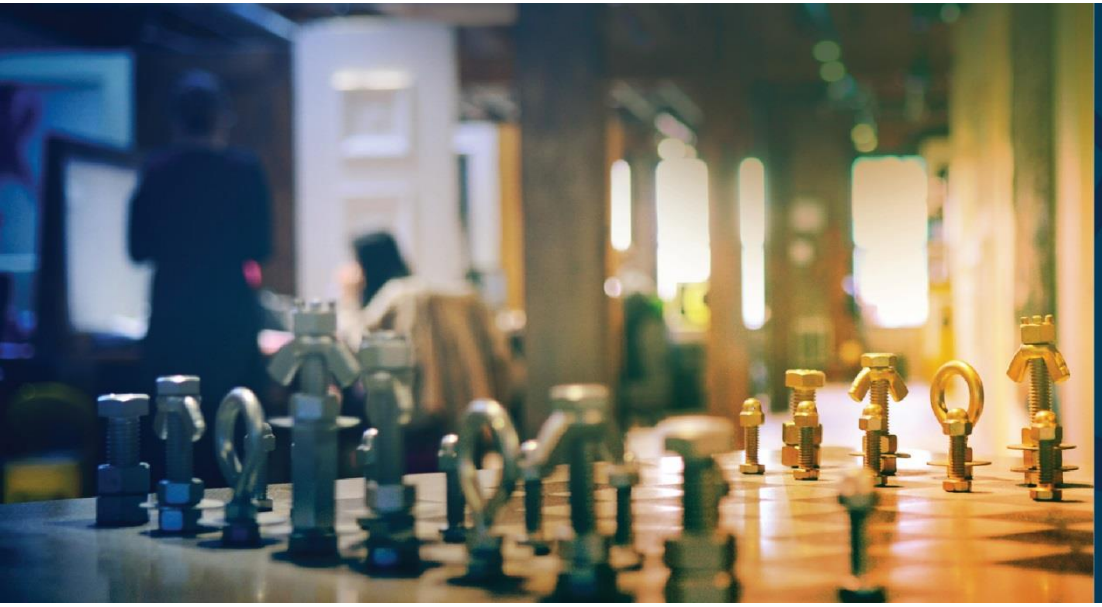

Estimating the Societal Cost of Physician Burnout

Approach and Calculations

Fall 2017

THE CHARTIS GROUP

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Overview

The impact of physician burnout can have a ripple effect, affecting not only the physician practices or health systems in which burnout is occurring but also patients across the nation and our society as a whole.

To estimate the **societal cost of physician burnout**, we will include the following contributing factors:

- Increased turnover
- Productivity loss
- Negative impact on quality of care, increased patient safety concerns and medical errors
- Rise in physician suicide rate – *note: data was insufficient to include in our final estimate*
- Increased (unnecessary) diagnostic testing and specialty referrals – *note: data was insufficient to include in our final estimate*

Quantification Approach

Contributing Factor	Quantifiable Metric(s)	Estimated Annual $
Increased turnover	• Recruiting costs per physician (recruiting agency, marketing, interview costs, up front bonus) • Lost productivity assuming no immediate back-fill of every lost physician	$9b to $18b
Productivity loss	• Lost clinical time (visits/year) and associated revenue	$1.7b
Negative impact on quality care, increased patient safety concerns and medical errors	• Cost of medical errors attributed to burned out physicians	$97b to 129b
Rise in physician suicide rate	• Foregone salary from expected full-length career	More data needed to quantify
Increased (unnecessary) diagnostic testing and specialty referrals	• Cost of testing • Cost of unnecessary specialist visits	More data needed to quantify
TOTAL		$108b to $149b ~ $110b to $150b

Quantification: Increased Turnover

Contributing Factor	Quantifiable Metric
Increased turnover due to Burnout	• Recruiting costs per physician (recruiting agency, marketing, interview costs, up front bonus) • Lost productivity assuming no immediate back-fill of every lost physician

Approach: (# physicians in the U.S.) x (turnover rate due to burnout) x (cost of turnover)

Sources:	Findings / data available:
Kaiser Family Foundation Totally Professionally Active Physicians – October 2017. https://www.kff.org/other/state-indicator/total-active-physicians/?currentTimeframe=0&sortModel=%7B%22colId%22:%22Location%22,%22sort%22:%22asc%22%7D	• 923,308 active physicians in the U.S. (we will discount to 750,000 to account for part-time / academic physicians)
Shanafelt T, Goh J and C Sinsky. The Business Case for Investing in Physician Well-being. *JAMA Internal Medicine, Special Communication.* September 25, 2017. https://jamanetwork.com/journals/jamainternalmedicine/article-abstract/2653912	• National mean burnout rate: 54% • National mean turnover rate (general): approx. 7% (6.8% cited in AMGA / Cejka – see below) • Mean cost of turnover: $500k to $1m
AMGA and Cejka Research, as reported by AMGA. Physician Turnover Remains High as More Physicians Retire. August 12, 2014. https://www.amga.org/wcm/AboutAMGA/News/2014/082114.aspx	• General physician turnover rate is 6.8% (2013)

Calculation: Increased Turnover

750,000 active physicians in the U.S.[1] x 2.4% turnover rate due to burnout[2] x $500k to $1m replacement cost per physician[2]

= $9b to $18b

Per Shanafelt et al. approach[2]:

Turnover rate due to burnout = Total turnover – turnover due to other factors than burnout

Turnover due to factors other than burnout = Total turnover / (1-burnout rate)

Turnover due to factors other than burnout = 6.8%[3] / (1-54%[2]) = 4.4%

Turnover due to burnout = 6.8% - 4.4% = 2.4%

1 Kaiser Family Foundation "Totally Professionally Active Physicians – October 2017", (2017). https://www.kff.org/other/state-indicator/total-active-physicians/?currentTimeframe=0&sortModel=%7B%22colId%22:%22Location%22,%22sort%22:%22asc%22%7D, discounted to account for part-time or academic physicians.

2 Shanafelt T, Goh J and C Sinsky. The Business Case for Investing in Physician Well-being. *JAMA Internal Medicine, Special Communication.* September 25, 2017. https://jamanetwork.com/journals/jamainternalmedicine/article-abstract/2653912

3 AMGA and Cejka Research, as reported by AMGA. Physician Turnover Remains High as More Physicians Retire. August 12, 2014. https://www.amga.org/wcm/AboutAMGA/News/2014/082114.aspx

Quantification: Productivity Loss

Contributing Factor	Quantifiable Metric
Productivity loss	• Lost clinical time (visits/year) and associated revenue due to productivity loss / early retirement

Approach: (per-physician avg. lost visits per year from productivity loss due to burnout) x (revenue per visit) x (total U.S. physicians experiencing burnout) *note that this approach requires data that has only been published in the Dewa et al. study from Canada; without conducting another study, replicating directly with U.S. data will not be possible.*
Alternative approach: convert findings from 2014 Canadian study into 2017 U.S. $, adjust for any difference in physician burnout rate in the U.S. vs. Canada, and adjust for total # of physicians in U.S. vs. Canada.

Sources:	Findings / data available:
Dewa CS, Jacobs P, Thanh NX, Loong D. An estimate of the cost of burnout on early retirement and reduction in clinical hours of practicing physicians in Canada. *BMC Health Services Research*. 2014;14:254. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4062768/	• Includes discounted cost estimates for early retirement and loss of productivity, based on reduced visits and revenue per visit • Breaks out the impact by FP, Surgeon, and "Other Specialties" • Includes several necessary adjustments and assumptions • Results are in 2010 $CAD, with an annual discount rate of 3% to account for the total $ lost over years
Kaiser Family Foundation. Totally Professionally Active Physicians – October 2017. https://www.kff.org/other/state-indicator/total-active-physicians/?currentTimeframe=0&sortModel=%7B%22colId%22:%22Location%22,%22sort%22:%22asc%22%7D	• 923,308 active physicians in the U.S. (we will discount to 750,000 to account for part-time / academic physicians)
Canadian Medical Association. Basic Physician Facts. Accessed October 2017. https://www.cma.ca/En/Pages/basic-physician-facts.aspx	• 83,159 active physicians in Canada
Shanafelt T, Goh J and C Sinsky. The Business Case for Investing in Physician Well-being. *JAMA Internal Medicine, Special Communication.* September 25, 2017. https://jamanetwork.com/journals/jamainternalmedicine/article-abstract/2653912	• National mean burnout rate (U.S.): 54%
Canadian Medical Association Survey Findings, as reported by A Picard. CMA head criticizes federal corporate tax plan, says it will harm patient care. *The Daily Globe and Mail.* August 20, 2017. https://www.theglobeandmail.com/news/national/cma-head-criticizes-federal-corporate-tax-plan-says-it-will-harm-patient-care/article36039222/?cmpid=rss1&click=sf_globe	• Canadian burnout rate: 54%

Calculation: Productivity Loss

Convert 2010 $CAD to 2017 $USD

2010 CAD $213.1m[1] → 2017 CAD $236.5 → 2017 USD $183.8m[2]

Translate into U.S. Impact:

2017 U.S. $183.8m x (750,000 practicing U.S. physicians[3] / 83,159 practicing Canadian physicians)[4] x (adjustment for difference in burnout rate between the U.S. and Canada*) = $1.7b

= $1.7b

1 Dewa CS, Jacobs P, Thanh NX, Loong D. An estimate of the cost of burnout on early retirement and reduction in clinical hours of practicing physicians in Canada. *BMC Health Services Research*. 2014;14:254. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4062768/

2 Currency conversion rates as of October 25, 2017

3 Kaiser Family Foundation. Totally Professionally Active Physicians – October 2017. https://www.kff.org/other/state-indicator/total-active-physicians/?currentTimeframe=0&sortModel=%7B%22colId%22:%22Location%22,%22sort%22:%22asc%22%7D

4 Canadian Medical Association. Basic Physician Facts. Accessed October 2017. https://www.cma.ca/En/Pages/basic-physician-facts.aspx

*No adjustment needed – 54% burnout rate among physicians reported in both the U.S. and Canada (Shanafelt T, Goh J and C Sinsky. The Business Case for Investing in Physician Well-being. *JAMA Internal Medicine, Special Communication.* September 25, 2017. https://jamanetwork.com/journals/jamainternalmedicine/article-abstract/2653912) and (Canadian Medical Association Survey Findings, as reported by A Picard. CMA head criticizes federal corporate tax plan, says it will harm patient care. *The Daily Globe and Mail.* August 20, 2017. https://www.theglobeandmail.com/news/national/cma-head-criticizes-federal-corporate-tax-plan-says-it-will-harm-patient-care/article36039222/?cmpid=rss1&click=sf_globe)

Quantification: Increased Medical Errors

Contributing Factor	Quantifiable Metric
Negative impact on quality care, increased patient safety concerns and medical errors	• Cost of medical errors attributed to burned out physicians

Approach: Difference between (cost of medical errors attributable to burned out physicians) and (cost of medical errors attributable to non-burned out physicians)

Sources:	Findings / data available:
Shanafelt TD, Balch CM, Bechamps G, Russell T, Dyrbye L, Satele D, Collicott P, Novotny PJ, Sloan J, Freischlag J. Burnout and medical errors among American surgeons. Annals of Surgery. 2010 Jun;251(6):995-1000. https://www.ncbi.nlm.nih.gov/pubmed/19934755	• 1-point increase in surgeon's self-reported emotional exhaustion w/ 5-point increase in reported errors; 11-point increase for every 1-point increase in surgeon's depersonalization score; 8.9% surgeons report medical error in past quarter
Kaiser Family Foundation. Totally Professionally Active Physicians – October 2017. https://www.kff.org/other/state-indicator/total-active-physicians/?currentTimeframe=0&sortModel=%7B%22colId%22:%22Location%22,%22sort%22:%22asc%22%7D	• 923,308 active physicians in the U.S. (we will discount to 750,000 to account for part-time / academic physicians)
Shanafelt T, Goh J and C Sinsky. The Business Case for Investing in Physician Well-being. *JAMA Internal Medicine, Special Communication.* September 25, 2017. https://jamanetwork.com/journals/jamainternalmedicine/article-abstract/2653912	• National mean burnout rate (U.S.): 54%
Andel C, Davidow SL, Hollander M and DA Moreno. The economics of health care quality and medical errors. *Journal of Healthcare Finance*. 2012 Fall;39(1):39-50. http://www.wolterskluwerlb.com/health/resource-center/articles/2012/10/economics-health-care-quality-and-medical-errors	• Total of $745b and $980b total cost of preventable death (indirect and direct) is 10xs the original IOM estimate from 1999

Calculation: Increased Medical Errors (1 of 2)

Likelihood for a physician to report a medical error over the course of a year:
= (8.9% of physicians report at least one medical error in the past quarter)[1] x 4 quarters = 35.6%

Likelihood of a burned out physician to report a medical error over the course of a year:
= 35.6% x (1 + (11% increased likelihood of reporting an error for every 1 point increase on the depersonalization score, or a 5% increased likelihood of reporting an error for every 1 point increase on the emotional exhaustion score; 10% was used in this analysis, assuming some physicians experience more than a 1 point increase (range is 0 to 33 and 0 to 54, respectively), and others less))[1] = 39.5%

Proportion of medical errors from burned out physicians =

(750,000 active practicing physicians[2] x 54% burned out[3]) = 405,000 burned out physicians
(750,000 active practicing physicians[2] x 46% not burned out[3]) = 345,000 non-burned out physicians

(405,000 burned out physicians * 39.5% likelihood of reporting a medical error) ÷
(345,000 non-burned out physicians * 35.6% likelihood of reporting a medical error) = 56.6% medical errors from burned out group

(continued on next page)

1 Shanafelt TD, Balch CM, Bechamps G, Russell T, Dyrbye L, Satele D, Collicott P, Novotny PJ, Sloan J, Freischlag J. Burnout and medical errors among American surgeons. Annals of Surgery. 2010 Jun;251(6):995-1000. https://www.ncbi.nlm.nih.gov/pubmed/19934755

2 Kaiser Family Foundation. Totally Professionally Active Physicians – October 2017. https://www.kff.org/other/state-indicator/total-active-physicians/?currentTimeframe=0&sortModel=%7B%22colId%22:%22Location%22,%22sort%22:%22asc%22%7D, discounted to account for part-time or academic physicians.

3 Shanafelt T, Goh J and C Sinsky. The Business Case for Investing in Physician Well-being. *JAMA Internal Medicine, Special Communication.* September 25, 2017. https://jamanetwork.com/journals/jamainternalmedicine/article-abstract/2653912

Calculation: Increased Medical Errors (2 of 2)

Cost of medical errors attributed to the burned out physician group =
($735b to $980b total annual cost of medical errors)[4] x 56.6% = $416b to $554b

Cost of medical errors attributed to the non-burned out physician group =
($735b to $980b total annual cost of medical errors)[4] x 43.4% = $319b to $425b

Difference between medical error cost attributable to burned out physicians vs. non-burned out physicians:
= ($416b to $554b) – ($319b to $425b)

= $97b to $129b

4 Andel C, Davidow SL, Hollander M and DA Moreno. The economics of health care quality and medical errors. *Journal of Healthcare Finance*. 2012 Fall;39(1):39-50. http://www.wolterskluwerlb.com/health/resource-center/articles/2012/10/economics-health-care-quality-and-medical-errors