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# INFECTION CONTROL FOR TEBORI TATTOOING

## Infection Control for Tebori Tattooing

**Primary inquiry:** Information regarding tebori, a traditional form of Japanese “hand-poke” tattooing; requesting information regarding infection control and inspection.

**Please note:** The information provided here is for the purposes of addressing a specific inquiry and is not subjected to external review. The information offered here does not supersede provincial guidance or regulations.

## Background

Tebori (“to carve by hand”) is a form of manual (“hand-poke”) Japanese-style tattooing that uses a distinctive tebori tool consisting of a bundle of steel needles bound to the end of a bamboo rod.<sup>1</sup> From an infection control perspective, tebori raises concerns common to other types of traditional tattooing that are gaining recognition among North Americans (e.g., Thai bamboo or Samoan tattooing). These concerns include the ability to sterilize traditional wooden, bamboo, or bone implements and their components, the use and manufacture of traditional pigments,<sup>a</sup> the environment in which tattooing occurs (informal, potentially unsanitary settings), and the ability to develop effective, enforceable, and yet culturally sensitive infection control training and practices.<sup>4,7</sup>

In this inquiry, an EHO was approached by an operator who wished to provide tebori services using a homemade tebori tool. Because tebori is not widely practiced in North America, the tools may not be typically commercially available and some components are fabricated by hand. Briefly, a tebori tool (a long handle with a number of needles attached to one end) is held in the dominant hand while the other hand is used to both hold the skin in place and support the upper portion of the tool. As determined by the EHO,



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the operator’s proposed tool consisted of a number of single-use sterile needles that were removed from their original packaging, cut down to size, and affixed to the tip of a bamboo barbecue skewer with sewing thread. The other end of the bamboo skewer was then pushed inside of a drilled-out wooden handle.

There are several concerns with this implement. First, the needles once removed from their packaging and handled extensively are no longer considered sterile. Secondly, the thread and bamboo skewer are single-use, but may not be considered “clean,” depending on their packaging and handling. Finally, the wooden handle is intended to be reused, but may be difficult to clean. The operator intended to use commercially available tattoo ink.

Given that tebori and traditional tattooing in general is relatively rare in North America, we approached this inquiry through several means:

1. A rapid academic literature search for tattoo risks associated with tebori tattooing;
2. Expert consultation with PSE and industry professionals experienced with traditional tattooing;
3. A grey literature search for public health recommendations regarding traditional tattooing in other jurisdictions; and
4. A review of the available NCCOEH resources.

<sup>a</sup>There are two concerns with tattoo inks. First, conventional, commercially available tattoo inks may contain heavy metals (as coloring agents).<sup>2,3</sup> Traditional inks have in some cases contained other materials potentially harmful to humans (e.g., kerosene, Listerine).<sup>4,6</sup> Second, the ink may be microbiologically contaminated, either at the point of manufacture or due to improper handling or dilution at the point of use.<sup>6</sup>

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## Infection Risks Associated with Tebori Tattooing

A rapid academic literature search was carried out by querying EBSCOhost and Google Scholar with variants and Boolean operator combinations of the following keywords:

(tebori OR “japanese tattoo” OR Irezumi OR Yakuza OR traditional OR “first nation” OR aboriginal OR samoan)

AND

(tattoo OR “body modification OR “body mark”)

AND

health OR infection OR disease OR dermatitis OR eczema OR rash OR sepsis OR death OR illness OR gingiva OR cellulitis.

The search returned resources and documents regarding the cultural significance and history of tebori, but did not include specific information on infection control. However, a number of studies were found that looked at the risk factors and outcomes of traditional Samoan tattooing, which involved life-threatening conditions including cellulitis, necrotizing fasciitis, and other infections.<sup>4,7-11</sup> Multiple contributing issues were identified, of which the use of traditional bone and tusk implements were only one factor. The risk of adverse effects was also heightened by generally unsanitary environments, lack of infection control and blood-borne disease training, and attempting to do extensive tattooing over a relatively short period of time.

Thus, it is important to highlight the difference between traditional tattooing carried out in a traditional setting, and a tattooing style that has been adapted for conventional practice. Although this inquiry deals with a form of traditional tattooing with a non-conventional implement, all other aspects of the service offered are conventional (e.g., a routinely inspected tattoo studio, conventional inks and needles) and are unlikely to carry the risks described above.

## Expert Consultation

In the next step, NCCEH contacted the Bushido Tattoo studio in Calgary, which is one of the very few North American studios that offers tebori tattooing. At the time of writing, the studio indicated that the procedure was performed by an artist who trained in both the technique and preparation of the implements in Japan. The artist used a tool composed of a set of needles soldered to a steel cap that pushes onto the end of a reusable metal handle. The needle and cap component was manufactured in-house and then autoclaved. The reusable metal handle was also autoclaved and additionally covered with a clip cord bag when in use. The needle and cap component was disposed of after use.<sup>12</sup> All other aspects

of the tattooing procedure were compliant with Alberta Health Services requirements at the time of writing.

We also contacted two senior environmental health officers who have had previous experience inspecting studios or tattoo conventions that featured tebori or other traditional tattooing services. These experts were asked to provide advice on infection control and inspection for tebori tattooing, and to recommend documents that may be of use.

Alberta Health Services (AHS) has prepared a guidance document on inspecting tebori tattoo establishments that describes the tool in detail and provides recommendations on cleaning and sterilization of the components.<sup>13</sup> Based on the Spaulding classification,<sup>14</sup> the needle and cap component is considered critical equipment, whereas the handle and “grip” component (tape or thread wrapping the needle cap to the handle) are considered semi-critical (although sterilization is preferred). Those interested may contact AHS to request access to this document.

Vancouver Coastal Health encountered tebori tattooing as part of a tattoo convention or show travelling across Canada. The practitioner used a bag over the handle and disposable needles. All other infection control practices remained the same. It was also noted that autoclavable metal handles were available for purchase.

## Public Health Recommendations for Traditional Tattooing

A grey literature search was conducted to identify documents from other public health agencies regarding traditional tattooing and infection control practices. We identified several documents from New Zealand and Australia, where traditional Maori and Polynesian tattooing is commonly practiced. These documents aim to promote safe practices around tattooing in a way that respects the cultural importance of this activity. Relevant to this inquiry, Samoan tattooing uses non-conventional piercing tools (made of tooth, bone, or tusk) to tap pigment into the skin with the help of a mallet. The Auckland Council *Health and Hygiene Code of Practice 2013* recommends soaking these porous implements, which cannot be autoclaved, in a liquid sterilant according to the manufacturer's instructions. However, they recognize that this method is unlikely to be completely effective.<sup>15</sup> A short summary of Auckland Council's guidance on traditional tattooing tools is available online.<sup>16</sup> It is important to note that this compromise on sterilization (liquid sterilant vs. the more effective autoclaving option) was made to support the cultural integrity of the practice, which requires the use of specific materials. Cultural considerations may or may not apply in the present inquiry.

## NCCEH Resources

NCCEH has not produced an evidence review of traditional or cultural tattooing practices. However, Barn and Chen<sup>17</sup> produced a short review entitled *Infections Associated with Personal Service Establishments: Piercing and Tattooing* that may provide insight into some of the general infection control issues with tattooing, to which traditional tattooing is also subject. Fong and Barn<sup>18</sup> produced a brief review entitled *Cleaning, Disinfection, and Sterilization at Personal Service Establishments* that may also be useful as a reference.

## Acknowledgements

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## References

1. DeMello M. Encyclopedia of body adornment. Santa Barbara, CA: Greenwood Press; 2007.
2. U.S. Environmental Protection Agency. Guidelines for tattoo and permanent makeup substances. Washington, DC: EPA; 2012 Mar. Available from: <http://www.epa.gov/tt/Publications/Tattoo-permanentmakeupguidelines.pdf>.
3. New Zealand Ministry of Health. Survey of selected samples of tattoo inks for the presence of heavy metals. Wellington, NZ: Government of New Zealand; 2013 Jul. Available from: <http://www.health.govt.nz/publication/survey-selected-samples-tattoo-inks-presence-heavy-metals-2013>.
4. Elegino-Steffens DU, Layman C, Bacomo F, Hsue G. A case of severe septicemia following traditional samoan tattooing. *Hawai'i J Med Public Health*. 2013;72(1):5-9. Available from: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3555475/>.
5. De Cuyper C, D'hollander D. Materials used in body art. In: De Cuyper C, Perez-Cotapos M-L, eds. *Dermatologic complications with body art: tattoos, piercings and permanent make-up*. Berlin Heidelberg: Springer-Verlag; 2010. Available from: [http://www.newbooks-services.de/MediaFiles/Texts/2/9783642032912\\_Excerpt\\_001.pdf](http://www.newbooks-services.de/MediaFiles/Texts/2/9783642032912_Excerpt_001.pdf).
6. Islam PS, Chang C, Selmi C, Generali E, Huntley A, Teuber SS, et al. Medical complications of tattoos: a comprehensive review. *Clin Rev Allergy Immunol*. 2016;50(2):273-86. Available from: <http://dx.doi.org/10.1007/s12016-016-8532-0>.
7. McLean M, D'Souza A. Life-threatening cellulitis after traditional Samoan tattooing. *Aust N Z J Public Health*. 2011;35(1):27-9. Available from: <http://dx.doi.org/10.1111/j.1753-6405.2010.00658.x>.
8. Choong KY, Roberts LJ. Ritual Samoan body tattooing and associated sporotrichosis. *Australas J Dermatol*. 1996 Feb;37(1):50-3. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/8936073>.
9. Das DK, Baker MG, Venugopal K. Risk factors, microbiological findings and outcomes of necrotizing fasciitis in New Zealand: a retrospective chart review. *BMC Infect Dis*. 2012 Dec 12;12:348. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/23234429>.
10. Korman TM, Grayson ML, Turnidge JD. Infectious complications of traditional Samoan tattooing. *J Infect*. 2005 Oct;51(3):259-60. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/16230224>.

11. Porter CJ, Simcock JW, MacKinnon CA. Necrotising fasciitis and cellulitis after traditional Samoan tattooing: case reports. *J Infect.* 2005 Feb;50(2):149-52. Available from: <https://www.ncbi.nlm.nih.gov/pubmed/15667917>.
12. Bushido Tattoo. Tebori as performed at Bushido Tattoo (Calgary, AB). Personal communication with Eykelbosh A (Environmental Health and Knowledge Translation Scientist at National Collaborating Centre for Environmental Health); 2016 Nov 8, 2016.
13. Alberta Health Services (AHS). Inspection approach to tebori tattoo. Report No.: GD-SB(P)-12-14-005. Edmonton, AB: AHS.
14. Rutala WA, Weber DJ, Healthcare Infection Control Practices Advisory Committee (HICPAC). Guideline for disinfection and sterilization in healthcare facilities. Atlanta, GA: Centers for Disease Control and Prevention; 2008. Available from: <https://www.cdc.gov/infectioncontrol/pdf/guidelines/disinfection-guidelines.pdf>.
15. Auckland Council. Health and hygiene code of practice 2013 [updated Mar 5, 2014]. Auckland, NZ: Government of New Zealand. Available from: <https://www.aucklandcouncil.govt.nz/plans-projects-policies-reports-bylaws/bylaws/Health%20and%20Hygiene%20Bylaw%202013/healthandhygienecodeofpractice2013.pdf>.
16. Auckland Council. Traditional tools tattooing: Code of practice summary. Auckland, NZ: Government of New Zealand; 2013. Available from: <http://temp.aucklandcouncil.govt.nz/EN/licencesregulations/HealthLicences/Documents/traditionaltoolstattooingcodeofpracticesummary.pdf>.
17. Barn P, Chen T. Infections association with personal service establishments: piercing and tattooing. Vancouver, BC: National Collaborating Centre for Environmental Health; 2012 May. Available from: [http://www.ncceh.ca/sites/default/files/PSE\\_Infections\\_Piercing\\_Tattooing\\_May\\_2012\\_0.pdf](http://www.ncceh.ca/sites/default/files/PSE_Infections_Piercing_Tattooing_May_2012_0.pdf).
18. Fong D, Barn P. Cleaning, disinfection, and sterilization at personal service establishments. Vancouver, BC: National Collaborating Centre for Environmental Health; 2012 Dec. Available from: [http://www.ncceh.ca/sites/default/files/PSE\\_Disinfection\\_Dec\\_2012.pdf](http://www.ncceh.ca/sites/default/files/PSE_Disinfection_Dec_2012.pdf).
19. Alberta Health and Wellness. Health standards and guidelines for tattooing. Edmonton, AB: Government of Alberta; 2002 Jun. Available from: <http://www.health.alberta.ca/documents/Standards-Tattooing.pdf>.



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