How Do the Elderly Fare in Medical Malpractice Litigation? Evidence from Texas, 1988-2007

Myungho Paik
Northwestern University School of Law

Bernard S. Black
University of Texas, School of Law and McCombs School of Business

David A. Hyman
University of Illinois, School of Law and School of Medicine

William M. Sage
University of Texas School of Law

Charles M. Silver
University of Texas School of Law

Draft January 2010

Northwestern University Law School
Law and Economics Research Paper No. 09-24

University of Illinois
Law and Economics Research Paper No. LE09-009

University of Texas Law School
Law and Economics Research Paper No. 137

How Do the Elderly Fare in Medical Malpractice Litigation?

Evidence from Texas, 1988-2007

Myungho Paik, Bernard S. Black, David A. Hyman,

William M. Sage & Charles M. Silver*

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 compared to the nonelderly. We compare paid med mal claims brought by elderly and non-elderly plaintiffs during 1988-2007 (excluding nursing home claims); Texas adopted a strict cap on non-economic damages and other tort reforms in 2003. During the pre-reform period, paid claim frequency for elderly (non-elderly) plaintiffs rose (fell) over the pre-reform period, and elderly paid claims per inpatient day rose from roughly 20% to 60% of the nonelderly rate. The elderly received less per paid claim than the non-elderly, and were far less likely to receive large awards, but mean and median awards again converged. Post-reform, there is no evidence of either further convergence or of divergence in outcomes, for either claim frequency or payouts.

* Paik is Research Associate, Northwestern University Law School. Tel. 312-503-7029, email: m-paik@northwestern.edu. Hyman is Richard & Marie Corman Professor of Law and Professor of Medicine, University of Illinois. Tel. 217-333-0061, email: dhyman@law.uiuc.edu. Black will be, from 2010, Chabraja Professor at Northwestern University, Law School and Kellogg School of Management. He is currently Hayden W. Head Regents Chair for Faculty Excellence, University of Texas Law School, and Professor of Finance, University of Texas, Red McCombs School of Business. Tel. 312-503-2784, email: bblack@northwestern.edu. Sage is James R. Dougherty Chair for Faculty Excellence, University of Texas Law School. Tel. 512-232-7806, email: bsage@law.utexas.edu. Silver is McDonald Endowed Chair in Civil Procedure, University of Texas Law School. Tel. 512-232-1337, email: csilver@law.utexas.edu.

I. INTRODUCTION

The elderly account for a large share of medical care. They are more prone than the nonelderly to be harmed by medical error, because they encounter the health care system more often, and tend to have multiple medical conditions and medications. Yet little attention has been paid to how the elderly are treated by the medical malpractice system, and to how their claims are affected by tort reform. Past studies of the malpractice system have generally 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 medical malpractice ("med mal") claims by the elderly, excluding nursing home claims, using a unique closed claims database maintained by the Texas Department of Insurance covering the period 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 medical malpractice claims rose (fell) for elderly (non-elderly) claimants. 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 xx% of the nonelderly rate, or about 4 times higher than at the start of the period.[2] The elderly settled their claims faster, were less likely to take cases to trial, received less per paid claim than the non-elderly, and were far less likely to receive "blockbuster" payouts. But mean and median payout per claim also converged toward those for the nonelderly. By the end of the pre-reform period, payouts to elderly plaintiffs were close to 15% of all malpractice payouts – triple the sub-level at the start of our sample period, but still well below the elderly's 35% share of medical spending.

Post-reform, the number of claims and mean payouts dropped dramatically for all claimants. The effects of the 2003 reforms are not yet fully reflected in data on closed claims through 2007, so our conclusions are tentative, but we do not observe either continued post-reform convergence between the elderly and nonelderly, nor greater divergence. This could reflect the combined effect of a long-term convergence trend plus divergence due to the greater impact of a non-econ cap on the elderly.

Part II reviews the limited literature on malpractice claims by the elderly and describes our dataset. Part III assesses medical malpractice ("med mal") claims by elderly plaintiffs in non- nursing home cases. Part IV discusses the findings and Part V concludes.

II. LITERATURE REVIEW AND DATA SOURCES

A. Literature Review

The empirical literature on med mal claiming by the elderly is both modest and dated. Only one academic paper and one government report specifically study this topic.

[2] We use 2005 as the end of the "pre-reform" period because the reforms only affect cases filed after September 1, 2003. The duration of medical malpractice cases is such that

Sager et al analyzed Wisconsin malpractice claims from 1983-1984, and found that the elderly were significantly less likely to initiate malpractice litigation.[3] A GAO report on malpractice claims against hospitals over 1986-1990 found that Medicare patients accounted for about 32 percent of hospital discharges and 44 percent of hospital inpatient days but made only about 10% of claims and received about 10% of dollar payouts.[4] In addition, Studdert et al examine factors which predict whether victims of medical negligence are likely to sue. They find that victims over age 75 were especially unlikely to not file claims,.[5]

A similarly small body of work examines how tort reform on elderly claimants. Using cases from jury verdict reporters in three states, Bender concluded that non-econ caps hit the elderly harder than the non-elderly.[6] Conversely, Studdert et al. analyzed California jury verdicts and found that elderly and non-elderly plaintiffs were affected equally by the California non-econ cap.[7] In prior work, we estimate that the 2003 Texas non-econ cap would reduce payouts to elderly claimants by 31%, compared to 16% for adult-non-elderly plaintiffs.[8] This study simulates the effect of the Texas cap on cases brought with no cap – it holds case mix constant and does not assess how a non-econ cap will affect claiming rates. News stories and surveys have indicated that the 2003 Texas mel mal-centered tort reforms greatly reduced claim frequency.[9] Both news articles and legal scholars have suggested that med mal reforms have a disproportionate impact on the elderly.[10]

Our study is the first to present longitudinal evidence on med mal claiming by the elderly. We examine claim frequency, amount, and duration, both before and after the Texas reforms.

B. Data Sources

We study here med mal claims by elderly plaintiffs against physicians and hospitals, but not against nursing homes.[11] 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 insurance -- involving payouts by all defendants of more than $10,000 in nominal dollars.

[3] Sager et al (1990).

[4] General Accounting Office (1993).

[5] Studdert et al (2000).

[6] Bender **[year].**

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

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

[9] E.g., Carter (2006); [cite to Daniels and Martin, others]

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

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

Data are currently available through 2007. *TDI* checks the reports for internal consistency and reconciles them against aggregate annual reports filed by each insurer.[12]

We use this overall database to construct a "med mal no nurs" dataset which 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").[13]
- 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."[14]

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."[15]

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

[12] 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.

[13] Cases with payout of at least $25,000 are reported on a "Long Form" which contains the nature of the injury, which we require to classify a claim as involving medical malpractice. The reporting thresholds are not inflation-adjusted. Thus, some claims that are reported on the Long Form in later years would have been reported in earlier years on the Short Form used for smaller claims. To address this "bracket creep," we limit the sample to cases with payout of at least $25,000 in 1988 dollars. 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).

[14] We exclude nursing homes cases 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 xx cases against physicians or hospitals which were paid under "other professional liability" rather than medical professional liability insurance. We exclude cases which 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.

[15] TDI, Closed Claim Reporting Guide (2004), at 18.

includes 15,173 nonduplicate cases involving total payouts over 1988-2007 of $x.xx billion.[16]

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**.**[17] 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.[18]

Age group categories. We generally focus on two broad age groups, non-elderly claimants (age 0-64) and elderly claimants (age 65 and over). For some analyses, we separate non-elderly claimants into baby (age 0-1), child (age 1-18), and non-elderly adult (age 19-64); and separate elderly claimants by ten-year 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

[16] In xx 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.

[17] 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.

[18] The NHDS discharge data comes from the ICPSR website at http://www.icpsr.umich.edu/cocoon/ICPSR/STUDY/24281.xml. The original source is *National Hospital Discharge Survey*, 1988-2006, National Center for Health Statistics (NCHS), at Centers for Disease Control. Our Texas 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.

overall cap of $750,000. This would be expected to reduce both claim frequency and payouts. Anecdotal evidence suggests a large impact on both, and an accompanying decline in med mal insurance premia.[19]

We predict in separate work that this "non-econ cap" will reduce mean payouts in tried (settled) cases by 27% (18%) for all claimants and by 38% for the elderly; however the elderly-versus-nonelderly difference in per-case percentage reductions is not statistically significant.[20] We also predict that the non-econ cap will reduce payout by 34% in death cases versus 25% in non-death cases (statistically significant difference in per-case percentage reductions). However, the simulation methodology we use in this work assumes no change in case mix and does not let us estimate the Texas cap's effect on claim frequency.[21]

III. Empirical Results

A. Overview

Table 1, Panel A presents summary statistics on claim frequency and payout, by type of paying defendant(s), and the proportion of each attributable to elderly plaintiffs. Panel B presents summary information on population, hospital discharges, and inpatient days for different age groups. Hospital discharges and inpatient days provide different measures of treatment intensity. On the whole, we prefer the inpatient days measure, which reflects the tendency for the elderly to be sicker and frailer, stay in the hospital longer, and hence be more subject to the risk of medical error. The elderly account for 25% of hospital discharges and 36% of inpatient days, but only 16% of large paid claims and 10% of payouts.

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 nature of their treatment, or a combination of both.

---

[19] On claim frequency and payouts, see Carter (2006); Daniels and Martin (2009). On med mal premia, see **[to come].**

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

[21] The 2003 reforms included several less significant changes, including the following: Damages in death cases were limited to $975,000 total; this limit previously applied separately to each defendant. The standard of liability for emergency medical care in a hospital emergency room or obstetrical unit (or in surgery immediately after admission to the emergency room) was rauased from ordinary negligence to "willful and wanton negligence." In general, defendants who are less than 50% at fault are liable for damages multiplied by their percentage of fault, with damages reduced by any prior settlements; med mal defendants may choose to have damages reduced by either the prior settlements or the fault assigned to the settling defendants. Defendants can claim that part or most of the fault belongs to a non-defendant third party, and the jury must allocate fault to that person. And there is a 10-year "statute of repose", so if parents don't sue for a child's birth injuries by age 10, the child can not do so when he becomes an adult.

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	5,951	14.1%	2,761	7.3%
Other	403	23.1%	76	23.6%
Total	**15,174**	**16.2%**	**4,702**	**9.9%**
Panel B: Medical care use	**% of Population**	**% of Hospital Discharges**	**% of Inpatient Days**	
Babies (<1)	1.7%	14.6%	11.1%	
Children (1-18)	28.1%	8.2%	6.5%	
Adult non-elderly (19-64)	60.1%	52.1%	46.7%	
Elderly (65+)	10.0%	25.3%	35.6%	
Total	**100%**	**100%**	**100%**	

Panel A: Number of claims, payouts, and proportion due to elderly plaintiffs, for 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 and hospital inpatient days 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. As Table 2 reflects, payout per claim is lower for all elderly subgroups than for adult non-elderly claimants, and declines with plaintiff age. The ratio of (% of claims)/(% of inpatient days) provides a measure of the relative propensity of different age groups to sue. This ratio is 1 by definition for the whole population, but is only 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. For the claims that are brought, mean and median payout per claim also steadily decline with age.

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

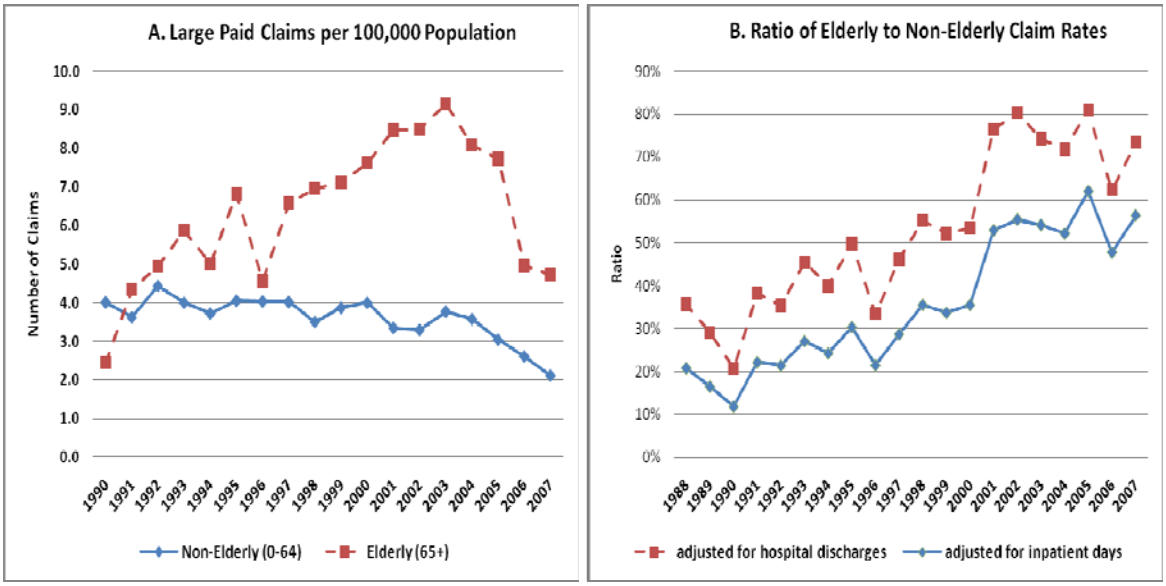
Age Group	% of population	% of inpatient days	% of Claims	% of Total Payout	Payout/claim ($ thousands)	
					Mean	Median
Baby/Child (0-18)	29.8%	17.6%	20.2%	33.6%	516	178
Adult Non-Elderly (19-64)	60.1%	46.7%	63.6%	56.5%	275	125
All Non-Elderly (0-64)	89.9%	64.4%	83.8%	90.1%	333	134
Young Elderly: 65~74	5.6%	14.4%	9.4%	5.9%	196	117
Moderate Elderly: 75~84	3.3%	14.0%	5.1%	3.1%	187	97
Very Elderly: 85+	1.1%	7.2%	1.7%	0.9%	162	85
All Elderly (65+)	10.0%		16.2%	9.91%	190	109

Percentages of population, inpatient days, claims and payouts, and mean and median payout per claim for plaintiffs in indicated age ranges, for 15,174 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. Simple Time Trends in Claim Frequency

The summary data in Part A submerges time variation. We turn to time trends here. In Figure 1, we how time trends in the number of large paid claims frequency by elderly and non-elderly claimants. Panel A shows paid claims per 100,000 population from 1990-2007. We omit 1988-1989 from the analysis because of underreporting in these years, which TDI addressed beginning in 1990. 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. Claims by the non-elderly per 100,000 people were roughly flat through 2003 at about 4.0, but then declined sharply, to 2.1 in 2007. In contrast claims by the elderly increased dramatically, from 2.4 to 9.2 per 100,000 people over 1990-2003, before falling sharply to 4.7 in 2007. 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 which result in a payout large enough to be included in our dataset. Thus, the trends in large paid claims by the elderly likely reflect underlying trends in total claims. The change in the prior time trend after 2003 is consistent with Texas's late 2003 adoption of a non-econ cap. We investigate and confirm this structural break in the regression analyses below.

Figure 1. Time Trends in Claiming by Age Group



Large paid claims per 100,000 people for elderly and non-elderly plaintiffs (Panel A), and ratio of elderly to non-elderly claim rates, adjusted for number of hospital discharges and inpatient days (Panel B), for 15,174 nonduplicate, non-nursing-home, med mal cases closed from 1988-2007 with payout > $25,000 in 1988 dollars. 1988 and 1989 are omitted from Panel A due to underreporting in these years.

Rates per unit of population do not take into account the tendency for the elderly to use more medical services than the non-elderly. In Panel B, we therefore switch to hospital discharges and inpatient days as denominators. We present the ratio of the elderly claim rate to the non-elderly rate, using each of these denominators. Claims per hospital discharge are shown in the top, dotted line, and claims per inpatient day in the bottom, solid line. Panel B begins in 1988, because we have no reason to believe that underreporting in 1988-1989 affected these ratios.

The trends are qualitatively similar for both measures. The relative frequency of claims by the elderly rises sharply through 2003. Using inpatient days – our preferred measure of medical intensity – as the denominator, the relative elderly/non-elderly rate rises from 20% in the first few years to about 55% in 2003. Thus, despite the dramatic increase in claiming by the elderly, the elderly still claimed substantially less often than the non-elderly, controlling for medical intensity. The relative rates shown in Panel B also show an apparent break at the time of the 2003 tort reforms. The relative elderly/non-elderly rate stops rising and is instead roughly flat. We again confirm this structural break in regression analysis below.

Table 2 illustrates several central themes of this paper. At the start of our sample period, the elderly greatly underclaim, relative to the non-elderly. The elderly claiming rate rises dramatically, converging toward the non-elderly rate for much of our sample period. The 2003 tort reforms dramatically reduce claim frequency for both elderly and non-elderly plaintiffs, and coincide with an end to convergence.

We turn next to regression analysis of time trends in the frequency large paid claims per 100,000 inpatient days.[22] We begin in Table 3 with a simple specification in which we regress claim frequency only on year and a constant term. As regressions (1) and (2) indicate, the overall downward trend in non-elderly cases shown in Figure 1, Panel A is driven by a decline in paid claims involving babies and children (ages 0-18). Adult-non-elderly claim rates did not change significantly.[23] Regression (3) reflects the strong trend toward higher claim frequency for elderly plaintiffs. 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 trend toward higher claiming rates was stronger among the young elderly, and weaker among the very elderly.

Table 3. Large Paid Claims per 100,000 Inpatient Days

Regression	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Age	**0-18**	**19-64**	**65+**	**65-74**	**75-84**	**85+**
Year	**-0.240**	-0.019	**0.155**	**0.176**	**0.161**	**0.120**
	[4.81]***	[0.23]	**[3.86]*****	**[2.90]****	**[5.01]*****	**[3.82]*****
Constant	8.84	8.41	1.54	2.62	0.95	0.47
	[16.92]	[16.92]	[16.92]	[16.92]	[16.92]	[16.92]
No. of Observations	18	18	18	18	18	18
R^2	0.641	0.004	0.611	0.466	0.696	0.498

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. 1988 and 1989 are omitted due to underreporting in these years. *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**.

C. Tort Reform and Structural Break in Claim Frequency

We next assess the magnitude of the tort-reform-induced structural break in claim frequency. A first challenge is to define a variable which captures the break. The non-econ cap applied to cases with a lawsuit filed on or after Sept. 1, 2003. Given an average two-year lag between suit and claim closing, the reforms will apply to almost no claims closed in 2003, a few closed in 2004, close to half of the claims closed in 2005, and an increasing percentage thereafter. We need a variable that captures this gradual transition from the pre-reform to the post-reform period. We cannot use the observed ratio of post-reform/total claims because this ratio is biased downward by the reforms.

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-

[22] In unreported robustness checks, we find similar trends in claims per 100,000 hospital discharges. In this and all other regressions, year is coded as year – first year in dataset. Thus, in Table 3, year is coded as year – 1990.

[23] In unreported regressions, we find that baby claims (age 0-1) decreased by 0.9 claims per 100,000 hospital days per year during the period, and claims by children (age 1-18) dropped by 0.04 claims per 100,000 hospital days per year. Both trends are statistically significant.

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, reaching 0. We average these daily values to get an annual post-reform probability. Claims by the elderly close faster than claims by the nonelderly (see Figure 5 below), so we estimate the post-reform probabilities separately for non-elderly, elderly, and all claims, as appropriate for a particular regression. We call this variable "post-reform period".[24] It rises smoothly from 0 in 2003 to 0.83 for all claims (0.90 for elderly claims) in 2007.

Table 4. Structural Break in Claims per 100,000 Inpatient Days

Regression	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Age	**0-18**	**19-64**	**65+**	**65-74**	**75-84**	**85+**
Year	**-0.156**	**0.197**	**0.262**	**0.322**	**0.246**	**0.202**
	[2.64]**	**[2.85]****	**[19.65]*****	**[11.54]*****	**[11.31]*****	**[6.20]*****
Post-reform period	**-2.46**	**-6.32**	**-2.88**	**-3.95**	**-2.31**	**-2.21**
	[2.19]**	**[5.41]*****	**[9.81]*****	**[6.85]*****	**[5.91]*****	**[4.12]*****
Constant	8.43	7.35	1.02	1.9	0.53	0.07
	[17.16]	[14.77]	[7.70]	[6.85]	[3.71]	[0.25]
No. of Observations	18	18	18	18	18	18
R^2	0.724	0.606	0.918	0.809	0.904	0.744
% drop post-reform	-38%	-64%	-65%	-65%	-62%	-82%

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 variable is Kaplan-Meier estimate of 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)/(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**.

With post-reform period included in the regression, the picture changes. First, the structural break is statistically strong in all regressions. Baby and child claims still drop pre-reform, though less sharply than Table 3 suggests. Claims by the adult non-elderly rise through 2003, before falling sharply. Elderly claims rise more sharply than Table 3 suggests through 2003, and then fall sharply.

We can estimate the magnitude of the effect of tort reform on claim frequency by using the regressions in Table 4 to predict claim frequency in 2003, and then use the coefficient on post-reform to predict the percentage decline in frequency, if the reform had applied immediately to all post-2003 claims.[25] These percentages are shown in the last row of Table 4. The decline is 38% for babies and children, but is very similar, at 64% and

[24] In robustness checks, we obtain similar results if we use the midyear estimate instead of the average of daily estimates, and if we predict survival based on injury date instead of suit-filed date.

[25] The predicted 2003 claim frequency 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 frequency).

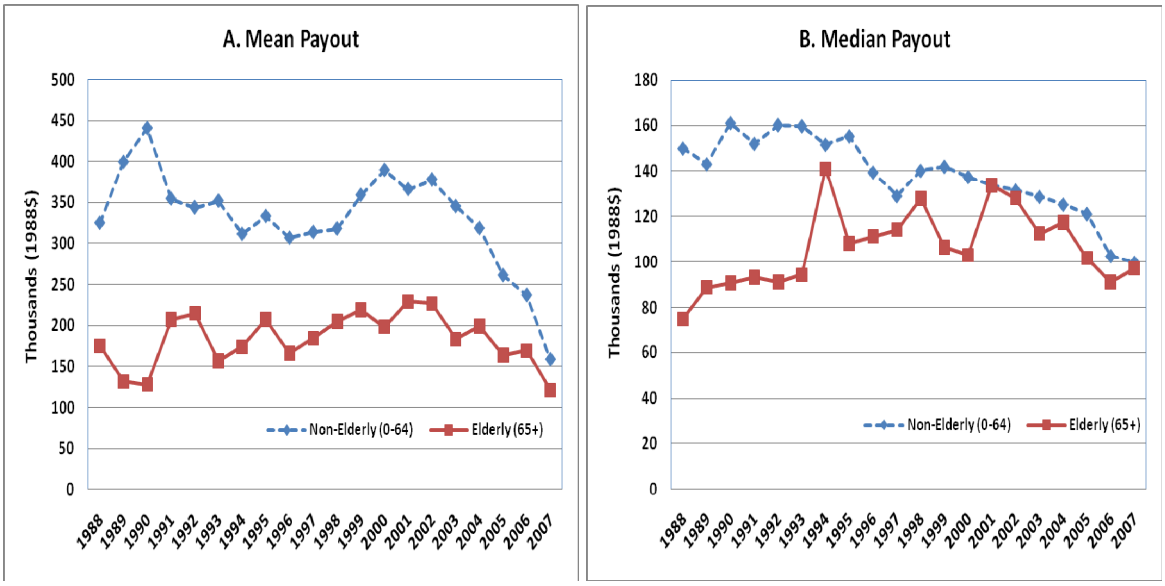
65%, for adult non-elderly and elderly plaintiffs. Within the elderly, the percentage decline is similar for ages 65-74 and 75-84, but rises to 82% for the very elderly (85+).

D. Payout per Claim

Figure 2 shows time trends in mean and median payout per claim for elderly and non-elderly claimants. Panel A (B) shows mean (mediam) payouts. Over 1988-2003, mean payout to the non-elderly was flat to gently declining. In contrast, mean payout to the elderly was rising, but remained well below the non-enderly level. After 2003, payout per claim drops for both groups, but by similar percentages; thegap between the two groups continues to exist but shrinks in dollar terms.

As Panel B reflects, median payouts present a different picture. Median payout to non-elderly claimants decreased steadily over our sample period, even prior to tort reform. Median payout to the elderly increased (declined) over time. By about 2000, the gap between the two groups was small, and has remained so since..

Figure 2. Payout per Claim: Elderly vs. Non-Elderly



Mean and median payout per claim by year for elderly and non-elderly claimants, for 15,174 nonduplicate, non-nursing home, med mal cases closed from 1988-2007 with payout > $25,000 in 1988 dollars. Amounts in 1988 dollars.

One reason why elderly claimants may receive lower payouts is that they have lower economic damages. Most are not working, so have no lost wages. Lifetime medical treatment, if needed, is less costly than for a younger claimant. We therefore assess the breakdown of damages into economic, non-economic, and punitive components for elderly versus non-elderly plaintiffs. We focus on tried cases, where the award at trial provides this breakdown for *awarded* damages. To estimate *paid* damages of each type, we first determine the *allowed* damages of each type, after all damage caps (Texas has a cap on damages in death cases, a cap on punitive damages, and, since 2003, a non-econ cap). We

allocate the payout to allowed damages (including pre- and post-judgment interest on these damages) as follows.[26]

> First, to allowed economic damages until payout is exhausted or these damages are fully paid ("paid econ damages");
>
> Second, to allowed non-econ damages until payout is exhausted or these damages are fully paid ("paid non-econ damages");
>
> Third, to allowed punitive damages until payout is exhausted or these damages are fully paid ("paid punitive damages").

This assumes that the parties have corresponding lexical priorities for the order in which damages are paid.

Table 4, Panel A, reports mean and median "per case" ratios (the mean or median of the ratios in each case) of economic damages to total payout, and also the aggregate ratio, for different age groups. However measured, elderly plaintiffs receive a lower proportion of paid economic damages than other med mal plaintiffs. The difference is greatest for aggregate payout, where payouts to the elderly are only 25% economic damages, compared to 60% for the non-elderly.

Table 4. 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**
Baby	33	69.8%	88.8%	70.1%
Child	32	32.1%	17.8%	55.8%
Adult Non-elderly	232	48.0%	37.8%	57.8%
All Non-elderly	297	48.7%	39.0%	60.1%
Elderly	**38**	**38.6%**	**29.7%**	**25.0%**

Panel A: Mean per case, median per case, and aggregate ratio of paid economic damages/total payout, for 335 nonduplicate, non-nursing home, med mal cases with plaintiff verdicts closed from 1988-2007 with payout > $25,000 in 1988 dollars. Amounts in 1988 dollars.

[26] See Black, Hyman and Silver (2009) for details on our procedure for estimating pre- and post-judgment interest. In some cases, defendants pay more than the allowed verdict. We exclude this "payout bonus" from our analysis. There is a payout bonus in [xx] of the 335 trials in our sample, with a mean (median) of $xxx,000 (yy,000).

Panel B. Damage Amounts

Damages type	Paid economic damages		Paid non-econ + punitive damages	
Age group	Mean	Median	Mean	Median
Baby				
Child				
Adult Non-elderly	166		121	
All Non-elderly				
Elderly	49		146	

Mean and median amounts of paid economic damages and paid (non-economic + punitive damages), for 335 nonduplicate, non-nursing home, med mal cases with plaintiff verdicts closed from 1988-2007 with payout > $25,000 in 1988 dollars. Amounts in thousands of 1988 dollars.

Looking first at mean values, one sees the large difference between the elderly and all other groups in paid economic damages. Mean paid economic damages are $166,000 for adult non-elderly plaintiffs, versus only $49,000 for elderly plaintiffs. In contrast, the mean payout of non-economic + punitive damages (which in practice is dominated by non-economic damages) is larger for the elderly than for adult non-elderly ($146,000 versus $121,000).

Thus, the lower mean payouts to elderly plaintiffs can potentially be fully explained by the elderly having lower economic damages. To be sure, this is not the whole story. A simple model in which plaintiffs' lawyers decide which cases to accept (or take to trial), accept based on total expected payout would predict that in the cases which plaintiffs' lawyers accept (take to trial) if economic damages are lower for plaintiff group X, their expected (non-economic + punitive damages) must be higher. We do not have a way to estimate how age affects expected payout of (non-economic + punitive damages), holding constant the nature of the injury.

[discussion of medians to come]

E. Tort Reform and Structural Break in Claim Frequency

We turn next to regression analysis to more closely examine differences in payouts among age groups, including the impact of the 2003 tort reforms. Regressions (1) and (2) are simple regressions for non-elderly (elderly) claimants, of ln(payout) as dependent variable on 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 (negative) for elderly (non-elderly) at 1.0% (0.6%) per year. There is a sharp drop in payout per claim for post-reform claims, of 29% (33%) for non-elderly (elderly) claimants.[27]

[27] 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), $e^{-0.347} = 0.71$, which implies a 29% predicted drop in per claim payouts.

In regressions (3)-(6), we switch to a pooled sample with control variables, including employment status (which is likely to predict the level of economic damages) and various measures of age. In regression (3), we include a baby dummy and ln(age +1) as controls .The overall time trend is insignificant. As expected, ln(age+1) takes a negative coefficient, indicating that the older the plaintiff, the less the expected payout. In regression (4) we use age group dummies instead of a continuous age variable, with adult-non-elderly as the omitted group. Babies and children receive higher payouts than adult non-elderly claimants, while the elderly are paid about 13% less on average.

Table 5. Regressions: Payout per Claim and Claimant Age

dep. variable	***ln(payout)***					
Regression	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
age	**0-64**	**65+**	**All**			
year	**-0.0057** **[2.83]*** **	**0.0098** **[2.48]** **	-0.0019 [1.07]	-0.0023 [1.27]	**-0.0043** **[2.16]** **	-0.0025 [1.18]
year*elderly					**0.014** **[3.20]*** **	**0.015** **[3.10]*** **
Post-reform dummy	**-0.348** **[9.12]*** **	**-0.4062** **[6.22]*** **	**-0.331** **[10.16]*** **	**-0.333** **[10.23]*** **	**-0.318** **[8.57]*** **	**-0.34** **[8.87]*** **
Post-reform dummy * elderly					-0.088 [1.17]	-0.094 [1.20]
Immed pre-reform suit dummy						**-0.142** **[3.07]*** **
employed			**0.046** **[2.53]** **	0.0075 [0.33]	0.03 [1.43]	0.03 [1.45]
ln (age + 1)			**-0.142** **[10.06]*** **			
baby dummy (0-1)			**0.124** **[2.00]** **	**0.635** **[18.32]*** **	**0.634** **[18.29]*** **	**0.635** **[18.33]*** **
child dummy (1-18)				**0.224** **[6.24]*** **	**0.223** **[6.21]*** **	**0.222** **[6.19]*** **
elderly dummy (65+)				**-0.137** **[5.65]*** **	**-0.286** **[5.41]*** **	**-0.294** **[5.40]*** **
constant	12.01 [558.69]	11.59 [247.44]	12.358 [221.79]	11.85 [488.24]	11.869 [464.87]	11.858 [456.99]
observations	12,715	2,458	15,173	15,173	15,173	15,173
pseudo R^2	0.0078	0.0121	0.0482	0.0474	0.048	0.0486

Ordinary least squares regressions of payout/claim for 15,173 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)-(5). Amounts in 1988 dollars. *t*-statistics 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**. Baby dummy includes claims of patients aged younger than 1 year.

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 cases showing rising payouts per claim relative to the nonelderly. 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.[28]

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

Finally, in regression (6) we add an "immed pre-reform 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, and allows for the possibility that these cases are different than other pre-reform cases. The immediate pre-reform cases are indeed different, they produce lower payouts on average, weaker as indicated by the -0.142 coefficient on this dummy. The other variables change only slightly.

The full-sample payout decline estimates, from Table 4, regressions (3)-(6), are 27-29% depending on specification. This is a larger drop than the 18% we estimated in prior work (holding case mix constant).[29] Yet 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?

One explanation, suggested to us by Texas lawyers, is that the publicity surrounding the tort reform effort could have, without more, caused juries to be less generous, which would also affect settlement values. Figure 2 provides some consistent evidence: Payout per claim begins to drop in 2003, even though the reforms affect almost no 2003 cases. The negative coefficient on the immediate pre-reform cases 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, the post-reform dummy, and a (med mal dummy * post reform dummy) interaction, post reform dummy takes a -.089 (t=4.55) coefficient, even though the non-econ cap applies only to med mal cases. The extra decline in med mal cases, given by the coefficient on (med mal dummy * post reform dummy) is only 18%, consistent with our prior work.

F. Total Annual Payouts

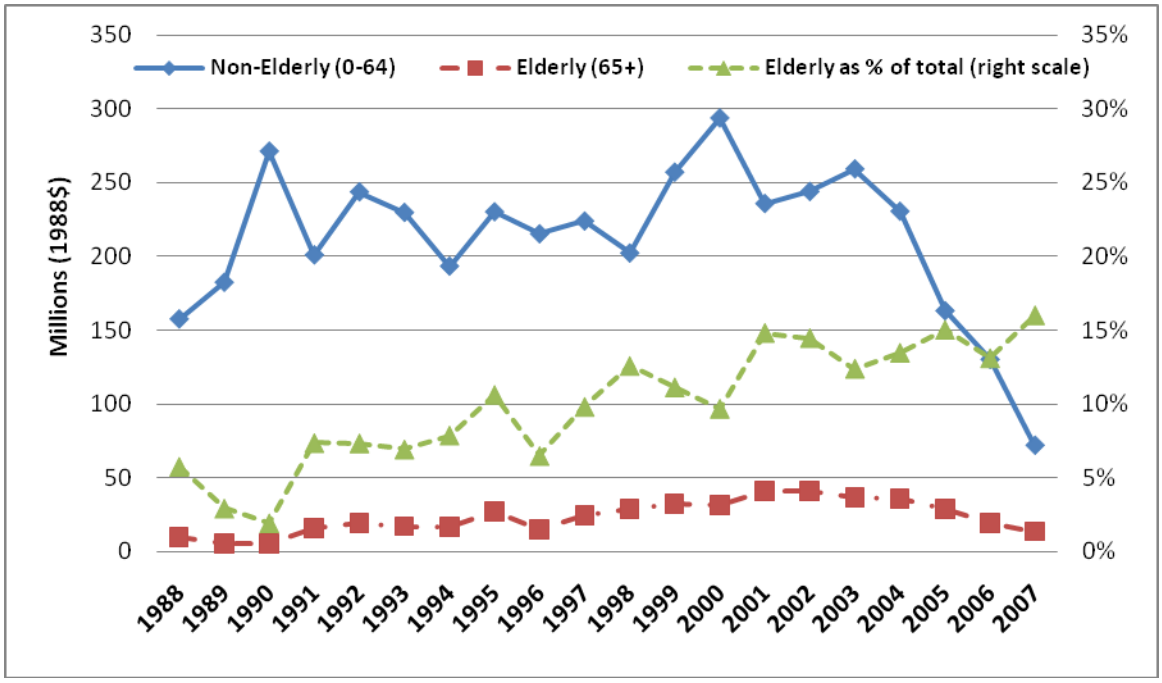
We have seen that the elderly were converging to the non-elderly in both claim frequency and payout per claim, and that this convergence was interrupted in 2003 by the Texas tort reforms. We look next at total annual payouts. Trends in total payouts should reflect the combined effect of trends in claim frequency and payout per claim. Figure 3 provides an overview. The top solid line shows total payout to non-elderly plaintiffs; the bottom solid line shows total payouts to elderly plaintiffs, and the middle line shows the ratio of the two. Payouts to non-elderly were roughly flat from 1990-2003 (1988 and 1989 are artificially low due to underreporting), but crashed thereafter, from an average of about $250 million over 2001-2003 to only $72 million in 2007. Total payout 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 about 13% by 2003, and has no post-reform time trend. The lack of a post-reform trend is consistent with the evidence above that reform had a broadly similar effect on elderly and non-elderly plaintiffs for both claim frequency and payout per claim.

For defendants and insurers, payouts to the elderly are no longer the nearly insignificant portion of total exposure that they were 20 years ago. Still, they remain well

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

below the elderly share of inpatient days (an average of 32% over 2003-2006), due to a combination of lower claim rates and lower payout per claim.

Figure 3. Total Annual Payouts to Non-Elderly and Elderly Plaintiffs



Total payout by year for elderly and non-elderly claimants (left scale), and ratio of elderly to non-elderly total payout (right scale), for 15,174 nonduplicate, non-nursing-home, med mal cases closed from 1988-2007 with payout > $25,000 in 1988 dollars. Amounts in 1988 dollars.

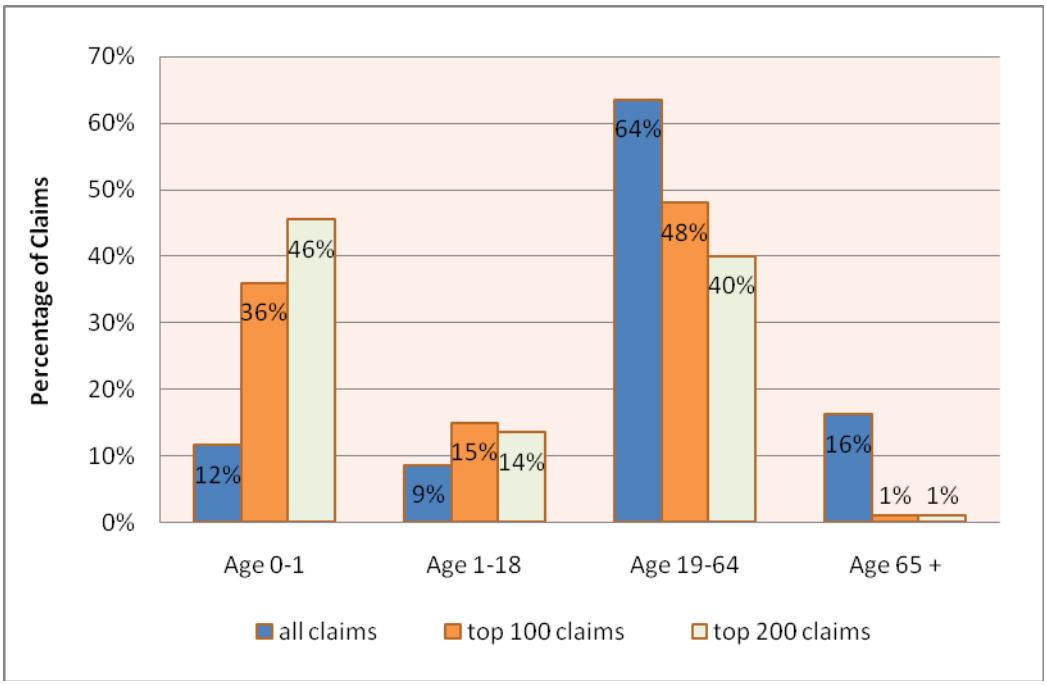
G. Blockbuster Payouts

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 2 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, and largely disappear over our sample period. This pattern suggests that the elderly are less likely to receive very large payouts. We confirm this by examining in Figure 4 the 200 largest ("blockbuster") payouts in our dataset. The top 100 (200) claims are only 0.7% (1.4%) of total claims, but account for 14.5% (21.7%) of total payouts.[30]

As Figure 4 shows, although the elderly account for 16% of all claims, they account for only 1% of the largest 100 or 200 claims (one case in the top 100; two in the top 200. Both of these large 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 reforms. If the post-12003 rules had applied during out entire sample period, it is possible that none of the top 200 payouts would have gone to elderly claimants.

[30] The top 100 claims account for $637M in payouts. The top 200 claims account for $954M in payouts.

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 15,174 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 requires expensive long-term care. The second most common injury in blockbuster cases 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.

H. Claim Duration

Claims brought by the elderly settle faster than claims brought by the non-elderly. Table 6 provides summary statistics on mean and median claim duration. The mean duration (from injury to closing) for elderly claimants is 3.47 years versus 4.29 years for non-elderly claimants – a difference of 0.83 years; the elderly median is also shorter, by 0.44 years. As Table 6 reflects, claim duration is shorter for the elderly partly because they bring claims more quickly after they are injured, and partly because the claims close faster once they are brought.[31]

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

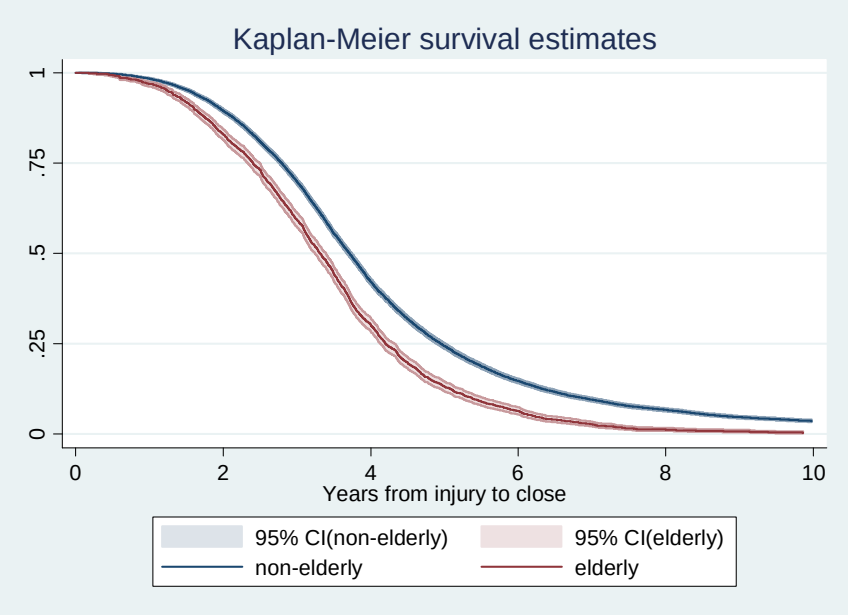
Table 6: Claim Duration and Resolution Stage

	Duration			
	Injury to Close		Claim Opening to Close	
	Mean	Median	Mean	Median
Under 65	4.29	3.74	2.65	2.28
Over 65	3.47	3.33	2.30	2.04
Non-elderly - elderly	**0.82**	**0.44**	**0.35**	**0.24**
t-stat for mean or χ^2 (p-value) for median	**15.04*** **	**119.1 (0.0000)*** **	**9.80*** **	**50.3 (0.0000)*** **

Mean and median claim duration in years for 15,174 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**.

Figure 5 shows non-parametric Kaplan-Meier survival functions for the period from injury to close, for settled elderly and non-elderly claims together with 95% confidence interval bands around each. The elderly survival function is consistently below the non-elderly function. A non-parametric log-rank test strongly rejects the null of equality of the two survival functions ($\chi^2 = 289$, p = 0.0000). For example, four years after injury, 71% of claims by the elderly have been settled, compared to 58% of claims by the non-elderly.

FIGURE 5. Elderly versus Non Elderly Claim Duration



Kaplan-Meier survival functions for 2,407 elderly and 12,351 non-elderly nonduplicate. Non-nursing-home, med mal cases, settled before trial completion, closed from 1988-2007 with payout ≥ $25,000 in 1988 dollars. Duration= days from injury to settlement.

We turn in Table 7 to regression analysis of claim duration. In regression (1), we regress ln(duration) for non-elderly plaintiffs, measured as days from claim opening to claim closing on year, ln(payout), a multiple defendants dummy, and constant. Regression (2) show is similar, except for elderly plaintiffs. Elderly claims close faster, reflected in

the smaller constant term. In this respect, too, the elderly are converging toward the nonelderly. Claim duration for the non-elderly was flat over our sample period, but rose for the elderly.[32] As expected, claims with higher payouts and multiple defendants take longer. Regression (3) pools all claims, and adds age group dummies (adult non-elderly is the omitted category. On average over the entire sample period, elderly claims close about 10% faster than adult non-elderly claims.

Table 7. Regression: Claim Duration (Report to Close)

Dep. variable			**Ln(duration)**		
Sample	**All cases**	**All cases**	**All cases**	**All cases**	**Suit filed**
	[1]	**[2]**	**[3]**	**(4)**	**(5)**
	Age 0-64	**Age 65+**	**All Ages**	**All Ages**	**All Ages**
Year	-0.0014	**0.0108**	0.0007	**0.0044**	0.0005
	[1.34]	**[4.40]*** **	[0.70]	**[4.00]*** **	[0.46]
Year * elderly				**0.0157**	**0.0101**
				[5.43]* **	**[3.73]*** **
Post-reform dummy				**-0.3158**	**-0.2742**
				[12.63]* **	**[11.61]*** **
Post-reform dummy * elderly				**-0.1179**	-0.065
				[2.12] **	[1.21]
ln (payout)	**0.0232**	0.0187	**0.0163**	0.0113	**-0.0144**
	[4.50]* **	[1.35]	**[3.36]*** **	[2.34]**	**[3.22]*** **
Multidefendant dummy	**0.1514**	**0.1689**	**0.1499**	**0.1465**	**0.0727**
	[12.67]* **	**[6.49]*** **	**[13.80]*** **	**[13.59]*** **	**[7.20]*** **
Baby (0-1)			**0.1387**	**0.1356**	**0.1306**
			[8.46]* **	**[8.34]*** **	**[8.76]*** **
Child (1-18)			**0.0413**	**0.0356**	0.0229
			[2.25] **	**[1.96]***	[1.36]
Elderly (65+)			**-0.0993**	**-0.268**	**-0.1884**
			[7.04]* **	**[8.00]*** **	**[5.87]*** **
Constant	**0.4353**	0.2235	0.4747	**0.5211**	**0.9725**
	[7.11]* **	[1.39]	[8.24]	**[9.08]*** **	**[18.22]*** **
Observations	12,715	2,458	15,174	15,173	14,106
R^2	0.0182	0.0284	0.0289	0.045	0.0284

Regression of ln(days from claim opening to closing), for non-elderly and elderly claimants, for 15,173 nonduplicate, non-nursing-home, med mal cases closed from 1988-2007 with payout > $25,000 in 1988 dollars. In regression (3), baby dummy is age < 1; child dummy is age 1-18; elderly dummy is age 65+; adult non-elderly (age 19-64) is the omitted category. *t*-statistics, based on robust standard errors, are in parentheses. *, **, *** indicate significance at the 10%, 5%, and 1% levels respectively. Significant results (at 5% level) are in **boldface**.

[32] Duration and payout are potentially endogenous, which could bias the coefficients on other variables. However, in robustness checks, we obtain almost identical coefficients on year in regressions without ln(payout).

In regressions (4)-(5), we add post-reform dummy and its interaction with elderly dummy, and also interact year with elderly dummy. Regression (4) includes all cases; regression (5) is limited to cases with suit filed. We again see a positive trend for the elderly, shown by the positive coefficient on year * elderly in both regressions. We again see no strong trend for non-elderly (the positive coefficient on year in regression (4) becomes small and insignificant when we limit to suit filed cases in regression (5). Focusing on suit filed cases, which account for 93% of the cases and xx% of the payout dollars, duration for elderly claims increases by around 1% per year.

Duration also drops sharply post-reform, for both elderly and non-elderly plaintiffs. The reasons for this drop are not clear. One speculation: Post-reform, plaintiffs' lawyers avoid complex cases, so the cases they still bring will close faster (the multidefendant dummy may only crudely capture complexity). Another speculation: the cases that are still brought are stronger, so get resolved faster.

H. Stage of Resolution

Table 8 provides summary statistics on the likelihood that claims are resolved either early (without a suit being filed) or late (after a full trial), broken down by age group and, for the elderly, by subgroup. The likelihood a claim is resolved without suit increases with age. It is higher for the elderly than for the adult non-elderly, and within the elderly, higher for older subgroups. The elderly are also somewhat less likely to take a case to trial than other groups, including the adult non-elderly.

Table 8: Stage at Which Claims are Resolved

Age Group	% No Suit Filed	% Trial (If Suit Filed)
Baby and child (age 0-18)	5.1%	2.8%
Adult non-elderly (age 19-64)	6.8%	3.1%
Elderly (age 65+)	10.6%	2.3%
65-74	9.2%	2.3%
75-84	10.8%	2.6%
85+	17.3%	1.4%
Elderly - Adult non-elderly	3.9%	-0.8%
t-statistic	**(6.70)*** **	**(2.09)** **

Percentage of cases resolved without a suit being filed, and resolved after a verdict, for 15,174 nonduplicate, non-nursing-home, med mal cases closed from 1988-2007 with payout > $25,000 in 1988 dollars. *t*-statistic for difference in proportions in parentheses. *, **, *** indicate significance at the 10%, 5%, and 1% levels respectively. Significant results (at 5% level) are in **boldface**.

IV. Discussion

A. Convergence

We document a pattern of convergence in the frequency of claiming and the payouts received by the claimants, compared to the non-elderly, during 1988-2003, prior to

Texas's adoption in 2003 of a non-econ cap and other tort reforms. Conclusions about the post-reform period must be tentative, because we have only 3 years with a significant number of post-reform claims (2005-2007). It appears that this convergence stalled post-reform. There is some evidence of a reversal for the very elderly, but not for other elderly claimants. Below, we address possible explanations for the rise and then post-reform stall in claim frequency and in payouts per claim.

B. Why Did Elderly Claims Rise?

We document a large increase in large paid claims by elderly plaintiffs over 1988-2003. Possible explanations include (i) a relative increase in the rate of malpractice against the elderly; (ii) increased willingness on the part of the elderly to initiate a claim; and (iii) increased willingness of lawyers to take these claims.[33] We are unable to differentiate among these possible explanations with our data. However, the first seems unlikely. The very elderly aside, frailty among the elderly, and hence susceptibility to malpractice, likely decreased over this period.[34] The second and third seem possible, and are likely to be synergistic. As the elderly become more willing to bring claims, med mal lawyers will become more familiar with these claims and more willing to take them.

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

Although claims by the elderly increased substantially, they still lag well behind the frequency of non-elderly claims, despite the greater fragility of the elderly, which may be only partly captured by our inpatient days denominator. The inpatient-days-adjusted elderly claim rate is only about 55% of the non-elderly rate in the more recent sample years. Possible reasons include continued limited willingness of the elderly to sue their 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.

C. Why are Per-Claim Payouts to the Elderly Smaller – and Why Did They Increase from 1988-2003?

Mean and median payouts to the elderly converged toward non-elderly levels during our sample period, but means remain significantly lower than for the non-elderly, and there is an almost total absence of very large payouts to the elderly. The lower mean damages and absence of very large payouts could reflect the elderly incurring lower economic damages. The elderly are unlikely to have material lost earnings – and their medical expenses will often be more modest than those for the non-elderly because they have a shorter remaining life-span during which to incur such expenses. The differences are not explained by differences in type of harm – mean payouts to the non-elderly are higher for 17 of the 18 damage types coded in our dataset, with elderly/non-elderly ratios ranging from 23% to 77%. The one exception is a small category of burns (heat).

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

[34] **[source to come]**

The relative increase in elderly payouts over 1988-2003 could be explained by the increase in life expectancy of the elderly, and their somewhat greater tendency to still be working..[35]. It could also be related to the increase in claim rates, which might be accompanied by a change in the mix of elderly claims which are brought.

D. Effects of the Non-Econ Cap and Other Tort Reform

In 2003, Texas adopted a comprehensive package of tort reforms, including a cap on non-economic damages for all cases filed after September 1, 2003. The reforms had a dramatic impact on both claim rates and payout per claim, for both elderly and non-elderly plaintiffs. We expected the impact to be larger for elderly plaintiffs, because a higher proportion of their damages are non-economic. This is indeed the case for nursing home claims, which are outside the scope of this paper but collapse almost completely after the reforms.[36] There is some evidence of a greater effect on the very elderly for non-nursing home claims (see Table 4). **[More to come]**

V. Conclusion

[to come]

References

Black, Bernard, David Hyman, Charles Silver, Kathryn Zeiler & William Sage, *To Sue is Human: A Profile of Medical Malpractice Litigation* (forthcoming 2010)

Black, Bernard, David Hyman, Charles Silver & William Sage, *Defense Costs in Medical Malpractice and Other Personal Injury Cases: Evidence from Texas, 1988-2004*, 10 American Law and Economic Review 185-245 (2008).

Black, Bernard, David Hyman & Charles Silver, *Early Settlement Offers: Evidence From Texas Medical Malpractice Cases*, at http://ssrn.com/abstract=1134202.Carter, Terry, Tort Reform Texas Style: New Laws and Med-Mal Damage Caps Devastate Plaintiff and Defense Firms Alike, *ABA Journal*, October 2006, pp. xxx-yyy.

Daniels, Stephen, and Joanne Martin, "The Juice Simply Isn't Worth the Squeeze in Those Cases Anymore": Damage Caps, 'Hidden Victims,' and the Declining Interest in Medical Malpractice Cases (working paper 2009), at http://ssrn.com/abstract=1357092

Finley, Lucinda M., *The Hidden Victims of Tort Reform: Women, Children, and the Elderly*, 53 Emory Law Journal 1253-1314 (2004).

Hyman, David A., Bernard Black, Charles Silver & William Sage, *Estimating the Effect of Damage Caps in Medical Malpractice Cases: Evidence from Texas*, 1 Journal of Legal Analysis 355-409 (2009), at http://ssrn.com/abstract=1087679.

[35] Life expectancy at age 65 was additional 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.

[36] Paik, Hyman, Black and Silver (2010).

Paik, Myungho, David A. Hyman, Bernard Black & Charles Silver, *How Low Can You Go: Nursing Home Litigation in Texas and Tort Reform* (working paper 2010) (http://ssrn.com/abstract=1xxxxxx)

Rubin, Paul H., and Joanna M. Shepherd, The Demographics of Tort Reform, 4 Review of Law and Economics 591-620 (2008).

Sager, Mark, Susan Voeks, Paul Drinka, Elizabeth Langer & Paul Grimstad, *Do the Elderly Sue Physicians?* 150 Archives Intern. Med. 1091 (1990)

Studdert, David, Eric Thomas, Helen Burstin, Brett Zbar, John Orav, Troyen Brennan, Negligent Care and Malpractice Claiming Behavior in Utah and Colorado, 38 Medical Care 250 (2000)

Studdert, David M., Y. Tony Yang, and Michelle M. Mello, Are Damage Caps Regressive? A Study of Malpractice Jury Verdicts in California, 23(4) Health Affairs 54-67 (2004)

Washburn, Lindy, *In Malpractice Law, An Agonizing Grey Area: Lower Damages for Elderly Victims Lead Many Lawyers to Spurn Their Cases,* Washington Post, Dec. 22, 2002