database	EMBASE
Date	5/13/2015
Search terms	'good samaritans':ab OR 'good samaritan':ab AND ('doctor'/exp OR doctor OR doctors OR 'physician'/exp OR physician OR 'physicians'/exp OR physicians)
Results	85 results
Note:	

Abstract

Introduction

Few studies have been carried out regarding the attitudes and behavior of American physicians to Good Samaritan situations. The largest study of American physician attitudes was undertaken by the American Medical Association in 1963 while the most recent study of American physicians was performed in 1998 and was limited to internists in New York City. There has been limited study and analysis of important questions such as the incidence of Good Samaritan acts, the factors affecting physician actions, differences among specialties, and the comfort of doctors with specific interventions.

Methods

The NC Good Samaritan Study was a cross-sectional study designed to assess the previous experience and responses of physicians to providing emergency medical assistance outside of routine clinical care. We sent a paper survey to a random sample of 1,000 physicians in North Carolina. The sample was drawn from physicians of all specialties who were currently licensed and who resided in the state. We assessed the percentage who reported previous Good Samaritan behavior, the attitudes of physicians towards these acts, their responses to hypothetical situations, their comfort providing specific interventions, and the most likely reason they would not intervene.

Results

The adjusted response rate to our survey was 24.6% (239/973 delivered). Most respondents were between the ages of 36 and 65 years. The largest group of respondents

were primary care physicians, and over 90% of all respondents had previous life support training. Over three quarters of physicians reported previous opportunities to act as Good Samaritans. The most common specific location of Good Samaritan acts was on airplanes. Over 90% of physicians reported acting as a Good Samaritan during their last opportunity. In responding to a recent opportunity to be a Good Samaritan there were no differences between sexes, years in practice, practice setting, specialty type or doctors actively seeing patients. Doctors with greater knowledge of Good Samaritan law were more likely to have intervened during recent opportunity. Approximately 70% of physicians stated they would stop at the scene of a car accident. The most commonly cited reason for potentially not intervening would be that another health provider had taken charge followed by a lack of training in emergency care.

Conclusion

This study found a rate of intervention much higher than previous studies of American physician behavior. Greater helping behavior was exhibited by those who expressed more familiarity with Good Samaritan law. These findings suggest that physicians respond to legal protections. Our results suggest that physicians were willing to provide a range of services; however, context is very important.

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 these events on airplanes.^{2,3} Studies of Good Samaritan behavior 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 United States have passed laws to immunize health care providers from being liable for negligence under such circumstances.⁹ There has been limited study of the effect of these laws. In the 1960s the American Medical Association 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 US 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 law (NC General Statutes §90-21.14) states that a health care 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 US.⁹ Additionally, the federal Aviation

Medical Assistance Act provides protection to physicians who provide assistance on all carriers flying domestic routes in the United States.¹¹

A large scale study of the attitudes and behavior of American physicians from different specialties has not been performed since the 1960s. Characteristics such as the class of the patient,⁷ effect of previous lawsuits,⁴ knowledge of Good Samaritan laws,^{4,7} and gender^{4,7} have previously been studied in relationship to physicians rendering Good Samaritan acts. 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. Events may also take place in a variety of settings which 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 intervention. More physicians might feel comfortable treating simple dehydration than decompressing a tension pneumothorax at 10,000 feet.

The primary goal of the North Carolina Good Samaritan Survey was to determine the willingness of physicians to render assistance outside of routine clinical care. 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 behavior can hopefully 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 (Appendix B). 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.

Sample and Survey Procedures

Our target population was licensed physicians in North Carolina. We obtained a full database of physicians from the North Carolina Medical Board. A random sample of 1,000 physicians from this list were selected to receive the survey. Only physicians with a primary address in North Carolina were included. Surveys were mailed to physicians and a follow up postcard was delivered approximately one 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, Version 14, (StataCorp, College Station, TX). 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

(Appendix A). 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 behavior and tested for significance using chi-square and ANOVA. In assessing responses to Likert scale questions such as beliefs and level of confidence, responses of agree and strongly agree were combined as agree while disagree and strongly disagree were combined as disagree. In determining the years elapsed since training for the sample we used an average length of training of four years after completion of medical school.

Results

Of the 1,000 mailed surveys, 27 were returned as not deliverable. A total of 239 surveys were returned (return rate 24.6%). Respondents were predominantly male, primary care providers, and in private practice (Table 1). Physicians who responded were similar to the overall source population in years of experience and age. Almost all physicians had some form of life support certification (93.2%).

Over three quarters reported previously having an opportunity to serve as a Good Samaritan (79.4%), and over ninety percent of those doctors stated that they had served as a Good Samaritan (92.3%) (Table 2). The most commonly cited number of previous experiences was 3-5 times, and 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). Much fewer were confident in the legal protection for Good Samaritans: only 9.3% strongly agreed that they were knowledgeable about the law. Among physicians who had responded as a Good Samaritan to the last

emergency they had witnessed, there were no differences between physicians who no longer saw patients and those who were still active (Table 4). Likewise, there was no statistical difference between sexes, by specialty type, practice setting, confidence in emergency training, perceived moral obligation to intervene, length of time since completing training or age >45 years compared to ≤45 years of age. However, there was a statistically significant difference between those with knowledge of the law and those without knowledge (97.8% vs. 89.6%, p value = 0.027).

Among the hypothetical questions dealing with a woman collapsing, a higher number of physicians would definitely help a friend or neighbor compared to a stranger (Table 5). In the scenarios that sought to vary the injury type, there was a higher response rate for a woman in anaphylactic shock compared to a spinal injury or heart attack. The scenario in which the greatest number of physicians would definitely assist was a man collapsed on a plane (90.3%), while the fewest doctors would definitely assist a man placed on stretcher by emergency responders (2.9%). Only 38.6% 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, 78.7% of physicians would definitely take a history (Table 6). A similar majority would definitely perform chest compressions and use an AED if available; however, only 30% 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 8.2% percent of physicians stating they would definitely provide this care. A minority of physicians would definitely decompress a pneumothorax (16.7%), perform a tracheostomy (13.9%), suture a superficial wound (13.0%) or accompany a patient on the way to treatment (16.5%). In providing the most likely reason for

not acting as a Good Samaritan, the most commonly cited answer was that another person was in control of the situation (41.6%) (Table 7). The second most common reason for not intervening was a lack of emergency training (21.0%). Concern for legal liability was the third most common reason, cited by 14.0% 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 is consistent with our findings. The consistency of these results across countries suggest that out of office emergencies are a routine occurrence 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 which found that doctors had acted in all but one of 329 previous experiences.⁴ This result reveals an encouraging level of action on the part of doctors; however, it likely reflects measurement bias as it depends on self-report.

Multiple studies have examined the hypothetical response of physicians to a traffic accident. The NC Good Samaritan Study found that seven in ten NC physicians would likely stop to render assistance at the scene, a far 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 is slightly lower than the 44% rate reported by Gross et al. in a study of New York physicians.⁷

Surprisingly, physicians who were seeing patients had nearly identical rates of having provided recent assistance as those physicians who were not in active practice. There were no differences in the response to a recent emergency between sexes which agrees with previous findings.^{4,7} Additionally, the rate of Good Samaritan interventions during the most recent opportunity did not differ between specialty types which is in contrast to the study by Williams which found that general practitioners were more likely to intervene compared to hospitalists.⁴ It should be noted that the categories of doctors in this study were quite broad, for instance the experience of both anesthesiologists and psychiatrists are both categorized in the “other” category. A more detailed examination of these specialties is likely to reveal differences; however the sample sizes for individual specialties is small.

Length of experience as a physician was not correlated with willingness to have acted as a Good Samaritan at the most recent opportunity. Likewise, physicians who were older than 45 years were no less likely to intervene than younger doctors. Experience as a physician has not previously been associated with differences in Good Samaritan behavior.⁴ Gross et al. found that doctors with more experience were no less likely to have acted as a Good Samaritan previously; however, attending physicians were less likely to intervene at the scene of a hypothetical car accident.⁷ This is the first study to find that older physicians are as likely to have previously acted as a Good Samaritan as younger doctors. This finding tends to disprove the idea that physicians closer to their training period may have more comfort with emergency scenarios and later in life may be less prepared to render this care.

The vast majority of physicians responding to this survey reported confidence in their emergency skills; however this may reflect a bias in terms of who completed the survey.

Previous research such as a 1992 study of family practitioners in Canada, demonstrate a lower level of confidence in emergency care skills.¹² Less than 50 percent of physicians stated that they were knowledgeable about Good Samaritan law in North Carolina 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 percent of doctors believed it was a moral obligation to intervene which accords with the American Medical Association Code of Medical Ethics and is consistent with findings reported by Williams.⁴ Only 2.1% 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 behavior. Another difference between the NC Good Samaritan study and previous work is that in the current study physicians were asked about their perceived knowledge of the law whereas in the study by Gross et al. and by Williams doctors answered questions on the content of Good Samaritan laws and each doctor's score based on correct answers was compared to their hypothetical behavior. The finding in this study suggests that laws or more precisely, doctors' perceived knowledge of laws, can affect behavior.

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 flights³ 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% would definitely help.⁷ Both studies defined intervention as potentially including mouth-to-mouth resuscitation. This discrepancy may reflect the high level of Good Samaritan behavior

that was observed generally among respondents in North Carolina 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 from obtaining histories to performing chest compressions 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 70-80% for babies or children to 20-30% for possibly homosexual men or patients who suffered a trauma.¹³ 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 may not be immediately life-threatening and may be more appropriate to defer to the clinical setting. Respondents may have also perceived a lack of urgency to a superficial wound and preferred not to involve themselves with care that can be deferred.

Over forty percent of physicians stated that they would not intervene because someone else was in charge. This is a similar finding to the Sheffield Good Samaritan Study⁴ which found that 85% of doctors felt that emergencies were the responsibility of the ambulance service. Interestingly, fear of legal liability was only cited by 14% of doctors, which has previously been found to be a more important factor in physician judgment.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 behavior. This study found that familiarity

with the law lead to greater intervention; however, we did not assess whether physician intervention improved outcomes. The literature is mixed regarding the effect of laws on patient outcomes.^{14,15} Another important caveat to this finding is that doctors were not assessed on their actual knowledge of the law but their perceived knowledge. This does suggest that efforts to provide doctors with education on Good Samaritan law is an important way to increase this behavior. In contrast, greater confidence in emergency skills was not associated with greater intervention rates and those with certification were no more likely to intervene than those without training. This research demonstrates that opportunities to act as a Good Samaritan are common 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. This result suggests that efforts to educate physicians regarding the existence of legal protections may lead to increased Good Samaritan behavior. 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 study of Good Samaritan behavior in the United States, we acknowledge several limitations. The response rate to our survey was 24.6%. 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 North Carolina 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 doctors with

emergency medicine training than in our initial sample of 1,000 physicians, which may bias the results as these doctors would be expected to react more readily to Good Samaritan scenarios.

Those who responded may be more likely to have acted as a Good Samaritan previously. This may be reflected in the high rate of recent Good Samaritan actions. One implication of this possible selection bias is that our finding that physicians with greater knowledge of Good Samaritan law were more likely to have acted as a Good Samaritan is likely biased toward 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 of Good Samaritan behavior by physicians. Another weakness is that physicians were not asked to provide information regarding their current certification in emergency life support but whether they had ever had this training. It is possible that physicians who were more recently trained and are currently certified would be more likely to render emergency services. Lastly, this survey did not ask respondents to disclose previous law suits which may contribute to physician behavior.

Further Study

Future directions of study include greater investigation of physician familiarity with laws protecting Good Samaritan acts and how this affects behavior. This study did not assess doctor's knowledge of the content of Good Samaritan laws. Another way that legal knowledge and its effect could be studied is through comparison between states using the same survey instrument. A follow-up to the AMA study from the 1960s could reveal potential differences between states. A larger study could provide more definitive conclusions regarding the way

that policy can be designed to maximize physician humanitarianism as well as help illustrate differences between specialties. A separate future analysis of the behavior and attitudes of individual specialties is planned based on the findings from this study. 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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Table 1. Characteristics of Respondents and Sample (N= 973, 239 returns)

	n	Respondents (%)	Sample (%)
Currently seeing patients	237	93.3	
Male	232	63.8	
Age Group (years)			
26-35	27	11.3	12.0
36-45	59	24.7	26.1
46-55	66	27.6	26.4
56-65	56	23.4	23.8
66-75	22	9.2	9.0
>75	9	3.8	2.7
Practice Setting			
Community Hospital	45	19.7	
Federally Qualified Health Center	4	1.8	
Large Academic Hospital	41	17.9	
Private Practice Clinic	105	45.9	
Public Health Department	1	0.4	
Veterans Health Admin. Facility	4	1.8	
Other	29	12.7	
Years since completed training			
0-5	51	21.5	14.5
6-10	27	11.4	13.3
11-20	58	24.5	26.3
21-30	56	23.6	25.6
>30	45	19.0	20.4
Specialty			
Primary care	87	36.9	30.9
Medical specialty	18	7.6	18.4
Emergency medicine	9	3.8	7.3
Surgical specialty	51	21.6	16.1
Other	71	30.1	27.3
Previous life support certification?			
Yes	219	93.2	
No	16	6.8	

Table 2. Previous Good Samaritan Experience

	n	Respondents (%)
Previous opportunity to act as Good Samaritan		
Yes	185	79.4
No	48	20.6
Acted as Good Samaritan last time had chance		
Yes	168	92.3
No	14	7.7
Number of times acted as Good Samaritan		
1	34	18.0
2	44	23.3
3-5	79	41.8
6-10	20	10.6
>10	12	6.4
Setting of most recent Good Samaritan act		
Airplane	48	28.4
Traveling by car	28	16.6
Public transportation	0	0.0
While at shopping center or store	17	10.1
While at a performance (sports event, concert)	27	16.0
Other	49	29.0

Table 3. Knowledge and Beliefs about Good Samaritan Behavior

	n	Strongly disagree (%)	Disagree (%)	Not sure (%)	Agree (%)	Strongly agree (%)
Confident in ability to provide emergency care	235	2.6	15.3	3.0	51.1	28.1
Knowledgeable about Good Samaritan law	236	4.2	35.2	11.4	39.8	9.3
Believe physician is morally obligated to intervene	237	2.1	6.3	3.0	57.4	31.2

Table 4. Characteristics of Physicians Who Acted as Good Samaritan at Last Opportunity

	n	Acted as GS (%)	P-value
Currently seeing patients			
Yes	168	92.3	1
No	13	92.3	
Sex			
Male	111	94.6	0.20
Female	66	89.4	
Specialty			
Primary care	69	95.7	0.26
Medical specialty	15	80.0	
Emergency medicine	8	100.0	
Surgical specialty	38	89.5	
Other	51	92.2	
Age group (years)			
≤45	60	96.7	0.12
>45	122	90.2	
Years in practice			
≤10	54	96.3	0.18
>10	126	90.5	
Advanced life support training			
Yes	167	92.2	0.88
No	11	90.9	
Practice setting			
Community Hospital	33	97.0	0.78
Federally Qualified Health Ctr.	4	100.0	
Large Academic Hospital	27	92.6	
Private Practice Clinic	83	89.2	
Public Health Department	1	100.0	
Veterans Health Admin. Facility	4	100.0	
Other	22	95.5	
Confidence in providing emergency care			
Yes	142	92.3	0.68
No	30	90.0	
Knowledgeable about Good Samaritan laws in NC			
Yes	91	97.8	0.027
No	67	89.6	
Believe physicians have moral obligation to provide Good Samaritan care			
Yes	162	93.8	0.25
No	14	85.7	

Table 5. Hypothetical Scenarios

	n	Definitely not intervene (%)	Probably not intervene (%)	Not sure (%)	Probably intervene (%)	Definitely intervene (%)
Female friend collapses at mall	236	0.0	0.4	0.0	12.7	86.9
Female neighbor collapses at the mall	236	0.0	0.4	0.0	14.0	85.6
Female stranger collapses at mall	238	0.0	2.1	0.8	20.2	76.9
Man suffers spinal injury at baseball game	234	1.3	9.0	2.6	24.8	62.4
Woman in anaphylactic shock at baseball game	237	0.0	0.4	1.3	17.3	81.0
Man suffering heart attack at baseball game	236	0.0	0.4	0.9	23.7	75.0
Female baby choking at baseball game	238	0.8	0.4	0.8	13.5	84.5
Man collapses on flight	236	0.0	0.4	0.4	8.9	90.3
Woman collapsed on city street	236	0.0	3.8	1.7	33.9	60.6
Man collapses on public bus	238	0.0	0.8	0.0	20.6	78.6
Victims of traffic accident	236	1.7	19.5	7.2	33.1	38.6
Man placed on stretcher by EMS	238	38.2	52.5	0.4	5.9	2.9

Table 6. Level of Care Willing to Provide

	n	Definitely not provide (%)	Probably not provide (%)	Not sure (%)	Probably provide (%)	Definitely provide (%)
Obtain history	230	0.4	0.4	0.9	19.6	78.7
Perform physical exam	231	0.9	3.0	1.7	29.0	65.4
Provide mouth-to-mouth resuscitation	230	6.1	13.5	12.6	37.8	30.0
Perform chest compressions	234	0.9	0.9	0.9	22.2	75.2
Utilize AED if available	233	0.9	1.7	6.0	18.5	73.0
Administer emergency medications	233	6.4	20.6	10.7	31.8	30.5
Suture superficial wound	230	43.0	26.5	4.8	12.6	13.0
Reduce a dislocated elbow in a child	232	48.3	25.4	5.2	12.9	8.2
Perform an emergency tracheostomy	230	30.0	27.4	5.7	23.0	13.9
Insert needle to treat pneumothorax	233	25.8	27.5	3.9	26.2	16.7
Accompany patient to treatment	231	8.7	29.9	13.4	31.6	16.5

Table 7. Primary Reason for Not Intervening

	n	Respondents (%)
Another person took charge	89	41.6
Concern for legal ramifications	30	14.0
Fear of infectious disease	13	6.1
Lack of emergency training	45	21.0
Lack of medical equipment	25	11.7
Other	12	5.6

Appendix A

Groupings of Specialties

Primary Care

- Family medicine
- Internal medicine
- Pediatrics

Medical subspecialty

- Medical subspecialty

Emergency medicine

- Emergency medicine

Surgical

- General Surgery
- Neurosurgical
- Obstetrics-Gynecology
- Orthopedic
- Otolaryngology
- Plastic surgery
- Surgical subspecialty
- Urology

Other

- Anesthesiology
- Dermatology
- Neurology
- Ophthalmology
- Pathology
- Physical Medicine and Rehabilitation
- Psychiatry
- Radiation-oncology
- Radiology

Appendix B

1.1 Are you currently seeing patients as a physician? (SELECT ONE)

- Yes ☐ ₁
- No ☐ ₂

1.2 What is your sex? (SELECT ONE)

- Male ☐ ₁
- Female ☐ ₂

1.3 What is your medical specialty? (SELECT ONE)

Anesthesiology	<input type="checkbox"/> ₁	Otolaryngology	<input type="checkbox"/> ₁₃
Dermatology	<input type="checkbox"/> ₂	Pathology	<input type="checkbox"/> ₁₄
Emergency Medicine	<input type="checkbox"/> ₃	Pediatrics	<input type="checkbox"/> ₁₅
Family Medicine	<input type="checkbox"/> ₄	Physical Medicine and Rehabilitation	<input type="checkbox"/> ₁₆
General Surgery	<input type="checkbox"/> ₅	Plastic Surgery	<input type="checkbox"/> ₁₇
Internal Medicine	<input type="checkbox"/> ₆	Psychiatry	<input type="checkbox"/> ₁₈
Medical Subspecialty	<input type="checkbox"/> ₇	Radiology	<input type="checkbox"/> ₁₉
Neurology	<input type="checkbox"/> ₈	Radiation-Oncology	<input type="checkbox"/> ₂₀
Neurological Surgery	<input type="checkbox"/> ₉	Surgical Subspecialty	<input type="checkbox"/> ₂₁
Obstetrics and Gynecology	<input type="checkbox"/> ₁₀	Urology	<input type="checkbox"/> ₂₂
Ophthalmology	<input type="checkbox"/> ₁₁	Other <input type="text"/>	<input type="checkbox"/> ₂₃
Orthopedic Surgery	<input type="checkbox"/> ₁₂		

1.4 What is your age group? (SELECT ONE)

- 26-35 years ☐ ₁
- 36-45 years ☐ ₂
- 46-55 years ☐ ₃
- 56-65 years ☐ ₄
- 66-75 years ☐ ₅
- >75 years ☐ ₆

1.5 Have you received certification in any of the following? (SELECT ALL THAT APPLY)

Advanced Cardiac Life Support (ACLS)	<input type="checkbox"/> ₁
Advanced Life Support in Obstetrics (ALSO)	<input type="checkbox"/> ₂
Advanced Trauma Life Support (ATLS)	<input type="checkbox"/> ₃
Basic Life Support (BLS)	<input type="checkbox"/> ₄
Fundamentals of Critical Care Support (FCCS)	<input type="checkbox"/> ₅
International Trauma Life Support (ITLS)	<input type="checkbox"/> ₆
Pediatric Advanced Life Support (PALS)	<input type="checkbox"/> ₇
None of the above	<input type="checkbox"/> ₈

1.6 How many years ago did you complete training (through residency or fellowship)? (SELECT ONE)

0-5 years	<input type="checkbox"/> ₁
6-10 years	<input type="checkbox"/> ₂
11-20 years	<input type="checkbox"/> ₃
21-30 years	<input type="checkbox"/> ₄
>30 years	<input type="checkbox"/> ₅

1.7 How would you describe your primary practice setting? (SELECT ONE)

Community Hospital	<input type="checkbox"/> ₁
Federally Qualified Health Center	<input type="checkbox"/> ₂
Large Academic Hospital	<input type="checkbox"/> ₃
Private Practice Clinic	<input type="checkbox"/> ₄
Public Health Department	<input type="checkbox"/> ₅
Veterans Health Administration Facility	<input type="checkbox"/> ₆
Other <input type="text"/>	<input type="checkbox"/> ₇

For the following questions please rate your agreement with the following statements (SELECT ONE)

1.8 I am confident in my ability to provide emergency care.

<input type="radio"/> ₁	<input type="radio"/> ₂	<input type="radio"/> ₃	<input type="radio"/> ₄	<input type="radio"/> ₅
Strongly disagree	Disagree	Agree	Strongly Agree	Not sure

1.9 I am knowledgeable about Good Samaritan laws in North Carolina.

<input type="radio"/> ₁	<input type="radio"/> ₂	<input type="radio"/> ₃	<input type="radio"/> ₄	<input type="radio"/> ₅
Strongly disagree	Disagree	Agree	Strongly Agree	Not sure

1.10 I believe a physician is morally obligated to intervene in a medical emergency even outside routine clinical care.

<input type="radio"/> ₁	<input type="radio"/> ₂	<input type="radio"/> ₃	<input type="radio"/> ₄	<input type="radio"/> ₅
Strongly disagree	Disagree	Agree	Strongly Agree	Not sure

2.1 Since you have been a physician have you ever been present in an emergency situation outside of routine clinical care during which you could have rendered assistance?

Yes	<input type="checkbox"/> ₁
No	<input type="checkbox"/> ₂

IF NO SKIP TO 3.1

2.2 How many times have you responded to emergencies outside of routine clinical care in your career?

1	<input type="checkbox"/> ₁
2	<input type="checkbox"/> ₂
3-5	<input type="checkbox"/> ₃
6-10	<input type="checkbox"/> ₄
>10	<input type="checkbox"/> ₅

2.3-2.4 refer to the last time you saw an emergency outside routine care

2.3 Did you render assistance? Please include any form of intervention such as CPR, examining patient, calling for help. (SELECT ONE)

Yes	<input type="checkbox"/> ₁
No	<input type="checkbox"/> ₂

2.4 What was the setting of the emergency? (SELECT ONE)

While on an airplane	<input type="checkbox"/> ₁
While traveling by motor vehicle	<input type="checkbox"/> ₂
While on public transportation (subway, bus, train)	<input type="checkbox"/> ₃
While at a shopping center or store	<input type="checkbox"/> ₄
While at a performance (sporting event, concert, etc.)	<input type="checkbox"/> ₅
Other <input type="text"/>	<input type="checkbox"/> ₆

For the following scenarios indicate the likelihood that you would intervene (including providing CPR if necessary) on a scale from 1 (definitely not intervene) to 5 (definitely intervene). Please be sure to read all scenarios carefully.

3.1 You are in line for popcorn at a baseball game and notice a crowd of people gather around a man who has collapsed. A bystander noted his face was ashen and sweaty and he was clutching his chest.

<input type="radio"/> ₁	<input type="radio"/> ₂	<input type="radio"/> ₃	<input type="radio"/> ₄	<input type="radio"/> ₅
Definitely not intervene	Probably not intervene	Probably intervene	Definitely intervene	Not sure

3.2 You have just watched a movie at the mall with your children when you see a friend in the parking lot who appears to be in distress and then falls down while bystanders rush towards her.

<input type="radio"/> ₁	<input type="radio"/> ₂	<input type="radio"/> ₃	<input type="radio"/> ₄	<input type="radio"/> ₅
Definitely not intervene	Probably not intervene	Probably intervene	Definitely intervene	Not sure

3.3 You are walking along a city street and see a woman who is lying on the ground in an alley. She appears to be having difficulty breathing. There are dozens of people walking past this woman.

<input type="radio"/> ₁	<input type="radio"/> ₂	<input type="radio"/> ₃	<input type="radio"/> ₄	<input type="radio"/> ₅
Definitely not intervene	Probably not intervene	Probably intervene	Definitely intervene	Not sure

3.4 You are reading a magazine on a transcontinental flight when there is an overhead announcement. A middle aged man has collapsed and is unconscious. There is no other physician aboard the plane.

<input type="radio"/> ₁	<input type="radio"/> ₂	<input type="radio"/> ₃	<input type="radio"/> ₄	<input type="radio"/> ₅
Definitely not intervene	Probably not intervene	Probably intervene	Definitely intervene	Not sure

3.5 You are speaking to your daughter about the movie you have just seen as you walk towards your car in the parking lot of the mall. A woman who you recognize from your neighborhood has fallen down and several people are gathered around her.

<input type="radio"/> ₁	<input type="radio"/> ₂	<input type="radio"/> ₃	<input type="radio"/> ₄	<input type="radio"/> ₅
Definitely not intervene	Probably not intervene	Probably intervene	Definitely intervene	Not sure

3.6 While buying an ice cream cone at a baseball game you notice a woman nearby grasping at her neck and making choking sounds. Before she collapses she opens her purse which falls to the ground revealing a neon yellow syringe.

<input type="radio"/> O_1	<input type="radio"/> O_2	<input type="radio"/> O_3	<input type="radio"/> O_4	<input type="radio"/> O_5
Definitely not intervene	Probably not intervene	Probably intervene	Definitely intervene	Not sure

3.7 While driving on the weekend you notice two cars have collided and are parked on the shoulder. As your car approaches you notice the driver of one vehicle is standing outside of the cars and the other driver is visible behind a broken windshield.

<input type="radio"/> O_1	<input type="radio"/> O_2	<input type="radio"/> O_3	<input type="radio"/> O_4	<input type="radio"/> O_5
Definitely not intervene	Probably not intervene	Probably intervene	Definitely intervene	Not sure

3.8 You are at the grocery store when you notice a group of people standing by the entrance. An EMS team has arrived and has just placed a man on a stretcher. An ambulance is parked outside.

<input type="radio"/> O_1	<input type="radio"/> O_2	<input type="radio"/> O_3	<input type="radio"/> O_4	<input type="radio"/> O_5
Definitely not intervene	Probably not intervene	Probably intervene	Definitely intervene	Not sure

3.9 While buying a pretzel at a baseball game you notice a baby nearby making choking sounds. She is starting to turn blue.

<input type="radio"/> O_1	<input type="radio"/> O_2	<input type="radio"/> O_3	<input type="radio"/> O_4	<input type="radio"/> O_5
Definitely not intervene	Probably not intervene	Probably intervene	Definitely intervene	Not sure

3.10 You are on a bus when a man standing in front of you collapses grasping his chest. There are several other passengers on the bus.

<input type="radio"/> O_1	<input type="radio"/> O_2	<input type="radio"/> O_3	<input type="radio"/> O_4	<input type="radio"/> O_5
Definitely not intervene	Probably not intervene	Probably intervene	Definitely intervene	Not sure

3.11 You are leaving a movie at the mall with your family when you notice a woman in the parking lot has fallen to the ground and people are calling for help.

<input type="radio"/> O_1	<input type="radio"/> O_2	<input type="radio"/> O_3	<input type="radio"/> O_4	<input type="radio"/> O_5
Definitely not intervene	Probably not intervene	Probably intervene	Definitely intervene	Not sure

3.12 While sitting in your seat at the baseball game an usher selling refreshments slips and falls over a balcony approximately 15 feet high and lands on his back.

- ☐₁ Definitely not intervene
 ☐₂ Probably not intervene
 ☐₃ Probably intervene
 ☐₄ Definitely intervene
 ☐₅ Not sure

4.1 Please indicate the likelihood that you would provide the following interventions in an emergency scenario outside routine clinical care. Assume you are the only physician available at the scene.

	Definitely not provide	Probably not provide	Probably provide	Definitely provide	Not sure
Obtain history	<input type="radio"/> ₁	<input type="radio"/> ₂	<input type="radio"/> ₃	<input type="radio"/> ₄	<input type="radio"/> ₅
Perform physical exam	<input type="radio"/> ₁	<input type="radio"/> ₂	<input type="radio"/> ₃	<input type="radio"/> ₄	<input type="radio"/> ₅
Provide mouth-to-mouth resuscitation	<input type="radio"/> ₁	<input type="radio"/> ₂	<input type="radio"/> ₃	<input type="radio"/> ₄	<input type="radio"/> ₅
Perform chest compressions	<input type="radio"/> ₁	<input type="radio"/> ₂	<input type="radio"/> ₃	<input type="radio"/> ₄	<input type="radio"/> ₅
Utilize AED if available	<input type="radio"/> ₁	<input type="radio"/> ₂	<input type="radio"/> ₃	<input type="radio"/> ₄	<input type="radio"/> ₅
Administer emergency medications	<input type="radio"/> ₁	<input type="radio"/> ₂	<input type="radio"/> ₃	<input type="radio"/> ₄	<input type="radio"/> ₅
Suture superficial wound	<input type="radio"/> ₁	<input type="radio"/> ₂	<input type="radio"/> ₃	<input type="radio"/> ₄	<input type="radio"/> ₅
Reduce a dislocated elbow in a child	<input type="radio"/> ₁	<input type="radio"/> ₂	<input type="radio"/> ₃	<input type="radio"/> ₄	<input type="radio"/> ₅
Perform an emergency tracheostomy	<input type="radio"/> ₁	<input type="radio"/> ₂	<input type="radio"/> ₃	<input type="radio"/> ₄	<input type="radio"/> ₅
Insert needle to treat pneumothorax	<input type="radio"/> ₁	<input type="radio"/> ₂	<input type="radio"/> ₃	<input type="radio"/> ₄	<input type="radio"/> ₅
Accompany patient to treatment	<input type="radio"/> ₁	<input type="radio"/> ₂	<input type="radio"/> ₃	<input type="radio"/> ₄	<input type="radio"/> ₅

4.2 What would be the most concerning reason for why you might be hesitant to intervene in an emergency away from a routine clinical setting? (SELECT ONE)

- Another person took charge ☐₁
 Concern for legal ramifications ☐₂
 Fear of infectious disease ☐₃
 Lack of emergency training ☐₄
 Lack of medical equipment ☐₅
 Other ☐₆