



DOUBLE GLOVING CLINICAL EVIDENCE A JAPANESE PERSPECTIVE

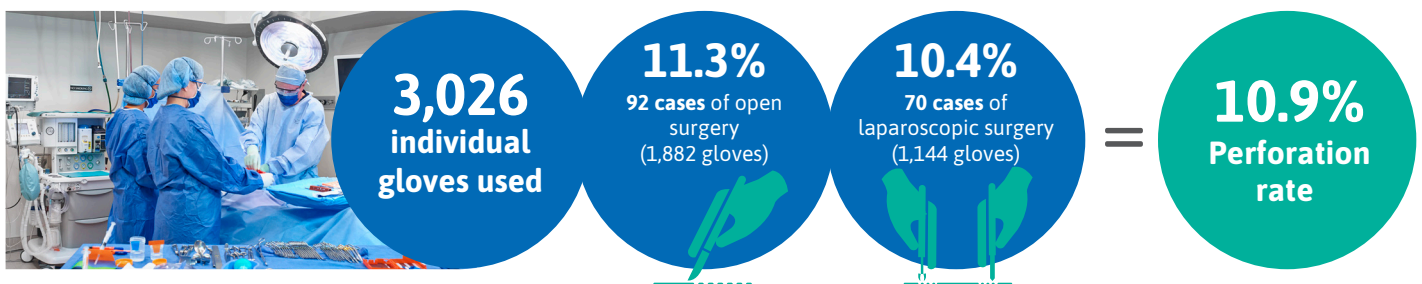


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Dr. Kobayashi is a specialist in fields related to gastrointestinal surgery, infectious disease, and cancer treatment. She has also been a board-certified fellow in each field and an active board-certified trainer. In 2018, she became a lecturer at the Department of Medical Risk Management and Infection Control at the National Defense Medical College.

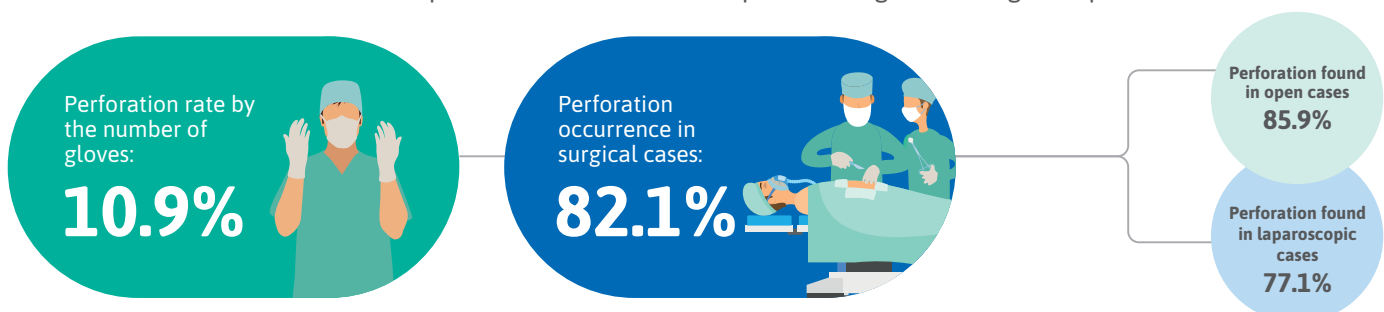
1 A new study finds a 10.9% perforation rate for gastrointestinal surgeries

A new study of glove perforation rate for open and laparoscopic gastrointestinal surgeries from National Defence Medical College Hospital in Japan looked into **a total of 162 cases of surgeries.*** To investigate post-operative perforations, all gloves were tested by water leak test (WLT) and electro-conductivity test (ECT).



2 Perforated gloves were found in 82.1% of surgery cases

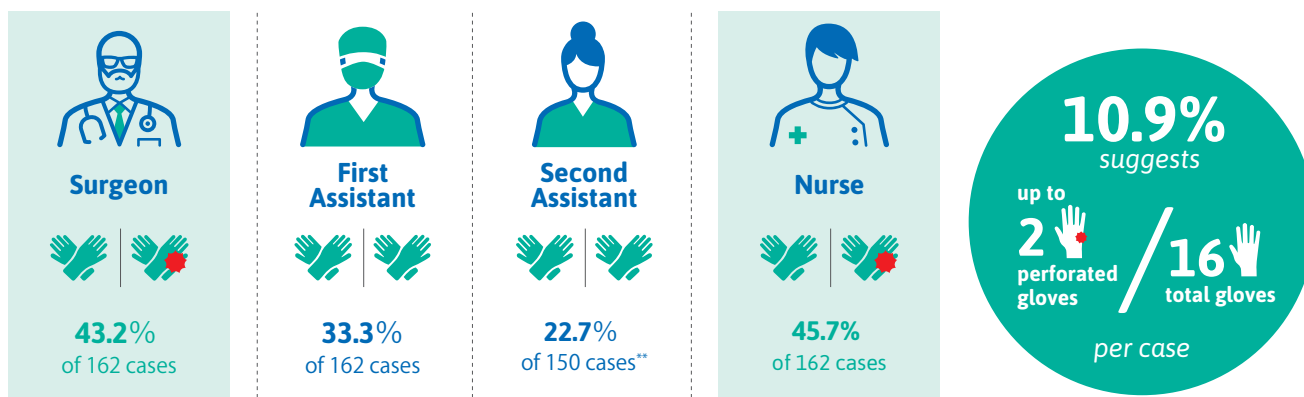
When you examine glove perforation occurrence by surgical cases, perforated gloves were found in 133 cases out of 162 total cases, which means 82.1% of operations had at least one perforated glove during the operation.



3 Perforation may occur more often than we perceive

In this hospital, most surgeries were carried out by 4 team members. It is custom for all team members to change gloves before closing the surgical incision; therefore, hypothetically a minimum of 16 individual gloves were used per case. Applying a **10.9% perforation rate** means **up to 2** of any team members' gloves may be perforated, with a higher occurrence rate observed in surgeons and nurses.

PERFORATION OCCURANCE RATE IN CASES TYPICALLY INVOLVING 4 TEAM MEMBERS

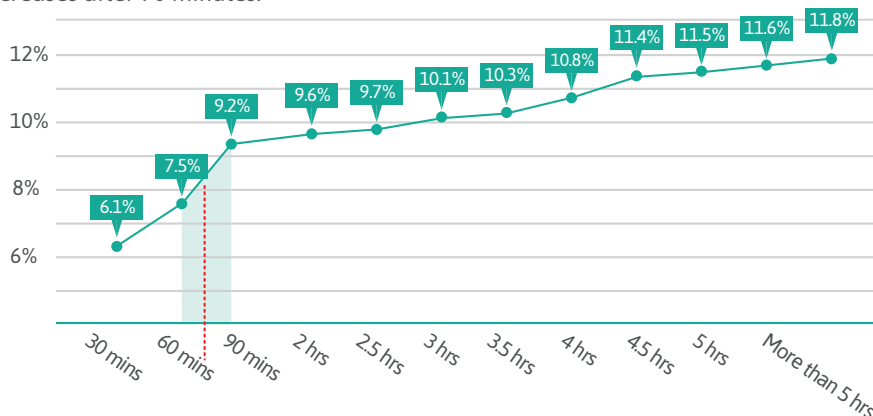


Only 9.1% of the doctors and 46.2% of the nurses double gloved during the survey period.

4 Perforations more rapidly occur up to 90 minutes

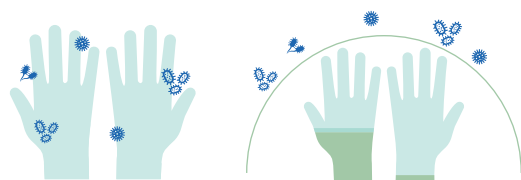
The study found that the perforation rate was more rapid in the first 90 minutes from the time the gloves are donned. The rate of perforation then steadily increases after 90 minutes.

Perforation Rate by Wear Time



5 Always double-glove, and practice glove change after 60 to 90 minutes

Perforation rates to the inner (5.7%) and outer (11.9%) gloves are significantly different ($P=0.0001$), which supports double gloving as a recommended best practice to reduce the potential risk of surgical site infections (SSI), due to pathogen transmission between patient and healthcare worker and vice versa in both open and laparoscopic surgeries. Increased perforation rate to gloves after 60-90 minutes suggests the routine changing of gloves at this critical time will also decrease the risk of bi-way pathogen transmission.



Double-glove to avoid transmission of pathogenic microbes



Change gloves every 60 to 90 Minutes

REFERENCES

*Study conducted between February 18 and May 15, 2019

**Second assistant was not present for all cases.

小林美奈子, ほか: 消化器外科手術における手術時手袋穿孔に関する検討—開腹手術と鏡視下手術の比較 日外感染症会誌, 2019; 16(4): 197-202.

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