Applied Epidemiology Scientific Writing Trends, Needs, and Recommendations, 2014

Council of State and Territorial Epidemiologists

Executive Summary

Capacity building of an effective applied epidemiology workforce should include the development of scientific writing skills. Applied epidemiologists communicate complex public health information in writing with various audiences (including conference presentations and peer reviewed manuscripts for journals); often with varying degrees of preparation, mentoring, or resources such as time to complete the presentations or manuscripts. To better understand the current practices and needs of applied epidemiologists regarding scientific writing, the Council of State and Territorial Epidemiologists (CSTE) has undertaken a mixed-method assessment of indicators to guide recommendations for how this area of professional development can be improved.

METHODS

During spring 2014, theory-guided focus groups were held with applied epidemiologists by teleconference to determine scientific writing practices currently in use and desired. Facilitators were volunteer members of the CSTE Scientific Writing Assessment Workgroup, a subset of the Epidemiology Methods Subcommittee. Focus group participants included new to very experienced epidemiologists, primarily representing at local and state health departments, and agencies (or organizations) that included much scientific support to those that did not. The rich thematic information suggested the overall desire to increase scientific writing output among applied epidemiologists, identified some practices worth assessing in a representative sample of practicing applied epidemiologists, and suggested some differences between intention and reality (e.g. policy and job descriptions that support applied epidemiologists' desires to put more of their work into writing). Lack of full access to the scientific literature by many participants was noted. Participants were keen to point out that much of their writing was aimed at policy, or public audiences, in addition to the more formalized work of conference abstract writing and manuscripts for Centers for Disease Control and Prevention (CDC) or peer-reviewed scientific journals.

Following the focus group analyses, an assessment on scientific writing was developed, pilot tested, and distributed to members and non-members of CSTE and with National Association of County and City Health Officials' (NACCHO) local epidemiology workgroup. Participants were encouraged to distribute the assessment to other applied epidemiologists. Responses were confidential and participants were asked to respond to the assessment only once. The assessment included 18 multiple choice and short answer questions and was available by SurveyMonkey until a quota of responses was achieved, measured by length of time working in applied epidemiology adjusted from the most recent CSTE Epidemiology Capacity Assessment (ECA) (n = 396). This sample is approximately 25% of the applied epidemiology workforce per the 2013 ECA who completed the individual questionnaire (n=1590).

RESULTS

Respondents almost exclusively had a master's degree or higher level of education (94%) and 62% reported CSTE membership. Seventeen percent of respondents had worked in applied epidemiology less than two years, while 13% of respondents had worked in applied epidemiology for 20 or more years. More respondents worked at state health departments (64%) than local health departments (23%), with the remainder representing federal and tribal agencies and academia.

Scientific Writing and Publishing Experience

- While almost everyone (89%) reported writing experience, 66% reported 'publishing' experience. Publishing was reported more frequently among those with doctoral degrees (100%) compared to those with a master's degree (57%).
- Job-required scientific writing for internal agency use (94%) was almost universal, followed by writing documents for the public (90%).
- Only 58% of respondents published work in the peer-reviewed literature as a job function.
- Publishing among those with academic appointments (19% of the sample) was statistically more likely than among applied epidemiologists who did not have an academic appointment.
- One in three respondents had published work in a CDC publication (*Morbidity and Mortality Weekly Report* (MMWR), *Emerging Infectious Diseases* (EID), and *Preventing Chronic Disease* (PCD)).
- State health department epidemiologists were nearly twice as likely to report that publishing their work was a requirement of a funding source as local health department epidemiologists.

Barriers to Scientific Writing

- Scientific writing barriers experienced by applied epidemiologists did not include knowledge of or experience with the process: 84% reported 'minimal' or 'no' barrier due to these reasons.
- Organizational structure, resources, and competing demands provide a better understanding of perceived barriers to scientific writing with time to write being the most common barrier expressed by 68% of applied epidemiologists; though, 28% report they receive some protected time for this task.
- A structured review process within the department was both a needed support and sometimes a perceived barrier to scientific writing; though, in general, epidemiologists reported agency lack of encouragement or support to do scientific writing was a barrier.
- While some journals charge fees for publishing, 65% of respondents found the cost of publishing was not a barrier.
- Just over half of the respondents reported having access to peer-reviewed literature (55%); oftentimes through academic appointments.

Facilitators to Scientific Writing

Facilitating factors that influence scientific writing in health departments included supportive organizational culture, technical support including writers, editors and communication specialists, access to peer-reviewed literature, university partnerships, and the option for electronic publishing.

Desired Tools & Resources for Scientific Writing

Tools desired by applied epidemiologists to help them increase scientific writing included dedicated time, training to improve scientific writing and publishing skills, dissemination of best practice models of supportive writing resources within health departments, and best practice examples of supportive organizational culture to foster writing and publishing.

- Templates for general publications were requested by about half of participants.
- Access to a mentoring network of experienced writers from state and local health departments was also similarly desired, and access to editors (46%) and access to technical writers (44%) were also suggested as helpful.
- A journal club to encourage publishing and peer-review was requested by two out of every five respondents.

NEXT STEPS

Scientific writing provides applied epidemiologists with opportunities to grow and share products of their work. Next steps identified from the results of the assessment include 1.) continued professional development in scientific writing for applied epidemiologists; 2.) collaboration with national organizations, such as Association of State and Territorial Health Officials (ASTHO), CSTE, NACCHO, public health leadership networks, and accreditation programs to increase the organizational support for scientific writing products; 3.) Institutionalize the value of development and dissemination of best practices models.

Additionally, agencies can encourage scientific writing among their applied epidemiologists by: offering dedicated time to write, allowing epidemiologists to hold academic appointments, partnering with libraries or universities to ensure access to peer-reviewed literature, encouraging a supportive organizational culture to foster writing and publishing, and providing resources such as manuscript templates, technical writers, editors, and journal clubs.