

Microbial Water Quality Issues Pertaining To Pedicure Foot Baths

July, 2005, City of Hamilton Public Health and Community Services Department

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Introduction:

Inadequately cleaned and disinfected pedicure foot baths have been associated with microbial infection. This year, the City of Hamilton Public Health and Community Services Department incorporated a foot bath water sampling program into its inspection protocol for pedicure establishments. The intent of the program is to monitor the extent to which foot baths in Hamilton are operated in a hygienic manner and to take action where inadequate disinfection practices are revealed. This article provides a review of the program's initial results, follow-up action and plans for the future.

Background:

Pedicure establishments frequently make use of appliances known as "foot thrones". These resemble barber chairs to which foot baths are attached. The baths are essentially miniature whirlpools filled with water that is circulated through pressure jets. The units are designed to provide the client with a foot massage while softening the nails. In order for these units to be operated in a hygienic manner, they must be cleaned and disinfected between clients with fresh water used each time. Of particular

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Submissions Criteria:

- All topics must be relevant to the Public Health Inspection Field
- Articles must be submitted either on computer disk or by e-mail in MS Word (written articles will not be accepted).
- Articles submitted should be approximately 150 words (feature articles a maximum of 500 words).
- Feature articles will be determined by the OBN editorial team.
- Graphics or pictures included with the submission must be a resolution of 150—300 dpi.
- Articles must be submitted by the deadlines outlined below

Article Submission Deadlines 2005:

Spring Issue— February 14, 2005
Summer Issue— May 16, 2005
Fall Issue— August 15, 2005
Winter Issue— November 14, 2005

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A Message From The Editor

In September my second term as the communication councillor for the executive branch ended. I decided not to seek a third term. Since this is the last Ontario Branch News (OBN) that I will be putting together, I wanted to take the opportunity to thank all of the people that have helped me with this task in the past four years.

First I must thank my excellent co-editor Amanda Sturgeon. I honestly could not have done this job without her. From correcting poor grammar, to the long, long sort, to arguing with Canada Post, she was always there when I needed her help. I cannot thank her enough.

Thanks to Sonia Singh for showing me the ropes when I took over the OBN. Also thanks to Sonia for her photographic talents. Sonia has also been our unofficial OBN staff photographer these four years. If you have seen yourself or a friend in the an issue of the OBN for the past four years, you will likely owe your thanks to Sonia.

Finally thanks to my aunt, Donna Taylor. Donna encouraged me to run for council in 2000. Working on the council has been a good learning experience. Working for the Ontario branch of CIPHI, whether it is on the executive council or as a committee member, is something that I think every inspector should do.

Heather Richards, of Toronto Public Health, is your new Ontario Branch communications councillor. I think she will do a wonderful job.

- Sarah Wilson

Introducing Your New CIPHI Ontario Branch Councillors!

New to the Ontario Branch Executive Council This Year Are.....

- **Heather Richards**—Heather works for Toronto Public Health. She will be taking over the *Communications portfolio*

- **Shawna Bourne**—Shawna is with the Ministry of the Environment. She will be taking on the *Health Promotion and Professional Development portfolio*



Mycobacterium
infection

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concern are the jets and screens which can develop a biofilm that can both harbour and support the growth of microorganisms.

Exposure to microorganisms from inadequately cleaned and sanitized pedicure foot baths has been associated with several reports of infection. The most striking example in the literature is a California outbreak of dermal infection that occurred in 2000 caused by *Mycobacterium fortuitum*. A report published by the CDC in Atlanta noted that "over 100 pedicure customers had prolonged boils on the lower legs that left scars when healed". In addition to nontuberculous mycobacteria, footbaths can also harbour *Pseudomonas*, *Staphylococcus* and coliform bacteria.

1 CDC Dispatch, Volume 11, No. 4 April, 2005

The Program:

In order to address the potential infection concerns described above, Hamilton began this year to sample foot throne water as a component of the annual routine inspection of pedicure facilities. Prior to commencement of the sampling program, a letter was sent to the 46 facilities known to make use of these appliances. The letter advised operators of the program, citing infection control concerns and provided directions for effective cleaning/disinfection of the units (refer to appendix below).



Foot "Thrones"

Operators were also advised that should a sample from their facility produce an unsatisfactory result, a re-sample would be taken following a course of cleaning/disinfection. Should the re-sample also prove unsatisfactory, foot throne use would be suspended under HPPA Section 13 Order until the units produce satisfactory results.

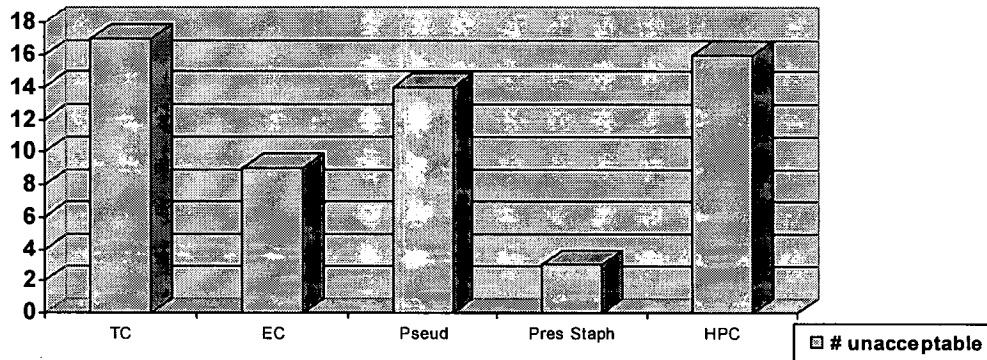
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In consultation with the regional Public Health Laboratory, it was determined that the water quality standards used for spas/whirlpools provide a reasonable comparator for foot bath water quality. These standards are as follows:

- *Pseudomonas aeruginosa*: <10/100mL
- E. Coli: <2/100mL
- Total coliform: <2/100mL
- Presumptive Staphylococci: <100/100mL
- Heterothrophic Plate Count (HPC) <500/mL

Results:

Of the 46 facilities initially sampled, 17 produced unsatisfactory results as detailed in the chart below. These results were shared with respective operators and proper cleaning/disinfection procedures were reinforced.



However, when these 17 facilities were re-sampled, seven of them still produced unsatisfactory results. These facilities were ordered to suspend the use of foot thrones until satisfactory sample results were obtained and cleaning/disinfection procedures were again reinforced. Re-sampling of these seven facilities revealed all to be satisfactory.

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Discussion:

The results of this survey indicated that 37% of foot thrones in Hamilton pedicure facilities were operating with unacceptable microbial loads at the time of initial sampling. This proportion dropped significantly (to 15%) when operators were made aware of these results and cleaning/disinfection was re-instituted. The use of Section 13 suspension Orders further reduced this proportion to zero.

These results suggest the following:

- Unacceptable microbial contamination of foot throne water is likely a common occurrence.
- The cleaning/disinfection procedures described in the appendix are effective if followed properly.
- Section 13 Orders are effective in encouraging recalcitrant operators to follow cleaning/disinfection procedures.

This sampling program has resulted in only minor resource implications for Hamilton. The additional time needed for sampling during routine inspections, re-inspections and in-office time associated with Order and court preparation will total no more than 100 hours (0.05 FTE) for the year. It is hoped as well that the additional work performed this year will translate into the need for less follow-up in future as operators come to understand the importance of ongoing cleaning/disinfection of foot thrones. This anticipated outcome will be tested when the sampling program is repeated next year.

Acknowledgement:

Hamilton PHCS wishes to thank the Hamilton Regional Public Health Laboratory for their assistance in this program

2 *Re-sampling of facilities under suspension was expedited with the regional Public Health Lab in order to ensure that facilities had the opportunity to resume business as soon as possible. One facility refused to comply with the suspension and has been charged with failing to obey a Section 13 Order.*

3 *It is hoped that sampling for nontuberculous mycobacteria can be incorporated into the program next year in order that results can be more readily compared with studies undertaken in other locales.*

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Appendix

PROCEDURE FOR THE CLEANING AND DISINFECTION OF FOOT THRONES

- Drain, clean and disinfect the throne after each client by
- Filling bath with warm, soapy water
- Brushing and scrubbing
- Draining and rinsing
- Disinfecting using manufacturers recommendations or, in the absence of recommendations, with
1:100 solution of household chlorine bleach and water
or
accelerated hydrogen peroxide used in accordance with manufacturer's instructions
Circulate the disinfectant through the throne for at least ten minutes
- Clean foot throne screens at least daily to remove debris and assist in preventing biofilm build-up.

The 2005 CIPHI Ontario Branch Baseball Tournament

Many thanks to Grey Bruce Health Unit for hosting this years baseball tournament. A good time was had by all.

Next years baseball tournament will be hosted by the Regional Municipality of Peel Health Department.

