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# Managing ignorance to preserve anti-doping cosmology – the case of contamination

Marjolaine Viret<sup>a</sup> and Fabien Ohl<sup>b</sup>

<sup>a</sup>Centre of Comparative, European and International Law, Faculty of Law, Criminal Justice and Public Administration, University of Lausanne, Switzerland; <sup>b</sup>Institute of Sport Sciences, Faculty of Social and Political Sciences, University of Lausanne, Switzerland

## ABSTRACT

This article addresses contamination within anti-doping as a scientifically complex and politically critical source of ignorance, representing a threat to the World Anti-Doping Agency's (WADA) credibility. Contamination can be described as any situation in which athletes come in contact with prohibited substances through their environment, without their fault, and is an unknown looming over athletes and anti-doping organisations alike. Dealing with contamination is a vital stake for WADA as the phenomenon jeopardises institutional features of anti-doping, including the strict liability principle whereby athletes are deemed responsible for whatever is present in their body. Building on studies of ignorance in organisations, this article draws from frame analysis to apprehend WADA's policy response to contamination. Through WADA Minutes and other releases over the period 2000–2023, we analyse how WADA handles and justifies shifts in its framing of contamination towards its global audiences. Our results show that organisational attitude towards ignorance is a dynamic process. This process intertwines with the organisation's need to maintain its credibility, especially where elucidating the issue threatens components constitutive of its community's cosmology as defined by Goffman. The concept of 'frame consistency' illuminates how this requires the organisation to retain the community's trust by convincing them that its framing remains coherent over time and that the policy issue can be mastered without undermining the system's overarching principles. To achieve these goals, WADA mobilises techniques of impression management, also relying on the institutions of science and the law as guardians of its cosmology.

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Anti-doping; contamination; World Anti-Doping Agency; ignorance studies; frame analysis

## 1. Introduction

Policies against doping in sport reflect a transnational programme aimed at regulating what counts as a legitimate performance, while also protecting athletes' health and the spirit of sport. Modern anti-doping is centralised under the leadership of the World Anti-Doping Agency ('WADA'), a hybrid organisation involving public authorities and the sports movement (Chappelet and van Luijk 2018; Wagner 2009). WADA is responsible for adopting and periodically updating the World Anti-Doping Code (the 'Code'), as well as a complex corpus of supporting regulations. Compliance with the Code

**CONTACT** Marjolaine Viret  [marjolaine.viret@unil.ch](mailto:marjolaine.viret@unil.ch)  Centre of Comparative, European and International Law, Faculty of Law, Criminal Justice and Public Administration, University of Lausanne, Issul, Unil, Switzerland

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is mandatory for Olympic sports, which has implications for athletes globally. Anti-doping is key for sports governance, with geopolitical stakes as highlighted by the Russian doping scandals (Ohl *et al.* 2021), and critical for the 'integrity' standing of the sport industry.

Like other international organisations, WADA operates within a dynamic and challenging environment (Houlihan and Hanstad 2019). Science is a resource for WADA, on which it builds its promises (Ohl *et al.* 2021), with anti-doping paradigms rooted in technological optimism (Viret 2016, p. 343). Conversely, WADA is regularly hampered by knowledge gaps in connection with scientific uncertainty or progress in technology. This is particularly true when it comes to 'contamination', our issue of focus, understood as any situation in which athletes encounter prohibited substances through their everyday environment, without their fault.

The anti-doping system rests heavily on biological testing (Waddington and Møller 2019), and the assumption that detection of prohibited substances in athletes' samples is evidence of doping. Yet, data are sparse regarding the extent to which that assumption holds true in disciplinary proceedings (Pluim 2008, Henning and Dimeo 2015). Around 40% of cases are said to arise from negligence rather than 'cheating' (de Hon and van Bottenburg 2017). Contamination, *a fortiori*, challenges pivotal regulatory premises. As a sub-issue of inadvertent doping, contamination represents a risk in regard of 'strict liability' –the principle whereby athletes are responsible for any substance discovered in their organism – that can be of concern to athletes (Gleaves and Christiansen 2019).

Consequently, contamination is highly problematic for anti-doping organisations as it jeopardises fairness, questioning whether the Code is fit-for-purpose, specifically whether it fulfils the proclaimed goal of protecting the 'clean athlete' (Viret 2020). Controversies surrounding contamination are compounded by the fact that uncertainty runs both ways: athletes contaminated through an unknown source may be incapable of ascertaining that source, while athlete who dope may exploit the contamination defence to escape sanction (Moston and Engelberg 2019).

Though the effectiveness of anti-doping approaches is regularly under critical scrutiny (Mazanov and Connor 2010, Dimeo and Møller 2018, Houlihan and Hanstad 2019, Waddington and Møller 2019), including with respect to their evaluation and basis in evidence (Pielke and Boye 2019), the framing of contamination as a policy issue within antidoping itself has received little attention. However, as contamination jeopardises key tenets of anti-doping, WADA's management of the issue is critical for its credibility.

Our research studied WADA's policy-making on major contamination areas at the policy-making level, as opposed to specific cases. However, contamination claims in individual cases may equally pose political challenges, as demonstrated in 2024 following revelation of WADA's hands-off approach to a series of tests positive to trimetazidine on 23 Chinese swimmers prior to the Tokyo Olympic Games (2021). These had been treated by the Chinese authorities as originating from contamination and triggered a controversy over the absence of public disclosure and disqualification prescribed by the Code (WADA Releases, 20 & 29 April 2024; Statement by USADA, 20 April 2024).

This new affair is likely to fuel debates around the appropriate handling of suspected contamination, since anti-doping policy has proved to be essentially 'reactive' to crises that threaten its legitimacy (Brissonneau and Ohl 2010, Ritchie and Jackson 2014, Read *et al.* 2019). Our research takes a step back and considers contamination issues over time, as a threat to WADA's credibility as a regulatory body, which warranted a management of ignorance. Contamination is by essence elusive: it is a source of unknown for athletes in dealing with anti-doping duties, leading to 'clean anxiety' (Martinelli *et al.* 2023). It is, equally, an unknown for anti-doping organisations in the management of testing, even more so for WADA in its scientific strategies and regulatory choices.

Building on perspectives of ignorance in organisation studies, the article draws from frame analysis to understand WADA's policy response to contamination as a scientifically complex and politically critical issue, specifically, how WADA justifies shifts in its framing of contamination towards its stakeholders and/or the public.

## 2. Theoretical framework

Our analysis combines insights from studies of ignorance within organisations (2.1), with a Goffmanian frame analysis (2.2). Ignorance studies have grown into a field of their own, drawing attention to ‘non-knowledge’ as an object of study on par with study of knowledge. They are open to an array of disciplinary approaches (Gross and McGoey 2022), including articulation with sociological frameworks.

### 2.1. Ignorance in an organisation’s life

Recent contributions put the spotlight on ignorance as integral part of an organisation’s life, converting ambiguous states into ‘organizational order’ (Bakken and Wiik 2018, p. 1111), and mobilise ignorance ‘as a central and integral category for policy analysis’ (Paul and Haddad 2019, p. 300). Still, definition of ignorance within organisations remains problematic (Jalonen 2023). We use the umbrella term ‘ignorance’ to refer to any component of policy-making affected by ‘unknowns, uncertainties and knowledge gaps’, in a broad, non-connotated, sense (Gross and McGoey 2022, p. 3).

Ignorance acts as ‘an everyday feature of governance’ that can become institutionalised, including through legal regulation, and ‘thus often remain invisible’, in particular when it is ‘shaped by the historical trajectories of a given area of governance’ (Paul et al. 2022, p. 419). Rayner (2012) argues that organisations need to build simplified, self-consistent, versions of the world to function in a complex reality. Knowledge which is in tension with that version – ‘uncomfortable knowledge’– must be ‘expunged’.

Organisations manifest a range of attitudes – response or non-response – in the face of ignorance. Rayner (2012) identifies four strategies that organisations use to keep uncomfortable knowledge at bay: denial, dismissal, diversion and displacement. However, attitudes may be more diverse, especially as ignorance gets partially exposed: a typology of three possible responses to ignorance in state policies has been proposed (denial, resignation, and elucidation) (Boswell and Badenhoop 2021).

Framing matters in policy, with ignorance as its inevitable by-product, since any problem representation silences other perspectives (Bacchi 2009). Viewing ‘organisations as systems of shared meaning where ignorance is created and sustained[. ..]’ (Jalonen 2023) allows us to study how the choice of a representation is part of an interactional process between the organisation and its audience(s).

### 2.2. Attitudes towards ignorance as a stake of frame consistency

Frame analysis allows us to highlight two additional dimensions: first, an organisation’s attitudes related to a policy issue are unlikely to remain static. Shifts in attitudes and their repercussions are particularly interesting moments to study; second, a regulatory organisation such as WADA is accountable to an audience, which in anti-doping is global and heterogenous. Consequently, any change in policy must be explained to safeguard consistency. Previous research further shows that changes in policy may be triggered by exogenous shocks introducing new information to WADA’s multiple audiences, altering their perception of WADA’s legitimacy (Read et al. 2019).

To capture these two dimensions, our analysis focuses on ‘frame consistency’ (Benford and Snow 2000), understood both as the organisation’s perceived alignment with its foundational principles at any given point in time, and as its ability to coherently uphold that alignment over time.

A frame organises participants’ experience of reality in a sphere of social life (Goffman 1974). For an organisation, displaying an attitude towards its ignorance on a policy issue amounts to framing, which contributes to creating adherence to the organisation’s strategies, to bonding with its stakeholders. Applying frame analysis to social movement, Benford and Snow (2000) observed that frame resonance amongst stakeholders supposes frame credibility and maintaining (an

appearance of) consistency is central to maintaining that credibility. We hypothesise that this especially applies when a policy issue is critical to the organisation's very purpose, in that framing engages the sustainability of the organisation's image. Moreover, debates about these issues affect the social community's tenets, referred to by Goffman as '*cosmology*', its '*framework of frameworks*', its '*belief system*' (Goffman 1974, p. 27).

WADA's shifts in attitude towards ignorance suppose a 'reframing' which may threaten the organisation's credibility. Policies that are inconsistent over time can fragilize the '*expressive coherence of reality that is dramatised by a performance*' (Goffman 1959, p. 121). That is why our analysis includes consistency as a factor of credibility, approaching '*framing as an ongoing process of meaning construction*' (Cornelissen and Werner 2014, p. 29). Viewing management of ignorance from a dramaturgical perspective allows us to exploit materials that reflect the organisation's staging of evolving states of knowledge, how it assigns meaning to that flux.

Within his dramaturgy involving strategies such as 'impression management', 'preserving face', 'front- and back-stage' (Goffman 1959, 1982), Goffman points at the importance of presenting an image that is '*internally consistent*', but also supported by evidence '*conveyed by other participants*' and '*conveyed by impersonal agencies in the situation*' (Goffman 1982, pp. 6–7). Factors of credibility equally include empirical credibility of the frame, and the perceived credibility of the '*frame articulators*' (Benford and Snow 2000, p. 620). We analyse these two components as resources for the organisation to influence the meanings of contamination conveyed to its audiences. Specifically, law and science are essential as custodians of a community's cosmology, and as such '*are not merely concerned with maintaining standards; they are also concerned with maintaining clarity with respect to framing*' (Goffman 1974, p. 337).

### 3. Materials and methods

#### 3.1. Materials analysed

The analysis relies on publicly available Minutes of WADA's decision-making bodies (Executive Committee ('ExCo') and Foundation Board ('Board')) and of its science advisory body, the Health, Medical & Research Committee ('HMRC'), from the birth of WADA in 2000 till 2023, as well as other public releases by WADA, and the Code (version 2021 in force, 1<sup>st</sup> draft version 2027; [www.wada-ama.org](http://www.wada-ama.org)).

As a Swiss foundation, WADA is governed by a Board. Its ExCo has delegated powers to operate the organisation and is authorised to take all decision not reserved for the Board (Art. 9 WADA Statutes, v. June 2023). Over the period considered, both bodies met at least twice a year (Board Minutes  $n = 47$ ; ExCo Minutes  $n = 77$ ; last available Minutes = November 2023). The HMRC is WADA's standing committee for medical and scientific developments related to doping free sport, advising WADA on these matters, and overseeing various scientific expert groups (HMRC Terms of Reference). Over the period considered, the HMRC met at least once a year (HMRC Minutes  $n = 28$ ; last available Minutes = September 2023).

Minutes were searched for the keyword 'contamination' and its root ('contaminat-'), to identify relevant extracts. Based on a review of a Minute sample, and our previous work and experience in the field, search terms were added to cover extracts in which the word 'contamination' may not have been explicitly used, such as: 'supplement, food, meat, clenbuterol, medication'.

For the extracts identified as relevant, quotes were extracted, and organised according to a frame of analysis adapted from the WPRB-framework (Bacchi 2009) comprising representation of contamination, responsibilities assigned for the issue and its solution, solutions proposed and decisions taken. The frame was identical for all three bodies to facilitate initial comparison. A contents analysis was performed on the extracts, with a coding in part using the theoretical frameworks highlighted above, in part in an inductive approach to identify themes and trends related to contamination.

Supplementary materials are ten public releases issued by WADA over the same period (press releases, notices to stakeholders, technical letters for the laboratories), identified through the WADA website search engine.

### **3.2. Caveats on the object of study and materials**

There is no regulatory definition of contamination in anti-doping. Identifying issues that partake of the topic was thus part of the research itself. The 'Contaminated Product' Code provision (see Section 4.1), however, conveys the notion that the athlete encountered the substance fortuitously and could not reasonably be aware of its presence.

Ignorance areas in policy-making are often identified retrospectively (e.g. scientific ignorance maintained by the tobacco industry (Pinto 2017)). Our analysis thus targets issues that feature in WADA policy discussions, taking a retrospective look at the period 2000–2023. Using Minutes as materials nonetheless allows us to study how management of knowns and unknowns unfolds at the time of the events, and how participants themselves perceived them.

The context of the production of WADA Minutes must, further, be considered:

First, the context of the meeting involves staging of a performance by WADA towards participants, and participants also represent interests that they stage. Second, since Minutes are published on the WADA website, staging must be expected from each participant towards wider audiences (the organisation they represent, the media, or the general 'public').

When relying on statements from WADA Minutes, we use 'participants' to refer to those present at a meeting, 'WADA' for participants who are employees/officials of WADA and express themselves in their capacity, and 'stakeholders' for interested third parties within the anti-doping movement (e.g. representatives of international federations, governments, or athletes). Citations in our article therefore reference: type of decision-making body, date, name of the participant and page (e.g. 'ExCo, 17 May 2012, Young, p. 35').

Minutes of the ExCo and Board are not genuinely verbatim (the WADA website presents them as "*intelligent third-person, verbatim transcriptions*", i.e. *slightly edited for readability*): they are themselves productions by WADA. The HMRC Minutes contain, in part, mere summaries of the discussions. Minutes of the expert groups that report to the HMRC are not published.

Minutes are thus hybrid materials in that they both record a 'live performance' and constitute standalone written documents prepared by the organisation. They remove part of what is 'unintentionally' conveyed as part of a live performance (Hilgartner 2000, p. 8), by putting a filter on that performance, though alterations are constrained by the transcription.

## **4. Results: evolution of WADA policy on contamination (2000–2023)**

Results describe the place of contamination in the regulatory framework (4.1); identify its significance in WADA policy discussions in general (4.2); retrace the evolution of resulting policies across three major contamination areas (4.3).

### **4.1. Contamination in WADA regulatory framework**

WADA regulations are almost entirely silent on contamination, save for the provision on 'Contaminated Products', introduced during the 2015 Code review, which may, in certain circumstances, justify a finding of reduced fault and therefore a reduced ineligibility period. There is one mention of '*environment contamination*', which should '*typically*' warrant a finding of no fault (Comment ad Art. 10.6.1.2 Code). Those limited references, however, hint at contamination as an occurrence in which ordinary tenets of the Code prove inadequate.

The central tenet is the strict liability principle, presented by WADA as reflecting the athlete's intrinsic responsibility for '*the substances found in their body*' (WADA Statement on ARD

Documentary, 16 July 2021). In terms of legal consequences, strict liability means that athletes can then be found to have committed an anti-doping rule violation – and therefore disqualified (Art. 9 Code) – regardless of their fault (Appendix 1 and Art. 2.1.1 Code). WADA communication defends strict liability as an ‘important principle’ of anti-doping that is ‘well accepted and[...]consistently upheld in the decisions of courts and anti-doping tribunals’ (WADA Statement on ARD Documentary, 16 July 2021).

Other pillars of anti-doping operate in conjunction with strict liability: the evidentiary trust placed in the adverse analytical finding that reports the presence of the substance (Art. 2.1.2 Code), the idea of zero tolerance (Art. 2.1.3 Code) and the ‘presumed fault’ system for disciplinary sanctions (Art. 10.2, 10.5 & 10.6 Code).

The first draft in the 2027 Code review substitutes the notion of ‘Contaminated Product’ with ‘Contaminated Source’, which, according to the preparatory materials, ‘is broader and includes sources of contamination such as food or drink, environmental contamination, or exposure through contact with a third person or object touched by a third person’ (1<sup>st</sup> draft, Summary of major changes, published May 2024).

The Comment to the proposed Art. 10.6.1.2 further explicitly acknowledges contaminated ‘medication’, but only to insist that ‘Athletes are on notice that they take nutritional supplements and medications at their own risk’, so that these would not systematically qualify for a reduced fault, let alone a no-fault. The only hypotheses that are contemplated as potentially triggering a no-fault are sources ‘such as public tap water or lake water in circumstances where no reasonable person would expect any risk of an anti-doping rule violation’.

#### 4.2. A critical topic in WADA policy discussions

The significance of contamination is visible from the frequency with which the topic is addressed in WADA Minutes, in a remarkably consistent matter from the first year of WADA meetings in 2000, till 2023 (Table 1).

The most extensive discussions are found in ExCo meetings. Since the Board has high-level oversight, themes and orientations generally align with the ExCo. Discussions are most sparse in the HMRC, which is surprising since the HMRC is WADA’s science advisory body. However, HMRC Minutes are not verbatim: specifics of the discussions are frequently missing. Mentions of contamination that were not on the agenda may not have been transcribed. General results thus rely primarily on ExCo and Board; the involvement of science is analysed in Section 5.3.

Contamination, though never explicitly defined, is described as a loss of control for athletes:

[...]there was no way that an athlete could have found out that a product that he or she had been taking contained a prohibited substance,[...] (ExCo, 17.05.2012, Young, p. 35)

Participants share an understanding of contamination as a policy issue: contamination is never thematised for itself, but always positioned as problematic within the framework of anti-doping.

**Table 1.** Thematising contamination in WADA bodies.

| WADA Body:   | Foundation Board          | Executive Committee | HMRC                                     | Across all three bodies |
|--|---------------------------|---------------------|--|-------------------------|
| Nr of Minutes with at least one occurrence of contamination-related topic/Total nr of Minutes analysed (status: Nov 2023): | 27/47                     | 44/77               | 13/28                                    | 84/152                  |
| Years without any occurrence of contamination-related topic:   | 2001, 2007-2010, and 2022 | 2009                | 2003-2008; 2011-2015; no meeting in 2020 | 2009                    |

Thus, the uncertainty around contamination is perceived as a threat to the system's boundary between cheating and innocence:

It was of extreme importance for clean athletes. There was the risk of food contamination as well as the risk of contaminated nutritional supplements, and it was important to catch the real cheats and not those who had taken something inadvertently (Board, 18.11.2015, Bokel, p. 6)

Contamination is depicted as an unfortunate situation in which strict liability produces unfairness because the athlete has little realistic prospect of averting it:

[...]one could not, in fairness to the athletes, hold them accountable for eating meat when they had absolutely no control over what was in the meat (Board, 18.05.2017, Niggli, p. 5)

It is manifest that participants – throughout the period considered – are acutely aware of contamination as a source of unknowns that could undermine institutional pillars of the anti-doping system and considerably complicate its implementation.

### 4.3. Three major contamination themes 2000–2023

WADA has dealt broadly each decade with a new theme of focus (Table 2): (4.3.1.) nutritional supplements, (4.3.2.) food contamination, especially meat products, and (4.3.3.) licenced non-prohibited medication contaminated with prohibited substances.

#### 4.3.1. Focus in the 2000 decade – nutritional supplements

From the start, supplements were on the agenda of all WADA bodies. The HMRC identified supplements as a 'known' problem, but one on which information needs to be gathered through research (HMRC, 15 October 2000, p. 13). Contamination is initially described as overstated, but a potential reputation issue:

[...]a tendency to exaggerate the problem, as the frequency of cases attributable to this had remained stable over the previous ten years, but it was embarrassing as big name athletes were now involved. (Board, 22.03.2000, Ljungqvist, p. 36)

Supplements are represented as a problem of quality control by manufacturers (ExCo, 1 October 2002, Ayotte, pp 22–24), respectively lacunary governmental regulation:

The major problem was the unregulated markets, (ExCo, 15.05.2005, Ljungqvist, p. 30)

Anti-doping should not get involved and its role limited to warning athletes:

[...]with the principle of strict liability it was for the athletes to know these things and take the consequences for their actions. [...]There were convincing studies that showed that healthy athletes did not need food supplements[...]. (ExCo, 06.03.2001, Ljungqvist, pp. 2/3)

It was not up to the anti-doping laboratories to test the quality of products produced by private manufacturers. (ExCo, 13.05.2006, Rabin, p. 40)

Nevertheless, participants seemed aware that use would persist and that turning a blind eye would not be an option:

While he agreed that WADA had a clear policy that athletes should not take any form of supplements, the reality was that they did. (ExCo, 24.11.2002, Reddie, p. 20)

**Table 2.** Chronology of themes before WADA bodies.

| Theme       | 1st addressed ExCo                  | 1st addressed Board | 1st addressed HMRC |
|-------------|-------------------------------------|---------------------|--------------------|
| Supplements | Nov. 2000                           | March 2000          | Oct. 2000          |
| Food (meat) | Sept. 2010                          | May 2011            | Aug. 2016          |
| Medication  | Nov. 2019 (1 ref to a case in 2006) | May 2019            | Aug. 2018          |

During the 2015 Code review, stakeholders put pressure on WADA to act:

One of the comments received from a number of stakeholders was that this area of contaminated supplements and products was a big problem[. . .] (ExCo, 17.05.2012, Young, p. 35)

Supplement contamination ceases to be a prominent topic at the ExCo and the Board coincidentally with the introduction of the ‘Contaminated Product’ provision to the revised 2015 Code, an amendment reported to the ExCo (see above) and to the Board (Board, 18 May 2012, Young, p. 22).

**4.3.2. Focus in the 2010 decade – food contamination**

At the turn of the decade, contaminated food gradually pushes supplements to the periphery (see Table 2). Meat contamination arises as substances – in particular the anabolic agent Clenbuterol – are used in certain regions of the world as a growth promoter for cattle (WADA Stakeholder Notice, 1 June 2021).

Food contamination was initially downplayed in its importance:

Regarding the issue of food contamination, WADA had no current concern[. . .]. (ExCo, 10.09.2012, Howman, p. 5)

However, WADA had to gradually admit that the problem had been underestimated:

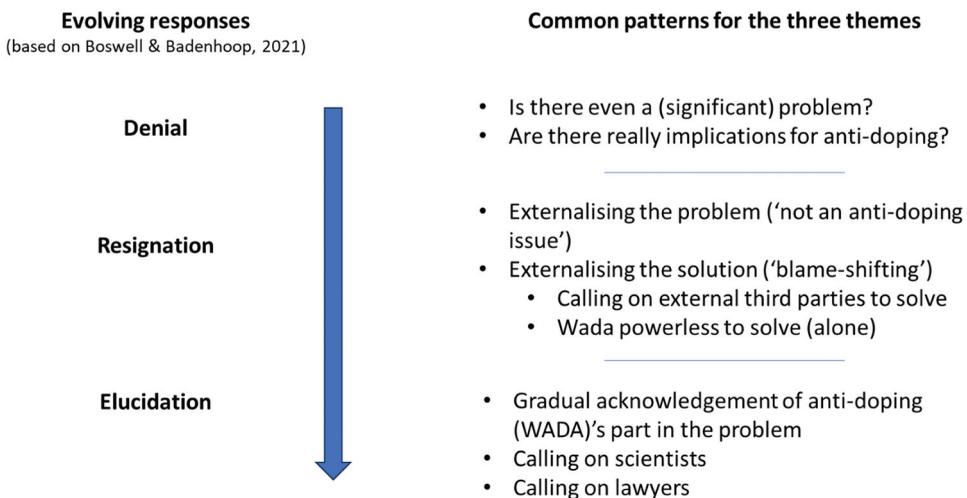
The contamination of meat in Mexico was much worse than WADA had first understood. (ExCo, 16.09.2015, Howman, p. 5)

WADA’s initial reaction was to mirror its stance on supplements and handle the problem as external to anti-doping:

It was not an anti-doping issue, but a real issue in a few jurisdictions in which there was a problem with contaminated meat (ExCo, 17.05.2017, Niggli, p. 4)

However, during that same period, increasing sensitivity of laboratory analysis was thematised. For the first time, a cause is acknowledged to lie within the anti-doping system itself:

[. . .]changes in the laboratories’ ability to detect prohibited substances had been astounding. [. . .]The good news in that was that it was possible to detect the tail-end of excretion curves in prohibited substances. [. . .]The bad news in that was that, if there was a whisper of contamination in the substance from a supplement or whatever, it was possible to detect that too. (ExCo, 16 May 2018, Young, p. 48).



**Figure 1.** Dynamics of WADA attitudes towards Contamination.

Expectations were placed on science to create methods to distinguish findings from contamination versus intake of the prohibited substance:

[. . .] hopefully lead to a situation whereby, [. . .] it would be possible to distinguish between clenbuterol that came from contaminated meat and clenbuterol that had been ingested in other ways. That was the hope and expectation, and researchers were working hard towards that objective. (Board, 18.05.2014, Howman, p. 4)

Hope shrank over the years, and in 2019, an amendment to the Code is voted to allow for atypical findings – preliminary laboratory reports that require further investigation (Appendix 1 Code) – for the main contaminant:

[. . .] there was no alternative solution. It had been discussed again and again. WADA could not deal with it scientifically, and it could not deal with it under the current Code. (ExCo, 14.11.2018, Niggli, p. 47)

The decade thus ends on temporary regulatory amendments designed by WADA Legal, but also on the creation of the 'Contaminants Working Group' ('Contaminants WG'), to address stakeholder concerns in the 2021 Code review (WADA Guide for Stakeholders, 18 October 2019). Thereafter, food contamination remains a prominent topic, but is absorbed into the work of the Contaminants WG.

#### **4.3.3. Focus in the 2020 decade – medications and broader recognition of contaminants**

A first account of contaminated medication is recorded at the ExCo in 2006. The reaction from WADA Legal was suspicion (*'he still had his doubts'*). WADA was *'looking into the case'*, but primary response was to see *'what the industry would do about it'* (ExCo, 13 May 2006, Niggli, p. 16).

The first genuine discussion at the decision-making table arises only in 2019, from a case report by Japan (ExCo, 4 November 2019, Kameoka, p. 22). Attempts to shift the responsibility to pharma industry proved unsuccessful: Japan had *'asked the relevant pharmaceutical companies to investigate the root cause'*, but it turned out the levels were compliant with pharma standards (Board, 16 May 2019, Ukishima, p. 32).

The only mention of contaminated medication at the HMRC presented the problem as rather anecdotal:

There were a couple of cases of contamination of pharmaceutical products, which need to be 99 % pure, leaving a 1% possibility of containing prohibited substances'. (HRMC, 28.08.2018, Kinahan, p. 5)

Reporting then becomes tied to the progress of the Contaminants WG. In May 2021, WG recommendations were approved (ExCo, 20 May 2021, Sieveking, pp. 26–28; Board 21 May 2021, Niggli, p. 3). Reporting levels were introduced for six diuretics that could appear in authorised medications, and three substances that could be present in meat. Technical letters for laboratory implementation were approved (TL 23 & TL 24), and notices to stakeholders on the handling of findings issued (WADA Press Release, 1 June 2021).

Since then, contamination has been remarkably absent from policy debates. Nevertheless, the mandate of the Contaminants WG has been repeatedly extended (WG Terms of Reference, Jan 2023), and contamination still receives mentions in connection with the approval of annual research budgets (e.g. ExCo, 23 September 2022, Rabin, p. 32; ExCo, 23 September 2023, Rabin, p. 30; Board, 23 November 2023, Rabin, p. 43). The 2027 Code review may reignite debates among stakeholders, as the publication of the first draft contemplates an extension of the notion of contaminated 'product' to contaminated 'source', explicitly acknowledging contaminated medication (Section 4.1).

## **5. Discussion**

We discuss the evolution of WADA's positioning on contamination over the above three phases, along the following axes:

- Contamination as a policy issue questioning components of institutionalised ignorance within anti-doping, with policy responses from WADA that evolve over time (5.1);
- Contamination as a threat to WADA's framing around the cosmology of anti-doping, forcing WADA to handle its shifts in responses in a way that preserves frame consistency and thus credibility (5.2);
- The combined use of science and law as a resource to safeguard anti-doping cosmology (5.3).

### **5.1. Dynamics of WADA's organisational attitude towards contamination**

This Section discusses how contamination collides with basic regulatory assumptions behind the World Anti-Doping Programme as an issue of institutionalised ignorance (5.1.1.), analysing common patterns in the way WADA managed each emerging contamination area (5.1.2), which can be read as a way of arbitrating tensions between knowing and not knowing (5.1.3).

#### **5.1.1. Contamination conflicting with institutionalised ignorance in anti-doping**

The strict liability and related principles underlying the WADA regulatory framework, described in Section 4.1, coalesce into a legal order comprising substantive and evidentiary rules that institutionalise assumptions whereby athletes are in control of their bodies. They also perpetuate knowledge gaps, in that they discourage attempts into elucidating the causes behind analytical findings: anti-doping organisations have no regulatory incentive to do so, since they bear no burden of proof with respect thereto. From the system's perspective, the causes behind the findings can remain unknown. Ignorance about these causes – amongst them contamination – is thus institutionalised, implicit, and hidden from sight (Paul *et al.* 2022).

Furthermore, these assumptions crystallise in the Code, underpinning its fairness in stakeholders' eyes (Section 5.2). In frame parlance, they form part of the cosmology of anti-doping.

Contamination thus pertains to those '*deeper issue[s]*' (Goffman 1974 p. 336) that threaten the system's cosmology, challenging the system's purported ability to target 'doping-relevant' conducts (Viret 2018).

In all logic, then, the first draft of the 2027 Code maintains a stance whereby contamination, albeit receiving broader recognition as to its existence, remains normatively an issue for athletes to argue and establish, with an extremely restrictive acceptance of situations in which the athlete would not ultimately bear the risk – i.e. would be found at no fault – of contamination (Section 4.1).

#### **5.1.2. Patterns in WADA's organisational attitudes towards ignorance**

The typology of responses to ignorance (Boswell and Badenhop 2021: denial, resignation, and elucidation) can be retraced in WADA's attitude towards contamination. As the results in Section 4.3 show, those attitudes are not static, but instead evolve through different stages along a common pattern (see also Figure 1 and Annex 1 for examples).

While supplement contamination is presented from the start as a 'known unknown', food and medication contamination start off as 'unknown unknowns': knowledge about such contamination is not staged until around 2010 and 2019, respectively, so that these areas manifest as a 'surprise' (Roberts 2022, p. 368). Regardless, each theme on WADA's radar is initially met with 'denial', in that the issue is questioned in its very existence, or at least in its extent and implications (Boswell and Badenhop 2021). Reactions indicate awareness that contamination threatens institutional features of the system, thus representing 'uncomfortable knowledge' that one is not particularly keen on delving into. Through reliance on Minutes, denial appears most frequently in its 'dismissal' form, as it '*implies at least some level of explicit engagement with uncomfortable knowledge*' (Rayner 2012, p. 116). Even supplements as a known problem are met with attempts to downplay the prevalence of 'real' contamination cases, or to prevent elucidation (WADA-accredited laboratories prohibited from analysing supplements). Once awareness of the issue is installed, minimisation enters the stage: the

issue is limited in geographical scope (meat contamination in a few countries) or seen as anecdotal (contaminated medication), and expectations expressed that the problem will go away by itself.

Where recognition of the issue gradually becomes inescapable, it is represented as an 'external' circumstance hitting the anti-doping system, not originating from within. Third parties are designated: athletes (for using supplements), manufacturers (for poorly controlled supplements, medication) or governments (lack of regulation, failure to control meat contamination). The ensuing response transcends the boundary between denial and resignation, as a form of 'blame-shifting': external parties are described as both at the origin of the problem, and as responsible for solving it. This outsourcing can be read as resignation – '*insurmountable obstacles to overcoming*' (Boswell and Badenhop 2021, p. 338) unknowns about an issue – as the underlying claim is that WADA has limited power to address the contamination problem.

Nevertheless, WADA ultimately moves to a phase in which action is taken to gain knowledge about contamination, with a view to addressing it through anti-doping policy. Efforts towards elucidation in terms of knowledge – '*illuminate the problem*' (Boswell and Badenhop 2021, p. 338) – arise simultaneously with efforts towards addressing the issue in policy. This goes along with the acknowledgement that anti-doping is partaking in the problem, through ever-increasing analytical sensitivity.

### **5.1.3. Shifts in attitude as managing tensions between knowledge and ignorance**

As shown in Section 4.2, participants are conscious of the implications of contamination for the tenets of the Code, the way in which it could threaten the community's cosmology. Stakes of reputation are perceptible throughout the period considered. Proper positioning for WADA towards supplements was in debate from the first meetings (ExCo, 6 March 2001, p. 30); the fact that '*big names*' had been affected by contamination called '*embarrassing*' (Board, 22 March 2000, Ljungqvist, p. 36). For contaminated medications, the prospect of legal action by athletes is pushed by stakeholders as an incentive to consider issues (ExCo, 4 November 2019, Kameoka, p. 22). Lawsuits as a result of contamination are followed with interest (Board, 16 May 2005, Pound, p. 29).

On the other hand, WADA prides itself on being an organisation that does not shy away from knowledge, indeed invests into foreseeing areas of ignorance:

We have always devoted resources not only to staying on top of trends related to both doping and anti-doping, but also to anticipating the elusive next big thing [...]. (WADA Website, Section 'Trends')

Thus, dynamics of WADA's attitude – as they fluctuate between denial, resignation and elucidation – reveal how the organisation navigates tensions between knowing and not-knowing, adjusting its responses to contamination to uphold these two facets of anti-doping cosmology (see Section 5.2). Notably, the results show that different states of knowledge may co-exist in time, and that attitudes are disputed, a product of negotiations between the organisation and its stakeholders.

## **5.2. Tackling contamination while preserving frame consistency**

Since ignoring and tackling contamination both threaten the consistency of WADA's framing, we hypothesised that the organisation would deploy strategies to remain credible in the eyes of the audiences concerned, maintaining trust in its cosmology. Analysis of the data allows us to describe four such strategies (5.2.1–5.2.4), which are particularly salient during moments of shifts in WADA's organisational attitude identified in Section 5.1.

### **5.2.1. Framing contamination as a problem external to anti-doping**

WADA deploys 'impression management' to justify both ignorance and inaction: third parties fail to do their job properly, placing WADA into an inextricable situation, which justifies WADA's (temporary) resignation.

Thus, WADA initially represents emerging contamination issues as an external problem which crashes onto anti-doping ('blame-shifting', Section 5.1.3): WADA itself is doing its utmost to address the issue, but is at the mercy of external parties' lack of responsiveness ('*needed the cooperation of the Mexican government*' (ExCo, 17 November 2015, Howman, p. 6); '*WADA[...]was hopeful that the industry would come to the table*' (ExCo, 20 September 2005, Wade, p. 44). There is constant emphasis that WADA is taking matters seriously ('*WADA was constantly vigilant*' (ExCo, 10 September 2012, Howman, p. 5), pushing responsible parties for faster action.

Presenting the problem as lying outside WADA's reach also means that incoming information not previously available to WADA can be staged as a trigger of shifting attitudes, highlighting its responsiveness to new data. Externalising the issue is thus both instrumental in upholding frame consistency on the appropriateness of the system itself, and in justifying consistency over time.

### **5.2.2. Framing contamination as incidental to WADA's efficiency**

WADA aptly fits contamination into a broader framing beneficial to WADA's credibility. Thus, when WADA accepts to assign at least partial responsibility for the issue to the anti-doping system, it does so by describing contamination as an unfortunate side-effect of increased efficiency: collateral damage to the prowess of WADA-accredited laboratories capable of detecting ever smaller concentrations of substances.

This representation is palpable in the 'good news'–'bad news' format of WADA statements: reports start with praise for improved capabilities, a sign of the '*astounding*' progress of laboratory analysis (ExCo, 16 May 2018, Young, p. 48). This format also features in the comments for stakeholders in the 2021 Code review:

This increased analytical sensitivity has made it easier to detect the tail end of the excretion curve from the intentional use of a prohibited substance. However, it has also increased the likelihood that an AAF may result from contamination[...] (WADA Guide for Stakeholders, 18.10.2019)

WADA is also prompt to exploit the regulatory arrangements designed to showcase the agility of its approaches:

WADA continually adapts its methods and processes as scientific evidence is revealed[...]as demonstrated by the Agency's recent measures taken in relation to potential contamination cases[. . .]. (WADA Statement on ARD Documentary, 16.07.2021)

WADA seeks to turn an undesirable effect of its system into a symbol for its scientific and regulatory abilities.

### **5.2.3. Preservation of anti-doping cosmology**

Results show that an overarching goal of WADA throughout the period considered has been to keep representations consistent with the system's cosmology, upholding strict liability and related principles (Sections 4.1& 4.2).

Concerns about contamination creating cracks in the system and insurmountable analytical difficulties were explicitly voiced at the HMRC:

[. . .]there could be some cases of contamination but that the low levels could also be due to the end tail of the excretion[. . .] It would be difficult to establish a unique floor due to different potencies and pharmacokinetics. Finally, it could encourage athletes to increase the intake of supplements, as prohibited substances would be unreported below a certain level. Therefore, the HMRC recommended not generalizing the idea of contamination. (HMRC, 28.08.2018, Kinahan, p. 5)

One technique to push minimisation is to query the scope of the issue. Pondering on the reality of claimed instances is part of the rhetoric by WADA Legal with supplements (Board, 12 May 2013, Niggli, p. 13). The WADA website identifying 'Trends', lists, among those: '*better identification of real contamination cases*' (WADA Website, Section 'Trends'). The technique is astute, in that the

implication is that 'real' contamination is only a sub-ensemble of what is claimed as such, but there is no way to determine just how large that sub-ensemble is.

Another technique is to present the issue as limited in terms of geographical spread, or otherwise as anecdotal:

considered to be a very rare occurrence based on the small number of such cases that have arisen historically, and its potential is scientifically limited to a very small number of prohibited substances[...] (WADA Statement on ARD Documentary, 16.07.2021)

Finally, downplaying the threat posed by contamination includes claiming that the system can identify and handle those rare cases where contamination is 'real', so that overall fairness is safeguarded:

in nearly all the cases of alleged sabotage or contamination highlighted, the athletes were exonerated (WADA Statement on ARD Documentary, 16.07.2021)

These techniques converged in depicting contamination as a fringe issue that leaves the 'big picture' of anti-doping unclouded. This was crucial for safeguarding cosmology, but also for legitimising elucidation strategies, whereby contamination would be addressed through a few 'tweaks', without an overhaul of the system (Section 4.3).

#### *5.2.4. Staging of unity and celebration of 'closures'*

Frame consistency is, finally, achieved through entertaining a sense of unity around WADA, and orchestrating 'closures' as victories for anti-doping. WADA communication variously stages contamination as a challenge that anti-doping stakeholders tackle together:

[...]as the anti-doping community continues to deal [...] with the complex issue of contamination[...] (WADA Release, 21.05.2021)

WADA is regularly showcased as pointing to the best, or only, path forward. At each shift of attitude, WADA had to admit misjudgements or failures in its management of contamination (Section 4.3). Yet, stakeholder support – as it transpires from the Minutes – remains relatively constant, with little vocal contestation. Since participants appear aware that the credibility of anti-doping is on the line with contamination, unity may be a display which all buy into.

Despite this proclaimed unity, contamination did, at times, prove a source of friction. There were repeatedly calls for WADA to become involved on each of the three themes. WADA's response, and how swiftly elucidation occurs, seems conditioned by stakeholders' stances, which themselves seem to depend on how much they are affected:

[...]would not like Professor Ljungqvist to be in the shoes of an IF president who regularly had to declare innocent people guilty and then sanction them. (ExCo, 06.03.2001, Verbruggen, p. 2)

Stakeholders' position with respect to issues was variously mentioned as something to factor in:

Dr. Rabin noted that there was more support to deal with cases of contaminated meat or medications. (HMRC, 27.08.2019, Rabin, p. 14)

Indeed, on all contamination areas, impetus towards 'elucidation' appears to have been given through stakeholder putting the issue on the policy agenda, as part of the 2015 and 2021 Code review:

One of the comments received from a number of stakeholders was that this area of contaminated supplements and products was a big problem[...] (ExCo, 17.05.2012, Young, p. 35)

Celebration of the Contaminants WG recommendations can be viewed as a moment of 'closure' intended to rally stakeholders around WADA:

[...]took the opportunity to thank the members of the working group for the great work done to have the recommendations tabled that day; it was a great achievement, and he hoped that they would really improve the situation. (ExCo, 20.05.2021, Sieveking, p. 26)

Fostering athletes' trust in the system is a recurring element of WADA's communication in publicising causes for celebration:

Athletes can continue to be confident that the system designed to protect them[...], will continue to include multiple safeguards[...]. (WADA Statement on ARD Documentary, 16.07.2021; see also WADA Release, 21.05.2021)

The recommendations of the Contaminants WG were celebrated as something that might literally put an end to contamination:

He certainly hoped that there would be no more issues with contaminants and to be able to complete the work the following year. (ExCo, 24.11.2021, Rabin, p. 4)

Thereafter, discerning from WADA communication that contamination remains a topic of interest requires between-the-line reading, with cautious references to contamination as a '*complex issue*' (WADA Release, 21 May 2021), and contamination featuring in research budgets and agenda.

### **5.3. Role of science and law in preserving frame consistency**

Beyond the strategies described in Section 5.2, frame consistency benefited from the combined support of two institutions – science and the law – acting as the guardians of cosmology:

*The Working Group, which includes international experts in the relevant areas of science and law, was set up in 2019 [...].* (WADA Release, 21 May 2021)

Representation of knowledge as part of WADA's DNA is intrinsic to anti-doping cosmology (Section 5.2.1). Science – mostly conceived of as detection-oriented research, only exceptionally a social sciences (Board, 13 May 2015, Estanguet, 13–16) – appears to embody that quest for knowledge and its central role:

[...]scientific investigation was one of the backbones of the anti-doping fight[...]. WADA could also count on research into food contamination or supplements. However, the only way to better understand those phenomena was through the creation of new knowledge, in other words, investigation. (Board, 25.11.2021, Reyes, p. 29)

The other institution that plays a pivotal part in WADA's response is law. Scientific and legal expertise are framed as two arms of WADA's strategy, alternating between partnership and competition:

WADA would see if the lawyers were better than the scientists in terms of resolving the issue [...]. (ExCo, 17.05.2017, Niggli, p. 4)

This Section analyses how science is called upon to avoid breaches in WADA's frame consistency (5.3.1). Regulatory action, in turn, reflects a '*displacement*' as lawyers substitute '*a more manageable surrogate*' (Rayner 2012, p. 120) where scientific elucidation fails (i.e. distinguishing contamination from active intake) (5.3.2). Together, those institutions assist WADA in keeping control of the narrative surrounding contamination (5.3.3).

#### **5.3.1. Use of science as a 'Swiss knife' for frame consistency**

The role for science as the 'empirical' backing of WADA's frame credibility shows in various instances, both for production of knowledge and for solutioning. Science is used in versatile ways, with respect to consistency with cosmology.

Thus, science may be invoked as justification for modified framing, e.g. new scientific findings pushing from denial towards elucidation:

It has been scientifically established that an athlete can test positive for clenbuterol at low levels following ingestion of contaminated meat[. . .]. (WADA Release, 16.05.2019)

On the other hand, science may justify delaying frame modifications, in that the scientific timeframe requires stakeholders' patience:

[. . .]decided to set aside money for information material on this matter, so that it could be circulated quickly, but the scientists needed time to do this work. (ExCo, 13.11.2000, Ljungqvist, p. 6)

Finally, science may serve as a scapegoat for failed elucidation. There was palpable frustration with science when WADA admitted that hopes to scientifically distinguish a finding caused by a contamination from active intake of a substance would not concretise:

[. . .]unfortunately, WADA had not got the scientific answer it would like to get because it was not that simple[. . .]. (ExCo, 17.05.2017, Niggli, p. 4)

In sum, science can be viewed as WADA's all-round tool for ignorance management. Scientists are the experts convoked as a first-line defence when anti-doping cosmology is under threat.

### 5.3.2. Use of regulatory arrangements as 'surrogates'

When science fails to deliver on WADA's promises, lawyers are called for rescue. Legal expertise is staged as a tool for problem resolution: coming up with a regulatory proposal where scientific elucidation proves a dead-end:

To cut a long story short, the WADA Ad Hoc Legal Group had been asked to find a solution, because it was impossible to scientifically determine whether a low level of clenbuterol in an athlete's sample was the result of doping abuse or meat contamination[. . .]. (ExCo, 14.11.2018, Sieveking, p. 47)

For contamination through food and medications, the regulatory solution consists in reporting levels, standardised values below which laboratories will not report an adverse analytical finding. Yet, regulatory standardisation had never been WADA's preferred way forward:

[. . .]was hopeful that the results would indicate that there could be a differentiation between clenbuterol taken directly by athletes and clenbuterol that was taken by animals and then by athletes. It was very apparent that clenbuterol was used often by athletes wishing to enhance their performance, and to involve a threshold was not an answer. (Board, 20.11.2011, Howman, p. 3)

When temporary amendments to the Code were communicated in 2019, this was perceived as a surrender after years of placing hopes in science (*'it had been a long-running saga'* (Board, 16 May 2019, Reddie, p. 40); *'no other solution'* (Board, 16 May 2019, Sieveking, p. 40)).

Similarly, the HMRC had expressed principled concerns with respect to regulatory cut-offs:

It would be difficult to establish a unique floor due to different potencies and pharmacokinetics[. . .]. Therefore, the HMRC recommended not generalizing the idea of contamination for the relevant substances and classes of substances on the List[. . .]. Overall, the HMRC believed that there should be some flexibility to analyse the data and circumstances advanced by the athlete. (HMRC, 28.08.2018, Kinahan, p. 5)

The HMRC illuminates ignorance as a 'layered' issue: attempting to fix one aspect of the problem through regulatory standardisation would inevitably open up other areas of non-knowledge. There is no indication that the HMRC's position changed between 2018 and 2021, thus, ironically, no account showing support of WADA's science advisory body for the regulatory solution designed.

The history of the reporting levels is in stark contrast to the way in which the Contaminants WG recommendations were publicly praised by WADA:

In another step forward made possible by progress in scientific research, the ExCo unanimously approved recommendations from WADA's Contaminants Working Group[. . .]. (WADA Release, 21.05.2021)

When it comes to supplement contamination, a regulatory solution was celebrated through the Contaminated Product provision in 2015. However, to this day, the attitude institutionalised in the Code is that any risk with supplement use is on the athlete: even a contaminated supplement can never justify a finding of no fault (Comment ad Art. 10.5 Code). The amendments proposed in the first draft for the 2027 Code review foresee that the same stance would apply for contaminated medication. The Code authorises at most a reduced ineligibility period and leaves the burden on the athlete to prove contamination.

### 5.3.3. Information control through science and law

Effective information control – as a tool of impression management – is critical for frame consistency. *In casu*, information control operates on two levels:

First, WADA meetings, like their transcription into Minutes, are in themselves a staging of science and law. Technical meetings – expert group level – in which debates take place are not accessible. The scientific or legal situation is conveyed primarily by WADA Science and WADA Legal to the participants, who may have limited access to underlying information. There is thus a circularity in WADA's frame credibility: 'empirical' backing is effective only insofar as trust in WADA is sufficiently high to rely on WADA's own account of science and law.

Second, institutional aura amplifies information control. Labelling an issue as 'scientific' or 'technical', and packaging it into a complex regulatory framework, is an effective way of pushing it out of the realm that participants feel comfortable debating:

Quite clearly, the representatives around the table were not competent to comment on the very detailed work that the Science Department did, [...] (ExCo, 15.05.2019, Reedie, p. 26)

Thus, there were no discussions around the values of the reporting levels chosen. The levels were represented as backed by scientific and legal expertise, without supporting materials (Contaminants WG Recommendations). WADA creates a strict front/backstage separation, controlling the narrative around contamination.

Stakes of control over the narrative were palpable with the crucial output of the Contaminants WG. In addition to requests by the sports movement for a '*clear timeline*' (ExCo, 24 November 2021, Erdener, p. 3), the Council of Europe questioned its involvement in the process, communicating its intent to submit WADA's staging to its own verification:

Europe also invited WADA to allow sufficient time for the consultation of the documents, which were sometimes really technical, so the proposal from his CAHAMA colleagues was at least several weeks. Stakeholders and the public authorities needed to seek specialised advice on most of the documents. (ExCo, 20.05.2021, Husting, p. 32)

WADA's responses reveal some eagerness to have the last word on control warranted: consultation may be foregone – as authorised by the Code – if the matter is '*time sensitive*' (Section Purpose, Scope and Organisation of the WADA Code), or when speeding up the process is to protect athletes (ExCo, 20 May 2021, Sieveking, p. 27). Whether that is the case, and how much verification is reasonable, is WADA's call:

[...]where there were technical documents for which modifications were critical, WADA allowed all stakeholders at least three weeks for technical consultation, which was considered to be sufficient time. (ExCo, 20.05.2021, Rabin, p. 32)

Control over the narrative appears central to WADA's frame credibility. Through effective information control, WADA relies on the authority of scientific and legal experts, while keeping the actors of these institutions backstage. This is facilitated through WADA also controlling the agenda and stakeholders' access to the backstage.

## 6. Conclusion

Our study of WADA's management of contamination shows how perspectives on the response of a regulatory organisation to ignorance on a critical policy issue are enriched by analysing said response as a framing process, designed to safeguard the organisation's credibility and the cosmology of the social community partaking in the organisation's goals.

We show, first, that organisational attitude towards ignorance is not frozen in time, but more appropriately analysed as a dynamic process of meaning-making in the face of evolving states of knowledge. WADA's response continuously mutates, with remarkable parallels between the three major themes analysed, moving from initial minimisation of the stakes of the unknown (**denial**), through a stage in which the problem is deemed beyond the reach of anti-doping, and responsibility shifted away from the organisation onto third parties (**resignation**), to finally reach a phase where WADA acknowledges responsibility, invests into knowledge, and scientific and legal experts are called upon to find arrangements to deal with the problem (**elucidation**). Moreover, responses are not monolithic, but a reflexion of ongoing interactions between the organisation and its stakeholders.

Then, through a lens of frame analysis, we show how this process is intertwined with the organisation's need to maintain its credibility, especially where elucidating the policy issue threatens components constitutive of the community's cosmology – as, here, principles underpinning the Code whereby athletes are deemed responsible for whatever is present in their body. The regulatory framework itself then becomes a vessel of institutionalised ignorance, perpetuating knowledge deficits where knowledge would conflict with cosmology. However, uncomfortable knowledge can be addressed insofar as the costs of keeping it at bay become too high: in particular, when doing so becomes necessary to save cosmology. This confirms previous research describing anti-doping policy as 'reactive', and sensitive to information threatening the organisation's credibility for its audiences (Section 1). There are tipping points at which 'not knowing' becomes even more uncomfortable than knowing, leading to the shifts in attitude described.

This supposes, nevertheless, that the organisation retains stakeholders' trust by convincing them that its framing remains consistent over time in spite of those shifts, and that the policy issue can be dealt with without undermining the overarching principles of the system.

Overall, WADA managed its framing with a view to fostering trust in anti-doping and its credibility. Faced with an object of ignorance that put anti-doping cosmology at jeopardy, the organisation preserved its face in spite of numerous shifts in attitude, even staging contamination as a mere collateral effect of efficiency of its detection system, and accomplishing the *tour de force* of publicising counter-measures taken as testimonies of the solidity of its cosmology.

To do so, WADA mobilised various techniques of impression management, but also relied on science and the law to act as guardians of its cosmology. Through strong control over the narrative around the combined use of these two institutions, WADA managed to celebrate the arrangements found as closures on the policy issue, and as a victory for science. These celebrations obscure the fact that, on all three themes, scientific elucidation *stricto sensu* – in the sense that contamination would either be eliminated or would become distinguishable from active intake for doping purposes – proved impracticable, and WADA had to default to legal surrogates involving regulatory approximation and standardisation.

Hence, proclaimed elucidation may conceal lingering areas of denial and resignation. The regulatory arrangements promulgated by WADA preserve frame consistency, but ignorance may not so much be removed as relocated: unknowns about contamination are – partially – lifted, but are replaced by unknowns about the extent to which the regulatory arrangements address the problem. Thus, it is unsure to what extent the reporting levels set reduce the risk of adverse analytical findings resulting from common medications or foodstuff. It is equally unknown how many athletes are sanctioned in full because they fail to prove that their findings arose from a contaminated product.

Our study's reliance on WADA Minutes is thus both an asset and a limitation, in that it reveals what knowledge is displayed by WADA to its stakeholders, but only that knowledge. Contamination that has not yet been registered by WADA is missing, as would situations that WADA does not disclose to stakeholders or which participants stay silent on. Other contamination scenarios, such as the 23 Chinese swimmers involving an alleged contamination at their Chinese hotel venue, may simply stay under the radar if WADA agrees to the case remaining confidential, and may, if revealed at a later point, fuel accusations of cover up and inequalities in dealing with that delicate topic (Section 1). WADA had to convene an extraordinary meeting of its Foundation Board to rally its stakeholders and commission an external investigator to scrutinise its management of the case (WADA Release of 17 May 2024). As a politically exposed organisation in a tense geopolitical environment, WADA is the object of intense scrutiny and its ability to showcase consistency without sacrificing transparency appears, more than ever, key (see e.g. perceived discrepancies in the treatment afforded to the Chinese swimmers versus Russian ice-skater Kamila Valieva, for the same substance (USADA Statement 1 May 2024)).

Thus, WADA Minutes to this day focus on only three sources of contamination, and in WADA's framing contamination remains an exceptional occurrence that was successfully brought under control. Other sources are only mentioned *en passant*, or never thematised at all. Meanwhile, the discussion in scientific literature has evolved to be much broader, pointing at contamination through various paths (e.g. skin, saliva, etc.). Ubiquitous exposure of the athlete through environmental contaminants is characterised as the 'new normal' (Thevis *et al.* 2023), with authors coining the expression 'athlete exposome' for this situation (Thevis *et al.* 2021) which could deeply impact doping control in future.

## Disclosure statement

No potential conflict of interest was reported by the author(s).

## Data availability statement

The data that support the findings of this study were derived exclusively from resources available in the public domain, at: Raising the game for clean sport | World Anti Doping Agency (wada-ama.org)

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