



**Covid-19 disease / SARS-COV2 virus - - Do not touch your face (involuntarily) – that’s not going to happen, right!**

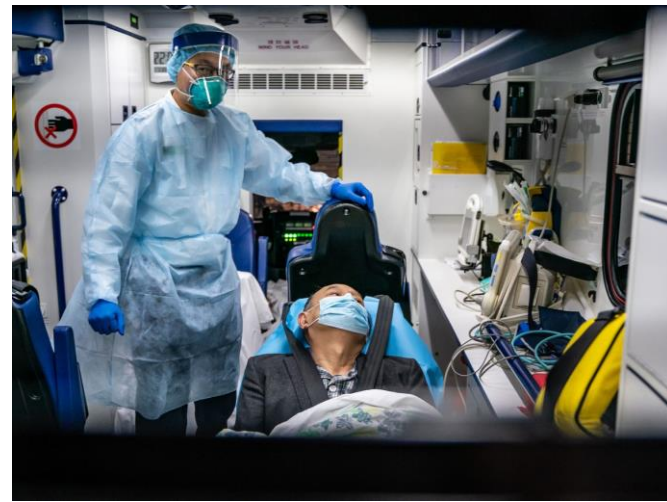
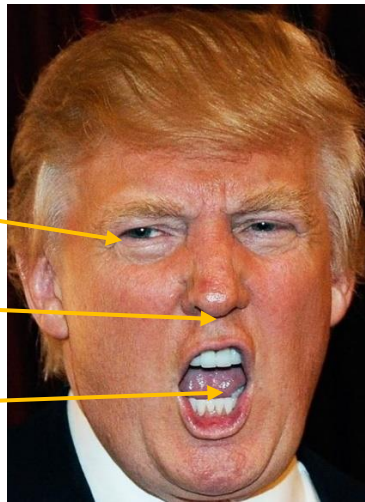
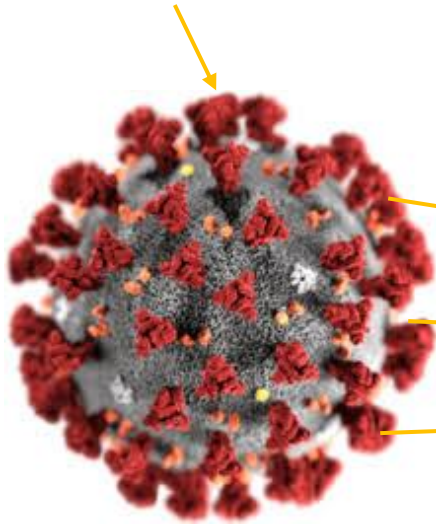
**So wash your hands often and social distance yourself. No shaking hands – be antisocial and stay alive.**

**People touch their faces involuntarily 23 times per hour on average.**

<https://www.ncbi.nlm.nih.gov/pubmed/25637115>

**Touch your face with infectious virus you got on your hands from fomite contacts and they invade your body’s facial entry portals, eyes, nose, mouth.**

100nm / 0.1 micron diameter SarsCov2 virus



# Stop Touching Your Face!

---

[nytimes.com/2020/03/02/well/live/coronavirus-spread-transmission-face-touching-hands.html](https://www.nytimes.com/2020/03/02/well/live/coronavirus-spread-transmission-face-touching-hands.html)

Tara Parker-Pope

March 2,  
2020



Want to improve your chance of staying healthy? Stop touching your face!

One of the more difficult challenges in public health has been to teach people to wash their hands frequently and to stop touching the facial mucous membranes — the eyes, nose and mouth, all entry portals for the new coronavirus and many other germs.

“Scratching the nose, rubbing your eyes, leaning on your chin and your fingers go next to your mouth — there’s multiple ways we do it,” said Dr. Nancy C. Elder, a professor of family medicine at Oregon Health and Science University in Portland who has studied face touching among doctors and clinic staff members. “Everybody touches their face, and it’s a difficult habit to break.”

As communities prepare for the spread of coronavirus around the globe, the primary advice from health officials is for people to wash their hands. But a number of health researchers say the public health message also should include a more forceful warning about face touching.

“The C.D.C. and W.H.O. still say something like ‘avoid’ touching your eyes, nose and mouth,” said Dr. William P. Sawyer, a family physician in Sharonville, Ohio, and creator of HenrytheHand.com, which promotes hand and face hygiene. “The advice should be

'absolutely do not touch them!' If you never touch your facial mucous membranes, you're less likely to be sick again from any viral respiratory infection."

To understand why hand hygiene and face touching can make a meaningful difference during a pandemic, consider how a virus can spread. An infected person rides in an elevator, touching buttons both outside and inside the elevator or maybe sneezing during the ride. When that person leaves, microscopic droplets containing the virus stay behind. The next people who press the same buttons or touch a surface pick up the virus on their hands, then scratch their noses or rub their eyes.

"Eyes, nose, mouth — all those mucous membranes are the portal into the body for a virus like Covid-19 or SARS," said Mary-Louise McLaws, professor of epidemiology, health care infection and infectious diseases control at the University of New South Wales in Sydney, Australia.

[Get an informed guide to the global outbreak with our daily \*\*coronavirus\*\* newsletter.](#)

"I was in a conference yesterday watching people, and in just about two minutes I counted a dozen times that I saw someone touching mucous membranes," Dr. McLaws said. "It is a very common practice. We rub our eyes, scratch our nose, touch our mouth — the general community needs to be aware of how often they are touching their face."

Dr. McLaws was the senior author of a [2015 study](#) on face touching that documented the alarming number of times we do it. While medical students attended a lecture, the researchers filmed them and counted the number of times they touched any part of their faces. Over the course of an hour, students touched their faces, on average, 23 times. Nearly half of the touches were to the eyes, nose or mouth — what infectious disease researchers call "the T-zone."

Other studies of [primary care doctors](#), people doing [office work](#), and students riding a [simulated rail car](#) have all found similar rates of touching the T-zone.

"I was really surprised," Dr. McLaws said. "By touching your mucous membranes, you're giving a virus 11 opportunities every hour if you've touched something infectious."

The risk of picking up a virus by hand-to-face contact depends on a number of factors, including the type of virus, whether the surface was nonporous, how long ago the virus was left behind, how much time the infected person spent in the area and the temperature and humidity levels.

The [World Health Organization](#) notes that while we don't know how long the new coronavirus survives on surfaces, it seems to behave like other coronaviruses — which is unsettling news. A recent study from the [Journal of Hospital Infection](#) found that similar coronaviruses have been shown to survive on surfaces for as long as nine days under ideal conditions. That's far longer than the flu virus, which typically can survive under ideal conditions only up to [24 hours on hard surfaces](#). [Public Health England](#) says that,

based on studies of other coronaviruses like SARS and MERS, “the risk of picking up a live virus from a contaminated surface” under real-life conditions “is likely to be reduced significantly after 72 hours.”

In general, a virus will survive the longest on nonporous surfaces made of metal and plastics — including door knobs, counters and railings. A virus will die sooner on fabrics or tissues. Once on your hand, a virus begins to lose potency, but it will probably live long enough for you to touch your face. Although more study is needed of coronavirus, in one study of rhinovirus, which causes the common cold, a small dose of virus was placed on a participant’s finger. An hour later, about 40 percent of the virus was still viable. After three hours, 16 percent could still be detected.

We also know from the 2003 epidemic of SARS, a more deadly coronavirus than the one currently spreading, that the virus was often transmitted from surface contact. In one Hong Kong hotel, an infected doctor who checked into his room on the ninth floor before going to the hospital for treatment left a trail of virus that infected at least seven people who also had rooms on the ninth floor, who then went on to spread the disease elsewhere. The doctor, who died from the infection, was later identified as a “super spreader” linked to about 4,000 cases of SARS that occurred during the epidemic.

The good news is that frequent hand washing can make a meaningful difference in lowering your risk. During the SARS epidemic, hand-washing reduced the risk of transmission by 30 to 50 percent. But after washing your hands, you must still be mindful about face touching, Dr. Sawyer said.

“Your hands are only clean until the next surface you touch,” he said. “When you reach for the door knob or hand railing, you’ve recontaminated your hand with something. If you touch your mucous membranes, then you could inoculate yourself inadvertently with that organism. If there is one behavior change that could prevent infection, it’s do not touch your T-zone.”

But it’s not easy to stop face touching. In fact, many people say that the more they think about it, the more their eyes twitch and their nose itches. A number of memes have emerged on social media from people who say that ever since the warnings about coronavirus, they can’t stop touching their own faces.

Only humans and a few primates (gorillas, orangutans and chimpanzees) are known to touch their faces with little or no awareness of the habit. (Most animals touch their faces only to groom or swat away a pest.) German researchers analyzed the brain’s electrical activity before and after spontaneous face touching, and their findings suggested that we touch our faces as a way to relieve stress and manage our emotions.

To break the face-touching habit, try using a tissue if you need to scratch your nose or rub your eyes. Wearing makeup may reduce face touching, since it may make you more mindful of not smudging it. One study found that women touched their faces far less

when they wore makeup. Another solution: Try to identify triggers for face touching, like dry skin or itchy eyes, and use moisturizers or eye drops to treat those conditions so you are less likely to rub or scratch your face.

It also may help to wear glasses to create a barrier to touching your eyes. Gloves or mittens can also make you more mindful of not touching your face (and can make it more difficult to put your finger in your nose or your eye). Although gloves, too, can become contaminated, viruses don't live as long on fabric or leather.

Given that face touching is a long-ingrained habit, it makes sense to remain vigilant about frequent hand washing and wipe down your desk, phones and community surfaces. Carry hand sanitizer and use it often. The more mindful you are about regular hand washing, the more mindful you will be about your hands and what they are touching.

**What is a coronavirus?**

It is a novel virus named for the crownlike spikes that protrude from its surface. The coronavirus can infect both animals and people and can cause a range of respiratory illnesses from the common cold to lung lesions and pneumonia.

**How contagious is the virus?**

It seems to spread very easily from person to person, especially in homes, hospitals and other confined spaces. The pathogen can travel through the air, enveloped in tiny respiratory droplets that are produced when a sick person breathes, talks, coughs or sneezes.

**Where has the virus spread?**

The virus, which originated in Wuhan, China, has sickened more than 89,700 in at least 67 countries and more than 3,000 have died. The spread has slowed in China, but is picking up speed in Europe and the United States.

**What symptoms should I look out for?**

Symptoms, which can take between two to 14 days to appear, include fever, cough and difficulty breathing or shortness of breath. Milder cases may resemble the flu or a bad cold, but people may be able to pass on the virus even before they develop symptoms.

**How do I keep myself and others safe?**

Washing your hands frequently is the most important thing you can do, along with staying at home when you're sick and avoiding touching your face.

**How can I prepare for a possible outbreak?**

Keep a 30-day supply of essential medicines. Get a flu shot. Have essential household items on hand. Have a support system in place for elderly family members.

**What if I'm traveling?**

The C.D.C. has advised against all non-essential travel to South Korea, China, Italy and Iran. And the agency has warned older and at-risk travelers to avoid Japan.

**How long will it take to develop a treatment or vaccine?**

Several drugs are being tested, and some initial findings are expected soon. A vaccine to stop the spread is still at least a year away.

---



## Major article

## Face touching: A frequent habit that has implications for hand hygiene



Yen Lee Angela Kwok MBBS, MPH, MHM, PhD, Jan Gralton BSc (Hons), PhD,  
Mary-Louise McLaws DipTropPubHlth, MPHlth, PhD\*

School of Public Health and Community Medicine, UNSW Medicine, UNSW Australia, Sydney, NSW, Australia

### Key Words:

Face touching  
Self-inoculation  
Medical students  
Hand hygiene compliance

**Background:** There is limited literature on the frequency of face-touching behavior as a potential vector for the self-inoculation and transmission of *Staphylococcus aureus* and other common respiratory infections.

**Methods:** A behavioral observation study was undertaken involving medical students at the University of New South Wales. Their face-touching behavior was observed via videotape recording. Using standardized scoring sheets, the frequency of hand-to-face contacts with mucosal or nonmucosal areas was tallied and analyzed.

**Results:** On average, each of the 26 observed students touched their face 23 times per hour. Of all face touches, 44% (1,024/2,346) involved contact with a mucous membrane, whereas 56% (1,322/2,346) of contacts involved nonmucosal areas. Of mucous membrane touches observed, 36% (372) involved the mouth, 31% (318) involved the nose, 27% (273) involved the eyes, and 6% (61) were a combination of these regions.

**Conclusion:** Increasing medical students' awareness of their habituated face-touching behavior and improving their understanding of self-inoculation as a route of transmission may help to improve hand hygiene compliance. Hand hygiene programs aiming to improve compliance with before and after patient contact should include a message that mouth and nose touching is a common practice. Hand hygiene is therefore an essential and inexpensive preventive method to break the colonization and transmission cycle associated with self-inoculation.

Crown Copyright © 2015 Published by Elsevier Inc. on behalf of the Association for Professionals in Infection Control and Epidemiology, Inc. All rights reserved.

Infections may be transmitted by self-inoculation. Self-inoculation is a type of contact transmission where a person's contaminated hands makes subsequent contact with other body sites on oneself and introduces contaminated material to those sites.<sup>1,2</sup> Although the literature on the mechanisms of self-inoculation of common respiratory infections (eg, influenza, coronavirus) is limited,<sup>3–5</sup> contaminated hands have been reported as having potential to disseminate respiratory infections.<sup>6</sup> *Staphylococcus aureus* is carried in the nasal mucosa in approximately 25% of the community<sup>7,8</sup> and, may be self-inoculated, via face touching, by individuals who are frequently exposed to potential carriers in both the community and health care settings.<sup>9,10</sup>

During the influenza A (H1N1) pandemic, face-touching behavior in the community was commonly observed with individuals touching their faces on average 3.3 times per hour.<sup>11</sup> In the health care setting, frequent face touching, particularly during periods of seasonal endemicity or outbreak, has the theoretical potential to be a mechanism of acquisition and transmission.<sup>1</sup> However, quantifying the role of face touching in the spread of respiratory infections or *S aureus* colonization is difficult for several reasons. First, such a study would require enrollment, screening, and prospective follow-up of a large population to identify a significant causal link. Second, the study would need to observe transmission occurring in community settings, rather than in isolation or under laboratory conditions, which would be ethically challenging. Finally, there are likely to be confounding factors, such as virulence of pathogens, varying susceptibility of the study population, and effects of modes of transmission other than hand to face contamination, that cannot easily be controlled.

A self-inoculation event may occur if a health care worker (HCW) fails to comply with hand hygiene after patient contact

\* Address correspondence to Mary-Louise McLaws, Level 3, School of Public Health and Community Medicine, UNSW Medicine, UNSW Australia, Sydney, NSW 2052, Australia.

E-mail address: [m.mclaws@unsw.edu.au](mailto:m.mclaws@unsw.edu.au) (M.-L. McLaws).

Conflicts of interest: An unfunded project and the authors declared have no conflict of interest.



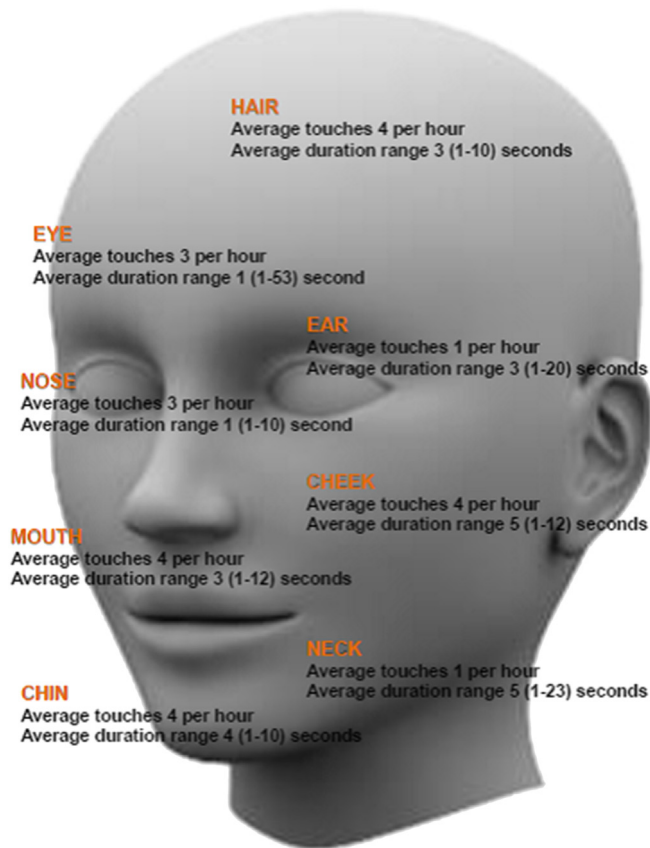


Fig 1. Average number of face touches observed in a 60-minute period.

(moment 4)<sup>12</sup> or after contact with the contaminated environment of the patient's zone (moment 5) (Fig 1) and makes subsequent physical contact with susceptible sites on their own bodies. To better understand the dynamic between face touching and the implications for hand hygiene among clinicians, we explored the prevalence of face-touching behavior in medical students.

## METHODS

In May 2010, a behavioral observation study was undertaken involving phase 3 medical students at the University of New South Wales (UNSW). Ethical approval was obtained from the UNSW Human Research Ethics Committee prior to the commencement of the study. The student cohort had completed a one 4-hour infection control course in the previous 12 months. The infection control course included education on hand hygiene, aseptic technique, standard precautions, and transmission-based precautions. The same student cohort attended two 2-hour lectures unrelated to infection control, on 2 separate occasions. One week before the 2-hour lecture commenced, students were informed that a behavioral observation study was being conducted during the lecture and required the students to be videotaped while they listened to the lecture. Students were not informed about which behaviors were under observation to blind them from the aims of the study; this was necessary to minimize the potential for a change in behavior as a result of being observed.<sup>13</sup> To participate in the study, students were instructed to move to a marked area on the left side of the lecture theatre and complete a participant consent form. To opt out of the study, students were instructed to move to the right side of the lecture theatre outside of the videotape recording range. Students

were also informed that they could withdraw from the study once recording commenced by simply moving to the other side of the theatre. All participants consented prior to videotape recording.

A digital videotape recording was made of the consenting participants and was viewed by investigators to record the face-touching behavior of every participant. For the purposes of precision, the digital recording was viewed multiple times after the lectures had taken place by 1 researcher (Y.L.A.K.). A standardized scoring sheet was used to tally the frequency of hand-to-face contacts, the area of the face that was touched, whether a mucosal area (eyes, nose, mouth) or nonmucosal area (ears, cheeks, chin, forehead, hair) was touched, and the time in seconds of each contact. Descriptive statistics were performed to determine the frequency and duration of touches per hour using SPSS version 21 for Windows (SPSS Inc, Chicago, IL).

## RESULTS

A total of 26 students were observed making 2,346 touches to the face over 240 minutes. Of the face touches, 56% (1,322/2,346) involved nonmucosal regions, whereas 44% (1,024/2,346) involved contact with mucosal membranes. Of the 1,322 nonmucosal membrane touches, most involved the chin (31%; 409/1,322), followed by the cheek (29%; 383/1,322), hair (28%; 369/1,322), neck (8%; 104/1,322), and ear (4%; 57/1,322). Of the 1,024 touches involving a mucosal membrane region, 36% (372/1,024) involved the mouth, 31% (318/1,024) involved the nose, 27% (273/1,024) involved the eyes, and 6% (61/1,024) involved a combination of the mucosal membranes.

During an average hour participants touched their face 23 times (median, 29.0 times; LQ (lower quartile), 42.2; UQ, 108.2; range, 4-153). The average duration of mouth touching was 2 seconds (median, 1 second; LQ, 3.0; UQ (upper quartile), 24.0; range, 1-12 seconds), the average nose touching duration was 1 second (median, <1 second; LQ, 0.09; UQ, 1.2; range, 1-10 seconds), and the average eye touching duration was 1 second (median, <1 second; LQ, 3.0; UQ, 11.5; range, 1-5 seconds).

## DISCUSSION

Hands are considered a common vector for the transmission of health care-associated infections<sup>7,14,15</sup> and have been implicated in the transmission of respiratory infections.<sup>11,14</sup> Good hand hygiene before and after patient contact is imperative to prevent transmission of infection. This is particularly so during the symptomatic or asymptomatic prodromal stages of infections when patients shed infectious material.<sup>16</sup> In particular, clinicians caring for infectious pediatric patients with high shedding concentrations<sup>17,18</sup> may be at risk of acquiring an infection if they have a high level of face-touching behavior.<sup>19</sup>

*S aureus* is a common pathogen prevalent in both community and health care settings. Colonization of the nasal mucous membranes with *S aureus* is common and ranges from 20%-30% in health care and community settings.<sup>7</sup> Nose touching was common among our participants. This finding supports the importance of hand hygiene as a means of preventing occupationally acquired colonization with *S aureus* from patients or the contaminated environment.<sup>8,10,20,21</sup> *S aureus* can survive for up to 5 years on hard surfaces, and no obvious role has yet been attributed to colonized staff.<sup>7</sup> When mixed with hospital dust, *S aureus* can still survive for >1 year until it is picked up from the environment.<sup>22,23</sup> Contaminated hands may act as a vector, transmitting the bacteria from a contaminated surface to the HCW's nasopharynx via face touching. High hand hygiene compliance before and after patient contact should reduce the likelihood of transferring pathogens through



self-inoculation and in turn prevent inoculation of patients.<sup>10,24,25</sup> Pathogens found on stethoscopes have also been recovered from physician's hands.<sup>26</sup> Given the habitual face-touching behavior observed in our study, it is possible that the inoculation of stethoscopes and other contaminated medical equipment may have been the result of inoculation from nose touching to hands and subsequently to the stethoscope. Given the frequency of face-touching behavior observed in this study, clinicians must practice hand hygiene before and after using such equipment to ensure that patient equipment is kept clean prior to use.

Given the high frequency of mouth and nose touching observed, 4 times per hour on average for mouth touching and 3 times per hour on average for nose touching, performing hand hygiene is an essential and inexpensive preventive method for breaking the colonization and transmission cycle. Models of infection transmission and comparison of transmission efficiency of self-inoculation against other transmission routes are required to further expand our knowledge on the role of face touching for self-inoculation. Meanwhile, raising awareness that face-touching behavior is common and is a possible vector in self-inoculation could result in HCWs accepting the message that hand hygiene before and after patient contact is an effective method of reducing colonization and infection transmission for themselves and their patients.

### Acknowledgments

We thank Professor Gary Velan for providing us access to the UNSW medical students prior to his lecture and to Professor William Rawlinson for providing recording equipment.

### References

- Nicas M, Best D. A study quantifying the hand-to-face contact rate and its potential application to predicting respiratory tract infection. *J Occup Environ Hygiene* 2008;5:347–52.
- Di Giuseppe G, Abbate R, Albano L, Marienelli P, Angelillo I. A survey of knowledge, attitudes and practices towards avian influenza in an adult population of Italy. *BMC Infect Dis* 2008;8:36.
- Winther B, McCue K, Ashe K, Rubino J, Hendley J. Environmental contamination with rhinovirus and transfer to fingers of healthy individuals by daily life activity. *J Med Virol* 2007;79:1606–10.
- Gwaltney J, Hendley J. Transmission of experimental rhinovirus infection by contaminated surfaces. *Am J Epidemiol* 1982;116:828–33.
- Gu J, Zhong Y, Hao Y, Zhou D, Tsui H, Hao C, et al. Preventive behaviors and mental distress in response to H1N1 among University students in Guangzhou China. *Asia Pac J Public Health* 2012;4:1–13.
- American Society for Microbiology. American Society for Microbiology Survey reveals that as many as 30 percent of travelers don't wash hands after using public restrooms at airports (September 2003). Available from: <http://www.asm.org/index.php/asm-press-releases/press-releases-archive/92-newsroom/press-releases/1807-american-society-for-microbiology-survey-reveals-that-as-many-as-30-percent-of-travelers-don-t-wash-hands-after-using-public-rest-rooms-at-airports>. Accessed March 1, 2014.
- Wertheim H, Melles D, Vos M, Van Leeuwen W, Van Belkum A, Verbrugh H, et al. The role of nasal carriage in *Staphylococcus aureus* infections. *Lancet Infect Dis* 2005;5:751–62.
- Munckhof W, Nimmo G, Schooneveldt J, Schlebusch S, Stephens AJ, Williams G, et al. Nasal carriage of *Staphylococcus aureus* including community-associated methicillin-resistant strains, in Queensland adults. *Clin Microbiol Infect* 2009;15:149–55.
- Dancer S. Importance of the environment in methicillin-resistant *Staphylococcus aureus* acquisition: the case of a hospital cleaning. *Lancet Infect Dis* 2008;8:101–3.
- Rongpharpi S, Hazarika N, Kalita H. The prevalence of nasal carriage of *Staphylococcus aureus* among healthcare workers at a tertiary care hospital in Assam with special reference to MRSA. *J Clin Diagn Res* 2013;7:257–60.
- Macias A, Torre A, Moreno-Espinosa S, Leal P, Bourlon M, Palacios G. Controlling the novel A (H1N1) influenza virus: don't touch your face! *J Hosp Infect* 2009;73:280–91.
- Sax H, Allegranzi B, Uckay I, Larson E, Boyce J, Pittet D. 'My five moments for hand hygiene': a user-centered design approach to understand, train, monitor and report hand hygiene. *J Hosp Infect* 2007;67:9–21.
- Last J. A dictionary of epidemiology. 2nd ed. New York (NY): Oxford University Press. Accessed February 2, 2014. <http://www.ebooks.com/537605/dictionary-of-epidemiology/porta-miquel/>; 2008.
- Pittet D, Allegranzi B, Sax H, Dharan S, Pessoa-Silva C, Donaldson L, et al. Evidence-based model for hand transmission during patient care and the role of improved practices. *Lancet Infect Dis* 2006;6:641–52.
- Gebreyesus A, Gebre-Selassie S, Mihert A. Nasal and hand carriage rate of methicillin resistant *Staphylococcus aureus* (MRSA) among healthcare workers in Mekelle hospital, North Ethiopia. *Ethiop Med J* 2013;51:41–7.
- Centers for Disease Control and Prevention. Clinical signs and symptoms of influenza: influenza prevention & control recommendations. Available from: [www.cdc.gov/flu/professionals/acip/clinical.htm](http://www.cdc.gov/flu/professionals/acip/clinical.htm). Accessed March 1, 2014.
- Petola V, Waris M, Osterback R, Susi P, Ruuskanen O, Hyypää T. Rhinovirus transmission within families with children: incidence of symptomatic and asymptomatic infections. *J Infect Dis* 2008;19:382–9.
- Petola V, Waris M, Osterback R, Susi P, Hyypää T, Ruuskanen O. Clinical effects of rhinovirus infections. *J Clin Virol* 2008;43:411–4.
- Thomas Y, Boquete-Suter P, Koch D, Pittet D, Kaiser L. Survival of influenza virus on human fingers. *Clin Microbiol Infect* 2014;20:58–64.
- Rohde R, Denham R, Brannon A. Methicillin resistant *Staphylococcus aureus*: carriage rates and characterization of students in a Texas University. *Clin Lab Sci* 2009;22:176–84.
- Monto A. Studies of the community and family: acute respiratory illness and infection. *Epidemiol Rev* 1994;16:351–73.
- Crossley K, Archer G. The staphylococci in human disease. 1st ed. New York (NY): Churchill Livingstone; 1997.
- French G, Otter J, Shannon K, Adams N, Watling D, Parks M. Tackling contamination of the hospital environment by methicillin-resistant *Staphylococcus aureus* (MRSA): a comparison between conventional terminal cleaning and hydrogen peroxide vapor decontamination. *J Hosp Infect* 2004;57:31–7.
- Garbutt C, Simmons G, Patrick D, Miller T. The public hand hygiene practices of New Zealanders: a national survey. *N Z Med J* 2007;120:U2810.
- Elder NC, Sawyer W, Pallerla H, Khaja S, Blacker M. Hand hygiene and face touching in family medicine offices: a Cincinnati Area Research and Improvement Group (CARInG) network study. *J Am Board Fam Med* 2014;27:339–46.
- Longtin Y, Schneider A, Tschopp C, Renzi G, Gayet-Ageron A, Schrenzel J, et al. Contamination of stethoscopes and physicians' hands after a physical examination. *Mayo Clin Proc* 2014;89:291–9.