



*Citation for published version:*

Pokorny, AMJ, Fabbri, A, Bero, L, Moynihan, R & Mintzes, B 2022, 'Interactions with the pharmaceutical industry and the practice, knowledge and beliefs of medical oncologists and clinical haematologists: a systematic review', *British Journal of Cancer*, vol. 126, no. 1, pp. 144-161. <https://doi.org/10.1038/s41416-021-01552-1>

*DOI:*

[10.1038/s41416-021-01552-1](https://doi.org/10.1038/s41416-021-01552-1)

*Publication date:*

2022

*Document Version*

Peer reviewed version

[Link to publication](#)

## University of Bath

### Alternative formats

If you require this document in an alternative format, please contact:  
[openaccess@bath.ac.uk](mailto:openaccess@bath.ac.uk)

#### General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

#### Take down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

**Table 2: Prevalence of industry exposure among cancer physicians in general: key results.**

First author, year	Extent of exposure	Authors' conclusions	Summary finding
<b>Behdarvand 2019 (13)</b>	- 23% of Australian NOAC events from 2011-2015 were for haematologists (635/2797). - \$A10,578,745 spent on all NOAC events during study period.	Significant sponsoring of NOAC-related events for promotional reasons	Industry payments to cancer physicians and sponsorship of events for cancer physicians are widespread internationally.
<b>Chimonas 2010 (23)</b>	Mean payment of US\$19,714.67 to oncologists (3/43 total in Vermont) and US\$10,121.71 haematologist (1/16 in Vermont) from 2002-2006 (top 100 recipients only)	More effort needed to make industry relationships transparent	
<b>Fabbri 2017 (14)</b>	- 22,987 oncology-related events in Australia from 2011-2015 (19.7% of total – the highest of any specialty) - 8,200 haematology-related events (7.0% of total – the fifth highest of any specialty)	Widespread industry sponsorship of events for health professionals.	
<b>Inoue 2019 (25)</b>	- 9,369 US haematologists or oncologists received industry payments between 2015 and 2017 - 80% (7,513) were general (non-research) payments - Mean general payment: \$5,695 (95% CI 5120 to 6270) (3rd highest of all internal med spec).	The pharmaceutical industry targets specific specialties to influence prescribing	
<b>Ozaki 2019 (20)</b>	- 763 (70.6%) of Japanese oncologists received at least one payment in 2016 - 7325 payments made in total, valued at ¥585,453,314. - Median payment ¥120,016 (IQR 0–¥449,378), median payment count per specialist 2 (IQR 0-7). - Majority value of payments (¥467,802,690, 79.9%) for speaking.	Regulations are needed for managing conflicts of interest among Japanese oncologists.	
<b>Robertson 2009 (21)</b>	- 514 events attended by Australian oncology specialists (15.2% of total) from July to December 2009 - Average cost per head of A\$71.53. Second highest number of events for any specialty (behind psychiatry, 606 events) and second highest average cost of any specialty (behind endocrinology, A\$71.77 per head).	More transparency needed for industry relationships with Australian health professionals.	
<b>Marshall 2016 (22)</b>	- 9,765 US medical oncologists received general payments (63%) and 738 received research payments (4.8%) in 2014. - For general payments: - Median of 11 payments (IQR 3-43) for medical oncologists, compared to 6 (IQR 2-21) for non-oncology specialties (p<0.001). - Median value of payments \$632 (IQR 136–2500), compared to \$193 (IQR 57–723) for non-oncology specialties. - Medical oncologists OR for receiving general payments was 1.09-1.75 compared to non-oncologists (overall p<0.001).	Financial relationships between oncologists and industry are common.	
<b>Pokorny 2020 (15)</b>	- 31.7% of medical oncologists and 30.9% of haematologists received payments (1st and 2nd highest of any specialty group) - Median payments (IQR): - Medical oncologists: AU\$2,131.26 (\$4,808.41) (2nd highest of specialty groups) - Haematologists: AU\$1,519.95 (\$2,709.37) - Mean payments (95% CI): - Medical oncologists: AU\$4,353.19 (\$3,636.17-\$5,070.21) (highest of specialty groups) - Haematologists: AU\$3,807.22 (\$3,087.13-\$4,527.31)	The pharmaceutical industry targets Australian cancer physicians, frequently paying for advisory services and subsidising travel.	
<b>Tao 2017 (24)</b>	- 504 (79.5%) of haematologist-oncologists on Twitter received any payments. - 459 (72.4%) received general payments. - Median \$1644.77 (IQR \$129.57-\$13 744.48) - 307 (48.4%) received research payments. - Median \$11,064.21 (IQR 0-\$175,164.46)	Haematologist-oncologists on Twitter frequently maintain FCOI with industry.	
<b>DeCensi 2018 (18)</b>	- 68% of Italian oncologists believe majority of colleagues have COI with industry - 82% feel most education is sponsored by industry - 75% feel disproportionate focus on marketing by industry - 60% agree with direct payments for patients on clinical trials (79% feel this should be stated in consent form).	COI is a major issue for Italian oncologists and better policies are needed.	

<p><b>Lee 2017 (19)</b></p>	<ul style="list-style-type: none"> <li>- 16% of all CPD for Australian oncologists sponsored by industry.</li> <li>- 13% of oncologists and 27% of trainees report direct industry sponsorship to attend CPD.</li> <li>- 60% of participants report being unaware of any conflicts of interest policy.</li> <li>- 81% received no formal training about conflicts of interest when interacting with industry.</li> <li>- Most participants felt separation between them and industry was adequate (<math>p &lt; 0.01</math>) and that industry CPD was helpful and education (<math>p &lt; 0.01</math>), while also agreeing that unconscious bias towards a company's drug could result from their support for CPD (<math>p = 0.05</math>).</li> </ul>	<p>There is a lack of understanding or existence of institutional policies for external funding of CPD.</p>	<p>commonly poorly managed.</p>
<p><b>Abbreviations: NOAC: novel oral anticoagulants; COI: conflicts of interest; CPD: continuing professional development</b></p>			