

FREQUENTLY ASKED QUESTIONS

Infection Prevention and Control (IPAC) Risks Posed by Piercing Guns and Devices

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Introduction

This Frequently Asked Questions (FAQ) document is intended to summarize the currently available evidence on piercing devices and to assist public health inspectors (PHI) in their risk assessment of body piercing and ear piercing services and devices. Topics covered in this document include:

- [Piercing](#)
- [Injury and Infection Risks](#)
- [Infection Prevention and Control \(IPAC\) Practices](#)
- [Other Jurisdictions](#)
- [Considerations for Public Health Inspectors](#)

For a detailed methodology on the literature search that informed this document, please refer to *Use of Piercing Devices in Canada and Select International Jurisdiction*.

Background

Body modification through the use of body piercings has become a common and socially acceptable practice. Conte et al. state, “the prevalence of body piercing in the general population is estimated to be as high as 50%.”¹ Increasing in popularity are ear piercings involving the cartilaginous parts of the ear. van Wijk et al., share an estimate that 30% of all piercings in Europe involve the upper, cartilaginous area of the ear.² The injury and infection risks of cartilage piercings differ from earlobe piercings^{3,4} which has resulted in guidance that restricts the methods through which ear cartilage may be pierced.^{5,6}

While limited reliable estimates are available regarding people who have experienced complications related to body piercing, it is generally accepted that the rising popularity of piercings has resulted in an associated increase in complications.^{7,8} Complications are often minor (e.g., superficial infection, mild bleeding, swelling) resulting in underreporting and are often managed by the piercers, clients themselves, instead of health care providers.³

Public Health Ontario’s (PHO) [Guide to Infection Prevention and Control in Personal Service Settings, 3rd edition](#) contains several client safety recommendations that directly reference piercing or jewellery used to perform piercing.⁵

These include:

- Jewellery inserted as part of a body-piercing procedure are to be made of biocompatible material(s) according to recognized standards. [Chapter 5.2]
- All jewellery used for body piercing is to be single-use and maintained as sterile until the point of insertion. [Chapter 5.2]
- All jewellery is to have a smooth finish and be free of nicks, burrs, and scratches. [Chapter 5.2]
- Jewellery designed for ear lobes and fish hook style jewellery is not to be used on other parts of the body. [Chapter 5.2]
- Clients are to be given verbal and written aftercare information following invasive services such as tattoo, micropigmentation, electrolysis, laser hair removal, body piercing, body modification, and earlobe piercing. [Chapter 5.4]
- Ear piercing guns/devices are to not be used on any other part of the body except the ear lobes (fleshy part only). [Chapter 5.5]

Piercing

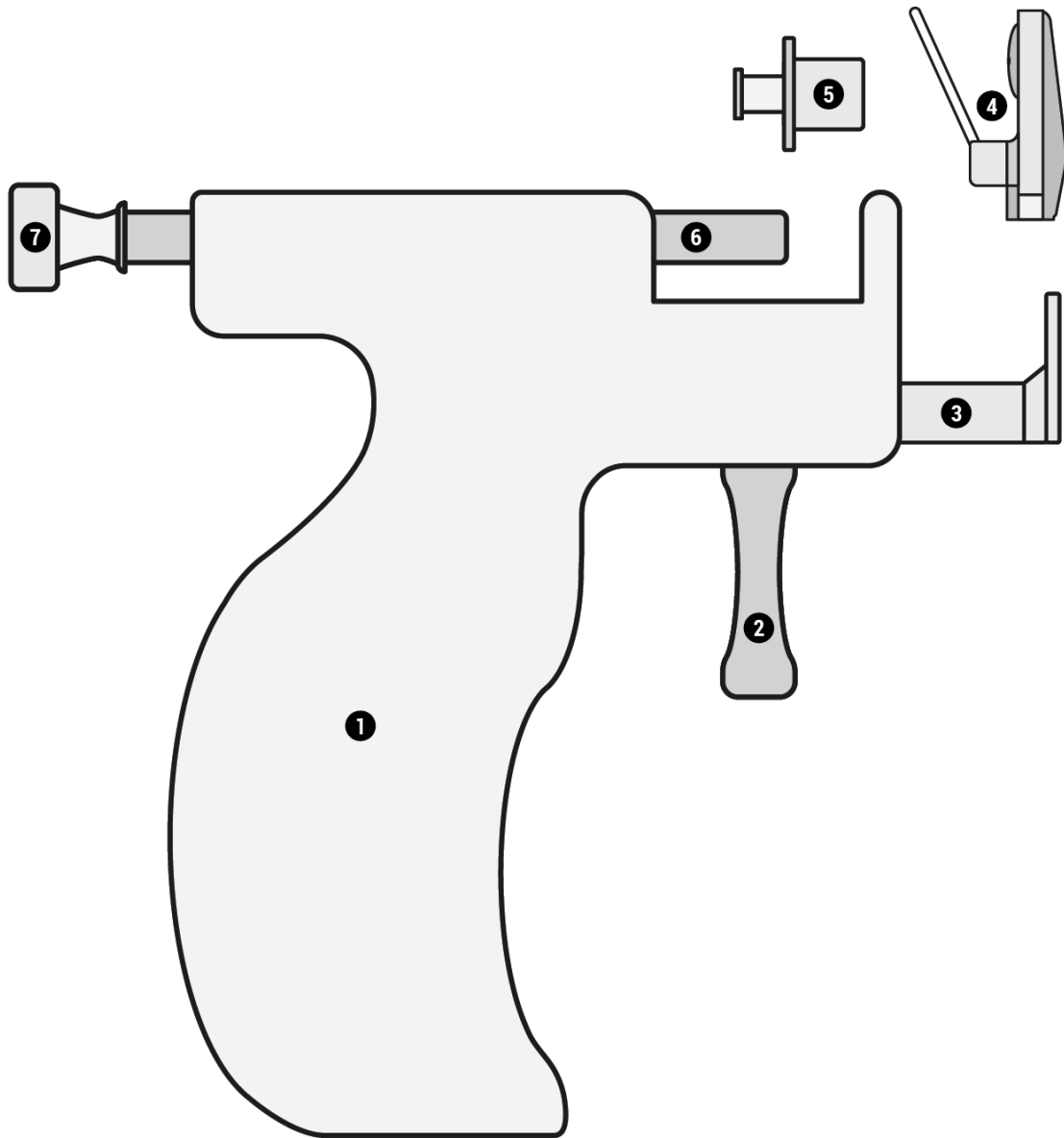
Q1. How is piercing performed?

Traditional piercing is performed with the use of a single-use needle or a needle/cannula complex. Needles, of varying sizes, are used to perforate the skin, mucosa, and underlying cartilage followed by the immediate insertion of jewellery through the created tunnel. The jewellery used for initial piercing is made out of stainless steel or other inert materials and remains in place during the initial healing period.^{3,6}

Piercings are also performed through the use of devices that are sometimes referred to as guns. These devices are typically used to pierce the ear. Devices specifically intended to pierce the nostril and navel are also available. All piercing devices create the piercing by forcing jewellery through the skin and cartilage, compared to piercing with a sterile needle which creates a tunnel for the jewellery to follow.^{3,6} Traditional piercing devices use a spring-loaded mechanism. While older versions of this type of device use fixed stud and clasp adapters, these devices cannot be effectively cleaned and sterilized. As a result, newer models use single-use disposable clasp retainers and stud adapters or single-use cartridges.⁹ Hand pressure devices are marketed as an alternative to spring-loaded devices. These devices operate through the use of hand pressure and a single-use disposable sterile cartridge that contains the jewellery and fits into the handpiece.⁹

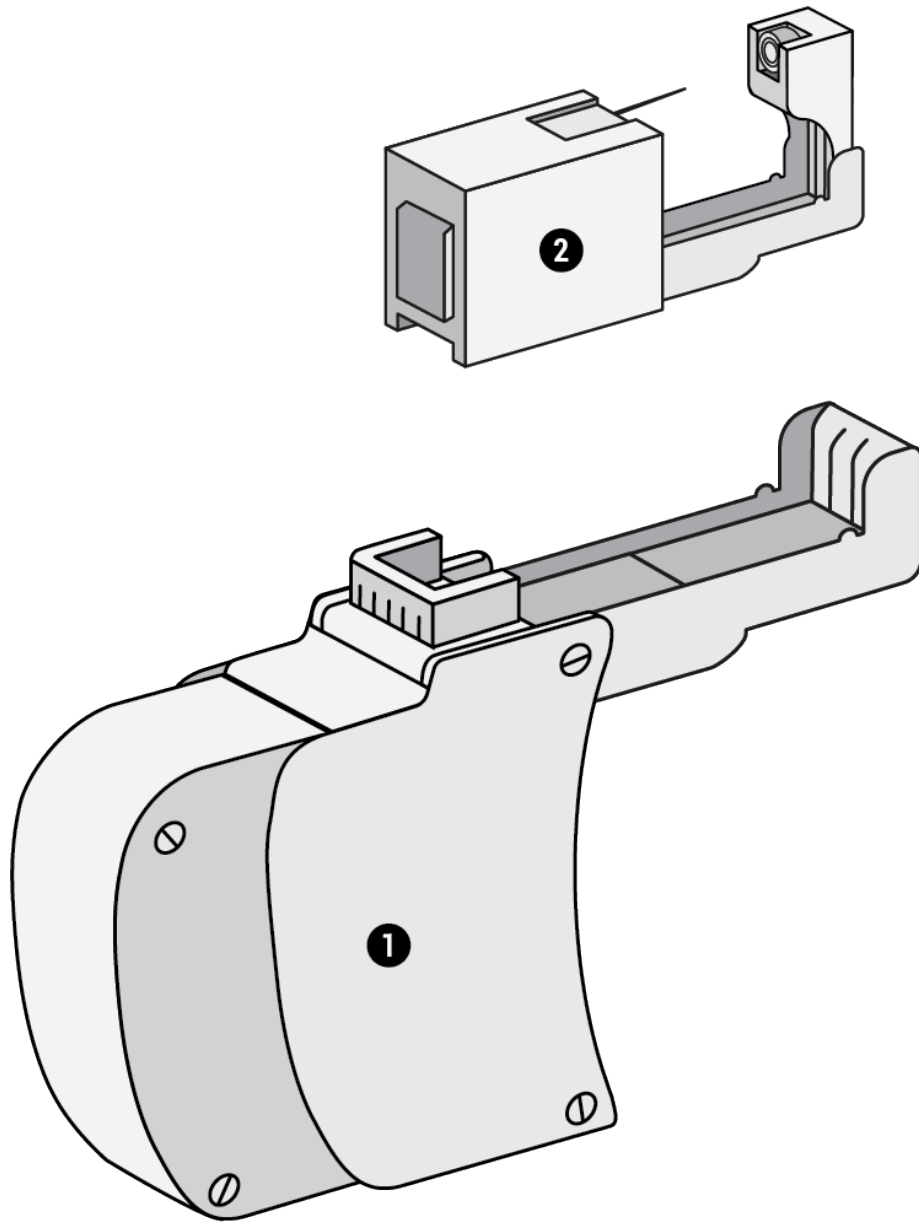
Finally, single-use handclasp models exist and are generally sold as “do it yourself” tools.⁹ Other less common techniques for ear piercing have been described in the literature, including the use of a carbon dioxide laser,¹⁰ but are out of scope for this FAQ. Examples of spring-loaded and hand pressure devices are shown in Figures 1 and 2 respectively.

Figure 1: A spring-loaded piercing device



1. Handle
2. Trigger
3. Clasp retainer holder
4. Single-use disposable clasp retainer and ear guard
5. Single-use disposable stud adapter
6. Plunger shaft
7. Plunger knob

Figure 2: A hand pressure piercing device

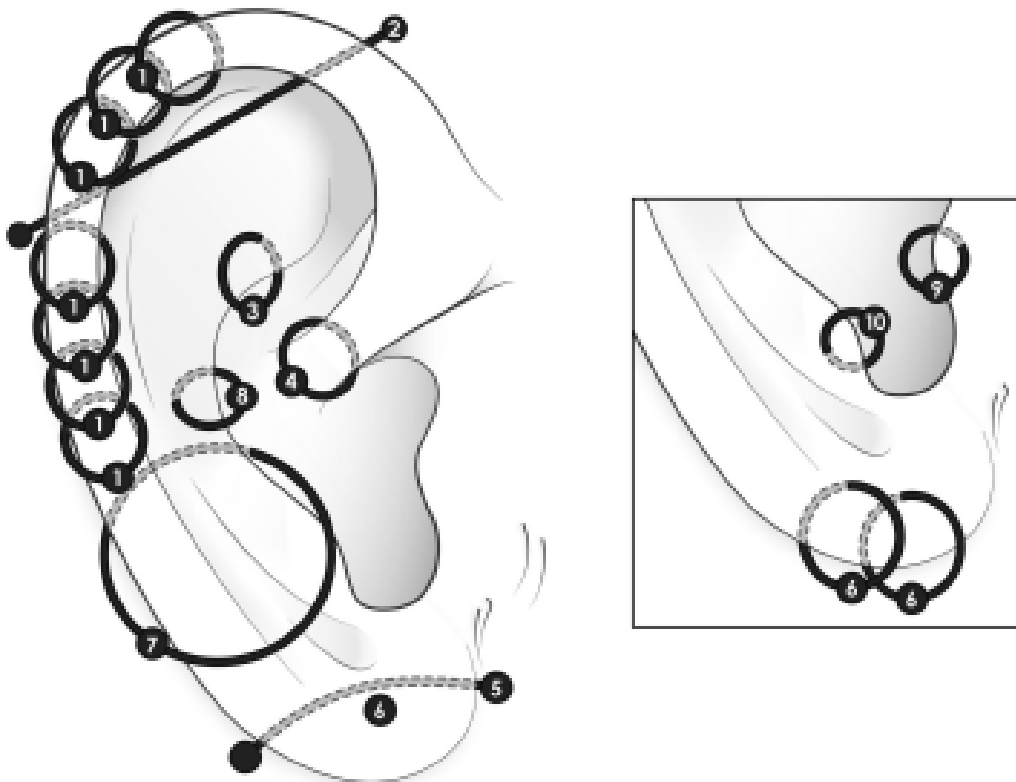


1. Trigger
2. Single-use disposable cartridge with sterile stud adapter, clasp retainer and jewellery

Q2. What body parts are commonly pierced?

Piercing sites can include the nose, mouth, eyebrows, nipples, navel, and genitals, with the most common site being the ear.¹¹ Traditional ear piercing studs are designed to pierce the fleshy part of the earlobe; other types of ear piercings include the helix, industrial or scaffold, rook, daith, horizontal lobe, conch, snug, tragus, and anti-tragus.¹² Piercings of any part of the ear, other than the fleshy part of the earlobe, are considered to go through cartilage. Common types of ear piercings are shown in Figure 3.

Figure 3: Common locations of ear piercings



Adapted from: The Civic Government (Scotland) Act 1982 (Licensing of Skin Piercing and Tattooing) Order 2006 - local authority implementation guide. Annex 1: main piercing sites, Public Health Scotland, 2018, licensed under the Open Government Licence <https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/>¹³

1. Helix
2. Industrial or Scaffold
3. Rook
4. Daith
5. Horizontal lobe
6. Lobe (ring, barbell)
7. Conch
8. Snug
9. Tragus
10. Anti-tragus

Q3. What is cartilage?

Cartilage is a connective tissue that is characterized by its nonvascularity and firm consistency. It is found in joints, air passages, the nose and parts of the ear. As a result of its structure, including poor blood supply, it faces a different set of injury risks and piercings performed through cartilage can have longer healing times.^{4,14,15}

Q4. How does the jewellery used for body piercing differ from the jewellery used for ear piercing?

The length and gauge of jewellery used for initial body piercings varies based on the anatomical location it is intended to pierce.¹⁶ When swelling is a concern, longer jewellery may be used to prevent the jewellery from becoming imbedded during the initial healing process.³ There are three main ways that body piercing jewellery can be attached. The jewellery can be externally threaded, internally threaded, or threadless (also known as press-fit).¹⁶ The jewellery used for ear piercing is offered in fewer lengths and gauges and typically attaches through the use of a butterfly clasp that holds the stud in place against the back of the earlobe.⁶

Q5. Where are piercing devices commonly used?

Professional piercers located in tattoo and piercing studios almost always pierce with a needle due to their perception that it is a less traumatic technique,² whereas ear piercing devices are typically used in mall kiosks or cosmetic shops.^{2,17-19}

Injury and Infection Risks

Q6. How common is it to experience complications following a piercing?

Complications following a piercing are typically minor (e.g., superficial infection, swelling, mild bleeding). This results in underreporting because minor complications are often dealt with by the piercers or clients themselves instead of health care providers,³ which is against best practice in Ontario.⁵

While limited reliable estimates are available regarding people who have experienced complications related to body piercing, it is generally accepted that the rising popularity of piercings has resulted in an associated increase in complications. For example, Simplot et al., noted in their study that 35% of participants self-reported a complication following an ear piercing.⁷ In 2015 Paphitis et al. surveyed youth and adults aged 16 to 35 years residing in the counties of Wellington and Dufferin or the City of Guelph and found that 63% of respondents reported an adverse reaction beyond what the client would consider normal healing following a body piercing.⁸ Sosin et al., similarly highlight in their 2015 systematic review that complications secondary to high ear cartilage piercings has increased.²⁰

Lyons et al. suggest that the rate of infections related to ear piercings has increased since ear cartilage piercings became more popular and cite that between 1990 and 1998, the incidence of perichondritis more than doubled when hospital episodes were analyzed.²¹

Perichondritis: An infection of the skin and tissue surrounding the cartilage of the ear.

Q7. Do complication risks differ depending on the body part pierced?

Conte et al., state that “piercing cartilage sites, such as the helix, concha, or nose, increases susceptibility to infections and permanent deformities.”¹ The risk associated with piercing the cartilage of the ear is due to the shattering and stripping off of the perichondrium, making the ear prone to infection. Presler et al. describe a higher incidence of infection when involving the ear due to its intrinsically poor blood supply leading to issues of wound healing.¹¹ Several authors suggest that because the ear cartilage has no intrinsic blood supply and derives its nutrition from the surrounding perichondrium, when bacteria are introduced into the cartilage, the immune defence is limited resulting in a rapid and often severe infection and reduced efficacy of antibiotics.^{22,23}

To highlight the intrinsic risk of cartilage piercings, Perry et al., state that cartilage piercings meet the definition of surgery according to the American College of Surgeons, and this is further complicated as a result of this surgery being performed by non-health care professionals.”²²

There are limited reports of infections following nasal piercing in the literature. Breuner et al. report, that piercing the nasal cartilage has a risk of infection due to significant bleeding which leads to septal hematoma formation.²⁴ They also state that “infection requires aggressive treatment with antibiotic agents that have good coverage against *Staphylococcus* species that commonly colonize the nasal mucosa.”²⁴

Folz et al., describe medical complications as a result of body piercings of 35 patients seen between 1996 and 2001.²⁵ Seven of the patients assessed were due to complications following piercing of the outer wing of the nose (nasal ala), including three with infections. This represented the second largest group of patients in their study after patients who had complications following ear cartilage piercings.

Q8. What are the most common complications resulting from piercings?

Minor complications like swelling, mild bleeding or superficial infections are quite frequent following piercings,³ including earlobe piercings. Long term complications have also been reported following piercings, including scarring, keloids, nerve damage, contact dermatitis and other allergies.³

The most common complication of ear cartilage piercing is perichondritis.¹⁵ The most common pathogens associated with ear cartilage infections following piercings are *Pseudomonas aeruginosa*, *Staphylococcus aureus*, and *Streptococcus pyogenes*.^{7,24,26,27} *P. aeruginosa* is known to be the causative agent in 95% of patients with ear piercing infections involving the cartilage.²⁸ Keene et al. describe a *P. aeruginosa* outbreak in 2000 involving a spring-loaded piercing device that resulted in seven confirmed cases and 18 suspect cases following ear piercing of the cartilage.¹⁸ Similarly, Perry et al., describe a case report of a 17 year-old who acquired a *P. aeruginosa* infection after having their ear cartilage pierced with a device in a shopping mall.²² Sandhu et al., describe a *P. aeruginosa* infection in an 11 year-old girl following an upper helical cartilage piercing using a piercing device. Fisher et al., also describe a 2003 outbreak involving 15 cases with *P. aeruginosa* where they did a case-control comparison that identified the combination of ear cartilage piercing and the use of contaminated aftercare solution was the primary risk factor for infection.²⁹

In addition to the risk of localized infections, there are reports of systemic infections resulting from piercings. These include toxic shock syndrome due to *Staphylococcus aureus* following an ear piercing, endocarditis following a nasal piercing, as well as hepatitis B virus, hepatitis C virus, human immunodeficiency virus, and tetanus following ear piercings, and an outbreak of mpox related to ear piercings.^{11,30-33}

Q9. Are the risks of complications the same for the various piercing methods?

While there is limited literature available that specifically compares the risk of infection related to various piercing methods, one study looked at various ear piercing techniques and their effect on ear cartilage.² In 2008, van Wijk et al. conducted a human cadaver study with the aim of evaluating the extent of damage to ear cartilage using different piercing techniques by piercing the ears of 22 freshly defrosted cadavers. The piercing methods included two forms of spring-loaded piercing devices, a hand pressure system, and a needle. The antihelix of the ears was pierced using the four different methods, leaving four piercings per ear. Using light microscopy, the extent of tissue damage was measured focusing on the degree of perichondrial damage, cartilage tears, and cartilage shattering. The authors failed to find a significant difference between the different piercing methods related to perichondrial damage, total chondral tears or chondral shattering. The authors concluded that tissue damage that occurs from the currently available methods to pierce the upper ear are comparable and therefore each piercing method is expected to incur the same risk for infection.² It should be noted that this study included a small sample size and did not provide an estimate of statistical power to support this conclusion.

As first described in 1990 by Muntz et al.,³⁴ another complication that can arise through the use of spring-loaded piercing devices is the earrings or earring backing becoming embedded. Because the piercing devices apply a significant amount of pressure and cannot be adjusted for varying tissue thicknesses, it can result in the earring becoming deeply embedded as a result of inflammation becoming so extreme that it envelops the piercing jewellery.^{24,26,35}

Q10. What risk is associated with using piercing devices on body parts other than the earlobe?

A number of documented infections have resulted from the use of ear piercing devices used on parts of the body other than the earlobe, especially ear cartilage.^{17,18,22,36} Hellard et al. suggest that there can be confusion surrounding the appropriate use of piercing guns in terms of piercing cartilage, which is confounded by the lack of regulations, guidelines and/or the manufacturer's instruction for use (MIFU).³⁷ The authors state, "the ambiguous and contrary instructions combined with the overall lack of body piercing practitioner training suggest customers are at risk of having an inappropriate piercing performed when piercing guns are used."³⁷

Historically piercing devices have been designed for piercing the earlobes only. According to various authors, this design limits these devices because they cannot be adjusted to accommodate the different thicknesses of tissues found in other piercing locations resulting in the risk of embedment of earrings and clasps, and subsequent infection, when used on other body sites.^{24,26,34} To help address this concern, devices intended to pierce other body parts sometimes use different jewellery that is body part specific.⁹

Another consideration is how these devices are placed into Spaulding's classification. Ear piercing devices without fixed heads are classified as non-critical because they only contact a client's intact skin. When a nostril piercing is performed, part of the device is inserted inside of the client's nose which contains a mucous membrane. Any portion of the device that entered the client's nose would be classified as semi-critical and require sterilization or high-level disinfection prior to reuse.⁵ Depending on the design of the piercing device, this may create a reprocessing requirement that the device cannot withstand. See Question 14 for more information regarding cleaning, disinfection and/or sterilization requirements for different piercing devices.

Q11. Does aftercare impact the risk of complications following a piercing?

Following a piercing, verbal and written aftercare instructions are to be provided to clients that describe the possible complications and their signs and symptoms.⁵ The operator has the responsibility to inform the client of appropriate aftercare and clients are responsible to follow aftercare instructions provided by the piercer.³⁸

Regardless of the technique, location or equipment used to perform a piercing, aftercare can have a significant impact on the risk of subsequent infection. Chalmers highlights that because piercings can take significant time to heal, there are additional risk factors beyond the piercing itself that can result in infection, such as hygiene and aftercare practices of the person who received the piercing during the healing process.³⁸ The author suggests that while understanding the role that inadequate care of the piercing has on subsequent infection risks is important, it is an under-researched topic.³⁸

Q12. Do piercing outcomes differ based on the setting where a piercing is performed?

Presler et al., suggest that there is concern for increased infection transmission when individuals receive a piercing outside of a specified body art studio.¹¹ Their study found that one-third of individuals with body piercings report having received piercings outside of a specified body art studio and that individuals with piercings at sites other than the soft earlobe, 23% reported experiencing a medical complication.¹¹ In a study by More et al., the authors identified significant differences in the training provided to staff who provide piercing using an ear piercing device at a cosmetic shop or mall kiosk compared to tattoo and piercing studios that use sterile needles and forceps.¹⁷ The authors found that the training and supervision was significantly longer at the tattoo and piercing studios, which ranged from 6 months to 3 years, compared to the average training of one to two weeks at cosmetic or mall kiosks.^{11,17}

IPAC Practices

Q13. What level of training is recommended for piercers?

As required by Ontario regulation 136/18 (Personal Service Settings), “Every operator of a personal service setting shall undertake any health and safety training related to personal service setting operation and maintenance, including training in relevant practices that can prevent or reduce the risk of disease transmission at the setting if required by a medical officer of health or public health inspector to do so.”³⁹ Examples of relevant infection prevention and control topics may include but is not limited to the following:⁵

- Routine Practices (e.g., hand hygiene, point-of-care risk assessment, personal protective equipment)
- Environmental cleaning
- Reprocessing of reusable equipment/instruments
- Client safety (condition of client skin, client jewellery, skin antiseptics, aftercare, injury risk)
- Occupational health and safety
- Record keeping

Regardless of the technique used, piercers may not always be aware of, or appreciate the risk of, complications related to piercing cartilage. Chalmers highlights that despite the need for a piercer to have a working knowledge of anatomy and infection control practices related to piercing, it has been argued that they often operate with limited knowledge of the health issues associated with piercing.³⁸ Mandavia et al, conducted a survey of 25 piercing parlors, both independent and chain locations, in London, UK regarding their knowledge of piercing ear cartilage.¹⁵ They found that while 96% of piercers

were aware of the infection risk, only 4% were aware of the risk of keloid scarring, 12% were aware of the risk of hypertrophic scarring, and no practitioners were aware of the risk of cauliflower ear. Additionally, their consent forms did not mention ear cartilage complications.¹⁵ As a result, they recommend training for cartilage piercing, warning clients of the risk of cartilage piercing, and standardized aftercare instructions. While the method of piercing was not included in the survey, guidance for that jurisdiction permits the use of piercing devices on ear cartilage.⁴⁰ Additionally, piercers should be trained in the use of the device and/or technique that they are using.^{5,38}

Q14. Are there different cleaning, disinfection and/or sterilization requirements for different piercing devices?

There are multiple styles of piercing devices. They can be broken down into devices that have a solid head and those that operate using disposable attachments that hold the jewellery.⁶

Ear piercing devices that have fixed heads are classified as critical items under Spaulding's classification.⁵ These items require sterilization. Inadequate reprocessing of these devices has been linked to the transmission of bloodborne infections.⁴¹ Johnson et al. identified a cluster of viral hepatitis linked to a jeweler who was performing ear piercing with soiled equipment. The equipment was being cleaned with alcohol which was deemed ineffective.⁴² These devices are not recommended for use in Ontario since they are unlikely to withstand sterilization, which is a requirement.⁵

Ear piercing devices that utilize single-use, pre-sterilized, disposable attachments are classified as non-critical items and require intermediate level disinfection. When reprocessing medical devices, the cleanliness of equipment can impact the efficacy of the reprocessing procedure.⁴³ As a result, devices must be thoroughly cleaned prior to disinfection.^{43,44} While the general best practice for cleaning is to use water and a detergent,^{5,44} the Canadian Standards Association permits the use of low-level and intermediate-level disinfectant wipes to disinfect non-critical devices that are non-immersible, provided that the device is properly classified and the cleaning and disinfection is done in accordance with the MIFU of both the device and the disinfectant wipe.⁴⁴ The Provincial Infectious Diseases Advisory Committee on Infection Prevention and Control also permits the use of one-step disinfectant wipes to clean non-critical equipment.⁴⁵ The Ontario Branch of the Canadian Institute of Public Health Inspectors applies this guidance to ear piercing devices in their fact sheet which states that "Ear piercing devices that cannot be immersed in liquid can be cleaned and disinfected via other methods (e.g., by wiping). If wipes are used for cleaning and disinfection, consideration is to be given to choosing a one-step cleaner/disinfectant product and ensuring that the contact time and intended use of the product are appropriate for use on the ear piercing device."⁴⁶

While the guidance for ear piercing devices may be applicable to some piercing devices intended for used on other body parts, PHIs will need to assess these devices on a case-by-case basis to determine where the devices fall within Spaulding's classification. For example, any portion of a piercing device that is strictly intended for nose piercings that enters a client's nose would be classified as semi-critical and require sterilization or high-level disinfection prior to reuse because it would be in contact with a mucous membrane inside the nostril. Nose piercing devices that utilize single-use, pre-sterilized disposable cartridges, where only the cartridge and no part of the reusable device itself enters the nostril, could be classified as a non-critical item and require intermediate level disinfection.

Q15. What skin preparation is required prior to piercing with a piercing device?

Skin preparation is important to prevent contamination of the piercing site. Most body piercings are performed without anesthesia however, topical local anesthetics can be used to reduce pain. Skin antiseptics are to be applied to the piercing site prior to the procedure to reduce the potential for

infection.⁵ If marking skin with a single-use marker or toothpick to indicate the piercing site, allow the mark to dry before applying skin antiseptic. Antiseptic solutions should not be sprayed onto sterile items (e.g., earrings, cartridges, adapters) prior to piercing as this can contaminate the items.⁵ Antiseptic product containers are not to be topped up (i.e., new product added to existing product in container).⁵

Q16. What type of aftercare is recommended for piercings performed with a piercing device?

Aftercare plays an important role in the risk of infection related to piercing. An ointment may be applied to help prevent infection⁵ but the use of contaminated aftercare solutions has been associated with outbreaks linked to piercing establishments.²⁹ Care must be taken when aftercare solution is dispensed to prevent contamination of the remaining product. While the responsibility for aftercare lies with the client, piercers should provide written and verbal aftercare instructions. Aftercare instructions provided to clients should include, but are not limited to, the following:⁵

- directions to clean hands immediately before touching the site
- an explanation of the expected healing time of the site
- a description of possible complications and their signs and symptoms
- advice on how to deal with slight redness, pain, or swelling
- a recommendation to consult with their health care practitioner within 24 hours if any signs of infection develop following the procedure.

Other Jurisdictions

Q17. How are ear piercing and piercing devices handled in other jurisdictions?

PHO conducted a jurisdictional scan and found that the majority of jurisdictions place restrictions on the use of piercing devices. While some jurisdictions expressly permit the use of piercing devices intended to pierce the nose or other body parts,^{12,40,47-50} no jurisdiction permits ear piercing devices to be used to pierce body parts other than the ear. The majority of jurisdictions also place restrictions on the use of ear piercing guns to pierce cartilage. For detailed information on how ear piercings and piercing devices are handled in other jurisdictions, including other provinces and territories in Canada and outside of Canada, please refer to *Use of Piercing Devices in Canada and Select International Jurisdiction*.

Considerations for Public Health Inspectors

Q18. Are piercing devices safe to use on ear cartilage?

All piercings involve a certain level of infection risk as a result of breaking the skin and creating a portal of entry for potential pathogens. Ear cartilage is particularly prone to infection due to the lack of blood supply in that part of the ear and the resulting long healing time.¹¹ As a comparison, healing times can range from a few weeks for earlobe piercings to months for cartilage or navel piercings.³

Several examples of outbreaks and case reports of infections following ear cartilage piercings using piercing devices are found in the literature^{17,18,22,36} and various organizations have expressed concerns over the use of piercing devices. The Association of Professional Piercers⁵¹ and the Australasian United Professional Piercers⁹ have both put out position statements opposed to the use of ear piercing devices in general. The United States based National Environmental Health Association has a sunsetted position paper calling for the use of ear piercing devices to be restricted to the earlobe only.⁵² In order to support their positions, all of these organizations cite concerns with use of the use of piercing devices to perform ear cartilage piercings due to the risk of injury posed by the blunt force mechanism of action, the design

of the jewellery which can become embedded and impair healing, inadequate training in the settings where these devices are used and a risk of contaminated equipment. Additionally, guidance documents for Canada,⁶ Prince Edward Island,⁵³ Australia's Northern Territory,⁵⁴ and New Zealand⁵⁵ all include a reference to injury and/or infection risk within their guidance documents to justify restricting the use of ear piercing devices to the earlobe only.

Q19. Are hand pressure devices safer than spring-loaded devices?

Hand pressure devices commonly employ the use of single-use sterile cartridges that are loaded into device. As a result, all parts of the piercing system that come into contact with the client are sterile and the risk of contaminated equipment and jewellery that is inherent with older spring-loaded devices is mitigated. PHO's review of the literature found no evidence that the injury risk, including injury to cartilage, when using hand pressure devices is different than the injury risk posed by spring-loaded devices.

Q20. Can body parts, other than the earlobe, be pierced with piercing devices?

PHO's *Guide to Infection Prevention and Control in Personal Service Settings, 3rd edition* specifies that "Ear piercing guns/devices are to not be used on any other part of the body except the ear lobes (fleshy part only)."⁵ It does not discuss piercing devices that are explicitly intended to pierce sites other than the ear. As such, these devices, when used in accordance with their MIFU, are neither prohibited nor endorsed by current Ontario guidance. See Q21 for considerations for PHIs when performing a risk assessment to assess the use of devices intended to pierce body parts other than the earlobe.

Q21. What should PHIs consider when assessing devices that are intended to pierce body parts other than the earlobe?

While not an exhaustive list, the following questions could be considered when assessing devices used to pierce other parts of the body:

- Is this device being used in accordance with its MIFU?
- What is the mechanism of action (spring-loaded, hand pressure, other)?
- What type of tissue is being pierced?
- Does the MIFU for the device align with best practice?
- What style of jewellery is being used by this device?
- Is the jewellery intended for type of piercing being provided?
- What parts of the device are single-use and sterile?
- Are any reusable portions of the device likely to come in contact with a mucous membrane or non-intact skin, thus requiring high-level disinfection at a minimum?
- Has the operator received training in the use of the device?
- Are appropriate aftercare instructions being provided?
- Is information being provided to the client specific to the piercing location (estimated healing time, potential complications)?

In general, best practices related to personal service settings can be found in PHO's [*Guide to Infection Prevention and Control in Personal Service Settings, 3rd edition*](#).⁵

References

1. Conte S, Kamali K, Muncey-Buckley M, Abbas K, Sabljic T, Mukovozov IM. Complications of body piercings: a systematic review. *Cutis*. 2023;112(3):139-45. Available from: <https://doi.org/10.12788/cutis.0847>
2. van Wijk MP, Kummer JA, Kon M. Ear piercing techniques and their effect on cartilage, a histologic study. *J Plast Reconstr Aesthet Surg*. 2008;61 Suppl 1:S104-9. Available from: <https://doi.org/10.1016/j.bjps.2007.01.077>
3. De Cuyper C, S MLP-C, Cullen R. Piercings: techniques and complications [Internet]. In: De Cuyper C, Pérez-Cotapos S ML, editors. *Dermatologic complications with body art: tattoos, piercings and permanent make-up*. 2nd ed. Cham, CH: Springer International Publishing; 2018 [cited 2024 Jul 23]. p. 101-19. Available from: https://doi.org/10.1007/978-3-319-77098-7_5
4. Sindoni A, Valeriani F, Protano C, Liguori G, Romano Spica V, Vitali M, et al. Health risks for body pierced community: a systematic review. *Public Health*. 2022;205:202-15. Available from: <https://doi.org/10.1016/j.puhe.2022.01.035>
5. Ontario Agency for Health Protection and Promotion (Public Health Ontario). Guide to infection prevention and control in personal service settings [Internet]. 3rd ed., 1st revision. Toronto, ON: Queen's Printer for Ontario; 2019 [modified 2019 Jul; cited 2024 May 28]. Available from: <https://www.publichealthontario.ca/-/media/documents/G/2019/guide-ipac-personal-service-settings.pdf>
6. Health Canada, Laboratory Centre for Disease Control, Division of Nosocomial and Occupational Infections. Infection prevention and control practices for personal services: tattooing, ear/body piercing, and electrolysis. *Can Commun Dis Rep*. 1999;25 Suppl 3:1-73. Available from: https://publications.gc.ca/collections/collection_2016/aspc-phac/HP3-1-25-S3-eng.pdf
7. Simplot TC, Hoffman HT. Comparison between cartilage and soft tissue ear piercing complications. *Am J Otolaryngol*. 1998;19(5):305-10. Available from: [https://doi.org/10.1016/s0196-0709\(98\)90003-5](https://doi.org/10.1016/s0196-0709(98)90003-5)
8. Paphitis K, Croteau S, Davenport L, Walters J, Durk D. Factors influencing tattooing and body piercing behaviours: a cross-sectional survey of youth and adults in Wellington-Dufferin-Guelph aged 16–35 years. *Can J Infect Control* 2015;30(2):91-9. Available from: <https://ipac-canada.org/photos/custom/OldSite/cjic/vol30no2.pdf>
9. Australasian United Professional Piercers (AUPP). Piercing guns: blunt force piercing [Internet]. Version 1.1. Perth, WA: AUPP; 2021 [cited 2024 May 28]. Available from: <https://www.safepiercing.org.au/wp-content/uploads/2021/09/AUPP-Piercer-Periodical-Piercing-Guns-May-2021.pdf>
10. Chang Y-T, Wu J-L, Chao J-C, Lin C-Y. The alternative ear-piercing technique by using superpulsed carbon dioxide laser: a comparative study with spring-loaded gun. *Eur Arch Otorhinolaryngol*. 2012;269(1):339-43. Available from: <https://doi.org/10.1007/s00405-011-1652-5>
11. Preslar D, Borger J. StatPearls [Internet]. Treasure Island, FL: Statpearls Publishing, LLC; 2023 [modified 2023 Jul 10; cited 2024 May 28]. Body piercing infections. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK537336/>

12. Health Protection Scotland. The Civic Government (Scotland) Act 1982 (licensing of skin piercing and tattooing) Order 2006 - local authority implementation guide. Version 1.8. Glasgow: Health Protection Scotland; 2018 [cited 2024 May 28]. Available from: https://www.westlothian.gov.uk/media/26264/REHIS-Local-Authority-Implementation-Guide/pdf/REHIS_Local_Authority_Implementation_Guide.pdf
13. Health Protection Scotland. The Civic Government (Scotland) Act 1982 (Licensing of Skin Piercing and Tattooing) Order 2006 - local authority implementation guide. Annex 1: main piercing sites [Internet]. Glasgow: Health Protection Scotland; 2018 [cited 2024 Jun 14]. Section 2: ear piercings. Available from: <https://publichealthscotland.scot/media/22455/2018-01-piercing-tattoo-la-implementation-guide-main-piercing-sites.pdf>
14. Stedman's medical dictionary for the health professions and nursing. Illustrated 5th ed. Philadelphia, PA :Lippincott Williams & Wilkins; 2005.
15. Mandavia R, Kapoor K, Ouyang J, Osmani H. Evaluating ear cartilage piercing practices in London, UK. *J Laryngol Otol*. 2014;128(6):508-11. Available from: <https://doi.org/10.1017/s0022215114001121>
16. Association of Professional Piercers (APP). Jewelry for initial piercings [Internet]. Lawrence, KS: APP; 2020 [cited 2024 May 28]. Available from: https://safepiercing.org/wp-content/uploads/2020/05/APP_Initial_Print.pdf
17. More DR, Seidel JS, Bryan PA. Ear-piercing techniques as a cause of auricular chondritis. *Pediatr Emerg Care*. 1999;15(3):189-92. Available from: <https://doi.org/10.1097/00006565-199906000-00007>
18. Keene WE, Markum AC, Samadpour M. Outbreak of *Pseudomonas aeruginosa* infections caused by commercial piercing of upper ear cartilage. *Jama*. 2004;291(8):981-5. Available from: <https://doi.org/10.1001/jama.291.8.981>
19. Kent SE, Rokade AV, Premraj K, Butcher C. "High" ear piercing and perichondritis of the pinna. *BMJ*. 2001;323(7309):400. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1120994/pdf/400.pdf>
20. Sosin M, Weissler JM, Pulcrano M, Rodriguez ED. Transcartilaginous ear piercing and infectious complications: a systematic review and critical analysis of outcomes. *Laryngoscope*. 2015;125(8):1827-34. Available from: <https://doi.org/10.1002/lary.25238>
21. Lyons M, Stephens J, Wasson J, DeZoysa N, Vlastarakos PV. High ear-piercing: an increasingly popular procedure with serious complications. Is good clinical practice exercised? *Eur Arch Otorhinolaryngol*. 2012;269(3):1041-5. Available from: <https://doi.org/10.1007/s00405-011-1693-9>
22. Perry AW, Sosin M. Reconstruction of ear deformity from post-piercing perichondritis. *Arch Plast Surg*. 2014;41(5):609-12. Available from: <https://doi.org/10.5999/aps.2014.41.5.609>
23. Bellaud G, Canestri A, Gallah S, Merlant M, Cousseau S, Lebrette MG, et al. Bacterial chondritis complications following ear piercing. *Med Mal Infect*. 2017;47(1):26-31. Available from: <https://doi.org/10.1016/j.medmal.2016.07.002>
24. Breuner CC, Levine DA; Committee on Adolescence. Adolescent and young adult tattooing, piercing, and scarification. *Pediatrics*. 2017;140(4):e20163494. Available from: <https://doi.org/10.1542/peds.2017-1962>

25. Folz BJ, Lippert BM, Kuelkens C, Werner JA. Jewelry-induced diseases of the head and neck. *Ann Plast Surg.* 2002;49(3):264-71. Available from: <https://doi.org/10.1097/00000637-200209000-00005>
26. Tweeten SS, Rickman LS. Infectious complications of body piercing. *Clin Infect Dis.* 1998;26(3):735-40. Available from: <https://doi.org/10.1086/514586>
27. Staley R, Fitzgibbon JJ, Anderson C. Auricular infections caused by high ear piercing in adolescents. *Pediatrics.* 1997;99(4):610-1. Available from: <https://doi.org/10.1542/peds.99.4.610>
28. Rowshan HH, Keith K, Baur D, Skidmore P. *Pseudomonas aeruginosa* infection of the auricular cartilage caused by "high ear piercing": a case report and review of the literature. *J Oral Maxillofac Surg.* 2008;66(3):543-6. Available from: <https://doi.org/10.1016/j.joms.2006.10.045>
29. Fisher CG, Kacica MA, Bennett NM. Risk factors for cartilage infections of the ear. *Am J Prev Med.* 2005;29(3):204-9. Available from: <https://doi.org/10.1016/j.amepre.2005.06.003>
30. Ramage IJ, Wilson N, Thomson RB. Fashion victim: infective endocarditis after nasal piercing. *Arch Dis Child.* 1997;77(2):187. Available from: <https://doi.org/10.1136/adc.77.2.183j>
31. Barn P, Chen T. Infections associated with personal service establishments: piercing and tattooing [Internet]. Vancouver, BC: National Collaborating Centre for Environmental Health; 2012 [cited 2024 Jul 23]. Available from: https://ncceh.ca/sites/default/files/PSE_Infections_Piercing_Tattooing_May_2012_0.pdf
32. O'Malley CD, Smith N, Braun R, Prevots DR. Tetanus associated with body piercing. *Clin Infect Dis.* 1998;27(5):1343-4. Available from: <https://www.semanticscholar.org/paper/Tetanus-associated-with-body-piercing.-O'Malley-Smith/2fc8a5d95731de6117c12666f49da30115e717b8>
33. Del Río García V, Palacios JG, Morcillo AM, Duran-Pla E, Rodríguez BS, Lorusso N. Monkeypox outbreak in a piercing and tattoo establishment in Spain. *Lancet Infect Dis.* 2022;22(11):1526-8. Available from: [https://doi.org/10.1016/s1473-3099\(22\)00652-1](https://doi.org/10.1016/s1473-3099(22)00652-1)
34. Muntz HR, Pa-C DJ, Asher BF. Embedded earrings: a complication of the ear-piercing gun. *Int J Pediatr Otorhinolaryngol.* 1990;19(1):73-6. Available from: [https://doi.org/10.1016/0165-5876\(90\)90197-y](https://doi.org/10.1016/0165-5876(90)90197-y)
35. Meltzer DI. Complications of body piercing. *Am Fam Physician.* 2005;72(10):2029-34. Available from: <https://www.aafp.org/pubs/afp/issues/2005/1115/p2029.html>
36. Sandhu A, Gross M, Wylie J, Van Caesele P, Plourde P. *Pseudomonas aeruginosa* necrotizing chondritis complicating high helical ear piercing case report: clinical and public health perspectives. *Can J Public Health.* 2007;98(1):74-7. Available from: <https://doi.org/10.1007/bf03405390>
37. Hellard M, Aitken C, Mackintosh A, Ridge A, Bowden S. Investigation of infection control practices and knowledge of hepatitis C among body-piercing practitioners. *Am J Infect Control.* 2003;31(4):215-20. Available from: <https://doi.org/10.1067/mic.2003.61>
38. Chalmers C. Appraising the need for tighter control over the practices of the tattooing and body piercing industry. *J Infect Prev.* 2009;10(4):134-7. Available from: <https://doi.org/10.1177/1757177409105650>
39. *Personal Service Settings*, O Reg 136/18. Available from: <https://www.ontario.ca/laws/regulation/180136>

40. Public Health England, Chartered Institute of Environmental Health. Tattooing and body piercing guidance: toolkit [Internet]. London: Crown copyright; 2013 [cited 2024 Jul 23]. Available from: <https://www.cieh.org/media/2004/tattooing-and-body-piercing-guidance-toolkit-july-2013.pdf>
41. Koenig LM, Carnes M. Body piercing medical concerns with cutting-edge fashion. *J Gen Intern Med.* 1999;14(6):379-85. Available from: <https://doi.org/10.1046/j.1525-1497.1999.00357.x>
42. Johnson CJ, Anderson H, Spearman J, Madson J. Ear piercing and hepatitis: nonsterile instruments for ear piercing and the subsequent onset of viral hepatitis. *JAMA.* 1974;227(10):1165. Available from: <https://doi.org/10.1001/jama.1974.03230230041022>
43. Ontario Agency for Health Protection and Promotion, Provincial Infectious Diseases Advisory Committee. Best practices for cleaning, disinfection and sterilization of medical equipment/devices [Internet]. 3rd ed. Toronto, ON: Queen's Printer for Ontario; 2013 [cited 2024 Jul 23]. Available from: <http://www.publichealthontario.ca/-/media/documents/B/2013/bp-cleaning-disinfection-sterilization-hcs.pdf?%20>
44. CSA Group. CSA Z314:23: Canadian medical device reprocessing in all health care settings. Toronto, ON: CSA Group; 2023.
45. Ontario Agency for Health Protection and Promotion, Provincial Infectious Diseases Advisory Committee. Best practices for environmental cleaning for prevention and control of infections in all health care settings [Internet]. 3rd ed. Toronto, ON: Queen's Printer for Ontario; 2018 [cited 2024 May 24]. Available from: <https://www.publichealthontario.ca/-/media/documents/b/2018/bp-environmental-cleaning.pdf>
46. Canadian Institute of Public Health Inspectors (CIPHI), Ontario Branch. Ear piercing with hand-held devices [Internet]. Vancouver, BC: CIPHI; 2019 [cited 2024 May 28]. Available from: https://ciphi.ca/wp-content/uploads/2022/05/CIPHI_ear_piercing_Dec_2019.pdf
47. British Columbia. Ministry of Health, Health Protection Branch. Guidelines for body modification [Internet]. Victoria, BC: Government of British Columbia; 2017 [cited 2024 May 28]. Available from: https://www2.gov.bc.ca/assets/gov/health/keeping-bc-healthy-safe/pses/body_modification_guidelines_nov_2017.pdf
48. Llywodraeth Cymru/Welsh Government. The Special Procedure Licences (Wales) Regulations 202X [draft]. Cardiff, UK: Llywodraeth Cymru/Welsh Government; 2024 [cited 2024 May 30]. Available from: <https://www.gov.wales/sites/default/files/consultations/2024-02/draft-the-special-procedure-licences-wales-regulations-202x.pdf>
49. Queensland Health. Public Health (Infection Control for Personal Appearance Services) Act 2003, a guide for local governments [Internet]. Brisbane, QL: State of Queensland; 2014 [cited 2024 Jul 23]. Available from: https://www.health.qld.gov.au/_data/assets/pdf_file/0027/442287/icpas-local-government.pdf
50. Government of Western Australia, Department of Health. Using ear and nose piercing guns [Internet]. Perth, WA: Government of Western Australia; n.d. [cited 2024 May 30]. Available from: https://www.health.wa.gov.au/Articles/U_Z/Using-ear-and-nose-piercing-guns
51. Association of Professional Piercers (APP). Issues with piercing guns [Internet]. Lawrence, KS: APP; n.d. [cited 2024 May 29]. Available from: <https://safepiercing.org/piercing-guns/>
52. National Environmental Health Association (NEHA). Policy statement on ear piercing guns [Internet]. Denver, CO: NEHA; 2018 [sunsetting 2021 Jul, cited 2024 May 28]. Available from: <https://www.neha.org/Images/resources/NEHA-Policy-Statement-Ear-Piercing-Guns-July2018.pdf>

53. Prince Edward Island. Department of Health and Wellness, Environmental Health. Guidelines for personal service facilities [Internet]. Charlottetown, PE: Government of Prince Edward Island; 2019 [cited 2024 May 28]. Available from: https://www.princeedwardisland.ca/sites/default/files/publications/guidelines_for_personal_service_facilities.pdf
54. Northern Territory Department of Health, Environmental Health Branch. Public and environmental health guidelines for hairdressing, beauty therapy and body art [Internet]. Darwin City, NT: Northern Territory Government of Australia; 2014 [cited 2024 May 30]. Available from: <https://digitallibrary.health.nt.gov.au/entities/publication/04a59090-e9dc-45f8-8600-988d36bd35/details>
55. New Zealand. Ministry of Health. Guidelines for the safe piercing of skin [Internet]. Wellington, NZ: New Zealand Ministry of Health; 1998 [cited 2024 Jul 23]. Available from: <https://www.health.govt.nz/system/files/documents/publications/skinp.pdf>

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