We Need to Talk About Turmeric

A common spice, a rare risk, and what Health Canada's actions reveal

Context:

As many Canadians know, turmeric is a common spice. It has been used for centuries and is one of the most consumed spices on earth. Its uses are broad—including medicine and cosmetics—but it is most often consumed in food, including traditional recipes found in Asia, the Middle East, South America, the Mediterranean, and other regions worldwide.

Over the past five years, turmeric has become the focus of regulatory actions related to liver disease in a handful of countries, notably Italy, Australia, and most recently, Canada.

It is extremely rare for a common spice to be implicated in national regulatory actions. Issues surrounding ingredients that appear in many commodities—and that are consumed in high quantities, like turmeric—are usually limited to discrete supply-chain problems (such as isolated contamination, mislabelling, or packaging issues). This is because ingredients consumed daily by billions of people worldwide fall into a category of exposure where even very small risks would be expected to trigger widespread, internationally observable trends in human-health harms.

Canada alone imported 2.29 million kilograms of turmeric in 2023.
Proportionally that's about 55 grams of turmeric consumed by every Canadian each year.

While there have been no such trends, Health Canada has recently reached a conclusion that the concern surrounding turmeric is not an isolated issue, but rather an intrinsic risk it poses to the liver when consumed in **any** quantity.

Given the profound level of baseline exposure of turmeric in the population, and a risk associated with a major organ system, Health Canada's conclusion and the associated 'risk-based' analysis offer an important view into how the Government of Canada:

1. Identifies risks and analyses them (Health Canada's 'risk-based' approach);
2. Engages with the public (health professionals, academia, industry and the general population); and
3. Designs risk mitigations based on the type of risk they have identified.

Key takeaway: What this common spice ultimately exposes are institutional practices and operational constraints embedded in Health Canada's culture - practices that undermine any assertion of a truly federal 'risk-based' approach to the monitoring of medicines.

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Food, Medicine – same ingredient:
The turmeric in food and in medicine is the same. Like most ingredients common to medicines and food, turmeric is often sourced from the same raw-material providers. The active compounds found in turmeric are called curcuminoids/curcumin. While some of these compounds can influence how much turmeric is absorbed into the body, Health Canada's conclusions apply equally to all forms.

Health Canada is also aware - through product quality and manufacturing data - that most of the turmeric consumed in Canada as a food or medicine is the food type. This analysis and related risk-based approaches were conducted by the same area of Health Canada that is responsible for monitoring the safety of prescription and non-prescription medicines and applied the same level of clinical expertise.

It is for this reason that Health Canada's medical perspective of turmeric provides important revelations into how the Government of Canada approaches all medicines. The approach used on turmeric can also inform Health Canada evaluates the relationships between health products, food and consumer products that contain the exact same ingredients.

How Does the Government of Canada Identify and Analyze Risks?

Health Canada's 'risk-based' approach:
Health Canada has published guidance documents that speak to risk-based analysis and risk management. They include program-specific documents that date back as far as the late 1990s, to higher level 'corporate risk' style documents such as Health Canada's Risk Management Guide (2023). While each contain descriptions of risk-based approaches (such as identifying likelihoods of risk and impact), there is no single document that explains how Health Canada evaluates and monitors the safety of medicines using a risk-based framework.

In general, the guidance suggests that resources will be directed toward the greatest threats to safety. However, well known confounders to these assertions are never identified nor discussed. They include:

- Inflexibility based on federal human resource law and Treasury Board funding models that impede moving employees and funding envelopes between health programs based on the greatest health risks to Canadians;
- The absence of departmental governance dedicated to evaluating and taking decisions based on relative risks;
- The lack of relative risk measures, and enforcement practices between the RCMP and Health Canada inspectors - that would enable coordinated devotion of resources towards the greatest health risks facing Canadians within their respective scopes of responsibility and;
- The fact that none of Health Canada's program performance metrics are validated against patient outputs or other human health metrics.

An exploration of what was - and was not - considered in Health Canada's turmeric analysis sheds light on the department's actual risk-based practices and highlights opportunities to improve Canada's federal approach to health.

Health Canada's risk-based considerations of turmeric:

For over 20 years, experts around the world have been investigating a rare condition called **drug-induced idiosyncratic liver disease -** a form of liver failure that can occur at any time, and that is not related to dose or duration of exposure. Health Canada's evaluation of turmeric represents the first time a widely consumed food ingredient, that when consumed in any quantity, could trigger 'drug induced' idiosyncratic liver disease.

There have been **no confirmed cases** of turmeric-related drug-induced idiosyncratic liver disease in Canada.

Research has pointed to certain genetic predispositions (e.g. allele HLA-B35:01*) among people; however, the relationship isn't reliable, and at present, there is no concrete way to identify those in whom this disease will develop. Drug induced idiosyncratic liver disease been associated with a variety of prescription drugs - including antivirals, non-steroidal anti-inflammatories, antibiotics, and a handful of herbal remedies including Green Tea Extract (higher concentration than the tea - consumed as food). Considerations of this condition are already incorporated into Canada's provincial clinical practice guidelines.

The trigger that led to Health Canada's analysis stemmed from the actions taken by other countries, including Italy, and more significantly Australia. Given idiosyncratic liver disease is not easy to diagnose many baseline factors including diet and common liver issues must first be eliminated. For all three countries, that information includes baseline rates of liver disease and how many people of Indian descent, who may consume up to 2-2.5 grams of turmeric a day, make up the respective populations.

Baseline context used by regulators

Country	Non-Alcohol Fatty Liver Disease prevalence	Persons of Indian origin
Italy	~20-30+%	39,170
Australia	~33%	626,000
Canada	~25%	1,859,680

Although turmeric is present in common processed foods (i.e.: macaroni and cheese) and widely used across many cultures, individuals of Indian descent are among the highest consumers.

At a minimum, in a culturally diverse country such as Canada, the dietary practices of the Indian diaspora should have been explicitly included in any authentic "risk-based" assessment.

Baseline Liver Health Context

The most common form of liver disease worldwide is **non-alcohol related fatty liver disease**. Other forms of liver disease are also relevant, and an estimated 1-9% of asymptomatic patients, in the general population, have elevated liver enzyme levels upon screening. Benign conditions, such as Gilbert's syndrome, affecting 2-7% of the population, can influence liver-function tests.

Key takeaway: Demonstrating a liver health risk that exceeds established baseline factors for one of the most widely consumed spices globally is a key challenge underlying Health Canada's risk-based analysis.

Case Review and Global Exposure

Once concerns were triggered, Health Canada reviewed 12 Canadian cases of liver injury (hepatotoxicity) in patients using either turmeric- or curcuminoid-containing medicines orally. All cases had insufficient clinical information and/or the presence of confounders (e.g. underlying conditions, or factors that may have contributed to the occurrence of hepatotoxicity - such as underlying medical conditions and use of other medications that are known to affect the liver) which limited further assessment. Health Canada nevertheless concluded that turmeric could not be ruled out as a contributing factor. Details regarding confounders were not made public.

Given that turmeric is one of the most consumed food ingredients in the world, the relative exposure and risk profile of turmeric compared to other confounders is relevant to understanding the likelihood of this risk. Health Canada reviewed some of the same data sets as Australia - including reports from over 60 people from around the world who experienced hepatotoxicity while using turmeric- or curcuminoid-containing health products orally. Two deaths were attributed to hepatotoxicity linked with the oral use of either turmeric- or curcuminoid-containing health products. Further details regarding the deaths were not made available.

While limited in number, the seriousness of these events should have triggered a holistic analysis of likelihood. For example, what was the overall global exposure to turmeric over the period in which the events took place. This can be estimated by considering that hospitals have been recording liver disease for approximately 50 years, and adverse events for medicines have been collected voluntarily for 60-70 years. Mandatory reporting of adverse events for turmeric medicines started in Canada in 2004. With billions consuming significant amounts of turmeric daily, the exposure rate versus incident rate places significant limits on the relevance of the identified risk.

Every country also has different approaches to the management of quality. While Canada has one of, if not the safest, supply of food and natural medicines in the world, the countries where the serious events took place may not benefit from the same quality control measures. There are known food and medicine contaminants that can impact the liver.

This scenario presents a legitimate challenge. It is impossible to identify who may react to turmeric in this way, and complete avoidance of any level of exposure to one of the worlds most consumed spices is impractical. As is speaking to one's doctor prior to any form of exposure. Considering that low level exposure to turmeric can also occur through cosmetics and clothing dyes.

Recommending that Canadians avoid any level of turmeric and/or to speak to a doctor before doing so, based on an idiosyncratic concern, is profoundly culturally insensitive. These constraints have direct implications on the type of risk mitigation that will make a material difference to the lives of Canadians, and how Health Canada manages these is revealing.

Health Canada concluded that "although cases of hepatotoxicity are rare and its underlying cause is often unclear, the reports reviewed suggest a possible link between the oral use of either turmeric or curcuminoids and the risk of hepatotoxicity under conditions similar to how these products are used in Canada". The 'conditions' to which Health Canada refers were not explained in their analysis. This is important given the information that was ultimately excluded from both the Australian and Canadian analysis.

The extent of caveated language used by Health Canada is also critical to establishing a spectrum of certainty upon which risk-based decision are made. Setting priorities based on risk and designing interventions that

correspond to increasing levels of risk, rely on this spectrum of language to comprehend how real-world action is codified against the data in question.

Key takeaway: Treating all risks as equal in priority and response blurs the distinction between minor and serious medical risks, increasing the likelihood of harm. Such an approach is inconsistent with risk-based decision-making.

Risk inflation factor:

When Health Canada monitors the safety of medicines, they incorporate a risk inflation factor related to underreporting. That is, Health Canada always assumes, without calibration, that an unspecified number of serious adverse events are taking place in Canada and around the world that:

- have gone unnoticed;
- have not been reported to Health Canada; or
- have been incorrectly characterized by whomever reported the reaction.

There are long standing challenges to Health Canada's use of underreporting as a risk inflator. One key challenge that applies to turmeric, as well as all medicines, is absence of error margins (calibration). In Canada there has never been an exercise to introduce a science-based, or even basic mathematical calibration of error that would contain the inflation factor of underreporting. A calibration exercise is necessary to prevent lower risks from obscuring greater risks. There are existing mathematical models that can be used to contain presumptions of risk derived from underreported events. These include the reliable reporting of certain hard data points such as deaths and other severe reactions.

Key takeaway: Calibrating risk inflation would allow the federal government to prevent serious risks from being masked by low-level concerns.

Message exhaustion is a well known and serious threat to the effectiveness of government risk management. In other words, the public can sense a government that is 'crying wolf' and public receptivity to government warnings can be harmed when genuine risks exist.

Health Canada risk-based exclusions regarding turmeric

Exclusions can harm human health and the credibility of the Government when they don't align with expectations of population-based protection. This is especially true if exclusions are based on unrealistic presumptions of human behaviour, or if they are not biologically plausible. If an exclusion is inappropriate, then the resulting risk mitigation is likely to fail and can even lead to public impressions that the Government is acting out of prejudice or incompetence.

Below is a summary of the exclusions Health Canada made in its analysis of turmeric include:

- All food exposure information in the evaluation of risk probability and risk mitigation;
- All previously evaluated data in traditional medicinal (Ayurvedic) uses, including that used to support existing labelling regarding the benefits of turmeric on liver health;
- All existing pre-clinical data regarding the benefit and/or impacts of turmeric on liver health;
- A recent 2024 meta-analysis of clinical data for patients with fatty liver disease, published in the Canadian Liver Journal, in which turmeric (curcumin) was found to have neutral to beneficial impacts on the liver;
- The use of turmeric as a non-medicinal ingredient in medicines, cosmetics, dyes in clothing and any other uses;
- Canada's demographics of consumption as well as food and medicine manufacturing quality controls;

- Considerations of the Canada/US border, across which identical turmeric products labelled without Health Canada's warnings, even those manufactured in the same facilities, can readily pass without duties/taxes/tariffs.

These exclusions should cause varying degrees of concern. In particular, exclusions of beneficial information can create prejudice against research on a national level and discourage appropriate healthcare practices. Excluding promising evidence on turmeric's potential role in addressing Canada's leading cause of liver disease limits the completeness of a public health assessment.

In addition, and what is very important to respecting Canadians the healthcare system, is the federal responsibility to reconcile conflicting data when providing access to medicines using rational clinical methods. This is particularly important for products that people choose themselves and even more so when the risk is associated with ingredients that are available as food, medicines and other commodities.
By excluding evidence that demonstrates positive associations between turmeric and liver health, Health Canada has committed itself to producing confusing/conflicting labels and the potential overuse of recommendations to seek medical counselling for a common spice. This can represent an inappropriate delegation of responsibility to individuals and the healthcare system.

Key takeaway: The federal government should never pass accountability to citizens and/or the healthcare systems when it comes to analyzing and interpreting conflicting benefit and risk data before providing access to medicines.

Turmeric Down Under: Key features of the Australian analysis on which Health Canada relied

The division of the Australian government that conducted the analysis of turmeric is accountable for medicines - not food. Obviously bureaucratic divisions of accountability have no bearing on how the human body responds to the risk associated with an ingredient. Regardless, the Australian government made clear in their evaluation that they had no intention of providing advice regarding, nor conducting an analysis that would bear a holistic, population-based outcome.

In addition to justifying their position through bureaucratic divisions of responsibility, the Australian government also stated that 'it does not appear practical' to consider food consumption – further describing it as 'out of scope'. The Australian government also made clear that any medical benefit of turmeric in an animal or a human would be excluded from their analysis as that particular division of the government was not the accountable for evaluating this information.

One acknowledgement was made that 'there is a significant body of non-clinical data that reported hepatoprotective effects' prior to excluding this data from any considerations of risk. The benefits of turmeric were discussed in the context of the proposed risk mitigations, which were limited to label warnings. The material suggested that Australian consumers only expect health benefits from consuming turmeric when the turmeric is in a supplement format (a pill) and not in a food format. It was then implied that these consumer expectations justified the inconsistent application of the risk mitigations to supplements and not food. No evidence was provided to support this consumer perception nor the lack of biological plausibility in terms of the need to protect the general public from exposure to an ingredient regardless of its format.

The analysis included covered different forms of turmeric that had higher bioavailability, as well as synthetic forms. No differentiation in the data could be made that would result in the establishment of any kind of exposure threshold or relative risk consideration against traditional food and medicine forms of turmeric.

The Australian government also rejected all published peer reviewed literature regarding the safety of turmeric based on a justification that none of the study populations alone, or combined, added up to greater than 30,000 individuals. This exclusion was established by applying a pharmaceutical research theory used to detect rare adverse events. It is likely that the Australian government's use of this form of calculus to exclude safety research surrounding one of the worlds most consumed spices is the first time any government has ever applied it in this manner. The utility of this methodology in this context is undoubtedly untested if not entirely inappropriate.

In the history of humankind, it is estimated that less then 3% of clinical trials (polio vaccines are an example) have ever included more than 30K patients.

The Australian government proposed pediatric dosing of turmeric ranging from 36mgs to 123mgs depending on age. This is notable given a common child home remedy/beverage involving turmeric is golden milk, which can be made using a teaspoon of turmeric (150mgs). In addition, in a study of "Tolerability of curcumin in pediatric inflammatory bowel disease: a forced-dose titration study" researchers found that all patients tolerated curcumin well up to 2g twice daily, for three weeks. Ultimately the risk mitigation approach (labelling) and conclusions of the Australian government were nearly identical to that of Health Canada.

One thing that the Australian government does do, that Health Canada does not, is consult their public. They did through a document titled: "Proposed changes to requirements for listed medicine ingredients: Annual low-negligible risk changes 2023-2024". The decision of the Australian government to devote public resources to an exercise that is openly described as both 'low-negligible' and not based on a holistic analysis, is notable.

How Health Canada Engages with the Public

Consultations:

In the past, Health Canada followed standard approaches to public engagement when monitoring the safety of medicine. These approaches captured legal requirements of due diligence between the government and industry. They also mobilized Canada's patient, research and health professional groups in order to obtain input into risk tolerances, leading edge expertise, as well as identify and implement meaningful risk mitigators. When an issue impacted a minority group or had nation-wide implications, additional engagement was further recognized and warranted.

Currently, there is no public engagement on the part of Health Canada as it pertains to monitoring of the safety of medicines. In fact, in multiple communications to stakeholders in 2025, that included but were not limited to turmeric, Health Canada stated: "*Additional labelling deemed necessary to mitigate risk identified based on post-market adverse events and to align with actions taken by other international jurisdictions* ***are not subject to consultation****;…" and "Public consultation is not required for label changes resulting from safety reviews."*

Oddly, the first communication was framed as a 'reminder' to stakeholders. Given that this posture has no relationship to past practices or known legal frameworks, Health Canada's use of the word 'reminder' projects at the very least a disingenuous if not hostile attitude towards public engagement.

Key takeaway: There can be no authentic 'risk-based' approach in Canada's government without public engagement.

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Health Canada's current 'no-consultation' posture has legal implications as well as those related to health and the legitimacy of the Government's 'risk-based' approaches.

Canadians (academia, health professionals, patient groups industry and all others), who wish to participate in Canada's federal monitoring of medicine must now participate in consultations conducted by the foreign jurisdictions on which Health Canada relies. This presents an official language challenge as no other country on earth has a regulatory system comparable to Canada's as well as both English and French as official languages.

Health Canada's no consultation practice also raises very serious concerns with due diligence. Even in the most severe cases of risk (involving multiple deaths in Canada), including past examples where complete market withdrawals of prescription drugs took place, Health Canada engaged the related companies, patients and experts within appropriate timelines and in a sensible order of operation. Due diligence ensures that the Government of Canada's actions are scientifically sound, clinically relevant and legally defensible. Health Canada's risk-based approach to the monitoring of medicines no longer respects any known form of due diligence.

For turmeric, the risk mitigation that Health Canada chose was to update the national (labelling) standard to include three new risk statements. This standard is incorporated into Canadian law and has the force of law. The updating of a national standard without consultation requires that the concern in question be related to an immediate risk to human health or safety.

Key takeaway: Neither of the analysis performed by Australia and Canada concluded that there is an immediate risk to human health and safety from the consumption of turmeric. Health Canada also allowed companies up to three years to implement the changes to the national standard, for which the lack of consultation was justified by an "immediate risk to human health or safety".

By grouping all forms of risk into one category (immediate) to deny consultation rights, Health Canada has adopted a deeply confused risk-based approach to monitoring the safety of medicines. Confusion that purposefully clouds extreme risks with low risks, all while publicly describing their actions as 'risk based'.

By excluding the relevant academic, health professional, and patient groups, Health Canada's 'risk-based' approach has institutionalized an isolation from Canada's prevailing clinical context when taking decisions that impact access to medicines. They have also squandered the opportunity to leverage these relationships to identify meaningful risk mitigations and maximize their impact. This isolation can also contribute to culturally insensitive analyses.

Without any form of public engagement, it is not surprising that the only mitigation chosen by Health Cabada was labelling. The utility of labels to address an idiosyncratic concern that cannot be identified in advance by anyone reading the label is discussed below.

Lastly, the area responsible for the monitoring of the safety of medicines in Canada no longer publishes their performance metrics in Health Canada's Departmental Performance Report. In Canada, performance reporting is required under the *Financial Administration Act* so that Canadians can validate the use of public funds. This area simply lists its performance as 'unavailable'.

The bottom line is that Health Canada has eliminated all imaginable avenues to develop trust in their risk-based approach to monitoring the safety of medicine.

How does Health Canada Manage Risks

Risk mitigation:

For Health Canada, risk mitigation is an altruistic exercise that should result in a meaningful action that improves health outcomes. The Government is not a private enterprise, who must consider their liabilities from the point of view of both perceived and real risks. This can result in risk mitigation actions on the part of private enterprise that appear overly cautious or of limited meaning. The federal government must act while demonstrating accountability for the meaningfulness of its work the healthcare system.

Distinguishing between the management of liability, like a private enterprise, and introducing new criminal obligations through government action (such as new mandatory labelling) is critical. This is critical to public confidence in government decision-making, prudent allocation of public resources, and the competitiveness of Canada's health sector as an investment destination.

The main question any government should ask itself when designing a risk mitigation for a safety concern surrounding a medicine is what is the goal of the mitigation? For example, is this an effort to:

- Stop the consumption of the ingredient by all people or an identifiable group of people?
- Rationalize consumption to a limited group of identifiable people, or to an appropriate level of exposure?
- Prevent the use of the ingredient in combination with other ingredients?
- Generate and/or gain, more knowledge about the concern or benefits of the ingredient, such as through research, active collaboration with those closest to the issue, or more detailed monitoring?

A risk-based mitigation should also consider how much resource the Government spends itself and that it expects of stakeholders to devote to the risk in question compared to other risks facing those implicated in the mitigation. For any idiosyncratic issue, and specifically the one involving turmeric, where the risk is low, and it is impossible to define groups of people or safe exposure levels, the risk mitigations should be tailored accordingly.

Based on the information highlighted above, Health Canada determined the following action as the most appropriate risk mitigation approach. On a subset of turmeric products on the Canadian market, it is now a crime under the *Food and Drug Act* if companies do not include, for consumers, information about:

- the warning signs and symptoms of hepatotoxicity, including yellowing of the eyes or skin, dark urine, nausea, vomiting and stomach pain;
- stopping the use of turmeric and consult a healthcare professional if symptoms occur; and
- consulting a healthcare professional before using turmeric if they have a liver disorder or are taking medications.

These warnings are to be applied to turmeric products that Health Canada classifies as medicine. That is those formats of turmeric, that also carry health claims on their labels, including claims about the benefits of turmeric on the liver. For example, this would include turmeric in a pill, and certain bars, teas and small volume beverages ('shots'). But the warnings of liver concerns are not required on the exact same amount (or more) of turmeric in food, which may also be in bars, teas or any beverages that is the same size or larger than a 'shot'.

Health Canada did not require warnings to medicines that contain turmeric as non-medicinal colouring or

flavouring agent. Warnings are not required on turmeric if it is packaged and labelled as a food, regardless of the intended purpose of use. Even though the risk assessment concluded that any level of exposure could trigger drug-induced idiosyncratic liver disease, warnings are also not required on cosmetics or other consumer goods that use turmeric as a colouring agent.

It must also be noted that all of Health Canada's approaches to the labelling of medicines fall under a suite of guidance and laws that Health Canada generally refers to as 'Plain Language Labelling'. The choice of three separate warning statements for turmeric, the allowance for conflicting statements of benefit and risk on the label, and the inconsistent way in which these warnings have been applied to products that contain the identical ingredient flows from this Plain Language Labelling approach.

→ **True Moderation Inc. will be publishing an article soon on Canada's Plain Language Labelling approach.**

Risk-based approach:

Health Canada's risk-based approach to risk mitigations raises challenges that flow from the nature of the analysis and the engagement tactics that led to the proposed solution.

The uneven application of the warnings to commodities that carry the identical risk, even those that are physically identical to each other (like bars and teas) can undermine public confidence in the Government's risk-based approach. The general public and health professionals are competent and will take note of these incongruities. It is valid to question why health professionals must be contacted prior to consuming something that is entrenched in Canada's food supply. The public may also take note of the cultural insensitivity to what appears to a be a presumption that Canadians only consume turmeric for their health when presented in a particular format.

An effort to build awareness (such as the goal stated in the Australian analysis), is not well-achieved through product labelling, but through engagement with provincial and professional entities responsible for clinical practice guidelines. Given this is the first time one of the worlds most consumed spices has been implicated in a risk that merits an awareness outcome, that engagement would likely entail further discussion of the risk itself.

In Canada were to adopt a different federal approach to health, better options would present themselves for the monitoring of all medicines, including those comprised of food ingredients.

Immediate options that were not considered by Health Canada (or Australia) include more meaningful efforts that capture holistic federal approaches to ingredient issues found in many commodities. For example, following engagement to characterize the best advice possible, broad communication to health professionals/hospitals to inform them of the potential issue as one to consider when they have patients presenting with liver failure symptoms. This can be done in concert with engagement surrounding updates to clinical practice guidelines.

Routine/annual messaging could come from Health Canada regarding common symptoms for any important issue to watch for when caring for ourselves or loved ones (allergy, liver, infection, heart-attack, stroke etc.). This form of broad messaging is an appropriate tool for managing low risk issues that are already grouped together in practice guidelines.

Public health priorities with respect to the management of the liver in general can be leveraged to insert details regarding turmeric. In particular the priority that surrounds non-alcohol related fatty liver disease.

Food sensitivities and other topics could be pooled into regular communications about navigating ingredients that appear in food and medicines.

Health Canada staff can engage researchers including their colleagues in the departments that also report to the Minister of Health (such as the Canadian Institutes of Health Research). This engagement could focus on the need for greater testing for genetic precursors that can lead to multiple forms of drug-induced idiosyncratic liver disease. Engagement of the populations that are most exposed and other governments who ought to be most concerned based on biological plausibility, such as India, are appropriate for low-risk issues that cannot be well defined.

It is acceptable given the baseline exposure to turmeric, baseline liver disease, and the inability to identify who is at risk for Health Canada to acknowledge that labels are not the best tool to manage this particular concern. It can also be acknowledged that for liability purposes companies in the food, medicine and cosmetic sectors may still choose to update their labels and highlight actions that have been taken.

Ultimately, if Health Canada introduces new criminal labelling rules as part of a risk mitigation plan, then they must consider the enforcement of those rules. If enforcement of the labelling will never be a priority due to the relative risk of other issues and/or the inconsistent application of labelling and the absence of due diligence threatens to undermine a successful enforcement action, then other mitigation options should be considered.

Key takeaway: Risk mitigations that are destined to fail legal tests and undermine public confidence, invite the establishment of poor jurisprudence – incubating the ability for bad actors to enter our market.

Closing Thoughts and Upcoming Advocacy

Canada has an opportunity. Health Canada's approach to turmeric highlights the need for our federal government to bring health decision-making closer to the reality in which Canadians live. At a time when our nation is facing many pressures, and our provinces and territories are shouldering the expenses of an aging population and shifting federal priorities, change is required.

"Risk-based" thinking must be more than a tag line that is attached to the operations of a federal department that has insulated itself from Canadians. Opportunities to address the concerns outlined in this document exist. Those opportunities involve greater integration and delegation of federal health interests to those people and organizations on the front line of healthcare.

A new federal approach to health could see Health Canada operations taken to a place where automation is favoured and more readily adopted. A place where federal interest can be altruistically redefined through the lens of measured and validated public benefit.

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Validation and Key References

Key considerations have been supported by publicly available research and/or direct work experience by the author at Health Canada.

Fatty Liver Disease

Australia
https://liver.org.au/your-liver/liver-diseases/fatty-liver-disease/
Canada
https://liver.ca/fatty-liver-disease/
Italy
https://pmc.ncbi.nlm.nih.gov/articles/PMC9827935/

Government Turmeric Analysis

Australia:
https://www.tga.gov.au/products/regulations-all-products/ingredients-and-scheduling-medicines-and-chemicals/permissible-ingredients-determination/schedule-changes-permissible-ingredients-determination#schedule-for-annual-lownegligible-risk-changes
Canada
https://dhpp.hpfb-dgpsa.ca/review-documents/resource/SSR1758121117867 -
Italy
https://www.iss.it/documents/20126/0/ANN_20_04_08.pdf

India Diaspora and Turmeric Consumption

Diaspora
https://www.mea.gov.in/population-of-overseas-indians.htm
Consumption
https://pmc.ncbi.nlm.nih.gov/articles/PMC5388087/
https://pmc.ncbi.nlm.nih.gov/articles/PMC7648309/

Clinical Guideline and Key Published Literature

British Columbia Practice Guideline: Abnormal Liver Chemistry - Evaluation and Interpretation:
https://www2.gov.bc.ca/gov/content/health/practitioner-professional-resources/bc-guidelines/abnormal-liver-chemistry
Tolerability of curcumin in pediatric inflammatory bowel disease: a forced-dose titration study
https://pubmed.ncbi.nlm.nih.gov/23059643/
Effects of curcumin in patients with non-alcoholic fatty liver disease: A systematic review and meta-analysis
https://pmc.ncbi.nlm.nih.gov/articles/PMC11089474/
Turmeric and Its Major Compound Curcumin on Health: Bioactive Effects and Safety Profiles for Food, Pharmaceutical, Biotechnological and Medicinal Applications
https://pmc.ncbi.nlm.nih.gov/articles/PMC7522354/
Idiosyncratic drug-induced liver injury: A short review
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The Evolving Profile of Idiosyncratic Drug-Induced Liver Injury
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