

Weapons of influence: tactics of a growing global arms industry and needed health actions

Mark Bellis and colleagues argue health professionals must do more to counterbalance the arms industry's influence on government, media, finance, and science and its damaging effects on human and planetary health

Defence and security are fundamental responsibilities of governments and can be used as compelling arguments for investment in arms. However, what types of weapons to acquire, the strength of national and international regulations controlling the deployment of arms, and how much governments spend on their acquisition are contentious issues. In 2025, deadly and destabilising armed conflicts in Ukraine, Gaza, and Sudan dominate headlines, shape geopolitics, and fuel public debates over the balance between domestic welfare and global security expenditure.

At the June 2025 NATO summit, members committed to raising defence related spending to 5% of gross domestic product by 2035.¹ Average current spending by NATO members is around 2%. In the UK, this target would amount to almost half of UK government healthcare expenditure.² ReArm Europe, a European Commission initiative, is mobilising an additional €800bn for defence.³ Political decisions on spending are not made in a vacuum. They are affected by the interlinked military, government, arms,

and, increasingly, dual use industries (eg, artificial intelligence, drones, surveillance, space) whose motives extend beyond public protection into power and profit.^{4,5}

War and conflict have major effects on health, at individual, population, and planetary levels.⁴ Like other industries, the arms sector's impact on health is multiplied or moderated by the actions it takes and the regulations that control it. We define the commercial determinants of health as the "strategies and approaches used by the private sector to promote products and choices that are detrimental to health."⁶

Our first article laid out why the arms industry, and the harms it incurs, should

be examined as a commercial determinant of health.⁴ Here, we examine the tactics used by the global arms industry and their effects on health and wellbeing. We focus predominantly on arms used in conflict and for profit (box 1), recognising that arms industries are also in some cases, such as China and Russia, effectively parts of national military structures and governments.

How the arms industry operates and harms health

The global arms industry develops and promotes its products and influences the decisions made by others in three main areas: marketing to improve its image and increase demand, lobbying of policy mak-

Box 1: Features of the global arms industry *

Market

- Products include weapons systems, ammunition and explosives, military services, surveillance and targeting technologies, dual use technologies, operational support, and training
- The global arms market is highly concentrated and dominated by the US, which leads global exports (43% share in 2024), followed by France (9.6%), Russia (7.8%), and China (5.9%)⁷
- Revenues from sales of the 100 largest arms and military companies reached \$632bn (around £470bn; €540bn) in 2023⁸
- The industry has a global footprint. While major companies are headquartered in a few countries, their subsidiaries are widely dispersed, although lack of transparency limits information on them⁹
- Trade association estimates suggest there were 181 500 employees in the UK defence sector in 2024,¹⁰ and 581 000 employees in the European defence industry in 2023¹¹

Ownership and control

- Most major arms companies, including Lockheed Martin, BAE Systems, and Raytheon Technologies, are publicly listed and owned by a mix of institutional investors, pension funds, and individual shareholders. Others, such as NORINCO (China), Almaz-Antey (Russia), Hindustan Aeronautics (India), and Israel Aerospace Industries, are state owned⁹
- Companies are funded through government contracts, foreign military and commercial sales, and private capital. The sector also receives substantial government subsidies^{12,13}

Transparency and accountability

- Many major arms companies lack transparency, particularly in public information about their lobbying, supply chains, and anti-corruption practices⁹
- The industry avoids international accountability for harms to civilians, which may infringe UN guiding principles on business and human rights, claiming due diligence is undertaken for them by states that license sales.¹⁴ Domestically, legislation may deliberately protect manufacturers from responsibility for civilian harms relating to their products' use¹⁵

*Based on the commercial entities and public health framework by Lacy-Nichols et al, 2023¹⁶

KEY MESSAGES

- The arms industry shapes public funding priorities through lobbying, marketing, partnerships with media and scientific institutions, and employment strategies
- The influence is used to promote the industry's financial interests, often at the expense of health
- Governments can better regulate arms industry behaviours as well as arms expenditure and deployment to reduce health harms
- Health professionals and advocates must counter arms industry influence by tackling asymmetries in power between commercial interests and health, humanitarian, and environmental concerns

ers, and funding research and education. These strategies are often used in ways that are detrimental to health.

Marketing a positive image and inflating demand

Like other harmful sectors,¹⁷ the arms industry uses marketing strategies to stimulate demand and normalise consumption of its military products. One of the most overt forms of arms marketing occurs through organised exhibitions or shows where companies promote their products. Events such as the biannual arms fairs in London (DSEI UK) and Paris (Eurosatory) attract thousands of companies and buyers from around the world. Such platforms serve not only as commercial marketplaces but also as venues for lobbying, recruiting staff, and public relations. More broadly, companies showcase corporate social responsibility activities such as renewable energy projects, educational sponsorship, and community development efforts in ways that are largely unscrutinised; they are prominently featured on company websites while the deadly and injurious effects of weapons are largely absent.¹⁸ This strategic framing normalises, even popularises, arms and their production. It mirrors marketing practices in other health harming industries, such as alcohol and tobacco, where attention is deflected from carcinogenic and other health harming properties towards socially beneficial messages.¹⁹

Another common strategy is placement of military and arms narrative into entertainment, sometimes called militainment. National militaries and arms companies provide military equipment, staff, and filming locations in exchange for favourable depictions^{20 21} or allow facsimiles of real weapons in video game content, familiarising young people with their products.^{22 23} Gunfluencers (social media personalities promoting firearms) and dedicated firearm channels (eg, on YouTube) add to traditional media promoting gun ownership while helping circumvent industry advertising restrictions.²⁴ Children are exposed to, and even targeted by, gun adverts.²⁵

Marketing also exploits gender norms, emphasising the power of arms for men and framing them as tools for self-defence for women²⁶ but disregarding links between the two.²⁷ Additionally, former military leaders appear in media as expert commentators, often without transparent disclosure of affiliations with the arms industry or other potential conflicts of interest.²⁸ The arms industry can also

engage in threat inflation, overstating risks of conflict with other nations or armed groups and their military capacities while suggesting increases in arms and other defence spending as the appropriate response.^{29 30}

Influencing policy through lobbying and regulatory capture

The arms industry strategically employs a range of tactics to shape regulatory environments in its favour, similar to those used by industries such as alcohol and fossil fuels.¹⁷ These include direct lobbying, indirect influence through third parties, establishing and funding think tanks, and providing political donations. For decades the National Rifle Association, which has received millions of dollars from the arms related industry,³¹ has successfully lobbied against gun control legislation in the US, despite public support for greater regulation of firearms³² and US mortality from firearms being one of the highest in the world.

In the EU lobbying expenditure by the largest arms companies rose by around 40% between 2022 and 2023, with the top 10 ten firms spending an estimated €5.5m–€6.7m (£4.7m–£5.8m) in 2023.³³ US weapons makers have also increased such activities, spending around \$2.5bn (£1.9bn) on lobbying since 2000. In 2018 alone there were over 600 instances of the top 20 US defence contractors hiring former senior government officials, military

officers, members of congress, and senior legislative staff³⁴; a similar revolving door in the UK provides unparalleled industry access to government.³⁵

Lobbyists may emphasise domestic economic benefits from arms expenditure or stoke fear of malicious intentions or threats from other countries. Together with strategic recruitment and political campaign contributions, lobbying is used to divert public funds into arms instead of health and other public sector budgets.⁴ Joint committees and other standing structures involving regular meetings of government, military, and industry also present opportunities to influence domestic and international sales.³⁶

These strategies extend to weakening international agreements. Major arms producing nations may steer development of treaties and conventions, choose not to ratify them, or fail to enforce them effectively,⁴ partly because of industry influence. For example, the 2013 Arms Trade Treaty, signed by 142 states, stipulates that arms exports should be restricted where supply may contribute to violations of humanitarian laws and human rights.³⁷ However, reporting requirements are minimal, commercially sensitive or national security information can be excluded, and compliance is low.³⁸

Limited reporting can effectively hide political capitulations and facilitate continued arms sales to unstable, oppressive, or conflict affected regions.³⁹

Box 2: How arms industry technological innovation may harm health

Arms innovations can cause unpremeditated harms. For example, advanced weapons such as precision strike systems are promoted to protect civilians, yet this narrative can encourage their deployment in densely populated areas, causing more civilian injuries and damage to critical infrastructure.⁴⁸ New technologies using hypersonic and stealth systems also facilitate surprise attacks and may further reduce warning times for civilian as well as military populations.⁴⁹

Regulations and conventions to limit weapons development and mitigate health impacts often lag behind the rapidly advancing science—for instance, in drone warfare and autonomous systems. Weapons assembled from 3D printed and commercially sold parts (“ghost guns”) exploit loopholes in arms legislation developed to control centralised and licensed arms production.⁵⁰ Similarly, treaties and sanctions designed for military weapons can be circumvented when weapons are assembled from dual use components sourced across multiple countries.⁵¹

The commercial race to develop increasingly smarter weapons for lucrative military contracts raises ethical concerns, including the risk of artificial intelligence controlled systems that operate without adequate human oversight and understanding.⁵² A study of military related large language models found they were prone to sudden and unpredictable escalatory action.⁵³

These risks and their potential health consequences warrant independent scientific scrutiny before manufacture. However, recruitment of scientific talent can be skewed in favour of industry by offering higher salaries,¹⁰ limiting the capacity for independent scrutiny and compounding power asymmetries.

Table 1 | How health professionals and advocates can influence the arms industry and its effects on health

Action	Example
Documenting the health and humanitarian impact of arms	
Increase public and political awareness of health harms from arms	Build widespread, evidence based understanding among the public and policy makers of the true health harms associated with arms expenditure, both immediate and long term. This includes challenging pro-arms narratives in media and highlighting the opportunity costs of reduced health and social spending to support defence
Better document conflict related health system damage	Identify and monitor the damage to health systems, essential infrastructure, and pollution that results from weapons and the legacy of increased morbidity and mortality these cause in post conflict and other settings
Expand research on emerging threats from weapons	Increase independent research that examines existing and emergent threats to health, humanitarian, and environmental issues represented by developments in arms and dual use technologies
Integrating environmental and climate perspectives	
Recognise and respond to the arms industry's environmental footprint	Ensure international climate and environmental frameworks incorporate the toxic footprint of arms manufacturing and deployment. Address the role of environmental degradation and climate change in driving displacement, famine, and disease, all of which can increase conflict
Holding industry to account for economic claims and social responsibility	
Regulate corporate social responsibility (CSR) claims	Encourage transparency and challenge to claims of equity and other health benefits arising from industry CSR activities and openly juxtapose these with inequities and health harms arising from tax breaks, public funding, and regulatory relaxations
Guide ethical investment policies	Urge financial institutions to better use their environmental, social, and governance (ESG) policies to encourage arms companies to adopt sustainable, ethical, and transparent practices. Health focused pensions and other wellbeing related funds should recognise arms investments as incompatible with their core objectives
Strengthening legal and policy frameworks	
Expand treaty adoption and enforcement	Actively champion and advocate for the national ratification and enforcement of international treaties that categorically ban indiscriminate weapons, mandate transparency and accountability in arms production, and restrict trade that may escalate conflict or facilitate human rights abuses
Enforce human rights standards	Promote the robust application and rigorous enforcement of the UN guiding principles on business and human rights to both address and minimise health harms associated with the arms industry's policies, processes, global production, and supply lines
Enhance regulation of dual use technologies	Support and lobby for the strengthening of legal controls over the unique risks posed by dual use technologies—such as artificial intelligence, drones, and chemical, biological, and electronic components—at both civilian (eg, 3D printed "ghost weapons") and military levels to prevent circumvention of national and international regulations
Improve control of small arms and light weapons	Introduce stricter controls on civilian ownership of small arms and restrict civilian access to military type equipment, including comprehensive bans on the marketing of weapons, particularly to children and other vulnerable populations
Promoting peace and disarmament for public good	
Advance alternatives to arms races	Advocate for and champion alternatives to arms races and mutually assured destruction strategies, including internationally negotiated, phased reductions in arms expenditure, reallocating savings to improve global health, humanitarian response, and equity outcomes
Support more balanced advice on arms to governments	Fundamentally reform government arms advisory bodies to ensure balanced, evidence informed advice, and include experts in health, humanitarian, environmental, and other peace building perspectives to address industry biased asymmetries in influence and power

For example, in 2019 the UK government sanctioned further arms sales to Saudi Arabia despite a UK Court of Appeal ruling them unlawful.⁴⁰ More recently, the devastating toll on civilians in Gaza has raised substantial ethical and legal concerns about arms supplies to Israel,⁴¹ while several countries have faced controversy over arms exports used in Yemen, described by UN as the world's worst humanitarian crisis.⁴²

Funding research, innovation, and higher education

Corporate influences on science and its uses are complex, multifaceted, and widespread.⁴³ Like other harmful commodity industries, the arms industry is a major investor in UK universities. Measuring the total investment is complicated by funding for dual use technologies (eg, cyber, chemical, space). Even so, an analysis of recent UK industry-university links identified over £1bn in research partnerships and other financial collaborations over eight years.⁴⁴ An analysis of 45 leading global think tanks for foreign policy, international affairs, and

security found that all had received funding from sources with nuclear vested interests.⁴⁵ Similarly, an analysis of commentary on the Ukraine war found that over three quarters of think tanks prominent in the US media receive funding from sources that profit from arms sales and military spending.⁴⁶ Declarations and vetting of such competing interests and funding are standard in leading medical and health journals, but there is less clarity in defence and foreign affairs publications.

Technological innovation is a key commercial strategy of the arms industry. The innovation has produced some health benefits, such as in injury treatment, mental health, disaster response, and dual use technologies.⁴⁷ However, there are many concerns about unforeseen harms (box 2).

Health sector responses to expanding power of arms industry

Applying a commercial determinants of health lens to the arms industry identifies an expanded role and responsibility for health professionals and advocates,

including researchers and policy makers, to work together to build a broad coalition for change (table 1). The commercial determinants of health approach also helps inform collaborations between health professionals, civil society, and multisector decision makers as the solutions to tackling the commercial harms of arms lie outside of any single sector. First, health professionals and advocates have a vital role in increasing public and political awareness of health harms not just from weapons but from the arms industry itself. Increased government expenditure on arms means less investment for health and humanitarian issues, adding to the millions of preventable deaths already caused by inadequate public health and healthcare.⁵⁴ Conflict compounds these harms by inflicting damage to health and other essential systems.

As with other commercial industries, poorer nations are disproportionately affected by arms, while profits flow to wealthy nations. This inequity is especially unjust as many conflicts in low and middle income countries stem from colonial histories where superior

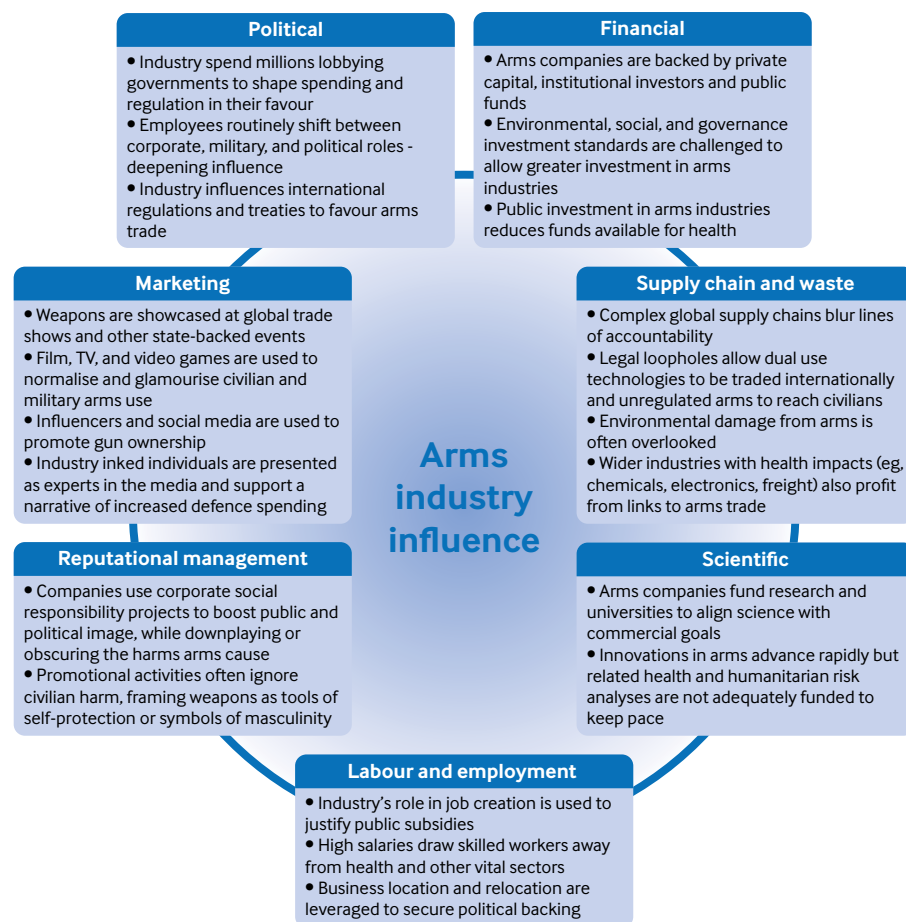


Fig 1 | Commercial determinants of health framework¹⁷ applied to the arms industry

weaponry enforced arbitrary borders, dictatorial governance systems, and resource extraction. Health advocates should document these harms and the consequences of prioritising defence spending over public health. Such evidence can challenge pro-arms narratives and glamourised portrayals of weapons in films, gaming, and other media while also informing political decision making. Public and independent funders should be encouraged to support the study of the health, humanitarian, and environmental implications of existing and emerging arms, including dual use, artificial intelligence, cyber, and other advanced systems.

Second, health and environmental practitioners should highlight the environmental costs of arms.⁵⁵ Military activity is a major contributor to global greenhouse gas emissions; weapons manufacture and disposal contribute to pollution; and explosives and military equipment causes substantial contamination. Environmental impacts are not always immediately visible

but can persist as threats to health for decades.⁴ For instance, perfluoroalkyl and polyfluoroalkyl substances (PFAS), forever chemicals found in firefighting foams, aircraft, missile systems, and other military equipment, have been identified in high concentrations around military bases.⁵⁶ These toxic consequences must feature in calculations of costs associated with arms.

Third, health actors should hold the industry accountable for any assertions of economic benefit and social responsibility, as well as exposing the health harms and inequities associated with the tax breaks, public subsidies, and regulatory leniencies the arms industry often enjoys. The industry often promotes narratives that arms production, at least in high-income countries, provides high quality employment and associated benefits. For instance, the BAE Systems partnership with local government in Barrow-in-Furness, UK, is framed as supporting regeneration of the town and addressing inequalities.⁵⁷ However, research suggests that military spending is less likely to

provide the economic and social returns that would come from spending on health, education, and environmental protection.⁵⁸

Relatedly, health professionals should support community action that affects public and private investments in the arms industry as well as the regulations that control it. Banks and other financial structures are major shareholders in arms companies (box 1), generating returns for a wide range of private and public bodies, including healthcare organisations, local authorities, and pension funds. Health professionals and their allies can have powerful voices in challenging such investment from an environmental, social, and governance perspective. Health leaders and campaign groups (eg, Medact, Don't Bank on the Bomb⁵⁹) have exposed the health and humanitarian consequences of nuclear and cluster weapons while student groups such as Demilitarise Education have mobilised against arms funding in higher education.⁴⁴ Similarly, medical and humanitarian organisations such as International Physicians for the Prevention of Nuclear War and International Campaign to Ban Landmines have been pivotal in changing views on highly destructive and indiscriminate weapons. More recently, a World Health Assembly resolution has required WHO to research and update assessment of the effects of nuclear war on public health.⁶⁰

Fourth, health professionals can do more to advocate for stronger national and international measures to protect the public from the harms associated with arms (fig 1). Lessons from successful regulation in other health harming sectors should be applied to arms control. For example, the WHO Framework Convention on Tobacco Control recommends separating industry from policy making, establishing transparent lobbying legislation, restricting conflicts of interests among public officials, and limiting corporate sponsorship and corporate social responsibility initiatives aimed at swaying policy or public opinion.

Applying similar measures to the arms industry is complicated by the presence of a military-industrial complex justified by a national security imperative. Arms manufacturers sit behind this barrier providing advice that unsurprisingly includes delivering more weapons. Nonetheless, effective strategies would include curbing sponsorships, closing revolving door employment pathways,

and publicly exposing policy guidance shaped by vested interests. With public support, governments can act decisively, as shown by the swift strengthening of legislation in response to gun violence in both Australia and New Zealand.⁶¹

Finally, health professionals must have a prominent role in promoting peace and disarmament, championing alternatives to arms races and mutually assured destruction strategies.⁶² In 2021, a proposal for a global peace dividend was supported by leaders in science and medicine.⁶³ In stark contrast to current defence spending decisions and trends, this proposal asked that governments reduce military expenditure by 2% a year for five years, using resultant savings for health, climate, and global humanitarian purposes. Ensuring such policies are considered means confronting industry bias and asymmetries in their influence and power. This requires reform of governments' decision making processes to ensure they are based on balanced, evidence informed advice that includes experts in health, humanitarian, environmental, and other peace building perspectives.

Scrutiny of the arms industry from a health perspective which results in informed advocacy can make a meaningful difference. To strengthen these efforts, further investment is needed in commercial determinants of health research to examine the behaviours of arms industries, their affiliated companies and financial institutions, and their links with military and governmental structures. The arms industry is wealthy, well connected, and highly skilled at protecting its profits. Its ability to resist change should not be underestimated. However, health voices are important, influential, and should form part of an interdisciplinary collaboration that argues and advocates for human and planetary health even as governments prepare for hostility.

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Competing interests: We have read and understood BMJ policy on declaration of interests and have no interests to declare.

Provenance and peer review: Commissioned; externally peer reviewed.

AI use: AI was used as one aspect of literature search strategies.

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