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How Do the Elderly Fare in Medical Malpractice Litigation, Before and After Tort Reform? Evidence from Texas, 1988–2007

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Abstract

The elderly account for a disproportionate share of medical spending, but little attention has been paid to how they are treated by the medical malpractice system and to how that treatment is affected by tort reform. The researchers compare paid medical malpractice claims (other than nursing home claims) brought by elderly and nonelderly plaintiffs from 1988 to 2007. Texas adopted a strict cap on noneconomic damages and other tort reforms in 2003. During the pre-reform period, elderly paid claims per inpatient day rose from roughly 20 percent to 50 percent of the adult nonelderly rate. The elderly received less per paid claim than the adult nonelderly and were far less likely to receive large awards, but mean and median awards converged. Post-reform, there was a sharp drop in claims and payouts per claim for all ages, no evidence of further convergence, and mild evidence of post-reform divergence in claiming by the very elderly. Thus, although tort reform had a substantial effect, the authors find little evidence of a disparate impact on the elderly.

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I. INTRODUCTION

The elderly account for a disproportionate share of medical spending. They are more prone than the non-elderly to be harmed by medical error, because they encounter the health care system more often, tend to have multiple medical conditions and medications, and are more fragile. Yet little attention has been paid to how the elderly are treated by the medical malpractice ("med mal") system, or how they are affected by tort reform. Past med mal studies have focused on overall system costs or on particular physician specialties or procedures, not on particular plaintiff groups.

We begin here to rectify that gap. We study med mal claims by the elderly, excluding nursing home claims, using a unique closed claims database maintained by the Texas Department of Insurance covering 1988-2007. Texas enacted a strict cap on non-economic damages ("non-econ cap") and other tort reforms for suits filed after Sept. 1, 2003, so we can also assess how tort reform affected elderly med mal claimants.

During the pre-reform period, controlling for health care utilization, the rate of paid med mal claims rose sharply for elderly claimants; in contrast, claim rates were roughly constant for the adult non-elderly; and fell for babies and children. By 2004 – roughly the end of the pre-reform period, taking into account the delay between filing and claim closing -- elderly paid claims per inpatient day were roughly 50% of the adult non-elderly rate, or about 2.5 times higher than in 1988. During the pre-reform period, the elderly received less per claim than the adult non-elderly, and were far less likely to receive "blockbuster" payouts, but mean and median payouts per claim had largely converged by 2004. By 2004, payouts to elderly plaintiffs were close to 15% of all malpractice payouts – more than triple the 1988 level but still well below the elderly's 35% share of medical spending. The elderly also settled their claims faster, and were less likely to take cases to trial.

Post-reform, the number of claims and mean payouts per claim dropped dramatically for all claimants, with no further convergence or divergence. This finding could reflect the combined effect of a long-term trend toward convergence, coupled with post-reform divergence due to the greater impact of the non-econ cap on the elderly. However, the effects of the 2003 reforms are not yet fully reflected in our data, so our conclusions are necessarily tentative. We expect to conduct a fuller analysis of the effects of Texas' 2003 tort reforms when more years of post-reform data become available.

Part II reviews the limited literature on malpractice claiming by the elderly and describes our dataset. Part III assesses med mal claims by elderly and non-elderly claimants and the impact of Texas' 2003 reforms. Part IV discusses our findings. Part V concludes.

II. LITERATURE REVIEW, DATA SOURCES & TORT REFORM

A. Literature Review

The empirical literature on med mal claiming by the elderly is modest and dated.[4] Only one academic paper and one government report specifically study this topic. Sager et al analyzed Wisconsin malpractice claims from 1983-1984, and found that the elderly were significantly less likely to initiate malpractice suits.[5] A GAO report on malpractice claims against hospitals over 1986-1990 found that Medicare patients accounted for about 32% of hospital discharges and 44% of inpatient days but made only about 10% of claims and received about 10% of dollar payouts.[6] In addition, Studdert et al. examine factors that predict whether victims of medical negligence are likely to sue. They find that victims over age 75 were especially unlikely to file claims.[7]

A similarly small body of work examines how tort reform affects elderly claimants. Using tried cases drawn from jury verdict reporters in three states, Finley concluded that non-econ caps hit the elderly harder than the non-elderly.[8] Conversely, Studdert et al. analyzed California jury verdicts and found that elderly and non-elderly plaintiffs were affected similarly by the California non-econ cap.[9]

This study is the first to present longitudinal evidence on med mal claiming by the elderly. We examine claim frequency, payout, and duration, both before and after tort reform.

In prior work, holding claiming rates constant, we estimated that the 2003 Texas non-econ cap would reduce aggregate payouts to elderly claimants in settled cases by 31%, compared to 16% for adult-non-elderly plaintiffs.[10] However, the mean of the per-case percentage reductions in payout was far smaller: 8% for elderly claimants v. 5% for adult-non-elderly claimants, and the difference between these percentages was not statistically significant.[11] The simulation methodology we used assumes no change in case mix and did not let us estimate the cap's effect on claim frequency. News stories and surveys indicate that the Texas med-mal reforms greatly reduced claim frequency.[12] Both news

[4] There is a more extensive literature on the frequency of medical error among elderly patients. Because our data does not allow us to address this issue, we do not discuss it further.

[5] Sager et al (1990).

[6] General Accounting Office (1993).

[7] Studdert et al (2000).

[8] Finley (2004).

[9] Studdert, Yang & Mello (2004).

[10] Hyman, Black, Silver, and Sage, *Damage Caps* (2009).

[11] Hyman, Black, Silver and Sage (2009).

[12] Carter (2006); Daniels and Martin (2009).

articles and legal scholars have suggested that a non-econ cap will have a disproportionate impact on claiming by the elderly.[13]

B. Data Sources

We study med mal claims by elderly plaintiffs against physicians and hospitals. We do not study claims against nursing homes.[14] Our data comes from the Texas Closed Claims Database (*TCCD*), a publicly-accessible database maintained by the Texas Department of Insurance (*TDI*). This database contains individual reports of all personal injury claims closed from 1988 on, covered by give lines of commercial insurance -- mono-line general liability, auto, multi-peril, medical professional liability, and other professional liability -- involving payouts by all defendants of more than $10,000 in nominal dollars. Data are currently available through 2007. *TDI* checks the reports for internal consistency and reconciles them against aggregate annual reports filed by each insurer.[15]

We use this overall database to construct a dataset of med mal claims that includes the following cases.

- Payout by all defendants is at least $25,000 in 1988 dollars (roughly $45,000 in 2008 dollars) ("large paid claims").[16]
- The claim meets two of the following three criteria:
    - It was paid under medical professional liability insurance;
    - It was against a physician or hospital;
    - It involved injuries caused by "complications or misadventures of medical or surgical care."[17]

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[13] E.g., Washburn (2002); Finley (2004); Daniels and Martin (2009); Rubin and Shepherd (2008).

[14] We study claims by the elderly against nursing homes separately. Paik, Hyman, Black and Silver (2010).

[15] This paper is one of a series using the Texas closed claims database to explore different aspects of medical malpractice and personal injury litigation. For an overview, see Black, Hyman, Silver, Zeiler, and Sage (2010). For a fuller discussion of the *TCCD*, the med mal dataset, and dataset limitations, see Black, Hyman, Silver and Sage, *Defense Costs* (2008). The Texas Department of Insurance (TDI) Closed Claim Reporting Guide (2004) (containing reporting instructions), the long and short forms, summary "Closed Claim Annual Reports", and the data on which we rely are available at http://www.tdi.state.tx.us.

[16] Claims with payout of $10,000-$25,000 are reported on a "Short Form"; claims with payout of at least $25,000 are reported on a "Long Form." The Long Form contains the nature of the injury, which we require to classify a claim as involving medical malpractice, and plaintiff age, which we need to study claims by the elderly; the Short Form omits this information. We therefore study only Long Form claims. The reporting thresholds are not inflation-adjusted. Thus, some claims that were reported on the Long Form in later years would have been reported in earlier years on the Short Form if the thresholds had been inflation adjusted. To address this "bracket creep," we limit the sample to cases with payout of at least $25,000 in 1988 dollars. The large paid claims we study account for 99% of total payout on all paid claims. We convert payouts to 1988 dollars using the *Consumer Price Index for All Urban Consumers* (CPI). Source: www.bls.gov/cpi/. In regressions we define year as (calendar year – first year used in the regression (either 1988 or 1990, depending on the regression).

A "claim" is an incident causing bodily injury that results in a policyholder request to an insurer for coverage. An insurer must file a report with TDI in the year a claim "closes" -- when the insurer "has made all indemnity and expense payments on the claim."[18]

Many med mal cases involve multiple defendants. We review all claim reports to identify duplicate reports. When duplicate reports exist, we generally treat the last-filed report as the primary report. This report should capture any prior payouts by parties that were not required to file closed claim reports, such as self-insured hospitals. Our sample includes 15,173 nonduplicate cases involving total payouts over 1988-2007 of $4.7 billion.[19]

Dataset Limitations. The TCCD includes only "insured" claims. Most physicians carry malpractice insurance, but we lack data on claims against physicians employed by the University of Texas hospital system, which is self-insured. We similarly lack data on self-insured hospitals. We have data on plaintiff age, employment status, and county of injury, but not injury severity, gender, or county of residence. We lack data on cases with zero or small payout. We have data on the final plaintiff demand, but not on any earlier demands.

Other data sources: We obtain estimated Texas population by age and year from the U.S. Census Bureau.[20] We obtain data on hospital discharges and hospital inpatient days by patient age for the "South" U.S. census region (which includes Texas) from the National Hospital Discharge Survey (NHDS). To estimate Texas discharges by patient age, we adjust this data for differences between the Texas age composition and that for the remainder of the South region.[21] We obtain data on US health care spending for selected

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[17] We exclude claims against nursing homes from our sample. Other types of health-care providers (for example, nurses and free-standing medical clinics) are not separately listed in the Long Form. We also include cases that meet one of the three criteria and are likely to involve medical malpractice. For example, we include 60 cases against physicians or hospitals which were paid under "other professional liability" rather than medical professional liability insurance. We exclude cases that meet two of the criteria, but seem unlikely to involve medical malpractice. Thus, we exclude cases paid under automobile liability insurance even if they meet the other two criteria. Details on our inclusion rules are available from the authors on request.

[18] TDI, Closed Claim Reporting Guide (2006), at 18.

[19] In 35 cases, the broader med mal dataset from which we draw our sample includes duplicate reports where one involves a nursing home but the other(s) involve a physician or hospital as defendant. We include the claim against the physician or hospital in our dataset. In identifying duplicate reports, we sometimes exercised judgment when claim reports were similar but not identical. Insurers also make some reporting errors that TDI does not catch. In a few cases when both the error and the correction were apparent, we corrected the underlying data. Details on the procedure we used to identify duplicates and the data adjustments we made are available from the authors on request. Claim reports may not capture all payouts by non-reporting defendants, either because the insurer which filed the last report was unaware of these payments or because the non-reporting defendant had not yet paid when the last report was filed.

[20] The annual population estimates are available at www.census.gov/popest/states/, click on State Estimates by Demographic Characteristics, then download data file under State Single Year of Age and Sex Population Estimates.

[21] The NHDS discharge data comes from the ICPSR website at http://www.icpsr.umich.edu/icpsrweb/ICPSR/series/43. The original source is *National Hospital Discharge Survey*, 1988-2007, National Center for Health Statistics (NCHS), at Centers for Disease Control. Our Texas

years from the Centers for Medicare & Medicaid Services, and interpolate or extrapolate to estimate spending for other years.[22]

Age group categories. We generally focus on two broad age groups, adult non-elderly claimants (age 19-64) and elderly claimants (age 65 and over). For some analyses, we added baby/child (age 0-18), and separated elderly claimants into age brackets (ages 65-74, 75-84, and 85 and over).

C. 2003 Tort Reform

In 2003, Texas capped non-economic damages in med mal cases against physicians and other individual health care providers at $250,000 nominal ($161,000 in the 1988 dollars we use in this article), with an additional $250,000 possible if a hospital or other health care institution is also liable, up to a maximum of two institutions, for a maximum overall cap of $750,000. The cap applies to suits filed after Sept. 1, 2003. This cap would be expected to reduce both claim frequency and payouts. Anecdotal evidence suggests a large impact on claim rates and payouts, as well as a decline of around 50% in med mal insurance premiums.[23] We do not study the effect of the cap on insurance premiums.

Other components of the 2003 reforms include making the death cap apply per claim, rather than per defendant, higher evidentiary standards for cases involving emergency room care, a requirement that plaintiffs file an expert report within 120 days of suit with regard to each defendant's negligence (by a practicing physician, if the defendant is a physician), and a ten year statute of repose.

There is one important complication in assessing the impact of the 2003 tort reforms, which we return to below. For each closed claim with a lawsuit filed, we can determine whether the cap applies. But some claims close quickly, while others take longer – so the claims that are closed in any given post-reform period are a mix of pre- and post-reform claims. Claims that close in 2004 are almost entirely pre-reform, while those that close in 2007 are mostly post-reform.[24] Eventually, the "case-mix" will become 100%

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discharge estimates assume that Texas has the same ratio of discharges/population and patient days/population as the rest of the South region, both overall and for each age range; and similarly for our patient day estimates. As of January 2010, 2006 was the last year with NHDS data available; we extrapolated from 2006 to 2007. Because our data is from a closed claim database, we assign control variables – year, population, health care spending, and the like – based on the year in which a claim closes, rather than the year of injury or claim filing.

[22] Centers for Medicare & Medicaid Services, Office of the Actuary, National Health Statistics Group, National Health Expenditure Data by Age, at http://www.cms.hhs.gov/NationalHealthExpendData/04_NationalHealthAccountsAgePHC.asp#TopOfPage. Data is available for 1987, 1999, 1999, 2002, 2004, we interpolate for 1988-1995 using the 1987-1996 trend line, interpolate for 1997-2003 using surrounding years, and extrapolate to 2005-2007 using a linear trend based on 1996-2004 data.

[23] On claim frequency and payouts, see Carter (2006); Daniels and Martin (2009). On med mal premia, see Guardado (2009); Slavin (2010).

[24] Of the 14,106 suit-filed cases in our dataset, 846 were filed after Sept. 1, 2003. The reforms affect 0.3% of cases closed in 2003, 4.3% of cases closed in 2004, 17.6% of cases closed in 2005, 44.4% of claims closed in 2006, and 75.3% of claims closed in 2007. In an additional 206 claims closed from 2003-2007, the

post-reform. This complicates our regression analysis, since the results we observe in any given post-reform year reflect a mix of pre- and post-reform claims. Stated differently, the 2003 reforms either apply or don't apply to any given claim, but the effects of tort reform phase in over time when viewed across all closed claims.

III. Empirical Results

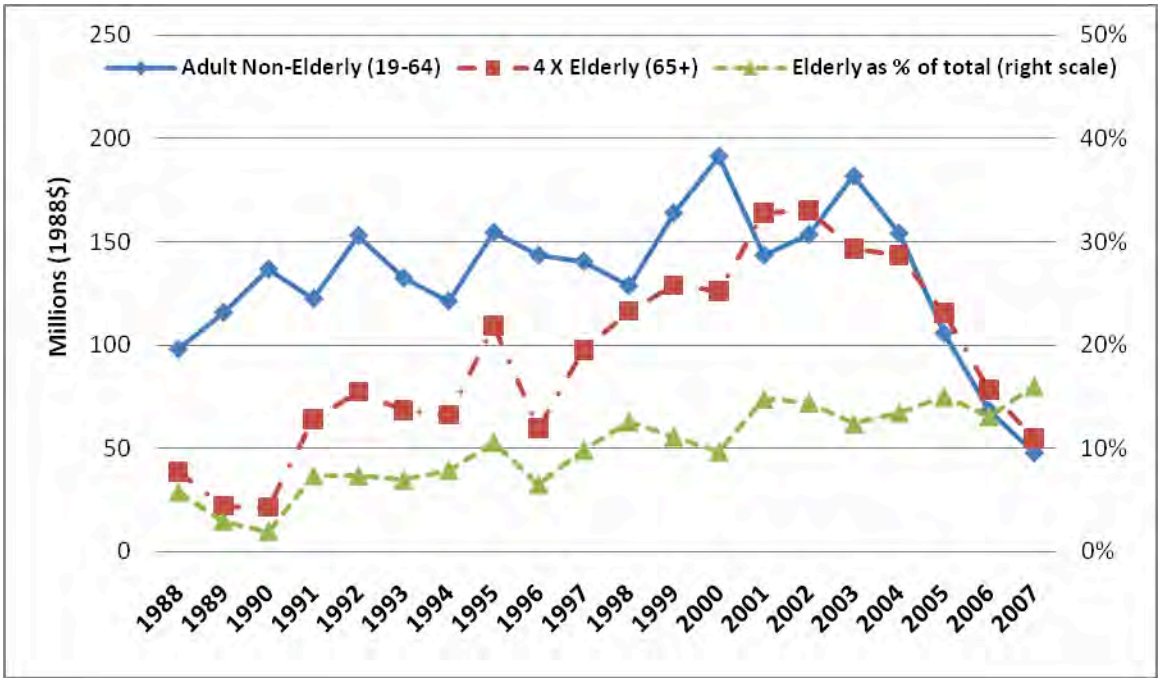
A. Overview

We begin with an overview of the "bottom line" of total med mal payouts. Figure 1 shows total payouts for elderly and non-elderly claimants, both pre- and post-reform. The solid line shows total payouts to non-elderly plaintiffs; the dotted solid line shows total payouts to elderly plaintiffs (multiplied by four for visual presentation), and the rising dashed line shows the ratio of the two. As Figure 1 reflects, payouts to adult non-elderly claimants were roughly flat from 1990-2003, but crashed after tort reform was enacted, from an average of about $160 million over 2001-2003 to only $48 million in 2007.[25] Payouts to elderly claimants increased steadily from under $10 million during 1988-1990 to around $40 million over 2001-2003, before dropping to $14 million in 2007. The share of total payouts received by elderly claimants increased from an average of less than 5% over 1988-1990 to around 15% over 2000-2003, with no clear post-reform time trend. As Figure 1 shows, tort reform has thus far had a similar impact on elderly and non-elderly claimants, despite suggestions of a greater effect on the elderly in the popular and academic literature (including our own simulation study). We explore below the extent to which the post-reform trends we observe are attributable to changes in claim frequency, payouts per claim, or both.

injury was prior to the effective date of the reforms, but no lawsuit was filed, so we cannot conclusively determine whether the 2003 tort reforms apply.

[25] Figure 1 includes 1988-1989. Under-reporting of claims during those years means that total payouts (the top two lines in the figure) will be low. We include these years in the figure because we have no reason for thinking that the under-reporting affects the ratio of payouts to elderly v. non-elderly claimants (the bottom line in the figure).

Figure 1. Total Annual Payouts to Adult Non-Elderly and Elderly Claimants



Total payout by year for elderly and adult non-elderly claimants (left scale), and ratio of elderly/total payout (right scale), for 12,108 nonduplicate, non-nursing-home, med mal cases closed from 1988-2007 with payout > $25,000 in 1988 dollars. Elderly payout is multiplied by 4 for better visual presentation. Amounts in 1988 dollars.

In Table 1, we turn from time trends to averages across all years in the dataset. Panel A presents summary statistics on claim frequency and payout, by type of paying defendant(s), and the fraction of claims and payouts attributable to elderly plaintiffs. Panel B presents summary information on population, hospital discharges, inpatient days, and medical spending for different age groups. To assess the elderly's use of the malpractice system, we need to adjust for their disproportionate use of medical care. Hospital discharges, inpatient days, and medical spending provide different measures of treatment intensity, which we use to control for exposure to malpractice risk. Below, we rely principally on inpatient days as an intensity measure, but verify robustness with the other measures. Inpatient days is our preferred measure because it is likely to best reflect the risk of medical error associated with health care. The elderly account for 10% of population, 27% of hospital discharges, 35% of medical spending, and 36% of inpatient days, but represent only 16% of large paid claims and 10% of payouts.[26]

Claims by the elderly, when made, are disproportionately likely to be against hospitals, rather than physicians. This could reflect the conventional wisdom that the elderly don't often sue their doctors, the location and intensity of their medical care, or a combination of these factors.

[26] Each of the intensity measures has a time trend, even though the elderly share of total population is nearly constant at 10%. All three measures rise for the first half of our sample period, and fall in the second half; the decline is steepest for inpatient days.

Table 1. Summary Statistics on Large Paid Claims, 1988-2007

Panel A. Med Mal Claims				
Paying Defendant	**No. of Claims**	**% Elderly Claimants**	**Total Payout ($M)**	**% Paid to Elderly Claimants**
Physician	7,526	14.4%	1,537	11.8%
Hospital	1,294	34.0%	329	20.0%
Physician + Hospital	5,950	14.1%	2,760	7.3%
Other	403	23.1%	76	23.6%
Total	**15,173**	**16.2%**	**4,702**	**9.9%**
Panel B: Medical Care Use				
Age Group	**% of Population**	**% of Hospital Discharges**	**% of Inpatient Days**	**% of Health Care Spending**
Babies (<1)	1.7%	14.7%	11.2%	13.4%
Children (1-18)	28.1%	8.1%	6.5%	
Adult non-elderly (19-64)	60.1%	50.8%	46.7%	51.3%
Elderly (65+)	10.0%	26.5%	35.6%	35.3%
Total	**100%**	**100%**	**100%**	**100%**

Panel A: Number of claims, payouts, and proportion due to elderly plaintiffs, for 15,173 nonduplicate med mal cases closed from 1988-2007 with payout > $25,000 in 1988 dollars. Payouts in millions of 1988 dollars. **Panel B:** % of population, hospital discharges, hospital inpatient days, and health care spending represented by indicated age groups. Percentages may not sum to 100.0% due to rounding.

Table 2 divides the sample into finer age ranges, and provides additional detail on payout per claim. We define a "claiming propensity" measure as the ratio of (percent of large paid claims) to (percent of inpatient days). This ratio is 1 by definition for the whole population, but it is 1.36 for adult non-elderly versus only 0.45 for the elderly. Among the elderly, claiming propensity declines with age; it is 0.65 for the young elderly (age 65-74), 0.37 for the moderate elderly (age 75-84), and 0.24 for those 85 and older. The last two columns in Table 2 show a similar but milder pattern for mean and median payouts: higher payouts for adult non-elderly than for elderly claimants; and declining payouts with age among the elderly.

Table 2. Large Paid Claims and Claiming Propensity by Age Group, 1988-2007

Age Group	**% of population**	**% of inpatient days**	**% of Claims**	**Claiming Propensity**	**% of Total Payout**	**Payout/claim**	
						Mean	**Median**
Baby/Child (0-18)	29.9%	17.6%	20.2%	1.15	33.6%	516	178
Adult Non-Elderly (19-64)	60.1%	46.7%	63.6%	1.36	56.5%	275	125
All Elderly (65+)	10.0%	35.6%	16.2%	0.45	9.9%	190	109
Young Elderly: 65~74	5.6%	14.4%	9.4%	0.65	5.9%	196	117
Moderate Elderly: 75~84	3.3%	14.0%	5.1%	0.37	3.1%	187	97
Very Elderly: 85+	1.1%	7.2%	1.7%	0.24	0.9%	162	85

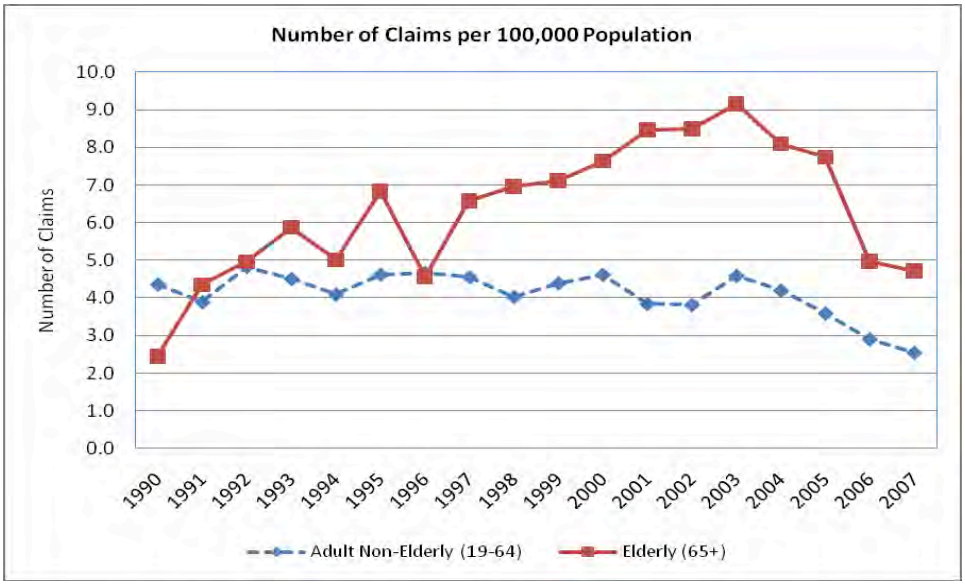
Percentages of population, inpatient days, and claims, claiming propensity ((% of claims)/(% of inpatient days)), percentage of total payout, and mean and median payout per claim for plaintiffs in indicated age

ranges, for 15,173 nonduplicate, non-nursing-home, med mal cases closed from 1988-2007 with payout > $25,000 in 1988 dollars. Amounts in 1988 dollars; total payouts in $ millions; per-claim payouts in $ thousands. Percentages may not sum to 100.0% due to rounding.

B. Claim Frequency

We turn next to an analysis of time trends in claim frequency. Figure 2 shows time trends in the number of large paid claims by elderly and adult non-elderly claimants per 100,000 population from 1990-2007. We omit 1988-1989 because of underreporting in these years, which TDI addressed beginning in 1990.[27] Claims per 100,000 persons by the adult non-elderly were roughly flat through 2003, but then declined from 4.6 in 2003 to 2.5 in 2007. In contrast elderly claims per 100,000 persons increased dramatically during the pre-reform period, from 2.4 in 1990 to 9.2 in 2003, before falling to 4.7 in 2007.[28] We confirm the apparent structural break, coinciding with the Texas reforms, in regression analyses below.

Figure 2. Time Trends in Claiming by Age Group



Large paid claims per 100,000 people for elderly and adult non-elderly plaintiffs for 11,326 nonduplicate, non-nursing-home, med mal cases closed from 1990-2007 with payout > $25,000 in 1988 dollars. 1988 and 1989 are omitted due to underreporting in these years.

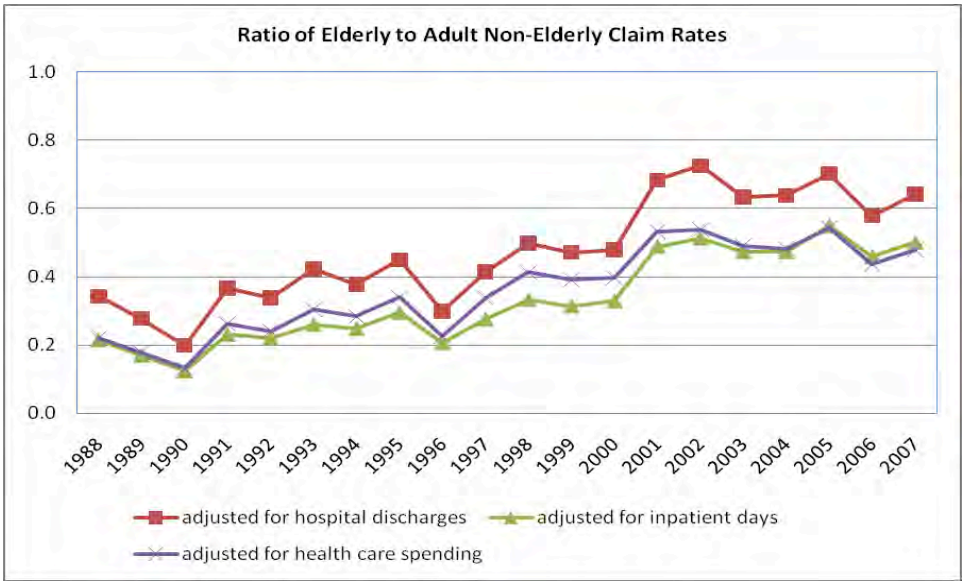
Rates per unit population do not take into account the elderly's more intense use of medical care. In Figure 3, we show the ratio of the elderly to adult non-elderly claim rate, controlling separately for hospital discharges, inpatient days, and share of health care

[27] We have no reason to expect bias in which claims went unreported, so we include 1988-1989 in all analyses except those which involve claim rates, either absolute or relative to an absolute denominator such as population.

[28] We lack data on unpaid claims and small paid claims, but have no reason to think there were large time trends in the fraction of claims that result in a payout large enough to be included in our dataset. Thus, the trends in large paid claims likely reflect similar trends in total paid claims.

spending. Figure 3 begins in 1988, because we have no reason to believe that underreporting in 1988-1989 affected these ratios.

Figure 3. Time Trends in Claiming by Age Group



Ratio of elderly to adult non-elderly claim rates, adjusted for number of hospital discharges and inpatient days and share of US healthcare spending, for 12,108 nonduplicate, non-nursing-home, med mal cases closed from 1988-2007 with payout > $25,000 in 1988 dollars.

The trends are qualitatively similar for all three intensity measures. The relative frequency of claims by the elderly rises strongly through the early 2000s, but then levels off well below the adult non-elderly level. Controlling for inpatient days – our preferred intensity measure – the elderly/adult non-elderly ratio rises from 20% at the end of the 1980s to about 50% in the early 2000s.

We turn next to regression analysis of time trends in the frequency of large paid claims per 100,000 inpatient days, using year, a constant term, and a structural break variable, which we call "post-reform period," to reflect the extent to which the 2003 reforms influence claim rates in each post-reform year.[29] This variable, which is zero for years before 2003, nearly zero for 2003, and rises toward 1 thereafter, must be constructed with care. The observed ratio of post-reform claims to total claims in a given year is biased downward by the reforms, which suppress post-reform claims.[30] As detailed in the Appendix, we therefore use pre-reform data on claim survival times to estimate the

[29] In this and all other regressions, year is coded as year – first year in sample. Thus, in Table 3, year is coded as year – 1990. In a regression with year and constant term as the only independent variables, the coefficient on the constant term is the estimated value of the dependent variable in the first year in the sample.

[30] For example, suppose that in a given period, we would expect: (i) without the effect of the reforms on claim rate, to see 20 large paid claims; (ii) half of these hypothetical claims would be pre-reform; and (iii) reform reduces claim rates by 50%. We would then observe 10 pre-reform and 5 post-reform claims. Two-thirds of observed claims (10/15) will be pre-reform. We would wrongly infer that we are only 1/3 of the way into the post-reform period, instead of half-way.

structural break variable. We estimate this variable separately for adult non-elderly, elderly, all non-elderly, or all claims, as appropriate for a particular regression. The post-reform period variable reaches 0.83 for all claims (0.90 for elderly claims) in 2007, the last year for which we have data.

Table 3. Claims per 100,000 Inpatient Days

Regression	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**
Age	**0-18**	**19-64**	**65+**	**65-74**	**75-84**	**85+**	**all ages**
Year	**-0.153**	**0.201**	**0.263**	**0.325**	**0.247**	**0.204**	**0.173**
	[2.55]**	**[2.84]****	**[19.03]*****	**[11.46]*****	**[10.86]*****	**[6.09]*****	**[4.51]*****
Post-reform period	**-2.58**	**-6.34**	**-2.81**	**-3.84**	**-2.24**	**-2.20**	**-4.32**
	[2.21]**	**[5.15]*****	**[9.30]*****	**[6.29]*****	**[5.59]*****	**[4.03]*****	**[6.58]*****
Constant	8.42	7.33	1.01	1.89	0.53	0.06	5.09
	[17.14]	[14.73]	[7.59]	[6.83]	[3.61]	[0.22]	[17.78]
Observations	18	18	18	18	18	18	18
Adjusted R^2	0.690	0.543	0.907	0.783	0.890	0.709	0.670
% drop post-reform	-40.1%	-63.8%	-63.4%	-62.8%	-59.9%	-81.1%	-58.9%

Ordinary least squares regressions for indicated age groups, of claims per 100,000 inpatient days, included in dataset of 14,135 nonduplicate, non-nursing-home, med mal cases closed from 1990-2007 with payout > $25,000 in 1988 dollars. Post-reform period is estimated probability that claim closed in each year was filed pre-reform, computed separately for elderly and non-elderly plaintiffs. 1988 and 1989 are omitted due to underreporting in these years. Last row shows ratio of (post-reform period claim rate)/(predicted 2003 claim rate). *t* statistics, based on robust standard errors, are in parentheses. *, **, *** indicate significance at the 10%, 5%, and 1% levels (omitted for constant term). Significant results (at 5 percent or better) are in **boldface**.

Table 3 presents our results on claim rates. As regressions (1) and (2) indicate, there is a modest upward trend in adult non-elderly claims, but a decline in claims involving babies and children (ages 0-18).[31] Regression (3) shows the strong rise in pre-reform claim frequency for elderly plaintiffs. (The much smaller constant term in regression (3) indicates that the elderly start from a much lower initial claim rate). As regressions (4)-(6) show, the claim rate rose for all three elderly sub-groups. In Chow tests for differences in coefficients between elderly subgroups, the differences are statistically significant ($p < .01$). Thus, the rate of increase in claim rates was larger for the young elderly, and smaller for the very elderly. However, the very elderly began from a lower base (shown by the constant term in the regression). The percentage increase in claiming rate (not reported) is highest for the very elderly.

Post-reform, there is a sharp drop in claiming by all groups. We can estimate the effect of tort reform on claim rates by using the regressions in Table 3 to predict claim

[31] The difference between the positive coefficient for adult non-elderly claims in Table 3, and the roughly flat line in Figure 2 reflects the difference between the denominators – 100,000 inpatient days in Table 3 v. 100,000 population in Figure 2. In unreported regressions, we find that baby claims (age 0-1) decreased by 0.18 claims per 100,000 hospital days per year during the period, and claims by children (age 1-18) dropped by 0.12 claims per 100,000 hospital days per year. The trend for baby claims is statistically significant, while that for child claims is not significant.

rates in 2003, and then use the coefficient on post-reform period to predict the percentage drop if the reform had applied immediately to all claims.[32] These percentages are shown in the last row of Table 3. The decline is 40% for babies and children, 64% for adult non-elderly, and 63% for elderly plaintiffs. Within the elderly, the percentage decline is similar for ages 65-74 (63%) and 75-84 (60%), but rises to 81% for the very elderly (85+). Thus, claim rates drop by similar percentages for the elderly and the adult-non-elderly, with some evidence of a larger impact on the very elderly. Tort reform had a less extreme, but still strong impact on babies and children.

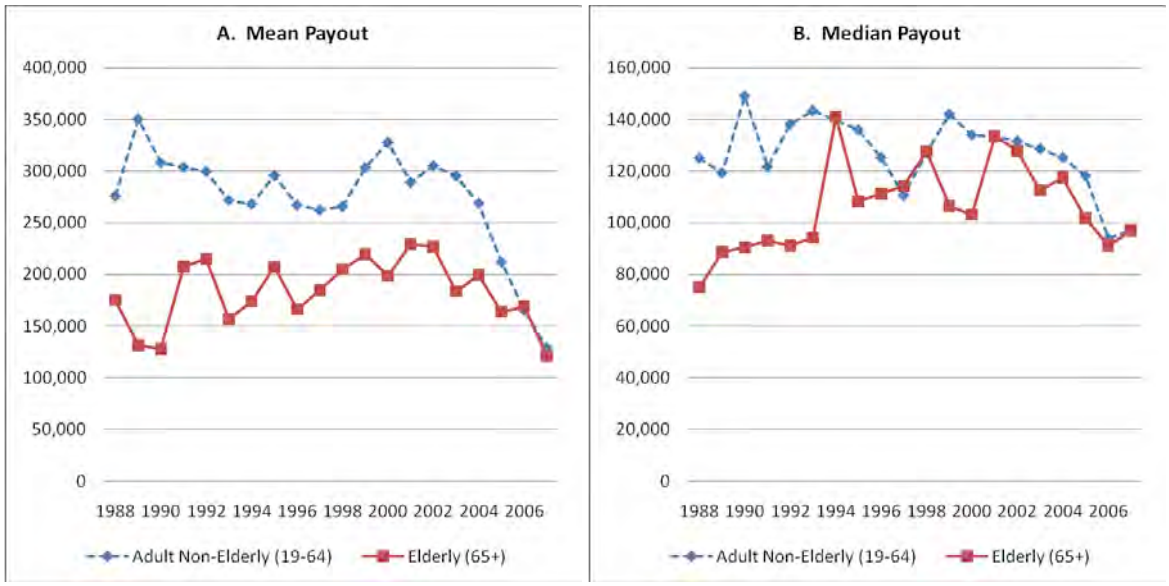
C. Payout per Claim

Panel A of Figure 4 shows time trends in mean payout per claim for elderly and adult non-elderly claimants; Panel B shows time trends in median payouts. Over 1988-2003, mean payout to the adult non-elderly was flat to gently declining, with substantial year-to-year variation. In contrast, mean payout to the elderly was rising, but remained well below the adult non-elderly level. After 2003, payout per claim drops for both groups. The gap between the two groups continues to shrink, and is essentially gone in 2006-2007.

As Panel B reflects, median payouts present a similar picture. Median payout to adult non-elderly claimants decreased steadily over our sample period, even prior to tort reform. Median payout to the elderly increased prior to tort reform, but fell after reform. By 2006, the gap between the two groups had closed.

[32] The predicted 2003 claim rate is given by (coefficient on constant term) + (2003-1990) * (coefficient on year term). The fractional decline due to reform is (coefficient on post-reform period)/(predicted 2003 claim rate).

Figure 4. Payout per Claim: Elderly vs. Adult Non-Elderly



Mean and median payout per claim by year for elderly and adult non-elderly claimants, for 12,108 nonduplicate, non-nursing home, med mal cases closed from 1988-2007 with payout > $25,000 in 1988 dollars. Amounts in 1988 dollars.

We also used regression analysis to examine how the 2003 reforms affected payouts. Table 4, regressions (1) and (2) are simple regressions for adult non-elderly and elderly claimants, with ln(payout) as dependent variable, and year, a post-reform dummy (=1 if the claim was subject to the non-econ cap, 0 otherwise) and a constant term as independent variables. The coefficient on year is positive for elderly claimants (1.0% per year) but insignificant for the adult non-elderly. Post reform, payout per claim drops sharply, by 29% for adult non-elderly claimants and 33% for elderly claimants.[33]

In regressions (3)-(6), we switch to a pooled sample of adult claimants, and add various control variables. In regression (3), we use ln(age +1) and employment status as controls. The overall time trend is insignificant. As expected, ln(age+1) takes a negative coefficient, indicating that older plaintiffs receive smaller payouts. In regressions (4)–(6) we use a dummy for elderly claimants, instead of a continuous age variable, with adult-non-elderly as the omitted group. The elderly are paid about 13% less than the adult non-elderly, on average.

[33] Here and in other regressions with ln(payout) as the dependent variable, we obtain percentage change estimates by taking the exponent of the coefficient. For example, in regression (1), $e^{-0.346} = 0.71$, which implies a 29% predicted drop in per claim payouts.

Table 4. Regressions: Payout per Claim and Claimant Age

Dep. variable	***Ln(payout)***					
Regression	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Age	**19-64**	**65+**	**All adults (19+)**			
Year	-0.0027 [1.22]	**0.0098 [2.48]****	-0.0005 [0.28]	-0.0004 [0.20]	-0.0026 [1.20]	-0.0015 [0.64]
Year * Elderly					**0.0125 [2.77]*****	**0.013 [2.87]*****
Post-reform dummy	**-0.3455 [8.99]*****	**-0.4062 [6.22]*****	**-0.3558 [10.70]*****	**-0.3583 [10.78]*****	**-0.3462 [9.01]*****	**-0.3604 [9.14]*****
Post-reform dummy * Elderly					-0.0607 [0.80]	-0.0639 [0.84]
Immediate pre-reform suit dummy						**-0.0905 [2.20]****
Employed			**0.0649 [3.20]*****	0.0345 [1.64]	0.0348 [1.65]*	0.0351 [1.67]*
ln (age + 1)			**-0.0773 [2.66]*****			
Elderly dummy (65+)				**-0.1362 [5.63]*****	**-0.2690 [5.02]*****	**-0.2734 [5.10]*****
Constant	11.87 [498.99]	11.59 [247.44]	12.09 [103.29]	11.83 [466.13]	11.85 [435.99]	11.84 [429.58]
Observations	9,650	2,458	12,108	12,108	12,108	12,108
Adjusted R^2	0.0076	0.0113	0.0101	0.0117	0.0121	0.0123

Ordinary least squares regressions of payout/claim for 12,108 nonduplicate, non-nursing-home med mal cases closed from 1988-2007 with payout > $25,000 in 1988 dollars. Adult non-elderly (age 19-64) is the omitted category in regressions (4)-(6). Amounts in 1988 dollars. *t*-statistics, based on robust standard errors, are in parentheses. *, **, *** indicate significance at the 10%, 5%, and 1% levels respectively (omitted for constant term). Significant results (at 5% level) are in **boldface**.

In Regression (5) we add interaction terms (year * elderly) and (post reform dummy * elderly). The (year * elderly) interaction term takes a positive and significant coefficient, consistent with elderly payouts rising relative to other claimants. The (post reform dummy * elderly) term is negative but insignificant. Although insignificant, the negative coefficient is consistent with our prediction in separate work that the elderly would suffer a larger payout decline due to the non-econ cap.[34]

Finally, in regression (6) we add an "immediate pre-reform suit" dummy (=1 if suit filed during Jun-August, 2003). This dummy capture the spike in filings just prior to the effective date for the 2003 reforms, to address the possibility that these cases differ from other pre-reform cases.[35] The immediate pre-reform cases are indeed different: they produce lower payouts on average, as indicated by the negative coefficient.

D. The elements of damages

[34] Hyman, Black, Silver, and Sage, *Damage Caps* (2009).

[35] One reason to expect a difference: Some of these filings were rushed to meet the deadline, hence the underlying claims might be weaker on average. A second reason, which we discuss further below: These claims were closed after the reforms were adopted; publicity associated with the political push for reform about runaway juries and excessive awards could have influenced expected awards, even if the pre-reform rules still applied.

Compensatory damages can be either economic or non-economic, and the 2003 tort reforms capped only the latter. Thus, it is worth assessing how the breakdown of damages differs between elderly and adult non-elderly plaintiffs. We focus on *tried* cases, where the award at trial provides this breakdown for *awarded* damages.[36] We estimate *paid* damages of each type, assuming that payouts are allocated first to economic damages, second to non-econ damages, and third to punitive damages.[37]

Table 5, Panel A, reports mean and median "per case" ratios and the aggregate ratio of paid economic damages to total damages for adult non-elderly and elderly plaintiffs. However measured, elderly plaintiffs receive a lower proportion of paid economic damages. The difference is greatest for the aggregate ratio, where only 36% of elderly payouts are attributable to economic damages, compared to 71% for the adult non-elderly.

Table 5. Paid Damages by Plaintiff Age and Type of Damages

Panel A. Paid Economic Damages: Percentages in Tried Cases

		Paid economic damages/total payout		
Age group	**No. of cases**	**Mean per-case ratio**	**Median per-case ratio**	**Aggregate ratio**
Adult Non-elderly (19-64)	251	49.7%	40.7%	71.0%
Elderly (65+)	43	37.7%	24.5%	35.5%
Elderly/Adult Non-elderly		76%	60%	50%

Mean per case, median per case, and aggregate ratio of paid economic damages/total payout, for 294 nonduplicate, non-nursing home, med mal cases involving adult plaintiffs with plaintiff verdicts, closed from 1988-2007 with payout > $25,000 in 1988 dollars. Amounts in 1988 dollars.

Panel B reports mean and median paid economic and (non-economic + punitive) damages for adult non-elderly and elderly plaintiffs. As Panel B reflects, mean paid economic damages for adult non-elderly plaintiffs are $245,000 versus only $70,000 for elderly plaintiffs. The pattern reverses for paid (non-econ + punitive) damages; the mean

[36] For settled cases we do not have a reliable breakdown between economic and non-economic damages. The claim reporting form asks insurers to first assess whether the settlement "was influenced by a demand for or possible award of non-economic exemplary damages or pre-judgment interest." If yes, insurers are asked to provide a breakdown. Insurers provide this breakdown in only 35% of all settled cases. It seems likely that in many of these cases, the insurer judged that the settlement amount was less than economic damages – which is not the same thing as there being zero expected non-econ damages if the plaintiff were to win at trial. According to these insurer allocations, non-economic damages accounted for 29% of payouts to elderly claimants in settled cases v. 25% of payouts to adult non-elderly claimants. We discuss insurer allocations in Black, Hyman & Silver (2010).

[37] See Black, Hyman and Silver (2009) for details on our procedure for estimating damages. In brief, we first determine the allowed damages of each type, after all damage caps, including pre- and post-judgment interest on each type of damage. We then allocate the payout to allowed damages as follows: (i) To allowed economic damages until payout is exhausted or these damages are fully paid ("paid economic damages"); (ii) to allowed non-econ damages until payout is exhausted or these damages are fully paid ("paid non-econ damages"); (iii) to allowed punitive damages until payout is exhausted or these damages are fully paid ("paid punitive damages"). In 30 of the 361 trials in our dataset, defendants pay more than the allowed verdict, with a mean (median) of $271,000 (69,000). We exclude this "payout bonus" from our analysis.

for adult non-elderly plaintiffs is $100,000 v. $127,000 for elderly plaintiffs.[38] Median awards show a similar pattern.

Panel B. Paid Damage in Tried Cases: Amounts

Damages type	Economic damages		Non-econ + punitive damages	
Age group	Mean	Median	Mean	Median
Adult Non-elderly	245	50	100	63
Elderly	70	36	127	119
Elderly/Adult Non-Elderly	28.5%	72.9%	127%	188%

Mean and median amounts of paid economic damages and paid (non-economic + punitive damages), for 294 nonduplicate, non-nursing home, med mal cases involving adult plaintiffs with plaintiff verdicts, closed from 1988-2007 with payout > $25,000 in 1988 dollars. Amounts in thousands of 1988 dollars.

Thus, the lower mean payouts to elderly plaintiffs are partly explained by lower economic damages. To be sure, this is not the whole story. It is plausible, indeed likely, that attorneys will only accept cases with low economic damages if expected (non-economic + punitive damages) are relatively high. The evidence in Panel B is consistent with this selection effect.

E. Blockbuster Payouts

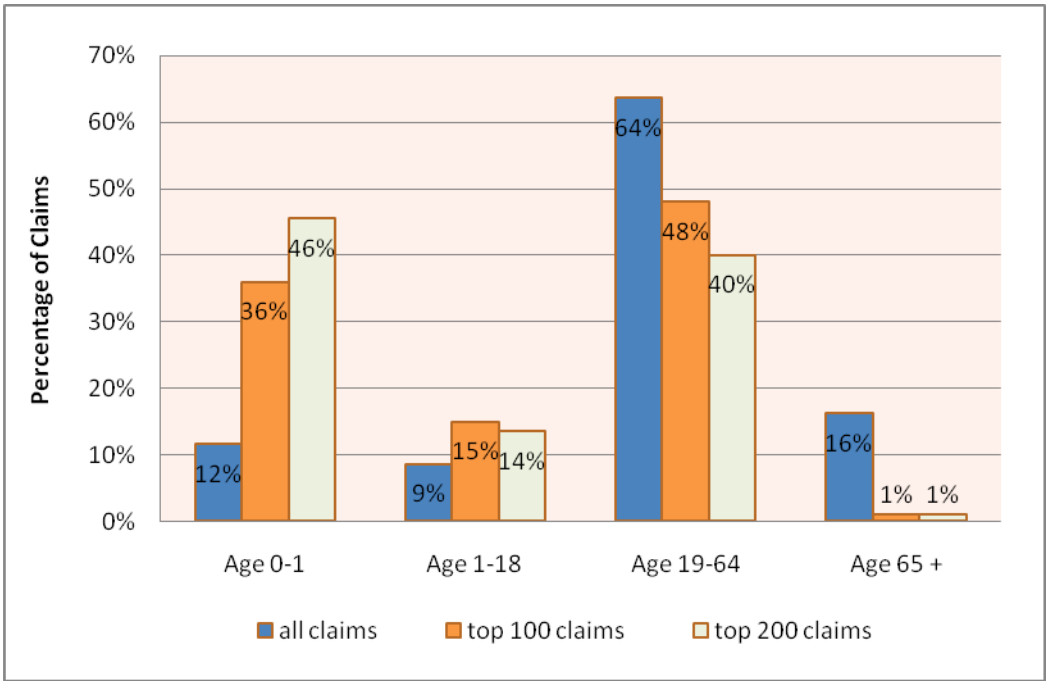
Med mal payouts have a strong positive skew – a limited number of large payouts account for a significant fraction of the total dollars paid by defendants and their insurers. We saw in Figure 4 that *mean* payouts are substantially lower for elderly than for non-elderly plaintiffs. In contrast the differences in median payouts to the two groups are smaller, although both differences largely disappear over our sample period. This pattern suggests that over the full sample period, the elderly are less likely to receive very large payouts. We confirm this by examining the largest ("blockbuster") payouts in our dataset. As Figure 4 reflects, the top 100 (200) claims are only 0.7% (1.4%) of total claims, but account for 14.5% (21.7%) of total payouts.[39]

As Figure 4 shows, although the elderly account for 16% of all claims (see Table 2), they account for only 1% of the largest 100 or 200 claims (one of the top 100; two of the top 200). Both of these payouts were in death cases, which likely had small economic damages (we cannot be sure because both cases settled before trial). Both preceded the 2003 non-econ cap. If the non-econ cap had applied during our entire sample period, it is possible that none of the top 200 payouts would have gone to an elderly claimant.

[38] There are only 12 post-cap trials in our dataset, of which 2 involve elderly plaintiffs. This is too few for us to directly assess how the non-econ cap affects allowed awards and payouts in tried cases.

[39] The top 100 claims account for $637M in payouts, and the top 200 claims account for $954M.

FIGURE 4. Distribution of Largest Payout Claims by Age Group



Percent of all payouts, and top 100 (200) claims made to claimants in indicated age ranges, for 15,173 nonduplicate cases included in med mal dataset of cases closed from 1988-2007 with payout > $25,000 in 1988 dollars, excluding nursing home cases. Amounts in 1988 dollars.

In blockbuster cases, the most common injury is brain damage/spinal cord injuries (70 of the top 100 cases, and 141 of the top 200), which often require costly long-term care. The second most common injury is death (8 of the top 100 cases, and 23 of the top 200), even though Texas caps damages plus prejudgment interest in death cases at roughly $975,000 (prior to 2003, this cap was per defendant).

E. Claim Duration

Elderly claims settle faster than adult non-elderly claims. Table 6 provides summary statistics on claim duration. The mean duration (from injury to closing) for elderly claimants is 3.47 years versus 3.98 years for adult non-elderly claimants – a difference of 0.5 years. The difference in median duration is 0.3 years. As Table 6 reflects, claim duration is shorter for elderly claimants partly because they bring claims more quickly after they are injured, and partly because their claims close faster once they are brought.[40]

[40] In robustness checks, we obtain similar results if we limit the sample to cases with suit filed.

Table 6. Claim Duration

	Duration			
	Injury to Close		Claim Opening to Close	
	Mean	Median	Mean	Median
Adult Non-elderly (19-64)	3.98	3.63	2.55	2.22
Elderly (65+)	3.47	3.33	2.30	2.04
Adult Non-elderly - Elderly	**0.50**	**0.30**	**0.26**	**0.18**
t-stat for mean or χ^2 (p-value) for median	**11.37*** **	**61.81 (0.000)*** **	**7.54*** **	**27.75 (0.000)*** **

Mean and median claim duration in years for 12,108 nonduplicate, non-nursing-home, med mal cases closed from 1988-2007 with payout > $25,000 in 1988 dollars. Last row reports t-statistics for difference in means, and χ^2 for difference in medians (p-value in parentheses) *, **, *** indicate significance at the 10%, 5%, and 1% levels respectively. Significant results (at 5% level) are in **boldface**.

We also analyzed non-parametric Kaplan-Meier survival curves for the period from injury to close, using cases that settled before trial completion. The elderly claim survival curve was consistently below the non-elderly curve.[41] For example, four years after injury, 70% of claims by the elderly are settled, compared to 58% of claims by the non-elderly. In unreported regressions, we confirm that elderly claims close faster over the full sample period, but also find evidence of convergence: the duration of elderly claims increases by around 1.1% per year; there is no similar trend for non-elderly claims.

In unreported regressions, we find that duration drops post-reform by about 44%, for elderly plaintiffs and about 32% for adult non-elderly plaintiffs. This difference in reform effects is also statistically significant. The reasons for this drop are not clear. One speculation: Post-reform, plaintiffs' lawyers are more likely to avoid complex cases, so the cases they bring close faster. Alternatively, if tort reform encourages plaintiff's lawyers to drop weaker cases (by making them less remunerative), the remaining "strong" cases may settle more quickly. We are unable to evaluate these explanations with our data.

F. Stage of Resolution

The elderly are more likely than the adult non-elderly to resolve a large paid claim without a lawsuit, and less likely to take a case to trial. Within the elderly, the likelihood of resolution without a lawsuit rises with age. Table 7 provides summary statistics.

[41] A log-rank test strongly rejects the null of equal survival functions ($\chi^2 = 291$, $p = 0.0000$).

Table 7. Stage at Which Claims are Resolved

Age Group	% No Suit Filed	% Trial
Adult non-elderly (19-64)	6.8%	3.1%
Elderly (65+)	10.6%	2.3%
Young Elderly (65-74)	9.2%	2.3%
Moderate Elderly (75-84)	10.8%	2.6%
Very Elderly (85+)	17.3%	1.4%
Elderly - Adult non-elderly	**3.9%**	**-0.8%**
t-statistic	**(6.70)*** **	**(2.09)** **
Very elderly (85+) – Other Elderly	**7.5%**	-1.0%
t-statistic	**(3.74)*** **	(0.95)

Fraction of claims resolved without trial and after full trial for elderly and adult non-elderly plaintiffs, for 12,108 nonduplicate, non-nursing-home, med mal cases closed from 1988-2007 with payout > $25,000 in 1988 dollars. Tried cases are reported as percent of cases with suit filed. Selected t-statistics for difference in means in parentheses. *, **, *** indicate significance at the 10%, 5%, and 1% levels respectively. Significant results (at 5% level) are in **boldface**.

V. Discussion

A. Convergence, Interrupted

We document a pattern of convergence in claim frequency and payouts to elderly versus adult non-elderly claimants during 1988-2003. After Texas adopted med mal reforms in 2003, including a relatively strict cap on non-econ damages, the convergence in claim rates apparently stalled. To be sure, any conclusions about the post-reform period are tentative, because we have only 3 years with a significant number of post-reform claims (2005-2007). Below, we address possible explanations for the rise and apparent post-reform stall in convergence in claim rates, and the near-complete convergence in payouts per claim.

B. Why Did Elderly Claims Rise Over 1988-2003?

We find a 2.5-fold rise over 1988-2003 in the rate of large paid claims by elderly plaintiffs, relative to the adult nonelderly rate, controlling for health care intensity. Possible explanations include (i) greater physician willingness to perform risky procedures on elderly patients, some of which lead to malpractice claims; (ii) a cultural shift toward greater willingness by the elderly to initiate a claim; and (iii) increased willingness of lawyers to take these claims.[42] We cannot differentiate among these explanations with our data, and they might well act synergistically.

C. Why Are Elderly Claim Rates Lower than Non-Elderly Rates?

[42] Fragility (elderly more likely to be injured than non-elderly) should be captured by our control for intensity, unless fragility is increasing.

Although claims by the elderly increased substantially, the elderly still bring claims much less often than the adult non-elderly, adjusted for health care intensity. For example, in recent years, the inpatient-days-adjusted elderly claim rate has been about 50% of the adult non-elderly rate. Possible reasons include reluctance to bring suit, especially against physicians (see Table 1), lesser familiarity of med mal lawyers with elderly claims, and lower expected damages for many claims. All of these explanations seem plausible; we cannot distinguish between them with our data.

D. Why Were Elderly Per-Claim Payouts Smaller – and Why Did They Converge?

Mean and median payouts to the elderly and adult non-elderly effectively converged during the period we study. There remains, however, an almost total absence of very large payouts to the elderly. The small number of very large payouts could reflect lower economic damages among the elderly. The elderly are unlikely to have large lost earnings, and their medical expenses will often be more modest than those for the adult non-elderly because they have a shorter remaining life-span during which to incur these expenses.

The relative increase in elderly payouts over 1988-2003 could be partly explained by the rising life expectancy of the elderly and their somewhat greater tendency to still be working.[43] It could also be related to the increase in claim rates, which might be accompanied by a different mix of elderly claims. As before, we cannot distinguish between these explanations with our data.

E. Effects of Tort Reform

The 2003 tort reforms had a dramatic impact on claim rates and payouts per claim. We expected the impact to be larger for elderly plaintiffs, because a higher proportion of their damages are non-economic. In fact, we find only modest evidence of a greater effect on the elderly. There is some evidence of a steeper drop in claim rates for the very elderly, and our point estimates, although statistically insignificant, suggest a larger drop in per-claim payouts for the elderly. Still, on the whole, we find comparable declines for the elderly and non-elderly. Thus, it does not appear that the Texas cap on non-economic damages materially "discriminates" against the elderly.

In prior work, we estimated that the Texas non-econ cap would result in a payout decline of 18%, holding case mix constant.[44] As Table 4, regressions (3)-(6) reflect, the full-sample payout decline estimates are higher than this, at 27-29% depending on specification. Moreover, case mix is strongly *not* constant, which ought to imply a smaller payout decline in the cases that are still brought. What might explain this unexpected result?

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[43] Life expectancy at age 65 was 16.9 years in 1988, and increased to 18.7 years in 2004 (*Vital Statistics of the United States 1988* and *National Vital Statistics Reports*, Vol. 56, No. 9). See http://www.cdc.gov/nchs/products/life_tables.htm. The labor force participation rate for ages 65-74 increased from 15.2% in 1986 to 23.6% in 2006; for those age 75+, the rate rose from 4.0% to 6.4%. See http://www.bls.gov/emp/emplab05.htm.

[44] Hyman, Black, Silver and Sage, *Damage Caps* (2009).

One explanation, suggested to us by Texas lawyers, is that the publicity associated with the campaign to enact tort reform made juries less generous, in addition to the direct effects of tort reform. If so, settlements should decline as well, since they are struck in the shadow of expected payout following a trial. Figure 2 provides some suggestive evidence: payout per claim begins to drop in 2003, even though the reforms affect almost no 2003 cases. The negative coefficient on a dummy variable for immediate pre-reform cases in Table 4, regression (6) is also consistent with this hypothesis.

Another source of evidence that publicity may have affected payouts: In a regression similar to Table 4, regression (3), but including cases covered under all five lines of insurance included in the TCCD, with a med mal dummy, a post-reform dummy, and an interaction between these two dummies, the *non-interacted* post reform dummy should capture the effect of reform on non-med-mal cases. This variable takes a -.089 coefficient (t = 4.55), even though the non-econ cap applies only to med mal cases. The extra decline in med mal cases, given by the coefficient on the interaction term, is only 18%, consistent with our prior simulations. These findings are consistent with qualitative research by Daniels and Martin, suggesting that tort reform has an important impact "between people's ears," by reframing the willingness of jurors to give large awards.[45]

F. Can Clever Lawyers Evade Damage Caps?

Professor Catherine Sharkey, based on a study of jury awards, has argued that economic and non-economic damages are sufficiently malleable that lawyers will respond to damages caps by transforming "capped" non-economic damages into "uncapped" economic damages, partly offsetting the impact of a damages cap.[46] For Texas, this speculation is simply wrong. Figure 1 makes it clear that total payouts to all claimants have all but fallen off a cliff, dropping by an estimated 75% post-reform.

Professor Sharkey's analysis was based on comparing the amounts awarded by juries (and not post-trial payouts), pre- and post-reform. She did not analyze settled cases, which account for the vast majority of claims and dollars. Her data also did not allow her to assess the impact of tort reform on claim frequency, nor how much of the post-reform verdicts exceeded the damages cap, nor actual post-verdict payouts. In contrast, we analyze the number of paid claims and actual payouts in both tried and settled cases, both pre- and post-reform.

We find that the Texas cap strongly affects both claim frequency and payout per claim, but has a greater impact on the former. The falloff in the number of claims reflects judgments by Texas plaintiffs' lawyers (presumably as smart, motivated, and good looking as lawyers elsewhere) that many cases are no longer worth bringing. This means, *contra* Professor Sharkey, that plaintiffs' lawyers have limited ability to offset the non-econ cap by manipulating damages. Surveys of Texas lawyers paint a similar picture.[47] To the extent that Texas lawyers were able to transform capped non-economic damages into

[45] Daniels & Martin (2000).

[46] Sharkey (2005).

[47] Daniels and Martin (2009).

uncapped economic damages, our finding of a 27-29% drop in payout per claim, and a 75% drop in total payouts reflects those efforts. Any offset potential is manifestly limited.

G. The Value of a Statistical Life

An extensive literature estimates the value of a statistical life ("VSL"). One of the flashpoints in the debate over the use of VSL has been whether the life of an elderly person should have a lower value than the life of a non-elderly person. Economists generally believe that there should be a "senior discount" (i.e., the VSL for an elderly person should be lower), because they have fewer years of life remaining.[48] Stated differently, if the VSL is the same for elderly and non-elderly individuals, that means the value of a life-year is implicitly being set much higher for the elderly than for the non-elderly. Senior citizens are unenthusiastic about the senior discount.[49] Regulatory attempts to incorporate a senior discount into cost-benefit analysis have been controversial.[50] What does our data imply about this debate?

First, we find near-complete convergence in per-claim payouts to elderly and adult non-elderly claimants, both in all cases and in death cases. To the extent there was ever a "senior discount," it has been eliminated. Second, the amounts paid in death cases are well below the estimate of a VSL, for all age groups.[51] Perhaps, life actually is cheap in Texas. Third, if VSL measures are similar for the elderly and adult non-elderly, this implies that juries are willing to award more per year of life lost to elderly claimants.

VI. Conclusion

At the start of our sample period, and controlling for health care intensity, the elderly greatly under-claim, relative to the adult non-elderly. The elderly claiming rate rises dramatically over the first 15 years of our sample period, but still reaches only about half of the adult non-elderly rate. The elderly claiming rate is roughly constant post-reform, suggesting that reform may have interrupted the convergence trend. Payouts to elderly claimants begin well below the adult non-elderly level, but converge fully to the adult non-elderly level by the end of our sample period. Thus, the 2003 tort reforms dramatically reduce claim frequency and payouts for all claimants, and apparently end the trend toward convergence in claiming rates.

For defendants and insurers, payouts to the elderly are no longer the largely insignificant portion of total exposure that they were 20 years ago. Still, due to lower claiming rates, the elderly share of med mal payouts remains well below their share of health care use.

Tort reform can dramatically affect claim rates and payout per claim, although we find only limited evidence it affects elderly claimants more severely than adult-non-elderly claimants. Once the pre-reform-claims fully work their way through the tort system, we

[48] See, e.g., Viscusi (2009); Graham (2008)

[49] Bustillo (2003)

[50] See Viscusi (2009); Graham (2008); Sunstein (2004); Tierney (2003)

[51] Cross & Silver (2006).

predict a 60% drop in total claims and a one-third drop in payout per claim. Combined, this implies a 75% drop in total payouts attributable to tort reform. Even if "everything is bigger in Texas," our findings indicate that the thirty-odd states that have adopted damages caps have probably realized significant reductions in claim rates and payouts per claim, relative to the unobserved no-cap alternative.

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Appendix: Construction of Structural Break Variable

The 2003 Texas reforms apply to cases with a lawsuit filed on or after September 1, 2003. Given the lag between suit and claim closing, we needed to develop a "post-reform period" variable that captures the gradual transition from the pre-reform to the post-reform period, and provides an estimate of what fraction of *potential* claims (claims that would have been brought without the reforms) that close in each year are post-reform. We proceed as follows. We predict for the entire dataset the probability that a suit filed at day 0 will survive for a given number of days, using the nonparametric Kaplan-Meier procedure.

For each day in each year, we use these survival probabilities to estimate the likelihood that a claim closed on that date will be post-reform. This probability is zero prior to the reform date and gradually rises toward 1 thereafter. We average these daily values to get an annual post-reform probability. As shown in Table 6, elderly claims close faster than nonelderly claims, so we estimate the post-reform variable separately for non-elderly, elderly, and all claims, as needed for each regression. We call this variable "post-reform period." It rises smoothly from 0 in 2002 to 0.83 for all claims (0.90 for elderly claims) in 2007. In robustness checks, we obtain similar results if we use the midyear estimate instead of the average of daily estimates, and if we predict claim survival based on injury date instead of suit-filed date.