**A Generalist’s Carol: Much To Do With Nothing**

**Word Count**: 1,683 (would like to submit closer to 1,200 words, though no word limit)

**Introduction**

A widely held assumption has been that primary care physicians (PCPs) have too many things to do and too little time [refs]. Strangely, no research has asked the obvious follow-up questions: Have they no evenings? Have they no weekends? PCPs, like most humans, seek out the course of action that uses up as little time and energy as possible [Kahneman]. In other words, they are lazy. Therefore, they have a large, untapped reservoir of time. The central challenge of disruptive healthcare leadership, then, is to figure out how to suck and /or bleed that reservoir dry. Draining the swamp (er…reservoir) of stagnant PCP time, will allow us to refill the reservoir via a a deluge of exciting new quality improvement (QI) initiatives! Did you know that, one fewer trip to the toilet would allow completing as many as 5 additional clinical alerts (up to 10 more for older men)?

In spite of these vast untapped reservoirs of time, PCPs never stop simpering about the time needed for shared decision making (SDM) for preventive care — ironic given that the only thing lazier than a PCP facing SDM is a koala (did you know that koalas sleep up to 22 hours per day?).... [refs]. A recent study reported that PCPs gave an average of only 59 seconds to SDM for lung cancer screening, despite experts knowing that 5 minutes is the absolute minimum [ref]. PCPs even grumble about a lack of time for delivering basic preventive care to their panels *without* SDM [ref]. Yet, few studies have examined the basis for these whimpering protestations. One study estimated needing an average of 7.4 hours per working day to deliver all high-priority preventive services to a typical patient panel [ref]. This number looks large until one realizes that one working day is such a tiny slice of a PCP’s time on the planet. Cutting back on weekend naps could solve the problem entirely! Careful review of what we know about the daily lives of PCPs is the only way to tell whether, as we suspect, these time-deprived grievances lack credence. So, following in the long tradition of abusive management, we commissioned a study to quantify what we already know — that PCPs have vast amounts of time for thumb twiddling.

At a moment when PCPs are shirking their responsibilities and grumping that their overloads are unreasonable more from them – it has become urgent to examine the daily lives of the PCP. This study represents the first comprehensive analysis of PCP time and demands on that time, in order to find the untapped reservoirs needed to achieve SDM for all highly recommended preventive services.

**Methods:**

*Overview:*

We created a Monte Carlo microsimulation model to examine the following: 1) time *needed* to deliver SDM for all preventive interventions recommended by the generally conservative USPSTF to a representative panel of 2000 patients for a mature PCP practice; as compared to 2) the time *available* for PCPs to provide such care, using a representative sample that accounted for PCP laziness (ie, total work hours). As long as a few hearty souls can accommodate SDM for all highly-recommended prevention, coercing the rest to do so should be straightforward. Public shaming is a well-established and effective method for motivating the lazy [refs], *if* accompanied by severe punishment of stragglers. Next, we examined how PCPs allocate work and non-work time across a typical day [refs] to identify potential targets for shoring up deficits in delivering SDM for high-priority preventive care. Finally, compelled by common practice in this research area (and to set targets for our PCP replacement strategies), we looked at theoretical downsides of piling on more tasks in terms of PCP burnout, an oft-used surrogate measure of dubious clinical importance.

*Microsimulation Model:*

In brief, we first setup a realistic provider panel by pretending that PCPS manage fewer patients than they actually do (i.e. 2000 per year) by randomly selecting from the NHANES patient population and visits were randomly assigned by random draws from age-sex visit frequencies. For each respondent, we estimated the total time needed for prevention and SDM by determining what preventive services were needed at a given visit and summing preventive and SDM times at each visit. We simulated a mature panel by building 10 years of visits under realistic panel retention and replacement rates. Time inputs were intentionally made highly conservative (i.e., they ignore clinical reality), however, minimizing new PCP tasks is a standard methodology . For a more detailed description of the model, its inputs, and references, see Supplementary Table x.

*Analyses:*

We assessed the face validity of key model outputs to ensure the model was performing well and providing the basis for reasonable total time estimates, estimating model precision accounting for uncertainty in baseline inputs. We iteratively reanalyzed our model estimates, to ensure that they agreed with our pre-existing biases, and when failing to do so, we tweaked our inputs accordingly. We analyzed PCP variation by assessing the prevention-time-space-deficit (PTSD, amount of distortion surrounding a PCP due to time-space needed exceeding time-space available ) across PCPs in the study population, calculating the proportion of PCPs able to stay above water (i.e., no PTSD). In sensitivity analyses, we explored the impact of various corner-cutting strategies. We also analyzed the impact of the additional hours of work-time on rates of PCP burnout by estimating burnout rates for a given number of hours worked. Hours worked were estimated based on the, perhaps overly generous assumption, that PCPs can’t stop seeing sick people and then estimating the number of hours needed for prevention/SDM from our model. Of note, in a perhaps ominous note for PCPs— it took our snappy computer (which assuredly did not take any bathroom breaks) most of a day just to simulate this nonsense.

**Results**

*Face Validity of Model Outputs:*

Our estimates of visit and preventive service frequency had excellent face validity (that is, it looks good to us!). The median patient had 2 visits per year (IQR 1-3) and received 12 preventive services (IQR 8-167). Of a average PCP’s 2000 patient panel, 1640 (82%) were seen at least once annually.

*Time Needed and Time Available for Prevention:*

**Figure 1** displays that total annual time needed to provide all high-priority preventive services as compared to the total annual time available for prevention. Providers have about 28 minutes per day available for discussing all preventive care services — or about 2 minutes per clinic visit, on average. However, the time needed to complete SDM for all included preventive services is about 228 minutes (3.8 hours) per day or 16 minutes per visit. The average, PCP then, needs to find a mere 200 minutes per day to break even.

*Variation in Prevention-Time-Space- Deficit (PTSD) Across PCPs:*

**Figure 2** depicts the degree to which different PCPs in the study population are able to stay within the laws of physics (time-space deficit <= 0). We were surprised, but still skeptical, when we found that 0.0% of study PCPs could avoid PTSD (mean PTSD = -3.3 hours per day) even given our unrealistically low estimate of time needed for full SDM.

*Sensitivity Analysis:*

Unfortunately, PCPs could not avoid a 100% PTSD rate even if the used 100% of their direct patient contact time for SDM preventive care. Accounting for time for shushing patients who tried to talk about their symptoms, medications and health concerns substantially increased the magnitude of PTSD. Yes, PTSD could be eliminated if PCPs dispensed with SDM altogether *and* limited themselves to only Grade A preventive recommendations, but that just brings us full circle to where we started!

Then we realized, we had not yet considered that PCPs may be working too few hours. in our study population were able to keep up with current demands on their time during a typical work-day, we felt it would be difficult to shame PCPs with peer comparisons. Thus, it became necessary to look for other work and non-work targets to account for the remaining time needed for SDM. **Figure 3** presents the average day for PCPs over the course of a year. We identify several potential targets for shoring up prevention time-deficits including time needlessly spent on grooming/self-care, ample leisure time, and of course, unnecessary sleep time.

*Burnout:*

Even the best interventions have side effects. So, we can accept some level of added burnout when dipping into PCP’s leisure and grooming time. Although burnout has a major upside (weeding out the riff raff), the *magnitude* of increased burnout is of some importance, so that we can figure out how many resources to invest in recruiting replacement PCPS. **Figure 4** displays a helpful icon array that can help you determine how many replacement PCPs you’re likely to need for a given quality improvement strategy.

**Discussion**

Our study demonstrates that PCPs are working too few hours, since across a variety of panel sizes and annual hours worked, we found a 100% prevention-time-space deficit (PTSD) rate for PCPs if they engaged in SDM for all highly-recommended preventive services. Fortunately, only about X additional hours a week need be reallocated from PCP’s grooming (who are they trying to fool anyway?), leisure time (patient care *is* leisure), or unnecessary sleep (they didn’t need it during residency, right?). The cost of such a solution is minimal, leading to only 12 additional early retirements per 100 PCPs. Impact on mood, relationships, and quality of care were not assessed because of our lack of data and interest.

Another novel finding is that PCPs, contrary their protestations, have a lot of spare time . Future research should explore opportunities reallocation of PCP time to other important quality improvement initiatives. For instance, one could tap into PCP’s “relaxing and thinking” time (0.32 hours of the average day) and/or “reading for personal interest” time (0.29 hours) [ref] in order to increase direct access to PCPs on demand (e.g., via telehealth, email, and Facebook). Still, all methods have their limits: reallocating PCP time with children and for asleep are bounded by zero.

Happily, the PCP day can accommodate many more QI initiatives before time is truly out. For now, we can carry on feeling as if PCP time is an unlimited resource. However, when that dark day does come, it would be nice if PCPs still had a few extra minutes of “relaxing and thinking time.” At that point, PCPs will have to refresh their memories about the forgotten spirit of generalism: they’ll need to realize anew they simply cannot do everything and that’s ok. Rather than submit to their QI overseers, they’ll have to trust their own clinical judgement. In that grim scenario, they’ll have no choice but to focus on first principles of generalism: prioritize and focus on what’s most important for *this* patient at *this* time [ref].

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**APPENDIX METHODS**

*Study Population:*

Patients: To estimate times needed to provide high-priority preventive services to a current panel of patients, we used NHANES to simulate a nationally representative study sample of xx patients using R version 3.3.1. NHANES is an annual, cross-sectional representative, self-report survey of the noninstitutionalized US population [ref].

PCPs: We simulated a representative population of xx PCPs using contemporary estimates of annual hours worked [refs], panel size [refs], and proportion of PCP work-time spent on different competing tasks [refs] -- along with estimates of how these parameters vary across PCPs. We used prior estimates of the proportion of clinical time allocated to prevention in primary care [ref].

*The Microsimulation Model:*

[Jim to fill in, can rearranage or obliterate these sections to condense as you see fit]

*Model Assumptions:*

[do we need anything here?]

*List of High-Priority Preventive Services*

The list of preventive services included in this study was derived from current Grade A, B, C, and a few D recommendations from the US Preventive Services Task Force [ref] as well as the 2018 immunization schedule from the Centers for Disease Control and Prevention. Grade A and B recommendations from the task force denote recommendations to offer the service, grade D denotes not recommended, while grade C denotes a recommendation to offer the service to selected patients depending on individual circumstances. Grade C and a select number of Grade D task force recommendations were included in this review given the emphasis on SDM, since these recommendations can be important targets for SDM. When high-risk groups were targeted in a recommendation, we estimated the number of high-risk individuals in our sample using literature-based estimates.

*Time for delivering Shared Decision Making for High-Priority Preventive Services:*

Our estimates for the times required to provide a preventive service in the absence of SDM were taken from prior work [ref]. These estimates assume an ideal practice in which PCPs immediately understand which services a patient was eligible for without the need to review the medical record. These estimates were intended to be conservative. In other words, they ignore clinical reality. However, this is a standard approach and reasonable here since PCPs are used to having obvious clinical realities severely downplayed.

To include time for SDM, we undertook a comprehensive review of the literature. Surprisingly few studies report the actual time it takes to conduct SDM for a preventive service. Thus, we derived our estimate from idealized skits of how to perform SDM on YouTube [refs]. These skits indicated that it takes a little over 5 minutes to complete SDM fi the patient askes very few questions, is highly informed, and immediately understands how their values and preferences apply to an unfamiliar medical decision. This unrealistic “conservative” estimate fit well with other conservative estimates in our model. So, 5 minutes and 20 seconds were added to the baseline times for each preventive service to account for the time it takes to complete SDM.

*Analysis and Outcomes:*

[Jim to add if needed]

*Sensitivity Analyses:*

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**END OF APPENDIX METHODS**

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