



JOINT FAO/WHO FOOD STANDARDS PROGRAMME

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LESSONS FROM THE COVID-19 PANDEMIC FOR IMPROVING FOOD SAFETY – SEEDING CHANGE IN CODEX

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SUMMARY

The COVID-19 pandemic has presented marked challenges to our food safety work and driven us to seriously rethink food safety systems at both the national and international levels. While specific national provisions to assure food safety have waned, national governments must remain agile in areas of: food security and avoiding disruption of the food supply, food safety preparedness and response, and application of the “One Health” concept in relation to any new food safety issues. Implementing innovative food controls because of lessons learned from the COVID-19 pandemic will be an on-going task for competent authorities around the world.

The experience of COVID-19 to date is echoing strongly throughout Codex and is seeding important changes. In particular, the pandemic has put a new spotlight on WTO SPS (and TBT) principles and the absolute necessity of a risk-based approach for food safety. New international guidance on all aspects of food safety preparedness and response would be of great benefit, along with development of new Codex procedures in an era of global digital communication.

Conversely, there are other areas within the Codex domain that present different challenges. New thinking will be needed on innovative decision-making frameworks for *non-food safety* provisions, clarifying the current mandate on global food supply issues e. g. food sustainability, food security, environmental protection, and re-evaluating legacy processes that now limit the overall efficiency of Codex e. g. scope and level of detail in reports of meetings.

The OECD has stated that the COVID-19 pandemic has not only had devastating effects on physical health and mortality but has touched every aspect of people’s well-being, with far-reaching consequences for how we live and work. The experiences to date from the COVID-19 pandemic are echoing strongly throughout Codex and are seeding important changes. While change in Codex must necessarily be gradual and incremental to carry all parties along with it, the recent experience of the COVID-19 pandemic will enable Codex to be more innovative and agile in developing future guidance on food control.

1. RETHINKING FOOD CONTROL SYSTEMS

The COVID-19 pandemic has irrevocably changed international thinking on food control. Alongside national public health responses, closure of international borders to people and goods has resulted in significant threats to the global food supply and has graphically illustrated the interconnectedness of all aspects of food production, processing, transport and sale in the world we live today.

Food safety first

WHO was an early international responder to the pandemic with “Covid-19 and food safety: Guidance for food businesses” published in April 2020. This interim guidance primarily covered keeping food industry personnel safe while supply chains continued to operate. WHO acknowledged that it was highly unlikely that people could contract COVID-19 from consuming food but did not rule out transmission via contaminated surfaces. Alongside personal protective equipment, social distancing, and monitoring of workers, stringent personal hygiene and sanitation measures were recommended to minimise the contamination of food surfaces and food

packaging.

in countries where COVID-19 was rampant in the community and food processing plants, early researchers were able to detect viral RNA on food and food packaging, as well as other surfaces. Laboratory experiments also identified survival to some degree on stainless steel and plastic surfaces and in meat broths. However, there was a dearth of evidence to suggest survival for any length of time and no peer-reviewed science to suggest foodborne transmission. New Zealand proved to be a real-world epidemiological experiment; importing more than a third of the food we consume from countries often experiencing high rates of COVID-19 infection, with no transmission of COVID-19.

The “ICMSF opinion on SARS-CoV-2 and its relationship to food safety” was published in September 2020, a time when vaccines were still unavailable. ICMSF was of the view that it was highly unlikely that ingestion of COVID-19 would result in illness, there was no documented evidence of food as a significant source, and the probability of transmission via inanimate surfaces appeared to be very low.

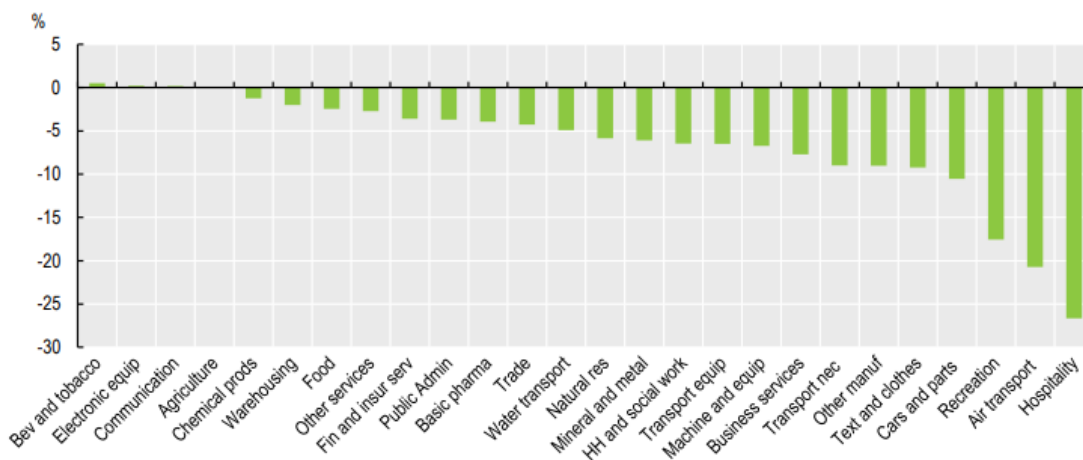
As scientific work accelerated, international organisations such as WHO, FAO, ICMSF and SFSDⁱ became more confident in ruling out food-borne transmission of COVID-19 and this was well explained in newer guidance documents. Updated guidance from FAO in August 2021 (“COVID-19: Guidance for preventing transmission of COVID-19 within food businesses”) reinforced that neither food nor food packaging is a pathway for the spread of viruses causing respiratory illnesses, including SARS-CoV-2.

Food security and disruption of the food supply

Faced with the COVID-19 pandemic, the complex mosaic of social and economic dynamics in different countries resulted in the implementation of markedly different public health and food supply interventions. While vigorous debate continues over the merits of different national approaches, an overarching consequence has been severe disruption to the global movement of people and food over the last three years.

Figure 1: Change in trade volumes per sector: OECD Trade Policy Paper, May 2022

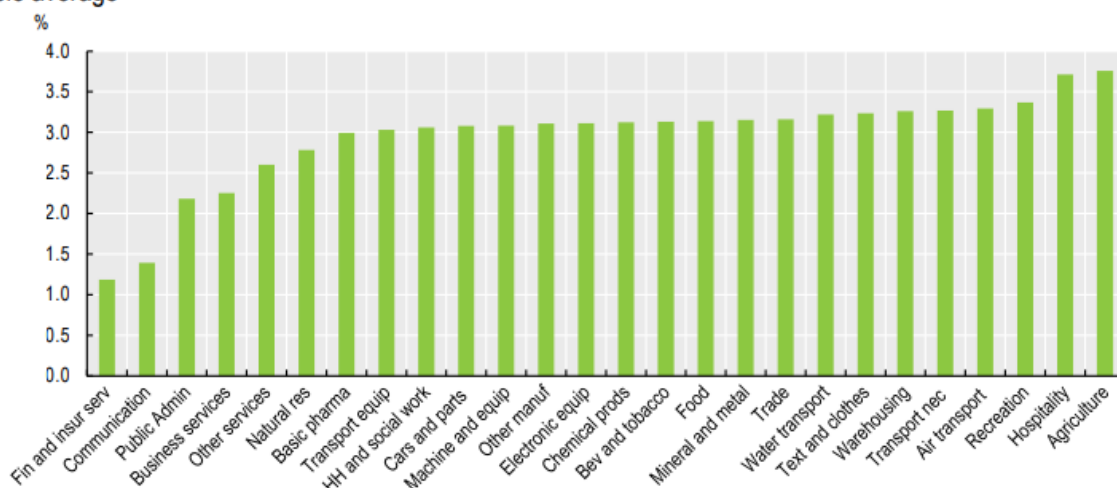
Percentage change from base



Note: Includes all COVID-19 factors implemented in the model.
Source: OECD METRO Model.

Figure 2: Labour productivity decline: OECD Trade Policy Paper, May 2022

Simple average



Source: Authors' calculations based on Espinoza and Reznikova (2020^[26]) and OECD METRO model.

Regional economic impacts have been highly heterogeneous. Adverse impacts have been amplified in economic specialisation sectors that are directly or indirectly exposed to the pandemic, participate in global supply chains and have a high share of SMEs ("Territorial impact of COVID-19: Managing the crisis and recovery across levels of government" February 2021). Governments have had to be flexible and adaptable in setting health, economic, social and fiscal priorities with the onset of new waves of infection. Effectiveness of national responses has also been influenced in unpredictable ways e. g. regions affected differently depending on "telework ability" which is compounded by digital divides.

All countries have examples of severe threats to food security and disruption of the food supply, with heterogeneity of impacts between exporting and importing countries often being pronounced. Small Pacific nations that are heavily reliant on food imports to ensure food security suffered severe threats to food security with limited availability of imported food and loss of local food production inputs. Conversely, New Zealand as a food exporting country suffered economic impacts: approximately one third of apple production left on the trees due to unavailability of containers and ships, other horticultural foods only partly harvested because of loss of immigrant seasonal workers, and approximately one quarter of chilled lamb exports frozen down because of delays in foreign port clearance.

COVID-19 has revealed a number of operational factors that cause disruption to global food supply chains during pandemics:

- Impact on the health of the workforce operating along the farm-to-fork continuum
- Closure of food businesses
- Unavailability of shipping and containers
- Inefficiencies of inspection and customs clearance at ports
- Gross food wastage due to transport delays and food recalls
- Destruction of airfreighted chilled food
- Imposition of new food assurance and certification requirements by importing countries.

Food safety preparedness and response

At the national level, governments were reasonably agile in implementing various legislative tools and publishing sector guidance to combat the pandemic, often in cooperation with industry. The intensity of public health measures varied with national infection rates; being stringent in countries like New Zealand remaining free and relatively benign in countries where transmission rates were high.

On the other hand, some countries remained adamant that imported food might be a transmission pathway and responded by imposing routine testing of workers, disinfection of food packaging, testing of food and food packaging throughout the food chain, more stringent (remote) verification and new certification requirements. Unlike measures to protect the health of workers, these measures lacked scientific justification and resulted in damaging food recalls, marked disruption of food chains, and increased compliance costs. This alone resulted in severe disruptions to food in trade and significantly increased compliance costs. Intensive vaccination programmes have since resulted in relaxation of public health control measures in most countries.

Rapid evolution of international guidance accompanied the responses of national competent authorities to the

pandemic, with FAO stating in August 2021 “it is important for the food industry and authorities regulating the food industry to protect all workers from person-to-person spread of these viruses by providing a safe work environment, promoting personal hygiene measures and providing training on food hygiene principles. These measures should be risk-based and proportionate to the level of expected food business worker exposure to SARS-CoV-2: In communities where SARS-CoV-2 is not actively circulating, practices consistent with effective food safety management systems may be sufficient. In contrast, as the prevalence of COVID-19 increases in the community, the prevention measures adopted should also increase”.

Measures to minimise human-to-human transmission remain inextricably woven into the fabric of food control systems around the world and a key aspect has been the necessity of shared actions by all parties.

“One Health”

“One Health” suggests that the health of humans, animals and the environment are inextricably linked and a multidisciplinary systemic approach is needed to achieve sustainable food production, food safety, food security and appropriate environmental stewardship. This includes recognition of disasters and transboundary diseases as potentially having lasting effects on food safety and food security.

Many actors have endorsed and developed the “One Health” concept and it has gained considerable traction amongst relevant international organisations. During the early stages of the COVID-19 pandemic, there was only limited expression across all sectors of a systematic “One Health” approach to evaluation and mitigation of foodborne risks to consumers.

LESSONS LEARNED

From a food safety perspective, governments and international organisations were initially focused on the likelihood of contamination of food and packaging by food handlers being a pathway for spread of COVID-19. As the pandemic gathered pace, evidence rapidly accumulated as to the extremely low possibility of food as a transmission pathway.

The COVID-19 pandemic experience dramatically illustrates the importance of effective and science-driven risk management by all actors in the food chain. Application of the precautionary principle by competent authorities when food safety outcomes are uncertain or unknown is a cornerstone of the WTO SPS Agreement and is a legitimate basis for interim food safety controls. However, governments must be focused and agile in evaluating new science and balancing the proportionality of adverse impacts of all kinds against the level of risk mitigation offered by any interim food control measures.

Figure 3: Food safety risk management



A profound lesson learned from the COVID-19 pandemic has been a demonstration of the vulnerability of food production systems to the health status of workers. Food processing establishments are particularly likely to serve as a superspreader sites for viral pathogens as workers often work long hours in very close proximity to others under cool and humid conditions. COVID-19 has also spurred debate on the level of monitoring of worker health that should be undertaken in other situations e. g. risk-based monitoring of the disease status of a food handler population for Hepatitis A. Future food safety preparedness and response plans for disasters and disease outbreaks will undoubtedly take these learnings into account.

It is likely that food chain disruptions and rebalancing of the availability of transport will reverberate for years to come and COVID-19 has accelerated innovation in several aspects of food chain operations:

- Ability to diversify production in times of disaster or pandemic e. g. switching from chilled to frozen production at source, switching from fresh to processed food products, new interim storage technologies.
- Using automation to reduce reliance on worker numbers, from harvest through to palletisation of the final product
- Contingency plans for non-container transport e. g. “back to the future” refrigerated holds
- Maximising digital communication services.

Competent authorities have also had some important learnings. COVID-19 has accelerated implementation of

digitalized (paperless) systems for official assurances for food in trade and there are new demands for international guidance on such systems.

The challenge to traditional verification and audit of food control systems because of potential contamination events and limitations on people movements stimulated a number of national governments to introduce new tools, especially those using information and communication technologies (ICTs). Non-routine use of remote ICT-based tools for food intended for export has been very helpful in maintaining assurances and limiting disruption to the food supply. Use of remote verification and audit tools has already enabled competent authorities to reduce staff costs, record visits and positively involve and share results with other stakeholders. Beyond COVID-19, bilaterally agreed use of such tools holds the promise of a more agile response to any future pandemics, real-time calibration of performance and greater regulatory efficiencies.

Investment in prevention and containment measures in the face of global pandemics such as COVID-19 can have enormous agri-business benefits at the national level. In the case of New Zealand, early border restrictions and rapid development of detailed guidance for primary industries by government allowed the food industry to maintain unfettered access to export markets while ensuring food security at home.

2. SEEDING CHANGE IN CODEX

Codex standards

Many Codex standards and guidelines contain globally harmonised provisions that pertain to food control in the time of COVID-19 and the on-going pandemic has highlighted the high generic value of these in assuring the safety of food and fair-trade practices. The pandemic has also proved to be potent vehicle for seeding innovative change in Codex and this will complement the strategic goals of WHO and FAO to strengthen national food control systems.

Reinforcing the risk-based approach to food safety controls

Responding to the COVID-19 pandemic put a new spotlight on WTO SPS principles and the necessity of a risk-based approach in deciding on food safety controls in Codex. The difference between a *hazard* and a *risk* was brought into sharp relief with the occasional detection of COVID-19 RNA on food and food packaging (the hazard) but no evidence emerging of transmission to consumers (the risk). Designing and implementing food control measures based on the probability of consumers becoming ill from the hazard in question is the core concept in Codex guidelines on application of risk analysis by governments.

The early designation of COVID-19 as a possible foodborne risk to consumers also brings into sharp relief the need to balance “other legitimate factors” (OLFs) in risk management decisions. Taking into account the proportionality of an extremely low potential risk compared with high impacts on food security and trade has recently been incorporated in Codex guidelines for rapid risk analysis following instances of detection of contaminants in foods where there is no regulatory level. Where measured levels do not exceed the cut-off value of 1 µg/kg, a risk management decision for a food consignment does not require a specific risk management response. Proposed new work on the use of environmental inhibitors in agriculture to mitigate greenhouse gas emissions might well incorporate this approach to risk management.

A whole-of-food-chain approach to food safety and food assurances is a holistic concept that is championed in risk analysis and this has been hugely brought home by the COVID-19 pandemic. Accepting the interconnectedness of all things in the food supply and sharing responsibilities for management of adverse events with industry should echo through all future standards and guidelines developed by Codex.

Food safety preparedness and response

The new availability of detailed food sector protocols to prevent person-to-person transmission of COVID-19 in food businesses throughout the food chain offers a new resource to Codex in development of new guidelines where the food processing environment itself is a potent risk factor. A collaborative “One Health” approach, with links in Codex standards and guidelines to food control provisions that may be developed under the mandate of WHO, OIE and IPPC, would also strengthen a more holistic approach to control measures applied throughout the food chain.

The COVID-19 pandemic has fostered increased uptake of paperless systems for official assurances for food in trade. However, difficulties are well recognised, even in countries that have invested in e-certification for a decade or more. These include intermittent web platform failures, partners changing systems and requirements, and confusion over language. The strong demand for international guidance on such systems led the CAC to recently agree principles and guidelines for global use.

The COVID-19 experience with bilaterally agreed arrangements for remote verification and audit of food control systems using tools based on ICTs has led directly to new thinking by Codex in this area. ICT-based tools

allow competent authorities and food business operators to better target food control resources in higher-risk situations, thereby enhancing food safety as well as maintaining market assurances. However, calibration of outputs, network connection issues, language barriers, limited camera access on plant and restrictive national legislation are some of the factors that currently relegate remote verification and audit as activities supplementary to physical visits. Following an expedited process for presenting new work proposals, CAC45 has agreed a schedule for CCFICS work in this area.

New Codex procedures in an era of global digital communication

Codex activities have long depended on physical meetings and fixed committee schedules, but this situation was immediately under challenge with the arrival of the COVID-19 pandemic. With heavy restrictions on travel and ever-increasing travel costs, new mechanisms were needed if work was to continue, with virtual and “hybrid” meetings being obvious options. At the same time, it was recognized that such meetings would always be supplementary to physical meetings rather than displacing them.

CCEXEC was initially charged with exploring the possibility of meetings using digital technologies in real time and Codex has been successful in moving into this new way of communication. Virtual modes of working must be efficient, transparent and inclusive and CCEXEC completed procedural guidelines in 2021. Members have also been very willing to grasp parallel opportunities e. g. broader participation at the country level and wider use of electronic working groups.

The CAC recently adopted procedural guidance for committees working by correspondence and this is a further mechanism whereby Codex work can be duly moved on in times of restricted travel and escalating costs of meetings. Increasing use of formal and informal virtual meetings, together with working by correspondence, should also engender greater flexibility in forward planning of physical meetings.

Other issues

There are several non-food safety areas where moving from the more fixed mindset of the past to an innovative mindset of the future presents different challenges for Codex.

Achieving a greater level of clarity on the exact nature of OLFs and the extent to which they can be considered in Codex decisions remains somewhat elusive. Members are generally not in favour of reopening the principles in the Procedural Manual on this topic but in the interests of consistent and transparent inputs to decision-making within the mandate of Codex, more guidance in this area would be helpful. Even for OLFs that are clearly within the Codex mandate, there is a dearth of frameworks to guide multifactor decision making.

Better clarity is also needed on the exact role of Codex in regard to food quality. Perceptions of “quality” range from basic characteristics of a food through to the grade of one product versus another and Codex commodity standards are inconsistent in this respect.

The mandate of Codex currently excludes direct consideration of food sustainability, food security and environmental protection. Nevertheless, one option to seed further actions might be opinions in relevant food commodity standards and guidelines declaring that measures are *consistent with* relevant international goals e. g. the Sustainable Development Goals (SDGs) adopted by the 73rd World Health Assembly in 2020. Technical committees sometimes inherit preliminary discussions on questions of mandate by default, but they are often ill-equipped to make progress in the absence of high-level guidance from the CAC and the CCGP.

Procedural efficiencies

It often seems that the CAC, committees and the Secretariat are increasingly bogged down by legacy procedures in the face of ever-increasing demands for time for detailed technical discussions and more concise reporting from meetings. The CAC has done well to impose time limits on speakers. Further progress could be made by focusing the content of reports only on the status of the discussion papers and the proposed standards and guidelines, especially in the case of the CAC. With a full audio recording available from each meeting, Members would have verbatim recourse to any further detail that they may require.

The checkered history of Codex in seeking maximum residue levels (MRLs) for hormone growth promoters (HGP) is known to all and several procedural pathways have been suggested over the years to try and navigate a pathway to adoption. Against a vast backdrop of successful standard setting covering a vast range of food controls, this is arguably the singular failure of Codex in modern times. The stumbling block usually revolves around prohibition of the substance in question in national or federal legislation and current critical review processes will need to be explicit on this issue when offering solutions.

CONCLUSION

The OECD has stated that the COVID-19 pandemic has not only had devastating effects on physical health and mortality but has touched every aspect of people’s well-being, with far-reaching consequences for how we live and work. In respect of food safety, the COVID-19 pandemic has presented a range of challenges and driven us to seriously rethink our food control systems at both the national and international levels.

The experiences to date from the COVID-19 pandemic are echoing strongly throughout Codex and are seeding important changes. Change in Codex must necessarily be gradual and incremental so as to carry all parties along with it. Notwithstanding this, an innovative mindset that is fertilized by the recent experience of the COVID-19 pandemic will enable Codex to be far better prepared for the future.

ⁱ Strategic Food Safety Dialogue