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# **A Qualitative Assessment of the Risks of Transmission of Microorganisms to Humans Resulting from the Consumption of Raw Milk and Raw Cream in Norway**

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## **Authors' contributions**

*This work was carried out in collaboration among all authors. The opinion has been assessed and approved by the Panel on Biological Hazards of VKM. All authors read and approved the final manuscript.*

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## **ABSTRACT**

Pasteurisation of all consumer milk became mandatory in Norway in 1953, and this has been an important component of the protective measures that have reduced the incidence of milk and food borne diseases. In 2004, a complete recast of the hygiene legislation addressing both food hygiene and veterinary aspects was adopted by the European Union, the so-called "Hygiene package". According to this legislation, each member state may, on its own initiative, prohibit or restrict the marketing of some foods like raw milk or raw cream, intended for direct human consumption within its territory. In response to this, the Norwegian Food Safety Authority (Mattilsynet) commissioned the Panel on Biological Hazards of the Norwegian Scientific Committee for Food Safety (Vitenskapskomiteén for mattrygghet), to prepare a risk assessment regarding the consumption of raw milk and raw cream. In response, an ad hoc Working Group of experts was appointed with the mandate to draft a risk assessment which should include the following components: identification

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and characterization of microbiological hazardous agents present in Norwegian raw milk; characterization of the public health consequences of these agents; assessment of the probability of transmission of these agents to humans by distribution of raw milk and cream. Additionally, the risk assessment should identify potential hazards to human health from the importation of raw milk, identify hazards associated with equipment used for production and storage of raw milk, and assess the risks associated with the potential transfer of antimicrobial resistance genes.

Observations concerning infections related to consumption of raw milk and raw cream in Norway, other European countries and North America, show that a number of pathogenic microorganisms, including emerging pathogens, can occur in raw milk and raw cream. These pathogenic microorganisms and their toxins may represent a real threat to human health. The panel concluded that the risks associated with *E. coli* O157:H7 and other EHEC, *C. jejuni* and *L. monocytogenes* in raw milk and cream are high. Furthermore the importation of raw milk to Norway may result in the (re)introduction of microorganisms, which have been eradicated, or never previously have been present, in Norway. This can have serious consequences for both human and animal health.

**Keywords:** *The Norwegian Scientific Committee for Food Safety; The VKM; E. coli O157:H7.*

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**NOTE:**

This work was carried out in collaboration between all authors. The opinion has been assessed and approved by the Panel on Biological Hazards of VKM. All authors read and approved the final manuscript.

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**COMPETING INTERESTS**

Authors have declared that no competing interests exist.

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