after multivariable adjustment (Table 2). In contrast, a similar proportion of articles with any author-reported COI described studies with positive outcomes as did articles without any author-reported COI (80.9% [191 of 236] vs 79.3% [96 of 121], P = .82; odds ratio, 0.85; 95% CI, 0.43-1.71).

Discussion | To our knowledge, this is the first study to examine the association between IEAs of published reports of studies of interventional cardiology devices and the outcomes of those studies. We found that RCTs with an IEA were significantly more likely to report favorable study results than were RCTs without an IEA. These findings add to evidence that industry collaboration is associated with study outcomes.2,3 In contrast, any type of author COI was reported in 66.1% (236 of 357) of manuscripts and, as in prior studies of cardiovascular devices and the outcomes of interventional cardiology devices and the outcomes of clinical trials of major cardiovascular trials.4

Employment by industry may be an important COI in academic medicine, but the role of IEAs in the research process is not always disclosed. In some cases, IEAs may be “honorary” authors who have not substantially contributed to the design of the study being described in a published report, to the acquisition or interpretation of the study data, or to drafting or revision of the manuscript and do not meet accepted authorship criteria.5,6 Conversely, many industry employees involved in studies may remain uncredited. Also, industry employees seeking acknowledgment for their contributions may be preferentially interested in coauthorship of manuscripts reporting positive trial outcomes. Ultimately, the full nature of the association between IEAs and the published outcomes of clinical trials remains uncertain.

Industry employees, academic coauthors, and journal editors should consider the potential implications and perceptions of IEAs of scientific manuscripts. Specific oversight of IEAs, with detailed disclosure of their role in a publication, may be warranted to ensure the reporting of evidence without industry bias.6

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LESS IS MORE

Evaluation of a Resident-Led Project to Decrease Phlebotomy Rates in the Hospital: Think Twice, Stick Once

Excessive inpatient laboratory testing leads to unnecessary health care cost and exposes patients to uncomfortable blood draws, false-positive results, and hospital-acquired anemia.1,2 Many strategies have sought to decrease laboratory testing in the hospital,3 but most do not focus on decreasing needlesticks for patients.

In July 2014, we launched the resident-led Think Twice, Stick Once program on the Internal Medicine teaching service at the University of California, San Francisco (UCSF) Medical Center to reduce the number of phlebotomies per patient per day by at least 5%.

Methods | We designed the program to follow the previously described Culture, Oversight, Systems Change, Training (COST) framework for value-improvement projects.4 The campaign featured resident-physician and hospital leaders and raised awareness of the program through posters, buttons, and pens with the slogan, “Think Twice, Stick Once.” Team-specific phlebotomy data were reported twice monthly to members of the
medicine teams. The project was supported by the UCSF’s Housestaff Quality Improvement Incentive Program,\(^5\) which provides each resident with an annual $400 reward for meeting a specific performance goal. The Division of Hospital Medicine adopted phlebotomy reduction as a performance metric. Resident champions introduced the program at monthly orientations and didactic sessions, emphasizing the patient experience related to phlebotomy.

Phlebotomy data were obtained from the electronic medical record (Epic Systems Corporation) and analyzed with R, version 3.1.3 (Foundation for Statistical Computing). The primary outcome was the monthly number of phlebotomies per patient per day, defined as the total number of patient phlebotomies divided by the sum of the lengths of stay for the patients on whom they were done. Patients in the intensive care unit, blood cultures, and perioperative collections were excluded from the analysis. Orders for blood culture were excluded because of technical issues preventing association of the order requisition with a specific blood draw. Perioperative collections were determined to be beyond the control of the Internal Medicine teams.

We used an interrupted time-series analysis to estimate changes in the use of phlebotomy in the postintervention period (January-October 2015) and control for preintervention trends. The preintervention period was defined as January 2013 to June 2014. The first 6 months after initiating the intervention were excluded to account for an educational lag. Institutional review board approval by the UCSF Committee on Human Research was not required for the intervention to reduce the number of needlesticks because it was deemed a quality improvement project that was overseen by the UCSF Division of Hospital Medicine Quality Improvement Committee.

**Results** | Phlebotomy in the preintervention period (18 months) was done on 5527 patients vs 2635 patients in the postintervention period (10 months). The case mix index increased significantly in the postintervention compared with the preintervention period (mean, 1.38 vs 1.32, \(P < .001\)). The average number of phlebotomies per patient per day in the preintervention period was 2.10 vs 1.78 in the postintervention period (\(P < .001\)). Our time-series analysis suggests that a secular trend toward a reduction of phlebotomies before the intervention (\(-0.008\) needlesticks per month; \(P = .04\)) would not have led to the magnitude of the reduction in phlebotomies seen after the intervention (expected needlesticks at the end of October 2015, 1.95; actual, 1.75; relative reduction, \(-10.3\%\); 95% CI, \(-19.7\%\) to \(-3.4\%\); \(P < .005\)) (Figure). After this one sustained decline, the trend toward improvement did not accelerate.

**Discussion** | We present an approach to reducing laboratory use that focuses on the number of phlebotomies, and therefore on the importance of patient experience, with a simultaneous effort to provide high-value care. A patient-centered approach may provide physicians with a compelling reason to decrease unnecessary testing.

Our study has many limitations, including lack of randomization and lack of data about patient outcomes and satisfaction. The study probably also underestimated the overall phlebotomy burden through its exclusion of phlebotomies for blood culture and the possible need for multiple needle insertions to obtain a laboratory sample. The lack of acceleration in improvement after the intervention suggests that additional changes will be needed for continued gains.

Our program featured resident-physician champions and a system of timely, regular performance feedback with side-by-side team comparisons of phlebotomy rates. We used education and a financial incentive as additional tools to change the culture of inpatient laboratory testing. The transformation of practices in ordering laboratory services will require stronger systems-based changes.

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Incidence of Cataract Surgery in Patients After Percutaneous Cardiac Intervention in Taiwan

More than 1 million percutaneous cardiac intervention (PCI) procedures are performed annually in the United States, resulting in some reduction of cardiovascular mortality. Because the correlation between occupational radiation exposure and excess risk of cataract formation in medical staff is well documented, ocular protection from radiation (ie, routine use of lead eyeglasses) is recommended for interventionists. However, the risk of radiation cataract for patients undergoing PCI procedures has not drawn much attention, and there are no current guidelines for patient eye protection. Hence, we conducted this study to evaluate the risk of cataract in the population undergoing PCI procedures.

Methods | A retrospective, matched-cohort study was conducted using population-based representative claims data from Taiwan’s National Health Insurance (NHI) research database, which includes 1 million individuals. We used discharge procedure codes (International Classification of Diseases, Ninth Revision, Clinical Modification) procedure codes 35.96, 36.0x, 37.21-37.23, 37.26, 37.27, 37.29, 37.34, and 88.5x) to identify patients who had recently undergone a PCI procedure (5-year washout period from 1996 to 2000) from January 1, 2001, through December 31, 2012. The date of the first PCI procedure was considered the index date for each patient. Patients were excluded if they were younger than 40 years, had a prevalent cancer (confounding by radiotherapy), or underwent cataract surgery before the index date. Controls were randomly selected from the NHI’s beneficiaries and matched 1:2 according to birth year, sex, and diabetes mellitus status (a major confounder in cataract). Index data for controls were assigned according to their matched patient. The end point of each study participant was determined by the date of cataract surgery, date of withdrawal from the NHI, or the end of 2012.

Incidence of Cataract Surgery in Patients With and Without PCI

A total of 41421 participants (13807 exposed to PCI and 27614 not exposed to PCI) were included. Patients who