Safely Serving Raw Ground Beef Dishes in Ontario Food Service Premises: A Jurisdictional Review of Regulatory Requirements

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Background

- Raw ground beef dishes such as steak tartare, kibbeh nayyeh, and kitfo are not made from hamburger but are typically made from ground whole cuts of beef from a single animal(1).
- Although there may be less risk associated with consuming raw ground beef from a single cut of beef in comparison to hamburger, which may be made up of several hundred different animals, there is still a risk of exposure to pathogenic bacteria.(4).
- Pathogenic contaminants are generally acquired during the slaughtering process and are found on the outer surface of whole cuts of meat while the interior is essentially sterile due to densely-packed muscle fibers.(4).
- During the grounding process surface contaminants are incorporated throughout the mixture as the beef is broken down into mince.
- Due to the associated risks, serving raw ground beef dishes in food service premises is currently in contravention of the Ontario Food Premises Regulation(2).
- Despite being considered illegal, raw ground beef dishes are still being sold in a number of restaurants across Ontario and Canada.
- Enforcement from boards of health has been inconsistent with some operators serving these dishes on their menus for many years.
- This review aims to examine the policies and regulatory requirements of other jurisdictions that permit raw ground beef dishes to be served

Associated Food Safety Risks

- Pathogens commonly associated with raw ground beef include, but are not limited to: *Escherichia coli* O157:H7, *Salmonella* spp., *Campylobacter jejuni*, *Listeria monocytogenes*, and *Staphylococcus aureus*(1).
- These pathogens have relatively low infectious doses and can have severe symptoms such as gastroenteritis, hemolytic uremic syndrome, miscarriage in pregnant women, and death(9).
- A number of foodborne illness outbreaks have been associated with these raw ground beef dishes in Canada, the Netherlands, France, and the US(1).

Methodology

- This study reviewed current policies and regulations in Canada, the UK, the European Union, the US, Australia, and New Zealand surrounding the serving of raw ground or minced beef dishes in food premises.
- Jurisdictions that permitted the serving of raw ground or minced beef dishes in food premises were further reviewed to identify requirements and best practices to mitigate the risk of foodborne illness.
- Policies and regulations were identified and searched using key terms.

Steak Tartare
(http://allrecipes.co.uk/recipe/23472/steak-tartare.aspx)

Lebanese Kibbeh Nayyeh
(https://www.npr.org/sections/thesalt/2013/02/06/171301501/why-lebanese-love-their-raw-kibbeh)

Kitfo
(https://migrationology.com/ethiopian-kitfo-yohannes-restaurant/)

Jurisdictional Policy and Regulatory Overview

Canada:

- Currently, there is no province or territory in Canada that permits raw ground beef dishes to be served in food service premises.

US

- In a number of states, raw ground beef dishes may be served provided the consumer is advised of their increased risk of foodborne illness(5).
- Advisory must appear on menus or on other signage that identifies the specific raw dish being served(5).
- Raw ground beef dishes must be made from whole cuts of beef, and the outer surface of the meat should be trimmed to remove contaminants(5).

European Union and UK:

- The outer surface of meat must be seared or otherwise cooked to achieve a 6-$\log_{10}$ reduction of pathogens(6).
- The outer surface of the meat should reach a temperature of either 80°C for 6 seconds, 75°C for 30 seconds, or 70°C for 2 minutes(7).
- The Food Safety Authority in the UK recommends that whole cuts of beef are seared and the cooked outer surface is shaved off(6).

Australia and New Zealand:

- Food Standards Australia and New Zealand (FSANZ) requires raw ground beef dishes to be made from high quality whole cuts of beef and the exterior removed to eliminate surface contaminants(4).
- Alternatively, the FSANZ recommends that whole cuts are either seared or blanched to reduce the number of pathogens on the outer surface(4).
- Raw ground beef dishes should not be served to individuals that are at an increased risk for foodborne illness(4,5).

Methods to Reduce Risk

In order to reduce pathogenic bacteria on the meat surface to an acceptable level it must be seared or blanched, and then trimmed(4,6). Ultimately, the cooking process should achieve a 6-$\log_{10}$ reduction of pathogens(6).

- Searing involves heating oil or fat in pan and cooking each side of the meat for approximately 60 seconds to ensure the outer surface reaches a temperature of 75°C for at least 30 seconds(6).
- Blanching involves bringing a pot of water to a rolling boil and then submerging the whole cut of beef in the boiling water for approximately 60 seconds(6).
- After both methods, the whole cut of beef should be rapidly cooled to stop the cooking process and refrigerated until the beef has an internal temperature of ≤4°C(6).
- Once the whole cut of beef has cooled, the cooked outer surface should be trimmed off.
- The whole cut of beef can now be ground or minced as the interior of the meat should be essentially sterile(4,8).
- However, the beef can still become cross-contaminated by other food, equipment, or food handlers(8).

Recommendations & Conclusions

- A number of food service premise operators in Ontario serve raw ground beef dishes such as steak tartare, kibbeh nayyeh, and kitfo and will continue to do so without increased enforcement by boards of health.
- The Food Premises Regulation should be amended to establish requirements to reduce the associated food safety risks of raw beef dishes to an acceptable level.
- Regulatory requirements of other jurisdictions can be used to as a starting point for lawmakers in Ontario.
- Pathogenic contaminants on the outer surface of whole cuts of beef can be reduced to acceptable levels by either searing or otherwise cooking the meat for short periods of time.
- Despite the reduction in risk, raw ground beef dishes should not be served to individuals that are at an increased risk for foodborne illness(4,5).

References

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