

SURVEY INVESTIGATING PHYSICIAN'S PERCEPTION OF BRONCHOSCOPE VECTORED CROSS-INFECTIONS, REPROCESSING METHOD AWARENESS, AND WILLINGNESS TO PAY TO AVOID CROSS-INFECTIONS.

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Objective

Bronchoscopy is generally a safe and efficient procedure with >1,100,000 procedures in Europe annually. The risk of reusable flexible bronchoscope (RFB) vectored cross-infection has been estimated to be between 0.7%-2.8% and costs between 199-358 USD per bronchoscopy.

In this study we investigated physician's perception of RFB vectored cross-infection, their willingness to pay (WTP) to prevent these infections, and understanding of the reprocessing methods utilized on their RFBs.

Methods

We conducted a survey amongst 323 physicians from USA, Australia, France, Germany, Italy, Spain, UK and Japan. All respondents were regularly conducting bronchoscopies within the intensive care unit, bronchoscopy suite, or in both settings. The respondents were given the following options concerning their perception of cross-infection risk: "0-0.5%", "0.5-1%", "1-2%", "2-5%" and ">5%" and WTP: "Unwilling to pay", "1-100 USD", "100-200 USD", "> 300 USD". WTP ranges were stated in local currency and converted to 2020 USD. The reprocessing options included "Manual Cleaning", "High-Level Disinfection (HLD)", "Double High-Level Disinfection", "HLD+Ethylene Oxide (EtO) Sterilization", "DHLD+EtO Sterilization", "Other", "Don't know". The variables were ascribed dummies to enable statistical analysis. We investigated the correlation between the variables via ordinary least squares regression. Country and setting effects were analyzed via Kruskal-Wallis rank sum test followed by Kruskal-Wallis post-hoc test with Bonferroni correction.

Results

The median perception of cross-infection was 0.5-1% with a median WTP of 1-100 USD while 43% of physicians were unaware of their reprocessing method. Physicians without knowledge of their reprocessing method had a lower cross-infection risk perception ($P<0.001$). WTP was positively correlated to reprocessing method awareness and perception of cross-infection ($P<0.001$). There was a significant country effect on reprocessing method awareness ($P<0.001$) and WTP ($P<0.001$). UK and Japanese physicians had significantly less reprocessing method awareness than German (PUK=0.004, PJP=0.001), Italian (PUK=0.023, PJP=0.008) and Spanish (PUK<0.001, PJP<0.001) physicians. Whereas US physicians had lower reprocessing method awareness than German ($P=0.003$) and Spanish ($P=0.004$) physicians. Accordingly, Japanese physicians were WTP significantly less than Italian ($P=0.006$), Spanish ($P=0.001$), UK ($P=0.01$), and US ($P<0.001$) physicians. No setting effect was detected on any of the variables.

Willingness to pay to avoid reusable flexible bronchoscope vectored cross infections

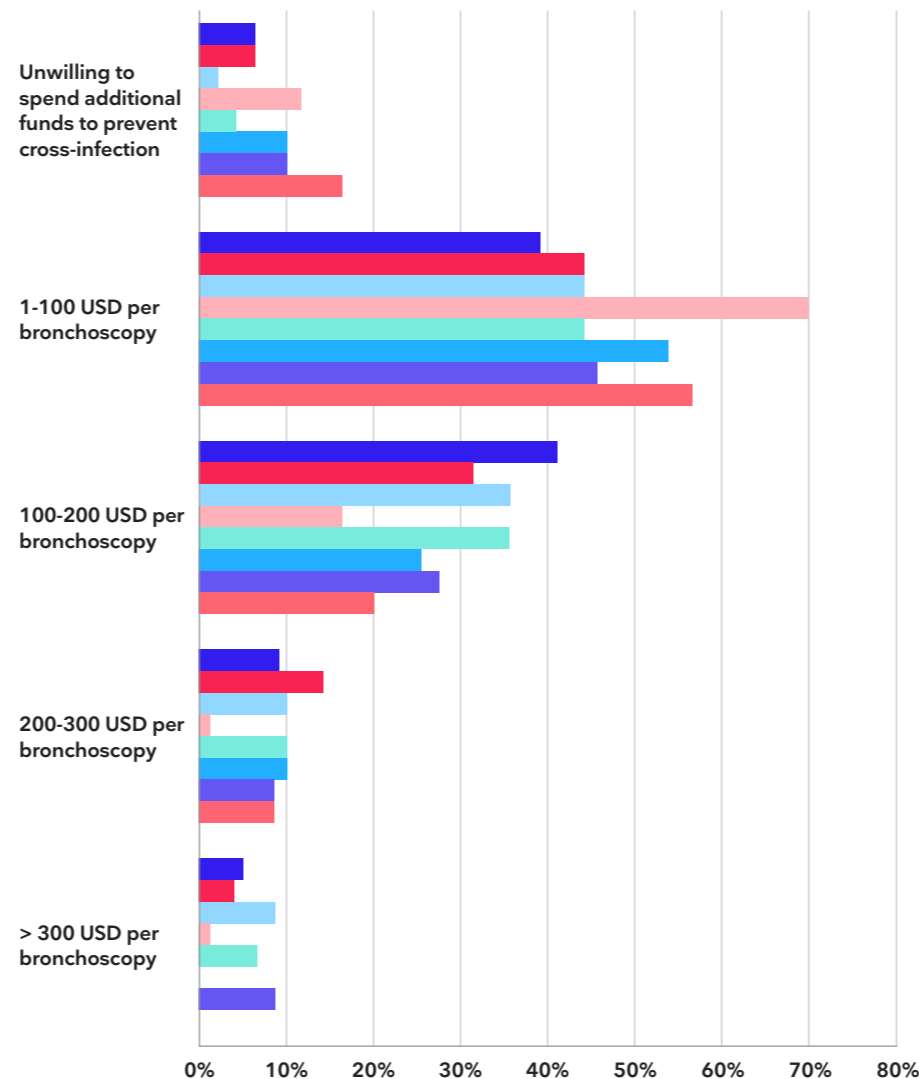


Figure 1: Distribution of physician's willingness to pay depending on country, to avoid RFB vectored cross-infections in 2020 USD.

Perceived risk of reusable flexible bronchoscope vectored cross infection

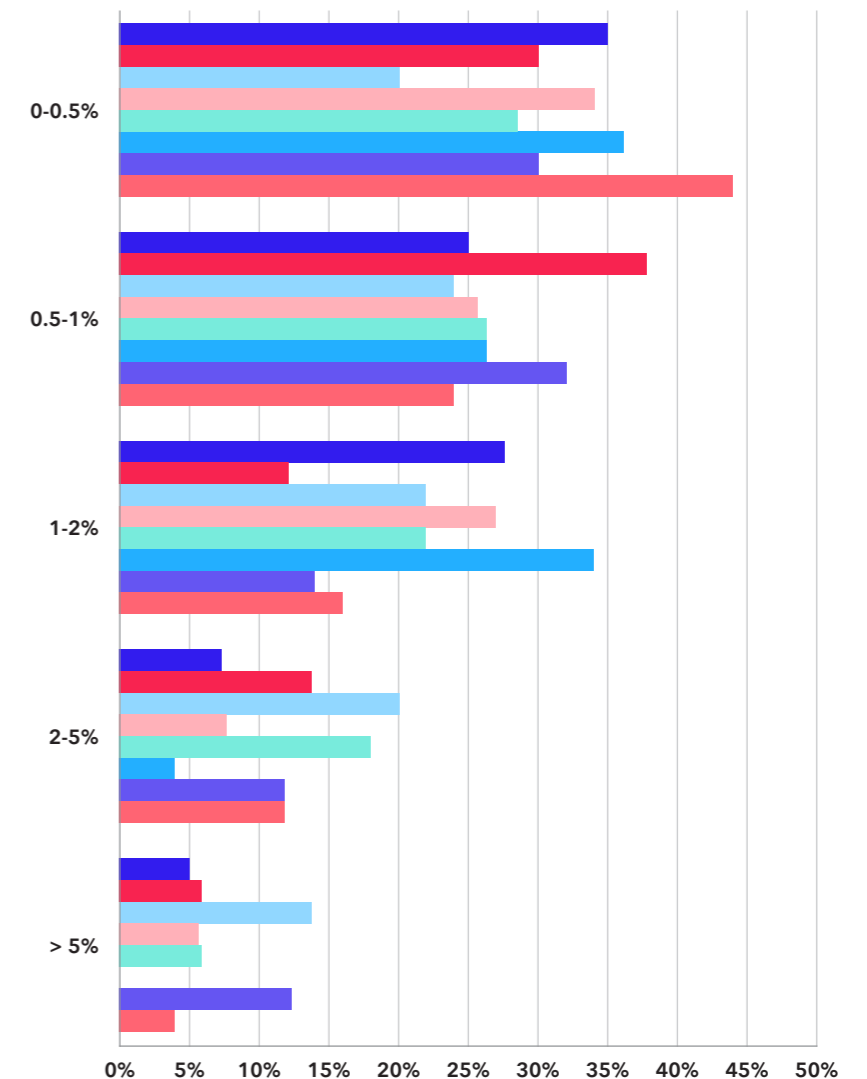


Figure 2: Distribution of physician's perception of reusable flexible bronchoscope vectored cross-infections depending on country.

Conclusion

Physicians recognize the risk of RFB vectored cross-infection and is subsequently WTP to avoid these infections. Accordingly, RFB vectored cross-infection risk was estimated 0.5-1% which is within the lower ranges of published evidence. However, the WTP does not cover the cost of cross-infection. Further, reprocessing method awareness was low and correlated to the perception of the cross-infection and WTP.

USA
UK
Spain
Japan
Italy
Germany
France
Australia

