

Infections associated with religious rituals

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Published: *International Journal of Infectious Diseases*
November 2013 Volume 17, Issue 11, Pages e945–e948

Permalink: <http://dx.doi.org/10.1016/j.ijid.2013.05.001>

Summary: This review evaluates the medical literature for religious rituals or ceremonies that have been reported to cause infection. These include an ultra-orthodox Jewish circumcision practice known as metzitzah b'peh, the Christian common communion chalice, Islamic ritual ablution, and the Hindu 'side-roll'.

4. The common communion chalice

Holy Communion is a Christian practice that consists of a group gathered to share bread and wine from a minister or priest.¹⁸ The wine is frequently shared from a cup or by dipping the bread into wine, a practice called intinction. After each participant drinks from the cup, the minister wipes the rim prior to the next communicant drinking from the cup. Also, in some churches, communion wafers are placed into the cup containing wine, and a spoon (known as a cochlear) is used to retrieve a communion wafer from the chalice and placed into the recipient's mouth. The common spoon is not wiped between recipients.

The capability of the chalice to spread infection has been debated in the medical literature since the 19th century when Forbes and Anders hypothesized that contamination from the mouth may lead to bacteria in the wine.¹⁹ Since then four experimental studies, a review, and several opinion pieces including one from the CDC have been published that discuss the infection risk of the chalice.

The risk of infection depends on several factors including the bacterial or viral load in the communicants' saliva, the ability of the organism to withstand the antimicrobial properties of the gold/silver chalice and the alcohol content of the wine, the linen cloth used to wipe the rim, and the recipient's ability to destroy any pathogenic organism. Examples of potential pathogens are those that are transmitted via saliva, oral/labial skin lesions, fecal-orally, or droplet and airborne routes.^{18, 19, 20, 21, 22, 23, 24}

In 1946 Burrows demonstrated that when human volunteers shared a communion cup, with instructions to get as much saliva as possible on the rim, bacteria were recovered in small numbers.¹⁸ In 1967 Gregory showed that in a more realistic simulation of a communion service, various species of bacteria could be recovered from the cup, including staphylococci, *Neisseria* species, beta-hemolytic and non-hemolytic streptococci, and *Micrococcus* species.¹⁸ In 1967 Hobbs and colleagues performed experiments that concluded that silver and wine may have antimicrobial properties. However, the time interval between each communicant drinking from the cup, which is typically less than five seconds, is not sufficient to cause a significant decrease in bacterial counts. They also found that rotating the chalice was ineffective at decreasing colonization; however wiping the rim with the linen cloth decreased bacterial counts by 90%. All studies concluded that the risk of spreading disease cannot be excluded but is extremely low.¹⁹

In 1993 Furlow and Dougherty swabbed silver and pottery chalices before and after eight services. They cultured potentially pathogenic organisms, such as *Staphylococcus aureus*, *Haemophilus parainfluenzae*, and *Moraxella catarrhalis*. They concluded that individual cups (chalice) should be used to eliminate infection risk.²⁰

Finally, in 1998 the CDC reported there had never been an outbreak of infection related to the communion cup.²³ They referenced a study from 1997 in which 681 participants who drank daily from a common cup were at no higher risk of infection than those who participated less frequently or who completely abstained from Christian services. They concluded that it is probably safe to participate in services where a common cup is used, with the caveat that any member of the congregation with active respiratory illness or open labial or mouth sores abstain from partaking.²³ [emphasis added]

In conclusion, there is experimental evidence suggesting that sharing a communion cup contaminates the wine and cup. However, there has never been a documented case of illness caused by sharing a chalice reported in the literature.

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