



Financial Conflicts of Interest Among Emergency Medicine Contributors on Free Open Access Medical Education (FOAMed)

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Free open access medical education (FOAMed) is a collection of educational resources that are both free and accessible to health care providers.¹ Platforms used to disseminate FOAMed resources include websites, blogs, Twitter, Facebook, podcasts, and YouTube. Topics published in FOAMed are numerous and include dissemination and/or critique of specialty-specific national guidelines; approaches to differential diagnosis, assessment, and management of myriad diseases; just-in-time procedural training; and critical appraisal of peer-reviewed publications. Over the past decade, there has been a proliferation of emergency medicine/critical care FOAMed resources. A study published in 2014 examined the increase in FOAMed resources from 2002 through 2013 and discovered an increase from two blogs and one podcast to 141 blogs and 42 podcasts over this time period.² Another study during this time period revealed that 97.7% of residents surveyed use FOAMed resources at least 1 hour per week as part of “extracurricular education.”³

While recent research on FOAMed has primarily focused on quality of educational content,⁴ there is an absence in the literature concerning financial conflicts of

interest (FCOI) in this forum. As part of the Affordable Care Act passed in 2010, the Physician Payments Sunshine Act mandates pharmaceutical and biomedical manufactures to report to Centers for Medicaid and Medicare Services (CMS) any and all financial exchanges made to physicians and hospitals on an annual basis.⁵

Given the increasing number of FOAMed resources,² as well as the increased use among medical trainees,³ we sought to characterize the prevalence of FCOI in a select cohort of FOAMed resources recommended by Society for Academic Emergency Medicine (SAEM) and the Emergency Medicine Resident Association (EMRA).

A cross-sectional study of a convenience sample of 31 FOAMed blogs and websites curated from a list of recommended resources on both SAEM and EMRA’s websites. The Open Payments database (OPD), created by the CMS, was used to measure FCOI. The OPD is an online, publicly available repository of financial transactions between industry and physicians and hospital systems, as reported by industry to CMS. Categories of transactions in this database include general payments, research payments, and payments related to

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ownership of companies. An in-depth description of these categories can be found at the OPD website (<https://www.cms.gov/openpayments/about/natures-of-payment.html>). Data in each category included payments made related to medical devices or pharmaceutical agents.

All blog posts and website entries published between June 1, 2017, and June 1, 2018, were included in the study if the website entry or blog post solely went through a methodologic process of critically appraising a peer-reviewed publication with a summary recommendation regarding whether the conclusions of the publication were clinically relevant to emergency medicine practice. We excluded all entries that did not directly meet the inclusion criteria. Every website entry—blogpost—was reviewed for each website during the inclusion criteria period. Information abstracted from each website entry included name of the posting author(s), sex, provider type, country of practice, and FCOI disclosure. Authors with numerous website entries were only included once in this study.

Using the OPD, we determined financial conflicts of for both general and research payments of all United States–based contributors. Six categories of general payments were recorded in this study, namely: 1) compensation for services other than consulting, including serving as faculty or as a speaker at a venue other than a continuing education program; 2) consulting fee; 3) travel and lodging; 4) honoraria; 5) food and beverage; and (6) education. The primary outcome of this study was prevalence of FCOI among authors of emergency medicine FOAMed content and frequency of disclosures.

The study sample and types of FCOI were described using frequencies and measures of central tendencies. Pearson's chi-square test was used to assess group differences. An alpha level of 0.05 was used to determine statistical significance for these tests. This study of publicly available information was deemed non-human subjects research by University Hospitals Cleveland Medical Center. All analyses were conducted using Jamovi Project version 0.9.2.1 (<https://www.jamovi.org>).

We identified 391 unique FOAMed contributors in this study. Table 1 lists characteristics of contributors who were primarily male (68.5%, $n = 268$), staff physicians (49.6%, $n = 194$), and practicing within the United States (74.7%, $n = 292$). Of the 292 United States–based health care providers, 45 (15.4%) had FCOIs in the 2017 Open Payments database. FOAMed contributors on received a median (IQR) of \$191 in general payments (\$94–\$829) with a range of

Table 1
Characteristics of Selected Authors from 31 FOAMed Websites and Blogs

Characteristics	$n = 391$
Sex	
Female	123 (31.5)
Male	268 (68.5)
Provider type	
Physician	194 (49.6)
Resident	169 (43.2)
Other*	28 (7.2)
Practice location	
United States	292 (74.7)
Outside United States	99 (25.3)
FCOI of U.S. authors	45 (15.4)
General payment FCOI	
Median	\$191 (\$94.1–\$829)
Range	\$38,132
Research payment FCOI	
Median	\$15,703 (\$10,262–\$72,916)
Range	\$127,261

Data are reported as n (%).

FOAMed = free open access medical education; FCOI = financial conflict of interest; IQR = interquartile range.

*Other included provider types that were not physician or resident, such as medical student, nurse practitioner, or emergency medical technician.

\$38,132. Food and beverages (85.8%) comprised the overwhelming number of transactions, followed by travel and lodging (8.6%), other services (1.9%), honoraria (1.9%), consulting (1.2%), and education (0.6%). Chi-square testing indicates that there was marginal significance in difference between males and females with FCOI (18% vs. 10.5%, $p = 0.06$). Twelve of 45 contributors also had research FCOIs and received a median (IQR) of \$15,703 (\$10,262–\$72,916) in research payments.

A “significant financial conflict of interest” is an aggregate of greater than or equal to \$5,000 from a single company over a 12-month period.⁶ Of the 45 bloggers with FCOI, 12 (26.6%) had financial conflicts greater than \$5,000 from a single company. None of the 12 bloggers (0%) disclosed these significant FCOI in their FOAMed content.

Finally, approximately 25% ($n = 99$) of FOAMed contributors practice medicine outside the United States. Since there exists no foreign Open Payments equivalent that tracks clinician FCOI, we were unable to assess FCOI for these 99 international FOAMed contributors.

One limitation of our study is our use of a convenience sample of both website and blog posts. The sample was taken from two widely utilized resources

with explicit missions to educate broad swathes of emergency medicine providers. Further, while conflicts of interest may exist for more core content social media posts, we felt that restricting our search to critical appraisal of literature might enable a clearer link between posts and FCOI. An entire survey of the emergency medicine FOAMED content may reveal a lower prevalence of FCOIs than in this unique population. Additionally, our study does not trend FCOIs over time since the beginning of Open Payments data collection from 2013, which may additionally alter the prevalence and amount of FCOIs.

Based on the current specialty guidelines for FCOI discovery and our investigation findings, we recommend that all FOAMED contributors explicitly declare FCOIs on FOAMED content—or use #FCOI on Twitter⁷—or provide a link to their OPD profile. In this study of emergency medicine FOAMED websites and blogs, we discovered that 15% of FOAMED contributors had FCOIs in 2017 in the OPD compared to 25% of all emergency physicians with FCOIs in 2015.⁸ These results suggest that emergency medicine providers involved in FOAMED are less likely to have FCOIs; however, the total dollar amount of FCOIs in our study is greater than the average total dollar amount of conflicts in a national emergency medicine provider cohort.⁸ The greater dollar amount of financial conflicts received by FOAMED emergency medicine contributors may influence the material they create.

The majority of financial transactions in this study were for food and beverages. Other studies have similarly shown that food and beverages are the most frequent payment to emergency physicians,⁹ as well as to physicians across medical specialties.⁸ While the dollar value of individual meals may not be high, physicians who receive even a single industry sponsored meal increase their prescribing of the brand name drug that is promoted.¹⁰ While our study is the first to examine FCOIs of emergency medicine contributors on social media, it does not directly address the impact of FCOI on the content of these posts. However, a study similar to ours of United States–based hematologists-oncologist on Twitter revealed that approximately 80% who use Twitter have an FCOI with a median nonresearch general payment of over \$1,600.⁷ Of those with an FCOI of at least \$1,000, 81% mentioned a drug from a company where they have a FCOI, and tweets about conflicted drugs were more “positive” compared to tweets about nonconflicted drugs.¹¹ In this cohort,

approximately 1% of physicians included disclosures in their social media post.¹¹ While these rates of FCOI in hematology-oncology were considerably higher compared to our study, both highlight the necessity of reporting for FCOI in FOAMED.

Finally, in our study 25% of FOAMED contributors practice outside of the United States and do not have FCOI data that is publicly available in the OPD or a foreign equivalent. Concomitantly, although almost 27% of emergency medicine contributors on FOAMED with FCOI had general or research payments greater than \$5,000, none of the providers in this study disclosed these conflicts with industry on their FOAMED content. The absence of public disclosure, along with a significant proportion of FOAMED contributors practicing in countries without mandated public reporting of financial conflicts, raises concern related to possible industry bias influencing the educational content in FOAMED and warrants further investigation.

References

- Burkholder TW, Bellows JW, King RA. Free open access medical education (FOAM) in emergency medicine: the global distribution of users in 2016. *West J Emerg Med* 2018;19:600–5.
- Cadogan M, Thoma B, Chan TM, Lin M. Free open access meducation (FOAM): the rise of emergency medicine and critical care blogs and podcasts (2002-2013). *Emerg Med J* 2014;31:e76–7.
- Mallin M, Schlein S, Doctor S, Stroud S, Dawson M, Fix M. A survey of the current utilization of asynchronous education among emergency medicine residents in the United States. *Acad Med* 2014;89:598–601.
- Thoma B, Chan TM, Kapur P, et al. The Social Media Index as an indicator of quality for emergency medicine blogs: a METRIQ study. *Ann Emerg Med* 2018;72:696–702.
- Kirschner NM, Sulmasy LS, Kesselheim AS. Health policy basics: the Physician Payment Sunshine Act and the Open Payments program. *Ann Intern Med* 2014;161:519–21.
- HHS tightens financial conflict of interest rules for researchers [Internet]. Bethesda (MD): National Institutes of Health (NIH); 2015 [cited 2018 Oct 18]. Available from: <https://www.nih.gov/news-events/news-releases/hhs-tightens-financial-conflict-interest-rules-researchers>
- Tao DL, Boothby A, McLouth J, Prasad V. Financial conflicts of interest among hematologist-oncologists on Twitter. *JAMA Intern Med* 2017;177:425–7.
- Tringale KR, Marshall D, Mackey TK, Connor M, Murphy JD, Hattangadi-Gluth JA. Types and distribution of

- payments from industry to physicians in 2015. *JAMA* 2017;317:1774–84.
9. Fleischman W, Ross JS, Melnick ER, Newman DH, Venkatesh AK. Financial ties between emergency physicians and industry: insights from open payments data. *Ann Emerg Med* 2016;68(153–8):e4.
 10. DeJong C, Aguilar T, Tseng CW, Lin GA, Boscardin WJ, Dudley RA. Pharmaceutical industry-sponsored meals and physician prescribing patterns for Medicare beneficiaries. *JAMA Intern Med* 2016;176:1114–22.
 11. Kaestner V, Brown A, Tao D, Prasad V. Conflicts of interest in Twitter. *Lancet Haematol* 2017;4:e408–9.