Association of open communication and the emotional and behavioural impact of medical error on patients and families: state-wide cross-sectional survey

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ABSTRACT

Background How openly healthcare providers communicate after a medical error may influence long-term impacts. We sought to understand whether greater open communication is associated with fewer persisting emotional impacts, healthcare avoidance and loss of trust.

Methods Cross-sectional 2018 recontact survey assessing experience with medical error in a 2017 random digit dial survey of Massachusetts residents. Two hundred and fifty-three respondents self-reported medical error. Respondents were similar to non-respondents in sociodemographics confirming minimal response bias. Time since error was categorised as <1, 1–2 or 3–6 years before interview. Open communication was measured with six questions assessing different communication elements. Persistent impacts included emotional (eg, sadness, anger), healthcare avoidance (specific providers or all medical care) and loss of trust in healthcare. Logistic regressions examined the association between open communication and long-term impacts.

Results Of respondents self-reporting a medical error 3–6 years ago, 51% reported at least one current emotional impact; 57% reported avoiding doctor/facilities involved in error; 67% reported loss of trust. Open communication varied: 34% reported no communication and 24% reported ≥5 elements. Controlling for error severity, respondents reporting the most open communication had significantly lower odds of persisting sadness (OR=0.17, 95% CI 0.05 to 0.60, p=0.006), depression (OR=0.16, 95% CI 0.03 to 0.77, p=0.022) or feeling abandoned/betrayed (OR=0.10, 95% CI 0.02 to 0.48, p=0.004) compared with respondents reporting no communication. Open communication significantly predicted less doctor/facility avoidance, but was not associated with medical care avoidance or healthcare trust.

Conclusions Negative emotional impacts from medical error can persist for years. Open communication is associated with reduced emotional impacts and decreased avoidance of doctors/facilities involved in the error. Communication and resolution programmes could facilitate transparent conversations and reduce some of the negative impacts of medical error.

What this study adds

- Emotional impacts from error, healthcare avoidance behaviours and loss of trust in healthcare system can persist for years after an error.
- Greater open communication about the error is associated with significantly reduced feelings of sadness, depression, abandonment/betrayal and the avoidance of doctors and facilities involved in the error.
- Communication and resolution programmes, not yet widely implemented, could increase open communication, reducing some of the negative impact of medical error on patients and families.

INTRODUCTION

Medical errors are common.[1–3] One in four adult Americans report experience (either themselves or someone close to them) with a medical error within the previous 5 years.[4 5] Research has illuminated the nature and causes of errors, but we know far less about the resulting impact on patients and families and how those consequences might be mitigated.

Medical errors are associated with significant emotional, financial, physical and sociobehavioural impacts, including reduced trust and willingness to seek healthcare.[6–9] But these studies have small sample sizes, study short-term effects or are limited by selection bias, making it difficult to generalise the results and influence policy and practice. How providers and organisations

respond to patients and families after an error likely influences the extent or persistence of these impacts. Despite increasing emphasis on transparency after medical error, disclosure to patients is infrequent and incomplete, potentially compounding harm.[10–16] Past research on communication after error has focused on narrow patient populations, hypothetical situations, evaluations of specific programmes facilitating disclosure and apology, or outcomes such as malpractice claims.[7 9 13 17–22] The long-term impact of communication about the error on patients' well-being or subsequent health-seeking behaviours is unknown.

This study examines the emotional, physical and healthcare avoidance impacts of errors self-reported by patients and family members as well as the relationship between open communication about medical error and these impacts. 'Open communication' refers to the extent to which patients and families perceive that providers and healthcare teams disclosed to them information about the error and invited discussion. Starting with a large random sample, we surveyed Massachusetts adults who perceived a medical error experience to: (1) assess the initial physical and emotional impact; (2) measure the emotional and physical impacts as well as healthcare behaviours and attitudes that persist at the time of the survey; (3) characterise respondents' perceptions of communication with providers and care teams regarding the error; and (4) examine the relationship between open communication and impacts. We hypothesised that respondents who experienced more open communication would report fewer persisting emotional impacts, healthcare avoidance and loss of trust.

METHODS

Sample

A sample of adult residents of Massachusetts aged 18 or older self-reporting medical error was generated through two telephone surveys in 2017 and 2018. In 2017, the research firm SSRS fielded the Massachusetts Health Insurance Survey (MHIS) on behalf of the state's Center for Health Information and Analysis. MHIS used a random-digit dial design to reach 5001 Massachusetts households. The instrument included questions from the Betsy Lehman Center for Patient Safety, another state agency, as to whether respondents had experience with a medical error during the previous 5 years (online supplementary appendix A table 1). These are medical errors that respondents perceived to have occurred and the errors have not necessarily been reviewed by clinicians or corroborated in medical records. All respondents were asked if they were willing to be recontacted and in 2018, SSRS recontacted respondents who had agreed (online supplementary appendix A Figure 1).[23]

This study focuses on English-speaking respondents who perceived a medical error in the 2018 survey. These include two subsets of respondents: (A) those who perceived an error on the 2017 survey and agreed to be recontacted and (B) a randomised subset of those not reporting an error in 2017, but who subsequently indicated they had experienced an error in the recontact survey. Online supplementary appendix A includes descriptions of the sampling methodology and analyses examining potential selection bias.

Survey instrument development and patient and public involvement

For survey design, the Betsy Lehman Center convened an expert advisory group, including the authors, and drew on existing literature on public awareness of medical error.[4 5 24] The Research Task Force for the Collaborative for Accountability and Improvement, a national advisory group of researchers, clinicians, safety experts, risk managers and patients and families, provided further survey design input.[25] Eight respondents self-reporting a medical error in 2017 provided cognitive testing for the survey instrument, but were not included in the study sample.

Survey questions

The instrument (online supplementary appendix A table 1 and appendix E) comprised 30 quantitative and qualitative questions and administered via phone.

Medical error characteristics

Respondents were asked who the error affected, whether the respondent was responsible for the medical care of the individual who experienced the error, the type of facility where the error took place and when the error occurred (<1, 1–2, 3–6 years prior to the survey).

Impact of errors

We asked subjects to describe the physical (death or loss of function) and emotional (sadness, anxiety, anger, depression, or feelings of abandonment or betrayal by the doctor) impacts experienced at the time of the error ('initial') and at the time of the survey ('persisting'), based on previous literature.[6–8 13 16] We also queried whether respondents avoided the doctors or facilities involved in the error or medical care in general (never, sometimes or always). In addition, we examined respondents' reports of loss of trust in healthcare compared with their attitudes before the error and asked participants to report financial impacts (increased expenses or lost earnings) related to the error.[26–29]

Open communication and apology

We assessed open communication based on respondent report of whether the care team or anyone at the place where the error occurred: (1) acknowledged the error; (2) spoke openly and truthfully about it; (3) spoke about it in a manner easily understood; (4) conveyed information about the health consequences

of the error; (5) welcomed questions about the error; or (6) provided opportunities to express feelings about the error. An equal-weighted count of these elements was used but alternative specifications are explored in more detail in online supplementary appendix B. To examine the threshold effects related to open communication, we categorised respondents into four strata: no reported communication, communication involving one to two elements, three to four elements or five to six elements.

The survey separately asked if respondents who had communicated with providers had received an explicit apology for the error. To distinguish between open communication and apology, we kept this potential confounder separate.

The survey also separately asked respondents about their overall satisfaction with their communication about the error and whether they felt cared for by the care team. These questions were used to test the construct validity of the open communication index (online supplementary appendix B). Finally, respondents who reported the error was acknowledged by someone at the place where the error occurred were asked whether they received information about a formal review or investigation or whether they received an explanation of actions taken to prevent similar medical errors in the future. These two elements were not included in the open communication index because only 3% (n=8) and 7% (n=17) of all respondents self-reporting an error reported said yes to each of these questions, respectively.

Statistical analyses

We used STATA V.15.0 (StataCorp, College Station, TX) for analyses.[30] Missing responses for each question were dropped before running statistical analyses; unless noted, non-responses comprised <5% of the sample. We used χ^2 tests to compare self-reported error impact between respondents experiencing recent (<1 year) and older errors (3–6 years ago) and to compare error impact at the time of survey between respondents who experienced different levels of open communication.

The association between the extent of open communication and impacts of perceived error persisting at the time of the survey was estimated using separate logistic regression models for three outcomes of interest: emotional harms, healthcare trust and healthcare avoidance. Our models controlled for error attributes or respondent characteristics that might be associated with both error impact and open communication. These included the financial and initial physical impacts of the error, who experienced the error (patient vs family member), whether the respondent was responsible for the medical care of the family member who experienced the error, how long since the error occurred, respondents' education level and gender.

To distinguish the impact of open communication, as we have defined it above, from previously studied aspects of communication, such as explicit apologies, it is useful to incorporate measures of each into the regression models. Because apologies themselves may be induced by more robust forms of communication between provider and patient, including apology as a control variable may understate the full impact of open communication. Conversely, the healthcare system could perfunctorily apologise but not engage the patient in a comprehensive discussion about the perceived error, leaving patients to question the sincerity of the apology. Consequently, we report here regression models that both include and excluded apology as an explanatory variable.

Finally, to examine whether our results were impacted by respondents who did not experience the error themselves, and were not closely connected to the individual who experienced the perceived error, we ran sensitivity analyses on this subset of respondents. We excluded respondents who reported the perceived error happened to an extended family member (eg, aunt) and they were not responsible for the medical care of the individual who experienced the error. Full results are included in the online supplementary appendix D tables 10 and 11.

RESULTS

Survey response

The recontact survey generated a sample of 253 respondents who perceived a medical error. The American Association Public Opinion Research R3 response rate[31] is 41% for the recontact survey only and 10.1% when multiplied by the MHIS 2017 response rate of 24.6% (online supplementary appendix A: Response Rate Calculations). The margin of error is ±8.7 percentage points.[32] Among respondents who self-reported a medical error in 2017, we found no significant differences in sociodemographic characteristics or experiences with medical error between respondents who agreed to recontact and those who declined (online supplementary appendix A table 2). The sociodemographic and medical error characteristics of respondents who self-reported medical errors in the MHIS and then completed the 2018 recontact survey did not differ significantly from respondents who did not complete the recontact survey. SSRS was able to recontact a higher percentage of respondents who reported a medical error in their own care than those who reported an error that happened to a household or family member (online supplementary appendix A table 3).

Subject and error characteristics

Of the 253 respondents who perceived a medical error, nearly 60% reported the error happened to themselves, a spouse or their child. Almost half reported the error occurred 3–6 years ago. Fewer than half of

Table 1 Descriptive statistics of respondents reporting experience with a medical error and medical error characteristics

Demographics	n (%)
Gender (n=253)*	
Male	109 (43)
Female	144 (57)
Education (n=237)	
Less than high school	27 (11)
High school	55 (23)
Associates degree or some college	69 (29)
College graduate	47 (20)
Postgraduate	39 (17)
Race/ethnicity (n=248)	
Non-Hispanic white	203 (82)
Non-Hispanic black	12 (5)
Non-Hispanic other	15 (6)
Hispanic	18 (7)
Income (n=236)	
<139% federal poverty level	52 (22)
≥139% to <300% federal poverty level	52 (22)
≥300% to <400% federal poverty level	20 (8)
≥400% federal poverty level	112 (47)
Characteristics of medical error	
Who experienced the error (n=251)	
Self	83 (33)
Spouse or child	66 (26)
Other	102 (41)
Responsible for medical care of individual who experienced the error (n=251)	
Yes†	128 (51)
No	123 (49)
When medical error occurred (n=252)	
<1 year ago	60 (24)
1–2 years ago	70 (27)
3–6 years ago	122 (49)
Where medical error occurred (n=253)	
Hospital (not ER)	103 (41)
Ambulatory care/doctor's office	68 (27)
ER	39 (15)
Other (long-term care; pharmacy, dentist)	43 (17)

*Numbers and percentages are adjusted by sampling weights to reflect the distribution of the adult population in Massachusetts.
†Includes respondents who reported they personally experienced the error.
ER, emergency room.

the errors occurred in a hospital inpatient unit, while more than a quarter occurred in a doctor's office or clinic (table 1).

Impact of medical errors over time

When asked about the *initial* impact of the self-reported medical errors, 43% (108/250) of respondents reported that they resulted in either death (11%) or a significant adverse impact on physical health (32%; table 2). Eighty-seven per cent (220/253) reported at least one initial emotional impact, ranging from 31% (78/253) who felt abandoned or betrayed by the doctors to 64% (163/253) who initially experienced anger (table 2). Respondents who perceived more severe physical impacts were significantly more likely to report each initial emotional impact except for anxiety (data not shown).

Table 2 Initial impacts of medical error on patients and families (n=253)

		How long ago error occurred	
	Full sample	<1 year ago	3–6 years ago
	n (%)	n (%)	n (%)
Emotional*	**(n=253)**†	**(n=60)**	**(n=123)**
Sad	133 (53)	30 (50)	70 (57)
Angry	163 (64)	43 (72)	77 (63)
Anxious	148 (58)	35 (59)	73 (60)
Depressed	93 (37)	29 (49)	47 (38)
Feeling abandoned or betrayed by the doctors	78 (31)	12 (21)	39 (32)
Reported at least one emotional impact	220 (87)	50 (86)	104 (88)
Physical	**(n=250)**	**(n=59)**	**(n=121)**
Stay the same	66 (26)	14 (23)	39 (32)
Physical health slightly impacted	76 (30)	16 (28)	29 (24)
Physical health strongly impacted or died	108 (43)	29 (49)	53 (44)

*Respondents could report more than one emotional impact.
†Percentages are adjusted by sampling weights to reflect the distribution of the adult population in Massachusetts.

The initial physical and emotional impacts of the older and more recent self-reported errors were comparable (right panel of table 2). Although the persisting impacts of these errors lessen with the passage of time, they remain substantial years later (table 3). Forty-two per cent (20/48) of respondents who reported an error occurred in the year prior to the survey reported ongoing physical impacts, as did 27% (29/107) of respondents whose errors occurred 3–6 years ago (table 3 right panel). Similarly, 51% (63/123) of respondents whose self-reported errors occurred 3–6 years before the survey reported still experiencing at least one emotional impact at the time of the survey. Anger was the one emotional response significantly ameliorated by time; however, anger still affected over one-quarter of respondents.

The impact of perceived errors on healthcare avoidance and eroded trust persisted over time. Forty-five per cent (26/58) of all respondents whose errors occurred up to 1 year prior to the survey reported avoiding medical care, and two-thirds had lost trust in healthcare (table 3 right panel). These impacts remained high for respondents whose self-reported errors occurred 3–6 years before the survey (37% (42/115) and 67% (82/121), respectively).

Women were more likely to report long-term harms compared with men including anger, anxiety,

Table 3 Persistent impacts of medical error on patients and families (n=253)

		How long ago error occurred	
	Full sample	<1 year ago	3–6 years ago
	n (%*)	n (%)	n (%)
Emotional†	**(n=253)**	**(n=60)**	**(n=123)**
Still sad	59 (23)	16 (26)	32 (26)
Still angry	84 (33)	26 (44)‡	33 (27)
Still anxious	74 (29)	20 (33)	41 (33)
Still depressed	54 (21)	17 (29)	25 (21)
Still feeling abandoned or betrayed by the doctors	50 (20)	11 (18)	31 (26)
Reported at least one emotional impact	142 (56)	44 (74)‡	63 (51)
Physical	**(n=220)**§	**(n=48)**	**(n=107)**
Physical health still impacted§	66 (30)	20 (42)	29 (27)
Healthcare avoidance¶**††	¶	**	††
	(n=213)¶	**(n=52)****	**(n=102)**††
Sometimes or always avoid doctor involved in error	122 (57)	26 (50)	59 (57)
	(n=219)¶	**(n=51)****	**(n=106)**††
Sometimes or always avoid facility involved in error	123 (56)	23 (45)	60 (57)
	(n=240)¶	**(n=58)****	**(n=115)**††
Sometimes or always avoid medical care in general	91 (38)	26 (45)	42 (37)
Trust in healthcare	**(n=251)**	**(n=59)**	**(n=121)**
Less trusting of medical care now than before the error	165 (66)	40 (67)	82 (67)

*Percentages are adjusted by sampling weights to reflect the distribution of the adult population in Massachusetts.
†Respondents could report more than one emotional impact.
‡χ^2 based on unweighted percentages is significant at p≤0.05.
§The sample size for physical health still impacted is n=220 because it excludes respondents who reported death.
¶The sample size for sometimes or always avoid doctor involved in error is n=213, sometimes or always avoiding facility involved in error is n=219 and sometimes or always avoiding general medical care is n=240 since not applicable (N/A) was an option on these questions.
**The sample size for respondents who experienced an error less than a year ago and sometimes or always avoiding the doctor involved in error is n=52, sometimes or always avoiding facility involved in error is n=51 and sometimes or always avoiding general medical care is n=58 since N/A was an option on these questions.
††The sample size for respondents who experienced an error 3–6 years ago and sometimes or always avoiding the doctor involved in the error is n=102, sometimes or always avoiding facility involved in error is n=106 and sometimes or always avoiding general medical care is n=115 since N/A was an option on these questions.

feelings of abandonment, loss of trust in healthcare and avoiding the doctor involved in the error. Respondents with some college were more likely to report depression than those with less or more education; lower income respondents reported more anxiety and feeling abandoned; and respondents with lower education levels and lower incomes were more likely to avoid all medical care after the perceived error (data not shown).

Open communication

Respondents reported considerable variation in the openness with which the care team and facility staff communicated after the self-reported error (online supplementary appendix B table 5). Of the 246 responses to the individual questions used to develop the open communication index, the most common form of open communication received was the offer to ask questions about the error (46%); the least prevalent was whether the event was acknowledged as an error (29%). Thirty-one per cent reported getting information needed to understand how the medical error would impact their health, 34% reported the care team spoke openly or truthfully about the error and 39% reported they were given a chance to express feelings about the error and the care team spoke about the error in an easy to understand way.

An equal weighted count of each of the questions included in the open communication index yielded a Cronbach's alpha of 0.839 indicating high internal consistency. When categorising the elements of the open communication index into strata, 34% reported that they received no communication about the error, 31% reported one to two elements of open communication, 12% three to four elements and 24% five to six elements.

Association of reported impact with open communication

Open communication was significantly associated with lower reported levels of most emotional and healthcare avoidance impacts still experienced at the time of the survey. Unadjusted bivariate comparisons suggest that this association was strongest when communication

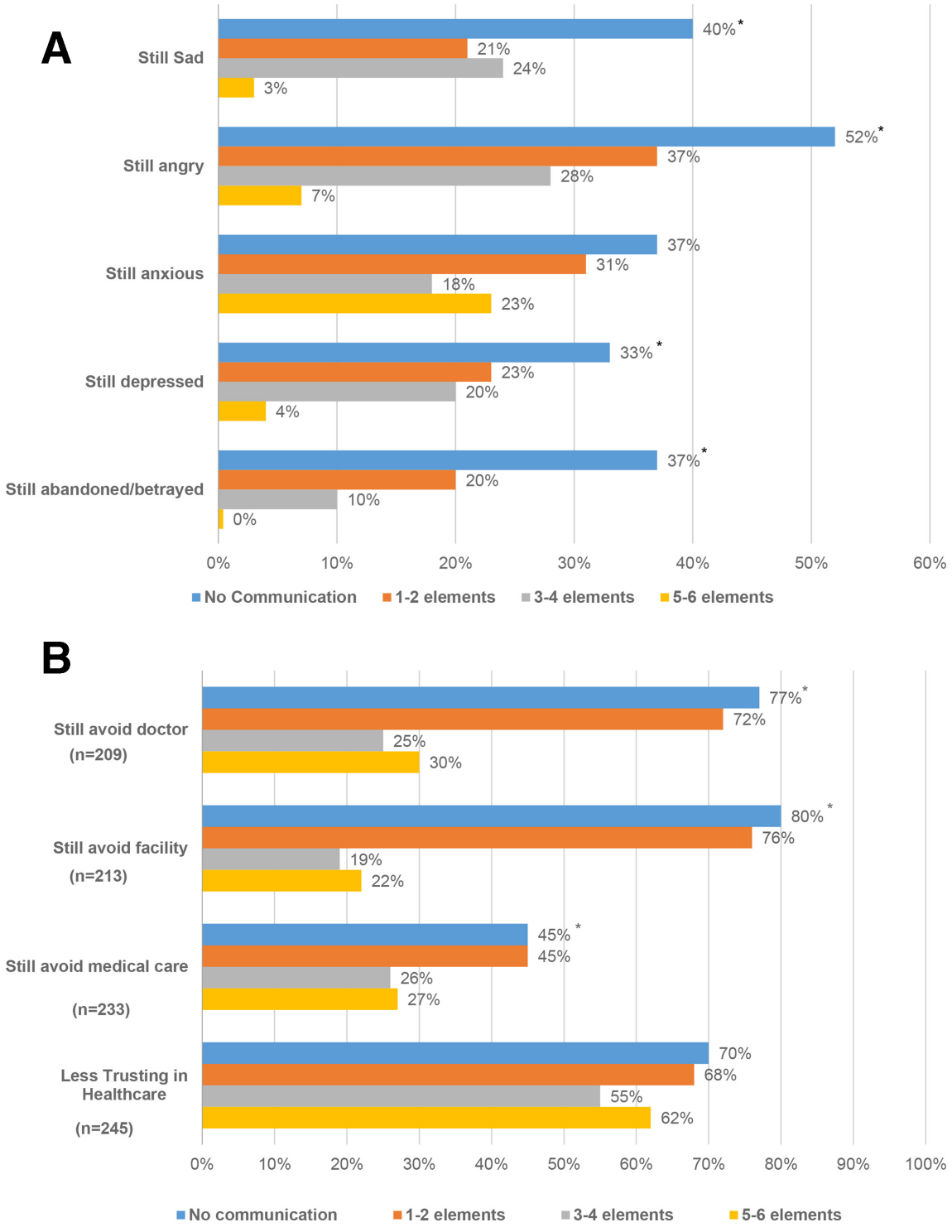

Figure 1 Impact of open communication on self-reported emotional impact, healthcare avoidance and loss of trust in healthcare.[a] (A) Open communication and emotional impact at time of survey (n=246).[a] (B) Open communication and healthcare avoidance and loss of trust in healthcare at time of survey.[a,b]

[a]Percentages are adjusted by sampling weights to reflect the distribution of the adult population in Massachusetts.

[b]The sample size for still avoiding doctor was n=209, still avoiding facility was n=213 and still avoiding medical care was n=233 since not applicable (N/A) was an option on these questions.

*χ^2 based on unweighted percentages is significant at P≤0.05.

was most open (figure 1). For respondents who experienced no communication, 33%–52% reported persistence of sadness, anger, depression and abandonment; for respondents reporting five to six aspects of open communication, prevalence was less than 10% (figure 1A). By contrast, open communication was less associated with a decline in anxiety over time. While 77%–80% of respondents who experienced

no communication reported avoiding doctors and healthcare facilities involved in the self-reported error, avoidance was 30% or less among those who experienced five to six elements of open communication (figure 1B). Subanalyses examined each element of open communication to determine whether specific elements were associated with self-reported impact of error. There was no detectable pattern (data not shown).

In adjusted analyses that control statistically for both respondent characteristics as well as financial and physical harms induced by the perceived error, respondents who reported five to six elements of open communication had significantly lower odds of still being sad (OR=0.17, 95% CI 0.05 to 0.60), depressed (OR=0.16, 95% CI 0.03 to 0.77) or feeling abandoned/betrayed (OR=0.10, 95% CI 0.02 to 0.48) compared with respondents who reported no communication about the error (figure 2A); results for the full regression models are reported in online supplementary appendix C tables 8 and 9.

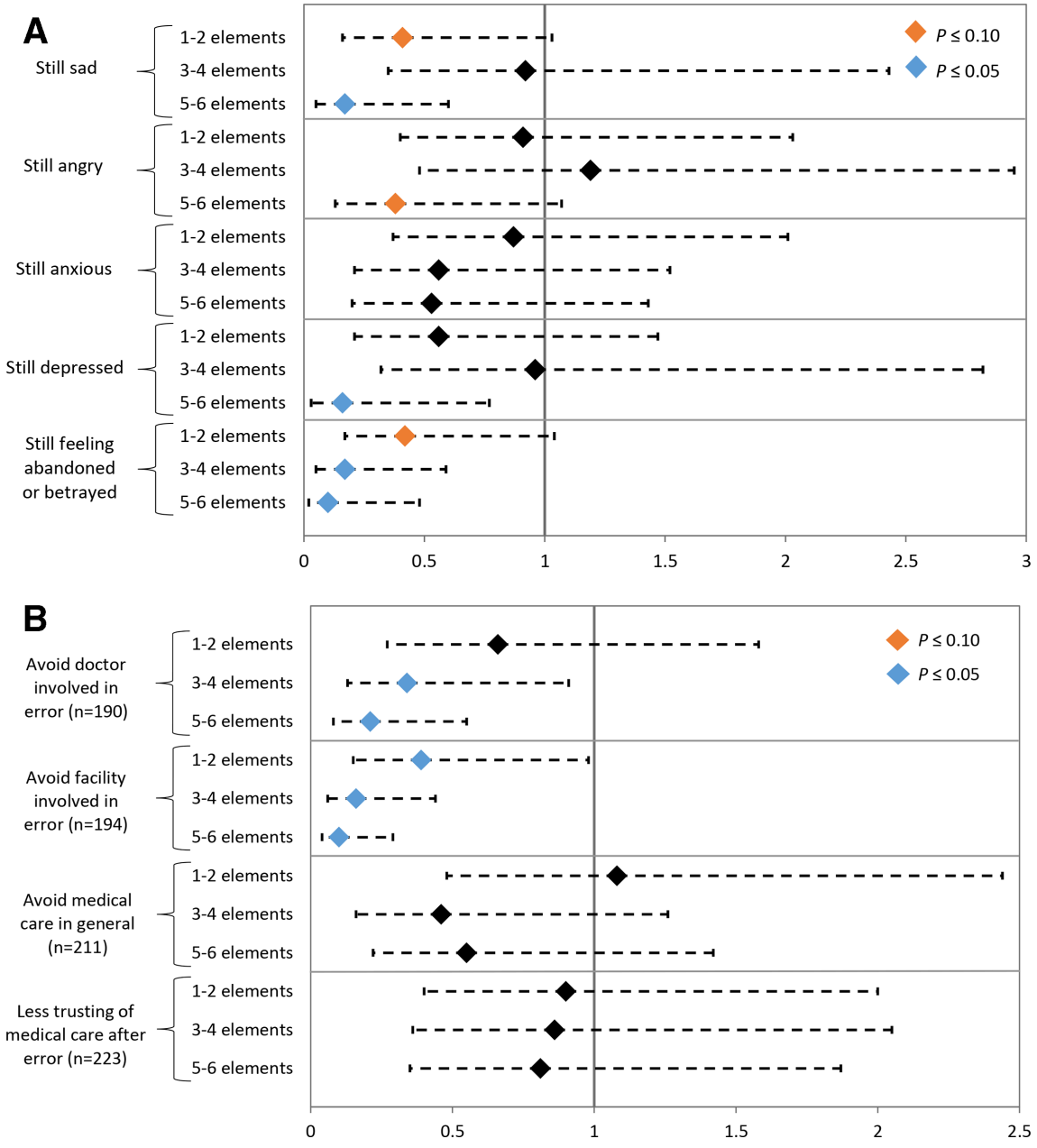

Figure 2 OR and 95% CI from logistic regression predicting persistent impacts of medical error in models excluding apology). (A) Open communication and emotional impact in models excluding apology (n=224). (B) Open communication and healthcare avoidance in models excluding apology (logistic regression models also controlled for the initial financial and physical impacts of the error as well as other individual characteristics that might alter respondents' assessment of the error experience: who experienced the error, whether the respondent was responsible for the medical care of the individual who experienced the error, how long since the error occurred, gender and respondents' education level). Complete results are reported in the online supplementary appendix C table 8.

Controlling statistically for other characteristics, respondents who experienced more open communication were also less likely to avoid the doctor(s) or facility involved in the self-reported error (figure 2B). For avoiding the doctor(s), these effects were evident when respondents experienced three or more elements of open communication (OR=0.34, 95% CI 0.13 to 0.91 for three to four elements; OR=0.21, 95% CI 0.08 to 0.55 for five to six elements). The relationship was significant for facility avoidance when the respondent reported any element of open communication but the impact was progressively larger, the more elements of open communication that had been experienced (OR=0.39, 95% CI 0.15 to 0.98 for one to two elements; OR=0.16, 95% CI 0.06 to 0.44 for three to four elements; OR=0.10, 95% CI 0.04 to 0.29 for five to six elements).

The association between open communication and persistent harm did not extend to all studied impacts (figure 2A,B). Exposure to open communication was not associated with lower levels of anxiety, overall avoidance of medical care or loss of trust in healthcare.

Nearly one in five respondents (47/252, 19%) reported receiving an apology and 82% of those receiving an apology reported the apology was sincere (data not shown). Apology was more common when communication was more extensive (included more elements of open communication). However, only 45% (27/59) of respondents in the highest tier of open communication received an apology. In models controlling for apology, the impact of open communication persisted for some forms of emotional harm and healthcare avoidance. Controlling for apology, respondents who reported more elements of open communication had significantly lower odds of still being sad (OR=0.20, 95% CI 0.05 to 0.77 for five to six elements) or feeling abandoned/betrayed (OR=0.24, 95% CI 0.07 to 0.87 for three to four elements; OR=0.19, 95% CI 0.04 to 1.01 for five to six elements) compared with respondents who reported no open communication about the self-reported error (figure 3A). Open communication bordered on significance for avoiding the doctor involved in the error and was significantly associated with reductions in reported avoidance of the facility involved in the error (OR=0.17, 95% CI 0.06 to 0.47 for three to four elements; OR=0.11, 95% CI 0.04 to 0.35 for five to six elements: figure 3B) when controlling for apology. Results remained qualitatively similar when alternative weighting specifications of the open communication index were used (online supplementary appendix B table 6).

As shown in figure 3A,B, controlling for the extent of open communication, receiving an apology was independently associated with reduced levels of anxiety (OR=0.32, 95% CI 0.11 to 0.90), and bordered on significance for depression (OR=0.30, 95% CI 0.07 to 1.20) and feeling abandoned/betrayed (OR=0.20, 95% CI 0.04 to 1.06). Similarly, apology significantly decreased the likelihood of avoiding all medical care (OR=0.28, 95% CI 0.09 to 0.81) and bordered on significance for avoiding the doctor involved in the self-reported error (OR=0.40, 95% CI 0.16 to 1.01). Apology appeared to be unrelated to sadness, anger, avoidance of the facility involved in the error and the restoration of trust in medical care following a perceived error experience.

Other covariates had anticipated relationships with self-reported error impact (online supplementary appendix C tables 8 and 9). Respondents with substantial physical or financial impacts reported more frequent emotional impact and healthcare avoidance. Respondents who reported on the error experience of a family member and those who did not feel responsible for the medical care of that family member were less likely to report impacts compared with respondents who personally experienced the error. Similarly, sensitivity analyses excluding respondents who were not closely connected to the perceived error (eg, error affected an extended family member) did not qualitatively change the overall results between open communication and each of the emotional and healthcare avoidance outcomes.

DISCUSSION

Our findings highlight substantial persisting emotional harm, healthcare avoidance and loss of trust in healthcare among 253 patients and family members who self-reported an experience with medical error up to 6 years ago. Patients may continue to struggle after medical errors in ways that the medical community may not recognise. At the time of survey, at least one-fifth of all respondents reported still experiencing each emotional impact, over half reported avoiding the doctor or facility involved, over a third reported still avoiding all medical care and two-thirds reported lost trust in healthcare. Even for respondents whose perceived errors occurred 3–6 years before the survey was administered, most still report at least one emotional impact (51%), avoiding doctors (57%) and facilities (57%) involved, and lost trust in healthcare (67%).

Open communication was associated with a reduction in many, though not all, of these persisting impacts. Notably, the effects of open communication often displayed pronounced threshold effects, being associated with significant reductions in emotional and behavioural impacts only if the interactions incorporated a sufficient number of elements of open communication. This effect was independent of whether or not that communication was associated with an explicit apology, though apologies were also independently associated with a reduction in some persisting impacts. Ideally communication after medical error would include both open communication about the event and an apology. Our data suggest that each plays an

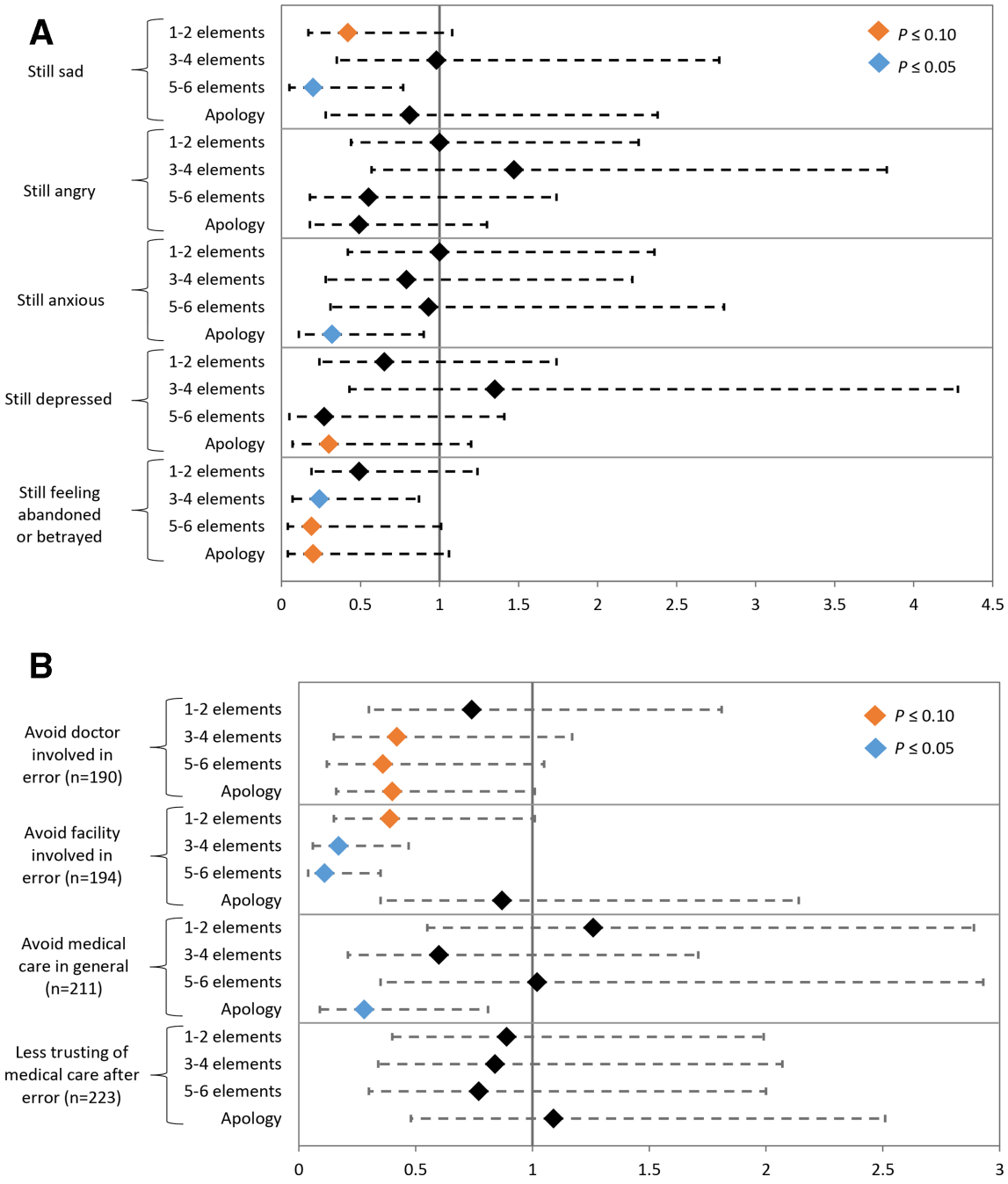

Figure 3 OR and 95% CI from logistic regression predicting persistent impacts of medical error in models including apology . (A) Open communication and emotional impact in models including apology (n=224). (B) Open communication and healthcare avoidance in models including apology (logistic regression models also controlled for the initial financial and physical impacts of the error as well as other individual characteristics that might alter respondents' assessment of the error experience: who experienced the error, whether the respondent was responsible for the medical care of the individual who experienced the error, how long since the error occurred, gender and respondents' education level). Complete results are reported in the online supplementary appendix C table 9.

important independent role in potential long-term sequelae. Similarly, the results cannot be explained by additional disclosure or resolution practices that may be correlated with both open communication and outcomes. There were insufficient responses regarding the causes of the errors, steps taken to prevent future errors or compensation provided to explain away the relationship between open communication and long-term outcomes.

Our study has several limitations. All data, including the impacts of medical error, are derived from a self-reported survey. Reports of errors were not corroborated with clinicians or medical records. Nevertheless, previous research has found patients and families can identify medical errors effectively.[33–35] Errors could be reported up to 6 years ago so not all respondents were surveyed close to their self-reported event. Consequently, the population responding may not be

a representative of patients who feel that they have experienced a medical error in the immediate aftermath of the adverse events. The recontact survey was limited to Massachusetts adults with a 41% response rate (10% when including the original MHIS response rate) and findings may not be generalisable to a broader population. However, we found minimal response bias (online supplementary appendix A tables 2–4) and the response rate is consistent with other state telephone surveys focused on healthcare.[36–38] Our measure of open communication is not a validated index with known psychometric properties but it has a high Cronbach alpha, denoting sound internal consistency, and the association of open communication with respondent satisfaction measures following an error supports the construct validity of the index (online supplementary appendix B tables 6 and 7). Finally, the relationships identified above are statistical associations—one cannot presume causality. For example, emotional impacts could be due to apprehension about healthcare or anxiety about illness. The differing impact of open communication on a wide range of outcomes as well as several validation and sensitivity tests strengthens our confidence in the findings.

These findings are consistent with other studies suggesting that emotional and psychological consequences of errors—including grief and loss of trust in healthcare or altered healthcare-seeking behaviours—may persist long after the adverse event.[6 7 16] For example, Wagner *et al* found that veterans who were notified of a large-scale adverse dental event were less likely to use both the type of service that led to the adverse event and services unrelated to the event for up to 18 months.[39] These results are similar to our findings that individuals avoid the doctor or facility involved in the self-reported error, suggesting the patients may 'vote with their feet' and shift providers. Even more concerning is the considerable proportion of respondents who report avoiding any medical care after a perceived error. Such avoidance could delay diagnosis and recovery for a wide range of health conditions.[40–44]

Our findings have several policy implications. Patient and families prefer to hear about medical errors.[11 14 15 45] Despite expert recommendations highlighting the importance of full disclosure,[10 46 47] patient and family experience with open communication varies widely in the aftermath of medical errors. Communication and resolution programmes (CRP), not yet widely implemented, could increase open communication through structured disclosure practices, reducing some of the negative impact of medical error on patients and families. These programmes facilitate transparent conversations about disclosures and apology, and provide compensation for patient injuries when appropriate.[18 48 49] In addition, CRPs may need to adopt a comprehensive communication approach that acknowledges the error, explains what happened and why, provides an apology and compensation where appropriate and explains how recurrences will be prevented, and: (1) acknowledges the long-term impacts of errors; (2) provides support for long-term emotional impacts; and (3) facilitates long-term care continuity to address the physical, emotional and healthcare-related behavioural consequences of the error either within the organisation or elsewhere, depending on patient preferences.

But open communication is not a panacea. Our findings suggest that it does not protect against persistent anxiety, avoiding medical care in general, or loss of trust in healthcare. All three outcomes reflect a common factor—lost faith in the efficacy and safety of medical care. Even when the healthcare system provides comprehensive, open communication about the error, patients may continue to experience anxiety and loss of trust now that they have a lived experience with what could go wrong. Apologies appear to help with some of these outcomes (anxiety and healthcare avoidance), but not others (loss of trust). Our results underscore the need for longitudinal research to better understand these long-term impacts and evidence-based approaches to better support harmed patients and families more comprehensively.

This study identifies substantial persistent emotional and healthcare avoidance impacts due to self-reported medical error and is the first to our knowledge to identify an association between open communication and the mitigation of these impacts. It also highlights long-term negative perceptions following medical error such as reduced trust and the inability of open communication alone to mitigate these perceptions. Healthcare organisations should increase investment in open communication and apology after a medical error to mitigate emotional and healthcare avoidance impacts and consider multifaceted interventions to address negative healthcare perceptions.

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Appendix A: Survey Methods, Sampling and Assessment of Potential Response Biases

Table 1: Questions from 2017 Massachusetts Health Insurance Survey and 2018 Medical Error Re- contact Survey Considered in Analyses

2017 Massachusetts Health Insurance Survey	**Response Options**
In the past five years, have you [have Target] or someone in [your/Target's] household or someone in [your/Target's] family living outside of [your/Target's] household experienced a medical error when receiving medical care, or has that not happened?	Yes, medical error was made in someone's care No, this has NOT happened
Was an error made in [your own/Target's] care, or the care of someone else living in [your/Target's] household, or the care of someone in [your/Target's] family living outside of the household], or all the above?	Error was made in your own care, error was made in the care of someone else living in your household, error was made in the care of someone in [your/TARGET's] family living outside of the household
If there was more than one error, please think about the most recent one when answering the next question. Did the error have serious health consequences, minor health consequences, or not health consequence at all for the person who experienced the error?	Serious health consequences, minor health consequences, not health consequences
We may follow-up with some survey participants to gather more in-depth information on their healthcare experiences in Massachusetts. Could we contact you again to ask a few more questions?	Yes or no
2018 Medical Error Re-contact Survey	**Response Options**
Medical Error Characteristics	
In the past six years, that would be since about 2012, was a medical error made?	In your own care, in the care of someone else living in your household, in the care of someone in your family living outside of the household, someone else not in your family or not living in your household, or was no medical error made
About how long ago did this medical error happen?	< 1 year ago, 1-2 years ago, or 3-6 years ago
Who did the medical error happen to?	You, your spouse, your child who lives in your home, or your child who lives outside of your home

2018 Medical Error Re-contact Survey	Response Options
Medical Error Characteristics continued…	
Were you responsible for making decisions about this person's care at the time the medical error occurred?	Yes, No
What best describes the place where the medical error occurred?	An emergency room, hospital, doctor's office or clinic, nursing home or other long-term care facility, pharmacy, dental office, at home, or somewhere else
Elements of Open Communication	
Did anyone at the place where the error occurred acknowledge to [you/them] that an error had occurred?	Yes or no
Did anyone on the care team speak openly and truthfully about the medical error you have been describing to me?	Yes or no
Did anyone on the care team speak to [you/them] about the medical error in an easy to understand way?	Yes or no
Did anyone on the care team give [you/them] the information needed to understand how the medical error would affect [your/their] health?	Yes or no
Did anyone on the care team give [you/them] a chance to ask questions about the medical error?	Yes or no
Did anyone on the care team give [you/them] a chance to express feelings about the medical error?	Yes or no
Apology	
Did [you/they] receive an apology?	Yes or no

2018 Medical Error Re-contact Survey	Response Options
Initial Impacts: Physical	
When the medical error occurred how was [your/their] physical health affected overall? Did [you/their] physical health	Stay the same, get somewhat worse, get much worse, or did they die
How was [your/their] physical health impacted?	Extremely impacted, strongly impacted, somewhat impacted, or slightly impacted
Initial Impacts: Emotional	
Did you experience any of the following feelings as a result of the medical error?	Sadness, anger, anxiety, guilt, depression, feelings that the doctors abandoned or betrayed you or your family, or any other feelings
Impacts at Time of Survey: Physical	
How long was [your/their] physical health worse for?	< a week, between a week and a month, between a month and a year, more than a year but [you/they] are recovered now, or ***[Your/Their] health is still being impacted***
Impacts at Time of Survey: Emotional	
Which of these emotions are you still experiencing?	Sadness, anger, anxiety, guilt, depression, feelings that the doctors abandoned or betrayed you or your family, or any other feelings
Healthcare Avoidance	
Since the medical error occurred, how frequently have [you/they] avoided the doctor involved in the care when the error occurred?	Never, sometimes, or always
Since the medical error occurred, how frequently have [you/they] avoided the healthcare facility where the error occurred?	Never, sometimes, or always
Since the medical error occurred, how frequently have [you/they] avoided getting medical care in general?	Never, sometimes, or always

2018 Medical Error Re-contact Survey	Response Options
Healthcare Trust	
How do you feel after your experience with the medical error?	More trusting, less trusting, or is there no change in the level of trust you feel when you receive healthcare
Healthcare Trust: Financial	
Because of the medical error were [your/their] household finances affected by increased medical expenses?	Yes or No
Because of the medical error were [your/their] household finances affected by increased household expenses, such as for additional childcare, transportation, or household cleaning services?	Yes or No
Because of the medical error were [your/their] household finances affected by missed time at work?	Yes or No
Because of the medical error were [your/their] household finances affected by leaving a job for health reasons or to meet caregiver responsibilities?	Yes or No
Because of the medical error were [your/their] household finances affected by trouble paying bills?	Yes or No
Because of the medical error were [your/their] household finances affected by a decrease in income?	Yes or No
Because of the medical error were [your/their] household finances affected by any other way?	Yes or No
2018 Medical Error Re-contact Survey	**Response Options**
Healthcare Trust: Questions used for Validating Open Communication	
Did [you/they] feel cared for by the care team?	Yes or No
All in all, how satisfied were [you/they] about the way the care team communicated about the medical error? Would you say…	Completely satisfied, somewhat satisfied, somewhat dissatisfied or not satisfied at all

Survey Design and Response

Survey Design

The Massachusetts Health Insurance Survey (MHIS), conducted by the survey research firm SSRS on behalf of the state's Center for Health Information and Analysis, is a biannual telephone survey of approximately 5000 Massachusetts adult residents selected at random. The MHIS tracks trends in health insurance coverage, health status and interactions with the healthcare system. At the request of the state's Betsy Lehman Center for Patient Safety, the 2017 MHIS added a short "medical error" module of items drawn from other patient safety surveys.[1-3] Respondents were asked if they or a household or family member had experienced an error during the previous five years (Table 1). These are errors that respondents perceive to have occurred and have not validated with clinicians or medical records. All respondents were also asked for permission to re-contact them with follow-up questions.

In summer of 2018, SSRS conducted a re-contact survey largely focused on respondents who self-reported experience with medical error in the 2017 MHIS. SSRS made up to 29 attempts to contact each respondent by telephone. IRB approval for both surveys was obtained from Solutions IRB.[4]

Survey Response

All 5001 respondents in the 2017 Massachusetts Health Insurance Survey (MHIS) were asked if they could be re-contacted and 3,469 agreed (Figure 1). In the MHIS, 988 respondents (988/5001=20%) reported a perceived experience with medical error in the last five years and 74% of those (736/988) consented to re-contact. We found no significant differences in socio-demographics or experiences with medical error between respondents who agreed to re-contact and those who declined (Table 2).

SSRS completed interviews with 191 of the 736 (26%) who agreed to re-contact in the MHIS 2017 self-reported medical error group. Of the 545 MHIS medical error respondents who did not complete the re-contact survey, 95 declined when reached by SSRS. SSRS was unable to reach the remaining 450 largely due to disconnected numbers and no-answers. The socio-demographic characteristics of respondents who self-reported medical errors in the MHIS and then completed the re-contact survey did not differ significantly from respondents who did not complete the re-contact survey. SSRS was able to re-contact a higher percentage of respondents who had experienced medical error in their own care than those whose experience was related to an error that happened to a household or family member (Table 3).

SSRS also surveyed a random sample of MHIS respondents who self-reported no medical error experience on the initial survey, to capture more recently emerging errors and to serve as a comparison group

for broader research questions beyond this study. In the MHIS, 2733 respondents reported no medical error and agreed to re-contact. The target was to obtain 350 respondents (13%- 350/2733) from the comparison group in the re-contact survey.

Once in the field, 123 of the originally targeted 350 respondents self-reported a medical error in 2018, crossing over to the medical error group. Thus, a total of 433 respondents who originally perceived no medical error in 2017 were actually contacted to determine the comparison sample in 2018.

This study focuses on a medical error cohort of 253 respondents who self-reported a medical error in the 2018 re-contact survey. Of the 191 respondents who reported a medical error in the MHIS 2017 survey and SSRS re-contacted in 2018, 68% (130/191) reported a medical error in 2017. Sixty-one (32%) crossed over to the comparison group.

Of the 433 respondents who did not report medical error in MHIS 2017 and who were re-contacted in 2018, 72% (310/433) continued to report no medical error. Another 8% (35/433=8%) reported no error in the 2017 MHIS survey but reported experiencing an error in the last year on the 2018 survey. The remaining 20% (88/433) reported no medical error in MHIS 2017 but self-reported a medical error in 2018 that occurred ≥1 year ago.

There are no socio-demographic differences and few medical error characteristics differences between the respondents who consistently self-reported a medical error (either in both surveys (n=130) or no error in 2017 but error in 2018 and error occurred <1 year ago (n=35)) and inconstant reporters of medical error (reported no medical error in 2017 and a medical error occurring >1 year ago in 2018- n=88). Consistent reporters were significantly more likely to report that more than one error had occurred to their household or family member (Table 4).

Consequently, the study sample focused on the 253 respondents who self-reported medical error in the 2018 survey. This includes 130 respondents who reported medical error in both surveys and 123 (88+35) respondents who reported no medical error in 2017 and crossed over to the medical error sample in 2018.

Since analyses focus on individuals self-reporting a medical error, we are reporting the response rate that is focused on the medical error group. The reported response rate is the American Association Public Opinion Research (AAPOR) R3.[5] In calculating this response rate, the dual frame telephone AAPOR R3 accounts for the rate at which sample records reach actual households (in the case of landlines) or people's personal (not business) communication devices (in the case of cellphones), and as well then assess the degree

to which they are eligible to participate (for example, over 20% of cell phone owners are ineligible as they are under the age of 18). The calculation also uses data available to estimate the rate at which unconfirmed sample records (no answers for example) should be assumed to be eligible sample units. The response rate cannot take cross-over into account so it is focused on the 191 respondents who reported medical error in the 2017 MHIS and were re-contacted in 2018.

Consequently, the self-reported medical error group had an initial response rate of 41.0% (see Response Rate Calculation). This response rate multiplied by 24.6% (the MHIS response rate) resulted in a final response rate of 10.1% which compares favorably with similar telephone health surveys.[6] Furthermore, the concern of a low response rate leading to a significant source of nonresponse bias is only warranted if those that do respond are significantly different from those that do not.[7, 8] Table 2 and 3 highlight similar characteristics among the responders and non-responders minimizing concerns about response bias. The margin of error for the medical error group is +/-8.7 percentage points.[9]

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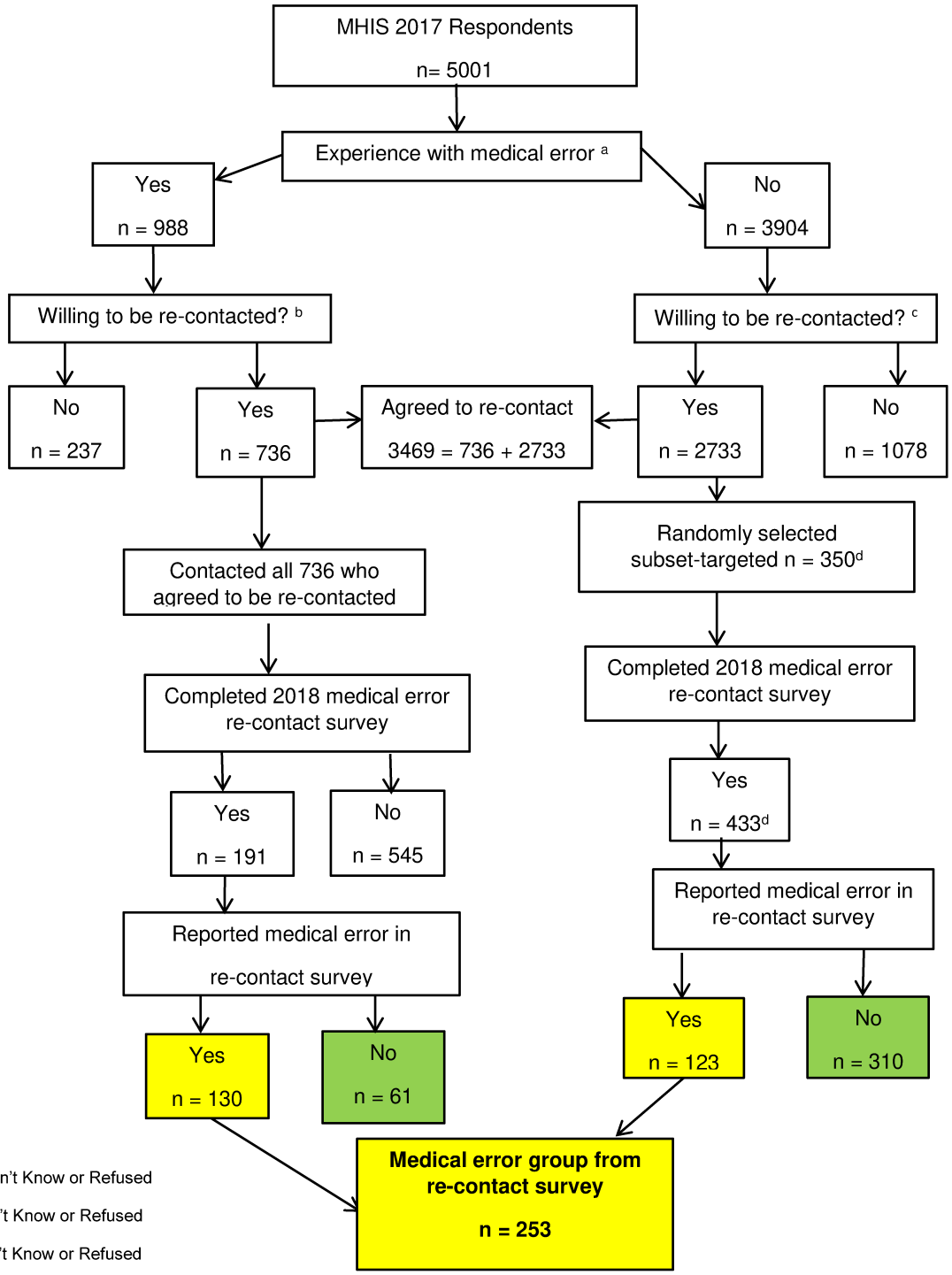
Figure 1: Sample Selection



a) n = 109 Don't Know or Refused

b) n = 15 Don't Know or Refused

c) n = 93 Don't Know or Refused

d) Among respondents who reported no medical error in the 2017 survey, 350 were randomly selected for the 2018 re-contact survey. Once in the field, 123 of these respondents reported a medical error in 2018 and crossed over to the medical error group. Consequently, a total of 433 respondents who originally reported no medical error in 2017 were actually contacted to determine the comparison sample in 2018.

Medical error group 253 = 130 + 123 (crossover)

Comparison sample 371 = 310 + 61 (crossover)

Table 2: Characteristics Among Those With Medical Error Experience Who Agreed to Re-contact Versus Not in 2017 MHIS Survey (n=988)

	Yes n (%)[b]	No n (%)
Age (years) (n=967)[a]	**n=727**	**n=240**
<18	89 (12)	21 (9)
19-64	458 (63)	148 (62)
≥65	180 (25)	71 (29)
Gender (n=986)	**n=736**	**n=250**
Male	333 (45)	122 (49)
Female	403 (55)	128 (51)
Education (n=898)	**n=662**	**n=236**
Less than high school	40 (6)	11 (5)
High school	142 (21)	53 (22)
Associates degree or some college	172 (26)	60 (25)
College graduate	164 (25)	58 (25)
Postgraduate	144 (22)	54 (23)
Race/Ethnicity (n=946)	**n=710**	**n=236**
Non-Hispanic white	587 (83)	201 (85)
Non-Hispanic black	26 (3)	15 (6)
Non-Hispanic other	34 (5)	8 (3)
Hispanic	63 (9)	12 (5)
Income (n=863)	**n=680**	**n=183**
<139% federal poverty level	147 (22)	47 (26)
≥139% to <300% federal poverty level	138 (20)	37 (20)
≥300% to <400% federal poverty level	59 (9)	23 (13)
≥400% federal poverty level	336 (49)	76 (41)
Medical Error Characteristics		
Medical error was in own or MHIS target's care (n=988)	**n=736**	**n=252**
Yes	201 (27)	70 (28)
No	535 (73)	182 (72)
Health consequences of the error (n=970)	**n= 723**	**n=247**
Serious health consequences	438 (61)	152 (62)
Minor health consequences	209 (29)	65 (26)
No health consequences	76 (10)	30 (12)

[a] Sample sizes vary due to respondents responding don't know or refusing to answer the question.

[b] Unweighted percentages

Table 3: Characteristics of Respondents Who Originally Reported Medical Error in 2017 MHIS Survey and were Re-contacted versus Not Re-contacted in 2018 (n=736)

	Re-contacted	
	Yes	No
	n (%)[b]	n (%)
Age (years) (n=727)[a]	**n=187**	**n=540**
<18	24 (13)	65 (12)
19-64	112 (60)	346 (64)
≥65	51 (27)	129 (24)
Gender (n=736)	**n= 191**	**n= 545**
Male	90 (47)	243 (45)
Female	101 (53)	302 (55)
Education (n=662)	**n=172**	**n=490**
Less than high school	10 (6)	30 (6)
High school	38 (22)	104 (21)
Associates degree or some college	39 (23)	133 (27)
College graduate	51 (30)	113 (23)
Postgraduate	34 (20)	110 (22)
Race/Ethnicity (n=710)	**n=185**	**n=525**
Non-Hispanic white	158 (85)	429 (82)
Non-Hispanic black	6 (3)	20 (4)
Non-Hispanic other	12 (7)	22 (4)
Hispanic	9 (5)	54 (10)
Income (n=680)	**n=176**	**n=504**
<139% federal poverty level	37 (21)	110 (22)
≥139% to <300% federal poverty level	42 (24)	96 (19)
≥300% to <400% federal poverty level	19 (11)	40 (8)
≥400% federal poverty level	78 (44)	258 (51)
Medical Error Characteristics		
Medical error was in own or MHIS target's care (n=736)	**n= 191**	**n=545**
Yes	66 (35)*	135 (25)
No	125 (65)	410 (75)
Health consequences of the error (n=723)	**n=186**	**n=537**
Serious health consequences	122 (66)	316 (59)
Minor health consequences	42 (22)	167 (31)
No health consequences	22 (12)	54 (10)

[a]Sample sizes vary due to respondents responding don't know or refusing to answer the question.
[b]Unweighted percentages.
*Chi-square is significant at $P \leq 0.05$

Table 4: Characteristics of Consistent and Non-Consistent Reporters of Medical Error in 2018 Re-contact Medical Error Survey (n=253)

	Consistent Reporter	
	Yes	No
	n (%)[b]	n (%)
Age (years) (n=246)[a]	**n=160**	**n=86**
<18	17 (11)	7 (8)
19-64	103 (64)	54 (63)
≥65	40 (25)	25 (29)
Gender (n=253)	**n=165**	**n=88**
Male	62 (38)	43 (49)
Female	103 (62)	45 (51)
Education (n=237)	**n=154**	**n=83**
Less than high school	12 (8)	3 (4)
High school	28 (18)	15 (18)
Associates degree or some college	39 (25)	15 (18)
College graduate	44 (29)	25 (30)
Postgraduate	31 (20)	25 (30)
Race/Ethnicity (n=248)	**n=162**	**n=86**
Non-Hispanic white	136 (84)	77 (90)
Non-Hispanic black	6 (4)	3 (3)
Non-Hispanic other	12 (7)	3 (3)
Hispanic	8 (5)	3 (3)
Income (n=236)	**n=153**	**n=83**
<139% federal poverty level	34 (22)	14 (17)
≥139% to <300% federal poverty level	33 (22)	20 (24)
≥300% to <400% federal poverty level	14 (9)	8 (10)
≥400% federal poverty level	72 (47)	41 (49)
Medical Error Characteristics		
Who medical error happened to (n=251)	**n=164**	**n=87**
Self	67 (41)	36 (41)
Spouse/Child	35 (21)	26 (30)
Other	62 (38)	25 (29)
Did more than one medical error happen to you or a household or family member? (n=252)	**n=164**	**n=88**
Yes	66 (40)*	16 (18)
No	98 (60)	72 (82)
Where medical error happened (n=253)	**n=165**	**n=88**
Hospital (not ER)	71 (43)	41 (47)
Ambulatory care/doctor's office	49 (30)	26 (30)
ER	15 (9)	11 (12)
Other	30 (18)	10 (11)

[a]Sample sizes vary due to respondents responding don't know or refusing to answer the question.
[b]Unweighted percentage.
*Chi-square is significant at $P \leq 0.05$

Response Rate Calculation

Completes / Completes + Confirmed Non-respondents + (Confirmed Unscreened Households * e1) + (Unconfirmed Households * e1 * e2).

Where:

E1 = estimate of screener eligibility = Confirmed eligible respondents / (Confirmed eligible respondents + confirmed not eligible respondents)

E2 = estimate of household eligibility = Confirmed eligible households / (Confirmed eligible households + confirmed not eligible households)

Thus:

Medical Errors sample:

RR3 = 191 / 191 + 0 + (146 * .81) + (245 * .79 * .81) = 0.409

E2 = 191 / 191 + 45

E1 = 382 / 382 + 100

0.409*0.246 (MHIS response rate) = 0.101

Appendix B: Properties of the Open Communication Index

We assessed open communication based on respondent report of whether the care team or anyone at the place where the error occurred: (1) acknowledged the error; (2) spoke openly and truthfully about it; (3) spoke about it in a manner easily understood; (4) conveyed information about the health consequences of the error; (5) welcomed questions about the error; or (6) provided opportunities to express feelings about the error. Of the 246 responses to the individual questions used to develop the open communication index, the most common form of open communication received was the offer to ask questions about the perceived error (46%) (Table 5); the least prevalent was whether the event was acknowledged as an error (29%). Thirty one percent reported getting information needed to understand how the perceived medical error would impact their health, 34% reported the care team spoke openly or truthfully about the error, and 39% reported they were given a chance to express feelings about the error and the care team spoke about the error in an easy to understand way.

An equal-weighted count of these elements yielded a Cronbach's alpha of 0.839 indicating high internal consistency. To examine threshold effects related to open communication, we categorized respondents into four strata: no reported communication, communication involving 1-2 elements, 3-4 elements or 5-6 elements. When categorizing the elements of the open communication index into strata, 34% percent reported that they received no communication about the error, 31% reported 1-2 elements of open communication, 12% 3-4 elements and 24% 5-6 elements (Table 5).

To test the robustness of the results regarding open communication, we also tested several alternatives to the open communication index in the logistic regression models examining the impact of open communication on the three outcomes of interest: emotional harms, health care trust, and health care avoidance. These alternatives included a version normalized to between 0 and 1, a factor-based weighting version with weights based on the inter-item correlations, and an inverse proportional weighting

version that weighted questions in the index that had lower prevalence more heavily. The linear form of each of these versions of the index was used in the logistic regression models (Table 6). As results were qualitatively similar to open communication index stratified into 0, 1-2, 3-4 and 5-6 elements, we report only the findings from stratified version in the main paper (Figures 2 and 3 in manuscript).

Respondents were also asked to characterize their overall satisfaction with post-error communication and whether they felt cared for by the team. We used the responses to these questions to further validate our measure of open communication. There was a positive relationship between greater open communication and each of these questions (Table 7).

Prentice JC, *et al. BMJ Qual Saf* 2020;0:1–12. doi: 10.1136/bmjqs-2019-010367

Table 5: Prevalence of Open Communication (n=246)

	n (%)[a]
Elements of Open Communication	
Did anyone at the place where the error occurred acknowledge that an error had occurred?	71 (29)
Did anyone on the care team speak openly or truthfully about the medical error?	84 (34)
Did anyone on the care team give a chance to ask questions about the medical error?	113 (46)
Did anyone on the care team give a chance to express feelings about the medical error?	96 (39)
Did anyone on the care team give information needed to understand how the medical error would affect health?	76 (31)
Did anyone associated with the care team speak about the medical error in an easy to understand way?	95 (39)
Number of open communication elements experienced by respondents	
No communication	83 (34)
1-2 elements	75 (31)
3-4 elements	29 (12)
5-6 elements	59 (24)

[a]Percentages are adjusted by sampling weights to reflect the distribution of the adult population in Massachusetts.

Table 6: Odds Ratio from Logistic Regression Predicting Persistent Impacts of Medical Error

	Emotional					Healthcare Avoidance			Trust
	Still sad (n=224)[a]	Still angry (n=224)	Still anxious (n=224)	Still depressed (n=224)	Still feeling abandoned or betrayed (n=224)	Avoid doctor involved in error (n=190)	Avoid facility involved in error (n=194)	Avoid medical care in general (n=211)	Less trusting of medical care after error (n=223)
Models without apology									
Model 1: Normalized open communication index									
Open communication	0.25**	0.44*	0.45	0.23**	0.09**	0.17**	0.08**	0.49	0.82
Model 2: Factor weighted open communication index									
Open communication	0.25**	0.43*	0.44	0.23**	0.09**	0.18**	0.08**	0.49	0.83
Model 3: Inverse proportional weighted open communication index									
Open communication	0.25**	0.43*	0.44	0.23**	0.09**	0.17**	0.08**	0.48	0.82
Models with apology									
Model 1: Normalized open communication index									
Open communication	0.27**	0.64	0.81	0.39	0.18**	0.28**	0.08**	0.92	0.78
Received apology (reference = no)	0.85	0.5	0.33**	0.32	0.18**	0.42*	0.96	0.28**	1.09
Model 2: Factor weighted open communication index									
Open communication	0.28**	0.62	0.77	0.38	0.17**	0.29**	0.08**	0.91	0.79
Received apology (reference = no)	0.84	0.5	0.33**	0.32*	0.18**	0.42*	0.94	0.28**	1.08
Model 3: Inverse proportional weighted open communication index									
Open communication	0.27**	0.64	0.80	0.39	0.17**	0.28**	0.08**	0.90	0.78
Received apology (reference = no)	0.85	0.50	0.33**	0.32	0.18**	0.42*	0.95	0.28**	1.09

*$P \leq 0.10$, **$P \leq 0.05$

[a]Logistic regression models also controlled for the initial financial and physical impacts of the error as well as other individual characteristics that might alter respondents' assessment of the error experience: who experienced the error, whether the respondent was responsible for the medical care of the individual who experienced the error, how long since the error occurred, gender and respondents' education level.

Table 7: Validation Tests of Open Communication

	Satisfied with Communication about Error (n=229)[a]		Felt cared for by care team (n=246)	
	Yes	**No**	**Yes**	**No**
Open Communication	**n (%)[b]**	**n (%)**	**n (%)**	**n (%)**
No communication about error	2 (3)*	66 (97)	31 (37)*	52 (63)
Affirmed in 1-2 ways	8 (11)	67 (89)	14 (19)	61 (81)
Affirmed in 3-4 ways	17 (61)	11 (39)	21 (73)	8 (27)
Affirmed in 5-6 ways	51 (87)	7 (13)	54 (91)	5 (9)

[a]Sample sizes vary due to respondents reporting "Don't know" or Refused or N/A

[b]Percentages are adjusted by sampling weights to reflect the distribution of the adult population in Massachusetts

*Chi-square significant at $P \leq 0.05$ based on unweighted percentages

Appendix C: Full Regression Models

Table 8: Odds Ratio from Logistic Regression Predicting Persistent Impacts of Medical Error Excluding Apology

	Emotional					Healthcare Avoidance			Trust
	Still sad (n=224)[a]	Still angry (n=224)	Still anxious (n=224)	Still depressed (n=224)	Still feeling abandoned or betrayed (n=224)	Avoid doctor involved in error (n=190)	Avoid facility involved in error (n=194)	Avoid medical care in general (n=211)	Less trusting of medical care after error (n=223)
Open communication (reference=No communication)									
1-2 elements	0.41*	0.91	0.87	0.56	0.42*	0.66	0.39**	1.08	0.90
3-4 elements	0.92	1.19	0.56	0.96	0.17**	0.34**	0.16**	0.46	0.86
5-6 elements	0.17**	0.38*	0.53	0.16**	0.10**	0.21**	0.10**	0.55	0.81
Medical error happened 3-6 years ago versus less than 3 years ago	1.38	0.49**	1.19	1.11	1.29	1.53	1.43	1.04	0.73
Physical impact from error (reference = no impact)									
Somewhat or slightly impacted	2.5	1.38	1.81	4.46**	3.23*	4.12**	3.66**	2.37*	1.84
Died, extremely or strongly impacted	7.52**	3.03**	3.09**	8.10**	4.11**	2.46*	3.01**	1.90	2.33**
Financial impact (reference = no impact)									
Reported finances impacted one way	1.22	0.56	1.01	0.65	0.93	2.01	2.31*	0.82	1.28
Reported finances impacted ≥2 ways	1.75	1.43	2.17*	1.09	2.37*	2.10*	2.60**	2.32**	2.58**
Who experienced error (ref=experienced error themselves)[b]									
Did not experience error but responsible for medical care of individual that experienced error	1.65	0.69	0.74	0.95	0.49	1.32	1.27	0.98	1.07
Did not experience error and not responsible for medical care of individual that experienced error	0.81	0.80	0.23**	0.39**	0.19**	0.69	0.55	0.38**	0.52*

Continued…	**Emotional**			**Healthcare Avoidance**					**Trust**
	Still sad (n=224)[a]	Still angry (n=224)	Still anxious (n=224)	Still depressed (n=224)	Still feeling abandoned or betrayed (n=224)	Avoid doctor involved in error (n=190)	Avoid facility involved in error (n=194)	Avoid medical care in general (n=211)	Less trusting of medical care after error (n=223)
Education level (reference = ≤ high school graduate)									
Associates degree or some college	2.84*	0.81	1.64	2.36	2.79*	0.97	0.76	0.36**	0.88
College graduate	1.63	0.6	1.67	0.64	3.42**	0.88	0.99	0.44*	0.97
Postgraduate work	3.27**	0.84	1.06	1.10	4.03**	1.32	1.95	0.41*	0.95
Female	1.03	1.64	1.28	1.34	1.42	1.45	1.00	0.94	1.92**
Constant	0.05**	0.39*	0.18**	0.08**	0.07**	0.48	0.88	0.72	0.72

*$P \leq 0.10$, **$P \leq 0.05$

[a]Sample sizes vary due to respondents reporting "Don't know" or Refused or N/A

Table 9: Odds Ratio from Logistic Regression Predicting Persistent Impacts of Medical Error Including Apology

	Emotional					Healthcare Avoidance			Trust
	Still sad (n=224)[a]	Still angry (n=224)	Still anxious (n=224)	Still depressed (n=224)	Still feeling abandoned or betrayed (n=224)	Avoid doctor involved in error (n=190)	Avoid facility involved in error (n=194)	Avoid medical care in general (n=211)	Less trusting of medical care after error (n=223)
Open communication (reference=No communication)									
1-2 elements	0.42*	1.00	1.00	0.65	0.49	0.74	0.39*	1.26	0.89
3-4 elements	0.98	1.47	0.79	1.35	0.24**	0.42*	0.17**	0.60	0.84
5-6 elements	0.20**	0.55	0.93	0.27	0.19*	0.36*	0.11**	1.02	0.77
Received apology (reference=no)	0.81	0.49	0.32**	0.30*	0.20*	0.40*	0.87	0.28**	1.09
Medical error happened 3-6 years ago versus less than 3 years ago	1.39	0.49**	1.23	1.13	1.36	1.56	1.44	1.08	0.73
Physical impact from error (reference = no impact)									
Somewhat or slightly impacted	2.47	1.31	1.73	4.20**	3.15*	3.94**	3.63**	2.27*	1.85
Died, extremely or strongly impacted	7.58**	3.10**	3.20**	8.37**	4.20**	2.44*	3.02**	1.96	2.32**
Financial impact (reference = no impact)									
Reported finances impacted one way	1.23	0.56	0.99	0.67	0.93	1.97	2.30*	0.79	1.28
Reported finances impacted ≥2 ways	1.74	1.42	2.15*	1.05	2.40*	2.13*	2.60**	2.38**	2.58**
Who experienced the error (ref=experienced error themselves)[b]									
Did not experience error but responsible for medical care of individual that experienced error	1.64	0.68	0.74	0.89	0.47	1.29	1.26	0.91	1.07
Did not experience error and not responsible for medical care of individual that experienced error	0.80	0.80	0.22**	0.38**	0.18**	0.68	0.55	0.37**	0.52*

Continued…	**Emotional**					**Health Care Avoidance**			**Trust**
	Still sad (n=224)[a]	Still angry (n=224)	Still anxious (n=224)	Still depressed (n=224)	Still feeling abandoned or betrayed (n=224)	Avoid doctor involved in error (n=190)	Avoid facility involved in error (n=194)	Avoid medical care in general (n=211)	Less trusting of medical care after error (n=223)
Education level (reference = ≤ high school graduate)									
Associates degree or some college	2.85*	0.84	1.79	2.48*	2.93*	1.04	0.77	0.37**	0.87
College graduate	1.65	0.62	1.82	0.69	3.74**	0.90	1.00	0.45*	0.96
Postgraduate work	3.23**	0.81	1.03	1.02	3.96**	1.30	1.95	0.40*	0.96
Female	1.03	1.66	1.35	1.32	1.49	1.52	1.01	0.99	1.91**
Constant	0.05**	0.39*	0.17**	0.08**	0.07**	0.48	0.88	0.70	0.73

*$P \leq 0.10$, **$P \leq 0.05$

[a]Sample sizes vary due to respondents reporting "Don't know" or Refused or N/A

Appendix D: Sensitivity Analyses Excluding Respondents Not Closely Connected to Perceived Error

Some respondents reporting a perceived error were not closely connected to the error. For example, the error happened to extended family members living outside of the household and the respondent was not responsible for the medical care of the family member that reported the error. This raises the question of whether these respondents can accurately report on the relationship between open communication and the long-term impacts of the self-reported medical error.

Even if a respondent does not self-report experiencing the error and are not responsible for the medical care of the individual who did, there may still be caregiver burden that impacts their outcomes.[1] For example, the survey respondent may be a daughter and she reported on an error that her mother experienced. Her mother may be responsible for her own medical care but the daughter may experience caregiver burden such as the need to take time off work to take her mother to appointments for follow-up care that impacts her own emotions long-term as well as her future interactions with the health care system. Consequently, the universe of the "best respondents" who we can most closely make a link between open communication to outcomes is not always clear.

However, to examine the robustness of the results, we did try to identify a universe of "best respondents" and ran analyses limited only to this group. The information is collected over several questions which at times gives conflicting information. The survey starts (S1) by asking respondents whether a medical error was made in the last six years:

a) In their own care
b) In the care of someone else living in our household
c) In the care of someone in your family living outside of the household
d) Someone else not in your family or not living in your household
e) Or no medical error was made.

Respondents could choose more than one option. Everyone who reported A-C were considered to be the initial error group (n=253). Respondents choosing options D and E were assigned to the control group from the beginning. Recognizing group C may be biasing the results, sensitivity analyses further limited the self-reported error group as follows:

a) Respondents who said A-B in question S1

b) Respondents in group C in question S1 who later reported in Qn3 the error happened to themselves, their spouse or their child.

c) Respondents in group C in question S1 who later reported the error happened to a more extended family member (e.g. mother, father) but they were responsible for the medical care.

This excluded 60 respondents who reported the error happened to a more extended family member (e.g. mother, father, sibling, aunt) and they were not responsible for the medical care of the individual who was reported to have experienced the error. Excluding this group did not qualitatively change the overall results between open communication and each of the emotional and healthcare avoidance outcomes (see Table 10 and 11).

Reference:

1. Giovannetti ER, Wolff JL. Cross-survey difference in national estimates of numbers of caregivers of disabled older adults. Milbank Q [Internet]. 2010 Sep [cited 2019 Dec 4]; 88(3):310-349. Available from: https://www.ncbi.nlm.nih.gov/pubmed/20860574 DOI: 10.1111/j.1468-0009.2010.00602.x.

Table 10: Odds Ratio from Logistic Regression Predicting Persistent Impacts of Medical Error Excluding Apology Limited to Respondents Closely Connected to Error[a]

	Emotional					Healthcare Avoidance			Trust
	Still sad (n=173)[b]	Still angry (n=173)	Still anxious (n=173)	Still depressed (n=173)	Still feeling abandoned or betrayed (n=173)	Avoid doctor involved in error (n=152)	Avoid facility involved in error (n=153)	Avoid medical care in general (n=165)	Less trusting of medical care after error (n=173)
Open communication (reference=No communication)									
1-2 elements	0.52	0.89	1.08	1.12	0.37**	0.80	0.36*	0.89	0.77
3-4 elements	1.24	1.00	0.86	1.87	0.14**	0.22**	0.11**	0.43	1.60
5-6 elements	0.13**	0.18**	0.74	0.31	0.06**	0.11**	0.05**	0.65	0.78
Medical error happened 3-6 years ago versus less than 3 years ago	1.81	0.32**	1.26	0.99	0.95	1.24	1.17	0.93	0.73
Physical impact from error (reference = no impact)									
Somewhat or slightly impacted	3.59*	1.16	1.90	5.38**	3.61**	3.95**	2.56*	1.94	2.15*
Died, extremely or strongly impacted	8.29**	3.03**	3.69**	8.08**	3.51**	2.43*	2.28	1.58	4.23**
Financial impact (reference = no impact)									
Reported finances impacted one way	0.62	0.33*	0.70	0.38	0.83	2.36	2.77*	1.52	0.97
Reported finances impacted ≥2 ways	1.29	1.33	1.82	0.92	2.55	2.52*	3.05**	3.50**	1.88
Who experienced error (ref=experienced error themselves)[b]									
Did not experience error but responsible for medical care of individual that experienced error	1.90	0.74	0.70	0.99	0.48	1.79	1.74	0.86	0.98
Did not experience error and not responsible for medical care of individual that experienced error	0.92	0.97	0.32**	0.25**	0.21**	0.51	0.47	0.32**	0.58

Continued…	**Emotional**			**Healthcare Avoidance**					**Trust**
	Still sad (n=173)[b]	Still angry (n=173)	Still anxious (n=173)	Still depressed (n=173)	Still feeling abandoned or betrayed (n=173)	Avoid doctor involved in error (n=152)	Avoid facility involved in error (n=153)	Avoid medical care in general (n=165)	Less trusting of medical care after error (n=173)
Education level (reference = ≤ high school graduate)									
Associates degree or some college	2.00	1.07	1.69	2.01	3.65**	1.30	1.03	0.30**	1.09
College graduate	0.96	0.65	1.36	0.34	2.36	1.94	1.30	0.35**	1.04
Postgraduate work	2.99*	0.79	1.27	1.15	6.16**	1.16	1.13	0.38*	1.23
Female	0.80	1.75	1.19	0.79	1.49	1.23	0.98	1.10	2.56**
Constant	0.06**	0.53	0.17**	0.11**	0.08**	0.45	1.23	0.69	0.50

*$P \leq 0.10$, **$P \leq 0.05$

[a]These models exclude 60 respondents who were not closely connected to the perceived medical error.

[b]Sample sizes vary due to respondents reporting "Don't know" or Refused or N/A

Table 11: Odds Ratio from Logistic Regression Predicting Persistent Impacts of Medical Error Including Apology Limited to Respondents Closely Connected to Error[a]

	Emotional					Healthcare Avoidance			Trust
	Still sad (n=173)[b]	Still angry (n=173)	Still anxious (n=173)	Still depressed (n=173)	Still feeling abandoned or betrayed (n=173)	Avoid doctor involved in error (n=152)	Avoid facility involved in error (n=153)	Avoid medical care in general (n=165)	Less trusting of medical care after error (n=173)
Open communication (reference=No communication)									
1-2 elements	0.56	0.96	1.25	1.30	0.46	0.94	0.37*	1.02	0.76
3-4 elements	1.52	1.16	1.23	2.50	0.19**	0.27**	0.11**	0.53	1.53
5-6 elements	0.18*	0.23*	1.31	0.51	0.15*	0.18**	0.05**	1.01	0.73
Received apology (reference=no)	0.55	0.58	0.33**	0.35	0.12*	0.38*	0.83	0.40	1.13
Medical error happened 3-6 years ago versus less than 3 years ago	1.87	0.32**	1.36	1.01	1.03	1.35	1.19	0.99	0.73
Physical impact from error (reference = no impact)									
Somewhat or slightly impacted	3.50*	1.12**	1.87	5.08**	3.53*	3.97**	2.56*	1.93	2.16*
Died, extremely or strongly impacted	8.58**	3.07**	3.93**	8.16**	3.56**	2.50*	2.31	1.68	4.21**
Financial impact (reference = no impact)									
Reported finances impacted one way	0.64	0.33*	0.68	0.40	0.79	2.14	2.74*	1.45	0.98
Reported finances impacted ≥2 ways	1.28	1.32	1.78	0.90	2.52	2.43*	3.03**	3.46**	1.89
Who experienced the error (ref=experienced error themselves)[b0.97]									
Did not experience error but responsible for medical care of individual that experienced error	1.87	0.74	0.70	0.94	0.45	1.80	1.72	0.82	0.97
Did not experience error and not responsible for medical care of individual that experienced error	0.94	0.98	0.32**	0.25**	0.20*	0.53	0.47	0.33**	0.57

Continued…	Emotional					Health Care Avoidance			Trust
	Still sad (n=173)[b]	Still angry (n=173)	Still anxious (n=173)	Still depressed (n=173)	Still feeling abandoned or betrayed (n=173)	Avoid doctor involved in error (n=152)	Avoid facility involved in error (n=153)	Avoid medical care in general (n=165)	Less trusting of medical care after error (n=173)
Education level (reference = ≤ high school graduate)									
Associates degree or some college	2.02	1.10	1.89	2.18	3.99**	1.45	1.06	0.32**	1.06
College graduate	1.03	0.67	1.55	0.40	2.67	2.11	1.32	0.37*	1.02
Postgraduate work	2.96*	0.76	1.31	1.1	6.23*	1.22	1.14	0.39*	1.22
Female	0.80	1.77	1.25	0.77	1.58	1.27	0.99	1.13	2.54**
Constant	0.06**	0.52	0.15**	0.11**	0.08**	0.41	1.21	0.64	0.50

*$P \leq 0.10$, **$P \leq 0.05$

[a]These models exclude 60 respondents who were not closely connected to the perceived medical error.

[b]Sample sizes vary due to respondents reporting "Don't know" or Refused or N/A

Appendix E: Massachusetts Medical Error Re-contact Survey

INTVLANG`[INTVLANG] - Language of Interview

01 ENGLISH

02 SPANISH

Adult Respondents Age 18 and Older who live in Massachusetts and completed Q1012 and agreed to be re-contacted.

Quotas (Final N=700):

- N~350 who have had or someone in their household had a medical error in the past 6 years
- N~350 who have NOT had or someone in their household had a medical error in the past 6 years

(PN: ANSWERING MACHINE MESSAGE SHOULD BE LEFT ON THE 1st CALL FOR THE CELL AND LL SAMPLES)
(ANSWERING MACHINE MESSAGE FOR LL AND CELL)

VOICEMAIL [VOICEMAIL] Hello, I'm calling from SSRS on behalf of the patient safety agency of the Commonwealth of MA. I am calling because recently you were kind enough to participate in the Massachusetts Health Survey and said you were willing to be contacted about future studies. We would like to include your thoughts in a new survey. The purpose is to understand the experiences that Massachusetts residents have had with healthcare.

Your participation is voluntary and we will pay you $10 for your time. Please call us toll-free at 844-284-9393 to participate.

(PN: START TIMER)

(ASK IF RESPONDENT NAME IS NOT MISSING)

INTRO1 [INTRO1] Hello. May I speak with {RESPONDENT NAME}?

01	IF ASKED "WHO'S CALLING?"	**[GO TO INTRO1a]**
02	SUBJECT SPEAKING/COMING TO PHONE	**[GO TO VERIFY1]**
03	SUBJECT LIVES HERE – NEEDS APPOINTMENT	**[SET APPOINTMENT]**
04	SUBJECT KNOWN, LIVES AT ANOTHER NUMBER	**[COLLECT NEW NUMBER]**
05	NEVER HEARD OF SUBJECT OR NO NUMBER	**[THANK AND TERM – CODE NON-LOCATABLE]**
06	TELEPHONE COMPANY RECORDING	**[CODE NON-WORKING]**
09	REFUSED	**[THANK AND TERM. CODE AS RQINTRO1]**

IF INTRO1 = 01, GO TO INTRO1a

IF INTRO1 = 02, GO TO VERIFY1

(ASK IF RESPONDENT NAME IS MISSING OR INTRO1 =01)

INTRO1a [INTRO1a] Hi, I am calling on behalf of the XXXX XXXXXX XXXXX XXXXX XXXXX . I am calling because on {MHIS Interview Date} we spoke to a {female/male} who is {Respondent Age} years old who participated in the Massachusetts Health Survey and {she/he} said {she/he} would be willing to be contacted about future surveys. May I please speak with {her/him}?

01	SUBJECT SPEAKING	**[GO TO VERIFY1]**
02	SUBJECT COMING TO PHONE	**[REPEAT INTRO1a]**
03	SUBJECT LIVES HERE – NEEDS APPOINTMENT	**[SET APPOINTMENT]**
04	NEVER HEARD OF SUBJECT OR NO NUMBER	**[THANK AND TERM – CODE NON-LOCATABLE]**
09	REFUSED	**[THANK AND TERM. CODE AS RQINTRO1a]**

IF INTRO1a = 01, GO TO 'VERIFY1'

(ASK IF INTRO1=02 OR INTRO1a=01)

VERIFY1 [VERIFY1] Hi, my name is (INTERVIEWER NAME) from SSRS calling on behalf of the XXXXX XXXXX XXXXX XXXXX XXXXXX. You previously participated in the Massachusetts Health Survey and said you would be willing to be contacted about future surveys.

[IF NEEDED: SSRS previously conducted the Massachusetts Health Survey]

I am calling because the XXXX XXXXX XXXXXX XXXX XXXXXX XXXXXX is conducting a phone survey aimed at understanding the experiences that Massachusetts residents have had with healthcare. If you agree to complete the survey you will receive $10 for your time.

This study is separate from the Massachusetts Health Survey which you completed earlier this year. Just to make sure that I'm speaking to the correct person, you are a {gender} age {Age}. Is that correct?

01	YES, CORRECT EXACT MATCH	**[GO TO PN_CELL]**
02	YES, CORRECT MATCH WITH QUALIFICATION	**[NOTE QUALIFICATIONS AND GO TO PN_CELL]**
03	NO, NOT CORRECT PERSON	**[GO TO VERIFY2]**
99	REFUSED	**[THANK AND TERM. CODE AS RQVERIFY1]**

IF VERIFY1 = 1,2, GO TO PN_CELL

IF VERIFY1 = 99, THANK & TERM

(ASK IF VERIFY1=03 OR ALL AGE INFORMATION FROM MAIN CHIS IS DK OR REFUSED)

VERIFY2 [VERIFY2] Did you or another member of your household participate in the Massachusetts Health Survey?

[IF NEEDED: The Massachusetts Health Survey was a telephone survey that took about 20 minutes of your time. You were called by an interviewer, like myself, from SSRS in {Month and Year of MHIS Interview}. In the survey, you were asked questions about your health, the types of things you do to stay healthy, and your experiences in receiving care. Did we interview you or someone else in your household?]

01 YES RESPONDENT **[GO TO PN_CELL]**

02 YES ANOTHER HOUSEHOLD MEMBER **[ASK FOR OTHER HHM – GO TO INTRO1A]**

03 NO – NO ONE IN HOUSEHOLD WAS INTERVIEWED **[GO TO PROB – CODE FOR SUPERVISOR REVIEW]**

98 DON'T KNOW **[GO TO PROB – CODE FOR SUPERVISOR REVIEW]**

99 REFUSED **[GO TO PROB – CODE FOR SUPERVISOR REVIEW]**

IF VERIFY2 =01, GO TO PN_CELL

IF VERIFY2 =02, GO TO INTRO1a

(ASK IF VERIFY2=3,98,99)

PROB[PROB] We will check to make sure we called the right household. Thank you for your time. My supervisor may call back to verify the answers I have recorded. **[THANK & TERM]**

'PN_CELL' [PN_CELL] –

IF CELL = 1 THEN CONTINUE TO 'CELL1'

ELSE GO TO 'CONSENT_SCRIPT'

(ASK IF CELL=1)

CELL1[CELL1] Are you driving right now?

01 Yes

02 No

99 Refused

IF CELL1 = 01,99 GO TO 'CELL2'

IF CELL1 = 02, GO TO 'CONSENT_SCRIPT'

(ASK IF CELL1=1,99)

CELL2[CELL2] When would be a better time to call you?

[IF RESPONDENT INDICATES THAT THEY ARE WILLING TO TALK NOW: "I'm sorry, but for your safety we're not able to do the interview while you're driving. When would be a better time to call you?"] **[SET CALLBACK] [THANK AND TERM]**

(ASK IF (VERIFY1=01,02 OR VERIFY2=01) AND (CELL1=02 OR LL SAMPLE)

CONSENT_SCRIPT [CONSENT_SCRIPT] Before we get started, I am going to tell you more about the study.

First, your participation is voluntary.

Second, most of the questions I'll be asking you are new. But a few of the questions might sound familiar from the last time we called. We're repeating those questions to make sure that we understood your answers correctly then. We also want to give you the chance to answer differently if your thoughts or experiences have changed since last spring.

Last time, we talked about medical errors. Sometimes when people receive medical care, mistakes are made. Sometimes these mistakes result in no harm; other times, they may result in additional or prolonged treatment, disability, or death. These types of mistakes are called medical errors. I'd like to ask some questions about medical errors. If for any of these questions, you feel you haven't heard enough to have an opinion, just say so.

[INTERVIEWER NOTES]

[IF WANTS INFORMATION ABOUT RIGHTS OF RESEARCH SUBJECTS: Please contact the Office for the Protection of Research Subjects at 310-825-8714.**]**

(ASK ALL)

S1. In the past **six** years – that would be since about 2012 - was a medical error made (READ LIST)? [PN: Select all the apply]

01 In your own care

02 In the care of someone else living in your household

03 In the care of someone in your family living outside of the household

04 Someone else not in your family or not living in your household

05 Or was no medical error made

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

If S1=01, 02, or 03 Qualify as Medical Error (GROUP=1)

If S1=04, 05 or 98 Qualify as Control (GROUP=2)

If S1=99 TERMINATE

(PN: END TIMER)

MAIN SURVEY

(PN: START TIMER)

(PN/INTERVIEWER IF AT ANY TIME IN THE Q'NAIRE THE RESPONDENT WANTS TO BE CALLED BACK OR SEEMS HESITANT TO CONTINUE [LIKELY TO REF TO CONTINUE, QUICKLY GO TO Q.42 AND ASK THAT QUESTION]

SECTION A: ABOUT THE MEDICAL ERROR

(ASK GROUP=1)

Q1. Did more than one medical error happen to you or a household or family member in the past **six** years?

01 Yes

02 No

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

(ASK Q1=1)

Though you've experienced more than one medical error, please think of the one you remember best when answering the next set of questions.

(ASK GROUP=1)

Q2 About how long ago did this medical error happen? Was it (READ LIST):

01 Less than a year ago

02 1 to 2 years ago

OR

03 3 to 6 years ago

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

(ASK GROUP=1)

Q3. Did the medical error happen to:

(READ LIST UNTIL RESPONSE IS ENDORSED)

01 You

02 Your spouse

03 Your child who lives in your home

04 Your child who lives outside of your home

05 A family member who is not your child or spouse [SPECIFY]_____

06 A person living in your home who is not related to you [SPECIFY]_____

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

(ASK Q3=2-99)

Q3a. Were you responsible for making decisions about this person's care at the time the medical error occurred?

01 Yes

02 No

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

(ASK GROUP=1)

Q4. In your own words, could you tell me more about the medical error that happened?

(READ IF Q1=1, "Though you've experienced more than one medical error, please think of the one you remember best when answering the next set of questions.")

(INTERVIEWER: RECORD RESPONSE VERBATIM, PROBE FOR CLARITY & TO THE NEGATIVE)

(INTERVIEWER: If respondent says "Don't know" or "Refused" say, "This information will be kept confidential. Any information you can provide will be extremely valuable. If you could tell me some information about what happened, who was involved, where the medical error occurred, and if you know, how or why it happened.")

(INTERVIEWER: Please probe until you have a good understanding of what the error was, and how it occurred.)

[PN Provide text box]

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

(ASK GROUP=1)

[PN: Pipe in "you" if Q3a=1 or Q3=1, pipe in "them" if Q3a=2,98,99]

Q4b. Did anyone at the place where the error occurred acknowledge to [you/them] that an error had occurred?

01 Yes

02 No

08 (DO NOT READ) Don't Know

09 (DO NOT READ) Refused

(IF Q4b = 02 OR 08, READ:)

That's just fine. Very often, patients experience a medical error that is not acknowledged by the healthcare professional or the facility involved. For all of the remaining questions, we will continue to refer to the events you described as "the medical error".

(READ IF Q4b=2,8,9)

For the rest of this survey, when we ask questions about the medical error, please think of the situation you just told us about.

(ASK GROUP=1 AND Q1 = 1)

Q5. What is it about this particular medical error that causes you to remember it the best? For example, is it because it was the most recent error, or the one that had the most serious consequences?

[PN Provide text box]

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

(ASK GROUP=1)

(INSERT "were you" IF Q3 = 1, "was the person this happened to" IF Q3 = 2-99)

Q6. Approximately how old [were you/was the person this happened to] when the medical error occurred?

(PROBE: Just your best guess is fine.)

(INTERVIEWER: If the respondent responds with a range, please enter the beginning of the range.)

[PN Provide Numeric response box that allow 1-80]

00 (DO NOT READ) Less than a year old

81 (DO NOT READ) 81 years or older

98 (DO NOT READ) DON'T KNOW

99 (DO NOT READ) REFUSED

(ASK GROUP=1)

Q7. What best describes the place where the medical error occurred?

(READ LIST UNTIL RESPONSE IS ENDORSED)

01 An emergency room

02 A hospital (INTERVIEWER NOTE: Not an emergency room)

03 A doctor's office or clinic

04 A nursing home or other long-term care facility

05 DELETED

06 A pharmacy

07 A dental office

08 At home

OR

09 Somewhere else [SPECIFY]_____

98 (DO NOT READ) DON'T KNOW

99 (DO NOT READ) REFUSED

(ASK GROUP=1)

Q8. Did this medical error occur in Massachusetts?

01 Yes

02 No

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

(ASK GROUP=1)

[PN: Pipe in "your" if Q3a=1 or Q3=1, pipe in "their" if Q3a=2,98,99]

Q9. It is often difficult to determine why medical experiences turn out as they do. Please give us your best sense of what might have led up to the medical error you've been describing?

(PROBE IF RESPONDENT DOES NOT PROVIDE DETAILED INFORMATION: Was it something that the doctor did? Or other medical staff? Did something specific about [your/their] health situation contribute to the medical error happening?)

(INTERVIEWER: RECORD RESPONSE VERBATIM, PROBE FOR CLARITY & TO THE NEGATIVE)

(INTERVIEWER: If the respondent says they are not sure the situation was a medical error say "Please think about the situation you described. Why do you think this happened?"

[PN Provide text box]

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

(ASK GROUP=1)

Q10. In your opinion, what if anything, could have been done differently to prevent this medical error from happening?

(PROBE IF RESPONDENT DOES NOT PROVIDE DETAILED INFORMATION: Could the doctor or other medical staff have done something either before the procedure or during? Could the place where the medical error occurred have done anything either before the procedure or during?)

(INTERVIEWER: RECORD RESPONSE VERBATIM, PROBE FOR CLARITY & TO THE NEGATIVE)

[PN Provide text box]

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

SECTION B: DISCOVERY OF AND RESPONSE TO THE MEDICAL ERROR

(ASK GROUP=1)

[PN: Pipe in "you" if Q3a=1 or Q3=1, pipe in "they/them/their" if Q3a=2,98,99]

[PN: Only show option 2 if Q7=1-7]

Q11. Which of the following best describes the way in which [you/they] first came to realize that a medical error happened?

01 [You/they] noticed that a medical error had been made

02 A healthcare professional such as a doctor, nurse, or other staff member at the place where the error occurred told [you/them]

03 Another healthcare professional told [you/them]

04 A family member or friend told [you/them]

OR

09 Some other way [SPECIFY]_____

98 (DO NOT READ) DON'T KNOW

99 (DO NOT READ) REFUSED

(ASK GROUP=1)

[PN: Pipe in "you" if Q3a=1 or Q3=1, pipe in "they/them/their" if Q3a=2,98,99]

Q12. Did [you/they] tell anyone outside of family and friends about the medical error?

01 Yes

02 No

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

(ASK Q12=1)

[PN: Pipe in "you" if Q3a=1 or Q3=1, pipe in "they/them/their" if Q3a=2,98,99]

[PN: Randomize items a-f, keeping items a/b together]

Q13. Did [you/they] [INSERT ITEM]?

01 Yes

02 No

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

a. Tell a healthcare professional, such as a doctor or nurse, at the place where the medical error occurred about the medical error

b. Tell a healthcare professional, such as a doctor or nurse, **NOT** at the place where the medical error occurred about the medical error

c. Tell an administrator at the place where the medical error occurred about the medical error

d. Tell [your/their] health insurer about the medical error

e. Report the medical error to a public or government agency

f. Speak to a lawyer about what had happened

(ASK IF Q12=1)

[PN: Pipe in "you" if Q3a=1 or Q3=1, pipe in "they/them/their" if Q3a=2,98,99]

[PN: Randomize items a-d]

Q14. Did [you/they] tell someone about the medical error because [INSERT ITEM]?

[PN: For subsequent items read: "How about [INSERT ITEM] (IF NEEDED READ: "Did [you/they] tell someone about the medical error because [INSERT ITEM]"]

01 Yes

02 No

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

a. [You/They] wanted the person responsible to be held accountable

b. [You/They] wanted to prevent the same medical error from happening to someone else

c. [You/They] were angry and wanted to get this off [your/their] chest

d. [You/They] wanted someone to help [you/them] cope with the problems caused by the medical error

e. Any other reason [SPECIFY]_____

(ASK Q12=2 and Q3a=2-99)

Q15. Do you know why no one besides family or friends was told about the medical error?

01 Yes

02 No

08 (DO NOT READ) Don't Know

09 (DO NOT READ) Refused

(ASK IF (Q12=2 AND (Q3a=1 or Q3=1)) OR (Q15=1))

[PN: Pipe in "you" if Q3a=1 or Q3=1, pipe in "they/them/their" if Q3a=2,98,99]

[PN: Only show item h if (Q3a=2,98,99)]

[PN: Randomize items a-i]

Q16. Would you say no one besides family or friends was told about the medical error because:

[PN: For subsequent items read: "How about [INSERT ITEM]"]

01 Yes

02 No

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

a. [You/They] didn't know how to report a medical error
b. [You/They] were afraid the doctor would stop treating [PN: EXCEPTION: Q3=1 "you"; Q3=2-9 "them"]
c. [You/They] didn't want to offend anyone
d. There was no way to report the medical error anonymously
e. [You/They] didn't think it would do any good
f. [You/They] didn't think the medical error was important
g. [You/They] didn't want to get anyone in trouble
h. You didn't think you could report a medical error for someone else
i. [You/They] couldn't communicate what happened in English
j. Any other reason [SPECIFY]_____

(ASK GROUP=1)

[PN: Pipe in "you" if Q3a=1 or Q3=1, pipe in "they/them/their" if Q3a=2,98,99]

Q17. Did [you/they] receive an apology?

01 Yes

02 No

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

(ASK Q17=1)

[PN: Pipe in "you" if Q3a=1 or Q3=1, pipe in "they/them/their" if Q3a=2,98,99]

Q18. Did you think the apology was sincere or did it feel insincere?

01 Sincere

02 Insincere

03 (DO NOT READ) I received both sincere and insincere apologies

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

(ASK GROUP=1)

[PN: Pipe in "you" if Q3a=1 or Q3=1, pipe in "they/them/their" if Q3a=2,98,99]

[PN: Randomize items a-h, always show i last]

[PN: DISPLAY ITEMS g & h ONLY IF Q4b = 1]

Q19. Whether or not the care team members acknowledged a medical error, at any point after the medical error happened, did anyone on the care team or at the facility where the medical error occurred offer:

[PN: For subsequent items read: "How about (INSERT ITEM)? (IF NEEDED: At any point after the medical error happened, did anyone on the care team or at the facility where the medical error occurred offer (INSERT ITEM):"]

01 Yes

02 No

03 (DO NOT READ) Not applicable

08 (DO NOT READ) Don't Know

09 (DO NOT READ) Refused

a. Psychological counseling, from a mental health professional

b. Spiritual support, such as from a chaplain or other religious advisor

c. Help from a social worker

d. DELETED

e. Help paying out of pocket or other medical costs

f. Money to compensate [you/them] for injuries resulting from the medical error

g. Information about a formal review or investigation to determine what caused the medical error

h. An explanation of the actions they were taking to prevent similar medical errors from happening in the future

i. Some other kind of help [SPECIFY]_____

(ASK IF ANY Q19=1)

[PN: Only show items selected at Q19 in the same order]

Q20. Was the [INSERT ITEM] helpful?

[PN: For subsequent items read: "How about (INSERT ITEM)? (IF NEEDED: Was the (INSERT ITEM) helpful"]

01 Yes

02 No

03 (DO NOT READ) I did not accept help

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

a. Psychological counseling

b. Spiritual support

c. Help from a social worker

d. DELETED

e. Help paying out of pocket or other medical costs

f. Money to compensate [you/them] for injuries resulting from the medical error

g. Information about a formal review or investigation to determine what caused the medical error

h. Explanation of the actions they were taking to prevent similar medical errors from happening in the future

i. [INSERT SPECIFY FROM Q19]

(ASK GROUP=1)

[PN: Pipe in "you/me/I was/my/I" if Q3a=1 or Q3=1, pipe in "they/them/their/they were" if Q3a=2,98,99]

[PN ROTATE LIST 1-4/4-1; RANDOMIZE ITEMS a-f]

Q21. For the next few questions, when we ask about "anyone associated with the care team", we mean all of the medical professionals, such as doctors and nurses, as well as the staff at the place where the medical error took place, such as a hospital, nursing home, or doctors' office, whether they were directly involved in your care or not.

First/Next, (INSERT ITEM).

01 Yes

02 No

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

a. Did anyone on the care team speak openly and truthfully about the medical error you have been describing to me

b. Did anyone on the care team give [you/them] a chance to ask questions about the medical error

c. Did anyone on the care team give [you/them] a chance to express feelings about the medical error

d. Did anyone on the care team give [you/them] the information needed to understand how the medical error would affect [PN EXECPTION Q3=1 "your"; Q3=2-99 "their"] health

e. Did anyone on the care team speak to [you/them] about the medical error in an easy to understand way

f. Did [you/they] feel cared for by the care team

(ASK GROUP=1)

[PN: Pipe in "you" if Q3=1, pipe in "they" if Q3=2-99]

21g. All in all, how satisfied were [you/they] about the way the care team communicated about the medical error? Would you say…?

(READ LIST)

01 Completely satisfied

02 Somewhat satisfied

03 Somewhat dissatisfied

04 Not satisfied at all

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

SECTION C: IMPACT OF THE MEDICAL ERROR

(ASK GROUP=1)

[PN: Pipe in "you" if Q3=1, pipe in "they" if Q3=2-99]

Q22. Now I'm going to ask you some questions about the consequences of the medical error.

Did [you/they] need extra medical care, such as a longer stay in the hospital, rehabilitation services or extra doctor visits because of the medical error?

01 Yes

02 No

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

(ASK GROUP=1)

[PN: Pipe in "your/you" if Q3=1, pipe in "their" if Q3=2-99]

[PN: Display code 04 only if referring to "other person" (Q3=2-99)]

(INTERVIEWER NOTE: IF THE RESPONDENT HAS ALREADY SAID/INDICATED THAT THE PERSON DIED, DO NOT ASK THIS Q. ENTER CODE 4 AND CONTINUE)

Q23. When the medical error occurred how was [your/their] physical health affected overall? Did [your/their] physical health (READ LIST)?

01 Stay the same

02 Get somewhat worse

03 Get much worse

Or

04 Did they die

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

(ASK Q23=2,3)

[PN: Pipe in "your/you" if Q3=1, pipe in "their/they" if Q3=2-99]

Q24. How long was [your/their] physical health worse for (READ LIST):

01 Less than a week

02 More than a week but less than a month

03 More than a month but less than a year

04 More than a year, but [you/they] are recovered now

OR

05 [Your/their] health is still being impacted

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

(ASK IF Q23 = 2,3)

[PN: Pipe in "you/your/me/I was/my/I" if Q3=1, pipe in "they/their/them/ their/they/they were" if Q3=2-99]

[PN ROTATE RESOPNSES 1-4/4-1]

Q25. Is (your/their) physical health (READ LIST)?

01 Extremely impacted

02 Strongly impacted

03 Somewhat impacted

OR

04 Slightly impacted

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

(ASK GROUP=1)

[PN: Pipe in "you/your/me/I was/my/I" if (Q3=1 or Q3a=1), pipe in "they/their/them/ their/they/they were" if Q3a=2,98,99]

[PN: Randomize items a-f]

Q26. Because of the medical error, were [your/their] household finances affected by (INSERT ITEM)?

[PN: For subsequent items read: "How about [INSERT ITEM]? (IF NEEDED READ: "Because of the medical error, were [your/their] household finances affected by (INSERT ITEM)?"]

01 Yes

02 No

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

a. Increased medical expenses

b. Increased household expenses, such as for additional childcare, transportation, or housecleaning services

c. Missed time at work

d. Left a job for health reasons or to meet caregiver responsibilities

e. Trouble paying bills

f. A decrease in income

g. Any other way [SPECIFY]_____

(ASK GROUP=1)

[PN RANDOMIZE ITEMS 1-7]

Q27. Now, thinking about the emotional impact of the error, did **you** experience any of the following feelings as a result of the medical error? (READ LIST)?

[PN: Select all that apply]

01 Sadness

02 Anger

03 Anxiety

04 Guilt

05 Depression

06 DELETED

07 Feelings that the doctors abandoned or betrayed you or your family

08 Any other feelings [SPECIFY]_____

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

(ASK Q27=1-8)

[PN ONLY SHOW ITEMS SELECTED AT Q26 IN SAME ORDER]

Q28. (IF MORE THAN ONE PIPED IN: "Which of the following") are you still experiencing (READ LIST)?

[PN: Select all that apply]

(INTERVIEWER NOTE: IF RESPONDENT SAYS "I STILL THINK ABOUT IT" THIS IS A "YES")

01 Sadness

02 Anger

03 Anxiety

04 Guilt

05 Depression

06 DELETED

07 Feelings that the doctors abandoned or betrayed you or your family

08 Any other feelings [SPECIFY]_____

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

(ASK GROUP=1)

(PN – PLEASE PROVIDE A TEXT BOX FOR "THE HARDEST PART" AND A SEPARATE TEXT BOX FOR "HOW IT AFFECTED YOUR LIFE AND HOW YOU COPED")

Q29. In your own words, what was the hardest part of your experience with this medical error? Please explain how it affected your life and how you coped with those effects.

(PROBE IF RESPONDENT DOES NOT PROVIDE DETAILED INFORMATION: Emotional, physical, life style changes, belief system changes, etc.?)

(INTERVIEWER: PLEASE MAKE SURE THAT YOU CAPTURE A RESPONSE FOR "THE HARDEST PART" AND A RESPONSE FOR "HOW IT AFFECTED YOUR LIFE AND HOW YOU COPED")

(INTERVIEWER: RECORD RESPONSE VERBATIM, PROBE FOR CLARITY & TO THE NEGATIVE)

[PN Provide text box]

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

[PN: ROTATE Q30/Q31]

(ASK GROUP=1)

Q30. What, if anything, do you wish your care team had done to improve the situation following the medical error?

(PROBE IF RESPONDENT DOES NOT PROVIDE DETAILED INFORMATION: Think beyond just medical interventions. How about Interaction with the care team, the care team's response to the medical error, etc.?)

(INTERVIEWER: RECORD RESPONSE VERBATIM, PROBE FOR CLARITY & TO THE NEGATIVE)

(INTERVIEWER IF NEEDED: When we ask about "care team" we mean the medical professionals such as doctors and nurses – as well as the staff at the place where the medical error took place – such as a hospital, nursing home, or doctors' office.

[PN Provide text box]

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

(ASK GROUP=1)

Q31. What things, if any, did your care team do following the medical error that made things worse?

(PROBE IF RESPONDENT DOES NOT PROVIDE DETAILED INFORMATION: Think beyond just medical interventions. How about Interaction with the care team, the care team's response to the medical error, etc.?)

(INTERVIEWER: RECORD RESPONSE VERBATIM, PROBE FOR CLARITY & TO THE NEGATIVE)

(INTERVIEWER IF NEEDED: When we ask about "care team" we mean the medical professionals such as doctors and nurses – as well as the staff at the place where the medical error took place – such as a hospital, nursing home, or doctors' office.

[PN Provide text box]

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

(ASK GROUP=1)

[PN ROTATE OPTIONS 1-2/2-1]

Q32. Following your experience with the medical error, do you feel (READ LIST)?

01 More trusting

02 Less trusting

03 or is there no change in the level of trust you feel when you receive healthcare

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

MOVE Q33 TO AFTER Q34

(ASK GROUP=1)

[PN: Pipe in "you/your/me/I was/my/I" if Q3=1, pipe in "they/their/them/ their/they/they were" if Q3=2-99]

[PN: Randomize items a-b; ROTATE RESPONSE OPTION 1-3/3-1]

Q34. Since the medical error occurred, how frequently have [you/they] ***avoided*** (INSERT ITEM)? Would you say (READ LIST)

[PN: For subsequent items read: "How about [INSERT ITEM]? (IF NEEDED READ: "How frequently have [you/they] ***avoided*** (INSERT ITEM)? Would you say (READ LIST?"]

01 Never

02 Sometimes

03 Always

04 (DO NOT READ) Not applicable

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

a. The doctor(s) involved in [PN EXCEPTION: Q3=1 "your"; Q3=2-9 "their"] care when the error occurred

b. The healthcare facility where the error occurred

c. Getting medical care in general

(ASK GROUP=1)

Q33. In your own words, how, if at all, did the experience of this medical error affect the ways in which you use the healthcare system?

(PROBE IF RESPONDENT DOES NOT PROVIDE DETAILED INFORMATION: Have your views on the healthcare system changed? Your interactions with care teams (in general and who was involved in the medical error?)

(INTERVIEWER: RECORD RESPONSE VERBATIM, PROBE FOR CLARITY & TO THE NEGATIVE)

[PN Provide text box]

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

[PN END TIMER]

[PN START TIMER]

(ASK ALL)

[PN: Pipe in "you/your/me/I was/my/I" if Q3=1, pipe in "they/their/them/ their/they/they were" if Q3=2-99]

Q35. Please think about all medical errors that you are personally aware of – include any medical errors that happened to you personally at any time in your life, and to members of your family, friends, neighbors, co-workers, or others in your social network at any time. About how many medical errors are you aware of?

(DO NOT READ LIST)

01 None

02 One

03 2 to 5

04 Six or more

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

(ASK IF GROUP 2 AND Q35 = 02-04)

Q35a. Did any of those medical errors occur within the last six years?

1 Yes

2 No

8 (DO NOT READ) Don't know

9 (DO NOT READ) Refused

(PN – IF Q35a = 1, REASK QS1 AND FOLLOW-UP Qs ACCORDINGLY [DO NOT REASK Q35])

(ASK ALL)

Thank you. Now I'm going to ask you a few questions about medical errors in general and some of your opinions about healthcare.

(ASK ALL)

[PN: ROTATE RESPONSE OPTION 1-4/4-1]

Q36. How likely do you think it is that a medical error would occur when you receive healthcare in the future? Would you say it is (READ LIST)?

01 Very likely

02 Somewhat likely

03 Not too likely

04 Not at all likely

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

(ASK ALL)

Q37. **Generally speaking**, do you think medical errors are a problem in Massachusetts, or not?

(INTERVIEWER: IF RESPONDENT SAYS "THEY DO NOT THINK THEY ARE MORE OF A PROBLEM THAN ANYWHERE ELSE, SAY "IN GENERAL, DO YOU THINK MEDICAL ERRORS ARE A PROBLEM IN MASSACHUSETTS, OR NOT?")

01 Yes

02 No

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

(ASK Q37=1)

[PN: ROTATE RESPONSE OPTION 1-4/4-1]

Q37a. Do you think they are (INSERT LIST) problem?

(INTERVIEWER "IF A RESPONDENT SAYS IT VARIES BY MEDICAL ERROR, SAY "**IN GENERAL**, DO YOU THINK MEDICAL ERRORS ARE (INSERT LIST) PROBLEM?")

01 A very serious

02 A somewhat serious

03 A not too serious

OR

04 Not at all a serious

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

(ASK GROUP=2)

[PN: Randomize items a-s; ROTATE RESPONSE OPTION 1-3/3-1]

Q38. I'm going to read you a list of some things that could lead to medical errors. For each one, please indicate whether you think it is (INSERT ROTATED RESPONSE OPTIONS) in causing medical errors.

[PN: For subsequent items read: "How about [INSERT ITEM]? (IF NEEDED READ: "Is (INSERT ITEM) (INSERT ROTATED LIST) in causing a medical error?"]

01 A major factor

02 A minor factor

OR

03 Not at all a factor

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

a. Doctors and nurses who are poorly trained
b. Patients not being able to see their own medical records
c. Doctors or nurses not listening to patients, or ignoring patients' concerns
d. Emergency rooms being overcrowded
e. Doctors and medical staff not washing their hands or wearing masks
f. Hospitals or medical offices not being organized well enough to make sure patients don't get the wrong drug or the wrong dose of a drug
g. Doctors and medical staff not speaking a patient's language
h. Doctors and nurses who are overworked, stressed, or tired
i. Doctors or nurses who don't care about their patients
j. Doctors or other staff not knowing about the medical care that a patient received somewhere else
k. Patients being given too many tests or drugs they don't need
l. Doctors and nurses not discussing treatment choices with patients
m. Doctors and nurses not checking in with patients after sending them home
n. Doctors and nurses who are careless
o. Medical care being very complicated
p. Patient medical records that are out-of-date or incorrect
q. Doctors and nurses not clearly explaining follow up care instructions to patients
r. Doctors and other staff in a hospital or medical office not working together or communicating well as a team
s. Doctors not spending enough time with patients

[PN ROTATE Q39 AND Q40]

(ASK ALL)

[PN: Randomize items a-d; ROTATE RESPONSE OPTION 1-5/5-1]

Q39. Now I am going to read a series of statements. For each one, tell me whether you (INSERT ROTATED RESPONSE OPTIONS).

(INSERT ITEM). Do you (INSERT ROTATED RESPONSE OPTIONS)?

[PN: For subsequent items read: "(INSERT ITEM)." (IF NEEDED READ "Do you (INSERT ROTATED RESPONSE OPTIONS)?)"]

01 Strongly agree

02 Somewhat agree

03 Neither agree nor disagree

04 Somewhat disagree

OR

05 Strongly disagree

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

a. The **hospital**s I go to do everything they can to prevent medical errors

b. The **doctors** I go to do everything they can to prevent medical errors

c. When medical errors happen, there is usually nothing that could have been done to prevent them

d. DELETED

(ASK ALL)

[PN: Randomize items b-g; ROTATE RESPONSE OPTION 1-5/5-1]

Q40. How often do you think (INSERT ITEM)? Would you say (READ LIST)?

[PN: For subsequent items read: "How about (INSERT ITEM)." (IF NEEDED READ "How often do you think (INSERT ITEM)? Would you say (READ LIST)?"]

01 Always

02 Often

03 Sometimes

04 Rarely

OR

05 Never

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

a. DELETED

b. Doctors care more about their patients' medical needs than what is convenient for them

c. Doctors are extremely thorough and careful

d. You can completely trust doctors' decisions about which medical treatments are best

e. Doctors are totally honest in telling their patients about all of the different treatment options available for their conditions

f. DELETED

g. Doctors pay full attention to what patients are trying to tell them

h. DELETED

(ASK ALL)

Q41. (GROUP=1: Would you like to share anything further on what you think could be done to prevent the kind of error(s) that happened to [Q3=1 "you"; Q3=2-9 "your family or friend"] or to make healthcare safer?

GROUP=2: Would you like to share any further thoughts on what you think could be done to prevent medical errors and make healthcare safer?)

(PROBE IF RESPONDENT DOES NOT PROVIDE DETAILED INFORMATION: At the care team level? At an institution level? At a more global or governmental level?)

(INTERVIEWER: RECORD RESPONSE VERBATIM, PROBE FOR CLARITY & TO THE NEGATIVE)

01 Yes [SPECIFY]_____

02 No

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

(ASK ALL)

Q42. One last thing, I want you to know that we are doing this survey on behalf of the XXXXX XXXXX XXXXX XXXXX XXXXX. That's a XXXXXX XXXXX XXXX working to make healthcare safer. Their staff may want to be in touch with you to hear more about your thoughts on healthcare safety and quality. To do that, they would need your contact information, which they would keep confidential. May we share your information with the XXXX XXXX XXXX?

01 Yes

02 No

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

(ASK ALL)

Q43. That's the end of the interview. We'd like to send you $10 for your time. Can I please have your full name and a mailing address where we can send you the money?

(INTERVIEWER NOTE: If R does not want to give full name, explain we only need it so we can send the $10 to them personally.)

1 [ENTER FULL NAME] – INTERVIEWER: PLEASE VERIFY SPELLING

2 [ENTER MAILING ADDRESS]

3 [CITY]

4 [STATE]

5 [ZIP CODE]

9 (DO NOT READ) Refused

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Appendix A: Survey Methods, Sampling and Assessment of Potential Response Biases

Table 1: Questions from 2017 Massachusetts Health Insurance Survey and 2018 Medical Error Re- contact Survey Considered in Analyses

2017 Massachusetts Health Insurance Survey	**Response Options**
In the past five years, have you [have Target] or someone in [your/Target's] household or someone in [your/Target's] family living outside of [your/Target's] household experienced a medical error when receiving medical care, or has that not happened?	Yes, medical error was made in someone's care No, this has NOT happened
Was an error made in [your own/Target's] care, or the care of someone else living in [your/Target's] household, or the care of someone in [your/Target's] family living outside of the household], or all the above?	Error was made in your own care, error was made in the care of someone else living in your household, error was made in the care of someone in [your/TARGET's] family living outside of the household
If there was more than one error, please think about the most recent one when answering the next question. Did the error have serious health consequences, minor health consequences, or not health consequence at all for the person who experienced the error?	Serious health consequences, minor health consequences, not health consequences
We may follow-up with some survey participants to gather more in-depth information on their healthcare experiences in Massachusetts. Could we contact you again to ask a few more questions?	Yes or no
2018 Medical Error Re-contact Survey	**Response Options**
Medical Error Characteristics	
In the past six years, that would be since about 2012, was a medical error made?	In your own care, in the care of someone else living in your household, in the care of someone in your family living outside of the household, someone else not in your family or not living in your household, or was no medical error made
About how long ago did this medical error happen?	< 1 year ago, 1-2 years ago, or 3-6 years ago
Who did the medical error happen to?	You, your spouse, your child who lives in your home, or your child who lives outside of your home

2018 Medical Error Re-contact Survey	Response Options
Medical Error Characteristics continued…	
Were you responsible for making decisions about this person's care at the time the medical error occurred?	Yes, No
What best describes the place where the medical error occurred?	An emergency room, hospital, doctor's office or clinic, nursing home or other long-term care facility, pharmacy, dental office, at home, or somewhere else
Elements of Open Communication	
Did anyone at the place where the error occurred acknowledge to [you/them] that an error had occurred?	Yes or no
Did anyone on the care team speak openly and truthfully about the medical error you have been describing to me?	Yes or no
Did anyone on the care team speak to [you/them] about the medical error in an easy to understand way?	Yes or no
Did anyone on the care team give [you/them] the information needed to understand how the medical error would affect [your/their] health?	Yes or no
Did anyone on the care team give [you/them] a chance to ask questions about the medical error?	Yes or no
Did anyone on the care team give [you/them] a chance to express feelings about the medical error?	Yes or no
Apology	
Did [you/they] receive an apology?	Yes or no

2018 Medical Error Re-contact Survey	Response Options
Initial Impacts: Physical	
When the medical error occurred how was [your/their] physical health affected overall? Did [you/their] physical health	Stay the same, get somewhat worse, get much worse, or did they die
How was [your/their] physical health impacted?	Extremely impacted, strongly impacted, somewhat impacted, or slightly impacted
Initial Impacts: Emotional	
Did you experience any of the following feelings as a result of the medical error?	Sadness, anger, anxiety, guilt, depression, feelings that the doctors abandoned or betrayed you or your family, or any other feelings
Impacts at Time of Survey: Physical	
How long was [your/their] physical health worse for?	< a week, between a week and a month, between a month and a year, more than a year but [you/they] are recovered now, or ***[Your/Their] health is still being impacted***
Impacts at Time of Survey: Emotional	
Which of these emotions are you still experiencing?	Sadness, anger, anxiety, guilt, depression, feelings that the doctors abandoned or betrayed you or your family, or any other feelings
Healthcare Avoidance	
Since the medical error occurred, how frequently have [you/they] avoided the doctor involved in the care when the error occurred?	Never, sometimes, or always
Since the medical error occurred, how frequently have [you/they] avoided the healthcare facility where the error occurred?	Never, sometimes, or always
Since the medical error occurred, how frequently have [you/they] avoided getting medical care in general?	Never, sometimes, or always

2018 Medical Error Re-contact Survey	Response Options
Healthcare Trust	
How do you feel after your experience with the medical error?	More trusting, less trusting, or is there no change in the level of trust you feel when you receive healthcare
Healthcare Trust: Financial	
Because of the medical error were [your/their] household finances affected by increased medical expenses?	Yes or No
Because of the medical error were [your/their] household finances affected by increased household expenses, such as for additional childcare, transportation, or household cleaning services?	Yes or No
Because of the medical error were [your/their] household finances affected by missed time at work?	Yes or No
Because of the medical error were [your/their] household finances affected by leaving a job for health reasons or to meet caregiver responsibilities?	Yes or No
Because of the medical error were [your/their] household finances affected by trouble paying bills?	Yes or No
Because of the medical error were [your/their] household finances affected by a decrease in income?	Yes or No
Because of the medical error were [your/their] household finances affected by any other way?	Yes or No
2018 Medical Error Re-contact Survey	**Response Options**
Healthcare Trust: Questions used for Validating Open Communication	
Did [you/they] feel cared for by the care team?	Yes or No
All in all, how satisfied were [you/they] about the way the care team communicated about the medical error? Would you say…	Completely satisfied, somewhat satisfied, somewhat dissatisfied or not satisfied at all

Survey Design and Response

Survey Design

The Massachusetts Health Insurance Survey (MHIS), conducted by the survey research firm SSRS on behalf of the state's Center for Health Information and Analysis, is a biannual telephone survey of approximately 5000 Massachusetts adult residents selected at random. The MHIS tracks trends in health insurance coverage, health status and interactions with the healthcare system. At the request of the state's Betsy Lehman Center for Patient Safety, the 2017 MHIS added a short "medical error" module of items drawn from other patient safety surveys.[1-3] Respondents were asked if they or a household or family member had experienced an error during the previous five years (Table 1). These are errors that respondents perceive to have occurred and have not validated with clinicians or medical records. All respondents were also asked for permission to re-contact them with follow-up questions.

In summer of 2018, SSRS conducted a re-contact survey largely focused on respondents who self-reported experience with medical error in the 2017 MHIS. SSRS made up to 29 attempts to contact each respondent by telephone. IRB approval for both surveys was obtained from Solutions IRB.[4]

Survey Response

All 5001 respondents in the 2017 Massachusetts Health Insurance Survey (MHIS) were asked if they could be re-contacted and 3,469 agreed (Figure 1). In the MHIS, 988 respondents (988/5001=20%) reported a perceived experience with medical error in the last five years and 74% of those (736/988) consented to re-contact. We found no significant differences in socio-demographics or experiences with medical error between respondents who agreed to re-contact and those who declined (Table 2).

SSRS completed interviews with 191 of the 736 (26%) who agreed to re-contact in the MHIS 2017 self-reported medical error group. Of the 545 MHIS medical error respondents who did not complete the re-contact survey, 95 declined when reached by SSRS. SSRS was unable to reach the remaining 450 largely due to disconnected numbers and no-answers. The socio-demographic characteristics of respondents who self-reported medical errors in the MHIS and then completed the re-contact survey did not differ significantly from respondents who did not complete the re-contact survey. SSRS was able to re-contact a higher percentage of respondents who had experienced medical error in their own care than those whose experience was related to an error that happened to a household or family member (Table 3).

SSRS also surveyed a random sample of MHIS respondents who self-reported no medical error experience on the initial survey, to capture more recently emerging errors and to serve as a comparison group

for broader research questions beyond this study. In the MHIS, 2733 respondents reported no medical error and agreed to re-contact. The target was to obtain 350 respondents (13%- 350/2733) from the comparison group in the re-contact survey.

Once in the field, 123 of the originally targeted 350 respondents self-reported a medical error in 2018, crossing over to the medical error group. Thus, a total of 433 respondents who originally perceived no medical error in 2017 were actually contacted to determine the comparison sample in 2018.

This study focuses on a medical error cohort of 253 respondents who self-reported a medical error in the 2018 re-contact survey. Of the 191 respondents who reported a medical error in the MHIS 2017 survey and SSRS re-contacted in 2018, 68% (130/191) reported a medical error in 2017. Sixty-one (32%) crossed over to the comparison group.

Of the 433 respondents who did not report medical error in MHIS 2017 and who were re-contacted in 2018, 72% (310/433) continued to report no medical error. Another 8% (35/433=8%) reported no error in the 2017 MHIS survey but reported experiencing an error in the last year on the 2018 survey. The remaining 20% (88/433) reported no medical error in MHIS 2017 but self-reported a medical error in 2018 that occurred ≥1 year ago.

There are no socio-demographic differences and few medical error characteristics differences between the respondents who consistently self-reported a medical error (either in both surveys (n=130) or no error in 2017 but error in 2018 and error occurred <1 year ago (n=35)) and inconstant reporters of medical error (reported no medical error in 2017 and a medical error occurring >1 year ago in 2018- n=88). Consistent reporters were significantly more likely to report that more than one error had occurred to their household or family member (Table 4).

Consequently, the study sample focused on the 253 respondents who self-reported medical error in the 2018 survey. This includes 130 respondents who reported medical error in both surveys and 123 (88+35) respondents who reported no medical error in 2017 and crossed over to the medical error sample in 2018.

Since analyses focus on individuals self-reporting a medical error, we are reporting the response rate that is focused on the medical error group. The reported response rate is the American Association Public Opinion Research (AAPOR) R3.[5] In calculating this response rate, the dual frame telephone AAPOR R3 accounts for the rate at which sample records reach actual households (in the case of landlines) or people's personal (not business) communication devices (in the case of cellphones), and as well then assess the degree

to which they are eligible to participate (for example, over 20% of cell phone owners are ineligible as they are under the age of 18). The calculation also uses data available to estimate the rate at which unconfirmed sample records (no answers for example) should be assumed to be eligible sample units. The response rate cannot take cross-over into account so it is focused on the 191 respondents who reported medical error in the 2017 MHIS and were re-contacted in 2018.

Consequently, the self-reported medical error group had an initial response rate of 41.0% (see Response Rate Calculation). This response rate multiplied by 24.6% (the MHIS response rate) resulted in a final response rate of 10.1% which compares favorably with similar telephone health surveys.[6] Furthermore, the concern of a low response rate leading to a significant source of nonresponse bias is only warranted if those that do respond are significantly different from those that do not.[7, 8] Table 2 and 3 highlight similar characteristics among the responders and non-responders minimizing concerns about response bias. The margin of error for the medical error group is +/-8.7 percentage points.[9]

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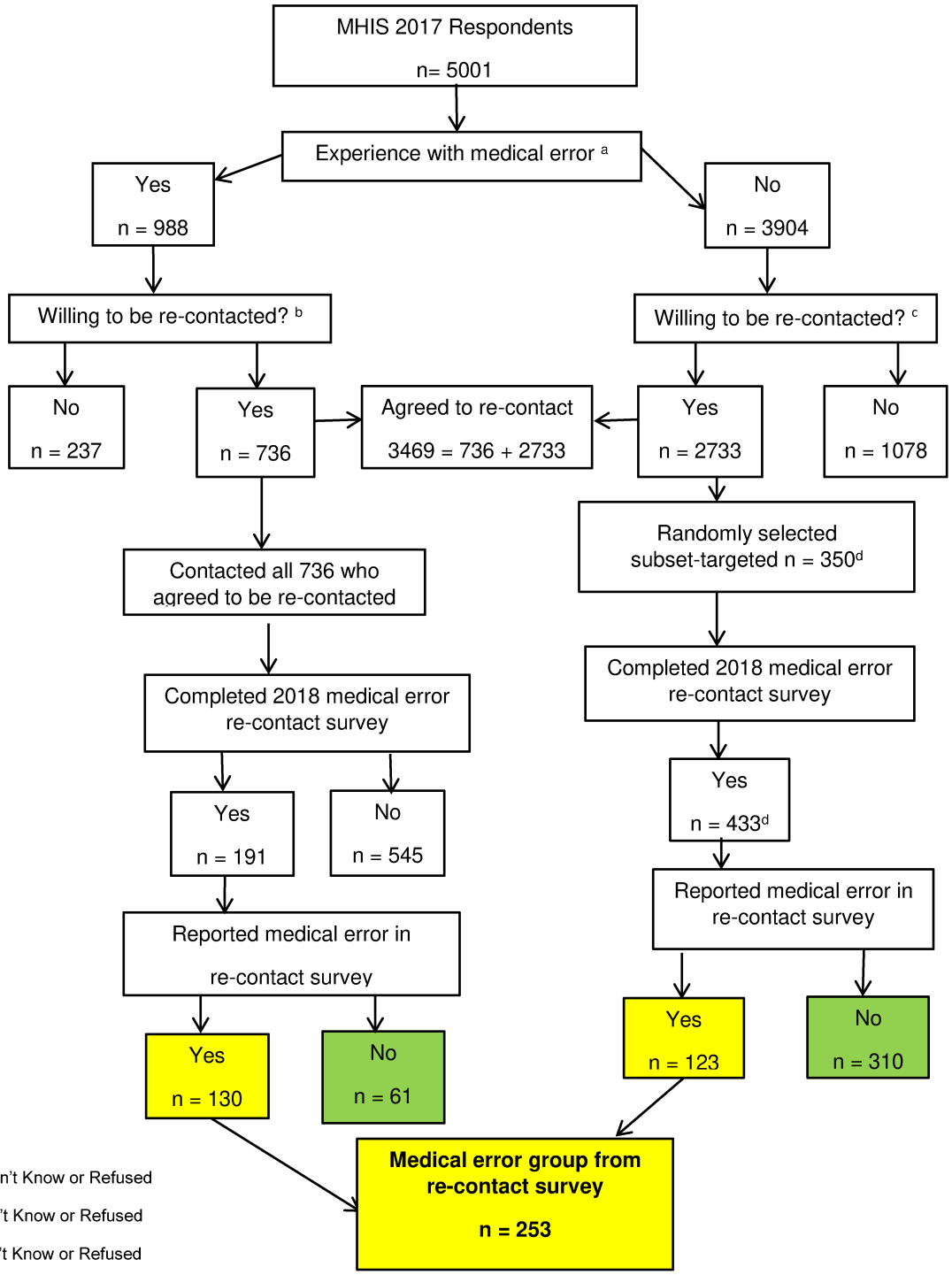
Figure 1: Sample Selection



a) n = 109 Don't Know or Refused

b) n = 15 Don't Know or Refused

c) n = 93 Don't Know or Refused

d) Among respondents who reported no medical error in the 2017 survey, 350 were randomly selected for the 2018 re-contact survey. Once in the field, 123 of these respondents reported a medical error in 2018 and crossed over to the medical error group. Consequently, a total of 433 respondents who originally reported no medical error in 2017 were actually contacted to determine the comparison sample in 2018.

Medical error group 253 = 130 + 123 (crossover)

Comparison sample 371 = 310 + 61 (crossover)

Table 2: Characteristics Among Those With Medical Error Experience Who Agreed to Re-contact Versus Not in 2017 MHIS Survey (n=988)

	Yes n (%)[b]	No n (%)
Age (years) (n=967)[a]	**n=727**	**n=240**
<18	89 (12)	21 (9)
19-64	458 (63)	148 (62)
≥65	180 (25)	71 (29)
Gender (n=986)	**n=736**	**n=250**
Male	333 (45)	122 (49)
Female	403 (55)	128 (51)
Education (n=898)	**n=662**	**n=236**
Less than high school	40 (6)	11 (5)
High school	142 (21)	53 (22)
Associates degree or some college	172 (26)	60 (25)
College graduate	164 (25)	58 (25)
Postgraduate	144 (22)	54 (23)
Race/Ethnicity (n=946)	**n=710**	**n=236**
Non-Hispanic white	587 (83)	201 (85)
Non-Hispanic black	26 (3)	15 (6)
Non-Hispanic other	34 (5)	8 (3)
Hispanic	63 (9)	12 (5)
Income (n=863)	**n=680**	**n=183**
<139% federal poverty level	147 (22)	47 (26)
≥139% to <300% federal poverty level	138 (20)	37 (20)
≥300% to <400% federal poverty level	59 (9)	23 (13)
≥400% federal poverty level	336 (49)	76 (41)
Medical Error Characteristics		
Medical error was in own or MHIS target's care (n=988)	**n=736**	**n=252**
Yes	201 (27)	70 (28)
No	535 (73)	182 (72)
Health consequences of the error (n=970)	**n= 723**	**n=247**
Serious health consequences	438 (61)	152 (62)
Minor health consequences	209 (29)	65 (26)
No health consequences	76 (10)	30 (12)

[a] Sample sizes vary due to respondents responding don't know or refusing to answer the question.

[b] Unweighted percentages

Table 3: Characteristics of Respondents Who Originally Reported Medical Error in 2017 MHIS Survey and were Re-contacted versus Not Re-contacted in 2018 (n=736)

	Re-contacted	
	Yes	No
	n (%)[b]	n (%)
Age (years) (n=727)[a]	**n=187**	**n=540**
<18	24 (13)	65 (12)
19-64	112 (60)	346 (64)
≥65	51 (27)	129 (24)
Gender (n=736)	**n= 191**	**n= 545**
Male	90 (47)	243 (45)
Female	101 (53)	302 (55)
Education (n=662)	**n=172**	**n=490**
Less than high school	10 (6)	30 (6)
High school	38 (22)	104 (21)
Associates degree or some college	39 (23)	133 (27)
College graduate	51 (30)	113 (23)
Postgraduate	34 (20)	110 (22)
Race/Ethnicity (n=710)	**n=185**	**n=525**
Non-Hispanic white	158 (85)	429 (82)
Non-Hispanic black	6 (3)	20 (4)
Non-Hispanic other	12 (7)	22 (4)
Hispanic	9 (5)	54 (10)
Income (n=680)	**n=176**	**n=504**
<139% federal poverty level	37 (21)	110 (22)
≥139% to <300% federal poverty level	42 (24)	96 (19)
≥300% to <400% federal poverty level	19 (11)	40 (8)
≥400% federal poverty level	78 (44)	258 (51)
Medical Error Characteristics		
Medical error was in own or MHIS target's care (n=736)	**n= 191**	**n=545**
Yes	66 (35)*	135 (25)
No	125 (65)	410 (75)
Health consequences of the error (n=723)	**n=186**	**n=537**
Serious health consequences	122 (66)	316 (59)
Minor health consequences	42 (22)	167 (31)
No health consequences	22 (12)	54 (10)

[a]Sample sizes vary due to respondents responding don't know or refusing to answer the question.
[b]Unweighted percentages.
*Chi-square is significant at $P \leq 0.05$

Table 4: Characteristics of Consistent and Non-Consistent Reporters of Medical Error in 2018 Re-contact Medical Error Survey (n=253)

	Consistent Reporter	
	Yes	No
	n (%)[b]	n (%)
Age (years) (n=246)[a]	**n=160**	**n=86**
<18	17 (11)	7 (8)
19-64	103 (64)	54 (63)
≥65	40 (25)	25 (29)
Gender (n=253)	**n=165**	**n=88**
Male	62 (38)	43 (49)
Female	103 (62)	45 (51)
Education (n=237)	**n=154**	**n=83**
Less than high school	12 (8)	3 (4)
High school	28 (18)	15 (18)
Associates degree or some college	39 (25)	15 (18)
College graduate	44 (29)	25 (30)
Postgraduate	31 (20)	25 (30)
Race/Ethnicity (n=248)	**n=162**	**n=86**
Non-Hispanic white	136 (84)	77 (90)
Non-Hispanic black	6 (4)	3 (3)
Non-Hispanic other	12 (7)	3 (3)
Hispanic	8 (5)	3 (3)
Income (n=236)	**n=153**	**n=83**
<139% federal poverty level	34 (22)	14 (17)
≥139% to <300% federal poverty level	33 (22)	20 (24)
≥300% to <400% federal poverty level	14 (9)	8 (10)
≥400% federal poverty level	72 (47)	41 (49)
Medical Error Characteristics		
Who medical error happened to (n=251)	**n=164**	**n=87**
Self	67 (41)	36 (41)
Spouse/Child	35 (21)	26 (30)
Other	62 (38)	25 (29)
Did more than one medical error happen to you or a household or family member? (n=252)	**n=164**	**n=88**
Yes	66 (40)*	16 (18)
No	98 (60)	72 (82)
Where medical error happened (n=253)	**n=165**	**n=88**
Hospital (not ER)	71 (43)	41 (47)
Ambulatory care/doctor's office	49 (30)	26 (30)
ER	15 (9)	11 (12)
Other	30 (18)	10 (11)

[a]Sample sizes vary due to respondents responding don't know or refusing to answer the question.
[b]Unweighted percentage.
*Chi-square is significant at $P \leq 0.05$

Response Rate Calculation

Completes / Completes + Confirmed Non-respondents + (Confirmed Unscreened Households * e1) + (Unconfirmed Households * e1 * e2).

Where:

E1 = estimate of screener eligibility = Confirmed eligible respondents / (Confirmed eligible respondents + confirmed not eligible respondents)

E2 = estimate of household eligibility = Confirmed eligible households / (Confirmed eligible households + confirmed not eligible households)

Thus:

Medical Errors sample:

RR3 = 191 / 191 + 0 + (146 * .81) + (245 * .79 * .81) = 0.409

E2 = 191 / 191 + 45

E1 = 382 / 382 + 100

0.409*0.246 (MHIS response rate) = 0.101

Appendix B: Properties of the Open Communication Index

We assessed open communication based on respondent report of whether the care team or anyone at the place where the error occurred: (1) acknowledged the error; (2) spoke openly and truthfully about it; (3) spoke about it in a manner easily understood; (4) conveyed information about the health consequences of the error; (5) welcomed questions about the error; or (6) provided opportunities to express feelings about the error. Of the 246 responses to the individual questions used to develop the open communication index, the most common form of open communication received was the offer to ask questions about the perceived error (46%) (Table 5); the least prevalent was whether the event was acknowledged as an error (29%). Thirty one percent reported getting information needed to understand how the perceived medical error would impact their health, 34% reported the care team spoke openly or truthfully about the error, and 39% reported they were given a chance to express feelings about the error and the care team spoke about the error in an easy to understand way.

An equal-weighted count of these elements yielded a Cronbach's alpha of 0.839 indicating high internal consistency. To examine threshold effects related to open communication, we categorized respondents into four strata: no reported communication, communication involving 1-2 elements, 3-4 elements or 5-6 elements. When categorizing the elements of the open communication index into strata, 34% percent reported that they received no communication about the error, 31% reported 1-2 elements of open communication, 12% 3-4 elements and 24% 5-6 elements (Table 5).

To test the robustness of the results regarding open communication, we also tested several alternatives to the open communication index in the logistic regression models examining the impact of open communication on the three outcomes of interest: emotional harms, health care trust, and health care avoidance. These alternatives included a version normalized to between 0 and 1, a factor-based weighting version with weights based on the inter-item correlations, and an inverse proportional weighting

version that weighted questions in the index that had lower prevalence more heavily. The linear form of each of these versions of the index was used in the logistic regression models (Table 6). As results were qualitatively similar to open communication index stratified into 0, 1-2, 3-4 and 5-6 elements, we report only the findings from stratified version in the main paper (Figures 2 and 3 in manuscript).

Respondents were also asked to characterize their overall satisfaction with post-error communication and whether they felt cared for by the team. We used the responses to these questions to further validate our measure of open communication. There was a positive relationship between greater open communication and each of these questions (Table 7).

Prentice JC, *et al. BMJ Qual Saf* 2020;0:1–12. doi: 10.1136/bmjqs-2019-010367

Table 5: Prevalence of Open Communication (n=246)

	n (%)[a]
Elements of Open Communication	
Did anyone at the place where the error occurred acknowledge that an error had occurred?	71 (29)
Did anyone on the care team speak openly or truthfully about the medical error?	84 (34)
Did anyone on the care team give a chance to ask questions about the medical error?	113 (46)
Did anyone on the care team give a chance to express feelings about the medical error?	96 (39)
Did anyone on the care team give information needed to understand how the medical error would affect health?	76 (31)
Did anyone associated with the care team speak about the medical error in an easy to understand way?	95 (39)
Number of open communication elements experienced by respondents	
No communication	83 (34)
1-2 elements	75 (31)
3-4 elements	29 (12)
5-6 elements	59 (24)

[a]Percentages are adjusted by sampling weights to reflect the distribution of the adult population in Massachusetts.

Table 6: Odds Ratio from Logistic Regression Predicting Persistent Impacts of Medical Error

	Emotional					Healthcare Avoidance			Trust
	Still sad (n=224)[a]	Still angry (n=224)	Still anxious (n=224)	Still depressed (n=224)	Still feeling abandoned or betrayed (n=224)	Avoid doctor involved in error (n=190)	Avoid facility involved in error (n=194)	Avoid medical care in general (n=211)	Less trusting of medical care after error (n=223)
Models without apology									
Model 1: Normalized open communication index									
Open communication	0.25**	0.44*	0.45	0.23**	0.09**	0.17**	0.08**	0.49	0.82
Model 2: Factor weighted open communication index									
Open communication	0.25**	0.43*	0.44	0.23**	0.09**	0.18**	0.08**	0.49	0.83
Model 3: Inverse proportional weighted open communication index									
Open communication	0.25**	0.43*	0.44	0.23**	0.09**	0.17**	0.08**	0.48	0.82
Models with apology									
Model 1: Normalized open communication index									
Open communication	0.27**	0.64	0.81	0.39	0.18**	0.28**	0.08**	0.92	0.78
Received apology (reference = no)	0.85	0.5	0.33**	0.32	0.18**	0.42*	0.96	0.28**	1.09
Model 2: Factor weighted open communication index									
Open communication	0.28**	0.62	0.77	0.38	0.17**	0.29**	0.08**	0.91	0.79
Received apology (reference = no)	0.84	0.5	0.33**	0.32*	0.18**	0.42*	0.94	0.28**	1.08
Model 3: Inverse proportional weighted open communication index									
Open communication	0.27**	0.64	0.80	0.39	0.17**	0.28**	0.08**	0.90	0.78
Received apology (reference = no)	0.85	0.50	0.33**	0.32	0.18**	0.42*	0.95	0.28**	1.09

*$P \leq 0.10$, **$P \leq 0.05$

[a]Logistic regression models also controlled for the initial financial and physical impacts of the error as well as other individual characteristics that might alter respondents' assessment of the error experience: who experienced the error, whether the respondent was responsible for the medical care of the individual who experienced the error, how long since the error occurred, gender and respondents' education level.

Table 7: Validation Tests of Open Communication

	Satisfied with Communication about Error (n=229)[a]		Felt cared for by care team (n=246)	
	Yes	**No**	**Yes**	**No**
Open Communication	**n (%)[b]**	**n (%)**	**n (%)**	**n (%)**
No communication about error	2 (3)*	66 (97)	31 (37)*	52 (63)
Affirmed in 1-2 ways	8 (11)	67 (89)	14 (19)	61 (81)
Affirmed in 3-4 ways	17 (61)	11 (39)	21 (73)	8 (27)
Affirmed in 5-6 ways	51 (87)	7 (13)	54 (91)	5 (9)

[a]Sample sizes vary due to respondents reporting "Don't know" or Refused or N/A

[b]Percentages are adjusted by sampling weights to reflect the distribution of the adult population in Massachusetts

*Chi-square significant at $P \leq 0.05$ based on unweighted percentages

Appendix C: Full Regression Models

Table 8: Odds Ratio from Logistic Regression Predicting Persistent Impacts of Medical Error Excluding Apology

	Emotional					Healthcare Avoidance			Trust
	Still sad (n=224)[a]	Still angry (n=224)	Still anxious (n=224)	Still depressed (n=224)	Still feeling abandoned or betrayed (n=224)	Avoid doctor involved in error (n=190)	Avoid facility involved in error (n=194)	Avoid medical care in general (n=211)	Less trusting of medical care after error (n=223)
Open communication (reference=No communication)									
1-2 elements	0.41*	0.91	0.87	0.56	0.42*	0.66	0.39**	1.08	0.90
3-4 elements	0.92	1.19	0.56	0.96	0.17**	0.34**	0.16**	0.46	0.86
5-6 elements	0.17**	0.38*	0.53	0.16**	0.10**	0.21**	0.10**	0.55	0.81
Medical error happened 3-6 years ago versus less than 3 years ago	1.38	0.49**	1.19	1.11	1.29	1.53	1.43	1.04	0.73
Physical impact from error (reference = no impact)									
Somewhat or slightly impacted	2.5	1.38	1.81	4.46**	3.23*	4.12**	3.66**	2.37*	1.84
Died, extremely or strongly impacted	7.52**	3.03**	3.09**	8.10**	4.11**	2.46*	3.01**	1.90	2.33**
Financial impact (reference = no impact)									
Reported finances impacted one way	1.22	0.56	1.01	0.65	0.93	2.01	2.31*	0.82	1.28
Reported finances impacted ≥2 ways	1.75	1.43	2.17*	1.09	2.37*	2.10*	2.60**	2.32**	2.58**
Who experienced error (ref=experienced error themselves)[b]									
Did not experience error but responsible for medical care of individual that experienced error	1.65	0.69	0.74	0.95	0.49	1.32	1.27	0.98	1.07
Did not experience error and not responsible for medical care of individual that experienced error	0.81	0.80	0.23**	0.39**	0.19**	0.69	0.55	0.38**	0.52*

Continued…	**Emotional**			**Healthcare Avoidance**					**Trust**
	Still sad (n=224)[a]	Still angry (n=224)	Still anxious (n=224)	Still depressed (n=224)	Still feeling abandoned or betrayed (n=224)	Avoid doctor involved in error (n=190)	Avoid facility involved in error (n=194)	Avoid medical care in general (n=211)	Less trusting of medical care after error (n=223)
Education level (reference = ≤ high school graduate)									
Associates degree or some college	2.84*	0.81	1.64	2.36	2.79*	0.97	0.76	0.36**	0.88
College graduate	1.63	0.6	1.67	0.64	3.42**	0.88	0.99	0.44*	0.97
Postgraduate work	3.27**	0.84	1.06	1.10	4.03**	1.32	1.95	0.41*	0.95
Female	1.03	1.64	1.28	1.34	1.42	1.45	1.00	0.94	1.92**
Constant	0.05**	0.39*	0.18**	0.08**	0.07**	0.48	0.88	0.72	0.72

*$P \leq 0.10$, **$P \leq 0.05$

[a]Sample sizes vary due to respondents reporting "Don't know" or Refused or N/A

Table 9: Odds Ratio from Logistic Regression Predicting Persistent Impacts of Medical Error Including Apology

	Emotional					Healthcare Avoidance			Trust
	Still sad (n=224)[a]	Still angry (n=224)	Still anxious (n=224)	Still depressed (n=224)	Still feeling abandoned or betrayed (n=224)	Avoid doctor involved in error (n=190)	Avoid facility involved in error (n=194)	Avoid medical care in general (n=211)	Less trusting of medical care after error (n=223)
Open communication (reference=No communication)									
1-2 elements	0.42*	1.00	1.00	0.65	0.49	0.74	0.39*	1.26	0.89
3-4 elements	0.98	1.47	0.79	1.35	0.24**	0.42*	0.17**	0.60	0.84
5-6 elements	0.20**	0.55	0.93	0.27	0.19*	0.36*	0.11**	1.02	0.77
Received apology (reference=no)	0.81	0.49	0.32**	0.30*	0.20*	0.40*	0.87	0.28**	1.09
Medical error happened 3-6 years ago versus less than 3 years ago	1.39	0.49**	1.23	1.13	1.36	1.56	1.44	1.08	0.73
Physical impact from error (reference = no impact)									
Somewhat or slightly impacted	2.47	1.31	1.73	4.20**	3.15*	3.94**	3.63**	2.27*	1.85
Died, extremely or strongly impacted	7.58**	3.10**	3.20**	8.37**	4.20**	2.44*	3.02**	1.96	2.32**
Financial impact (reference = no impact)									
Reported finances impacted one way	1.23	0.56	0.99	0.67	0.93	1.97	2.30*	0.79	1.28
Reported finances impacted ≥2 ways	1.74	1.42	2.15*	1.05	2.40*	2.13*	2.60**	2.38**	2.58**
Who experienced the error (ref=experienced error themselves)[b]									
Did not experience error but responsible for medical care of individual that experienced error	1.64	0.68	0.74	0.89	0.47	1.29	1.26	0.91	1.07
Did not experience error and not responsible for medical care of individual that experienced error	0.80	0.80	0.22**	0.38**	0.18**	0.68	0.55	0.37**	0.52*

Continued…	**Emotional**					**Health Care Avoidance**			**Trust**
	Still sad (n=224)[a]	Still angry (n=224)	Still anxious (n=224)	Still depressed (n=224)	Still feeling abandoned or betrayed (n=224)	Avoid doctor involved in error (n=190)	Avoid facility involved in error (n=194)	Avoid medical care in general (n=211)	Less trusting of medical care after error (n=223)
Education level (reference = ≤ high school graduate)									
Associates degree or some college	2.85*	0.84	1.79	2.48*	2.93*	1.04	0.77	0.37**	0.87
College graduate	1.65	0.62	1.82	0.69	3.74**	0.90	1.00	0.45*	0.96
Postgraduate work	3.23**	0.81	1.03	1.02	3.96**	1.30	1.95	0.40*	0.96
Female	1.03	1.66	1.35	1.32	1.49	1.52	1.01	0.99	1.91**
Constant	0.05**	0.39*	0.17**	0.08**	0.07**	0.48	0.88	0.70	0.73

*$P \leq 0.10$, **$P \leq 0.05$

[a]Sample sizes vary due to respondents reporting "Don't know" or Refused or N/A

Appendix D: Sensitivity Analyses Excluding Respondents Not Closely Connected to Perceived Error

Some respondents reporting a perceived error were not closely connected to the error. For example, the error happened to extended family members living outside of the household and the respondent was not responsible for the medical care of the family member that reported the error. This raises the question of whether these respondents can accurately report on the relationship between open communication and the long-term impacts of the self-reported medical error.

Even if a respondent does not self-report experiencing the error and are not responsible for the medical care of the individual who did, there may still be caregiver burden that impacts their outcomes.[1] For example, the survey respondent may be a daughter and she reported on an error that her mother experienced. Her mother may be responsible for her own medical care but the daughter may experience caregiver burden such as the need to take time off work to take her mother to appointments for follow-up care that impacts her own emotions long-term as well as her future interactions with the health care system. Consequently, the universe of the "best respondents" who we can most closely make a link between open communication to outcomes is not always clear.

However, to examine the robustness of the results, we did try to identify a universe of "best respondents" and ran analyses limited only to this group. The information is collected over several questions which at times gives conflicting information. The survey starts (S1) by asking respondents whether a medical error was made in the last six years:

a) In their own care
b) In the care of someone else living in our household
c) In the care of someone in your family living outside of the household
d) Someone else not in your family or not living in your household
e) Or no medical error was made.

Respondents could choose more than one option. Everyone who reported A-C were considered to be the initial error group (n=253). Respondents choosing options D and E were assigned to the control group from the beginning. Recognizing group C may be biasing the results, sensitivity analyses further limited the self-reported error group as follows:

a) Respondents who said A-B in question S1

b) Respondents in group C in question S1 who later reported in Qn3 the error happened to themselves, their spouse or their child.

c) Respondents in group C in question S1 who later reported the error happened to a more extended family member (e.g. mother, father) but they were responsible for the medical care.

This excluded 60 respondents who reported the error happened to a more extended family member (e.g. mother, father, sibling, aunt) and they were not responsible for the medical care of the individual who was reported to have experienced the error. Excluding this group did not qualitatively change the overall results between open communication and each of the emotional and healthcare avoidance outcomes (see Table 10 and 11).

Reference:

1. Giovannetti ER, Wolff JL. Cross-survey difference in national estimates of numbers of caregivers of disabled older adults. Milbank Q [Internet]. 2010 Sep [cited 2019 Dec 4]; 88(3):310-349. Available from: https://www.ncbi.nlm.nih.gov/pubmed/20860574 DOI: 10.1111/j.1468-0009.2010.00602.x.

Table 10: Odds Ratio from Logistic Regression Predicting Persistent Impacts of Medical Error Excluding Apology Limited to Respondents Closely Connected to Error[a]

	Emotional					Healthcare Avoidance			Trust
	Still sad (n=173)[b]	Still angry (n=173)	Still anxious (n=173)	Still depressed (n=173)	Still feeling abandoned or betrayed (n=173)	Avoid doctor involved in error (n=152)	Avoid facility involved in error (n=153)	Avoid medical care in general (n=165)	Less trusting of medical care after error (n=173)
Open communication (reference=No communication)									
1-2 elements	0.52	0.89	1.08	1.12	0.37**	0.80	0.36*	0.89	0.77
3-4 elements	1.24	1.00	0.86	1.87	0.14**	0.22**	0.11**	0.43	1.60
5-6 elements	0.13**	0.18**	0.74	0.31	0.06**	0.11**	0.05**	0.65	0.78
Medical error happened 3-6 years ago versus less than 3 years ago	1.81	0.32**	1.26	0.99	0.95	1.24	1.17	0.93	0.73
Physical impact from error (reference = no impact)									
Somewhat or slightly impacted	3.59*	1.16	1.90	5.38**	3.61**	3.95**	2.56*	1.94	2.15*
Died, extremely or strongly impacted	8.29**	3.03**	3.69**	8.08**	3.51**	2.43*	2.28	1.58	4.23**
Financial impact (reference = no impact)									
Reported finances impacted one way	0.62	0.33*	0.70	0.38	0.83	2.36	2.77*	1.52	0.97
Reported finances impacted ≥2 ways	1.29	1.33	1.82	0.92	2.55	2.52*	3.05**	3.50**	1.88
Who experienced error (ref=experienced error themselves)[b]									
Did not experience error but responsible for medical care of individual that experienced error	1.90	0.74	0.70	0.99	0.48	1.79	1.74	0.86	0.98
Did not experience error and not responsible for medical care of individual that experienced error	0.92	0.97	0.32**	0.25**	0.21**	0.51	0.47	0.32**	0.58

Continued…	**Emotional**			**Healthcare Avoidance**					**Trust**
	Still sad (n=173)[b]	Still angry (n=173)	Still anxious (n=173)	Still depressed (n=173)	Still feeling abandoned or betrayed (n=173)	Avoid doctor involved in error (n=152)	Avoid facility involved in error (n=153)	Avoid medical care in general (n=165)	Less trusting of medical care after error (n=173)
Education level (reference = ≤ high school graduate)									
Associates degree or some college	2.00	1.07	1.69	2.01	3.65**	1.30	1.03	0.30**	1.09
College graduate	0.96	0.65	1.36	0.34	2.36	1.94	1.30	0.35**	1.04
Postgraduate work	2.99*	0.79	1.27	1.15	6.16**	1.16	1.13	0.38*	1.23
Female	0.80	1.75	1.19	0.79	1.49	1.23	0.98	1.10	2.56**
Constant	0.06**	0.53	0.17**	0.11**	0.08**	0.45	1.23	0.69	0.50

*$P \leq 0.10$, **$P \leq 0.05$

[a]These models exclude 60 respondents who were not closely connected to the perceived medical error.

[b]Sample sizes vary due to respondents reporting "Don't know" or Refused or N/A

Table 11: Odds Ratio from Logistic Regression Predicting Persistent Impacts of Medical Error Including Apology Limited to Respondents Closely Connected to Error[a]

	Emotional					Healthcare Avoidance			Trust
	Still sad (n=173)[b]	Still angry (n=173)	Still anxious (n=173)	Still depressed (n=173)	Still feeling abandoned or betrayed (n=173)	Avoid doctor involved in error (n=152)	Avoid facility involved in error (n=153)	Avoid medical care in general (n=165)	Less trusting of medical care after error (n=173)
Open communication (reference=No communication)									
1-2 elements	0.56	0.96	1.25	1.30	0.46	0.94	0.37*	1.02	0.76
3-4 elements	1.52	1.16	1.23	2.50	0.19**	0.27**	0.11**	0.53	1.53
5-6 elements	0.18*	0.23*	1.31	0.51	0.15*	0.18**	0.05**	1.01	0.73
Received apology (reference=no)	0.55	0.58	0.33**	0.35	0.12*	0.38*	0.83	0.40	1.13
Medical error happened 3-6 years ago versus less than 3 years ago	1.87	0.32**	1.36	1.01	1.03	1.35	1.19	0.99	0.73
Physical impact from error (reference = no impact)									
Somewhat or slightly impacted	3.50*	1.12**	1.87	5.08**	3.53*	3.97**	2.56*	1.93	2.16*
Died, extremely or strongly impacted	8.58**	3.07**	3.93**	8.16**	3.56**	2.50*	2.31	1.68	4.21**
Financial impact (reference = no impact)									
Reported finances impacted one way	0.64	0.33*	0.68	0.40	0.79	2.14	2.74*	1.45	0.98
Reported finances impacted ≥2 ways	1.28	1.32	1.78	0.90	2.52	2.43*	3.03**	3.46**	1.89
Who experienced the error (ref=experienced error themselves)[b0.97]									
Did not experience error but responsible for medical care of individual that experienced error	1.87	0.74	0.70	0.94	0.45	1.80	1.72	0.82	0.97
Did not experience error and not responsible for medical care of individual that experienced error	0.94	0.98	0.32**	0.25**	0.20*	0.53	0.47	0.33**	0.57

Continued…	Emotional					Health Care Avoidance			Trust
	Still sad (n=173)[b]	Still angry (n=173)	Still anxious (n=173)	Still depressed (n=173)	Still feeling abandoned or betrayed (n=173)	Avoid doctor involved in error (n=152)	Avoid facility involved in error (n=153)	Avoid medical care in general (n=165)	Less trusting of medical care after error (n=173)
Education level (reference = ≤ high school graduate)									
Associates degree or some college	2.02	1.10	1.89	2.18	3.99**	1.45	1.06	0.32**	1.06
College graduate	1.03	0.67	1.55	0.40	2.67	2.11	1.32	0.37*	1.02
Postgraduate work	2.96*	0.76	1.31	1.1	6.23*	1.22	1.14	0.39*	1.22
Female	0.80	1.77	1.25	0.77	1.58	1.27	0.99	1.13	2.54**
Constant	0.06**	0.52	0.15**	0.11**	0.08**	0.41	1.21	0.64	0.50

*$P \leq 0.10$, **$P \leq 0.05$

[a]These models exclude 60 respondents who were not closely connected to the perceived medical error.

[b]Sample sizes vary due to respondents reporting "Don't know" or Refused or N/A

Appendix E: Massachusetts Medical Error Re-contact Survey

INTVLANG`[INTVLANG] - Language of Interview

01 ENGLISH

02 SPANISH

Adult Respondents Age 18 and Older who live in Massachusetts and completed Q1012 and agreed to be re-contacted.

Quotas (Final N=700):

- N~350 who have had or someone in their household had a medical error in the past 6 years
- N~350 who have NOT had or someone in their household had a medical error in the past 6 years

(PN: ANSWERING MACHINE MESSAGE SHOULD BE LEFT ON THE 1st CALL FOR THE CELL AND LL SAMPLES)
(ANSWERING MACHINE MESSAGE FOR LL AND CELL)

VOICEMAIL [VOICEMAIL] Hello, I'm calling from SSRS on behalf of the patient safety agency of the Commonwealth of MA. I am calling because recently you were kind enough to participate in the Massachusetts Health Survey and said you were willing to be contacted about future studies. We would like to include your thoughts in a new survey. The purpose is to understand the experiences that Massachusetts residents have had with healthcare.

Your participation is voluntary and we will pay you $10 for your time. Please call us toll-free at 844-284-9393 to participate.

(PN: START TIMER)

(ASK IF RESPONDENT NAME IS NOT MISSING)

INTRO1 [INTRO1] Hello. May I speak with {RESPONDENT NAME}?

01	IF ASKED "WHO'S CALLING?"	**[GO TO INTRO1a]**
02	SUBJECT SPEAKING/COMING TO PHONE	**[GO TO VERIFY1]**
03	SUBJECT LIVES HERE – NEEDS APPOINTMENT	**[SET APPOINTMENT]**
04	SUBJECT KNOWN, LIVES AT ANOTHER NUMBER	**[COLLECT NEW NUMBER]**
05	NEVER HEARD OF SUBJECT OR NO NUMBER	**[THANK AND TERM – CODE NON-LOCATABLE]**
06	TELEPHONE COMPANY RECORDING	**[CODE NON-WORKING]**
09	REFUSED	**[THANK AND TERM. CODE AS RQINTRO1]**

IF INTRO1 = 01, GO TO INTRO1a

IF INTRO1 = 02, GO TO VERIFY1

(ASK IF RESPONDENT NAME IS MISSING OR INTRO1 =01)

INTRO1a [INTRO1a] Hi, I am calling on behalf of the XXXX XXXXXX XXXXX XXXXX XXXXX . I am calling because on {MHIS Interview Date} we spoke to a {female/male} who is {Respondent Age} years old who participated in the Massachusetts Health Survey and {she/he} said {she/he} would be willing to be contacted about future surveys. May I please speak with {her/him}?

01	SUBJECT SPEAKING	**[GO TO VERIFY1]**
02	SUBJECT COMING TO PHONE	**[REPEAT INTRO1a]**
03	SUBJECT LIVES HERE – NEEDS APPOINTMENT	**[SET APPOINTMENT]**
04	NEVER HEARD OF SUBJECT OR NO NUMBER	**[THANK AND TERM – CODE NON-LOCATABLE]**
09	REFUSED	**[THANK AND TERM. CODE AS RQINTRO1a]**

IF INTRO1a = 01, GO TO 'VERIFY1'

(ASK IF INTRO1=02 OR INTRO1a=01)

VERIFY1 [VERIFY1] Hi, my name is (INTERVIEWER NAME) from SSRS calling on behalf of the XXXXX XXXXX XXXXX XXXXX XXXXXX. You previously participated in the Massachusetts Health Survey and said you would be willing to be contacted about future surveys.

[IF NEEDED: SSRS previously conducted the Massachusetts Health Survey]

I am calling because the XXXX XXXXX XXXXXX XXXX XXXXXX XXXXXX is conducting a phone survey aimed at understanding the experiences that Massachusetts residents have had with healthcare. If you agree to complete the survey you will receive $10 for your time.

This study is separate from the Massachusetts Health Survey which you completed earlier this year. Just to make sure that I'm speaking to the correct person, you are a {gender} age {Age}. Is that correct?

01	YES, CORRECT EXACT MATCH	**[GO TO PN_CELL]**
02	YES, CORRECT MATCH WITH QUALIFICATION	**[NOTE QUALIFICATIONS AND GO TO PN_CELL]**
03	NO, NOT CORRECT PERSON	**[GO TO VERIFY2]**
99	REFUSED	**[THANK AND TERM. CODE AS RQVERIFY1]**

IF VERIFY1 = 1,2, GO TO PN_CELL

IF VERIFY1 = 99, THANK & TERM

(ASK IF VERIFY1=03 OR ALL AGE INFORMATION FROM MAIN CHIS IS DK OR REFUSED)

VERIFY2 [VERIFY2] Did you or another member of your household participate in the Massachusetts Health Survey?

[IF NEEDED: The Massachusetts Health Survey was a telephone survey that took about 20 minutes of your time. You were called by an interviewer, like myself, from SSRS in {Month and Year of MHIS Interview}. In the survey, you were asked questions about your health, the types of things you do to stay healthy, and your experiences in receiving care. Did we interview you or someone else in your household?]

01 YES RESPONDENT **[GO TO PN_CELL]**

02 YES ANOTHER HOUSEHOLD MEMBER **[ASK FOR OTHER HHM – GO TO INTRO1A]**

03 NO – NO ONE IN HOUSEHOLD WAS INTERVIEWED **[GO TO PROB – CODE FOR SUPERVISOR REVIEW]**

98 DON'T KNOW **[GO TO PROB – CODE FOR SUPERVISOR REVIEW]**

99 REFUSED **[GO TO PROB – CODE FOR SUPERVISOR REVIEW]**

IF VERIFY2 =01, GO TO PN_CELL

IF VERIFY2 =02, GO TO INTRO1a

(ASK IF VERIFY2=3,98,99)

PROB[PROB] We will check to make sure we called the right household. Thank you for your time. My supervisor may call back to verify the answers I have recorded. **[THANK & TERM]**

'PN_CELL' [PN_CELL] –

IF CELL = 1 THEN CONTINUE TO 'CELL1'

ELSE GO TO 'CONSENT_SCRIPT'

(ASK IF CELL=1)

CELL1[CELL1] Are you driving right now?

01 Yes

02 No

99 Refused

IF CELL1 = 01,99 GO TO 'CELL2'

IF CELL1 = 02, GO TO 'CONSENT_SCRIPT'

(ASK IF CELL1=1,99)

CELL2[CELL2] When would be a better time to call you?

[IF RESPONDENT INDICATES THAT THEY ARE WILLING TO TALK NOW: "I'm sorry, but for your safety we're not able to do the interview while you're driving. When would be a better time to call you?"] **[SET CALLBACK] [THANK AND TERM]**

(ASK IF (VERIFY1=01,02 OR VERIFY2=01) AND (CELL1=02 OR LL SAMPLE)

CONSENT_SCRIPT [CONSENT_SCRIPT] Before we get started, I am going to tell you more about the study.

First, your participation is voluntary.

Second, most of the questions I'll be asking you are new. But a few of the questions might sound familiar from the last time we called. We're repeating those questions to make sure that we understood your answers correctly then. We also want to give you the chance to answer differently if your thoughts or experiences have changed since last spring.

Last time, we talked about medical errors. Sometimes when people receive medical care, mistakes are made. Sometimes these mistakes result in no harm; other times, they may result in additional or prolonged treatment, disability, or death. These types of mistakes are called medical errors. I'd like to ask some questions about medical errors. If for any of these questions, you feel you haven't heard enough to have an opinion, just say so.

[INTERVIEWER NOTES]

[IF WANTS INFORMATION ABOUT RIGHTS OF RESEARCH SUBJECTS: Please contact the Office for the Protection of Research Subjects at 310-825-8714.**]**

(ASK ALL)

S1. In the past **six** years – that would be since about 2012 - was a medical error made (READ LIST)? [PN: Select all the apply]

01 In your own care

02 In the care of someone else living in your household

03 In the care of someone in your family living outside of the household

04 Someone else not in your family or not living in your household

05 Or was no medical error made

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

If S1=01, 02, or 03 Qualify as Medical Error (GROUP=1)

If S1=04, 05 or 98 Qualify as Control (GROUP=2)

If S1=99 TERMINATE

(PN: END TIMER)

MAIN SURVEY

(PN: START TIMER)

(PN/INTERVIEWER IF AT ANY TIME IN THE Q'NAIRE THE RESPONDENT WANTS TO BE CALLED BACK OR SEEMS HESITANT TO CONTINUE [LIKELY TO REF TO CONTINUE, QUICKLY GO TO Q.42 AND ASK THAT QUESTION]

SECTION A: ABOUT THE MEDICAL ERROR

(ASK GROUP=1)

Q1. Did more than one medical error happen to you or a household or family member in the past **six** years?

01 Yes

02 No

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

(ASK Q1=1)

Though you've experienced more than one medical error, please think of the one you remember best when answering the next set of questions.

(ASK GROUP=1)

Q2 About how long ago did this medical error happen? Was it (READ LIST):

01 Less than a year ago

02 1 to 2 years ago

OR

03 3 to 6 years ago

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

(ASK GROUP=1)

Q3. Did the medical error happen to:

(READ LIST UNTIL RESPONSE IS ENDORSED)

01 You

02 Your spouse

03 Your child who lives in your home

04 Your child who lives outside of your home

05 A family member who is not your child or spouse [SPECIFY]_____

06 A person living in your home who is not related to you [SPECIFY]_____

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

(ASK Q3=2-99)

Q3a. Were you responsible for making decisions about this person's care at the time the medical error occurred?

01 Yes

02 No

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

(ASK GROUP=1)

Q4. In your own words, could you tell me more about the medical error that happened?

(READ IF Q1=1, "Though you've experienced more than one medical error, please think of the one you remember best when answering the next set of questions.")

(INTERVIEWER: RECORD RESPONSE VERBATIM, PROBE FOR CLARITY & TO THE NEGATIVE)

(INTERVIEWER: If respondent says "Don't know" or "Refused" say, "This information will be kept confidential. Any information you can provide will be extremely valuable. If you could tell me some information about what happened, who was involved, where the medical error occurred, and if you know, how or why it happened.")

(INTERVIEWER: Please probe until you have a good understanding of what the error was, and how it occurred.)

[PN Provide text box]

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

(ASK GROUP=1)

[PN: Pipe in "you" if Q3a=1 or Q3=1, pipe in "them" if Q3a=2,98,99]

Q4b. Did anyone at the place where the error occurred acknowledge to [you/them] that an error had occurred?

01 Yes

02 No

08 (DO NOT READ) Don't Know

09 (DO NOT READ) Refused

(IF Q4b = 02 OR 08, READ:)

That's just fine. Very often, patients experience a medical error that is not acknowledged by the healthcare professional or the facility involved. For all of the remaining questions, we will continue to refer to the events you described as "the medical error".

(READ IF Q4b=2,8,9)

For the rest of this survey, when we ask questions about the medical error, please think of the situation you just told us about.

(ASK GROUP=1 AND Q1 = 1)

Q5. What is it about this particular medical error that causes you to remember it the best? For example, is it because it was the most recent error, or the one that had the most serious consequences?

[PN Provide text box]

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

(ASK GROUP=1)

(INSERT "were you" IF Q3 = 1, "was the person this happened to" IF Q3 = 2-99)

Q6. Approximately how old [were you/was the person this happened to] when the medical error occurred?

(PROBE: Just your best guess is fine.)

(INTERVIEWER: If the respondent responds with a range, please enter the beginning of the range.)

[PN Provide Numeric response box that allow 1-80]

00 (DO NOT READ) Less than a year old

81 (DO NOT READ) 81 years or older

98 (DO NOT READ) DON'T KNOW

99 (DO NOT READ) REFUSED

(ASK GROUP=1)

Q7. What best describes the place where the medical error occurred?

(READ LIST UNTIL RESPONSE IS ENDORSED)

01 An emergency room

02 A hospital (INTERVIEWER NOTE: Not an emergency room)

03 A doctor's office or clinic

04 A nursing home or other long-term care facility

05 DELETED

06 A pharmacy

07 A dental office

08 At home

OR

09 Somewhere else [SPECIFY]_____

98 (DO NOT READ) DON'T KNOW

99 (DO NOT READ) REFUSED

(ASK GROUP=1)

Q8. Did this medical error occur in Massachusetts?

01 Yes

02 No

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

(ASK GROUP=1)

[PN: Pipe in "your" if Q3a=1 or Q3=1, pipe in "their" if Q3a=2,98,99]

Q9. It is often difficult to determine why medical experiences turn out as they do. Please give us your best sense of what might have led up to the medical error you've been describing?

(PROBE IF RESPONDENT DOES NOT PROVIDE DETAILED INFORMATION: Was it something that the doctor did? Or other medical staff? Did something specific about [your/their] health situation contribute to the medical error happening?)

(INTERVIEWER: RECORD RESPONSE VERBATIM, PROBE FOR CLARITY & TO THE NEGATIVE)

(INTERVIEWER: If the respondent says they are not sure the situation was a medical error say "Please think about the situation you described. Why do you think this happened?"

[PN Provide text box]

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

(ASK GROUP=1)

Q10. In your opinion, what if anything, could have been done differently to prevent this medical error from happening?

(PROBE IF RESPONDENT DOES NOT PROVIDE DETAILED INFORMATION: Could the doctor or other medical staff have done something either before the procedure or during? Could the place where the medical error occurred have done anything either before the procedure or during?)

(INTERVIEWER: RECORD RESPONSE VERBATIM, PROBE FOR CLARITY & TO THE NEGATIVE)

[PN Provide text box]

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

SECTION B: DISCOVERY OF AND RESPONSE TO THE MEDICAL ERROR

(ASK GROUP=1)

[PN: Pipe in "you" if Q3a=1 or Q3=1, pipe in "they/them/their" if Q3a=2,98,99]

[PN: Only show option 2 if Q7=1-7]

Q11. Which of the following best describes the way in which [you/they] first came to realize that a medical error happened?

01 [You/they] noticed that a medical error had been made

02 A healthcare professional such as a doctor, nurse, or other staff member at the place where the error occurred told [you/them]

03 Another healthcare professional told [you/them]

04 A family member or friend told [you/them]

OR

09 Some other way [SPECIFY]_____

98 (DO NOT READ) DON'T KNOW

99 (DO NOT READ) REFUSED

(ASK GROUP=1)

[PN: Pipe in "you" if Q3a=1 or Q3=1, pipe in "they/them/their" if Q3a=2,98,99]

Q12. Did [you/they] tell anyone outside of family and friends about the medical error?

01 Yes

02 No

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

(ASK Q12=1)

[PN: Pipe in "you" if Q3a=1 or Q3=1, pipe in "they/them/their" if Q3a=2,98,99]

[PN: Randomize items a-f, keeping items a/b together]

Q13. Did [you/they] [INSERT ITEM]?

01 Yes

02 No

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

a. Tell a healthcare professional, such as a doctor or nurse, at the place where the medical error occurred about the medical error

b. Tell a healthcare professional, such as a doctor or nurse, **NOT** at the place where the medical error occurred about the medical error

c. Tell an administrator at the place where the medical error occurred about the medical error

d. Tell [your/their] health insurer about the medical error

e. Report the medical error to a public or government agency

f. Speak to a lawyer about what had happened

(ASK IF Q12=1)

[PN: Pipe in "you" if Q3a=1 or Q3=1, pipe in "they/them/their" if Q3a=2,98,99]

[PN: Randomize items a-d]

Q14. Did [you/they] tell someone about the medical error because [INSERT ITEM]?

[PN: For subsequent items read: "How about [INSERT ITEM] (IF NEEDED READ: "Did [you/they] tell someone about the medical error because [INSERT ITEM]"]

01 Yes

02 No

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

a. [You/They] wanted the person responsible to be held accountable

b. [You/They] wanted to prevent the same medical error from happening to someone else

c. [You/They] were angry and wanted to get this off [your/their] chest

d. [You/They] wanted someone to help [you/them] cope with the problems caused by the medical error

e. Any other reason [SPECIFY]_____

(ASK Q12=2 and Q3a=2-99)

Q15. Do you know why no one besides family or friends was told about the medical error?

01 Yes

02 No

08 (DO NOT READ) Don't Know

09 (DO NOT READ) Refused

(ASK IF (Q12=2 AND (Q3a=1 or Q3=1)) OR (Q15=1))

[PN: Pipe in "you" if Q3a=1 or Q3=1, pipe in "they/them/their" if Q3a=2,98,99]

[PN: Only show item h if (Q3a=2,98,99)]

[PN: Randomize items a-i]

Q16. Would you say no one besides family or friends was told about the medical error because:

[PN: For subsequent items read: "How about [INSERT ITEM]"]

01 Yes

02 No

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

a. [You/They] didn't know how to report a medical error
b. [You/They] were afraid the doctor would stop treating [PN: EXCEPTION: Q3=1 "you"; Q3=2-9 "them"]
c. [You/They] didn't want to offend anyone
d. There was no way to report the medical error anonymously
e. [You/They] didn't think it would do any good
f. [You/They] didn't think the medical error was important
g. [You/They] didn't want to get anyone in trouble
h. You didn't think you could report a medical error for someone else
i. [You/They] couldn't communicate what happened in English
j. Any other reason [SPECIFY]_____

(ASK GROUP=1)

[PN: Pipe in "you" if Q3a=1 or Q3=1, pipe in "they/them/their" if Q3a=2,98,99]

Q17. Did [you/they] receive an apology?

01 Yes

02 No

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

(ASK Q17=1)

[PN: Pipe in "you" if Q3a=1 or Q3=1, pipe in "they/them/their" if Q3a=2,98,99]

Q18. Did you think the apology was sincere or did it feel insincere?

01 Sincere

02 Insincere

03 (DO NOT READ) I received both sincere and insincere apologies

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

(ASK GROUP=1)

[PN: Pipe in "you" if Q3a=1 or Q3=1, pipe in "they/them/their" if Q3a=2,98,99]

[PN: Randomize items a-h, always show i last]

[PN: DISPLAY ITEMS g & h ONLY IF Q4b = 1]

Q19. Whether or not the care team members acknowledged a medical error, at any point after the medical error happened, did anyone on the care team or at the facility where the medical error occurred offer:

[PN: For subsequent items read: "How about (INSERT ITEM)? (IF NEEDED: At any point after the medical error happened, did anyone on the care team or at the facility where the medical error occurred offer (INSERT ITEM):"]

01 Yes

02 No

03 (DO NOT READ) Not applicable

08 (DO NOT READ) Don't Know

09 (DO NOT READ) Refused

a. Psychological counseling, from a mental health professional

b. Spiritual support, such as from a chaplain or other religious advisor

c. Help from a social worker

d. DELETED

e. Help paying out of pocket or other medical costs

f. Money to compensate [you/them] for injuries resulting from the medical error

g. Information about a formal review or investigation to determine what caused the medical error

h. An explanation of the actions they were taking to prevent similar medical errors from happening in the future

i. Some other kind of help [SPECIFY]_____

(ASK IF ANY Q19=1)

[PN: Only show items selected at Q19 in the same order]

Q20. Was the [INSERT ITEM] helpful?

[PN: For subsequent items read: "How about (INSERT ITEM)? (IF NEEDED: Was the (INSERT ITEM) helpful"]

01 Yes

02 No

03 (DO NOT READ) I did not accept help

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

a. Psychological counseling

b. Spiritual support

c. Help from a social worker

d. DELETED

e. Help paying out of pocket or other medical costs

f. Money to compensate [you/them] for injuries resulting from the medical error

g. Information about a formal review or investigation to determine what caused the medical error

h. Explanation of the actions they were taking to prevent similar medical errors from happening in the future

i. [INSERT SPECIFY FROM Q19]

(ASK GROUP=1)

[PN: Pipe in "you/me/I was/my/I" if Q3a=1 or Q3=1, pipe in "they/them/their/they were" if Q3a=2,98,99]

[PN ROTATE LIST 1-4/4-1; RANDOMIZE ITEMS a-f]

Q21. For the next few questions, when we ask about "anyone associated with the care team", we mean all of the medical professionals, such as doctors and nurses, as well as the staff at the place where the medical error took place, such as a hospital, nursing home, or doctors' office, whether they were directly involved in your care or not.

First/Next, (INSERT ITEM).

01 Yes

02 No

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

a. Did anyone on the care team speak openly and truthfully about the medical error you have been describing to me

b. Did anyone on the care team give [you/them] a chance to ask questions about the medical error

c. Did anyone on the care team give [you/them] a chance to express feelings about the medical error

d. Did anyone on the care team give [you/them] the information needed to understand how the medical error would affect [PN EXECPTION Q3=1 "your"; Q3=2-99 "their"] health

e. Did anyone on the care team speak to [you/them] about the medical error in an easy to understand way

f. Did [you/they] feel cared for by the care team

(ASK GROUP=1)

[PN: Pipe in "you" if Q3=1, pipe in "they" if Q3=2-99]

21g. All in all, how satisfied were [you/they] about the way the care team communicated about the medical error? Would you say…?

(READ LIST)

01 Completely satisfied

02 Somewhat satisfied

03 Somewhat dissatisfied

04 Not satisfied at all

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

SECTION C: IMPACT OF THE MEDICAL ERROR

(ASK GROUP=1)

[PN: Pipe in "you" if Q3=1, pipe in "they" if Q3=2-99]

Q22. Now I'm going to ask you some questions about the consequences of the medical error.

Did [you/they] need extra medical care, such as a longer stay in the hospital, rehabilitation services or extra doctor visits because of the medical error?

01 Yes

02 No

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

(ASK GROUP=1)

[PN: Pipe in "your/you" if Q3=1, pipe in "their" if Q3=2-99]

[PN: Display code 04 only if referring to "other person" (Q3=2-99)]

(INTERVIEWER NOTE: IF THE RESPONDENT HAS ALREADY SAID/INDICATED THAT THE PERSON DIED, DO NOT ASK THIS Q. ENTER CODE 4 AND CONTINUE)

Q23. When the medical error occurred how was [your/their] physical health affected overall? Did [your/their] physical health (READ LIST)?

01 Stay the same

02 Get somewhat worse

03 Get much worse

Or

04 Did they die

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

(ASK Q23=2,3)

[PN: Pipe in "your/you" if Q3=1, pipe in "their/they" if Q3=2-99]

Q24. How long was [your/their] physical health worse for (READ LIST):

01 Less than a week

02 More than a week but less than a month

03 More than a month but less than a year

04 More than a year, but [you/they] are recovered now

OR

05 [Your/their] health is still being impacted

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

(ASK IF Q23 = 2,3)

[PN: Pipe in "you/your/me/I was/my/I" if Q3=1, pipe in "they/their/them/ their/they/they were" if Q3=2-99]

[PN ROTATE RESOPNSES 1-4/4-1]

Q25. Is (your/their) physical health (READ LIST)?

01 Extremely impacted

02 Strongly impacted

03 Somewhat impacted

OR

04 Slightly impacted

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

(ASK GROUP=1)

[PN: Pipe in "you/your/me/I was/my/I" if (Q3=1 or Q3a=1), pipe in "they/their/them/ their/they/they were" if Q3a=2,98,99]

[PN: Randomize items a-f]

Q26. Because of the medical error, were [your/their] household finances affected by (INSERT ITEM)?

[PN: For subsequent items read: "How about [INSERT ITEM]? (IF NEEDED READ: "Because of the medical error, were [your/their] household finances affected by (INSERT ITEM)?"]

01 Yes

02 No

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

a. Increased medical expenses

b. Increased household expenses, such as for additional childcare, transportation, or housecleaning services

c. Missed time at work

d. Left a job for health reasons or to meet caregiver responsibilities

e. Trouble paying bills

f. A decrease in income

g. Any other way [SPECIFY]_____

(ASK GROUP=1)

[PN RANDOMIZE ITEMS 1-7]

Q27. Now, thinking about the emotional impact of the error, did **you** experience any of the following feelings as a result of the medical error? (READ LIST)?

[PN: Select all that apply]

01 Sadness

02 Anger

03 Anxiety

04 Guilt

05 Depression

06 DELETED

07 Feelings that the doctors abandoned or betrayed you or your family

08 Any other feelings [SPECIFY]_____

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

(ASK Q27=1-8)

[PN ONLY SHOW ITEMS SELECTED AT Q26 IN SAME ORDER]

Q28. (IF MORE THAN ONE PIPED IN: "Which of the following") are you still experiencing (READ LIST)?

[PN: Select all that apply]

(INTERVIEWER NOTE: IF RESPONDENT SAYS "I STILL THINK ABOUT IT" THIS IS A "YES")

01 Sadness

02 Anger

03 Anxiety

04 Guilt

05 Depression

06 DELETED

07 Feelings that the doctors abandoned or betrayed you or your family

08 Any other feelings [SPECIFY]_____

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

(ASK GROUP=1)

(PN – PLEASE PROVIDE A TEXT BOX FOR "THE HARDEST PART" AND A SEPARATE TEXT BOX FOR "HOW IT AFFECTED YOUR LIFE AND HOW YOU COPED")

Q29. In your own words, what was the hardest part of your experience with this medical error? Please explain how it affected your life and how you coped with those effects.

(PROBE IF RESPONDENT DOES NOT PROVIDE DETAILED INFORMATION: Emotional, physical, life style changes, belief system changes, etc.?)

(INTERVIEWER: PLEASE MAKE SURE THAT YOU CAPTURE A RESPONSE FOR "THE HARDEST PART" AND A RESPONSE FOR "HOW IT AFFECTED YOUR LIFE AND HOW YOU COPED")

(INTERVIEWER: RECORD RESPONSE VERBATIM, PROBE FOR CLARITY & TO THE NEGATIVE)

[PN Provide text box]

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

[PN: ROTATE Q30/Q31]

(ASK GROUP=1)

Q30. What, if anything, do you wish your care team had done to improve the situation following the medical error?

(PROBE IF RESPONDENT DOES NOT PROVIDE DETAILED INFORMATION: Think beyond just medical interventions. How about Interaction with the care team, the care team's response to the medical error, etc.?)

(INTERVIEWER: RECORD RESPONSE VERBATIM, PROBE FOR CLARITY & TO THE NEGATIVE)

(INTERVIEWER IF NEEDED: When we ask about "care team" we mean the medical professionals such as doctors and nurses – as well as the staff at the place where the medical error took place – such as a hospital, nursing home, or doctors' office.

[PN Provide text box]

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

(ASK GROUP=1)

Q31. What things, if any, did your care team do following the medical error that made things worse?

(PROBE IF RESPONDENT DOES NOT PROVIDE DETAILED INFORMATION: Think beyond just medical interventions. How about Interaction with the care team, the care team's response to the medical error, etc.?)

(INTERVIEWER: RECORD RESPONSE VERBATIM, PROBE FOR CLARITY & TO THE NEGATIVE)

(INTERVIEWER IF NEEDED: When we ask about "care team" we mean the medical professionals such as doctors and nurses – as well as the staff at the place where the medical error took place – such as a hospital, nursing home, or doctors' office.

[PN Provide text box]

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

(ASK GROUP=1)

[PN ROTATE OPTIONS 1-2/2-1]

Q32. Following your experience with the medical error, do you feel (READ LIST)?

01 More trusting

02 Less trusting

03 or is there no change in the level of trust you feel when you receive healthcare

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

MOVE Q33 TO AFTER Q34

(ASK GROUP=1)

[PN: Pipe in "you/your/me/I was/my/I" if Q3=1, pipe in "they/their/them/ their/they/they were" if Q3=2-99]

[PN: Randomize items a-b; ROTATE RESPONSE OPTION 1-3/3-1]

Q34. Since the medical error occurred, how frequently have [you/they] ***avoided*** (INSERT ITEM)? Would you say (READ LIST)

[PN: For subsequent items read: "How about [INSERT ITEM]? (IF NEEDED READ: "How frequently have [you/they] ***avoided*** (INSERT ITEM)? Would you say (READ LIST?"]

01 Never

02 Sometimes

03 Always

04 (DO NOT READ) Not applicable

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

a. The doctor(s) involved in [PN EXCEPTION: Q3=1 "your"; Q3=2-9 "their"] care when the error occurred

b. The healthcare facility where the error occurred

c. Getting medical care in general

(ASK GROUP=1)

Q33. In your own words, how, if at all, did the experience of this medical error affect the ways in which you use the healthcare system?

(PROBE IF RESPONDENT DOES NOT PROVIDE DETAILED INFORMATION: Have your views on the healthcare system changed? Your interactions with care teams (in general and who was involved in the medical error?)

(INTERVIEWER: RECORD RESPONSE VERBATIM, PROBE FOR CLARITY & TO THE NEGATIVE)

[PN Provide text box]

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

[PN END TIMER]

[PN START TIMER]

(ASK ALL)

[PN: Pipe in "you/your/me/I was/my/I" if Q3=1, pipe in "they/their/them/ their/they/they were" if Q3=2-99]

Q35. Please think about all medical errors that you are personally aware of – include any medical errors that happened to you personally at any time in your life, and to members of your family, friends, neighbors, co-workers, or others in your social network at any time. About how many medical errors are you aware of?

(DO NOT READ LIST)

01 None

02 One

03 2 to 5

04 Six or more

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

(ASK IF GROUP 2 AND Q35 = 02-04)

Q35a. Did any of those medical errors occur within the last six years?

1 Yes

2 No

8 (DO NOT READ) Don't know

9 (DO NOT READ) Refused

(PN – IF Q35a = 1, REASK QS1 AND FOLLOW-UP Qs ACCORDINGLY [DO NOT REASK Q35])

(ASK ALL)

Thank you. Now I'm going to ask you a few questions about medical errors in general and some of your opinions about healthcare.

(ASK ALL)

[PN: ROTATE RESPONSE OPTION 1-4/4-1]

Q36. How likely do you think it is that a medical error would occur when you receive healthcare in the future? Would you say it is (READ LIST)?

01 Very likely

02 Somewhat likely

03 Not too likely

04 Not at all likely

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

(ASK ALL)

Q37. **Generally speaking**, do you think medical errors are a problem in Massachusetts, or not?

(INTERVIEWER: IF RESPONDENT SAYS "THEY DO NOT THINK THEY ARE MORE OF A PROBLEM THAN ANYWHERE ELSE, SAY "IN GENERAL, DO YOU THINK MEDICAL ERRORS ARE A PROBLEM IN MASSACHUSETTS, OR NOT?")

01 Yes

02 No

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

(ASK Q37=1)

[PN: ROTATE RESPONSE OPTION 1-4/4-1]

Q37a. Do you think they are (INSERT LIST) problem?

(INTERVIEWER "IF A RESPONDENT SAYS IT VARIES BY MEDICAL ERROR, SAY "**IN GENERAL**, DO YOU THINK MEDICAL ERRORS ARE (INSERT LIST) PROBLEM?")

01 A very serious

02 A somewhat serious

03 A not too serious

OR

04 Not at all a serious

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

(ASK GROUP=2)

[PN: Randomize items a-s; ROTATE RESPONSE OPTION 1-3/3-1]

Q38. I'm going to read you a list of some things that could lead to medical errors. For each one, please indicate whether you think it is (INSERT ROTATED RESPONSE OPTIONS) in causing medical errors.

[PN: For subsequent items read: "How about [INSERT ITEM]? (IF NEEDED READ: "Is (INSERT ITEM) (INSERT ROTATED LIST) in causing a medical error?"]

01 A major factor

02 A minor factor

OR

03 Not at all a factor

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

a. Doctors and nurses who are poorly trained
b. Patients not being able to see their own medical records
c. Doctors or nurses not listening to patients, or ignoring patients' concerns
d. Emergency rooms being overcrowded
e. Doctors and medical staff not washing their hands or wearing masks
f. Hospitals or medical offices not being organized well enough to make sure patients don't get the wrong drug or the wrong dose of a drug
g. Doctors and medical staff not speaking a patient's language
h. Doctors and nurses who are overworked, stressed, or tired
i. Doctors or nurses who don't care about their patients
j. Doctors or other staff not knowing about the medical care that a patient received somewhere else
k. Patients being given too many tests or drugs they don't need
l. Doctors and nurses not discussing treatment choices with patients
m. Doctors and nurses not checking in with patients after sending them home
n. Doctors and nurses who are careless
o. Medical care being very complicated
p. Patient medical records that are out-of-date or incorrect
q. Doctors and nurses not clearly explaining follow up care instructions to patients
r. Doctors and other staff in a hospital or medical office not working together or communicating well as a team
s. Doctors not spending enough time with patients

[PN ROTATE Q39 AND Q40]

(ASK ALL)

[PN: Randomize items a-d; ROTATE RESPONSE OPTION 1-5/5-1]

Q39. Now I am going to read a series of statements. For each one, tell me whether you (INSERT ROTATED RESPONSE OPTIONS).

(INSERT ITEM). Do you (INSERT ROTATED RESPONSE OPTIONS)?

[PN: For subsequent items read: "(INSERT ITEM)." (IF NEEDED READ "Do you (INSERT ROTATED RESPONSE OPTIONS)?)"]

01 Strongly agree

02 Somewhat agree

03 Neither agree nor disagree

04 Somewhat disagree

OR

05 Strongly disagree

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

a. The **hospital**s I go to do everything they can to prevent medical errors

b. The **doctors** I go to do everything they can to prevent medical errors

c. When medical errors happen, there is usually nothing that could have been done to prevent them

d. DELETED

(ASK ALL)

[PN: Randomize items b-g; ROTATE RESPONSE OPTION 1-5/5-1]

Q40. How often do you think (INSERT ITEM)? Would you say (READ LIST)?

[PN: For subsequent items read: "How about (INSERT ITEM)." (IF NEEDED READ "How often do you think (INSERT ITEM)? Would you say (READ LIST)?"]

01 Always

02 Often

03 Sometimes

04 Rarely

OR

05 Never

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

a. DELETED

b. Doctors care more about their patients' medical needs than what is convenient for them

c. Doctors are extremely thorough and careful

d. You can completely trust doctors' decisions about which medical treatments are best

e. Doctors are totally honest in telling their patients about all of the different treatment options available for their conditions

f. DELETED

g. Doctors pay full attention to what patients are trying to tell them

h. DELETED

(ASK ALL)

Q41. (GROUP=1: Would you like to share anything further on what you think could be done to prevent the kind of error(s) that happened to [Q3=1 "you"; Q3=2-9 "your family or friend"] or to make healthcare safer?

GROUP=2: Would you like to share any further thoughts on what you think could be done to prevent medical errors and make healthcare safer?)

(PROBE IF RESPONDENT DOES NOT PROVIDE DETAILED INFORMATION: At the care team level? At an institution level? At a more global or governmental level?)

(INTERVIEWER: RECORD RESPONSE VERBATIM, PROBE FOR CLARITY & TO THE NEGATIVE)

01 Yes [SPECIFY]_____

02 No

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

(ASK ALL)

Q42. One last thing, I want you to know that we are doing this survey on behalf of the XXXXX XXXXX XXXXX XXXXX XXXXX. That's a XXXXXX XXXXX XXXX working to make healthcare safer. Their staff may want to be in touch with you to hear more about your thoughts on healthcare safety and quality. To do that, they would need your contact information, which they would keep confidential. May we share your information with the XXXX XXXX XXXX?

01 Yes

02 No

98 (DO NOT READ) Don't Know

99 (DO NOT READ) Refused

(ASK ALL)

Q43. That's the end of the interview. We'd like to send you $10 for your time. Can I please have your full name and a mailing address where we can send you the money?

(INTERVIEWER NOTE: If R does not want to give full name, explain we only need it so we can send the $10 to them personally.)

1 [ENTER FULL NAME] – INTERVIEWER: PLEASE VERIFY SPELLING

2 [ENTER MAILING ADDRESS]

3 [CITY]

4 [STATE]

5 [ZIP CODE]

9 (DO NOT READ) Refused