TECHNICAL NOTE ON FISH PEDICURE SERVICES

Introduction:

“Fish pedicures” are a new trend in spa services. Individuals purchasing this service immerse their feet in footbath-like tanks where hundreds of small fish exfoliate their feet. There is very little information in the published medical/veterinary literature on the species of fish used and associated issues. The following outlines the information known to date, concerns about the service and a recommendation.

Background:

The two species of fish (also known as “Doctor Fish”) usually used in fish pedicure services are *Garra rufa* and *Cyprinon macrostomum*, both of which belong to the Carp family. These species are native to Turkey, Syria and Iraq, where they are found in streams, rivers, and a few hot spring environments. The fish can grow to a maximum length of about 15-20 cm, and while they do not have teeth on their jaws, their lower jaw itself has a sharp horny edge used to scrape encrusting algae and associated organisms from rock surfaces as part of their normal feeding behaviour. As *Garra rufa* fish are relatively expensive ($7-10/fish), some spas use a cheaper substitute species, such as Chin Chin fish ($2-5/fish), a member of the Tilapia family, which have teeth on their jaws that they use to remove tissue from the surface of the skin.

Published scientific literature on the use of these fish for exfoliation purposes is very limited. There is a single published research protocol examining the use of fish as an alternative treatment (ichthyotherapy) for severe psoriasis in a medical setting. In this study, the fish were specifically inspected for *Mycobacterium* and *Aeromonas* infections, water samples were routinely tested for *Legionella* and *Pseudomonas* species and each patient had their own unique bath and set of fish to decrease the risk of zoonotic disease transmission issues. Additional correspondence sent to medical journals by dermatologists also documents the observation of exacerbation of existing skin lesions and the creation of new skin lesions by these fish in psoriatic patients treated with ichthyotherapy.
Issue:

Concerns regarding hygiene and sanitation in fish pedicures relate to a number of specific and general factors outlined below:

1. Deprived of other food, *Garra rufa* and *C. macrostomum* will use the cutting edge of their shovel-shaped lower jaw to scrape skin tissue from the surface of spa clients’ feet, creating micro-abrasions on the surface of the skin and predisposing it to infection by any micro-organisms in the water.

2. Fish can carry bacterial infections (such as *Mycobacterium*, *Staphylococcus*, *Salmonella*, *Pseudomonas* and others) and transmit them to humans through broken skin. Furthermore, fish excrete these organisms into the water, contaminating it, as evidenced by laboratory analysis of water samples taken from fish pedicure tanks.

3. Pre-testing of the fish for pathogenic organisms on a frequent and regular basis is not feasible, only clears the fish at the time of testing and does not mean the fish are ‘sterile’.

4. Treating the fish with antibiotics to prevent disease transmission may lead to the growth and development of antibiotic resistant organisms which is of great concern.

5. Using the same fish to clean the skin of multiple clients could lead to the spread of infection from person to person via micro-abrasions and open wounds. Fish can transmit bacterial infections such as *Mycobacterium*, *Staphylococcus*, *Salmonella*, *Pseudomonas* and others, through cuts or broken skin.

6. Even the use of new fish for every client still carries the risk that the fish themselves could potentially already be carrying various infectious microbes on their body surface or in their oral cavities.

7. There are also significant difficulties with respect to properly disinfecting the footbath-like tanks, water and filtration systems used in fish pedicure procedures between clients. The use of ultraviolet (UV) light in the aquaria housing the fish is not an effective method of water treatment as organic matter or sediment can inhibit the elimination of disease-causing micro-organisms. In addition, UV filters can only kill free-floating micro-organisms within the water that flows through the filter mechanism, but cannot eliminate micro-organisms adhered to tank or filter surfaces, or those found on or in the fish themselves.

8. Regular treatment of the water with UV light or some other disinfection technique cannot ensure the maintenance of the water quality once the fish are reintroduced.

9. Removal of fish from the tank, and disinfection of the tank between clients, is already somewhat negated by the need to have the water stand for a while in order to reduce the FAC (free available chlorine levels) so the fish can tolerate the water. Furthermore, fish with their high metabolic rates quickly excrete into the water, therefore further negating efforts to disinfect the tanks and/or water between clients.

10. Prescreening clients for cuts, sores and abrasions, or pre-treating with soap, does not ‘sterilize the skin’ nor does it preclude the occurrence of micro-abrasions. There is ample evidence of infectious disease spread through the skin, even where the skin appears intact.
11. Certain subsets of the general public such as diabetics (6.5% of the Canadian population) who frequently suffer from foot infections mainly due to neuropathy, vascular insufficiency and decreased neutrophil function could be at greater risk of developing infections due to the organisms noted above in a fish pedicure setting.

12. Although there is a report on the therapeutic use of fish (ichthyotherapy) (Grassberger and Hoch, CAM 2006) as an experimental alternative treatment for psoriasis, the reported study was done with a number of safeguards in place including: treatments were done under medical supervision, on a limited clientele, (67 individuals) for a limited time (three weeks); the fish were prescreened for organisms to rule out zoonoses; the same fish were dispensed to individual clients in separate tubs/baths; the bathing water was regularly bacteriologically examined; the patients were also treated after each bathing session with ultraviolet light treatments; and the patients were medically followed up and repeatedly examined for complications and outcomes. Due to the significant number of safeguards required, this experimental medical use of fish is not transferrable to a general professional services setting.

**International Situation:**

To date, Boards of Cosmetology have banned fish pedicures due to safety and hygienic concerns in eighteen U.S. states (including Florida, Texas, Washington, Maine, New Jersey, Pennsylvania, Massachusetts, New Hampshire, Georgia, Illinois, Arizona, Alabama, Colorado, Iowa, Montana, South Dakota, Tennessee, and Utah). A legislative ban on fish pedicure procedures has also recently been proposed in New York State. Fish pedicure procedures are currently permitted in Virginia and Ohio, as regulatory jurisdiction over spa services in these states only applies to facial procedures rather than skin procedures in general, and there are no Professional Services Settings Guidelines. Nevada is considering allowing the practice.

The International Nail Technicians Association, an organization that represents nail technicians, has taken a firm stand against fish pedicures, as they are contrary to all standards and beliefs of the organization and directly contravene their industry standard Pedicure Equipment Cleaning & Disinfecting Procedures.

Singapore has also closed down all fish pedicure facilities in its jurisdiction following reports of two cases of fungal infections linked to fish pedicures.

Dr. Robert Spalding, Doctor of Podiatric Medicine, Board Certified /Forensic Podiatrist and legal consultant/expert witness for salon related infections, provided the following statement on the fish pedicure issue:

“I find the concept with regards to "Fish Pedicures" more comical than practical, but I also have major concerns. This service greatly magnifies potentials for development of waterborne/hydrophilic microbial organisms such as pseudomonas or parasitic infections and other organisms that can cause serious infections in at-risk people (those with ongoing conditions such as diabetes, lupus, etc) and even healthy persons. This is a serious consideration because this dangerous and inappropriate form of cleansing can inoculate many diabetic, vascular/sensory impaired or other immune compromised patients/clients with pathogenic microbes. The resulting illnesses can cause tissue damage, potential amputations and other morbidities.”
You cannot disinfect the water without killing the fish, so therefore, you cannot sufficiently disinfect the bath used for the pedicure. The inside of the fish's mouth can not be disinfected so you risk exposing the salon patrons to bacteria, fungal organisms and parasites. Additionally, the nitrogen waste products from the fish will encourage expanded algae and bacterial growth in the service containers to accumulate. The ability to aseptically scrub detritus manually and chemically from the skin surfaces would be far superior and much safer than any live biological skin debridement.

This type of service should not be allowed or approved by state cosmetology boards in any cosmetic setting. Basically, it departs from any known convention of the approved disinfection standards that are very important to maintain safety for the public.” (electronic communication, April 1, 2010)

National Situation
Currently, there is no national statement on fish pedicures.

Situation in other Canadian Provinces/Territories
The attached table captures the positions of individual provinces and territories with respect to fish pedicures.

Ontario Situation
Currently, the Infectious Diseases Prevention and Control Unit is aware of three health units with premises within their jurisdictions wishing to provide this service (Ottawa, Niagara and Halton). In two of the three health units (Ottawa and Halton), operators contacted the health unit beforehand and were told that such a service would not be permitted. The operators did not proceed further. The third health unit (Niagara) discovered the fish spa (before any client use) upon routine inspection of a particular premise. This health unit issued a written Section 13 order under the Health Protection and Promotion Act (HPPA), requiring the spa to cease providing fish pedicure services immediately, as the proposed service constituted a health hazard. Water samples collected from the intended footbath-type tanks showed an overgrowth of *E. coli*, total coliforms, *Staphylococcus* and *Pseudomonas* bacterial species. As no fish pedicures had been performed, it is likely that the fish themselves were the source of these bacterial species. The spa appealed the closure order to the Health Services Appeal and Review Board (HSARB), and while an HSARB hearing was scheduled for April 2010, the spa has since withdrawn their appeal.

The current *Infection Prevention and Control Best Practices for Personal Services Settings* (January, 2009) document outlines infection prevention and control precautions that are to be taken in every personal services setting. According to this document, instruments used in personal services settings must be cleaned and disinfected or sterilized. As a rule, anything that touches a client’s skin is considered to be a semi-critical item (with the exception of items that strictly contact hair). Fish used as instruments for pedicure procedures would be semi-critical items, but cannot be cleaned and disinfected without causing harm or death to the fish. For this reason, they pose a health risk of transferring blood borne and other pathogens from client to client, and are in noncompliance with the Section on cleaning of the equipment/instruments in the protocol (specifically the requirements outlined in clauses 3.1, 4ii, 4iii, 4vii, 5.1, 5.4, 5.4.1 and 8.1 i-iv, inclusive).
result, fish pedicure services cannot be conducted in a fashion that would not present a
health hazard to clients who are subjected to this practice.

In applying the terms of Ontario’s Infection Prevention and Control Best Practices for
Personal Services Settings guidance document to fish pedicure services, ‘fish’ are
interpreted to be a “tool/equipment” in that they are used to exfoliate clients’ skin. Given
that the fish cannot be sterilized or disinfected, use of fish in this manner constitutes a
health hazard under Section 13 of the HPPA whereby:

1. the practice of using fish to exfoliate clients’ feet can permit transmission of
diseases to and between customers through the fish as they cannot be cleaned
and sanitized prior to use on a client or between clients;
2. the tank and water in which the fish are kept cannot be suitably cleaned and
sanitized between clients due to the sensitive nature of the fish;
3. small cuts or lesions on a foot (some not visible to the human eye) can become
infected with various diseases.

Conclusion and Recommendation:
Growing interest in the use of fish for the purpose of performing a personal service is
expected. Beyond public health infection prevention and control concerns that the use of
fish or live animals in providing personal services constitutes a health hazard, the Ministry of
Natural Resources (MNR) has advised us that the commercial use of fish in a spa setting to
provide fish pedicures would also require an aquaculture license under Ontario’s Fish and
Wildlife Conservation Act. As Garra rufa and Cyprinion macrostomum fish do not appear on
the list of fish species eligible for culture under the authority of an aquaculture license in
Ontario, MNR advises that the rearing and use of fish in pedicure operations is illegal in
Ontario under that Act. Please refer to the attached MNR Background on Fish Pedicures
document for further detail regarding aquaculture licensing requirements.

For the reasons above, the use of fish in providing personal services is not permitted
in Ontario.

Should you have any questions regarding the application of the Infection Prevention and
Control Best Practices for Personal Services Settings as it relates to fish pedicure services,
please contact Claudine D’Souza, Nurse Consultant, Infectious Diseases Prevention and
Control Unit, at (416) 327-9089 or Claudine.DSouza@ontario.ca.

For issues related to the fish themselves and/or zoonotic disease transmission please
contact Dr. Catherine Filejski, Veterinary Consultant, Public Health Protection and
Prevention Branch, at (416) 212-0424 or Catherine.Filejski@ontario.ca.
### National Summary of Fish Pedicures

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<thead>
<tr>
<th>Province/Territory</th>
<th>Response/Position</th>
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<tr>
<td><strong>British Columbia</strong></td>
<td>Vancouver Coastal Health (VCH) gets regular requests for approval of fish pedicure procedures. VCH’s response to prospective operators is that the procedure cannot be considered sanitary since the fish cannot be disinfected, and approvals are denied.</td>
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<td><strong>Alberta</strong></td>
<td>Service not permitted, as there is no way to effectively sanitize all equipment between clients without affecting the <em>Garra Rufa</em> fish involved in this procedure. The health of the fish can also not be determined to ensure no transfer of infection between fish and human clients.</td>
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<td><strong>Saskatchewan</strong></td>
<td>Saskatchewan has asked for Ontario’s background materials on the health risks associated with this service, and will circulate a note to all its provincial Medical Health Officers to be on the lookout for this. To date, they are not aware of any operations offering fish pedicure services in Saskatchewan.</td>
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| **Manitoba** | Approximately a year ago, there was an establishment in Winnipeg that was offering *Garra rufa* fish pedicures. The owner purchased the fish from the US and started offering the service to the public before Manitoba Health discovered it. 

At that time, the Manitoba Health did not have any clear guidelines for infection control in personal service establishments. They were contacted by the media who asked about the practice and whether Manitoba Health had banned fish pedicures. The service was not specifically banned at that time, as this was the first they had heard of it. Manitoba Health had an inspector visit the establishment, observe the operator’s fish handling practices and asked a few questions related to infection prevention and control practices. The owner was asked about how he disinfected the footbaths after use, and he said he just rinsed them in warm water, but that he couldn’t use any detergents or chemical sanitizers. Given that the fish are sensitive to chemicals, he felt that using anything at all would harm the fish and possibly kill them. Besides his reluctance to sanitize the footbaths, there is absolutely no way to sanitize the fish themselves, or to prevent them from defecating in the water during one of the procedures. Many patrons would have a short pedicure with the fish, followed immediately afterwards by a traditional pedicure. 

Since that time, the owner of this establishment has stopped offering fish pedicures. Apparently he found there was not a large enough market for this service, and he found it expensive to replace the fish that kept dying. 

Since this issue was in the media in May of 2009, Manitoba Health has published a guideline for personal service establishments, which outlines the necessary steps required to properly sanitize footbaths and tools used in pedicures. Manitoba Health has also done some research and are more aware of the dangers posed to patrons by fish pedicures, and the real hazards of infections. 

Should this issue arise again in the future, Manitoba Health plans to take a strong stance against operators wishing to offer this service, advising the establishment that it is not allowed, as it does not meet requirements for sanitizing and infection control stipulated in the Manitoba Health Personal Service Facility Guidelines (link below). A health hazard order under Manitoba’s Public Health Act would be issued against any operator, requiring them to stop immediately and threatening them with prosecution if they did not comply with the order. 

A copy of the Manitoba Health Personal Service Facility Guidelines can be found at: [http://www.gov.mb.ca/health/publichealth/environmentalhealth/protection/personal.html](http://www.gov.mb.ca/health/publichealth/environmentalhealth/protection/personal.html) |
<p>| <strong>Quebec</strong> | There is currently one salon in Montreal offering fish pedicures, and the provincial health authorities have yet to take an official position on the issue. |</p>
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<tr>
<td>New Brunswick</td>
<td>Aware of the issue, but no provincial policy in place. No operator to date has asked for approval to provide fish pedicure services yet.</td>
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<tr>
<td>Prince Edward Island</td>
<td>Issue has not surfaced to date.</td>
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<tr>
<td>Nova Scotia</td>
<td>No requests to allow fish pedicures within their jurisdiction and are not aware of any facilities offering them.</td>
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<tr>
<td>Newfoundland and Labrador</td>
<td>Issue has not surfaced to date.</td>
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<tr>
<td>Nunavut</td>
<td>Issue has not surfaced to date.</td>
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<tr>
<td>Northwest Territories</td>
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<tr>
<td>Yukon</td>
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