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• Royalties

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	Trans Spatial analysis	smissio s of 2,334 Covi	on Risk	Decrea	SES WI	th Dista	INCE ains in China
0.4m	0.03%	0.1%	0.2%	0.2%	0.2%	0.1%	0.03%
	0.4%	1.7%	3.5%	Index Patient-	3.5%	1.7%	0.4%
0.4m	0.03%	0.1%	0.2%	0.2%	0.2%	0.1%	0.03%
	.5m	1.0m	0.5m	<u> </u>	0.5m	1.0m Hu, Clin Infect Dis 2	1.5m













Transmission Risk in Shared Hospital Rooms



- Brigham & Women's Hospital, Sept 2020-April 2021
- 25 patients diagnosed with SARS-CoV-2 after admission to a shared room
- $_{\circ}$ 31 potentially exposed roommates
- Roommates ~7 feet apart and separated by a curtain
- ₀ ≥6 air changes per hour
- Median duration of exposure 18 hours (IQR 12-47 hours)
- 12/31 (39%) roommates tested positive

Karan, Clinical Infectious Diseases 2021; doi: 10.1093/cid/ciab564























Transmission To and From HCWs Despite Masks

- We have documented multiple instances of transmission to healthcare workers despite masks & eye protection
- · All transmissions confirmed by whole genome sequencing
- (0 SNP differences) • Patient to CT tech (10 min interaction)
- Patient to CT tech (10 min interaction)
 Patient to video swallow technician (45 mins)
- Asymptomatic inpatient to two patient care assistants (4-8 hours)
- Presymptomatic nurse to patient (2 shifts)
- Presymptomatic outpatient to physician (45 mins, both parties masked)

Klompas, Ann Intern Med 2021; doi.org/10.7326/M20-7567 Klompas, Clin Infect Dis 2021; doi.org/10.1093/cid/ciab218





























The Intubation Paradox

。 It's not the procedure, it's the patient!

- Associations between procedures and healthcare worker infections more likely due to the circumstances surrounding procedures rather than the procedures themselves
 - 。 Severe illness (high viral loads)
 - 。 Significant symptoms (tachypnea, heavy breathing, coughing)
 - $_{\circ}\,$ Profound proximity to the respiratory tract
 - Sustained exposure

Klompas, JAMA Surgery 2021;156:113-114









What is the risk to healthcare workers?













Summary

- SARS-CoV-2 transmitted by respiratory particles in a range of sizes including aerosols
- Risk of infection is associated with the amount of viral exposure
 Determined by source patient's viral load, symptoms, proximity, duration of exposure, masking, ventilation, and vaccination status
- Masks decrease exposure but do not eliminate it
- Covid patients sick enough to be hospitalized may be less contagious than those with acute infection with or without symptoms. Should we be doing more to protect healthcare workers and patients in non-Covid units?
- $_{\circ}~$ Most "aerosol generating procedures" do not generate aerosols
- Vaccines prevent transmission. Vaccinated people less likely to carry virus & clear it more quickly.
- Stay humble.

