Background / purpose

- Financial conflicts of interest (FCOs) may influence research findings and medical decisions.
- We aim to (1) characterize FCOs within radiation oncology; and (2) explore the potential correlation between receiving disclosed FCOs and academic productivity.

Methods

- The CMS database was used to extract 2015 FCOs, including "general," "research," and "investment" payments.
- For academic radiation oncologists, research productivity was characterized by h- and m-indices, as well as receipt of NIH funding.
- The two endpoints for this analysis were binary variables examining private fees: research funding and general payments.
- Binomial models were used to determine whether publication metrics (m-index, h-index) and other study characteristics such as gender, PhD status, NIH institution funding status, were associated with the endpoints.

Results: summary

- A total of 22,543 individual payments totaling $22,912,885 to 2,995 radiation oncologists were included; of these, 1,189 were affiliated with an academic institution.
- The mean payment from all sources was $10,632 (max: $1,237,606).
- Distribution of payments to individuals followed a power law distribution: 75% received less than $167; on the other hand, 10 (<1%) individuals received $6,425,728 (51%) of payments.
- On multivariable regression, the m-index (odds ratio, OR 2.60; 95% confidence interval, CI: 1.70-4.01) and receiving a general payment (OR 2.26; 95% CI: 1.31-4.00) were associated with receiving research funding.
- The h-index (OR 1.03; 95% CI: 1.01-1.05) showed a similar relationship to receiving research funding, as did receipt of a general payment (OR 2.46; 95% CI: 1.43-4.36).

Results: tables and figures

Figure 1

- Figure 1. FCOs among individual radiation oncologists and institutions.
  - (A) Payments made to radiation oncologist were subdivided into "general," "research," and "investment" categories. Non-academic radiation oncologists (checkerboard) received more money from general and investment payments; academic radiation oncologists (solid) received more money from research payments.
  - (B) UPPER PANEL: A histogram of the number of academic radiation oncologists (plotted on the y-axis) receiving research, ownership and investment, and general payments (all 3 combined into white bars), binned by the total amount paid (in USD) to a radiation oncologist. The majority of the academic radiation oncologists (white bar on the left) received < $50 USD from any payment source; over 200 radiation oncologists received > $500 USD each.
  - LOWER PANEL: The data from the preceding plot are subdivided: a histogram of the number of academic radiation oncologists (plotted on the y-axis) receiving general payments (red bars), research payments (orange bars), and ownership and investment payments (yellow bars), binned by the total amount paid to a radiation oncologist. Similar to the upper panel, the majority of academic radiation oncologists received < $10 USD of any type of payment. Further, the data illustrate that the majority of payments to radiation oncologists were in the form of general payments; relatively few individuals received > $50 USD in either research or ownership and investments.
  - (C) Receipt of funding by institution is illustrated in a waterfall plot; the shade of color refers the payment type: general payments (red bars), research payments (orange bars), and ownership and investment (yellow bars). The vast majority of institutions received relatively little in payments.
  - (D) The sum of institutional payment (plotted on the y-axis) vs. the institution ranking (in terms of total payments received vs. other institutions). The size of each circle correlates to the number of radiation oncologists at the institution. Payments to institutions followed a power law distribution.

Figure 2

- Figure 2. Correlation between FCOs and research productivity of academic radiation oncologists.
  - The majority of individuals (top panel) received no payments and had a wide range of academic productivity, per the h-indices, m-indices, and receipt of NIH funding.
  - The same phenomenon was seen for institutions (lower panel). However, of those receiving any funding, on linear regression there was a correlation between receipt of funding and the m-index (plot in lower panel).

Conclusion

There is a significant association between disclosed financial conflict of interest and increased individual research productivity metrics among academic radiation oncologists.