Unleashing the Creativity and Innovation of Our Greatest Resource—The Governmental Public Health Workforce

Rachel Locke, MPH, CPH; Brian C. Castrucci, DrPH, MA; Melissa Gambatese, MPH; Katie Sellers, DrPH, CPH; Michael Fraser, PhD, CAE

ABSTRACT

Context: Creativity and innovation in the governmental public health workforce will be required to generate new ideas to solve complex problems that extend beyond traditional public health functions such as disease surveillance and monitoring. Creativity and innovation can promote and advance necessary organizational transformation as well as improve organizational culture and workplace environment by motivating employees intrinsically. However, there is little empirical evidence on how rewarding creativity and innovation in governmental public health departments is associated with organizational culture and workplace environments.

Objective: This study describes (1) the degree to which creativity and innovation are rewarded in governmental public health agencies and (2) associations between rewarding creativity and innovation and worker satisfaction, intent to leave, and workplace characteristics.

Design: The cross-sectional Public Health Workforce Interests and Needs Survey (PH WINS) was administered using a Web-based platform in fall 2017.

Settings and Participants: Data used for these analyses were drawn from the 2017 PH WINS of governmental health department employees. This included state health agency and local health department staff. PH WINS included responses from 47 604 staff members, which reflected a 48% overall response rate. PH WINS excludes local health departments with fewer than 25 staff or serving fewer than 25 000 people.

Results: Fewer than half of all workers, regardless of demographic group and work setting, reported that creativity and innovation were rewarded in their workplace. Most measures of worker satisfaction and workplace environment were significantly more positive for those who reported that creativity and innovation were rewarded in their workplace.

Conclusion: This research suggests that promoting creativity and innovation in governmental public health agencies not only could help lead the transformation of governmental public health agencies but could also improve worker satisfaction and the workplace environment in governmental public health agencies.

KEY WORDS: creativity, governmental public health, innovation, job satisfaction, public health, workforce, workforce development

As markets change, businesses are forced to change to survive.[1-4] This change is driven, at least in part, by the creativity and innovation of the workforce, which needs to be supported by the organizational culture.[1,2,5,6] Creativity is increasingly viewed as integral to maintaining and sustaining business and differentiating product lines and services.[3,5,7-10] New ideas and ways of thinking create opportunities for business development; therefore, organizational survival is predicated on an organization's ability to tap into the creativity of its workforce and achieve impact through innovation.[2,4,10,11] While creative thinking and ideas are required, the need exists to translate these ideas into innovations that can be implemented in organizations.[12]

State and local governmental public health agencies play a critical role in improving our nation's health. While state and local governmental public health agencies are not market forces in the same sense as in the business sector, the increased importance of policy interventions to improve health,[13] the epidemiologic transition from communicable to chronic disease,[14] and an increased recognition of the indelible link

Author Affiliations: *de Beaumont Foundation, Bethesda, Maryland (Ms Locke and Drs Castrucci and Sellers); Gambatese Consulting, Wappingers Falls, New York (Ms Gambatese); and Association of State and Territorial Health Officials, Arlington, Virginia (Dr Fraser).*

The Public Health Workforce Interests and Needs Survey (PH WINS) was funded by the de Beaumont Foundation. The de Beaumont Foundation acknowledges Jonathon P. Leider, PhD, for his contributions to this article.

The authors declare no conflicts of interest.

Correspondence: *Rachel Locke, MPH, CPH, de Beaumont Foundation, 7501 Wisconsin Ave, Ste 1310E, Bethesda, MD 20814 (locke@debeaumont.org).*

DOI: 10.1097/PHH.0000000000000973

between community and individual health[15] are among the factors forcing governmental public health agencies to transform and evolve. Emerging public health frameworks such as Public Health 3.0 encourage the public health workforce to "boldly expand the scope and reach of public health to address all factors that promote health and well-being including those related to economic development, education, transportation, food, environment, and housing."[13(p1)]

To sustain the life expectancy increases achieved during the 20th century,[16] if not improve upon them, the existing governmental public health agency workforce must create partnerships with sectors where no relationship exists, develop community-wide policy solutions, and impact systems and processes that, while not by design, may be contributing to poor health.[13,17,18] As in the business sector, the ability of governmental public health agencies to meet future population health challenges may hinge on the creativity and innovation of the workforce. From small adaptive changes to major breakthroughs, the workforce will need to be creative to generate new ideas to solve complex problems that extend beyond traditional public health functions such as disease surveillance and monitoring.[14] Such change can be difficult for government bureaucracies that are characterized by rigid procedures and limited resources.[19] Culture change and modernization of the governmental public health system are key to enhanced performance improvement but not easily implemented in large bureaucracies designed to move carefully and methodically in their work of protecting and promoting health.

In addition to driving change, organizations that value creativity and innovation may experience other benefits. Previous studies have found that organizational cultures demonstrating these characteristics have improved rates of job satisfaction, commitment, and intent to remain.[19,20] Management literature describes how workplace cultures that focus on learning, growth, employee professional development, and supporting new ways of doing things reinforce employees' intrinsic motivation at work, making them more productive and more likely to contribute all they have to offer to the organization.[21-24] If these findings hold in the governmental public health agency workforce, increasing organizational commitments to creativity and innovation in governmental public health agencies could benefit multiple workforce engagement measures and increase desired outcomes related to health improvement and productivity.

To date, no previous study has quantified the degree to which creativity and innovation are rewarded in governmental public health agencies or explored the association between rewarding creativity and innovation and important workforce factors such as job satisfaction, employee satisfaction, organizational support, supervisory support, employee engagement, pay satisfaction, and intent to leave. Using data from the 2017 Public Health Workforce Interests and Needs Survey (PH WINS), the present study examines self-reported perception of whether creativity and innovation are rewarded within governmental public health agencies and differences in important workforce factors such as job satisfaction, employee satisfaction, organizational support, supervisory support, employee engagement, pay satisfaction, and intent to leave among those who perceive that rewards are present for creativity and innovation and those who do not share this perception.

Methods

Data used for these analyses were drawn from PH WINS 2017, the largest survey of individual governmental public health workers in the United States. PH WINS invited responses from 47 604 staff members, which reflected a 48% overall response rate.[25] Two nationally representative frames constitute PH WINS, one for State Health Agency (SHA) Central Office (SHA-CO) staff and one for local health department (LHD) staff. The LHD frame is further classified into LHDs that serve 250 000 people or fewer and those who serve more than 250 000 people. LHDs that serve fewer than 25 000 people were excluded. The SHA-CO frame was fielded functionally as a census, with all 50 SHAs in the United States invited to participate (n = 47 did). In this frame, the central office staff were parsed from the local staff who might have responded as part of the SHA; in many states, the SHA runs both a central office and LHDs.[26] Overall, 17 136 staff members responded to the SHA-CO frame. The local frame had a more complex design, incorporating elements of probability-based sampling and contributions with certainty—this is detailed elsewhere in this special supplement.[25] The nationally representative local frame had 26 533 respondents, in total. Balanced repeated replication weights were used to adjust for complex design and nonresponse.

Analyses in this article use workplace perception data from the PH WINS data set, specifically a survey question related to whether respondents feel "creativity and innovation are rewarded" in their organization. Staff responded by selecting from a 5-point Likert scale, with response categories including "strongly disagree," "disagree," "neither agree nor disagree," "agree," and "strongly agree." For analytic purposes, this item was dichotomized, with agree and strongly agree responses categorized into

"agree" and the remaining responses into "neutral/disagree."

We categorized respondents into 3 workplace settings: LHDs serving 250 000 people or fewer; LHDs serving more than 250 000 people; and SHA Central Offices (SHAs). We assessed race/ethnicity using both the full set of racial and ethnic categories available. We dichotomized age into "35 years and younger" and "over 35 years." We dichotomized supervisory status into "nonsupervisors" and "supervisors" (supervisors, managers, and executives). We conducted bivariate comparisons to assess differences in the percentages of those who agree versus neutral/disagree by characteristic.

In addition, we examined perceptions of creativity and innovation being rewarded in the workplace and its association with job satisfaction, organizational satisfaction, pay satisfaction, and intent to leave, as well as 3 workplace environment characteristics (organizational support, supervisory support, and employee engagement). The 3 workplace environment variables each comprised several questions from PH WINS. Again, we assessed associations between agreement with the creativity item and each of the satisfaction and workplace environment variables using bivariate comparisons. Satisfaction and workplace environment items were dichotomized with "agree" and "strongly agree" responses categorized into "agree" and the remaining responses into "neutral/disagree."

A confirmatory factor analysis was conducted for the workplace environment variables, yielding 3 factors. This was in line with previous efforts, with a few notable exceptions. First, the creativity/innovation item was not included in the factor analysis as was done in previous analyses, as this was our primary construct of interest. While the item was modestly correlated with the final factor (organizational support, correlation = 0.536), a variance inflation factor analysis on the logistic model proved the association unproblematic (creativity vif = 2.63, organizational support vif = 1.32). Other exceptions reflect differences between the 2 survey instruments used in 2014 and 2017; the 2017 instrument did not include the items "My workload is reasonable" and "My supervisor supports my need to balance work and family issues," which both fall under the supervisory support variable. For these reasons, results from this study are not directly comparable with past analyses.[27,28]

We performed bivariate analyses using the Rao-Scott design-adjusted χ^2 test to identify associations between agreement with the creativity item and demographics, measures of workplace satisfaction, and workplace characteristics. For each of the 3 satisfaction variables and the intent-to-leave variable, we fit a logistic regression model where the dependent variable was the satisfaction variable and the primary independent variable was the dichotomized measure of creativity. We also included in the models, as independent controls, gender, age

TABLE 1
Creativity by Demographic Characteristics

	Creativity/Innovation Are Rewarded	
	% Agree (95% CI)	% Neutral/ Disagree (95% CI)
Setting		
Local health departments (≤250 000 people served)	46.3 (42.1-50.5)	53.7 (49.5-57.9)
Local health departments (250 000+ people served)	44.1 (42.6-45.5)	55.9 (54.5-57.4)
State public health agencies	43.0 (42.2-43.9)	57.0 (56.1-57.8)
Gender[a]		
Male	43.4 (41.1-45.6)	56.6 (54.4-58.9)
Female	44.8 (43.4-46.1)	55.2 (53.9-56.6)
Nonbinary/other	27.2 (20.3-35.5)	72.8 (64.5-79.7)
Race/ethnicity[a]		
Hispanic/Latino	45.5 (42.7-48.3)	54.5 (51.7-57.3)
White	46.0 (44.1-48.0)	54.0 (52.0-55.9)
Black or African American	42.4 (40.6-44.2)	57.6 (55.8-59.4)
Native Hawaiian or Other Pacific Islander	46.0 (37.6-54.5)	54.0 (45.5-62.4)
Asian	49.7 (45.5-53.8)	50.3 (46.2-54.5)
American Indian or Alaska Native	34.8 (25.3-45.6)	65.2 (54.4-74.7)
≥2 races	30.3 (24.8-36.4)	69.7 (63.6-75.2)
Age[a]		
≥35 y	51.1 (49.3-53.0)	48.9 (47.0-50.7)
>Over 35 y	43.0 (41.8-44.3)	57.0 (55.7-58.2)
Supervisory status[a]		
Nonsupervisor	41.8 (40.2-43.5)	58.2 (56.5-59.8)
Management (supervisor, manager, and executives)	50.8 (47.8-53.8)	49.2 (46.2-52.2)
Tenure at job in current health department[a]		
0-5 y	48.3 (46.8-49.8)	51.7 (50.2-53.2)
6-10 y	37.2 (33.7-40.8)	62.8 (59.2-66.3)
11-15 y	35.2 (30.5-40.1)	64.8 (59.9-69.5)
16-20 y	46.9 (28.4-66.2)	53.1 (33.8-71.6)
21+ y	33.3 (26.8-40.4)	66.7 (59.6-73.2)
Education		
No college	44.8 (42.5-47.2)	55.2 (52.8-57.5)
Associate's degree	42.6 (39.5-45.8)	57.4 (54.2-60.5)
Bachelor's degree	43.7 (42.4-45.1)	56.3 (54.9-57.6)
Master's degree	45.5 (43.8-47.3)	54.5 (52.7-56.2)
Doctoral degree	48.4 (44.7-52.2)	51.6 (47.8-55.3)

[a] *Significant differences within groups,* $P < .05$.

(dichotomized), race/ethnicity (dichotomized), educational attainment, supervisory status (dichotomized), tenure in job at current health department, job classification, workplace setting, and the 3 workplace environment factor constructs (organizational support, supervisory support, and employee engagement).

For each of the 3 workplace environment constructs, we used a linear regression model. The model predicted the log-transformed supervisory support, organizational support, and employee engagement as separate dependent variables. The primary independent variable was the untransformed dichotomized measure of creativity. Models were adjusted for gender, age (dichotomized), race/ethnicity (dichotomized), highest degree attainment, supervisory status (dichotomized), tenure in job at current health department, job classification, and workplace setting. We report standard β coefficients, P values, and the percent change expected per 1-unit change in creativity calculated using the following formula: $100*[\exp(\beta) - 1]$.

PH WINS was fielded as a Web-based instrument via the Qualtrics survey system (Qualtrics LLC, Provo, Utah), and data were managed and analyzed in Stata 15.1 (StataCorp LLC, College Station, Texas).

Results

Less than half of all workers, regardless of demographic group or work setting, agreed that creativity and innovation were rewarded in their workplace. Notable exceptions to this trend included respondents who were 35 years or younger and respondents in management roles. More than 50% of respondents in these demographic groups agreed that creativity and innovation were rewarded in their workplaces (Table 1).

Measures of workplace satisfaction were significantly more positive for those who agreed that creativity and innovation were rewarded in their workplace (Table 2). Those who felt creativity and innovation were rewarded had higher odds of job satisfaction, organizational satisfaction, and pay satisfaction. The intent-to-leave odds ratio indicates that those who felt that creativity and innovation were rewarded in their workplace were 22% less likely to report an intent to leave their current job.

Across measures of workplace environment, those who felt that creativity and innovation were rewarded reported in higher percentages that they felt they had stronger supervisory support and organizational support and felt more engaged as employees (Table 3).

Those who agreed that creativity and innovation were rewarded had a supervisory support score that was 10.5% higher than those who were neutral or did not agree that creativity was rewarded and had an organizational support score that was 27.1% higher. Employee engagement did not follow this same trend (Table 4).

Discussion

Governmental public health practice will need to evolve to meet emerging health challenges.[13,17] Businesses have long embraced creativity and innovation as strategies to adapt to an ever-changing marketplace.[1,2,5,6] However, among the governmental public health workforce, less than half of the workforce believe that creativity and innovation are rewarded. This finding suggests that a possible driver of change may be widely underutilized within the governmental public health agency workforce.

Promoting creativity and innovation in governmental public health may lessen the negative impact of other workforce challenges. Dissatisfaction with pay has been previously documented in the governmental public health workforce[29] and persisted in 2017. In the overall sample in 2017, less than half of all respondents were satisfied with their pay, but among those who perceived that creativity and innovation are

TABLE 2
Relationship Between Satisfaction and Rewarding Creativity and Innovation[a]

	Creativity/Innovation Are Rewarded			
	% Agree (95% CI)	% Neutral/Disagree (95% CI)	% Total Sample (95% CI)	Adjusted Odds Ratio[b] (95% CI)
Job satisfaction	94.8 (94.2-95.4)	71.6 (70.5-72.7)	81.9 (81.0-82.8)	1.72 (1.43-2.07)
Organizational satisfaction	91.3 (90.3-92.2)	55.0 (53.6-56.5)	71.1 (69.9-72.2)	2.23 (1.78-2.80)
Pay satisfaction	66.1 (62.7-69.4)	36.8 (34.7-39.0)	49.8 (47.3-52.3)	2.06 (1.64-2.58)
Intent to leave	11.3 (10.1-12.5)	27.8 (25.3-30.4)	27.8 (25.3-30.4)	0.78 (0.72-0.85)

[a] *All differences significant,* $P < .05$.

[b] *Separate models were estimated for each variable, with job satisfaction, organizational satisfaction, pay satisfaction, and intent to leave serving as the dependent variable and perceived creativity and innovation as the independent variable. Models were adjusted for gender, age (dichotomized), race/ethnicity (dichotomized), highest degree attainment, supervisory status (dichotomized), tenure in job at current health department, job classification, workplace setting, and the 3 workplace environment factor variables.*

TABLE 3
Relationship Between Workplace Environment Variables and Rewarding Creativity and Innovation

	Creativity/Innovation Are Rewarded		
	% Agree (95% CI)	% Neutral/Disagree (95% CI)	% Total Sample (95% CI)
Supervisory support			
My supervisor/team leader treats me with respect			
Agree	96.2 (95.8-96.7)	74.9 (72.3-77.4)	84.4 (82.7-85.9)
Neutral/disagree	3.8 (3.3-4.2)	25.1 (22.6-27.7)	15.6 (14.1-17.3)
My supervisor and I have a good working relationship			
Agree	96.2 (95.9-96.6)	71.5 (69.3-73.6)	82.5 (81.2-83.6)
Neutral/disagree	3.8 (3.4-4.1)	28.5 (26.4-30.7)	17.5 (16.4-18.8)
My supervisor/team leader provides me with opportunities to demonstrate my leadership skills			
Agree	90.5 (89.4-91.5)	50.8 (49.7-51.9)	68.4 (67.5-69.2)
Neutral/disagree	9.5 (8.5-10.6)	49.2 (48.1-50.3)	31.6 (30.8-32.5)
Supervisors/team leaders in my work unit support employee development			
Agree	93.6 (92.8-94.3)	54.9 (53.8-56.1)	72.1 (71.0-73.1)
Neutral/disagree	6.4 (5.7-7.2)	45.1 (43.9-46.2)	27.9 (26.9-29.0)
Supervisors/team leaders work well with employees of different backgrounds			
Agree	91.4 (90.6-92.3)	57.2 (54.0-60.2)	72.3 (70.7-73.9)
Neutral/disagree	8.6 (7.7-9.4)	42.8 (39.8-46.0)	27.7 (26.1-29.3)
Organizational support			
Employees have sufficient training to fully utilize technology needed for their work			
Agree	75.0 (73.7-76.2)	41.8 (38.5-45.2)	56.5 (54.7-58.3)
Neutral/disagree	25.0 (23.8-26.3)	58.2 (54.8-61.5)	43.5 (41.7-45.3)
My training needs are assessed			
Agree	77.8 (73.9-81.4)	41.7 (40.3-43.0)	57.7 (55.8-59.6)
Neutral/disagree	22.2 (18.6-26.1)	58.3 (57.0-59.7)	42.3 (40.4-44.2)
Communication between senior leadership and employees is good in my organization			
Agree	74.7 (70.6-78.4)	29.4 (28.3-30.6)	49.5 (47.2-51.7)
Neutral/disagree	25.3 (21.6-29.4)	70.6 (69.4-71.7)	50.5 (48.3-52.8)
I recommend my organization as a good place to work			
Agree	91.9 (91.0-92.8)	53.5 (51.1-55.9)	70.5 (68.7-72.3)
Neutral/disagree	8.1 (7.2-9.0)	46.5 (44.1-48.9)	29.5 (27.7-31.3)
Employee engagement			
I know how my work relates to the agency's goals and priorities			
Agree	97.1 (96.7-97.5)	82.7 (80.5-84.7)	89.1 (87.7-90.3)
Neutral/disagree	2.9 (2.5-3.3)	17.3 (15.3-19.5)	10.9 (9.7-12.3)
The work I do is important			
Agree	98.8 (98.5-99.0)	91.5 (90.4-92.5)	94.7 (94.1-95.3)
Neutral/disagree	1.2 (1.0-1.5)	8.5 (7.5-9.6)	5.3 (4.7-5.9)
I feel completely involved in my work			
Agree	95.4 (94.8-95.9)	74.6 (71.9-77.0)	83.8 (82.1-85.4)
Neutral/disagree	4.6 (4.1-5.2)	25.4 (23.0-28.1)	16.2 (14.6-17.9)
I am determined to give my best effort at work every day			
Agree	98.6 (98.3-98.8)	91.8 (90.4-93.0)	94.8 (94.0-95.5)
Neutral/disagree	1.4 (1.2-1.7)	8.2 (7.0-9.6)	5.2 (4.5-6.0)
I am satisfied that I have the opportunities to apply my talents and expertise			
Agree	92.0 (91.0-93.0)	54.7 (50.1-59.1)	71.2 (68.2-74.1)
Neutral/disagree	8.0 (7.0-9.0)	45.3 (40.9-49.9)	28.8 (25.9-31.8)

TABLE 4
Association Between Composite Variables and Perceived Rewards for Workplace Creativity and Innovation

	β	Percent Change[a]	P
Supervisory support	.10	10.5	<.001
Organizational support	.24	27.1	<.001
Employee involvement	−.3	−25.9	.064

[a] *The percent change was calculated as follows: 100*[exp(β) − 1].*

Implications for Policy & Practice

- Governmental public health agency practice is in need of change. When change is needed in the business sector, businesses are increasingly exploring how the creativity and innovation of their workforce can drive change.
- Less than half of the governmental public health agency workforce agreed that creativity and innovation are rewarded.
- Governmental public health agency workers who reported that creativity and innovation are rewarded in their workforce had significantly greater rates of pay satisfaction and organizational and supervisory support and lower rates of intent to leave in the next year.
- Public health leaders should consider how to create environments that better support creativity and innovation, not only to drive change in health departments but also to improve other critical workforce measures.

rewarded, two-thirds of respondents were satisfied with their pay. In 2014, nearly 40% of the state governmental public health agency workforce reported that they planned to leave their jobs by 2020.[30] However, in 2017, the odds of intending to leave in the next year were 22% lower among those who perceived that creativity and innovation are rewarded than in those who did not.

More generally, individual measures of supervisory and organizational support were routinely 20 to 40 percentage points greater among those who perceived that creativity and innovation are rewarded compared with those who did not, suggesting that cultures encouraging creativity and innovation are also cultures where employees are more satisfied with their supervisors and organizations. After adjusting for other factors, perceiving that creativity and innovation are rewarded was associated with a 10.5% increase in supervisory support and a 27.1% increase in organizational support. Across several measures, the responses among those who perceived that creativity and innovation are rewarded are consistent with the workplace ideals (eg, increased job satisfaction and decreased intent to leave). This suggests that promoting creativity and innovation not only could help lead the transformation of governmental public health agencies but could also help improve the workplace environment.

This study is the first to explore creativity and innovation within the governmental public health agency workforce. This present study is limited in that it is cross-sectional, uses a self-reported measure of perceived support for creativity and innovation, and there is no standard definition of creativity and innovation provided to the respondents. However, while these limitations exist, this study identifies a possible challenge within the governmental public health workforce that merits further attention. This is reinforced by the strong associations found between perceived support for creativity and innovation and other workforce variables. This study may not provide definitive answers. Rather, it should be read as a call for additional exploration and inquiry into a concept that has deep resonance in the business literature.

Public health leaders—state, local, tribal, and territorial health officials; philanthropic and federal funders; academic institutions; and others—need to prioritize additional research to further explore creativity and innovation in the governmental public health workforce and develop strategies to improve the perceived support for this concept despite the limitations often associated with government service. Creating workplace cultures that promote creativity and innovation could be a key retention strategy for agencies that have less flexibility to offer more extrinsic rewards for retention such as pay. These same leaders should commit to creating environments where workers can be flexible and can test and try options and approaches, within reason. Bureaucracies are often characterized by command and control cultures, but to create environments that better support creativity and innovation, agency cultures must shift away from control to cultures in which employees are motivated to problem solve, create, and share across the organization and learn. As evidenced in the corporate world, many companies promote collaboration and shared problem-solving, setting aside time for innovation and learning and promoting cross-functional teams to solve common challenges and reduce performance barriers.[31] Governmental public health agencies should follow suit if they are truly interested in improving health outcomes, improving employee satisfaction, and reducing employee intent to leave.

References

1. McAdam R, Keogh W. Transitioning towards creativity and innovation measurement in SMEs. *Creativity Innov Manag*. 2004; 13(2):126-139.
2. Bennis W. Introduction. In: Bennis W, Biederman PW, Yes RI, eds. *Organizing Genius: The Secrets of Creative Collaboration*. Boston, MA: Addison-Wesley Publ Co Inc; 1997:xvi.
3. Morgan G. Emerging waves and challenges: the need for new competencies and mindsets. In: Henry J, ed. *Creative Management*. London, England: Sage; 1991:283-293.
4. Peters T. *The Circle of Innovation*. London, England: Hodder & Stoughton; 1997.
5. Azzam AM. Why creativity now? A conversation with Sir Ken Robinson. *Educ Leadersh*. 2009;67(1):22-26.
6. McLean LD. Organizational culture's influence on creativity and innovation: a review of the literature and implications for human resource development. *Adv Dev Hum Resour*. 2005;7(2): 226-246.
7. Carayannis EG, Gonzalez E. Creativity and innovation = competitiveness? When, how, and why. In: *The International Handbook on Innovation*. Oxford, England: Elsevier; 2003:587-606.
8. Stacey RD. *Complexity and Creativity in Organizations*. San Francisco, CA: Berrett-Koehler Publ; 1996.
9. Stevens G, Burley J, Divine R. Creativity business discipline = higher profits faster from new product development. *J Prod Innov Manag*. 1999;16(5):455-468.
10. Dawson P, Andriopoulos C. *Managing Change, Creativity and Innovation*. London, England: Sage; 2014.
11. Ancona D, Caldwell D. Management issues facing new product teams in high technology companies. *Adv Ind Labor Relat*. 1987;4(191.221):1.
12. Anderson N, Potočnik K, Zhou J. Innovation and creativity in organizations: a state-of-the-science review, prospective commentary, and guiding framework. *J Manag*. 2014;40(5):1297-1333.
13. DeSalvo KB, O'Carroll PW, Koo D, Auerbach JM, Monroe JA. Public Health 3.0: time for an upgrade. *Am J Public Health*. 2016; 106(4):621-622.
14. Frieden TR. Asleep at the switch: local public health and chronic disease. *Am J Public Health*. 2004;94(12):2059-2061.
15. Koh HK, Tavenner M. Connecting care through the clinic and community for a healthier America. *Am J Prev Med*. 2012;42(6) (suppl 2):S92-S94.
16. Centers for Disease Control and Prevention. Ten great public health achievements—United States, 2001-2010. *MMWR Morb Mortal Wkly Rep*. 2011;60(19):619-623.
17. Public Health Leadership Forum. *The High Achieving Governmental Health Department in 2020 as the Community Chief Health Strategist*. Vol 2017. Washington, DC: RESOLVE; 2014.
18. Fraser M, Castrucci BC. Beyond the status quo: 5 strategic moves to position state and territorial public health agencies for an uncertain future. *J Public Health Manag Pract*. 2017;23(5):543-551.
19. Shalley CE, Gilson LL, Blum TC. Matching creativity requirements and the work environment: effects on satisfaction and intentions to leave. *Acad Manag J*. 2000;43(2):215-223.
20. Odom RY, Boxx WR, Dunn MG. Organizational cultures, commitment, satisfaction, and cohesion. *Public Productivity Manag Rev*. 1990;14(2):157-169.
21. Herzberg F. One more time: how do you motivate employees? *Harv Bus Rev*. 2003;65(5):109-120.
22. Nohira N, Gorsberg B. Employee motivation: a powerful new model. https://hbr.org/2008/07/employee-motivation-a-powerful-new-model. Published 2008. Accessed December 9, 2018.
23. Bolino MC, Turnley WH, Averett T. Going the extra mile: cultivating and managing employee citizenship behavior. *Acad Manage Exec*. 2003;17(3):60-71.
24. Badubi RM. Theories of motivation and their application in organizations: a risk analysis. *Int J Innov Econ Dev*. 2017;3(3):43-50.
25. Leider JP, Pineau V, Bogaert K, Ma Q. The methods of PH WINS 2017: approaches to refreshing nationally-representative state-level estimates and creating nationally-representative local-level estimates of public health workforce interests and needs. *J Public Health Manag Pract*. 2019;25(suppl 2):S49-S57.
26. Meit M, Sellers K, Kronstadt J, et al. Governance typology: a consensus classification of state-local health department relationships. *J Public Health Manag Pract*. 2012;18(6):520-528.
27. Harper E, Castrucci BC, Bharthapudi K, Sellers K. Job satisfaction: a critical, understudied facet of workforce development in public health. *J Public Health Manag Pract*. 2015;21(suppl 6):S46-S55.
28. Leider JP, Harper E, Shon JW, Sellers K, Castrucci BC. Job satisfaction and expected turnover among federal, state, and local public health practitioners. *Am J Public Health*. 2016;106(10):1782-1788.
29. Castrucci BC, Leider JP, Liss-Levinson R, Sellers K. Does money matter: earnings patterns among a national sample of the US state governmental public health agency workforce. *J Public Health Manag Pract*. 2015;21(suppl 6):S69-S79.
30. Liss-Levinson R, Bharthapudi K, Leider JP, Sellers K. Loving and leaving public health: predictors of intentions to quit among state health agency workers. *J Public Health Manag Pract*. 2015;21 (suppl 6):S91-S101.
31. Hamel G, Zanini M. The end of bureaucracy. *Harv Bus Rev*. 2018;3(3):44-51.