Estimating the Societal Cost of Physician Burnout

Approach and Calculations

Fall 2017
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

<table>
<thead>
<tr>
<th>Contributing Factor</th>
<th>Quantifiable Metric(s)</th>
<th>Estimated Annual $</th>
</tr>
</thead>
</table>
| 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  | • Cost of medical errors attributed to burned out physicians                           | $97b to 129b       |
| quality care,       |                                                                                      |                    |
| increased patient   |                                                                                      |                    |
| safety concerns and |                                                                                      |                    |
| medical errors      |                                                                                      |                    |
| Rise in physician   | • Foregone salary from expected full-length career                                      | More data needed   |
| suicide rate        |                                                                                      | 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

<table>
<thead>
<tr>
<th>Contributing Factor</th>
<th>Quantifiable Metric</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increased turnover due to Burnout</td>
<td>• Recruiting costs per physician (recruiting agency, marketing, interview costs, up front bonus)</td>
</tr>
<tr>
<td></td>
<td>• Lost productivity assuming no immediate back-fill of every lost physician</td>
</tr>
</tbody>
</table>

**Approach:** \((\# \text{physicians in the U.S.}) \times (\text{turnover rate due to burnout}) \times (\text{cost of turnover})\)

**Sources:**

- 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](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)

  - 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

  - General physician turnover rate is 6.8% (2013)
Calculation: Increased Turnover

750,000 active physicians in the U.S.\(^1\) \times 2.4\% \text{ turnover rate due to burnout} \times \$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\%

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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.


# 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:


**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%2C%22sort%22:%22asc%22%7D](https://www.kff.org/other/state-indicator/total-active-physicians/?currentTimeframe=0&sortModel=%7B%22colId%22:%22Location%22%2C%22sort%22:%22asc%22%7D)

**Canadian Medical Association.** Basic Physician Facts. Accessed October 2017. [https://www.cma.ca/En/Pages/basic-physician-facts.aspx](https://www.cma.ca/En/Pages/basic-physician-facts.aspx)


### Findings / data available:

- 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

- 923,308 active physicians in the U.S. (we will discount to 750,000 to account for part-time / academic physicians)

- 83,159 active physicians in Canada

- National mean burnout rate (U.S.): 54%

- Canadian burnout rate: 54%
Calculation: Productivity Loss

Convert 2010 $CAD to 2017 $USD

2010 CAD $213.1m → 2017 CAD $236.5 → 2017 USD $183.8m

Translate into U.S. Impact:

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

= $1.7b

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
# Quantification: Increased Medical Errors

## Contributing Factor

| Negative impact on quality care, increased patient safety concerns and medical errors |

## Quantifiable Metric

| • 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:


- **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](https://www.kff.org/other/state-indicator/total-active-physicians/?currentTimeframe=0&sortModel=%7B%22colId%22:%22Location%22,%22sort%22:%22asc%22%7D)


## Findings / data available:

- 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

- 923,308 active physicians in the U.S. (we will discount to 750,000 to account for part-time / academic physicians)

- National mean burnout rate (U.S.): 54%

- 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)\(^1\) \times 4 \text{ quarters} = 35.6% 

Likelihood of a burned out physician to report a medical error over the course of a year:
= 35.6% \times (1 + (11\% \text{ 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 \text{ active practicing physicians}^2 \times 54\% \text{ burned out}^3) = 405,000 \text{ burned out physicians}
(750,000 \text{ active practicing physicians}^2 \times 46\% \text{ not burned out}^3) = 345,000 \text{ non-burned out physicians}

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

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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](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.

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 \times 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 \times 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