参考資料４

FAO/WHO合同専門家会議報告書（暫定版）（抜粋）
「食品由来寄生虫に関するリスク管理のための複数基準に基づくランク付け」

MULTICRITERIA-BASED RANKING FOR RISK MANAGEMENT OF FOODBORNE PARASITES

REPORT OF A JOINT FAO/WHO EXPERT MEETING,
3-7SEPTEMBER, 2012, FAO HEADQUARTERS, ROME, ITALY

24th October 2012

Preliminary Report

Please note that this is a preliminary report which is being made available to provide timely feedback to the Codex Committee on Food Hygiene. The final report will include more substantial information on the parasites based on the preparatory work undertaken by experts before the meeting. The report will also undergo further editing for language etc.. However the details of the ranking approach and its application and outcome in the context of the expert meeting will not change.

EXECUTIVE SUMMARY

At the 42nd Session (December 2010) of the Codex Committee on Food Hygiene (CCFH), the Committee requested FAO and WHO to "review the current status of knowledge on parasites in food and their public health and trade impact in order to provide CCFH with advice and guidance on the parasite-commodity combinations of particular concern, issues that need to be addressed by risk managers and the options available to them." On the basis of this information, CCFH would determine the feasibility of developing general guidance as a framework for annexes which would address specific parasite-commodity combinations.

In order to address this request FAO and WHO initiated a series of activities which culminated in an expert meeting on 3-7 September 2012. Preceding the meeting, relevant data were identified and collated by a formal "call-for-data" and by written reports from experts representing the African, Asian, Australian, European, Near/Middle Eastern, North American, and South American Regions. A list of 95 potential foodborne parasites was initially identified for consideration. Preliminary work was also undertaken on the development of a ranking tool and experts provided inputs to this through an on-line questionnaire. This preliminary ranking work combined with additional discussions during the meeting, resulted in a list of 24 parasites for ranking. Experts further identified specific vehicles of transmission for each of the 24 parasites.

It is important to note that foodborne parasitic diseases present some unique challenges and are often referred to as neglected diseases Notification of public health authorities is not compulsory for most parasitic diseases, and, therefore, official reports do not reflect the true prevalence/incidence of the disease that occurs (underreporting). The parasites have complicated life cycles, which may include multiple hosts, some of which could become food, or the parasites themselves could contaminate food. The disease can present with prolonged incubation periods (up to several years) or be sub-clinical/asymptomatic, and epidemiological studies associating illness with a specific food type may not be possible.

With technical guidance, the experts defined global criteria for evaluating the 24 foodborne parasites and rated each parasite along these criteria. The criteria can be summarized as: 1) number of global illnesses, 2) global distribution, 3) morbidity-acute, 4) morbidity-chronic, 5) percentage chronic, 6) mortality, 7) potential for increased burden, 8) trade relevance, and 9) socio-economic impact. Each criterion was then weighted by the experts in terms of their importance. Three criteria for disease severity (3, 4, and 5) were combined into one criterion, giving a total of 7 criteria weights, reflecting the relative importance of each criterion to the overall score. The overall score for each parasite was calculated by normalized parasite criteria scores multiplied by fractional weights and summed.

The primary outputs of the expert meeting were the development of the ranking tool and the actual global ranking, based primarily on public health concerns, i.e., 85% of weights. The global ranking of foodborne parasites by "importance" and their primary food vehicle in descending order was as follows:

Taenia solium – Pork

Echinococcus granulosus – Fresh produce

Echinococcus multilocularis – Fresh produce

Toxoplasma gondii – Meat from small ruminants, pork, beef, game meat (red meat and organs)

Cryptosporidium spp. – Fresh produce, fruit juice, milk

Entamoeba histolytica – Fresh produce

Trichinella spiralis – Pork
Opisthorchiidae – Freshwater fish
Ascaris spp. – Fresh produce
Trypanosoma cruzi – Fruit juices
Giardia duodenalis – Fresh produce
Fasciola spp. – Fresh produce (aquatic plants)
Cyclospora cayetanensis – Berries, fresh produce
Paragonimus spp. – Freshwater crustaceans
Trichuris trichiura – Fresh produce
Trichinella spp. – Game meat (wild boar, crocodile, bear, walrus, etc.)
Anisakidae – Salt water fish, crustaceans, and cephalopods
Balantidium coli – Fresh produce
Taenia saginata – Beef
Toxocara spp. – Fresh produce
Sarcocystis spp. – Beef and pork
Heterophyidae – Fresh and brackish water fish
Diphyllobothriidae – Freshwater / salt water fish
Spirometra spp. – Fish/reptiles/amphibians

This ranking should be considered a "picture" in time and representative of the information available at the time, the criteria used for ranking and the weighting that were assigned to those criteria. Also, some of these parasites had very similar rankings so it may be more relevant to consider the parasites in groups of concern e.g. top 5 or top 10 rather than the individual ranking position. With more information or with changing human and/or animal behaviours, and/or with climate changes, parasite scoring and subsequent ranking could also change. As with many phases of risk analysis, it may be important to repeat and update the process on a regular basis. In fact, with heavily weighted public health criteria, the ranking results in part reflect risk defined as a function of the probability of an adverse health effect and the severity of that effect, consequential to a hazard in food.. If the parasites are ranked only on trade criterion scores, the order of importance changes: *Trichinella spiralis*, *Taenia solium*, *Taenia saginata*, Anisakidae and *Cyclospora cayetanensis* are the top five. In this way, individual criteria can be considered, for example by CCFH, outside of the total scoring and the weighting processes to assure specific concerns can be addressed transparently and separately if needed.

Since criteria weights were calculated separately from the individual parasite scoring, alternative weighting schemes reflecting the judgments of risk managers could be used to generate alternate ranking, using the scoring of the parasites undertaken by the expert meeting. Thus, the ranking process which was developed was considered to be as important an output of the meeting as the ranking result, since it allows the global ranking to be updated through changes in scoring and/or to reflect the priorities of different groups of risk managers or stakeholders through different weighting. The process can be completely rerun at national or regional levels using data more specific to that particular country or region.

Finally, the meeting also highlighted some considerations for risk management including possible approaches for the control of some of these foodborne parasites. Reference is also made to existing risk management texts as appropriate. This information together with the global ranking of the parasites and the identification of the primary food vehicles and information on food attribution is aimed to assist Codex in terms of establishing their priorities

and determining the next steps in terms of managing these hazards. However, it should be noted that management of specific parasites may then require further scientific input which it was not feasible to provide as part of this process.