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Trends

Effects Of The Malpractice Crisis On Access To And Incidence Of High-Risk Procedures: Evidence From Florida

Will the recent upsurge in malpractice premiums drive obstetricians and neurosurgeons away from "crisis states"?

by David Dranove and Anne Gron

ABSTRACT: There is much debate on how recent increases in medical malpractice premiums affect patients' access to care. We examined activity levels of neurosurgeons and obstetricians, as well as the incidence of high-risk surgery and patients' travel times in Florida, where malpractice insurance premiums have soared since 2000. Compared with 1997–2000, we found that during 2000–2003, many neurosurgeons cut back their volume of brain surgeries and that craniotomy patients traveled longer for care without any significant change in the overall incidence of craniotomies. Women undergoing high-risk deliveries did not see increases in travel times.

In March 2005 the American Medical Association (AMA) identified twenty states in "full-blown crisis" because of escalating medical malpractice premiums. Another twenty-three states were classified as "showing problem signs."[1] Data from A.M. Best show that spending for malpractice premiums increased 16.6 percent in 2001–02 and 16.9 percent in 2002–03 versus an average annual change of 2.3 percent during 1995–2000.[2]

Many fear that rising premiums are driving specialty physicians out of states with a crisis or causing them to curtail certain services, potentially leaving some patients without another convenient source of care. Many anecdotes support these fears. For example, in an address to a congressional subcommittee, John Nelson of the AMA stated,

> Escalating jury awards...have caused medical liability insurance premiums to reach unprecedented levels. As insurance becomes unaffordable or unavailable, physicians are being forced to relocate, close their practices, or drop vital services—all of which seriously impeded patient access to care.[3]

A 2003 report by the U.S. Government Accountability Office (GAO) paints a different picture.[4] It investigated many anecdotes and questioned whether the rate of physician migration has increased. Critics of the study argue that the GAO's data and methodology did not adequately measure physician migration or service reductions and that the data do not extend beyond 2002, whereas many incidents relevant to the study occurred in 2003.

In this paper we report on trends in physician activity, the incidence of high-risk surgery, and patients' access to surgery in Florida.

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We examined data for 1997, 2000, focusing on two specialties—obstetrics and neurosurgery—that have been especially hard hit by malpractice premium increases.

We chose Florida because it is deemed by the AMA to be in "full-blown crisis," with some of the highest malpractice premiums and litigation rates in the country.[5] Also, the timing of premium increases in Florida broadly tracks national changes. For example, the price of basic general surgery malpractice coverage in Florida was essentially flat during 1997–2000, mirroring the national trend. From 2000 to 2003 premiums increased rapidly both in Florida and nationwide. The median Florida increase in 2002 alone was more than 50 percent, compared with a national median of 29 percent.[6] Finally, Florida makes available nearly current data on hospital use, including physician identifiers. This allowed us to measure how physicians have altered their activity levels in response to the crisis and any resulting impact on access to care.[7]

Data Types And Sources

■ **Hospital use.** We used hospital inpatient use data provided by the Florida State Center for Health Statistics. They contain up-to-date details about every admission, including patients' diagnosis-related group (DRG) and primary and secondary diagnoses. We thus could identify neurosurgery and obstetric procedures and define high-risk procedures within these categories. The data also identify the surgeon, which enabled us to measure changes over time in each surgeon's activity level, and they contain patient demographics including residence ZIP codes. We did not compare trends in Florida with other states, because comparable data were not available.

■ **Craniotomies.** We could not directly identify those admissions most likely to result in lawsuits, so we used simple rules of thumb to categorize "high-risk" surgeries. For neurosurgery, we selected craniotomies (DRGs 1–3). Of all neurological procedures, these have the highest mortality rate. This choice is also consistent with anecdotal reports of the riskiest procedures. Two advantages to studying craniotomies are that they are exclusively inpatient procedures and that the reported incidence cannot be manipulated through upcoding on clinical records. Thus, we believe that we have a reasonably exact count of these procedures. Of course, some craniotomies represent greater risks than others; thus, our results could mask changes that are occurring for the very highest-risk procedures.

■ **Obstetrics.** For obstetrics, we wanted to select deliveries for which preexisting complications posed the danger of a risky delivery. We initially identified a set of diagnostic codes associated with this risk, such as hemorrhage in early pregnancy.[8] However, we observed a substantial (30 percent) increase over time in the percentage of patients reported to have these complications. We were concerned that this increase might reflect upcoding, not a change in incidence, so we instead selected patients in DRGs 370 and 372 (cesarean and vaginal deliveries with complications).[9]

The incidence of DRGs 370 and 372 (relative to deliveries without complications) did not change markedly over time and thus appears to be immune from substantial upcoding. Moreover, these DRG classifications are highly correlated with the presence of preexisting complications as indicated by diagnostic codes.[10] The correlation is not perfect, however, so we included some cases in which complications arose first during the delivery. As a result, we might have understated the extent to which physicians avoided patients who had preexisting conditions.

■ **Study periods.** We compared physician activity, incidence, and patient access for calendar years 1997, 2000, and 2003. The 1997–2000 period served as a benchmark to determine if the observed trends in 2000–2003 were under way before malpractice premiums spiked. Our obstetrics data follow these calendar years exactly, but our neurosurgery data do not because of a change in reporting conventions. In the fourth quarter of 2003, several new neurosurgery DRGs were introduced that do not cleanly map into the old DRGs. Thus, we elected not to analyze 2003 fourth-quarter neurosurgery data. For this reason, the periods

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we analyzed are as follows: for craniotomies, CY 1997, 1999 Q4–2000 Q3, and 2002 Q4–2003 Q3; and for high-risk deliveries, CY 1997, CY 2000, and CY 2003. For both sets of procedures, we refer to the years as 1997, 2000, and 2003. For the craniotomy analysis, the 1997–2000 time period is three months shorter than the 2000–2003 time period. This biases in favor of finding increased changes in activity levels in the latter time frame; however, the difference is not so large that we would expect a big effect.

Physician Activity Levels

We first assessed the number of physicians performing high-risk procedures and their activity levels. To simplify the presentation of results, we defined four activity levels based on the annual frequency of high-risk procedures as follows: very high—a minimum of fifty-two high-risk procedures annually; high—26–51; medium—12–25; and low—fewer than twelve. We selected these levels because they have convenient real-world counterparts (for example, more than one procedure weekly), they highlight the physicians who are performing the bulk of high-risk procedures, and they divide the physicians into fairly large clusters. The choice of thresholds was not critical to our analysis, and our findings did not change as we modified them.[11]

■ **Number performing high-risk procedures.** For both craniotomies (Exhibit 1) and high-risk deliveries (Exhibit 2), the number of physicians performing high-risk procedures fell from 2000 to 2003, whereas the number appears to have increased from 1997 to 2000.[12]

■ **Changes in high-risk activity.** Comparisons of craniotomy activity in Exhibit 3 reveal one pronounced trend: Almost 21 percent of

EXHIBIT 1
Number Of Brain Operations In Florida, By Physicians' Activity Level, Selected Years 1997–2003

	Distribution of operations by activity level				
	Total	**Low**	**Medium**	**High**	**Very high**
1997					
Number	8,724	540	811	3,267	4,106
Percent	100%	6.2%	9.3%	37.4%	47.1%
2000					
Number	9,590	687	997	2,893	5,013
Percent	100%	7.2%	10.4%	30.2%	52.3%
2003					
Number	10,162	585	1,029	2,816	5,732
Percent	100%	5.8%	10.1%	27.7%	56.4%
	Distribution of physicians by activity level				
1997					
Number	474	292	44	89	49
Percent	100%	61.6%	9.3%	18.8%	10.3%
2000					
Number	530	341	52	79	58
Percent	100%	64.3%	9.8%	14.9%	10.9%
2003					
Number	497	304	54	78	61
Percent	100%	61.2%	10.9%	15.7%	12.3%

SOURCES: Florida State Center for Health Statistics inpatient utilization data; and authors' calculations.

NOTES: Because of changes in diagnosis-related group (DRG) coding in the fourth quarter of 2003, we actually compare 1997, 1999 Q4–2000 Q3, and 2002 Q4–2003 Q3. Observations where the physician identifier was missing or was coded "RES000" for resident were dropped. See text for details.

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EXHIBIT 2
Number Of High-Risk Deliveries In Florida, By Physicians' Activity Level, Selected Years 1997–2003

	Distribution of operations by activity level				
	Total	**Low**	**Medium**	**High**	**Very high**
1997					
Number	30,126	3,368	7,613	12,266	6,879
Percent	100%	11.2%	25.3%	40.7%	22.8%
2000					
Number	32,281	3,044	8,687	12,469	8,081
Percent	100%	9.4%	26.9%	38.6%	25.0%
2003					
Number	31,650	2,774	9,172	11,754	7,950
Percent	100%	8.8%	29.0%	37.1%	25.1%
	Distribution of physicians by activity level				
1997					
Number	1,551	674	441	345	91
Percent	100%	43.5%	28.4%	22.2%	5.9%
2000					
Number	1,622	677	484	355	106
Percent	100%	41.7%	29.8%	21.9%	6.5%
2003					
Number	1,580	637	507	333	103
Percent	100%	40.3%	32.1%	21.1%	6.5%

SOURCES: Florida State Center for Health Statistics inpatient utilization data; and authors' calculations.

NOTES: Diagnosis-related groups (DRGs) 370 or 372. Observations where the physician identifier was missing or was coded "RES000" for resident were dropped.

EXHIBIT 3
Changes In Craniotomy Activity In Florida, By Physicians' Initial Activity Level, 1997–2000 And 2000–2003

	Initial activity level			
Change	**Low[a]**	**Medium**	**High**	**Very high**
1997–2000				
Increase	35.5%	40.1%	33.7%	30.6%
No change to −24.9%	3.2	9.1	19.1	40.8
−25% to −49.9%	6.5	13.6	25.8	18.4
−50% to −74.9%	19.4	9.1	6.7	0.0
−75% to −100%	35.5	27.3	14.6	10.2
Total	100.0	100.0	100.0	100.0
2000–2003				
Increase	34.0	32.7	32.9	32.8
No change to −24.9%	6.4	21.2	24.1	21.0
−25% to −49.9%	10.6	13.5	27.9	15.5
−50% to −74.9%	8.5	1.9	5.1	8.6
−75% to −100%	36.2	28.9	10.1	12.1
Total	100.0	100.0	100.0	100.0

SOURCES: Florida State Center for Health Statistics inpatient utilization data; and authors' calculations.

[a] Includes only those doctors performing 5–11 procedures in base year.

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neurosurgeons with very high craniotomy activity in 2000 curtailed their activity by at least 50 percent in 2003. In contrast, only 10 percent of neurosurgeons with very high activity in 1997 showed similar reductions by 2000.

High-volume obstetricians, however, did not cut back their activity relative to trend; in fact, 25 percent more increased their practices during 2000–2003 (Exhibit 4). At the same time, there was a significant increase in 2000–2003 in the percentage of low-activity doctors who curtailed their volume of deliveries by 75 percent or more and a decrease in low- to medium-volume physicians who increased their activity. Because the number of missing physician identifiers is declining from period to period, the evidence for low-volume providers is difficult to interpret.[13]

■ **Turnover among low-volume providers.** We found considerable turnover in the number of neurosurgeons performing 1–3 high-risk procedures, with a substantial decline in their overall numbers in 2003, especially relative to trend (Exhibit 5). During the same 2000–2003 time period, there was higher overall turnover among doctors performing 1–3 high-risk deliveries, resulting in a slight overall reduction in this group.

Impact On Patient Access: Travel Times And Incidence

Here we document changes in access over time, as measured by incidence (number of procedures performed) and travel times.[14] We assumed that all pregnant women were able to find an obstetrician to deliver their babies, and so we restricted the incidence analysis to craniotomies.[15] We report changes for the overall state and for rural ZIP codes, where the crisis might have the largest impact, since rural providers might be spread farther apart.[16] As a benchmark for comparison, we also report trends for noncraniotomy neurosurgeries and all "low-risk" deliveries. We would expect the malpractice crisis to have had only a small impact on these procedures.

■ **Travel times.** Travel times increased for craniotomies both statewide and in rural markets (Exhibit 6). The statewide increase was considerably larger for 2000–2003 than for 1997–2000 and was also larger than the trend for other neurosurgeries, consistent with a malpractice crisis effect. The pattern in rural ZIP codes was mixed, however. There was also no observed increase in travel times for high-risk deliveries.

EXHIBIT 4
Changes In High-Risk Delivery Activity In Florida, By Physicians' Initial Activity Level, 1997–2000 And 2000–2003

	Initial activity level			
Change	**Low[a]**	**Medium**	**High**	**Very high**
1997–2000				
Increase	45.2%	41.7%	29.6%	20.7%
No change to −24.9%	9.6	15.9	22.0	27.2
−25% to −49.9%	7.3	13.4	21.4	21.8
−50% to −74.9%	8.1	8.6	10.2	16.3
−75% to −100%	29.9	20.4	16.8	13.0
Total	100.0	100.0	100.0	100.0
2000–2003				
Increase	38.2	35.7	24.8	25.2
No change to −24.9%	8.3	18.4	24.5	26.2
−25% to −49.9%	5.0	12.6	23.5	19.6
−50% to −74.9%	6.2	8.5	12.4	13.1
−75% to −100%	42.0	24.8	15.8	15.9
Total	100.0	100.0	100.0	100.0

SOURCES: Florida State Center for Health Statistics inpatient utilization data; and authors' calculations.
[a] Includes only those doctors performing 5–11 procedures in base year.

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EXHIBIT 5
Number Of Doctors Performing 1–3 High-Risk Operations (Craniotomies And High-Risk Deliveries) Annually In Florida, Selected Years 1997–2003

	1997	2000	2003
Craniotomy			
Total number of doctors	261	294	265
Number of exits from sample	–	225	246
Number of new entries	–	257	212
High-risk delivery			
Total number of doctors	289	339	327
Number of exits from sample	–	195	256
Number of new entries	–	242	227

SOURCES: Florida State Center for Health Statistics inpatient utilization data; and authors' calculations.
NOTES: Exits from sample are physicians no longer performing procedures. New entries are physicians not in the sample at any level the prior year. Totals do not equal the prior total plus new entries less exits, because some physicians may increase or decrease procedures and because observations with a missing or "RES000" (resident) identifier were dropped.

■ **Incidence.** The statewide incidence of craniotomies increased over time (Exhibit 6). Incidence also increased in rural ZIP codes, but at a much higher rate in 1997–2000, followed by a slight decline in 2000–2003. The latter finding suggests that the malpractice crisis is causing a problem with incidence in rural markets relative to urban markets, especially since the incidence of other neurosurgeries in rural markets did not level off.

■ **"Exiters" and "entrants."** We also examined incidence and travel time in ZIP code areas that experienced "exit" and "entry" by high-volume physicians, which might have felt a disproportionate impact from the malpractice crisis. "Exiters" are physicians who had high or very high activity in the "base year" and low (or no) activity in the end year. "Entrants" are physicians with low (or no) activity in the base year and high or very high activity in the

EXHIBIT 6
Incidence Of Neurosurgery Procedures And Travel Times For Neurosurgery And For High-Risk Deliveries In Florida, Selected Years 1997–2003

	Number of neurosurgery procedures					
	Full sample			Rural		
	1997	2000	2003	1997	2000	2003
No craniotomy	15,962	16,660	16,245	1,588	1,675	1,792
Craniotomy	8,162	9,010	9,621	692	875	863
	Neurosurgery travel time (average, minutes)					
No craniotomy	25.0	25.0	26.6	49.7	49.0	50.5
Craniotomy	35.3	36.8	41.4	65.0	68.9	69.5
	Delivery travel time (average, minutes)					
Not high risk	20.7	21.0	21.4	41.2	41.2	41.0
High risk	21.1	21.4	22.0	42.0	43.7	42.8

SOURCES: Florida State Center for Health Statistics inpatient utilization data; and authors' calculations.
NOTES: Travel times were truncated to 200 minutes. Excludes ZIP codes with fewer than five procedures annually.

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end year. These definitions exclude physicians with medium-to-low activity levels and are largely confined to urban ZIP codes. Thus, we are examining some of the markets affected by exit and entry.

For craniotomies, we found that exit and entry did not affect incidence. Moreover, increases in travel times in markets experiencing exit and entry were comparable to the overall statewide trend. Exit appears to have caused a slightly increase in travel times for patients with high-risk deliveries in 1997–2000 but not in 2000–2003. Entry does not appear to have affected travel times.

Discussion

There are widespread fears that the recent upsurge in medical malpractice premiums will drive obstetricians and neurosurgeons away from "crisis states," with dire consequences for patients' access to care. Focusing on data from Florida, a crisis state, we attempted to document these consequences. As might be expected in an area of such debate, our findings provide potential support for both sides of the debate.

■ **Access to brain surgeries.** We found a sharp increase in travel times for craniotomy patients, even when compared with past trends or with trends for other neurosurgery procedures. This is tangible evidence of a harmful crisis effect. The overall incidence of craniotomies has been increasing, which suggests that patients are able to obtain this high-risk procedure somewhere in the state. However, there is some evidence of decreased incidence in rural areas.

■ **Changes in activity levels and exit rates.** We also found a reduction in the activity levels of high-volume neurosurgeons and an increased rate of exit of low-volume physicians. The latter effect is present for both procedures but is strongest for physicians performing high-risk deliveries. Exit by low-volume providers might be an early response to drastic changes in the cost of malpractice insurance, since these high-risk procedures are a small part of their practices, and the discrete nature of insurance premiums makes performing even a few procedures quite expensive.

■ **Impact on rural areas.** Some media reports express concern about the potential effects of the malpractice crisis on rural markets. Patients in rural markets already face access barriers, as evidenced by their higher travel times. We did find some evidence that rural populations are hurt by the malpractice crisis, but given the smaller numbers and greater variance, we were unable to find systematic disproportionate effects of the crisis on rural ZIP codes.

■ **Mixed findings.** Overall, our findings give a mixed account of the effects of the malpractice crisis in Florida. Some neurologists—at both the high and the low ends of the activity spectrum—are cutting back on performing craniotomies, and craniotomy patients are traveling a bit farther for care. Travel times for high-risk deliveries are unchanged, and rural markets do not appear to have been disproportionately affected by the crisis. Of course, we are unable to comment on whether there are similar effects in other states, as Florida is the only state in crisis that makes available the kind of current data necessary to link physician exit and entry to incidence and access.

■ **Potential for further harm.** Perhaps "crisis" is too extreme a term to use as of 2003, at least when considering incidence and access in Florida. But the evidence of tangible effects in 2003 may foretell even larger effects in the future. Considering that it is very costly for a physician to build a practice anew, physicians might wait awhile before pulling up stakes. Our 2003 data may simply be too "young" to reflect the full impact of the crisis.

■ **Possible solutions.** On the other hand, there are some signs that hospitals may step into the breach and help defray malpractice costs. This would not be surprising, for many specialties are crucial to hospitals' mission and profitability. For example, BayCare Health Care System is offering its physicians liability insurance at a deep discount relative to commercial prices.[17] This represents a novel way of aligning the interests of hospital and physicians, and it echoes the development of physician-owned mutuals and other alternative in-

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surance providers that emerged after the malpractice crises of the 1970s and 1980s. It remains to be seen if these arrangements will expose hospitals to excessive risk. If not, then there is some hope for greater malpractice insurance availability through the expansion of pools to include hospitals and physicians.

WE NOTE IN CLOSING that the malpractice crisis can have many different harmful effects, and policy responses could be tailored to the specific problems that are observed. At the same time, policy responses can have harmful effects of their own. For example, tight caps on noneconomic damages have been shown to be effective in holding down malpractice premiums, with potentially broad implications for access and incidence, but critics argue that such caps are likely to harm patients who are hurt by medical errors and negligent physicians.[18] Moreover, tort reform remains a captive of the political process. Absent effective tort reform, more directed policies such as targeted increases in reimbursement rates could mitigate problems with incidence and access as they arise.[19] Thus, it is essential to continue to monitor access and incidence effects in Florida and nationwide.

The authors are grateful to Subramaniam Ramanarayanan and Angie Malakhov for research support. All errors are the authors' own.

NOTES

1. American Medical Association, "America's Medical Liability Crisis: A National View," 15 March 2005, www.ama-assn.org/ama/noindex/category/11871.html (21 March 2005). This was up from twelve states reported by the AMA in mid-2002. The twenty states in crisis as of March 2005 were Arkansas, Connecticut, Florida, Georgia, Illinois, Kentucky, Massachusetts, Mississippi, Missouri, Nevada, New Jersey, New York, North Carolina, Ohio, Oregon, Pennsylvania, Texas, Washington, West Virginia, and Wyoming.
2. This is measured as the annual change in medical malpractice net written premiums. See A.M. Best Company, *Best's Aggregates and Averages Property/Casualty* (Oldwick, N.J.: A.M. Best Company, 2004). These include premiums reported to the National Association of Insurance Commissioners (NAIC), but not all entities selling medical malpractice insurance report to this group.
3. AMA, "Dying for Help: Are Patients Needlessly Suffering due to the High Cost of Medical Liability Insurance?" Statement of the AMA to the House Government Reform Subcommittee on Wellness and Human Rights, by John C. Nelson, 1 October 2003, www.ama-assn.org/ama/pub/category/12988.html (22 March 2005).
4. U.S. Government Accountability Office, *Medical Malpractice: Implications of Rising Premiums on Access to Health Care*, Pub. no. GAO-03-836 (Washington: GAO, 2003).
5. The Insurance Information Institute reports that Florida doctors are sued twice as often as those in other states. See R. Hartwig and C. Wilkinson, "Medical Malpractice Insurance," *Insurance Issues* Series 1, no. 1 (2003).
6. *Medical Liability Monitor* (Chicago: Medical Liability Monitor, 1997–2002). The median changes for Florida by year are as follows: 1997–98, 0 percent; 1998–99, 0 percent; 1999–2000, 10.5 percent; 2000–01, 12.7 percent; and 2001–02, 50.7 percent. Nationally, the median percentage changes in premiums for these years were 7.3, 10, 9.6, 14.6, and 29.1 percent.
7. It is worth noting that Florida does not require physicians to carry liability insurance. This might limit exit in times of rapidly increasing premiums. However, most Florida hospitals have required physicians with privileges to have liability insurance.
8. We included all patients with a diagnostic code in *International Classification of Diseases*, Ninth Revision (ICD-9) categories 640–469, "Complications mainly related to pregnancy," as well as multiple gestations.
9. An increase in upcoding might imply that patients reported to have preexisting conditions in later years were less severely ill, on average, than patients with preexisting conditions in earlier years. To avoid the resulting potential bias, we proceeded with the analysis based upon DRGs.
10. Roughly 75–85 percent of patients in DRGs 370 and 372 reported one or more preexisting complications, versus only about 30–40 percent of patients in DRGs 371 and 373.
11. For tables with physicians by percentiles, see www.kellogg.northwestern.edu/faculty/gron/htm/Percentile%20Tables-ALL.pdf (15 February 2005).
12. The 1997–2000 changes in numbers of physicians are more difficult to interpret since a number of observations in 1997 have missing data or are coded simply as "resident" (code RES000), while

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this coding is less prevalent in subsequent years. The increase in physicians from 1997 to 2000 might be the result of having more physicians precisely identified. This is unlikely to be the case for neurosurgery, where physicians with missing or resident codes accounted for eight high-risk procedures in 1997, two in 2000, and none in 2003. The obstetrics data are less clear; there are 1,157 high-risk deliveries for 1997 that have missing or resident physician codes, 293 such observations in 2000, and 50 in 2003. Thus, without some information on the average number of high-risk deliveries by residents, it is difficult to speculate on whether the number of physicians performing such deliveries increased from 1997 to 2000 and by how much. Given the data, however, the decreases from 2000 to 2003 are clear.

13. See Note 12 for a description of the missing physician identifiers. Because these physicians are most likely low-volume physicians, our 1997–2000 changes in low-volume activity levels may be quite "noisy."
14. We used the online travel time calculator in Mapquest and measured time from ZIP code centroid to centroid. For patients who receive care in their own ZIP code, we set travel time equal to one minute. We also set the maximum travel time equal to 200 minutes to minimize the impact of outliers. This does not materially affect our findings. We acknowledge that the state population was increasing over the time period studied. However, we do not believe that the growth trend for 1997–2000 is markedly different than that for 2000–2003, so we used the early period as a benchmark for comparing incidence trends.
15. We did examine incidence rates for deliveries and found no effects of the "crisis."
16. Rural ZIP codes were defined as those with greater than 40 percent of the population classified as rural by the Bureau of the Census.
17. M. Glabman, "Bare Bones," *Trustee* 56, no. 3 (2003): 8–13.
18. P.M. Danzon, A.J. Epstein, and S. Johnson, "The 'Crisis' in Medical Malpractice Insurance" (Presentation at the Brookings-Wharton Conference on Public Policy Issues Confronting the Insurance Industry, Philadelphia, 4 March 2003), found that premium increases were six percentage points higher in states without caps on noneconomic damages of $500,000 or less. A 2003 study by the Pew Charitable Trusts argued that patients receiving large payments in the current system are generally those injured by medical errors or negligence. Quoted in M. Romano, "Keeping the Cap," *Modern Healthcare* 33, no. 25 (2003): 25, 28.
19. For example, subsidies for malpractice insurance, stronger disciplinary procedures for negligent or incompetent physicians, and toughening reporting of any malpractice settlements are among the measures considered by the Illinois State Legislature in addition to caps on noneconomic damages. G. Hinz, "No Jury Cap for Doctors in Lawsuits," *Crain's Chicago Business* 27, no. 13 (2004): 3, 34.

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