

Compulsory School Vaccination: Governmental Authority vs Personal Autonomy

TO THE EDITOR:

Dr Seehusen in his commentary in the June 2019 issue of *Family Medicine* succinctly summarized the current challenges facing family physicians and vaccine refusal.¹ He was prescient in observing that the United States was on track to achieve a record number of measles cases. From January 1 to December 31, 2019, 1,282 individual cases of measles were confirmed in 31 states, more than tripling the 372 cases reported in 2018.² Of these cases, 128 were hospitalized and 61 reported having complications, including pneumonia and encephalitis. The majority of these measles cases were among unvaccinated individuals.

All 50 US states require that children be vaccinated in order to attend public school, and the constitutional authority to enforce mandatory vaccination laws has repeatedly been affirmed by the Supreme Court. However, 45 states and the District of Columbia provide exemptions based on religious beliefs, and 15 states also permit exemptions on the basis of philosophical beliefs.³ Requests for these exemptions are increasing resulting in a substantial number of unvaccinated students in our public schools. A recent study has demonstrated that over the past decade the number of nonmedical exemptions to vaccination increased in 12 of the (then) 18 states allowing philosophical exemption to vaccination.⁴ There is a demonstrable association between vaccine refusal and vaccine-preventable diseases. A study evaluating 1,416 measles cases revealed about 57% of afflicted individuals had no history of measles vaccination. Of this total, 970 cases had detailed vaccination data and, of these, 574 cases (59%) were unvaccinated despite being vaccine eligible. Almost 71% of those unvaccinated (405 cases) had nonmedical exemptions. This same study reviewed nine reports describing 12 outbreaks of pertussis for which detailed vaccination data on unimmunized cases was available, and among eight of these outbreaks 59% to 93% of individuals were intentionally unvaccinated.⁵

A model for states to put teeth into their existing compulsory school vaccination laws has been provided by California. In response to the 2014 Disneyland measles outbreak, in June, 2015 the governor of California signed SB 277 into law, removing the personal belief exception to school immunization requirements thus making medical exemption the only legitimate reason to send an unvaccinated child to school. Recently, due to increasing rates of measles cases, the law has been strengthened to give state public health officials authority to decide which unvaccinated children are allowed to attend school. Under the new laws, the state will issue a standardized medical exemption certification form for doctors to complete and send to a child's school. The form outlines the details of the exemption and includes information about the medical basis for the exemption. In addition to reviewing doctors who grant five or more exemptions in a year, the California Department of Public Health would also investigate schools with an overall immunization rate of less than 95%. Additionally, the legislation gives the California Department of Public Health the authority to revoke a medical exemption deemed inappropriate by a state physician or public health officer.^{6,7}

To reverse the trend of declining vaccination rates, both medical and civil authorities must begin to take a stand. California has demonstrated it is possible for civil authorities to do so. For us as family physicians, it is preferable to work within the parameters of the physician-patient relationship to counter the misinformation widely disseminated on social media and in popular culture.

A significant percentage of parents are vaccination-hesitant rather than vaccination refusers, and thus are open to changing their mind if their concerns are addressed. Family physicians will have the greatest impact on increasing vaccination rates by identifying and focusing efforts on this target group. Practical measures for family physicians to utilize in counseling these parents include starting the conversation early by talking about vaccination in the prenatal and first several postnatal visits; presenting vaccination as the default option (ie, assuming parents will immunize the child); building trust with parents by showing

respect, empathy, and tailoring information to individual needs; honestly addressing questions about possible adverse side effects of vaccination and providing reassurance on a robust vaccine safety system; addressing possible (usually mild and transient) pain associated with vaccination and explaining comfort measures to use if necessary; focusing the discussion on both the community and the child's protection; and supplementing the factual information provided with stories (eg, personal statements about vaccinating their own children or personal experience with vaccine safety among their patients).⁸

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Family Medicine Faculty 2010-2019: Gaining Numbers, Losing Ground

TO THE EDITOR:

Robust academic departments of family medicine are crucial to the ongoing development of the specialty, the recruitment of students, and preparation of trainees.¹⁻⁴ These departments must have adequate numbers of well qualified faculty to conduct their multiple missions in

patient care, education, research, and scholarship in family medicine, as well as to play appropriate roles in the management and development of medical schools, academic health systems, and related institutions.^{4,5}

The most recent data show that family medicine departments in United States allopathic medical schools had 5,671 full-time faculty (FTF) members as of December 2019.⁶ This increase of 932 (19.4%) individuals since January 2010 appears to validate a decade of academic progress, but actually represents a decreasing proportion of family medicine FTF when compared to the total number of FTF in other specialty departments (see Table 1). The total number of FTF in all clinical specialties rose from 124,421 in 2010 to 157,979 in 2019, an overall increase of 27.2%. Of the number of full-time faculty in the 18 clinical specialties included in the database, family medicine dropped from the eighth largest academic specialty in 2010 to ninth largest in 2019, with neurology overtaking family medicine in 2019. The top seven (internal medicine, pediatrics, surgery, psychiatry, radiology, anesthesiology, and obstetrics and gynecology) maintained their ranking over the decade.

Several well established specialties achieved an increasing proportion of FTF, including orthopedic surgery, dermatology, neurology, and pediatrics (Table 1). However, family medicine was one of eight specialty departments with a statistically significant decreased proportion of FTF from 2010 to 2019 ($\chi^2 [1]=10.38, P=.001, 95\% \text{ CI } 0.09\% \text{ to } 0.37\%$). Decreasing proportions of FTF were also recorded for psychiatry, internal medicine, radiology, public health and preventive medicine, ophthalmology, pathology, and obstetrics and gynecology; and all but pathology and obstetrics and gynecology were a statistically significant decrease. While the decrease in the proportion of family medicine FTF in allopathic medical schools was not the largest, any drop is disappointing and highly undesirable. It is also important to note that the dramatic increase in the proportion of FTF in emergency medicine and other clinical departments probably reflects the creation of new departments and positions.

When comparing family medicine to other traditionally termed "primary care" specialties (internal medicine and pediatrics), the differences in FTF numbers across departments are striking. With 5,671 FTF in 2019, family medicine is one-eighth the size of internal medicine (43,197) and one-fourth that of pediatrics (23,562). This large size difference is most

Table 1: Proportion of Full-time Faculty in Each Specialty Department in US Allopathic Medical Schools From 2010 to 2019 ^a

Specialty Department	2010 FTF		2019 FTF		Proportion Change Within Each Specialty			
	n	(%)	n	(%)	(%) ^b	χ^2	P	95% CI
Anesthesiology	7,084	(5.69)	9,049	(5.73)	(0.04)	0.21	.65	-0.13%–0.21%
Dermatology	1,097	(0.88)	1,519	(0.96)	(0.08)	4.86	.03	0.01%–0.15%
Emergency medicine	3,311	(2.66)	5,570	(3.53)	(0.87)	127.86	<.0001	0.74%–0.99%
Family medicine	4,748	(3.82)	5,671	(3.59)	(-0.23)	10.38	.001	0.09%–0.37%
Internal medicine	34,824	(27.99)	43,197	(27.34)	(-0.65)	14.71	.0001	0.32%–0.98%
Neurology	4,663	(3.75)	6,188	(3.92)	(0.17)	5.44	.02	0.03%–0.31%
Obstetrics and gynecology	5,129	(4.12)	6,469	(4.09)	(-0.03)	0.16	.69	-0.12%–0.18%
Ophthalmology	2,637	(2.12)	3,063	(1.94)	(-0.18)	11.4	.0007	0.75%–0.29%
Orthopedic surgery	2,937	(2.36)	4,121	(2.61)	(0.25)	17.85	<.0001	0.13%–0.37%
Otolaryngology	1,702	(1.37)	2,232	(1.41)	(0.04)	0.81	.37	-0.05%–0.13%
Pathology	3,724	(2.99)	4,616	(2.92)	(-0.07)	1.91	.28	-0.06%–0.20%
Pediatrics	17,872	(14.36)	23,562	(14.91)	(0.55)	16.82	<.0001	0.29%–0.81%
Physical medicine and rehabilitation	1,327	(1.07)	1,748	(1.11)	(0.04)	1.03	.31	-0.04%–0.12%
Psychiatry	9,976	(8.02)	11,180	(7.08)	(-0.94)	88.71	<.0001	0.74%–1.34%
Public health and preventive medicine	1,025	(0.82)	812	(0.51)	(-0.31)	104.12	<.0001	0.25%–0.37%
Radiology	8,513	(6.84)	9,897	(6.26)	(-0.58)	38.44	<.0001	0.40%–0.76%
Surgery	12,575	(10.11)	16,213	(10.26)	(0.15)	1.71	.19	-0.07%–0.37%
Other clinical sciences	1,277	(1.03)	2,872	(1.82)	(0.79)	299.52	<.0001	0.70%–0.88%
Total primary care FTF ^c	57,444	(46.17)	72,430	(45.85)	(-0.32)	2.87	.09	-0.05%–0.69%
Total FTF	124,421		157,979					

Abbreviation: FTF, full-time faculty.

^a Source: Association of American Medical Colleges. Faculty Roster: US Medical School Faculty. <https://www.aamc.org/data-reports/faculty-institutions/report/faculty-roster-us-medical-school-faculty>. Accessed February 2020.

^b Proportion is calculated by taking the number of FTF in a specialty and dividing by the overall total FTF for that year. Proportion change is calculated by comparing the difference between two separate proportions in different years (ie, 2010 and 2019) for the same specialty. For example, in 2010 family medicine had 4,748 FTF out of 124,421 FTF total (3.82%). In 2019, family medicine had 5,671 FTF out of 157,979 total FTF (3.59%). That is a decrease of 0.23%.

^c Defined as family medicine, internal medicine, and pediatrics.

likely due to the inclusion of faculty members from multiple subspecialty areas in both internal medicine and pediatrics. Also, while the overall number of primary care FTF increased from 57,444 in 2010 to 72,430 in 2019, the proportion of primary care FTF in US allopathic medical schools decreased from 46.2% in 2010 to 45.6% in 2019 ($\chi^2 [1]=2.87, P=.09, 95\% \text{ CI } -0.05\% \text{ to } 0.69\%$).

These data are based on reports from medical schools and are limited to individuals holding full-time appointments in departments of family medicine and 17 other clinical specialties. They do not include part-time or volunteer faculty members, and others who contribute to the academic growth of the specialty. Family medicine traditionally relies on volunteer clinical faculty to supplement full-time paid faculty, and these numbers are unknown.

Nevertheless, the data demonstrate that although total numbers of FTF in academic departments of family medicine have grown over the past decade, the proportion of full-time family medicine faculty is decreasing and is dramatically out paced by many other clinical specialties.

Without additional growth, family medicine's ability to attract students and influence curricular and policy decisions within medical schools will be limited. The potential of the specialty to address the health care needs of the population will not be reached until there is greater parity of full-time family medicine faculty in academic health centers.

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