

# Litigation and Canadian Anesthesiologists working after age 65.

## Is there an issue?

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There is no financial conflict of interest



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# OBJECTIVES

1. Physiological changes associated with aging and understand their impact on the aging anesthesiologist
2. Clinical billings of Quebec anesthesiologists and compare them to their colleagues in BC and Ontario
3. Increased risk of litigation for older anesthesiologists in Canada



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**EXPERIENCE  
HAS  
ADVANTAGES!**



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# When expertise reduces Age differences in performance

Morrow D et al

Psychology and Aging 1994: 134-48

Older pilots were as accurate as younger pilots in reading back written Air Traffic Control messages regarding heading, altitude, and speed

Analysis: The difference usually seen in aging was mitigated because older pilots maintained their proficiency because of their years of practice.



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Age of an organism usually refers to the length of time the individual has existed

Senescence refers to the progressive deteriorative changes during adult life

Biologic age versus chronological age



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Common processes universally observed in humans as they grow older:

1. Progressive and irreversible deteriorative changes
2. Reduced ability to respond adaptively to environmental change
3. Increased vulnerability to many diseases
4. Increased mortality



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# General Physiological Changes Associated with Aging

1. Loss of height and lean body mass
2. Redistribution of fat
3. Skin thins
4. Loss of skeletal muscle mass (sarcopenia)
5. Loss of bone mass
6. Decline in joint flexibility
7. Decreased touch sensitivity
8. Hearing loss
9. Loss of power for vision accommodation (presbyopia)
10. Slowed reaction time
11. Decreased arterial compliance
12. Increased ventilation-perfusion mismatching
13. Maximal Oxygen uptake declines
14. Etc., etc.



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Abbott A

Nature

2012: 492; S4-5

Cognitive changes

Nearly everyone after age 60 experiences decline in cognitive skills most noticeably memory. This decline is accompanied by structural brain changes.

Aerobic exercise slows or delays this mental slippage



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Carpenter SM, Yoon C

Aging and consumer decision making

Annals of the New York Academy of Sciences 2011; 1235: E1-E12

Aging leads to systematic declines in cognitive processing

Searching for new information is a cognitively taxing process

Age related declines in working memory (related to speed of processing information) start as early as mid 20s and grows steeper as people advance into their 70s

When studied, older physicians were less likely to engage analytic processing and more likely to stress prior experience in decision making

Older physicians had lowest knowledge scores in transfusion simulation, but the greatest confidence in their knowledge!



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Katz JD

Issues of Concern for the Aging Anesthesiologist

Anesth Analg 2001; 92: 1487-92

Cardiovascular System

Nervous System

Musculoskeletal System

Legal



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# Cardiovascular changes

Acute changes during cases:

Heart Rate  $>100$

Diastolic Blood Pressure  $>100$  mm Hg

Age related chronic changes:

Reduced cardiac output

Lower maximal oxygen consumption

Decline in ejection fraction



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# Nervous System

Decreased neuronal density

Decreased brain weight

Decreased ability in taste, smell, sight, and hearing



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Decreased tolerance of shift-work cycles

Decreased job satisfaction



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Tessler MJ et al

Acute Vision Impairment: Does It Affect an Anesthesiologist's Ability to Intubate the Trachea?

Anesth Analg 2002: 94; 1566-9

Acute severe deterioration – less competent

Chronic deterioration – not evaluated, but based on rapid adaptation to the acute severe change probably of limited impact



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Wallace MS et al

Hearing Acuity of Anesthesiologists and Alarm Detection

Anesthesiology 1994; 81: 13-28

Studied the hearing acuity of 188 anesthesiologists and their ability to hear auditory alarms

37% of anesthesiologists studied were unaware they had a hearing disorder

Decibel level of the alarm needed to be higher as the age of the anesthesiologist rose

39% of subjects over 65 one or more of the alarm intensities was less than their detectability threshold



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# Musculoskeletal System

Decreased psychomotor speed

Increased incidence of arthritis



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# Legal

In US - Age discrimination in Employment Act (ADEA)

In Canada – Charter of Rights

Under the heading of "Equality Rights" this section states:

“ 15. (1) Every individual is equal before and under the law and has the right to the equal protection and equal benefit of the law without discrimination and, in particular, without discrimination based on race, national or ethnic origin, colour, religion, sex, **AGE** or mental or physical disability.

(2) Subsection (1) does not preclude any law, program or activity that has as its object the amelioration of conditions of disadvantaged individuals or groups including those that are disadvantaged because of race, national or ethnic origin, colour, religion, sex, **AGE** or mental or physical disability. ”



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Everyone ages at their own rate

Do we work differently when we are older?



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# LITIGATIONS

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## ANESTHESIOLOGIST – PATIENT INTERACTIONS



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## We went to the CMPA

CMPA for the number of lawsuits directed at anesthesiologists, where the anesthesiologist was felt at least partially responsible for the adverse event resulting in the litigation

Provinces for information on the billings by the specialist anesthesiologists, divided into three age groups <51, 51-64, and 65+



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Numbers of specialist anesthesiologists in the three age groups who billed more than 50 acts in Que, Ont, and BC per year from Jan 1, 1993 to Dec 31, 2002

	Que			Ont			BC		
	<51	51-64	65+	<51	51-64	65+	<51	51-64	65+
1993	311	157	54	480	223	58	217	66	10
1994	312	156	61	472	229	65	217	71	7
1995	322	146	65	461	215	64	224	75	7
1996	320	134	69	469	223	65	227	75	5
1997	321	127	43	464	237	64	226	81	8
1998	324	131	46	470	241	67	228	84	7
1999	327	140	49	481	233	70	227	91	6
2000	351	137	49	485	239	80	231	90	11
2001	363	138	49	499	249	82	219	102	11
2002	372	138	53	504	262	78	213	106	13

Tessler MJ, Shrier I, Steele RJ J Anesth Clinic Res 2011: 2; 129

Median number of days with at least one act billed, per anesthesiologist, per year (interquartile range) in Que, Ont, and BC annually from Jan 1, 1993 to Dec 31, 2002 in each of the three age groups.

	Que			Ont			BC		
	<51	51-64	65+	<51	51-64	65+	<51	51-64	65+
1993	209 (58.5)	211 (60)	196 (91)	227 (69.3)	219 (59)	184 (86.3)	185 (52)	188 (49)	87 (34)
1994	213 (50.5)	217 (50.5)	186 (84)	225.5 (69)	218 (56)	175 (109)	179 (48)	182 (50.5)	64 (71.5)
1995	212 (43)	217.5 (48.3)	196.5 (112.8)	227 (62)	226 (43.5)	180 (97.5)	175 (52.5)	178 (45)	87 (117)
1996	216 (42.5)	220 (43.5)	117 (125)	229 (68)	225 (50.5)	167 (112)	179 (57)	182 (39)	108 (37)
1997	214 (41)	214 (40)	156 (134)	229 (65.3)	226 (47)	162.5 (97)	171 (63.5)	181 (46)	101.5 (108)
1998	211 (38)	216 (31.8)	136 (142)	228 (59)	218 (60)	162 (97)	164 (59)	168.5 (48.5)	153 (91)
1999	210 (37)	210 (39.8)	114.5 (135)	225 (68)	220 (54)	186.5 (75.8)	166 (59.5)	161 (53)	83.5 (42)
2000	211 (50)	214.5 (41)	125 (106.3)	221 (73)	216 (62)	171.5 (97.8)	168 (57.5)	157 (57.8)	147 (115)
2001	206 (49)	205 (47)	127 (107)	222 (79)	221 (69)	159 (102.5)	163 (64.5)	166.5 (67.5)	143 (89)
2002	206 (45)	199 (47.5)	138 (115.5)	216 (63)	216 (57.5)	171 (83.3)	163 (73)	162 (57.3)	137 (88)



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	Que			Ont			BC		
	<51	51-64	65+	<51	51-64	65+	<51	51-64	65+
1997	214 (41)	214 (40)	156 (134)	229 (65.3)	226 (47)	162.5 (97)	171 (63.5)	181 (46)	101.5 (108)
1998	211 (38)	216 (31.8)	136 (142)	228 (59)	218 (60)	162 (97)	164 (59)	168.5 (48.5)	153 (91)

Median number of days with at least one act billed, per anesthesiologist, per year (interquartile range) in Que, Ont, and BC annually from Jan 1, 1997 to Dec 31, 1998 in each of the three age groups.



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Median number of unique physician-patient interactions per year (interquartile range) in Que, Ont, and BC annually from Jan 1, 1993 to Dec 31, 2002 for each of the three age groups.

	Que			Ont			BC		
	<51	51-64	65+	<51	51-64	65+	<51	51-64	65+
1993	772.5 (520.5)	724 (429)	511 (444)	1044 (595.8)	984 (509)	805 (556)	667.5 (335.5)	700 (303)	380.5 (140.2)
1994	807 (465)	761 (508.5)	492 (429.2)	1059 (683.5)	1005 (559)	696 (593.5)	635.5 (343.2)	672 (361.)	330 (445)
1995	787.5 (456)	753 (421.5)	491 (402.5)	1112 (613)	1038 (574.5)	686.5 (736.5)	651 (309)	720 (249)	470. (349.5)
1996	768 (409)	771 (325)	325 (456)	1124 (635)	1064.5 (588.5)	702 (783)	649 (358.2)	680 (316)	662.5 (346.5)
1997	772 (400)	805 (317.8)	381.5 (644)	1180 (731.5)	1146 (607)	665.5 (850.2)	718 (466)	780 (401)	557 (473)
1998	745 (401)	792 (393.5)	310 (563.5)	1184 (708)	1122 (656)	700.5 (806.8)	731 (458)	732. (411)	537 (463.2)
1999	777 (393)	815.5 (401.5)	346 (644)	1231.5 (717)	1169 (639)	909 (825.5)	752 (453)	737 (400)	570 (376)
2000	784 (402)	839.5 (377.2)	360 (530)	1266 (783)	1220 (731)	866.5 (874)	722 (461)	719 (414)	711 (515)
2001	756 (410)	830 (385)	402 (554)	1224 (787)	1214 (832)	745 (625)	726 (420)	670 (418)	843 (463.2)
2002	742 (439)	790 (421)	448 (483)	1212 (720.5)	1231 (829.5)	733 (886.5)	712 (452)	671 (458)	834 (465.2)



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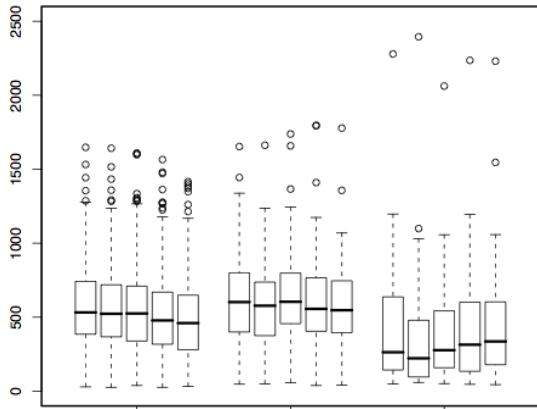
Median number of unique physician-patient interactions per year (interquartile range) in Que, Ont, and BC annually from Jan 1, 1997 to Dec 31, 1998 for each of the three age groups

	Que			Ont			BC		
	<51	51-64	65+	<51	51-64	65+	<51	51-64	65+
1997	772 (400)	805 (318)	382 (644)	1180 (732)	1146 (607)	666 (850)	718 (466)	780 (401)	557 (473)
1998	745 (402)	792 (394)	310 (564)	1184 (708)	1122 (656)	701 (807)	731 (458)	733 (412)	537 (463)

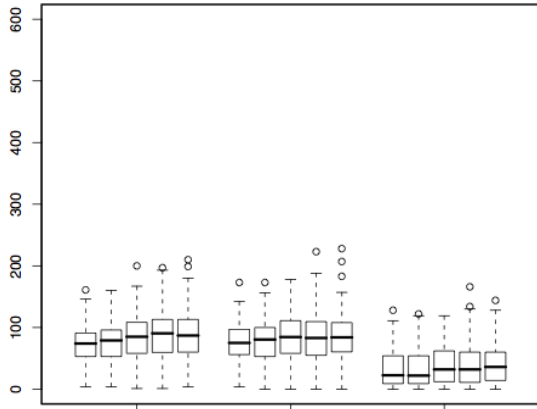


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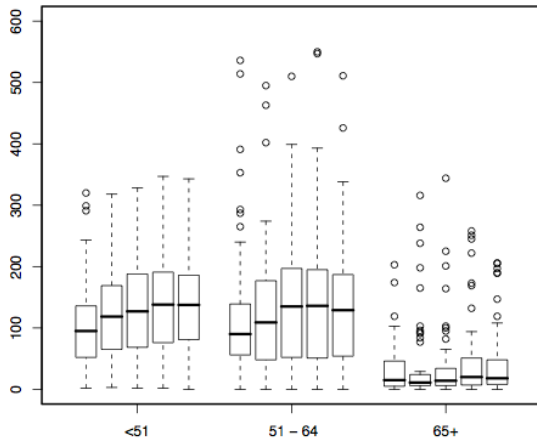
# QUEBEC



LOW  
COMPLEXITY

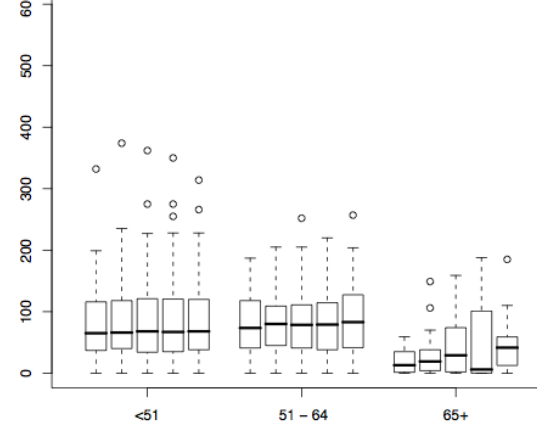
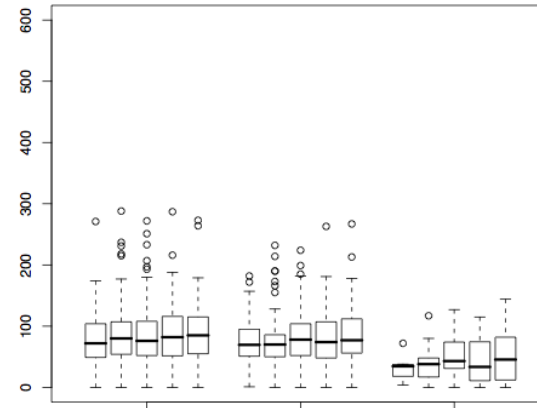
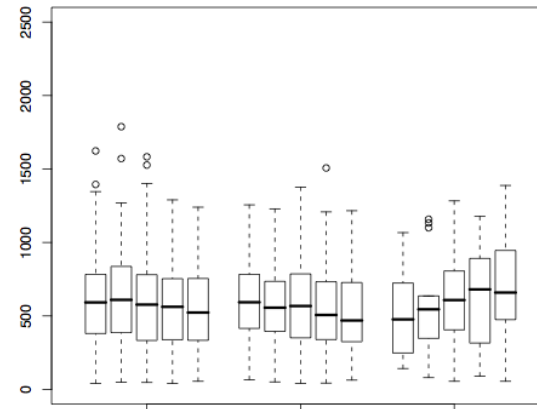


MODERATE  
COMPLEXITY

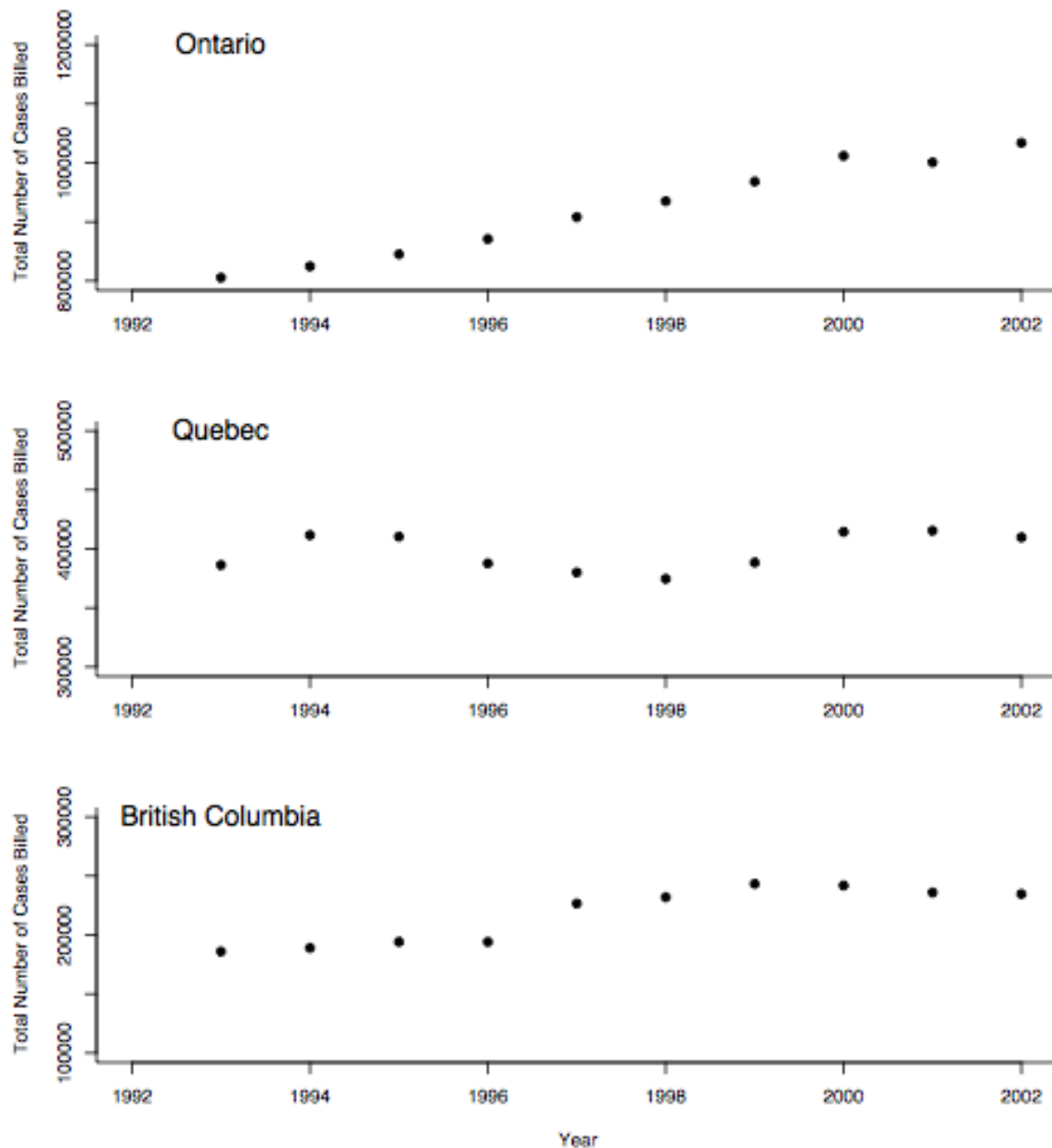


HIGH  
COMPLEXITY

# BC



# Total number of submissions by Quebec, Ontario, and BC specialist anesthesiologists each year from 1993 through 2002



Peng PWH, Smedstad KG

Can J Anesth 2000: 47; 105-12

Litigation in Canada against anesthesiologists practicing regional anesthesia. A review of closed claims

~ 2% per year



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CMIPA provided us with total number of legal claims against specialist anesthesiologists in Canada over the 10 year study period

538 cases



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The total number of specialist anesthesiologists (*A*), number of legal claims (*B*), number of procedures (*C*), and legal claim rate (*D*) for each age group (less than 51: *dashed*, 51–64: *dotted*, 65 and older: *solid*) are shown for each year between 1993 and 2002. Although the number of claims is much less for the older age group, the number of exposures is also much less.

Therefore, the claim rate for the 65 and older age group is generally higher in each year.



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Using the less than 51 age group as a reference, the litigation rate ratio was

1.14 (95% CI: 0.99–1.32) for the 51-64

1.50 (95% CI: 1.14–1.97) for the 65+

Low complexity cases only, the litigation rate ratio was

Moderate to high complexity cases only  
0.97 no increased risk of litigation (95% CI: 0.85–1.11) for the 51-64

2.20 litigation rates (95% CI: 1.65–2.94) for the 65+  
1.62 litigation rates (95% CI: 1.04–2.53) for the 51-64

1.57 litigation rates (95% CI: 0.61–4.06) for the 65+



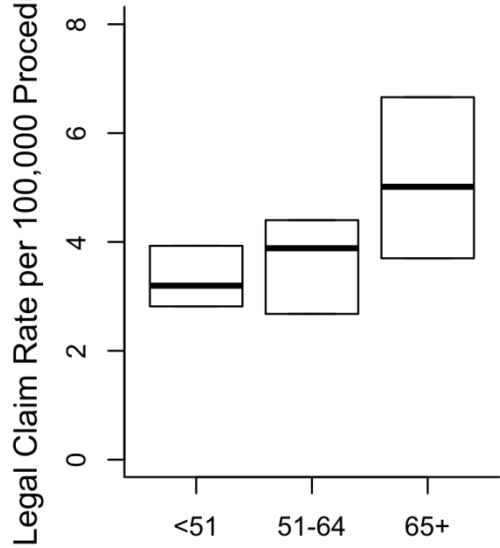
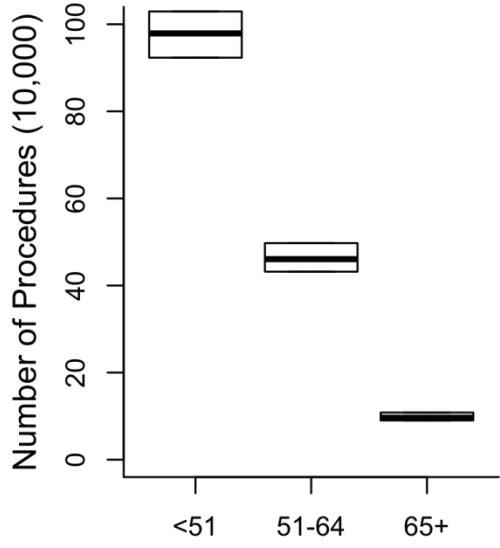
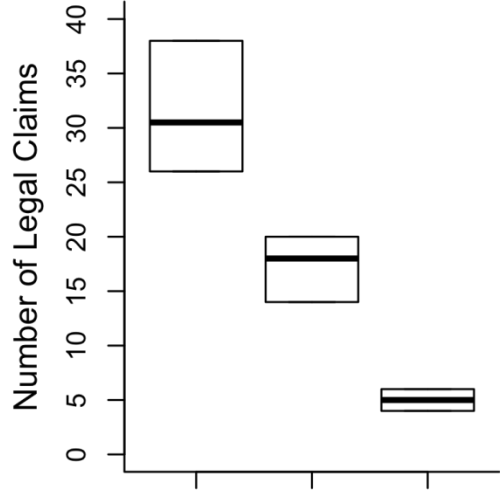
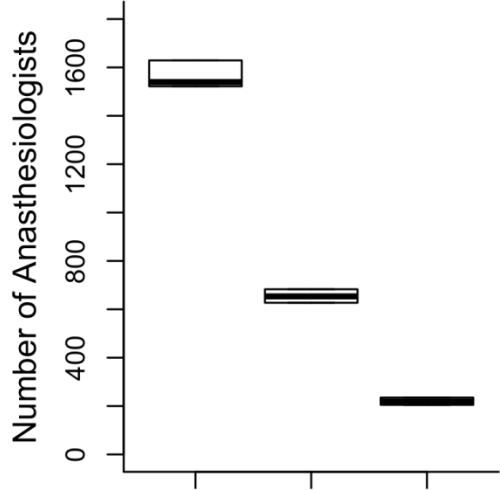
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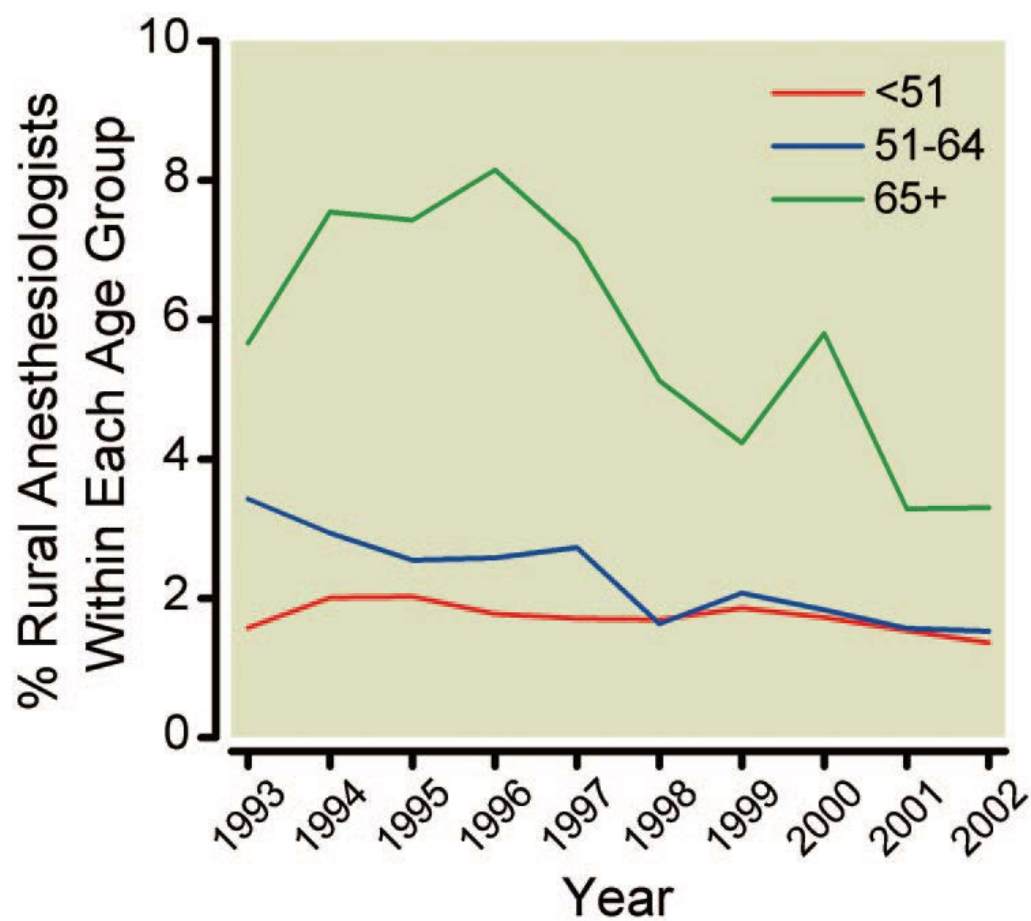
	51-64 age group	65 + Age Group
<b>Disability-Weighted Analyses</b>		
Legal Claims Only (Overall)	1.31 (0.95 to 1.80)	1.94 (1.41 to 2.67)
Legal and College claims (Overall)	1.22 (0.82 to 1.79)	1.51 (1.03 to 2.23)
Legal Claims Only (Low Complexity)	1.26 (0.71 to 2.22)	2.34 (1.33 to 4.13)
<b>Cost Analyses</b>		
Legal Claims Only (Overall)	2.56 (0.79 to 8.32)	3.04 (0.93 to 9.88)
Legal Claims Only (Low Complexity)	1.69 (0.30 to 9.48)	5.42 (0.97 to 30.37)

Relative increase in disability (95%CI) and cost (95%CI) per procedure when compared to the <51 age group\*. For example, the 51-64 age group has 1.31 times the disability for legal claims as the <51 age group.

Tessler MJ, Shrier I, Steele RJ Anesthesiology 2012: 116; 574-9



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The percentage of specialist anesthesiologists working in rural areas in each age group is shown for each year between 1993 and 2002.



## CONCLUSION:

THERE ARE SIGNIFICANT AGE RELATED PHYSIOLOGIC CHANGES APPLICABLE TO ANESTHESIOLOGISTS

LITIGATION AGAINST SPECIALIST ANESTHESIOLOGISTS IN CANADA BETWEEN 1993-2002 WAS RELATIVELY RARE



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# CONCLUSION CONTINUED

ANESTHESIOLOGISTS OVER 65 WERE SUED MORE FREQUENTLY AND FOR A GREATER SEVERITY OF ADVERSE EVENT THAN THEIR YOUNGER COLLEAGUES.

THE REASONS FOR THESE FINDINGS SHOULD BECOME AN ACTIVE FIELD OF RESEARCH



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