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Voluntary Separations and Workforce Planning: How Intent to Leave Public Health Agencies Manifests in Actual Departure in the United States

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ABSTRACT

Objectives: To ascertain levels of turnover in public health staff between 2014 and 2017 due to retirement or quitting and to project levels of turnover for the whole of the state and local governmental public health in the United States nationally.

Design: Turnover outcomes were analyzed for 15 128 staff from public health agencies between 2014 and 2017. Determinants of turnover were assessed using a logit model, associated with actually leaving one's organization. A microsimulation model was used to project expected turnover onto the broader workforce.

Results: Between 2014 and 2017, 33% of staff left their agency. Half of the staff who indicated they were considering leaving in 2014 had done so by 2017, as did a quarter of the staff who had said they were not considering leaving. Staff younger than 30 years constituted 6% of the workforce but 13% of those who left ($P < .001$).

Conclusions: Public health agencies are expected to experience turnover in 60 000 of 200 000 staff positions between 2017 and 2020.

Implications: As much as one-third of the US public health workforce is expected to leave in the coming years. Retention efforts, especially around younger staff, must be a priority. Succession planning for those retiring is also a significant concern.

KEY WORDS: Public Health Workforce Interests and Needs Survey, turnover, workforce planning

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Approximately 200 000 staff work across the nation's 3000 state, local, tribal, and territorial health departments, as well as 80 000 within the US Department of Health and Human Services, about 14 000 of whom work for the Centers for Disease Control and Prevention.[1,2] The public health workforce has been in transition for a decade, first with the Great Recession and now the baby boomer–driven "silver tsunami" retirement wave. In the past decade, the size of the governmental public health workforce has been reduced by an estimated 50 000 staff, a historic decline.[3] This lack of recovery is in contrast to the broader public sector workforce, which comprises 22.5 million individuals (5 million state/14.5 million local/3 million federal). While the public sector has generally recovered from the many jobs lost during the Great Recession, public health has not.[4]

The public sector continues to face steep competition from the private sector to recruit talent.[5,6] Historically, state and local government employees have earned lower wages than those in similar positions

and those with similar education levels in the private sector.[7] This has made nonwage benefit compensation even more critical to effective recruitment and retention. Over the course of the past decade, however, the generous retirement and health care benefits typically received by public sector workers have eroded as employer-required contributions to pensions and to private health insurance premiums as a percentage of payroll have increased (by 53% for pensions and by 64% for health insurance).[8,9] In response, many state and local government agencies have modified their benefit offerings, frequently by shifting more costs and responsibility for decision making and supplemental savings from the employer to the employee and/or from the employer to the retiree. This weakening of pension benefits hampers public sector employers' abilities to attract and retain top talent.[10] Coupled with relatively stagnant wages in many states and localities, public sector employees may view a jump to the private sector as increasingly appealing.[11,12] Perhaps nowhere is this more true than in public sector health agencies such as state and local public health departments. While public health staff are well-compensated compared with the average earner, some employees—especially local health department (LHD) workers—may be able to earn $10 000 or $15 000 more for the same type of job in a private health or health care organization.[13] Organizations with a relatively high number of nurses, epidemiologists, data analysts, and staff with specialized skills are especially vulnerable to earnings-based poaching and loss.[5]

Pay satisfaction is an important component of intent to leave.[14-20] However, job satisfaction and other measures of organizational support, satisfaction, and job embeddedness are arguably larger influences in an employee's choice to stay.[19,21] Studies inside and outside governmental public health support the basic tenet that happier and more engaged staff are less likely to leave their organization in search of "greener pastures," all else equal.[16,18,19,21-25] Gaining a better understanding of these drivers is critical. Within governmental public health, 47% of the state workforce and 39% of the local workforce nationally are planning to retire or considering leaving their organization.[25] If every person who said he or she planned to leave did, state and local public health agencies would need to replace more than 80 000 staff in the coming years. This is problematic even if a substantial number were to move to other governmental public health organizations (eg, seeking promotions or a new employer), as filling their positions or retraining existing staff can be very costly.[18,19] This level of workforce turnover could compromise our nation's ability to deliver the essential public health services. Our objective is to characterize the drivers of workforce turnover among individuals participating in a longitudinal public health workforce study, including estimating what percentages of staff are expected to voluntarily leave their position in the coming years.

Methods

This study characterizes the state and local public health department staff who were intending to leave their agency in 2014 and those who did leave by 2017, examining factors associated with both intent to leave and actually leaving. We also used microsimulation to predict numbers and characteristics of those who will leave in the near future.

Data sources

This study uses data acquired through the administration of the Public Health Workforce Interests and Needs Survey (PH WINS) in 2014 and 2017. PH WINS is a large-scale survey of individual governmental public health workers, and its methods are described in depth elsewhere in this journal.[26] The survey is administered by recruiting state and local public health agencies to participate, collecting lists of all staff working in the agencies, and then sending e-mails to individual staff inviting them to participate in the survey via a Web link. This article uses the staff lists as well as actual survey responses to identify staff who were contemplating leaving the agency and staff who actually did leave the agency between 2014 and 2017.

Study population

The study population includes 15 128 staff (see Supplemental Digital Content Appendix Figure 1, available at http://links.lww.com/JPHMP/A656). These staff came from state health agency central offices (SHA-COs) as well as LHDs. The largest LHDs in the United States are members of the Big Cities Health Coalition (BCHC) and are characterized separately from other LHDs in the analysis due to their size and functional differences.[27] We started with 50 837 staff from 2014 and 102 193 staff from 2017, which included duplicates between the 2 years where staff were present in 2014 and 2017. At the organizational level, we excluded staff from agencies that were not present in 2014 or those agencies that substantially changed between 2014 and 2017—for example, an agency merging or splitting, or choosing to report different units in its staff lists in one year versus another. These exclusions resulted in the removal of 91 528 staff records from the data set. At the individual level, we then also excluded individuals who did

not respond in 2014, which led to removing another 15 623 staff. This left us with a final analytic sample of 10 186 staff who responded in both 2014 and 2017 and 4942 employees who responded in 2014 but were not included in the 2017 staff list (and are therefore assumed to have left the department). This includes permanent and contract/temporary staff. We assessed the possibility of undetectable name changes on apparent turnover (eg, most likely due to marriage or divorce); this is discussed in the "Limitations" section of the article and the Supplemental Digital Content Appendix (available at http://links.lww.com/JPHMP/A656).

Study measures

We examined both intent to leave and actual separation from the health department as our variables of interest. We measured intent to leave with 2 multiple-choice questions on the survey. (1) "Are you considering leaving your organization within the next year, and if so, why?" and (2) "I am planning to retire in ____" with the following 5 years as response options, as well as "I am not planning to retire by ____." Importantly, although staff were asked about intent to leave or retire over a 5-year period, we measured actual separation from the health agency by comparing 2014 and 2017 staff lists and identifying e-mail addresses that appeared in 2014 only—that is, a 3-year period.

Statistical analysis

First, we used descriptive statistics to examine workers considering leaving their organization, including their demographic information. Then we identified workers who actually left their health department by tracking which workers appeared in the 2014 staff list but not in the 2017 staff list. Bivariate inferential comparisons were made using Pearson's χ^2 test. Then we conducted logistic regression to examine factors related to both considering leaving and actually leaving, extending models from previous work.[22,24,25,] Variance inflation factor analysis was used to rule out problematic collinearity in the models. Independent variables include supervisory status, race/ethnicity, age, tenure, pay satisfaction, supervisor satisfaction, organizational support, employee engagement, gender, educational attainment, job classification, employment status, and setting.[17,24,25] The "actually" leave model also includes intent to leave and plans to retire, with a dependent variable of leaving (ie, being present in 2014 staff lists and not present in 2017 staff lists). Finally, we ran a microsimulation model, using predictions from the "actually" leave logit model. This model assessed a predicted chance to leave for every 2017 PH WINS respondent based on the previous analysis. We ran the model for 100 000 repetitions, simulating whether individuals left, and constructed aggregate estimates for each repetition. Data were collected via the Web-based Qualtrics survey platform, and data were managed and analyzed in Stata 15.1.

Results

In terms of total staff lists, 11 485 of 30 751 staff were present in 2014 and not in 2017, suggesting a turnover rate as high as 37%. Per the "Methods" section, after keeping those who responded in 2014, 15 128 deduplicated staff constituted the analytic sample, with 4942 of these staff leaving their agencies between 2014 and 2017 (33% turnover). This ranged widely by agency (min = 18%, median = 31%, max = 51%). Approximately 49% of staff who indicated in 2014 that they were considering leaving or planning to retire had done so by late 2017. In addition, approximately 25% of staff who had not indicated in 2014 that they were considering leaving or planning to retire left their organization between 2014 and 2017 (see Supplemental Digital Content Appendix Table 1, available at http://links.lww.com/JPHMP/A656).

Demographics were examined between staff who stayed and those who left their organization, using 2014 demographic responses (Table 1). Approximately 74% of staff who left between 2014 and 2017 were nonsupervisors compared with 71% who stayed ($P < .001$). While racial and ethnic subgroups were marginally different in their departure rates from their respective agencies ($P = .001$), overall, there was no difference between non-Hispanic white staff and staff of color ($P = .624$). Age was highly differential between the 2 groups, with staff 35 years and younger constituting a much more significant portion of the leaving group compared with those who stayed (22% vs 14%, $P < .001$). Similarly, those older than 50 years left in higher proportions (50% vs 45%, $P < .001$). Tenure in current job, job classification, and annualized earnings showed statistically significantly different distributions between the stay and leave groups. This was not observed for highest degree attained ($P = .537$) or for staff program area ($P = .156$).

A logit model was fit to examine correlates of intending to leave versus doing so (see Supplemental Digital Content Appendix Table 2, available at http://links.lww.com/JPHMP/A656, and Table 2). Some of the highest relative odds in intent to leave and actual leave models were for job dissatisfaction (adjusted

TABLE 1
Demographics of Staff Who Stayed Versus Left Their Organization[a,b]

	Stayed	Left
Age,*** y		
21-30	6%	13%
31-40	19%	18%
41-50	30%	19%
51-60	35%	28%
61+	10%	22%
Highest degree		
No college degree	17%	18%
Associates	14%	13%
Bachelor's	36%	35%
Master's	26%	27%
Doctoral	7%	7%
Annualized salary***		
<$35 000	14%	17%
$35 001-$65 000	48%	51%
$65 001-$95 000	29%	24%
>$95 000	8%	7%
Job classification*		
Administrative and clerical	30%	32%
Clinical and lab	27%	25%
Public health sciences	36%	36%
Social sciences and other	7%	7%
Employment status***		
Part-time contract/temp	1%	4%
Full-time contract/temp	3%	4%
Part-time permanent	5%	5%
Full-time permanent	91%	87%
Program area		
Chronic disease and injury	5%	6%
Communicable disease	11%	10%
Environmental health	13%	11%
Maternal and child health	11%	12%
Other health care	5%	5%
All Hazards	3%	4%
Assessment	7%	7%
Communications	2%	2%
Organizational competencies	15%	16%
Other	28%	27%

[a] *Differences in distribution between the stayed and left groups statistically significant at: *P < .05, **P < .01, and ***P < .001.*

[b] *Responses to demographics varied. Stayed: n = 8039-9189; Left: n = 4157-4758; Total n = 12 196-13 947.*

TABLE 2
Correlates of Actual Separation

	Odds Ratio	95% CI	*P*
Considering leaving in the next year (exclude retirement)			
No (ref)			
Yes	2.1	1.9-2.4	<.001
Planning to retire by 2017			
No (ref)			
Yes	3.6	3.2-4.2	<.001
Job satisfaction			
Somewhat/very satisfied (ref)			
Neither/somewhat dissatisfied/very dissatisfied	1.3	1.2-1.5	<.001
Pay satisfaction			
Somewhat/very satisfied (ref)			
Neither/somewhat dissatisfied/very dissatisfied	1.1	1-1.2	.031
Supervisor satisfaction[a]	1.0	0.9-1	.036
Organizational support[a]	1.1	1-1.1	.016
Employee engagement[a]	1.0	1-1.1	.581
Gender			
Men (ref)			
Women	1.1	1-1.3	.013
Age, y			
20-35	1.8	1.6-2.1	<.001
36-55 (ref)			
56+	1.3	1.1-1.4	<.001
Highest degree			
Less than bachelor's (ref)			
Bachelor's	1.0	0.9-1.1	.985
Graduate	1.0	0.9-1.1	.999
Tenure in agency			
>5 y			
≤5 y	1.9	1.7-2.1	<.001
Supervisory status			
Nonsupervisor (ref)			
Supervisor	1.0	0.9-1.1	.54
Manager	0.9	0.8-1.1	.469
Executive	1.8	1.4-2.4	<.001
Race/ethnicity			
Person of color (ref)			
Non-Hispanic white	1.0	0.9-1.1	.491
Employment status			
Permanent (ref)			
Temporary	1.5	1.3-1.8	<.001

(continues)

TABLE 2
Correlates of Actual Separation *(Continued)*

	Odds Ratio	95% CI	*P*
Job classification			
Administrative/clerical (ref)			
Clinical and laboratory	0.8	0.7-0.9	.002
Public health sciences	0.9	0.8-1	.161
Social services and all other	0.9	0.7-1	.145
Setting			
SHA-CO (ref)			
BCHC LHD	1.0	0.9-1.2	.604
Other LHD/RHD	1.0	0.9-1.1	.645
Constant	0.2	0.2-0.2	<.001

Abbreviations: BCHC, Big Cities Health Coalition; LHD, local health department; RHD, regional health department; SHA-CO, state health agency central office.

[a] *These variables are the result of factor analysis.*

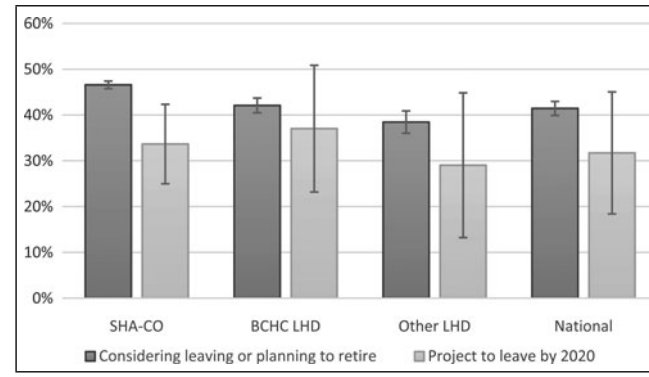

FIGURE 1 Projected Turnover Between 2017 and 2020
Abbreviations: BCHC, Big Cities Health Coalition; LHD, local health department; Other LHD, other local health department; SHA-CO, state health agency central office.

odds ratio [AOR] = 2.8 and 1.3, respectively), age 35 years or younger (AOR = 1.6 and 1.8, respectively), and 5 years or less tenure in agency (AOR = 1.5 and 1.9, respectively). Temporary/contract status was also associated with higher intent to leave and actually doing so (AOR = 2.7 and 1.5, respectively). Several other items were significantly associated with actually leaving one's organization, including plans to retire (odds ratio [OR] = 3.6) and being an executive (OR = 1.8). Of note, when intent to leave was included in the actual leave model, it was highly associated with actually leaving (OR = 2.1) and was observed to moderate some of the other demographics and workplace environment covariates.

The logit model predictions were projected onto respondents to the PH WINS 2017, with n = 36 620 having sufficient demographic information to model potential separations (see Supplemental Digital Content Appendix Figure 2, available at http://links.lww.com/JPHMP/A656). Overall, 32% of staff (95% confidence interval [CI], 19-45) are projected to leave or retire between 2017 and 2020 (Figure 1), with 34% among SHA-CO staff (95% CI, 25-43), 38% among BCHC LHD staff (95% CI, 24-52), and 29% among other LHD staff (95% CI, 13-44). If staff left in line with the projections, this would aggregate to a national total of 60 000 of 200 000 staff leaving their organizations between 2017 and 2020.

A microsimulation model was fit to examine potential turnover trajectories for the public health workforce. This model focuses on staff leaving between 2017 and 2020 among staff by setting and age (Figure 2). The black line represents the median percentage of staff expected to leave from 2017 to 2020, with the gray band representing the model's confidence bounds in that estimate. Overall, the model shows that staff younger than 33 years and staff older than 53 years (and especially older than 62 years) are projected to leave at much higher rates than their colleagues in different age groups. This is consistent across SHA-COs and BCHC LHDs, with some variation observed in the other LHD sample.

Discussion

The US governmental public health workforce is aged and aging. Staff are 47 years old, on average,[25] and older than those in the private sector. Retirements represent a significant threat to the protection and promotion of population health.[24] Across state and local health departments, approximately 22% say they are planning to retire by 2023. This represents almost 37 000 staff. This is somewhat of an inevitability and comparable with other areas in government.[5,28] Between substantial delayed retirements experienced during and after the Great Recession and the silver tsunami from baby boomers retiring, this portion of the workforce is expected to age out in the coming years.[6] While creative approaches to bringing retired staff back to work, as they are able, can mitigate the effects,[29] it is not a long-term or comprehensive solution. Beyond retirement, other voluntary separations, such as intent to quit, are substantial. The nationally representative PH WINS indicates that 47% of state and 39% of local staff are considering leaving their organization in the next year or retiring by 2023.[25] If this were to happen, it would represent 70 000 of 180 000 people from SHAs and large and mid-sized LHDs leaving the workforce, in total. Even if our model's (lower) estimates are more prescient, we can reasonably expect a generational shift in governmental public health in the coming years.

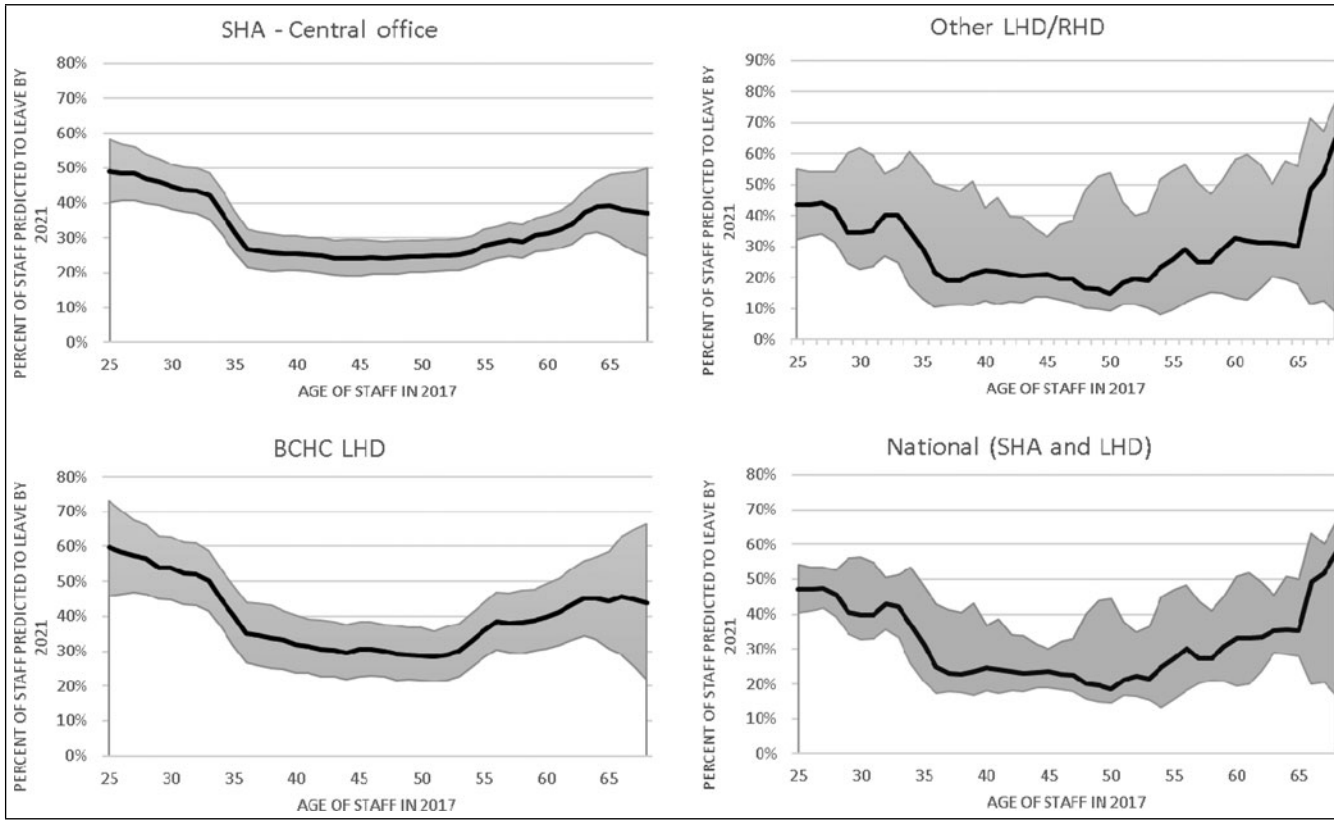

FIGURE 2 Projected Probability of Staff Leaving Between 2017 and 2020 by Age and Setting
Abbreviations: BCHC, Big Cities Health Coalition; LHD, local health department; Other LHD, other local health department; SHA-CO, state health agency central office.

During the first fielding of PH WINS in 2014, we noted a large inclination toward voluntary separations and retirement from respondents. We conducted small, ancillary studies to examine expected versus actual turnover, but not until the 2017 fielding were we able to truly look over time at the actionability of staff intent to leave. Half of those who said they planned to leave in 2014 had actually left by 2017, but a quarter of those who had not indicated they were considering leaving had done so by 2017. This statistic is particularly concerning when thinking about potential underestimations in projecting the number of individuals who will leave their organization. While some of the workers may have left involuntarily, there is clearly a portion of state and local public health agency workers for whom it will be difficult to predict their voluntary separation. Future research could explore characteristics that differentiate between individuals leaving who reported intending to do so and those who did not.

The retirement-age population is leaving, ostensibly to retire. About 53% of those older than 60 years left between 2014 and 2017. As a separate phenomenon, we see those younger than 33 years leaving at much higher rates than their older colleagues (about 49% left). While we do not know why these staff actually left, research on the broader 2017 data suggests that staff are considering leaving due to job dissatisfaction, lack of opportunities for advancement, and dissatisfaction with pay.[30] Given the close relationship between intent to leave and actually doing so, a logical approach to retention would be to focus on the drivers of intent to leave including job satisfaction and feelings of supervisor satisfaction, organizational support, and employee engagement.[24] Pay satisfaction is also a consideration. While it may be the case that governmental agencies are ill equipped to compete with the private sector during times of austerity, it may be practical to identify key position classes—such as nurses, epidemiologists, and data analysts—that are in demand and expand salary bands to remain competitive. In this way, turnover in public health looks very much like in other parts of the public sector and even the private sector.[19,21,31,32] Similar motivations for leaving are present, though the challenges public health faces are compounded by lack of salary competitiveness.[32] One approach might be for state and local public health agencies to focus

on effectively communicating total compensation (ie, the value of wages plus benefits) to increase competitiveness with the private sector. Agencies, especially those that have experienced significant benefit reforms over the past decade, may also want to explore nontraditional benefits (eg, flexible scheduling, telecommuting, assistance with student loans, financial wellness programs, time off for civic engagement).[10] These nontraditional benefits may be particularly appealing to a younger generation of workers who tend to have strong interests in work-life balance and mission-driven careers. However, nonmonetary issues must be addressed by agency leadership to better retain their staff. This might include, for instance, a greater focus on rewarding creativity and innovation and providing a clear path for promotion within agencies. Regardless of what method agencies elect to improve recruitment and retention, it is critical that agency leadership assess what their employees are seeking and evaluate the programs or other changes implemented.

Implications for Policy & Practice

- A substantial proportion of state and local health agency staff are expected to age out due to retirement in the coming years, and between one fifth and a quarter are considering leaving for nonretirement reasons—perhaps, looking for greener pastures. Our model suggests that 60 000 staff will leave their organizations between 2017 and 2020.
- Public health leaders have known that the retirement wave was coming for well over a decade; data suggest that this time of major change has already begun.[2,34]
- Observed and predicted voluntary separations should encourage public health leaders to redouble their efforts in retention, pipeline development, and succession planning.

Limitations

This article has several limitations of note. First, the linked analysis is premised on linking e-mail address or name within an agency. In the event of a marriage, divorce, or other reason for a nonhyphenated name change that also results in an e-mail change, our algorithms are unlikely to match these respondents and would inappropriately count the person as having left the organization. Using the Census' marital status measures and our respondents' ages, we project that less than 2% of the turnover rate observed would be attributable to this issue.[33] This is, in part, because of the relatively high age of the workforce and the fact that such an event would have had to happen within a 3-year period. A related issue would be staff leaving one public health agency for another. While significant movement interstate is somewhat unlikely, intrastate transfers could be potentially problematic. Our best means of assessing this is through examining what percentages of staff actually left compared with the target location they gave for considering leaving (eg, to go to another public health agency vs nongovernmental positions). Results from a sensitivity analysis (see Supplemental Digital Content Appendix, available at http://links.lww.com/JPHMP/A656) show that 45% of those indicating they were considering leaving for another governmental public health agency did so compared with 57% of those planning to leave governmental public health ($P < .001$). If it is the case that staff left in line with their plans, approximately 5% of the total turnover in the workforce (or 1.7% of the workforce overall) would be attributable to inter–public health agency moves. This could plausibly be larger if a higher percentage of staff left to seek a job in another governmental public health agency—especially those who left their organization by 2017 but had not indicated they were considering it in 2014. Another issue is the varying roles that contract/temporary staff play. While our models account for employment status and agency effects, the differing definitions of "contractor" might plausibly impact some agencies more than others. The next issue is the quality of the microsimulation model. Because the 2014 (non-BCHC) local data are not based on a nationally representative sample, the extrapolation to the 2017 nationally representative sample may be imperfect. However, Supplemental Digital Content Appendix Table 4 (available at http://links.lww.com/JPHMP/A656) does show substantial similarity across demographics between the analytic sample and 2017 respondent pool. A repeated analysis in the future would be a logical way to verify the approach using fully nationally representative data. A final consideration is that state health departments undergoing significant reorganization or change were excluded from this analysis; generalizability is stronger to those state health departments not undergoing significant change.

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