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EDITORIAL

Extended Duration of Training, Resident Physician Well-being, and the Primary Care Physician Shortage: Questions Remaining Following the Length of Training Pilot

Daniel J. Parente, MD, PhD

AUTHOR AFFILIATION:

Department of Family Medicine and Community Health, University of Kansas Medical Center, Kansas City, KS

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This issue of *Family Medicine* features two reports[1,2] from the Length of Training Pilot (LoTP) study, a multicenter pilot evaluation, started in 2013, of 4-year family medicine residency programs, compared against the current 3-year standard.[3] In evaluating clinical preparedness,[1] the LoTP collaboration found similar performance among 3- and 4-year residents in attainment of 18 of 21 entrustable professional activities, with higher performance among 4-year graduates in comprehensive, longitudinal medical care for people of all ages; managing prenatal care; and managing labor, delivery, and postpartum care. Their scope of practice investigation[2] found evidence that 4-year graduates were more likely than 3-year graduates to provide pediatric and adult inpatient care, and were more likely to provide 13 of 24 evaluated procedures.

These reports extend voluminous work on lengthening family medicine residency duration. Prior reports examined postresidency practice setting[4,5]; scope of practice[5]; clinical knowledge[6]; scholarly, quality improvement, and curricular development activities[7,8]; application pool and match outcomes[9]; trainee well-being and burnout[10]; and financial feasibility.[11,12]

Extending residency has been controversial for decades.[3,13–25] Proponents of extension raise two strong arguments.[26] First, medicine has become more complex over the last 50 years; competence is needed in an expanded range of activities (eg, health information management, HIV care, point-of-care ultrasound, telemedicine, etc).[26] Second, family physicians' scope of practice with respect to pediatric, maternity, and procedural care has narrowed, despite need for these services in rural and underresourced areas.[26] These changes reflect *shifts* in the day-to-day practice of a family physician, rather than *erosion*, but the question nevertheless remains: do these shifts warrant an extended duration of training?

Possible benefits from expanded length of training must be weighed against potential harms. One harm is that lengthening training might impose financial costs on both programs and trainees. The LoTP collaboration has argued that, from a *programmatic* perspective, extending training duration is financially feasible.[11] There does not yet seem, however, to have been an adequate analysis of the financial impact *on resident physicians* of extending residency.

In the most simplified analysis, the opportunity cost of pursuing additional training is the difference in salary between attending and resident physicians. The after-tax impact of this was estimated in 2021 to be $93,000.[26]

Modeling the lifetime opportunity cost of additional training, however, requires also considering the effect on delayed repayment of loans and delayed opportunity to invest in bonds and equities either through a 401(k) plan or through direct investment in markets. Given that the inflation-adjusted compound annual growth rate of the S&P 500 between January 1960 and December 2024 was about 6.5%, even a single delayed year of compounding investment (~$93,000) could be a significant cost over a 20-year horizon ($328,000). A complete analysis, however, would surely arrive at a different figure.

Detailed modeling of the financial impact of extending residency seems appropriate. Such analyses should account for forgone earnings; delayed debt repayment; delayed investment opportunity; expected rates of inflation; changes in long-term salary (if any) attributable to a fourth year of training; expected tax rates; long-term employment and wage risks

due to nonphysician practitioners and/or artificial intelligence, as discussed in Dr Mainous's guest editorial in this issue[27]; and other relevant factors. A recent survey suggests that most (>80%) family medicine graduates carry educational debt of at least $25,000 at initial board certification, and that greater debt load reduces their enthusiasm for additional training.[28]

Suppose we momentarily neglect sophisticated modeling and consider merely the difference between the attending and resident physician salaries as a lower bound on the economic opportunity cost of an additional year of training (~$93,000). This cost, multiplied across the ~4,500 family medicine residents entering training per year,[29] would amount to a ~$418 million expense borne by trainees in a vulnerable stage of their career. To be tenable, such a large expense would need to be justified by clear and compelling benefits to trainees and/or society.

Moreover, extending residency may cause nonfinancial harms. Many physicians report delaying important life milestones such as childbirth due to training, and often regret this decision.[30] Extending residency may risk further delaying family formation, a highly regrettable outcome for *family* medicine. Longitudinal analyses would seem appropriate to evaluate how extending residency affects personal and professional milestone attainment.

Residency training is also associated with stress and burnout.[10] Markers of impaired well-being persist into the fourth year, with improvement in the well-being point estimates in the first postresidency year for both 3- and 4-year graduates.[10] To use the words of a resident from a prior focus group: "Why prolong the torture?"[31]

One rationale for longer residency might be that it enables higher wages postresidency, and indeed this idea is expressed by some 4-year residents in a recent qualitative analysis.[11] Unfortunately, the LoTP collaboration did not find differences in first postresidency year compensation.[11] Longitudinal analyses are needed to evaluate whether salary differences emerge (or not) over time.

Another rationale for residency extension might be to address physician maldistribution.[4,32] About 8% of US counties lack a primary care physician (PCP), and a shortfall of 87,150 full-time equivalent primary care physicians is expected by 2037.[32] Presuming that the same number of residency positions would remain available during the transition to a 4-year residency duration, there would still be a "year without family medicine graduates" in the third year after national implementation of a 4-year residency, contributing another full year's graduates (~4,500 residents) to this shortfall.

Perhaps this might be tolerable if 4-year graduates had practice patterns that addressed maldistribution. Unfortunately, there were no differences in "community size, practice size, practice type, specialty mix, and practice in federally designated underserved site[s]" in the comparison of 3-year and 4-year graduates.[4]

More realistically, lengthening training might actually "shrink the pipeline," producing fewer new family physicians yearly. As Douglass et al stated in 2021:

> "When adding a year of training, a program must fundamentally decide whether to reduce class size to maintain a stable total resident complement (eg, 8-8-8 to 6-6-6-6), or maintain class size and increase total resident complement (eg, 8-8-8 to 8-8-8-8)."[12]

Choosing between these strategies involves difficult funding choices with implications for both income and expenses.[12] Both strategies have been used in real-world settings.[12] Four-year extension strategies that shrink the pipeline (ie, the 8-8-8 to 6-6-6-6 scenario) may be attractive to programs because they do not incur additional operating expenses.[12] If many residency programs adopted this "shrink the pipeline" strategy, fewer family physicians per year would be produced, exacerbating the primary care physician shortfall.

The many reports of the LoTP collaboration are an impressive achievement and contribute to making evidence-based training duration decisions. Nonetheless, concerns remain that lengthening training could harm resident physicians. Prior to large-scale evaluations, further analyses are needed to evaluate the effect of longer residency duration on resident financial well-being, and on attainment of personal and professional milestones. Ideally, these concerns would be addressed using participatory methods that include resident physician and medical student stakeholders. Survey data suggest that a majority of resident physicians would oppose lengthening the duration of training,[28,31] although there is some evidence that residents have interest in longer duration of training if specific skills were being taught.[33] Even among residents in the 4-year Length of Training Pilot, only between 24% and 35% justified their decision to pursue 4 years of training due to the belief that "training in [family medicine] requires a fourth year."[9] Resident physician concerns should be robustly addressed prior to required changes in residency duration.

Beyond this, greater clarity is needed on how lengthening training would affect the primary care workforce. Gaps in scope of practice might be better addressed by the creation of additional fellowship opportunities for family physicians. For example, 4-year graduates were more likely to provide care for adult inpatient medicine in the recent scope of practice analysis.[2] Creation of a certificate of added qualification in hospital medicine (to replace the recently-retired "Designation of Focused Practice in Hospital Medicine") might be a better way to ensure hospitalist-interested residents can gain greater competence in inpatient medicine.

Finally, alternatives beyond blanket extension of residency should be considered. One insightful suggestion is that revisions to the "curricula and expectations of the fourth year of medical school"[3] would be an appropriate response to changes in the needed skills for practicing physicians. Alternatively, questions have been raised about whether a fixed duration of residency even makes sense given the heterogeneous rate individual residents acquire—and variable programs impart—

needed professional skills.[16,25] Time-variable residency, determined by the attainment of professional competencies, might allow high-performing residents and high-performing programs to train residents in 2 years, while allowing flexibility to extend residency duration to 4 years when individual and program circumstances dictate. Further analyses on medical school curricular interventions and/or experimentation with time-variable, competency-based resident education seem appropriate, again using participatory methods.

In summary, the LoTP study is an excellent start, but additional data are needed to support evidence-based decision making on the best model for training resident physicians for modern practice.

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