hort compared with outpatients in the study by Edelman et al ≥ may have masked a comparably smaller effect of opioids. A strength of our study is the higher homogeneity of patients regarding the indication of opioid treatment (cancer pain). Despite the great efforts of Edelman et al ≥ to control confounders, opioid use in veterans with and without HIV infection is a powerful surrogate for a large range of detrimental health conditions (opioid use for musculoskeletal and bone diseases with decreased mobility 4 or chronic cough [dihydrocodeine]). 5

Further observation, ideally in a controlled prospective trial, is warranted before adapting current standards in cancer care.

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Long-term Outcome of Implantable Cardioverter/Defibrillator Lead Failure

Implantable cardioverter/defibrillators (ICDs) are established for treatment and prevention of sudden death from ventricular arrhythmias. 1 An ICD system consists of a generator and a lead. The design of the ICD leads differs between manufacturers, some of which have had higher lead failure rates than others. 2

The Riata defibrillator leads, manufactured by St Jude Medical Inc, were introduced in 2002. They have a novel silicone insulation design that was found to be prone to a specific insulation abrasion, characterized by externalization of the conductor (EC). These leads were designated to a class I recall by the US Food and Drug Administration in late 2011 owing to significant rates of lead failure and an insulation defect, posing significant management challenges.

After the recall, a specific protocol was initiated for heightened surveillance of these individuals at the National University Hospital of Iceland in Reykjavik, Iceland, where all ICD recipients in Iceland are followed up in a designated clinic, including fluoroscopy of the leads to evaluate for EC.

Methods | We identified all 52 individuals who had the recalled lead implanted from November 2002 to October 2009 in Iceland, along with 50 individuals who had ICDs from other manufacturers from February 2010 to November 2012 to serve as controls. We determined the occurrence of lead failure by (1) EC, defined as direct visualization of the conductor wires outside the lead body on fluoroscopy or being visualized on a chest radiograph; (2) electrical dysfunction, high-frequency, low-amplitude irregular signal (electrical noise) between ventricular signals on the intracardiac ICD electrogram; and (3) lead fracture. Additionally, we compared inappropriate shocks and deaths. The University Hospital Institutional Review Board approved the study. Because the data collection was retrospective, informed consent was waived by the institutional review board.

Hazard ratios for risk of lead failure and death between the groups were estimated with Cox regression models, adjusting the propensity score of having this lead, using demo-
graphic and device characteristics. Statistical analyses were performed using R statistical software, version 3.6.0 (R Foundation for Statistical Computing). A 2-sided P value less than .05 was statistically significant. Analysis began February 2019.

**Results** | Across the full study period, there were 52 individuals in the recalled lead group and 50 individuals in the control group. There were no significant differences with respect to demographic and device characteristics between the groups (Table). In the recalled lead group, 7 individuals (13.5%) had electrical dysfunction, 2 (3.8%) had EC, 7 (13.5%) had both, and 3 (5.7%) had lead fractures across the full study period. Therefore, in total, 19 individuals (36.5%) had lead failure, including 1 individual in whom therapy for ventricular tachycardia was not delivered, resulting in death. In the control group, there were 4 (8.0%) (P < .01; difference, 0.29; 95% CI, 0.12-0.46) with lead failure, 1 (2.0%) with electrical dysfunction, and 3 (6.0%) with lead fractures across the full study period. When follow-up was limited to 8.5 years for both groups, the number of cases of unexpected lead failure was 4.41 per 100 patient-years for patients with the recalled lead but 1.13 per 100 patient-years for those with another type of ICD lead.

After propensity score adjustment (with equally long follow-up times), individuals who had a recalled lead implanted were at higher risk of lead failure (25.0% [13 of 52] vs 6.0% [3 of 50]; hazard ratio, 4.67; 95% CI, 1.18-18.50; Figure) but lower risk for death (7.7% [4 of 52] vs 20.0% [10 of 50]; hazard ratio, 0.25; 95% CI, 0.07-0.87).

In total, there were 14 deaths (26.9%) (6 cardiovascular and 8 other) in the recalled lead group but 10 (20.0%) (3 cardiovascular and 7 other) among controls. In the recalled lead group, 10 (19.2%) experienced an inappropriate shock compared with 8 (16%) in the control group (P = .87; difference, 0.032; 95% CI, −0.135 to 0.200).

**Discussion** | While a strength of the study would be almost complete follow-up and exemplary record keeping in Iceland, limitations would include a relatively small number of study participants and retrospective design. Implantable cardioverter/defibrillators are intended to sustain and improve quality of life but inevitably failure of these products can occur, resulting in injury or even death. While patients with the recalled leads did not receive more inappropriate shocks, the cumulative incidence of serious lead problems was high with more than one-third experiencing significant consequence. The lead failures among patients who had the recalled leads occurred over the course of the follow-up time, indicating that leads should be monitored for the full dwell time. While there is still no clear consensus about the root cause of the Riata lead failure, we conclude...
that development of more durable ICD leads with regards to biomaterials and engineering design is warranted.

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PHYSICIAN WORK ENVIRONMENT AND WELL-BEING

Distribution of Men and Women Among NCAA Head Team Physicians, Head Athletic Trainers, and Assistant Athletic Trainers

The percentage of female physicians in the United States has increased. In 2016, 35.2% of active physicians were women.1 However, gender disparities persist in many areas of medicine, such as compensation,2 academic rank,3 medical society awards, and national conference keynote speakers.

In the National Collegiate Athletic Association (NCAA), the number of male and female athletes is similar. In 2019, 56% of student athletes were men and 44% were women.4 In this study, we determined the distribution of men and women among NCAA head team physicians and head and assistant athletic trainers.

Methods | In June 2019, we used the NCAA member directory5 to collect data on head team physicians and athletic trainers in the NCAA for the 2018-2019 academic year. Two authors (C.L. and C.D.) independently determined each physician’s gender (as well as primary specialty for head team physicians in Division I) based on name, online photograph, and internet profile. Discrepancies were resolved through discussion and obtaining additional information.

Aggregated gender data were obtained for head and assistant athletic trainers from the NCAA Sports Sponsorship, Participation and Demographics Search database.4 Institutions submit the name of 1 head and multiple assistant athletic trainers (the number of assistant athletic trainers varies among institutions) along with information on their gender. We report the distribution of men and women in these positions from all NCAA institutions grouped by Divisions I, II, and III. The division of an NCAA institution is determined by school size, sports offered, and athletic financial aid.5 The distribution of men and women in the 3 position categories by NCAA divisions was compared using the Pearson χ2 test. All tests were 2-sided and deemed to be significant at P<.05. Analyses were performed using SAS, version 9.4 (SAS Institute Inc). The Cleveland Clinic Institutional Review Board determined this study to be exempt from human subjects review owing to use of publicly available data. This study followed the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) reporting guidelines.

Results | In the 2018-2019 academic year, there were 1121 NCAA institutions: 353 in Division I, 318 in Division II, and 450 in Division III. A total of 1145 head team physicians were reported with 46 schools listing 2 physicians and 7 schools listing 3. Vacancies were reported for 37 positions (5 in Division I, 10 in Division II, and 22 in Division III). For all divisions (excluding institutions reporting vacancies), 129 (11.2%) head team physicians were women and 1016 (88.7%) were men. There were 38 (10.0%), 29 (9.0%), and 62 (13.9%) female head team physicians in Divisions I, II, and III, respectively. There were no significant gender differences among divisions (Table 1).

Table 2 summarizes the data for athletic trainers. Overall, 366 (31.7%) head athletic trainers were women: 78 (19.8%), 109 (36.4%), and 179 (40.0%) for Divisions I, II, and III, respectively. For assistant athletic trainers, the comparable number of women were 1150 (48.1%), 409 (56.2%), and 179 (40.0%) for Divisions I, II, and III, respectively. There were no significant gender differences among divisions (Table 2).

Discussion | Fewer female physicians and athletic trainers than men have sports medicine leadership roles within NCAA institutions. Although nearly half of NCAA athletes are women and more than a third of active US physicians are women, only about 11% of the head team physicians are women.

We did not study the factors contributing to these discrepancies. Other limitations of the study include potential gender misclassification and nonbinary gender expression, as well as a lack of information about changes in the percentages of men and women in positions over time.

The findings of this study suggest that the executive leadership of NCAA institutions should identify organizational and social barriers to gender equity in sports medicine.