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Exposure, access, and interaction: The nature and extent of sponsorship of nursing conferences hosted by professional associations globally

RUNNING TITLE: Sponsorship of nursing conferences

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Exposure, access, and interaction: The nature and extent of sponsorship of nursing conferences hosted by professional associations globally

ABSTRACT

Aim: To analyse the nature and extent of sponsorship of nursing professional associations and their major scientific conferences.

Design: Cross-sectional content analysis.

Methods: Data were extracted from the websites and conference documents of 156 national and international professional nursing associations in 2019 to identify sponsors. Sponsorship prospectus were analysed to estimate the value and describe the nature of sponsorship arrangements. We analysed sponsorship patterns using social network analysis.

Results: Most associations (84/156, 54%) did not report any sponsors. Sponsorship was concentrated among specialty nursing associations in high-income countries. Half of identified sponsors promoted products used in clinical care (50%; 981/1969); the majority represented the medical device industry (69%; 681/981). Top sponsors generally favoured opportunities that promoted interaction with conference attendees.

Conclusion: Globally, commercial sponsorship of nursing association is a common, but not the dominant source of support for these activities. Half of sponsors were commercial entities that manufactured or distributed products used during clinical care, which presents a risk of commercial influence over education and ultimately, clinical practice. Sponsors favoured opportunities to interact directly with nurses, determine educational content, or foster continued interaction.

Key words: nursing, professional associations, continuing education, professional development, sponsorship, pharmaceutical industry, medical device industry, conflict of interest

IMPACT STATEMENT

Scientific conferences provide opportunities to consolidate continuing education, build professional networks, and generate nursing innovation. Professional associations may rely on external sponsorship to host conferences, however, the nature and extent of sponsorship of nursing conferences is unknown. Though many associations may rely on sponsorship to host conferences, sponsorship is not allocated based on need in terms of burden of disease or health system resources. In this study, half of identified sponsors have a commercial interest in nursing practice activities, which may introduce bias into education and policy agendas. The global pandemic puts a spotlight on the importance of nurses' continuing education and creates opportunities to re-imagine how these activities can occur independent of industry sponsorship.

SUMMARY STATEMENT

Why is this research or review needed?

- Professional nursing associations play a critical role in supporting, educating and advocating for their members, but may rely upon external sponsorship to fund these activities.
- Industry sponsorship may compromise an association's ability to set its own goals, take independent positions on health-related issues, and produce unbiased education.
- The nature and implications of industry sponsorship of nursing associations has received little scrutiny or empirical analysis.

What are the key findings?

- Globally, just under half of national and international nursing associations accept sponsorship to support their association's activities and major annual conference.
- Half of sponsors were commercial entities that manufactured or distributed products used during clinical care, including the medical device industry, which accounted for nearly 30% of total sponsors.
- Sponsorship was concentrated among associations located in high-income countries that represented nurses working in specialties with high rates of technology adoption and drug development.

How should the findings be used to influence policy/practice/research/education?

- Professional associations should work toward complete independence from sponsors with a commercial interest in clinical decision-making.

- Professional associations should implement policies that make sponsorship transparent and ensure that sponsorship funds are unbranded and unrestricted such as pooling and administering funds centrally.

INTRODUCTION

Professional nursing associations play a critical role in the support and continuing education of their members and increasingly, in political advocacy on behalf of nurses and in relation to health system issues. The COVID-19 pandemic has placed a spotlight on the work of these associations, which demonstrated their critical role in developing evidence-based resources to support nurses' continued competence, professional development, and establish standards of care (Morin, 2021). In addition to publishing scientific journals, developing clinical practice guidelines, and lobbying efforts, many professional nursing associations host an educational conference wherein members may consolidate their learning needs, while forming valuable professional connections (Cline, Curtin, & Johnston, 2019; Morin, 2021).

Across jurisdictions, and reflected in the International Council of Nurses Code of Ethics for Nurses, is the importance of continual learning and the active development of a research-based professional knowledge (International Council of Nurses, 2012). Across their career stages, nurses have articulated the importance of continuing education for maintaining competency and achieving quality patient care within evolving care settings and changing practice standards and that these learning opportunities are key for their career satisfaction (Price & Reichert, 2017). However, though continuing education is a core ethical value and a global strategic priority for retaining and strengthening the nursing workforce, access to information and resources for continuing professional development is limited globally by health system resources constraints (World Health Organization, 2016). The World Health Organization identifies nursing professional associations as key actors in working to maximize the impact of nurses on the health system at all levels, which can occur in part through continuing education and professional development (World Health Organization, 2016).

Professional associations play a key role in meeting the growing expectations for knowledge development among practicing nurses (Morin, 2021). Nursing professional associations may serve several functions: some are exclusively professional associations, representing the profession, providing for continuing education, and advocating for professional members and the patients they serve; others are also trade unions (Nerland & Karseth, 2013). Nursing professional associations are largely organized as non-governmental organizations (NGOs) and generate their budget through membership fees and conference registrations. Though licensure requirements may require that nurses engage in continuing education, membership in a professional association is largely voluntary (Morin, 2021). Thus, professional associations must seek to attract and retain members, who are more likely to renew their membership when they perceive that the value of membership exceeds the cost of the dues and when they have developed positive attitudes toward the association (Ki, 2018), which often includes hosting an annual scientific meeting where members can consolidate their learning and network professionally (Cline et al., 2019; Morin, 2021).

However, professional associations may struggle to generate sufficient revenue to cover the costs of their activities through membership fees alone and may rely upon external sponsorship from government, foundations, other NGOs, or commercial entities or turn to revenue-generating activities that diverge from their main goals (Esmaeili, Dehghan-Nayeri, & Negarandeh, 2012). Medically-related industry is one source of funding for professional associations and their continuing education activities and particularly, their annual conference. Pharmaceutical, medical device, infant formula, and soda companies frequently sponsor medical and nursing associations' annual meetings, clinicians' attendance at conferences, honoraria for speakers, and the publication of practice guidelines and other educational materials (Aaron &

Siegel, 2017; Fabbri et al., 2016; Grummer-Strawn et al., 2019; Jutel & Menkes, 2009; Rothman et al., 2009). However, the nature and implications of industry sponsorship of nursing associations has received little scrutiny or empirical analysis in comparison with industry sponsorship of medical associations (Fabbri et al., 2016; Grummer-Strawn et al., 2019) or patient associations (Fabbri et al., 2020), which similarly undertake advocacy and educational activities on behalf of their members. Thus, taking a global perspective, this study aimed to analyse the nature and extent of sponsorship of nursing professional associations with a focus on their hallmark activity, the scientific conference.

Background

One of the characteristic features of a profession is that the basis of professional practice is grounded in expert, shared knowledge, and standards, over which the profession has jurisdiction (Freidson, 2001). Professional associations are a key organization for professions, which serve to generate, circulate, and regulate collective knowledge (e.g. best practice guidelines) and secure opportunities for members' continuing education within the field of expertise (e.g. scientific conferences) (Nerland & Karseth, 2013). Increasingly, these activities also have an international coordinating function as scientific knowledge, practice, and regulatory standards globalize (Nerland & Karseth, 2013).

The growing complexity of nurses' clinical work, the consequences for patient safety, and the need to sustain public trust mean that nursing professional associations have sought to promote continuing education and clinical practice guidelines that are based on the best available scientific evidence (Nerland & Karseth, 2013). Beyond being 'evidence-based,' the ability of professional associations to earn public trust and achieve their objectives also hinges on their

ability to preserve their independence, integrity, credibility and to prioritize the interests of the nurse and patient communities they serve (Marks, 2019, pp. 113-119). These ethical issues play out within a context of very real funding and organizational constraints. Thus, many educational and advocacy activities and particularly, scientific conferences are made possible through third-party sponsorship.

Whatever the funding source (including government funding), reliance on external sponsorship to perform core activities means that the sustainability of a professional nursing association is vulnerable if sponsor priorities or goals should change. However, industry sponsorship in particular poses a risk to an organization's integrity and its ability to further a public health mission because there are fundamental differences between the missions, purposes, and functions of a professional association and a corporation (Marks, 2019). Corporations are structured to maximize value for shareholders, which manifests as promoting hyperconsumption of their products, externalizing costs, generating favourable scientific evidence, and lobbying for favourable policy environments (Freudenberg, 2014). Across industries, these corporate activities can generate negative population health impacts, for example, overuse of a product with adverse health effects, defeating public health legislation or generating scientific doubt about a product's safety (Freudenberg, 2014). While sponsorship arrangements are entered into in the spirit of partnership and a convergence of interest, Marks (2019) argues that leaders of professional associations should actively try to identify and scrutinize where corporate interests and the purpose and function of the professional association diverge.

The concept of institutional integrity is a useful framework for exploring the ethical risks of industry sponsorship and guiding professional associations in their interactions with industry by emphasising consistency among an institution's mission, purpose and function and constancy

over time (Marks, 2019). Sponsorship, however, may compromise an association's ability to set its own goals, priorities and to take positions on health-related issues that may be unfavourable to sponsors, potentially compromising the trust of members, policymakers and the public and the ability to fulfill its mission. For example, the American Pain Society closed in 2019 following loss of public trust in their role as an independent medical advocacy organization and multiple lawsuits alleging their collusion with pharmaceutical companies to drive the sale of opioids (Gourd, 2019).

Industry sponsorship of educational events may also introduce commercial biases into continuing education and clinical practice. Despite lack of evidence that opioids improve outcomes for long-term chronic non-cancer pain, pharmaceutical companies sponsored hundreds of educational events for health professionals focused on chronic pain in Australia during 2011-2015 (Grundy et al., 2021). In recognition of industry influence, the World Health Organization in the International Code for the Marketing of Breastmilk Substitutes prohibited the sponsorship of health professional association conferences by infant formula manufacturers because these opportunities provide companies preferential access to health professionals and to directly communicate industry perspectives on health issues that are not consistent with public health objectives (World Health Organization, 2020). A recent analysis of national paediatric associations found that 60% accepted sponsorship from manufacturers of breastmilk substitutes, with conference sponsorship among the most common forms of support (Grummer-Strawn et al., 2019).

Though the majority of nurses globally do not have prescribing authority, nurses are an important audience for industry-sponsored education. An analysis of 116,845 pharmaceutical industry-sponsored educational events for health professionals in Australia held between 2011-

2015 found that at least one nurse was present at 40% of events, which was twice the rate of attendance by primary care physicians (Grundy et al., 2016). Scientific conferences are a major site for interaction between nurses and industry representatives at sponsored educational sessions, social events, and during trade shows (Grundy, 2018; Madden, 2012). Thus, we aimed to understand what kinds of entities sponsor nursing professional associations and their major scientific conference and why sponsors might enter into sponsorship arrangements.

THE STUDY

Aims

We aimed to understand patterns in sponsorship of national and international nursing associations globally, including the nature and degree of sponsorship. Finally, we sought to analyse the ways that nursing associations solicit industry sponsorship and construct the benefits of sponsorship to sponsors.

Design

We conducted a content analysis of the websites, advertising prospectuses, and conference programs of national and international nursing professional associations globally. Because we sought to analyse patterns in sponsorship, we purposively sampled nursing associations that were likely to attract sponsors due to having national or international reach and for their role in policy, advocacy, and continuing education. The sampling frame encompassed the member associations of the International Council of Nurses (ICN), a federation of >130 national nursing associations, representing more than 27 million nurses worldwide, and the ICN's 8 international specialist affiliates.

Sample and data sources

We downloaded and screened the 2019 ICN member list (>130 national nursing associations) and 8 international specialist associations (e.g. International Federation of Perioperative Nurses, Council of International Neonatal Nurses) for national or international nursing associations that 1) had a web presence; and 2) represented registered nurses. We then screened the lists of national member associations belonging to the 8 international specialist associations according to the same criteria. To ensure the comprehensiveness of the sample, we screened these included associations' websites and social media pages to identify other national, regional, or international associations with which they were affiliated and that met the inclusion criteria. For example, the Caribbean Nurses Organization represents the members of several national nursing associations located in the Caribbean.

We included associations that at least in part, provided continuing education (e.g. conferences, webinars, courses) and advocacy (e.g. lobby days, position statements) for the profession; we excluded associations that were exclusively trade unions or federations of trade unions or served regulatory functions (e.g. licensure and disciplinary processes). To best understand the nature of sponsorship to non-prescribers, we excluded associations if they primarily represented advanced practice nurses (e.g. nurse practitioners, nurse anaesthetists, clinical nurse specialists). Finally, we excluded associations at the state or local level, or those that represented an interprofessional audience.

To identify data sources, two investigators independently performed web-based searches of association websites and social media pages and captured PDF screenshots of all content that identified and/or described sponsors during January 1 to December 31, 2019. We downloaded all

conference documents including the programme, sponsorship prospectus, and any promotional materials for the most recent, regularly occurring (e.g. annual, biannual) conference hosted by the association between January 1, 2016 and December 31, 2019. If an association hosted more than one eligible conference, we sampled documents from the conference that appeared to be the main site for continuing nursing education. Thus, each identified association was linked to only one conference in our sample. The Wayback Machine (archive.org/web) was used to access information from archived web content. There were no exclusions based on language.

Data collection

For each of the identified associations, two coders independently extracted data on association characteristics and any available information on sponsorship using Excel (Supplementary Table 1). We frequently sampled and extracted data from websites that were not primarily written in English, relying on Google Translate. When online translation failed (e.g. for PDF documents), we recruited volunteer coders fluent in the languages of the sampled documents to perform independent screening and data extraction. The investigators met to resolve discrepancies and to consolidate data sources, with a third investigator available to resolve any outstanding queries.

We extracted the names of all sponsors identified on association websites, in conference programmes, or in images of conference activities (e.g. a logo on a banner or booth). We classified sponsors as conference sponsors (e.g. exclusively listed on conference promotion materials or identified as ‘conference sponsors’ only) or association sponsors (e.g. identified as ongoing sponsors of the association, often labelled as ‘partners’ or ‘association sponsors,’ which may or may not have contributed directly to conference sponsorship). In order to compare the

nature of sponsorship across settings, we classified sponsors qualitatively according to their relative importance as defined by and in relation to the association using a system of five “tiers”; we graded sponsors according to their highest level of sponsorship if they sponsored an association in multiple ways, and distinguished sponsors that only purchased a booth in the exhibition hall as “exhibitor” (Supplementary Table 2). For example, Tier 1 referred to the highest level of sponsorship, regardless of monetary value of the sponsorship, for each specific conference. If an association did not clearly differentiate among levels of sponsorship, all sponsors were coded as “tier 1.”

Some associations published a sponsorship prospectus that detailed sponsorship opportunities and the value and benefits of sponsorship to prospective sponsors. Two investigators independently extracted additional data using a structured, open-ended instrument created in RedCap, a secure web-based data collection application (Harris et al., 2009) (Supplementary Table 1) and resolved discrepancies through discussion. Specifically, investigators extracted verbatim descriptions of the monetary value and inclusions associated with different levels of sponsorship (e.g. Gold, Silver, Bronze, exhibitor), demographic characteristics of conference attendees, and the ways that associations promoted the value of marketing to attendees. Where monetary values were identified, we estimated the minimum value of sponsorship to achieve each tier identified in the currency specified for the association; these estimates were then converted to USD.

Ethical considerations

Ethics approval was not required per the guidelines of the University of Toronto Health Research Ethics Board. All data were publicly available.

Data analysis

We grouped sponsors into “families” by shared ownership (e.g. the Company X “family” included, for example, Company X Global, Company X Medical Solutions, Company X North America). We classified all sponsors families by sector (e.g. technical, health system, government) and then, for all technical entities, by industry (e.g. pharmaceutical, medical device) using the classifications for sponsors used by several large nursing associations. We conducted descriptive analyses of association and sponsor characteristics using Excel and summarised the activity of each sponsor family using social network analysis software in R (Pedersen, 2020; R Core Team, 2020).

For each association that reported the monetary value of sponsorship tiers on their website or in a prospectus, we calculated the total sponsorship payments received. We multiplied the reported monetary amount required to sponsor each tier by the number of sponsors reported at that tier and summed; we did the same for each sponsor where data were available.

We analysed the nature of sponsorship by using an open coding, inductive approach to descriptions of each tier and type of sponsorship (e.g. expo, symposium) extracted from conference programmes and sponsorship prospectus documents. We first generated a list of codes that described what a particular tier of sponsorship included (e.g. logo on website, top acknowledgment at event) through an iterative, line-by-line coding approach. Next, we grouped codes within the tiers into themes, accounting for all codes. We validated themes by comparing them to the original descriptors of the sponsorship tiers in sampled documents.

Rigour

To ensure the comprehensiveness of sampling and data collection, we performed all sampling and data extraction in duplicate, with two investigators working independently. In the case of documents written in languages other than those spoken by the research team, a third volunteer coder was recruited to independently verify sampling and data collected. We triangulated data extracted from websites and conference programs on sponsor identities with data from sponsorship prospectuses to provide a better estimate of the relative importance of sponsorship and to validate themes.

RESULTS

We included 156 nursing associations (Figure 1). Included associations represented 46 different countries; just under one third were European (29%, 45/156) and 9% (14/156) were international in scope. About one third of the associations represented nurses working in a clinical specialty such as critical care, oncology, perinatal or perioperative practice (53/156, 34%). The majority of associations hosted a regularly occurring scientific meeting or conference (83/156, 53 %). Characteristics of included associations are detailed in Table 1.

Figure 1. Sampling flow diagram

Table 1. Characteristics of sampled nursing associations (n=156)

Sponsorship

We found no evidence of sponsorship for the majority of associations (84/156, 54%); 46% (72/156) of associations reported having conference and/or association sponsors. The majority of associations reporting sponsors represented nurses in specialty practice (37/72, 51%), were located in high-income countries (46/72, 64%), and hosted an annual scientific conference

(69/72, 96%). Associations had a median 0 (IQR=0-13) unique sponsors. Ten nursing associations identified 50 or more unique sponsors and 4 identified more than 200 unique sponsors, which each hosted large trade exhibitions (Table 2).

Table 2. Sponsorship patterns among top 10 associations by number of sponsors

We grouped reported sponsors into ‘families’ according to common ownership by a parent company. Across sampled associations, we identified 1969 unique sponsor families; 82% (1614/1969) of sponsor families had ties to a single conference. Half of sponsor families represented technical industries with products used in clinical care and the delivery of health services (50%; 981/1969); the majority of these sponsors (69%; 681/981) represented the medical device industry including manufacturers, distributors, and companies that manufacture both medical devices and pharmaceuticals. The other half of sponsors were entities that provided nursing education including universities, continuing education providers, and publishers (14%, 274/1969), employed nurses including hospitals, health systems, and recruiters (11%, 226/1969), advocated for nurses or patients including foundations, patient groups, and nursing associations (11%, 213/1969), targeted nurses as consumers including cosmetics, life insurance, fashion or jewellery companies (9%, 168/1969), were government entities (4%, 70/1969), or conducted market research (1%, 26/1969).

Seven associations (7/72, 10%) that reported sponsors did not report any technical sponsors. Sponsorship from the medical device industry was more concentrated around perioperative, critical care, and general nursing associations; pharmaceutical and biotech companies dominated the sponsorship of oncology associations (Figure 2; Supplementary Table

3). Sponsorship was also heavily concentrated among North American and to some extent, European nursing associations (Figure 2; Supplementary Table 4).

Figure 2. Proportion and type of sponsorships across clinical specialty and geographic region

The nature of sponsorship

Of the 83 associations hosting a regular conference, 25% (21/83) published additional information about the nature of sponsorship in the form of sponsorship prospectuses. Most associations offered three tiers of sponsorship (mean=3.2, mode=3), typically as “gold,” “silver” and “bronze”; others offered 4 and 5 distinct sponsorship levels. We thematically analysed the ways that nursing associations promoted the value of sponsorship to better understand the nature of the interface between nurses and sponsors (Table 3).

Table 3. The nature and levels of sponsorship of nursing associations

Sponsors electing for the highest levels of sponsorship, which we characterized as “the top spot” and “the runner up,” were offered the most visibility throughout the conference, but also prominence, which could include the opportunity for company representatives to speak or be acknowledged during plenaries or having company logos on title slides and banners. Nursing associations also offered sponsors the prospect of alignment, wherein the sponsor’s brand was closely associated with the principles, mission, and goal of the association. For example, the International Society of Nurses in Cancer Care (ISNCC) outlined the “key benefits of sponsorship” as, “Enhancing the profile of your organization by supporting the premier international conference for leading the global nursing community to reduce the burden of cancer...Aligning your company with this powerful educational experience to demonstrate your

commitment to assisting professional development.” Extending beyond the conference itself, the highest levels of sponsorship afforded access to participants’ contact information and social media connections. Top level sponsors frequently hosted educational sessions such as symposia, where they had control over the speaker and content.

Sponsors that elected for what we characterized as “the specialist” tier were associated with a specific portion of the conference and frequently were given control over the content of a single educational session or activity offering direct access to attendees such as the welcome networking reception. “Specialist” sponsors’ representatives were present at the conference and the company was given a third-priority level of exposure and recognition. Sponsors taking on the role of what we characterized as “supporters” were offered brand exposure through direct distribution of marketing materials or branded gifts, or association with one of the conference perquisites such as a charging or massage station, but seldom had interaction with attendees nor control over content outside of the exhibition hall.

Sponsorship prospectus documents outlined the value of sponsorship from the perspective of the nursing associations seeking sponsorship. To understand the value of sponsorship and the kinds of inclusions or activities that are of most interest to sponsors, we analysed the top sponsors (in terms of number of associations sponsored) according to the level and nature of actual sponsorship (Table 4). Top sponsors generally favoured sponsorship tiers that granted maximum access to attendees such as having a booth at the exhibition, but importantly, also interaction with attendees such as having company representatives present at the conference, hosting symposia, and having the ability to collect data or contact information from attendees.

Table 4. Top 10 sponsors ranked according to nature and level of sponsorship

DISCUSSION

Globally, just under half of national and international nursing associations accept sponsorship to support their association's activities and principally, their major annual conference. Half of sponsors were commercial entities that manufactured or distributed products used during clinical care; among these the medical device industry, including manufacturers and distributors, accounted for the majority of technical sponsors and nearly 30% of total sponsors, perhaps reflecting the roles of nurses in the selection, use, and purchase of medical devices including medical equipment and supplies (Grundy, 2018; McInnes et al., 2021). Sponsorship was not distributed equitably: sponsorship was concentrated among associations located in high-income countries that represented nurses working in specialties with high rates of technology adoption and drug development (e.g. critical care, perioperative, oncology). Though associations may enter into sponsorship agreements to address funding gaps, these findings suggest that sponsorship is not allocated based on need in terms of burden of disease, health system resources, or clinician or patient priorities.

Sponsorship took a variety of forms, with the most dominant being physical presence in the form of an exhibition booth. Analysis of the nature of sponsorship suggests that sponsors favoured interaction with conference attendees in the form of symposia or satellite events, having representatives physically present at a conference, and having prominent booths at an exhibition, which is consistent with previous studies (Grundy, 2018; Madden, 2012). While brand awareness was frequently offered, top sponsors favoured offerings that allowed for interaction and *continued* interaction, such as having access to contact information and social media channels.

With growing concern about the systemic influence of industry in healthcare and over clinical decision-making (Moynihan et al., 2019), these data also demonstrate that the continuing education of professionals can happen without sponsorship or, without sponsors that have a commercial interest in clinical decision-making. We found no evidence of sponsorship for 54% of associations; another 10% reported sponsors, but none promoting products used during clinical care; and we documented a large role for governments, health systems, nurses' employers, educational institutions, and not-for-profit organizations, including foundations and other professional associations and interest groups in supporting the continuing education of nurses. These sources of support, either financially or in-kind, may be important alternatives to sponsorship by entities with a commercial interest in nurses' decision-making and education.

The study is limited, however, by its reliance on publicly available, web-based information. Professional associations are generally not required to report sponsorship details (Fabbri et al., 2016; Grummer-Strawn et al., 2019). In contrast, in countries which require pharmaceutical companies to publicly report sponsorship to patient associations, researchers are able to document sponsorship patterns more comprehensively (Fabbri et al., 2019; Mulinari et al., 2020). As countries continue to adopt transparency legislation (Fabbri et al., 2018), policymakers should consider including health professional associations within these mandates.

Comparisons with previous studies

There has been no systematic analysis of sponsorship of nursing associations to our knowledge. This analysis suggests that a smaller proportion of nursing associations are sponsored than medical associations (Fabbri et al., 2016; Grummer-Strawn et al., 2019) or patient associations (Fabbri et al., 2019), but that sponsorship may be similarly concentrated

among associations representing clinical or disease areas of interest to the sponsor (Mulinari et al., 2020). However, most previous analyses were restricted to associations located in a single country; thus, the lower rate of sponsorship in our study may reflect differences related to geographic distribution rather than profession. In an analysis of sponsorship of paediatric conferences by manufacturers of breast-milk substitutes, the prevalence of sponsorship was similarly highest in Europe and North America (Grummer-Strawn et al., 2019).

A survey of dietician members of a professional association suggested members held strong views about corporate sponsorship and wanted greater say in whether receipt of sponsorship was appropriate, which largely depended on the identity, mission, and goals of the sponsor (Reitshamer et al., 2012). Ascertaining nurses' perspectives on sponsorship of continuing education and advocacy activities is an important avenue for future work. Previous studies also suggest that nursing associations who receive sponsorship should be concerned about independence and the integrity of their advocacy positions. During 2011-2015, Coca Cola and Pepsi, two multi-national soda companies, sponsored 95 health associations in the United States, which have a strong voice in policy arenas (Aaron & Siegel, 2017). Relationships with health associations may generate positive associations for a company's brand, but also may serve to silence advocacy organizations because of feelings of reciprocity or financial dependence; in the same period, the soda companies opposed 28 of the 29 public health bills they lobbied (Aaron & Siegel, 2017). In a systematic review of industry funding of patient groups, four studies found that industry-funded groups generally supported positions on highly controversial issues that favoured their sponsors (Fabbri et al., 2020). Considering the important role that nursing associations can play in political advocacy on health-related issues, future research could explore the association between industry funding and organisational policy positions.

Practice and policy implications

Professional leaders have recommended several policies designed to reduce or eliminate conflicts of interest that stem from industry sponsorship of professional associations. First, professional associations should work toward complete independence from sponsors with a commercial interest in clinical decision-making (Rothman et al., 2009). For example, researchers estimated that the American Association of Paediatrics would need to charge each member \$50USD extra per year or downsize its conference to divest of \$3.3 million in sponsorship from 4 infant formula companies (comprising <3% of its annual budget) (Sharfstein & Silver, 2017). While this membership cost increase is well beyond what nurses in many countries around the world can afford, paradoxically, professional associations in these regions reported the lowest prevalence of industry sponsorship. Many nurses work in a leadership or administrative capacity and make decisions related to procurement, staffing, and health information technology; thus, nursing associations may need to scrutinize their relationships with a wider range of sponsors than simply pharmaceutical or medical device companies, including those with a commercial interest in systems-level processes. As nurse prescribing expands in many jurisdictions, independence from pharmaceutical industry sponsors may be an increasingly important consideration.

In the interim, associations should implement policies that aid decision-making around the acceptance of sponsorship, which include identifying ‘high-risk’ sponsors in terms of the public health harms of their products (e.g. tobacco, alcohol, gambling) (Adams, 2007) or in terms of the association’s main mission and function (Marks, 2019). For example, the Canadian Cancer Society has a corporate relationship and gift acceptance policy that evaluates potential sponsors in relation to the Society’s strategic goals and priorities, which ultimately relate to

population-level cancer control and specifically prohibits “relationships with industry sectors that negatively affect our efforts in cancer control” such as tobacco, pesticides, or indoor tanning equipment (Canadian Cancer Society, 2021).

Sponsorship may be an important, or in some cases, the only source of support for important and valuable education, professional development, and networking activities. When accepting sponsorship, professional associations should implement policies that ensure that funds are truly unrestricted (Rothman et al., 2009) or create mechanisms to pool and administer funds through a central repository (Camilleri & Parke, 2010). For example, policies could eliminate the practice of allowing sponsorship of specific activities such as ‘coffee carts,’ massage, dog petting, or charging stations, or allowing sponsors to champion a particular educational symposium. Studies have found that professional associations with conflict of interest policies were more likely to accept sponsorship (Fabbri et al., 2016; Grummer-Strawn et al., 2019), which may reflect their need for a policy, but could also suggest that policies generate a more permissive culture around sponsorship and a focus on independence may be required.

Limitations

Our analysis is based on publicly available information and we made no additional effort to contact nursing associations for additional information on sponsorship; thus, our analysis cannot confirm the apparent absence of sponsorship and we may have missed key sponsors. Similarly, the amount and type of information available about the nature and extent of sponsorship was highly variable; thus, our analysis is limited by missing data. Because we documented only the minimum monetary value to achieve a certain level of sponsorship, we have likely underestimated the total sponsorship payments. Strengths of this study include the

global sampling frame with no restrictions related to language, and the systematic approach to sampling and data extraction, performed in duplicate.

CONCLUSION

Globally, nursing associations play a key role in continuing education and advocacy on behalf of nurses and patients. The global pandemic, occurring during the WHO year of the nurse and the midwife, puts a spotlight on the importance of nursing and nurses' continuing education, and also creates opportunities to re-imagine how these activities can occur. Nursing associations, in demonstrating that they can perform their advocacy and educational missions with or without commercial sponsorship can serve as leaders in addressing the systemic influence of industry within healthcare.

Conflict of interest statement

The authors have no conflicts of interest.

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Table 1. Characteristics of sampled nursing associations (n=156)

Characteristic	No (%)
Region	
Europe	45 (29%)
Asia	31 (20%)
Latin America and Caribbean	26 (17%)
Africa	21 (13%)
Oceania	13 (8%)
North America	12 (8%)
Global	8 (5%)
Scope	
National	142 (91%)
Multiple countries involved	14 (9%)
Country income level	
Low-income	7 (4%)
Lower Middle Income	23 (15%)
Upper Middle Income	34 (22%)
High-Income	78 (50%)
International	14 (9%)
Member specialty	
General	103 (66%)
Oncology	16 (10%)
Perioperative	13 (8%)
Neonatal/Labour and delivery	12 (8%)
Critical care	11 (7%)
Addictions	1 (1%)
Number of association members	
<1000	4 (3%)
1000 - 5000	6 (4%)
5000 - 30 000	8 (5%)
30 000 – 100 000	6 (4%)
>100 000	6 (4%)
No data	126 (81%)
Number of conference attendees	
<500	5 (3%)
500-1000	5 (3%)
1000-3000	3 (2%)
3000-5000	4 (3%)
>5000	2 (1%)
No data	64 (41%)
No conference	73 (46%)

Table 2. Sponsorship patterns among top 10 associations by number of sponsors

Association	Country	Category	Number unique sponsors	% (n) exhibitor sponsors	Total sponsorship received (USD)^a
Association of periOperative Registered Nurses	United States	Perioperative	450	98% (443)	1,638,850
American Association of Critical-Care Nurses	United States	Critical care	370	98% (364)	1,307,200
Association of Women's Health-Obstetric and Neonatal Nursing	United States	Neonatal/Obstetrics	239	79% (190)	852,502
Oncology Nursing Society	United States	Oncology	232	88% (204)	1,569,500
Sigma Theta Tau International	International	General	94	78% (73)	222,000
Australian College of Perioperative Nurses	Australia	Perioperative	88	75% (66)	596,896
American Nurses Association	United States	General	87	93% (81)	229,100
Association Suisse des Infirmières/Infirmiers	Switzerland	General	77	86% (66)	No data
Canadian Association of Nurses in Oncology	Canada	Oncology	55	78% (43)	No data
Canadian Nurses Association	Canada	General	50	68% (34)	36,071

^aTo calculate the total sponsorship received, we multiplied the minimum monetary value associated with each sponsorship tier, by the number of sponsorships at the respective tier and summed; this likely reflects an underestimate of the total sponsorship

Table 3. The nature and levels of sponsorship of nursing associations

Sponsorship tier	Names	No. of associations with tier	Total no. of sponsorships	Range in monetary value ^a (USD)	Key inclusions	Illustrative quotations
The top spot	Gold, Principal, Platinum, Diamond, Main, Partner, Lead Partner, Principal Partner, Major	67	365	4,603 – 52,457 (n=17)	<p>Highest brand visibility as primary sponsor</p> <p>Direct distribution of advertising materials before, during, after conference</p> <p>Physical presence of several company reps with unrestricted access</p> <p>Data collection on participants (social media and email)</p> <p>Symposium sponsorship with influence over content</p> <p>Exclusivity as “lead” or “top” sponsor</p> <p>Biggest exhibition booth with priority placement</p>	<p><i>“Limited to one organisation only, this package allows your organisation to claim the spotlight in the lead up, during and after the event ensuring a lengthy window of promotional opportunities. Be the centerpiece of the Forum as the only Principal Partner to receive extensive brand exposure pre and post event. Premium branding and high visibility across every aspect of the Forum.” (ACN)</i></p> <p><i>“Recognition as a Platinum Sponsor of the Conference. . . Acknowledgement in the opening and closing of the conference. . . Exclusive sponsorship of Conference Day keynote speakers and catering breaks.” (NZNO)</i></p> <p><i>“Conference booths (4), priority selection (1st) for exhibit location, opportunity to host educational breakfast, hotel key card sponsor, recognized as sponsor of a social event or meal, exhibitor name tags</i></p>

						<p><i>(8), banquet tickets (8), acknowledgment of sponsorship (logo on website & hyperlink, syllabus, program, app, banner ad, eBlast, delegate list)” (ORNAC)</i></p> <p><i>“The possibility of presenting a company, product or idea within the Congress in a special block of sponsorship presentations . . . Promoting the name of the company at the opening and closing of the Congress and in contacts with the media.” (Croatia, Kongres)</i></p>
The runners up	Silver, Ruby, Partner, Break sponsor, Symposium sponsor, Session sponsor	30	161	335-35,000 (n=11)	<p>Brand visibility as second most important sponsor</p> <p>Direct distribution of advertising materials before, during, after conference</p> <p>Physical presence of fewer company reps with unrestricted access</p> <p>Data collection on participants (social media and email)</p>	<p><i>“A barista station will be located with your stand or logo on brightly coloured volunteer crew t-shirts . . . Second-level acknowledgement on all electronic and printed collateral including signage, program, registration, brochure, e-mail campaigns” (ACPN)</i></p> <p><i>“One complimentary full conference registration with access to session, morning and afternoon teas and lunches • Company logo and website link on the conference website • Company logo and contact details on the Conference Mobile app • Delegate list ten working days prior to conference (subject to privacy laws)” (ISNCC)</i></p>

					<p>Symposium sponsorship with influence over content</p> <p>Second biggest exhibition booth with second priority placement</p>	<p><i>“The opportunity to provide a workshop speaker and choice of topic. . . Social media - we will regularly share updates through different platforms such as Twitter, LinkedIn, Instagram and Facebook” (BACCN)</i></p> <p><i>“Priority selection (2nd) for exhibit location, opportunity to host educational breakfast, recognized as sponsor of a social event or meal, exhibitor name tags (4), banquet tickets (4), acknowledgment of sponsorship (logo on website & hyperlink, syllabus, program, app, delegate list)” (ORNAC)</i></p>
The specialists	Bronze, Emerald, Network and drinks sponsor, Area Sponsor, Insert Sponsor, Welcome reception sponsor	24	137	1,534 – 20,983 (n=8)	<p>Brand visibility related to specific area or portion of conference</p> <p>Direct distribution of advertising materials during the conference</p> <p>Physical presence of company reps at a specific event</p> <p>Data collection on participants (email)</p>	<p><i>“Held on Day 1 of the Program within the trade exhibition area, this package is a low-cost way to stand out from your competitors and showcase your brand, point out the exact location of your booth, and highlight any activities that will be conducted by your staff throughout the Forum. Give them another reason to visit your stand, plus align with the all-important networking aspect of this annual event.” (ACN)</i></p> <p><i>Coffee Cart: the barista cart will offer delegates freshly made coffee free of charge during the conference . . .</i></p>

					<p>Third biggest exhibition booth with third priority placement</p>	<p><i>Signage next to the barista cart” (ISNCC)</i></p> <p><i>“Education zone sponsor; Dedicated area with set times for demonstrations illustrated in the conference programme” (BACCN)</i></p> <p><i>“Third-level acknowledgement on all electronic and printed collateral including signage, program, registration brochure, e-mail campaigns. . . Third-level logo placement on sponsor banner in registration area, inside, at entrance and on stage in the plenary hall” (ACPN)</i></p>
The supporters	Supporters, Additional sponsorship, Other sponsors, In kind sponsor	13	178	306 – 2,900 (n=2)	<p>Specific, limited brand visibility</p> <p>Association with a particular, time-limited event (little to no control over content)</p> <p>Direct distribution of some advertising material at conference</p> <p>No/little company rep physical presence at conference other than Expo</p>	<p><i>“Conference booth (1), priority selection (4th) for exhibit location, exhibitor name tags (2), banquet tickets (2), acknowledgment of sponsorship (logo on website, syllabus, program, app)” (CNA)</i></p> <p><i>“Featured sponsors of the AORN reverse trade show” (AORN)</i></p> <p><i>“Lunch sponsor; speaker sponsor; conference app sponsor” (COINN)</i></p> <p><i>“Logo recognition on event mobile app, from the podium, and on event</i></p>

					Standard exhibition booth with some priority placement	<i>viewing screens at the opening and closing plenary sessions” (STTI)</i> <i>“Charging station sponsor, or conference satchel sponsor, or conference dinner sponsor” (PNCNZ)</i>
The exhibitors	Exhibitor Booth Expo	35	1914	708 – 3,800 (n=17)	Direct access to high numbers of attendees and their contact information Opportunity to display and distribute product samples Provision of product-related Opportunities for market research	<i>“Based on recent attendance, you will experience strong traffic on the show floor and aisles crowded with high acuity and critical care nurses.” (AAC-N)</i> <i>“Brand yourself as a solutions provider and expert! This is your opportunity to educate attendees. Conduct a promotional presentation and share information on your latest innovations.” (ANA)</i> <i>“The exhibition space will provide a unique opportunity to present your products, undertake research and promote services to researchers from all over the world.” (ICN)</i>

^aReported minimum monetary value to achieve sponsorship tier extracted verbatim from sampled documents and converted to USD as of June 30, 2019 using WayBack from US Customs and Border Protection Currency Exchange Rate Multipliers (<https://www.cbp.gov/trade/document/report/daily-foreign-currency-exchange-rate-multipliers>).

Table 4. Top 10 sponsors ranked according to nature and level of sponsorship

Sponsor rank	Category	Top medical product categories by revenue	Total spent ^a (USD)	The top spot (n)	Runners up (n)	Specialists (n)	Supporters (n)	Exhibitors (n)	Total sponsorships
1	Medical device	Medication delivery systems, medication management solutions	19,024	7	1	1	2	12	23
2	Medical device	Skin and wound care, infection prevention, oral care	61,822	8	3	2	1	6	20
3	Multiple	Pharmaceuticals, specialized medical and surgical devices	129,108	8	1	2	1	7	19
4	Multiple	Specialized medical and surgical devices, renal care	47,819	3	2	1	0	8	14
5	Medical device	Specialized medical and surgical devices	37,792	4	1	1	2	5	13
6	Multiple	Pharmaceuticals, clinical nutrition, specialized medical devices	5,175	0	1	1	1	7	10

7	Medical device	Medication delivery systems, medication management solutions	16,422	0	0	2	0	8	10
8	Medical device	Specialized medical devices	27,534	3	0	1	1	5	10
9	Medical Device	Infection prevention, sterile products	28,392	2	0	0	2	6	10
10	Multiple	Renal care, medication delivery systems, pharmaceuticals	16,709	2	1	0	1	5	9

^aTotal minimum observed value of sponsorships as reported in associations' sponsorship prospectus

Supplementary Table 1. Data extraction instrument

Question	Coding instructions
Association Name	
Association Country	
Region	
Country by Income Level	High, lower middle, upper middle, low, international
Association Website URL	
Association Category	Addictions, critical care, general, neonatal, oncology, perioperative
List member associations (if applicable)	
Conference Name	
Conference website URL	
Conference Year	
Dates of Conference	
Date retrieved	Date information was accessed
Are there sponsors?	Yes or No
Sponsor Name	
Sponsor Target	Conference, Association, Both
Sponsor Tier	1-5, Exhibitor
What is the conference record ID?	Copy and paste from Master sample sheet
Who coded this document?	Select name
What year was the prospectus published?	4-digit year; 0000 if unknown
Please list document sources	Type in all that apply separated by; -conference prospectus -exhibitor prospectus -website screenshot -association sponsorship package -other
If other specify	Fill in blank with type of doc
Are monetary values listed for sponsorship?	Select y/n
What currency is used?	Type in currency code
How many nurses typically attend this conference?	Enter number Copy and paste as reported -if no range enter in text box (number – number)
How many members are there in the association?	Enter number Copy and paste as reported -if no range enter in text box (number – number)

In what setting do attendees typically work?	Select all that apply: -community - acute care hospital - long term care/rehab/skilled nursing settings - research/education - other
If other please specify	Type in other setting (s), in multiple format setting; setting; setting
What scope of practise do attendees have?	Select all that apply: Staff/floor nurse Management (unit) Hospital Admin Prescriber/NP Clinical Educator Other Healthcare Providers Other (industrial/occ health)
What proportion of attendees are this type of nurse?	Enter percentage numeric digits (validate max 100)
How is the attendees influence over patient care, clinical decision making described?	Copied and pasted verbatim from document.
How is the attendees influence over purchasing power and organizational decision making described?	Copied and pasted verbatim from document.
What specialty areas do attendees practise in?	Select all that apply. Medical/surgical, Mental health and addictions, Primary Care, Perinatal/Postpartum/L&D/Midwifery, Neonatal, Perioperative, Oncology, Emergency, Critical Care, General, other
If other please specify	Fill in blank
How is the benefit to the sponsor described/marketed?	Copied and pasted verbatim from document.
How is the scope of the conference described?	Copy and paste verbatim (national, international, countries listed, etc.)
Are sponsorship tiers identified?	Y/N
If yes, how many?	Enter one-digit value
What is the 1, 2, etc tier name?	Enter name "Gold"

What is the minimum value of tier 1, 2, etc.?	Enter minimum value “5000”
What is included in this sponsorship level for sponsor?	Copy and paste verbatim what is included in the tier.
Does the conference offer an exhibition?	Y/N
How is the exhibition priced?	Drop down: -price per booth -price per square foot
What is the price?	Enter dollar value of booth/square foot
How is the exhibition described?	Copy and paste verbatim
Describe in detail the visuals in the prospectus.	Emotions, colours, themes, etc.
Describe the nurses depicted in the prospectus.	What are they doing? Wearing? Race, gender, age, etc.
Any other information of note.	Coder information

Supplementary Table 2. Illustrative examples of sponsorship classification into tiers

	Importance of sponsor^a	Sponsor name	Minimum dollar value of sponsorship^b	Coding
Association A	Platinum sponsor	Not purchased	AUD\$6,000	
	“Gold” sponsors	Company A Company B	AUD\$4,000	Tier 1 Tier 1
	“Silver” sponsors	Company C Company D	AUD\$2,000	Tier 2 Tier 2
	“Bronze” sponsor	Company E	AUD\$1,000	Tier 3
	Expo booth	Company A Company B Company C Company D Company E Company F	AUD\$800	Tier 1 Tier 1 Tier 2 Tier 2 Tier 3 Expo
Association B	“Diamond” sponsor	Company A	USD \$22,000	Tier 1
	“Platinum” sponsor	Company B	USD \$15,000	Tier 2
	“Gold” sponsor	Company C	USD \$10,000	Tier 3
	“Silver” sponsor	Company D	USD \$8,000	Tier 4
	“Bronze” sponsor	Company E	USD \$7,000	Tier 5
Association C	“Platinum” sponsor	Company A	No information	Tier 1

	T-shirt sponsor	Company B	No information	Tier 2
	Gala sponsor	Company C	No information	Tier 2
	Coffee cart sponsor	Company D	No information	Tier 2
	App sponsor	Company E	No information	Tier 2

^aThe importance of a sponsor was extracted verbatim from sampled web pages and documents; in the absence of a qualitative distinction (e.g. “Our partners”), all sponsors were coded as “Tier 1”

^bThe monetary value of the Tier was extracted from sponsorship prospectuses, where available, and reflects the minimum value required to meet a given tier

Supplementary Table 3. Patterns in sponsorship across clinical specialty

Sector	Specialty													
	Additions		Critical Care		General		Neonatal		Oncology		Perioperative		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Consumer goods	0	0%	27	1%	7	3%	4	2%	22	1%	33	1%	199	7%
Education	3	0%	69	3%	1	7%	4	1%	20	1%	37	1%	349	13%
Employers/ health system	1	0%	11	4%	4	2%	4	2%	35	1%	11	4%	361	13%
Government	0	0%	12	0%	5	2%	0	0%	4	0%	6	0%	74	3%
Market research	0	0%	3	0%	1	0%	3	0%	4	0%	4	0%	27	1%
NGOs and foundations	1	0%	30	1%	8	3%	4	2%	64	2%	21	1%	245	9%

Technical	3	0 %	20 5	7 %	2 4 9	9 %	1 9 1	7 %	29 7	11 %	54 4	20 %	1489	54 %
Ancillary services	3	0 %	5	0 %	2 1	1 %	5	0 %	13	0 %	6	0 %	53	2%
Environmental services	0	0 %	5	0 %	1 3	0 %	4	0 %	2	0 %	42	2 %	66	2%
Health information technology	0	0 %	7	0 %	2 9	1 %	1 1	0 %	8	0 %	31	1 %	86	3%
Medical device	0	0 %	14 5	5 %	1 0 5	4 %	1 1 8	4 %	78	3 %	40 5	15 %	851	31 %
Nutrition/infant formula	0	0 %	2	0 %	1 9	1 %	1 2	0 %	5	0 %	2	0 %	40	1%
Pharmaceutical/bio tech	0	0 %	15	1 %	5 0	2 %	2 0	1 %	16 2	6 %	18	1 %	265	10 %
Technical - multiple	0	0 %	26	1 %	1 2	0 %	2 1	1 %	29	1 %	40	1 %	128	5%
Grand Total	8	0 %	45 6	17 %	6 9 8	25 %	3 7 2	14 %	44 6	16 %	76 4	28 %	2744	100 %

Supplementary Table 4. Patterns in sponsorship across geographic region

Sector	Africa		Asia		Europe		International		Latin America / Caribbean		North America		Oceania		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Consumer goods	4	0%	1	0%	34	1%	9	0%	7	0%	109	4%	35	1%	199	7%
Education	0	0%	1	0%	50	2%	77	3%	20	1%	185	7%	16	1%	349	13%
Employers/ health system	0	0%	1	0%	34	1%	5	0%	5	0%	301	11%	15	1%	361	13%
Government	2	0%	1	0%	18	1%	2	0%	18	1%	22	1%	11	0%	74	3%
Market research	0	0%	3	0%	5	0%	1	0%		0%	15	1%	3	0%	27	1%
NGOs and foundations	3	0%	2	0%	43	2%	29	1%	15	1%	125	5%	28	1%	245	9%
Technical	9	0%	57	2%	328	12%	43	2%	51	2%	834	30%	167	6%	1489	54%
Ancillary services	0	0%		0%	17	1%	4	0%	1	0%	28	1%	3	0%	53	2%
Environmental services	1	0%	3	0%	13	0%		0%	3	0%	40	1%	6	0%	66	2%

Health information technology	0	0%	2	0%	9	0%	3	0%	1	0%	65	2%	6	0%	86	3%
Medical device	3	0%	44	2%	16 5	6%	21	1%	31	1%	471	17%	11 6	4%	851	31%
Nutrition/ infant formula	0	0%	1	0%	15	1%	3	0%	4	0%	14	1%	3	0%	40	1%
Pharmaceutical/ biotech	5	0%	1	0%	77	3%	5	0%	7	0%	154	6%	16	1%	265	10%
Technical - multiple	0	0%	6	0%	32	1%	7	0%	4	0%	62	2%	17	1%	128	5%
Grand Total	18	1%	66	2%	51 2	19%	166	6%	116	4%	1591	58%	27 5	10%	2744	100 %