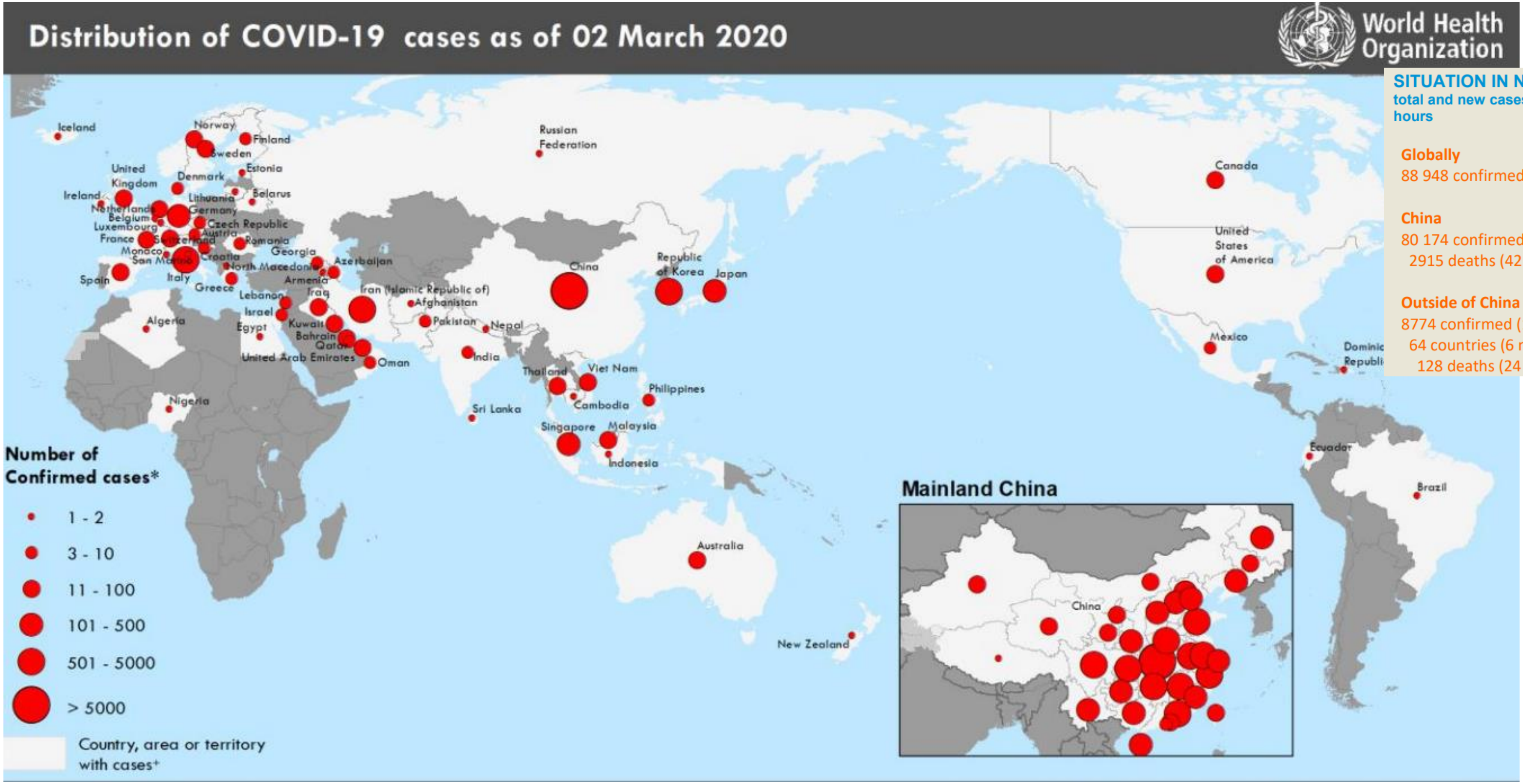
Ministerio de Salud

Gobierno de Chile

COVID-19
PRECAUCIONES PARA EL EQUIPO DE SALUD

Nombre presentador
Fecha



SITUATION IN NUMBERS
total and new cases in last 24 hours

Globally
88 948 confirmed (1804 new

China
80 174 confirmed (206 new)
2915 deaths (42 new)

Outside of China
8774 confirmed (1598 new)
64 countries (6 new)
128 deaths (24 new)

https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200302-sitrep-42-covid-19.pdf?sfvrsn=edd4f123_2

Curva epidémica

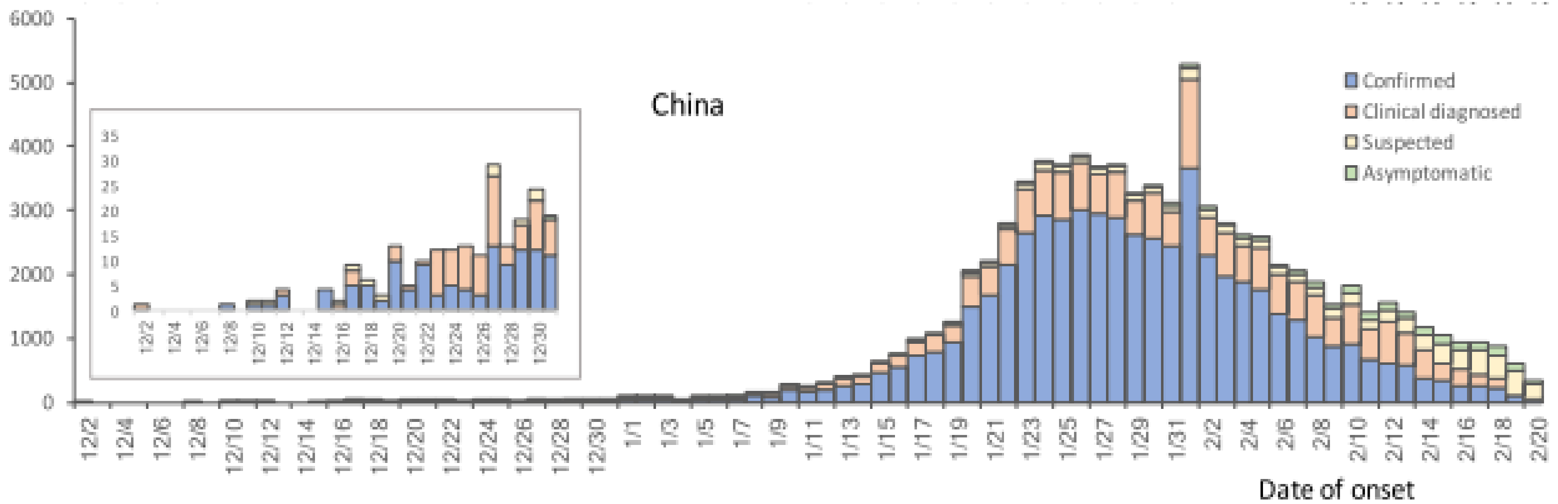
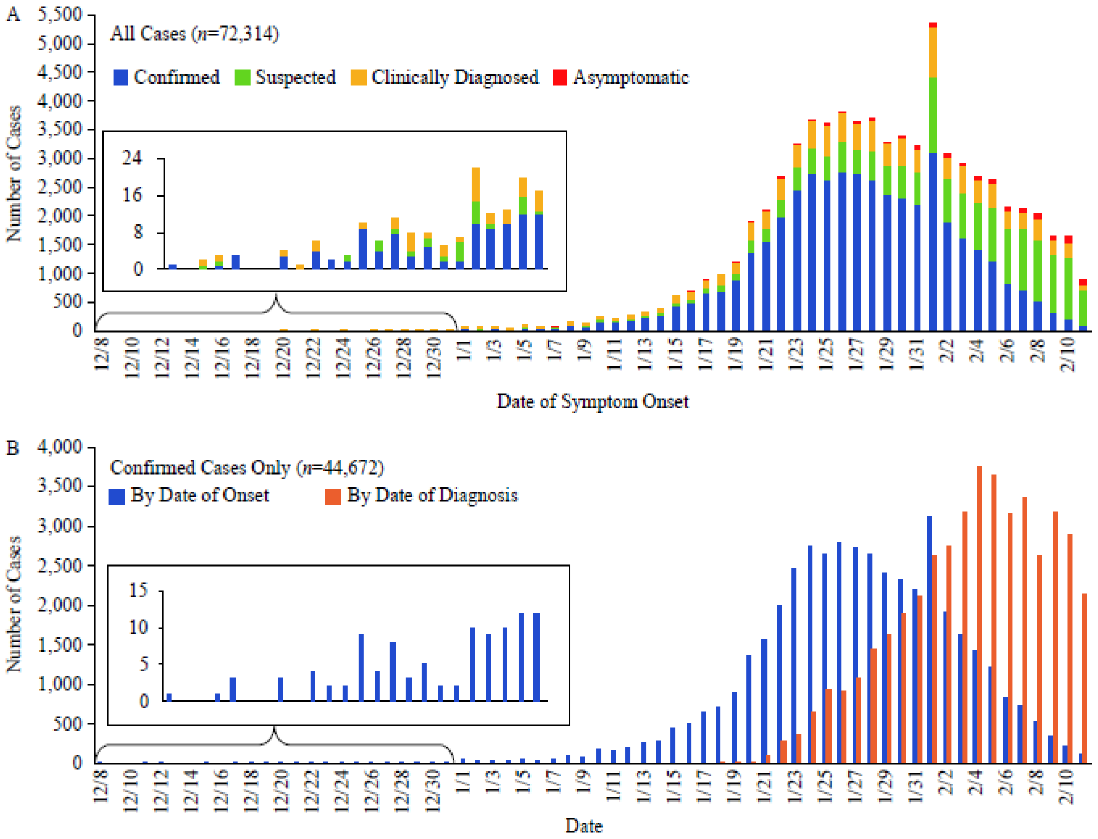


Figure 2 Epidemiologic curve of COVID-19 laboratory confirmed cases, by date of onset of illness, reported in China, as of 20 February 2020

Curva epidémica



La mayoría de los casos son de la ciudad de Wuhan, provincia de Hubei

dado que hay latencia entre que se diagnostica y se reporta, no se puede interpretar que hay disminución de la epidemia

10 días entre el inicio de los síntomas y el diagnóstico

Vías de transmisión

Report of the WHO-China Joint Mission
on Coronavirus Disease 2019 (COVID-19)

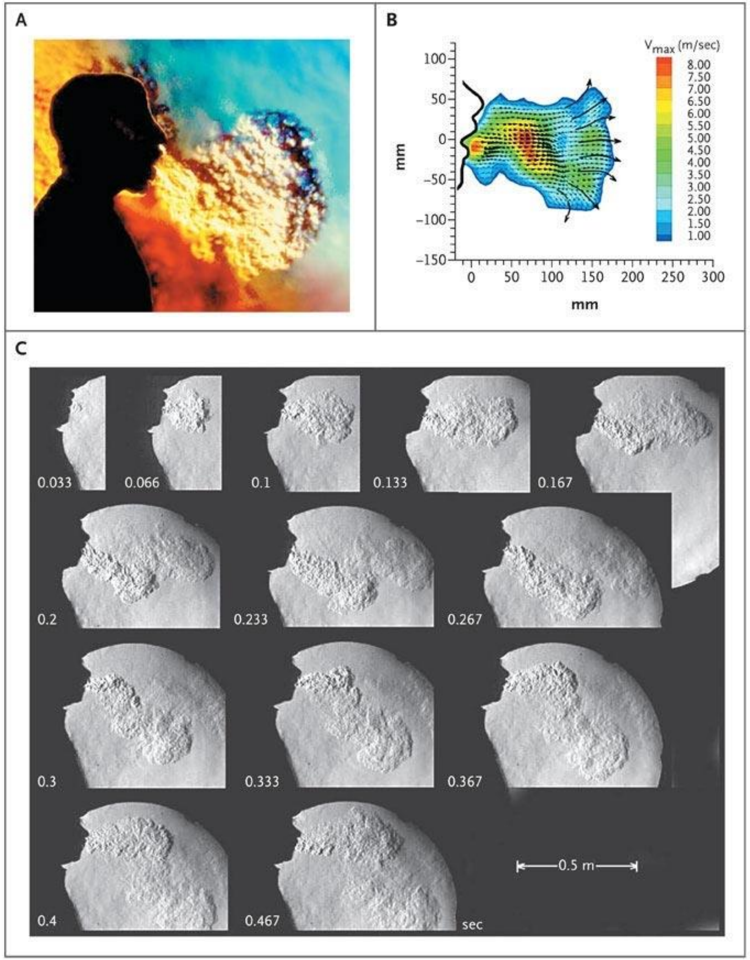
16-24 February 2020

- COVID19 se transmite **por gotitas y fómites** durante contacto estrecho sin protección
    - **No** se ha reportado transmisión **por vía aérea**
        - no se considera que haya tenido importancia en la epidemia
    - Puede tener importancia en ciertos procedimientos generadores de aerosoles
- Eliminación fecal se ha documentado en algunos pacientes.
    - La transmisión **fecal-oral** no se considera que haya tenido importancia en la epidemia

https://www.who.int/docs/default-source/coronaviruse/who-china-joint-mission-on-covid-19-final-report.pdf

PLAN DE ACCIÓN
CORONAVIRUS

estornudo

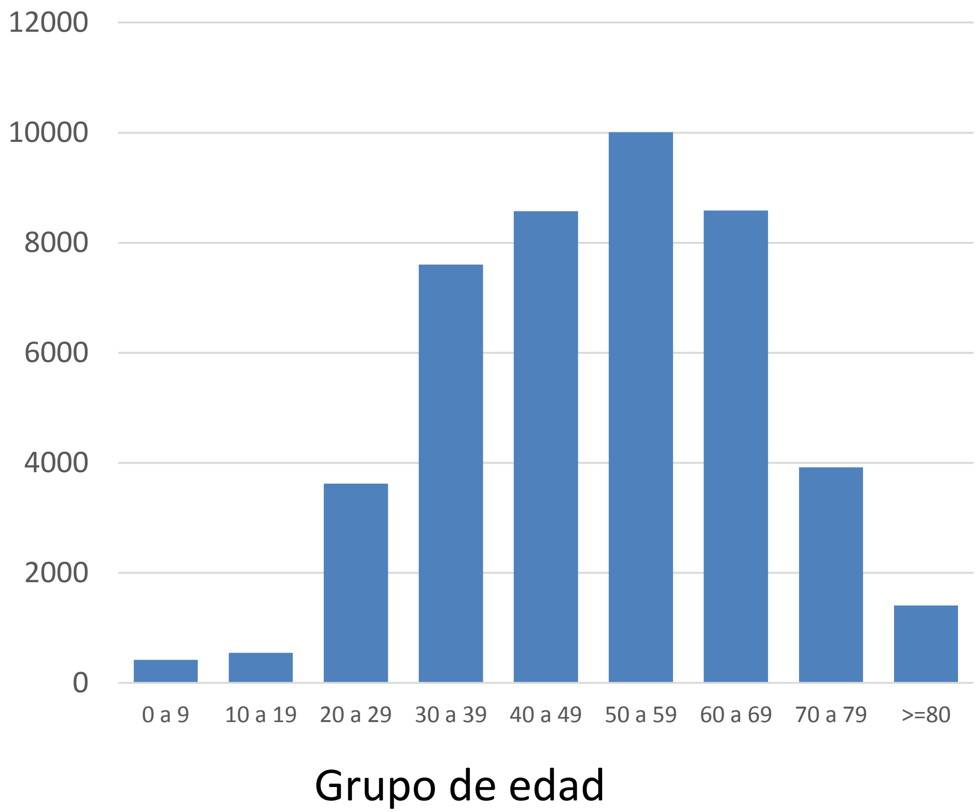


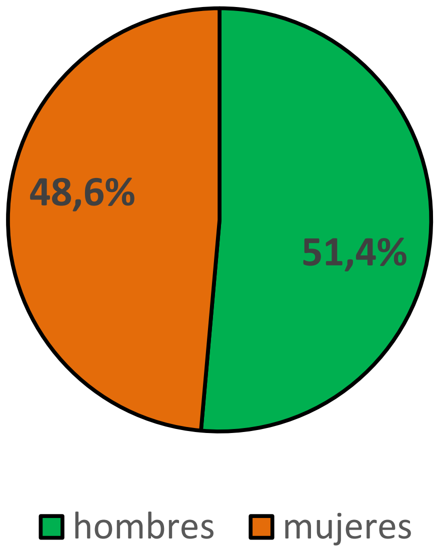
New England Journal of Medicine

Volume 359:e 19 October 9, 2008 Number 15

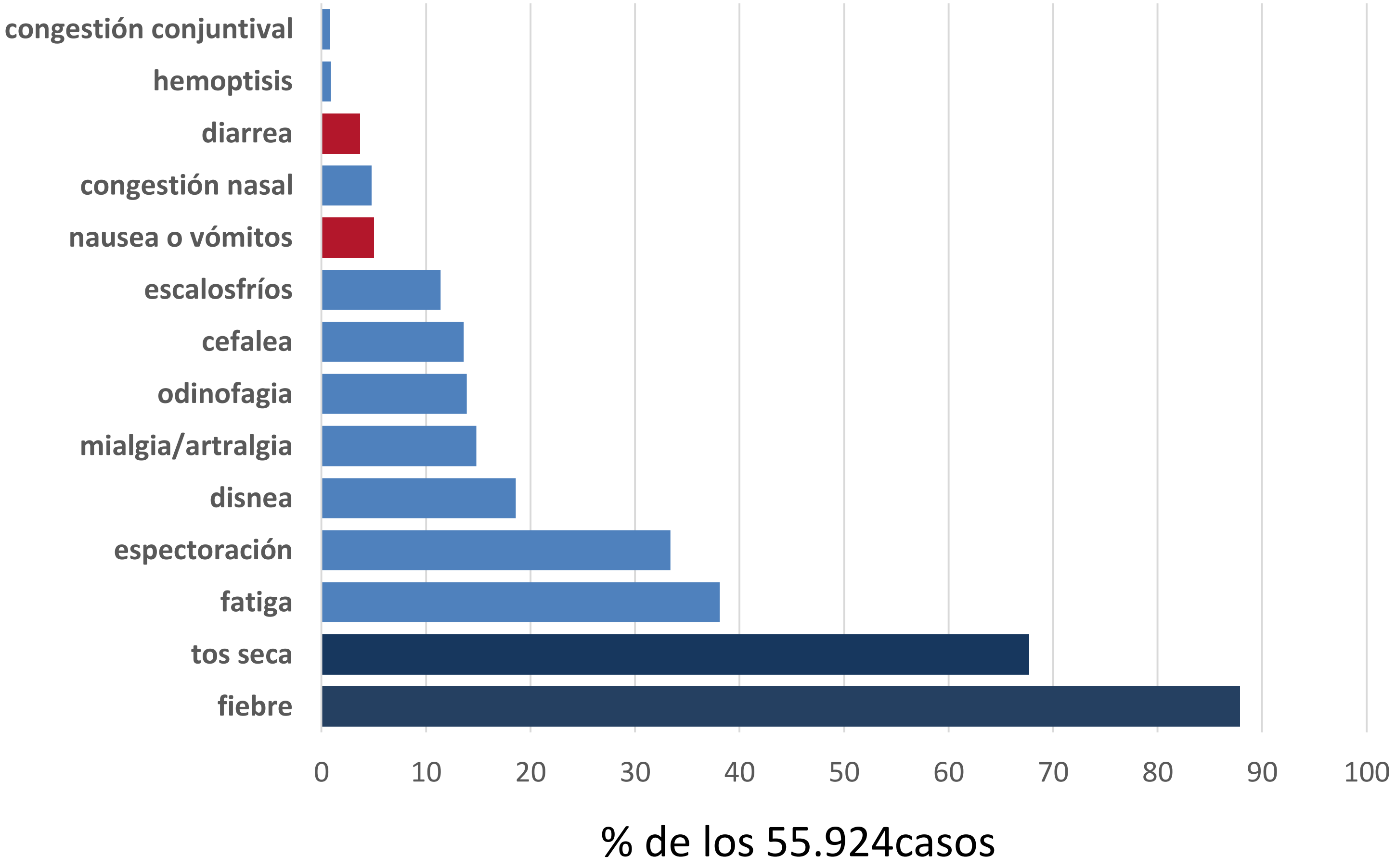
Julian W. Tang, F.R.C.Path.
Gary S. Settles, Ph.D.

Demografía de los casos





Principales signos y síntomas de COVID-19

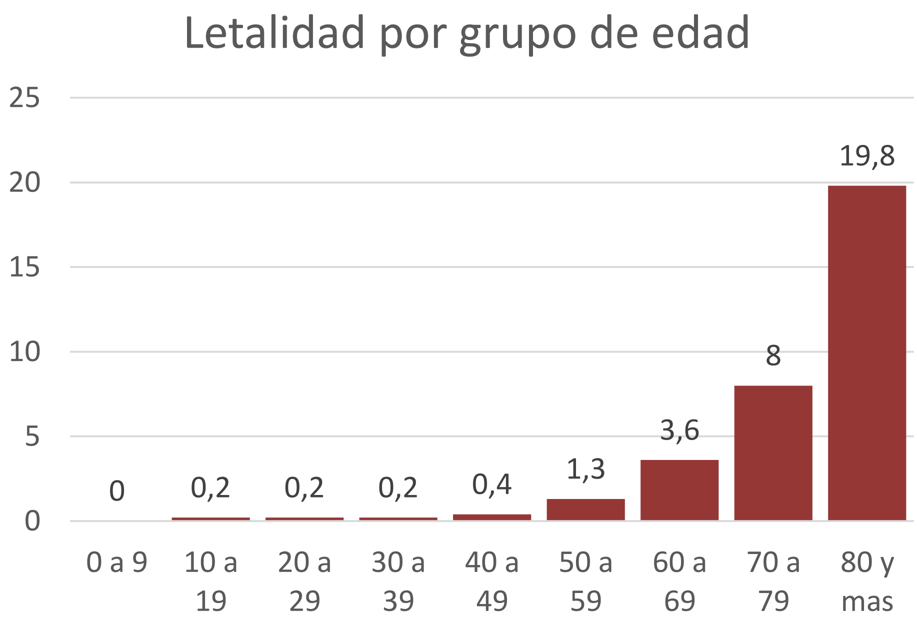


Letalidad

- Letalidad cruda 3,8%

- Letalidad en Wuhan **5,8%**
- Letalidad en resto de China **0,7%**

- Letalidad al comienzo de la epidemia (inicio antes de 10 enero) **17,3%**
- Letalidad después (inicio después de 1 febrero) **0,7%**



Transmisión

En el hogar: la transmisión humano-humano ocurre principalmente en familias

estudios de 344 acúmulos y 1308 casos → **78% - 85%** acúmulos ocurren en familias

tasa de ataque secundaria en el hogar 3% - 10%

En la atención en salud:

88% de los casos en el personal ocurren en Wuhan

1 brote con 15 casos en el personal

un estudio fuera de Wuhan 246/2055 (11,97%) casos fueron en personal de salud

seguimiento de los casos en gran número se asoció a un contacto familiar

Precauciones estándares y adicionales

contacto y por gotitas

Intervenciones físicas para interrumpir o reducer transmission de virus respiratorios

Comparison 1. Case-control studies

Outcome or subgroup title	No. of studies	No. of participants	Statistical method	Effect size
1 Thorough disinfection of living quarters	1	990	Odds Ratio (M-H, Fixed, 95% CI)	0.30 [0.23, 0.39]
2 Frequent handwashing	7	2825	Odds Ratio (M-H, Fixed, 95% CI)	0.54 [0.44, 0.67]
3 Wearing mask	7	3216	Odds Ratio (M-H, Fixed, 95% CI)	0.32 [0.26, 0.39]
4 Wearing N95 respirator	3	817	Odds Ratio (M-H, Fixed, 95% CI)	0.17 [0.07, 0.43]
5 Wearing gloves	6	1836	Odds Ratio (M-H, Fixed, 95% CI)	0.32 [0.23, 0.45]
6 Wearing gowns	5	1460	Odds Ratio (M-H, Fixed, 95% CI)	0.33 [0.24, 0.45]
7 All interventions	2	369	Odds Ratio (M-H, Fixed, 95% CI)	0.09 [0.02, 0.35]
8 Use of eye protection (mask/goggles)	3	1482	Odds Ratio (M-H, Fixed, 95% CI)	0.10 [0.05, 0.17]
9 Nose wash	2	1225	Odds Ratio (M-H, Fixed, 95% CI)	0.30 [0.16, 0.57]

Jefferson T, Del Mar CB, Dooley L, Ferroni E, Al-Ansary L a., Bawazeer G a., et al. Physical interventions to interrupt or reduce the spread of respiratory viruses. Cochrane database Syst Rev [Internet]. 2011;14(7):CD006207. Available from: http://www.ncbi.nlm.nih.gov/pubmed/21735402

Higiene de manos

Frotación

- 40” con agua + jabón (con o sin antiséptico)
- 20” con solución antiséptica de alcohol si las manos no estaban visiblemente sucias

>10 veces por día

solución antiséptica de alcohol disponible en el punto de atención

1. Antes y después de contacto directo con pacientes
2. Después de quitarse guantes
3. Después de tocar secreciones
4. Al cambiar de sitio de trabajo en el paciente
5. Después de contacto con objetos inanimados inmediatos a pacientes

Uso de guantes (EPP)

- no requieren ser estériles si no realiza un procedimiento que así lo necesita

Evaluación de riesgo

- Usar si es previsible que se tocará sangre u otro fluido orgánico

En precauciones de contacto esto es siempre

Bata (EPP)

- En general no requiere ser estéril, basta que sea limpia

Bata/delantal
Se ata atrás
Gancho o asa para pulgar

Evaluación de riesgo

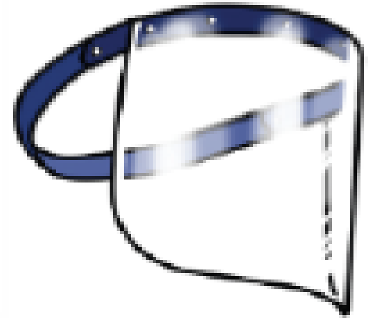
- Usar si es previsible que pueden haber salpicaduras de fluidos corporales o sangre

En precauciones de contacto esto es siempre

Protección ocular (EPP)

- Antiparras
- “escudo facial”

Uso de anteojos ópticos no es suficiente



Evaluación de riesgo

- Usar si es previsible que pueden haber salpicaduras de fluidos corporales o sangre
  - **Antiparras + mascarilla quirúrgica**
  - **Escudo facial**

En precauciones de contacto esto es siempre

mascarilla (EPP)

- Para contacto cercano con paciente sintomático
- **Mascarilla de tipo quirúrgico**


Preformadas que no colapsan sobre la boca

Evaluación de riesgo

- Usar si es previsible que pueden haber salpicaduras de fluidos corporales o sangre

En precauciones de contacto esto es siempre para entrar al cuarto del paciente

respiradores (EPP)

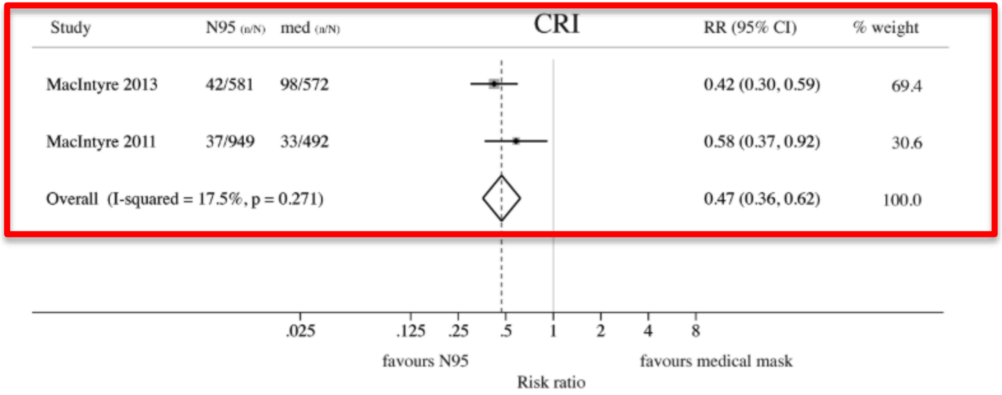
- procedimientos que generan aerosoles
  - han demostrado mayor riesgo de transmisión de SARS y tuberculosis

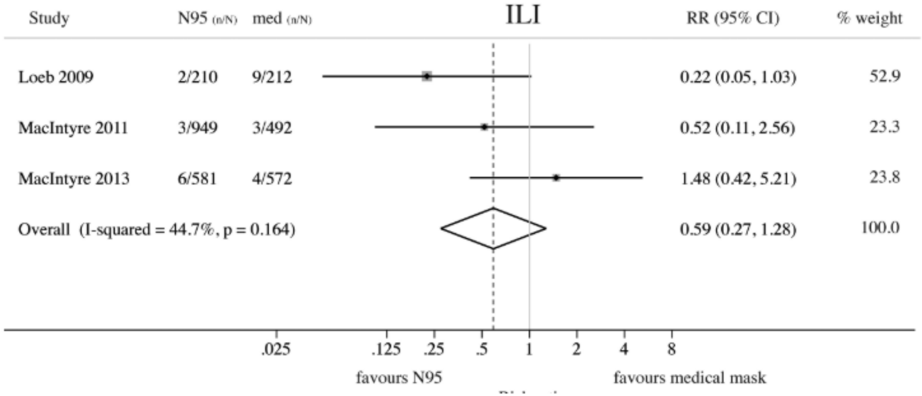
Tienen filtro.
Deben ser ajustados y con prueba de filtración.
No puede usarse si se usa barba.

Evaluación de riesgo

- Usar en procedimientos que generan aerosoles
  - no se conoce el riesgo de infección asociada con aerosoles en pacientes ERA causadas por rinovirus, parainflueza, VRS y adenovirus.
  - *Como mínimo, usar una mascarilla quirúrgica bien ajustada.*

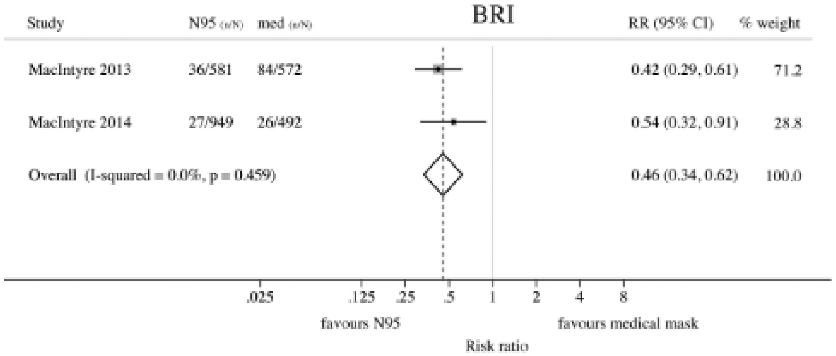
Efectividad respiradores vs mascarillas: cuadro clínico (ensayos clínicos)

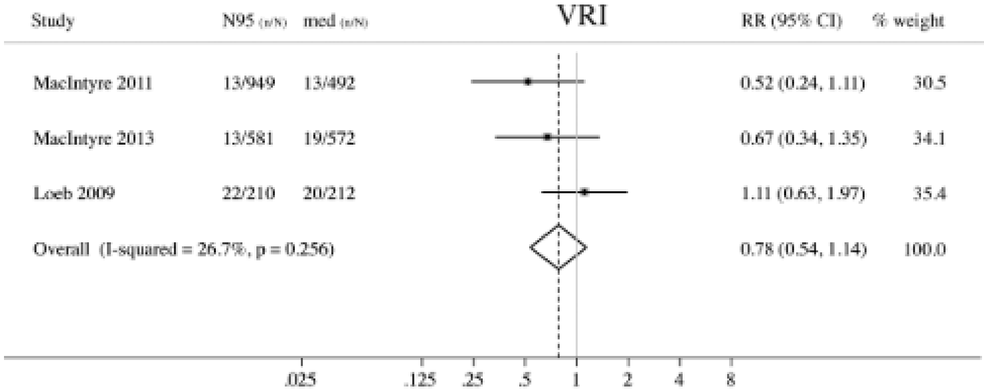


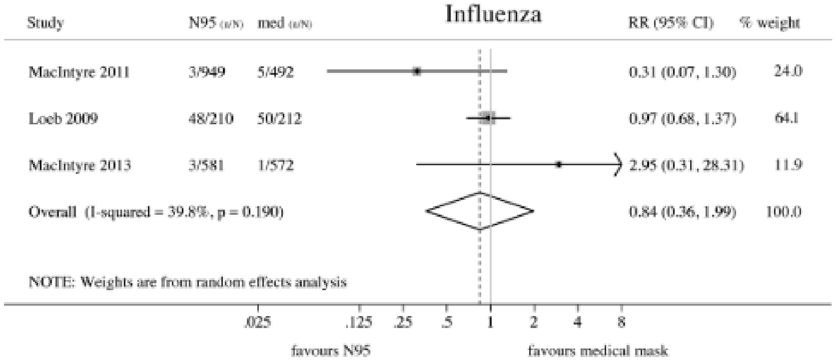


Offeddu V, Yung CF, Low MSF, Tam CC. Effectiveness of Masks and Respirators Against Respiratory Infections in Healthcare Workers: A Systematic Review and Meta-Analysis. Clin Infect Dis [Internet]. 2017 Nov 13;65(11):1934–42. Available from: http://www.ncbi.nlm.nih.gov/pubmed/29140516

Efectividad respiradores vs mascarillas: infecciones con agentes etiológicos (ensayos clínicos)







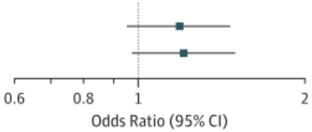
Offeddu V, Yung CF, Low MSF, Tam CC. Effectiveness of Masks and Respirators Against Respiratory Infections in Healthcare Workers: A Systematic Review and Meta-Analysis. Clin Infect Dis [Internet]. 2017 Nov 13;65(11):1934–42. Available from: http://www.ncbi.nlm.nih.gov/pubmed/29140516

Efectividad respiradores vs mascarillas

Figure 2. Primary and Secondary Outcomes of Influenza and Respiratory Illnesses and Adjusted Risk Estimates Among Health Care Personnel in the N95 Respirator Group vs the Medical Mask Group

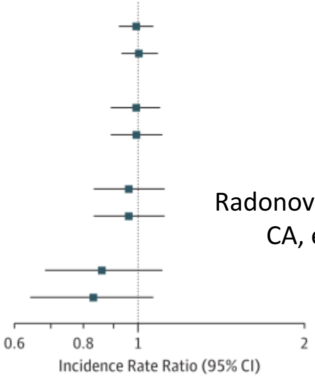
A Primary outcome

	N95 Respirator Events/Seasons	Medical Mask Events/Seasons	Incidence Rate Ratio (95% CI)
Laboratory-confirmed influenza			
ITT cohort	207/2512	193/2668	1.18 (0.95-1.45)
PP cohort	204/2243	190/2446	1.20 (0.97-1.48)



B All secondary outcomes

	N95 Respirator Events/Seasons	Medical Mask Events/Seasons	Incidence Rate Ratio (95% CI)
Acute respiratory illness			
ITT cohort	1556/2512	1711/2668	0.99 (0.92-1.06)
PP cohort	1512/2243	1656/2446	1.00 (0.93-1.08)
Laboratory-detected respiratory infection			
ITT cohort	679/2512	745/2668	0.99 (0.89-1.09)
PP cohort	664/2243	733/2446	0.99 (0.89-1.10)
Laboratory-confirmed respiratory illness			
ITT cohort	371/2512	417/2668	0.96 (0.83-1.11)
PP cohort	361/2243	406/2446	0.96 (0.83-1.11)
Influenzalike illness			
ITT cohort	128/2512	166/2668	0.86 (0.68-1.10)
PP cohort	121/2243	161/2446	0.83 (0.64-1.06)



Radonovich LJ, Simberkoff MS, Bessesen MT, Brown AC, Cummings DAT, Gaydos CA, et al. N95 Respirators vs Medical Masks for Preventing Influenza Among Health Care Personnel: A Randomized Clinical Trial. JAMA [Internet]. 2019;322(9):824–33. Available from: http://www.ncbi.nlm.nih.gov/pubmed/31479137

Consideraciones y efectos adversos asociados a respiradores

Respir Care. 2010 May;55(5):569-77.

Physiological impact of the N95 filtering facepiece respirator on healthcare workers.

Roberge RJ[1], Coca A, Williams WJ, Powell JB, Palmiero AJ.

⊕ Author information

Abstract

OBJECTIVE: To assess the physiological impact of the N95 filtering facepiece respirator (FFR) on healthcare workers.

METHODS: Ten healthcare workers each conducted multiple 1-hour treadmill walking sessions, at 1.7 miles/h, and at 2.5 miles/h, while wearing FFR with exhalation valve, FFR without exhalation valve, and without FFR (control session). We monitored heart rate, respiratory rate, tidal volume, minute volume, blood oxygen saturation, and transcutaneously measured P(CO2). We also measured user comfort and exertion, FFR moisture retention, and the carbon dioxide and oxygen concentrations in the FFR's dead space.

RESULTS: There were no significant differences between FFR and control in the physiological variables, exertion scores, or comfort scores. There was no significant difference in moisture retention between FFR with and without exhalation valve. Two subjects had peak P(CO2) > or = 50 mm Hg. The FFR with exhalation valve offered no benefit in physiological burden over the FFR without valve. The FFR dead-space oxygen and carbon dioxide levels did not meet the Occupational Safety and Health Administration's ambient workplace standards.

CONCLUSIONS: In healthy healthcare workers, FFR did not impose any important physiological burden during 1 hour of use, at realistic clinical work rates, but the FFR dead-space carbon dioxide and oxygen levels were significantly above and below, respectively, the ambient workplace standards, and elevated P(CO2) is a possibility. Exhalation valve did not significantly ameliorate the FFR's P(CO2) impact.

Am J Infect Control. 2014 Oct;42(10):1097-100. doi: 10.1016/j.ajic.2014.06.025.

N95 respirator use during advanced pregnancy.

Roberge RJ[1], Kim JH[2], Powell JB[2].

⊕ Author information

Abstract

BACKGROUND: To determine the physiological and subjective effects of wearing an N95 filtering facepiece respirator (N95 FFR) in advanced stages of pregnancy.

METHODS: Healthy pregnant women (n = 22) and nonpregnant women (n = 22) had physiological and subjective measurements taken with and without wearing an N95 FFR during exercise and postural sedentary activities over a 1-hour period.

RESULTS: There were no differences between the pregnant and nonpregnant women with respect to heart rate, respiratory rate, oxygen saturation, transcutaneous carbon dioxide level, chest wall temperature, aural temperature, and subjective perceptions of exertion and thermal comfort. No significant effect on fetal heart rate was noted.

CONCLUSIONS: Healthy pregnant women wearing an N95 FFR for 1 hour during exercise and sedentary activities did not exhibit any significant differences in measured physiological and subjective responses compared with nonpregnant women.

KEYWORDS: Fetal heart rate; Physiological response; Pregnancy; Respiratory protective equipment; Subjective response

Antimicrob Resist Infect Control. 2015 Nov 16;4:48. doi: 10.1186/s13756-015-0086-z. eCollection 2015.

Respiratory consequences of N95-type Mask usage in pregnant healthcare workers-a controlled clinical study.

Tong PS[1], Kale AS[1], Ng K[1], Loke AP[1], Choolani MA[1], Lim CL[2], Chan YH[3], Chong YS[1], Tambyah PA[4], Yong EL[4].

⊕ Author information

Erratum in

Erratum to: Respiratory consequences of N95-type Mask usage in pregnant healthcare workers-a controlled clinical study. [Antimicrob Resist Infect Control. 2016]

Abstract

BACKGROUND: Outbreaks of emerging infectious diseases have led to guidelines recommending the routine use of N95 respirators for healthcare workers, many of whom are women of childbearing age. The respiratory effects of prolonged respirator use on pregnant women are unclear although there has been no definite evidence of harm from past use.

METHODS: We conducted a two-phase controlled clinical study on healthy pregnant women between 27 to 32 weeks gestation. In phase I, energy expenditure corresponding to the workload of routine nursing tasks was determined. In phase II, pulmonary function of 20 subjects was measured whilst at rest and exercising to the predetermined workload while breathing ambient air first, then breathing through N95-mask materials.

RESULTS: Exercising at 3 MET while breathing through N95-mask materials reduced mean tidal volume (TV) by 23.0 % (95 % CI -33.5 % to -10.5 %, p < 0.001) and lowered minute ventilation (VE) by 25.8 % (95 % CI -34.2 % to -15.8 %, p < 0.001), with no significant change in breathing frequency compared to breathing ambient air. Volumes of oxygen consumption (VO2) and carbon dioxide expired (VCO2) were also significantly reduced; VO2 by 13.8 % (95 % CI -24.2 % to -3 %, p = 0.013) and VCO2 by 17.7 %, (95 % CI -28.1 % to -8.6 %, p = 0.001). Although no changes in the inspired oxygen and carbon dioxide concentrations were demonstrated, breathing through N95-mask materials during low intensity work (3 MET) reduced expired oxygen concentration by 3.2 % (95 % CI: -4.1 % to -2.2 %, p < 0.001), and increased expired carbon dioxide by 8.9 % (95 % CI: 6.9 % to 13.1 %; p <0.001) suggesting an increase in metabolism. There were however no changes in the maternal and fetal heart rates, finger-tip capillary lactate levels and oxygen saturation and rating of perceived exertion at the work intensity investigated.

CONCLUSIONS: Breathing through N95 mask materials have been shown to impede gaseous exchange and impose an additional workload on the metabolic system of pregnant healthcare workers, and this needs to be taken into consideration in guidelines for respirator use. The benefits of using N95 mask to prevent serious emerging infectious diseases should be weighed against potential respiratory consequences associated with extended N95 respirator usage.

TRIAL REGISTRATION: The study was registered at clinicaltrials.gov, identifier NCT00265926.

KEYWORDS: Controlled trial; Healthcare workers; Infection control; N95 respirators; Pregnant women; Respiratory parameters

Consideraciones y efectos adversos asociados a respiradores

J Occup Environ Hyg. 2012;9(1):59-64. doi: 10.1080/15459624.2012.635133.

Discomfort and exertion associated with prolonged wear of respiratory protection in a health care setting.

Shenal BV[1], Radonovich LJ Jr, Cheng J, Hodgson M, Bender BS.

Author information

Abstract

The nature of discomfort and level of exertion associated with wearing respiratory protection in the health care workplace are not well understood. Although a few studies have assessed these topics in a laboratory setting, little is known about the magnitude of discomfort and the level of exertion experienced by workers while they deliver health care to patients for prolonged periods. The purpose of this study was to determine the magnitude of discomfort and level of exertion experienced by health care workers while wearing respiratory protection for periods up to 8 hr when performing their typical occupational duties. This project was a multiple cross-over field trial of 27 health care workers, aged 24-65, performing their typical, hospital-based occupational duties. Each participant served as his/her own control and wore one of seven respirators or a medical mask for 8 hr (or as long as tolerable) with interposed doffing periods every 2 hr. Self-perceived discomfort and exertion were quantified before each doffing: self-perceived level of discomfort using a visual analog scale, and self-perceived level of exertion using a Borg scale. Overall, and as would be expected, discomfort increased over time with continual respirator use over an 8-hr period. Interestingly, exertion increased only marginally over the same time period. The relatively low level of exertion associated with eight respiratory protective devices, including models commonly used in the U.S. health care workplace, is not likely to substantially influence workers' tolerability or occupational productivity. However, the magnitude of discomfort does appear to increase significantly over time with prolonged wear. These results suggest that respirator-related discomfort, but not exertion, negatively influences respirator tolerance over prolonged periods. Discomfort may also interfere with the occupational duties of workers.

J Formos Med Assoc. 2004 Aug;103(8):624-8.

The physiological impact of wearing an N95 mask during hemodialysis as a precaution against SARS in patients with end-stage renal disease.

Kao TW[1], Huang KC, Huang YL, Tsai TJ, Hsieh BS, Wu MS.

Author information

Abstract

BACKGROUND AND PURPOSE: Most patients with end-stage renal disease (ERSD) visiting our hospital for hemodialysis treatment during the SARS outbreak wore an N95 mask. Data on the physiological stress imposed by the wearing of N95 masks remains limited. This study investigated the physiological impact of wearing an N95 mask during hemodialysis (HD) on patients with ESRD.

METHODS: ESRD patients who received regular HD at National Taiwan University Hospital between April to June 2003 were enrolled. Each patient wore a new N95 mask (3M Model 8210) during HD (4 hours). Vital signs, clinical symptoms and arterial blood gas measured before and at the end of HD were compared.

RESULTS: Thirty nine patients (23 men; mean age, 57.2 years) were recruited for participation in the study. Seventy percent of the patients showed a reduction in partial pressure of oxygen (PaO_2), and 19% developed various degrees of hypoxemia. Wearing an N95 mask significantly reduced the PaO_2 level (101.7 +/- 12.6 to 92.7 +/- 15.8 mm Hg, $p = 0.006$), increased the respiratory rate (16.8 +/- 2.8 to 18.8 +/- 2.7/min, $p < 0.001$), and increased the occurrence of chest discomfort (3 to 11 patients, $p = 0.014$) and respiratory distress (1 to 17 patients, $p < 0.001$). Baseline PaO_2 level was the only significant predictor of the magnitude of PaO_2 reduction ($p < 0.001$).

CONCLUSION: Wearing an N95 mask for 4 hours during HD significantly reduced PaO_2 and increased respiratory adverse effects in ESRD patients.

Am J Infect Control. 2014 Oct;42(10):1097-100. doi: 10.1016/j.ajic.2014.06.025.

N95 respirator use during advanced pregnancy.

Roberge RJ[1], Kim JH[2], Powell JB[2].

Author information

Abstract

BACKGROUND: To determine the physiological and subjective effects of wearing an N95 filtering facepiece respirator (N95 FFR) in advanced stages of pregnancy.

METHODS: Healthy pregnant women (n = 22) and nonpregnant women (n = 22) had physiological and subjective measurements taken with and without wearing an N95 FFR during exercise and postural sedentary activities over a 1-hour period.

RESULTS: There were no differences between the pregnant and nonpregnant women with respect to heart rate, respiratory rate, oxygen saturation, transcutaneous carbon dioxide level, chest wall temperature, aural temperature, and subjective perceptions of exertion and thermal comfort. No significant effect on fetal heart rate was noted.

CONCLUSIONS: Healthy pregnant women wearing an N95 FFR for 1 hour during exercise and sedentary activities did not exhibit any significant differences in measured physiological and subjective responses compared with nonpregnant women.

Consideraciones y efectos adversos asociados a respiradores

Problems with	Medical mask (*n* = 492)	All N95 (*n* = 949)	*P* value
Using the mask/respirator			
None	85·5% (420/491)	47·4% (447/943)	<0·01
Uncomfortable	9·8% (48/491)	41·9% (395/943)	<0·01
Forgot to wear it	0% (0/491)	1·7% (16/943)	<0·01
Patient felt unconformable	0·2% (1/491)	1·8% (17/943)	0·01
Trouble communicating with the patient	3·0% (9/303)	8·0% (62/775)	<0·01
Wearing the mask/respirator			
Headaches	3·9% (11/281)	13·4% (94/701)	<0·01
Skin rash	4·6% (13/281)	5·0% (35/701)	0·81
Difficulty breathing	12·5% (35/281)	19·4% (136/701)	0·01
Allergies	9·3% (26/281)	7·1% (50/701)	0·26
Pressure on nose	11·0% (31/281)	52·2% (366/701)	<0·01
Other	0·7% (2/280)	8·3% (58/701)	<0·01

Compliance with the product was the highest in the targeted N95 arm (82%; 422 of 516), then the medical mask arm (66%; 380 of 572), and the N95 arm (57%; 333 of 581) and these differences were statistically significant (*P* < 0.001). **In terms of comfort, 52% (297 of 571) of the medical mask arm reported no problems, compared with 62% (317 compared with 62% (317 of 512) of the targeted arm and 38% (217 of 574) of the N95 arm (*P* < 0.001).**

A Randomized Clinical Trial of Three Options for N95 Respirators and Medical Masks in Health Workers
C. Raina MacIntyre 1, Quanyi Wang 2, Holly Seale 1, Peng Yang 2, Weixian Shi 2, Zhanhai Gao 1, Bayzid Rahman 1, Yi Zhang 2, Xiaoli Wang 2, Anthony T. Newall 1, Anita Heywood 1
https://doi.org/10.1164/rccm.201207-1164OC PubMed: 23413265

C.R. MacIntyre, Q. Wang, S. Cauchemez, *et al.* A cluster randomized clinical trial comparing fit-tested and non fit-tested N95 respirators to medical masks to prevent respiratory virus infection in health care workers
Influenza Other Resp Viruses, 5 (2011), pp. 170-179

Consideraciones y efectos adversos asociados a respiradores

Am J Infect Control. 2013 Dec;41(12):1218-23. doi: 10.1016/j.ajic.2013.02.017. Epub 2013 Jun 12.

Physiologic and other effects and compliance with long-term respirator use among medical intensive care unit nurses.

Rebmann T[1], Carrico R, Wang J.

Author information

Abstract

BACKGROUND: Long-term use of respiratory protection may be necessary, but compliance may be low, and physiologic effects have not been well evaluated.

METHODS: Ten nurses participated; physiologic effects, subjective symptoms, and compliance with wearing an N95 alone or with a surgical mask overlay were assessed. Longitudinal analysis based on multivariate linear regression models assessed changes in outcome variables (CO2, O2, heart rate, perceived comfort items, compliance measures, and others). Analyses compared changes over time, and compared wearing only an N95 to wearing an N95 with a surgical mask overlay.

RESULTS: Most nurses (90%, n = 9) tolerated wearing respiratory protection for two 12-hour shifts. CO(2) levels increased significantly compared with baseline measures, especially when comparing an N95 with a surgical mask to only an N95, but changes were not clinically relevant. Perceived exertion; perceived shortness of air; and complaints of headache, lightheadedness, and difficulty communicating also increased over time. Almost one-quarter (22%) of respirator removals were due to reported discomfort. N95 adjustments increased over time, but other compliance measures did not vary by time. Compliance increased on day 2, except for adjustments, touching under the N95, and eye touches.

CONCLUSION: Long-term use of respiratory protection did not result in any clinically relevant physiologic burden for health care personnel, although many subjective symptoms were reported. N95 compliance was fairly high.

Contact Dermatitis. 2006 Nov;55(5):291-4.

Adverse skin reactions to personal protective equipment against severe acute respiratory syndrome--a descriptive study in Singapore.

Foo CC[1], Goon AT, Leow YH, Goh CL.

Author information

Abstract

Severe acute respiratory syndrome (SARS) was first recognized in February 2003. It is the first severe and readily transmissible new disease to emerge in the 21st century. Healthcare workers in affected countries were exposed to the regular use of personal protective equipment (PPE) such as the N95 mask, gloves, and gowns. Our aim was to study the prevalence of adverse skin reactions to PPE among healthcare workers in Singapore during the SARS outbreak. Healthcare staff in the National Skin Centre and Tan Tock Seng Hospital were surveyed using questionnaires. Of those asked to participate, 322 (94.7%) agreed. 14.3% of the respondents were doctors, 73.0% nurses, and 12.7% other ancillary staff. Mean age of respondents was 32.4 years, with the majority being women (85.7%) and Chinese (53.7%). 109 (35.5%) of the 307 staff who used masks regularly reported acne (59.6%), facial itch (51.4%), and rash (35.8%) from N95 mask use. 64 (21.4%) of the 299 who used gloves regularly reported dry skin (73.4%), itch (56.3%), and rash (37.5%). The use of PPE is associated with high rates of adverse skin reactions. There is a need to find suitable alternatives for affected staff and to encourage awareness among staff of the role of dermatologists in their care.

Procedimientos que generan aerosoles de riesgo de transmisión de patógenos respiratorios

Riesgo documentado

- Intubación, resucitación cardiopulmonar y procedimientos relacionados (**SARS, tb**)
  - ventilación manual
  - aspiración
- Broncoscopía (**tb**)
- Autopsia/cirugía (**tb**)
  - Motores de alta velocidad

Riesgo posible/controvertido

- Ventilación con presión positiva no invasiva y presión positiva de dos niveles en la vía aérea (**SARS**)
- Ventilación oscilatoria de alta frecuencia (**SARS**)
- Nebulización (**SARS**)

Procedimientos generadores de aerosoles con riesgo documentado (SARS)

Table 2. Risk of SARS Transmission to HCWs Exposed and Not Exposed to Aerosol-Generating Procedures, and Aero Procedures as Risk Factors for SARS Transmission

Aerosol Generating Procedures	Odds ratio (95% CI)	
	Point estimate	Pooled estimate; I^2
Tracheal intubation (4 cohort studies)	3.0 (1.4, 6.7) [25]	6.6 (2.3, 18.9); 39.6%
	22.8 (3.9, 131.1) [26]	
	13.8 (1.2, 161.7) [27]	
	5.5 (0.6, 49.5) [29]	
Tracheal intubation (4 case-control studies)	0.7 (0.1, 3.9) [23]	6.6 (4.1, 10.6); 61.4%
	9.2 (4.2, 20.2) [21]	
	8.0 (3.9, 16.6) [20]	
	9.3 (2.9, 30.2) [24]	
Suction before intubation (2 cohort studies)	13.8 (1.2, 161.7) [27]	3.5 (0.5, 24.6); 59.2%
	1.7 (0.7, 4.2) [25]	
Suction after intubation (2 cohort studies)	0.6 (0.1, 3.0) [27]	1.3 (0.5, 3.4); 28.8%
	1.8 (0.8, 4.0) [25]	
Nebulizer treatment (3 cohort studies)	6.6 (0.9, 50.5) [27]	0.9 (0.1, 13.6); 73.1%
	0.1 (0.0*, 1.0) [28]	
	1.2 (0.1, 20.7) [25]	
Manipulation of oxygen mask (2 cohort studies)	17.0 (1.8, 165.0) [27]	4.6 (0.6, 32.5); 64.8%
	2.2 (0.9, 4.9) [25]	
Bronchoscopy (2 cohort studies)	3.3 (0.2, 59.6) [27]	1.9 (0.2, 14.2); 0%
	1.1 (0.1, 18.5) [25]	
Non-invasive ventilation (2 cohort studies)	2.6 (0.2, 34.5) [26]	3.1 (1.4, 6.8); 0%
	3.2 (1.4, 7.2) [25]	
Insertion of nasogastric tube (2 cohort studies)	1.7 (0.2, 11.5) [27]	1.2 (0.4, 4.0); 0%
	1.0 (0.2, 4.5) [25]	
Chest compressions (1 case-control study)	4.5 (1.5, 13.8) [24]	
Chest compressions (2 cohort studies)	3.0 (0.4, 24.5) [25]	1.4 (0.2, 11.2); 27.3%
	0.4 (0.0**, 7.8) [27]	
Defibrillation (2 cohort studies)	0.5 (0.0**, 12.2) [27]	2.5 (0.1, 43.9); 55.3%
	7.9 (0.8, 79.0) [25]	
Chest physiotherapy (2 cohort studies)	1.3 (0.2, 8.3) [27]	0.8 (0.2, 3.2); 0%
	0.5 (0.1, 3.5) [25]	
High-frequency oscillatory ventilation (1 cohort study)	0.7 (0.1, 5.5) [26]	
High flow oxygen (1 cohort study)	0.4 (0.1, 1.7) [25]	
Tracheotomy (1 case-control study)	4.2 (1.5, 11.5) [20]	
Intubation, tracheotomy, airway care, and cardiac resuscitation (1 case-control study)	6.2 (2.2, 18.1) [22]	
Manipulation of BiPAP mask (1 cohort study)	6.2 (2.2, 18.1) [27]	
Endotracheal aspiration (1 cohort study)	1.0 (0.2, 5.2) [27]	
Suction of body fluid (1 case-control study)	1.0 (0.4, 2.8) [23]	
Administration of oxygen (I case-control study)	1.0 (0.3, 2.8) [23]	
Mechanical ventilation (1 cohort study)	0.9 (0.4, 2.0) [25]	
Manual ventilation before intubation (1 cohort study)	2.8 (1.3, 6.4) [25]	
Manual ventilation after intubation (1 cohort study)	1.3 (0.5, 3.2) [25]	
Manual ventilation (1 cohort study)	1.3 (0.2, 8.3) [27]	
Collection of sputum sample (1 cohort study)	2.7 (0.9, 8.2) [25]	

Tran K, Cimon K, Severn M, Pessoa-Silva CL, Conly J. Aerosol Generating Procedures and Risk of Transmission of Acute Respiratory Infections to Healthcare Workers: A Systematic Review. PLoS One [Internet]. 2012;7(4):e35797. Available from: http://dx.plos.org/10.1371/journal.pone.0035797

PLAN DE ACCIÓN CORONAVIRUS

mascarilla al paciente

- "Control de la fuente de emisión"

<u>Evaluación de riesgo</u>

- Mascarilla quirúrgica al paciente para salir de la habitación
  - Limitado por tolerancia

segregación

- Habitación individual

  Pacientes con la misma enfermedad pueden compartir la habitación

- Separación **>1** metro entre camas
- *Triage* en sitios de congregación de enfermos
  - salas de espera

Evaluación de riesgo

- En epidemias de infecciones intrahospitalarias por virus respiratorios, la separación de pacientes >1 metro se ha contribuido a controlar los brotes

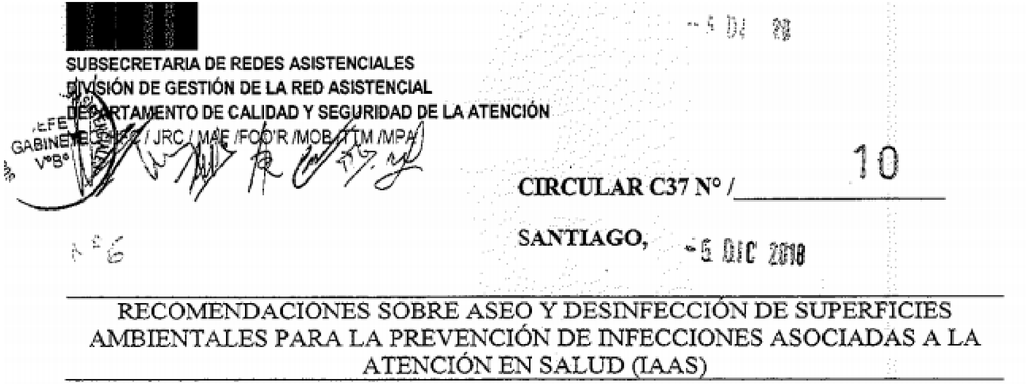
Precauciones estándares + precauciones con gotitas
manejo del aire

- No hay evidencias que cuartos con presión negativa del aire o uso de aire filtrado reduzcan las infecciones

Mantenga la habitación bien ventilada

Desinfección del ambiente

- protocolos habituales
  - Eliminar materia orgánica por arrastre
  - Circular 37/10 dic 2018



[redacted]

SUBSECRETARIA DE REDES ASISTENCIALES
DIVISIÓN DE GESTIÓN DE LA RED ASISTENCIAL
DEPARTAMENTO DE CALIDAD Y SEGURIDAD DE LA ATENCIÓN

CIRCULAR C37 N° / 10

SANTIAGO, 5 DIC 2018

RECOMENDACIONES SOBRE ASEO Y DESINFECCIÓN DE SUPERFICIES AMBIENTALES PARA LA PREVENCIÓN DE INFECCIONES ASOCIADAS A LA ATENCIÓN EN SALUD (IAAS)

- Desinfectantes
  - Alcohol
  - Productos clorados
  - Yodóforos
  - Fenoles
  - Peróxido de hidrógeno
  - Amonios cuaternarios

ropa

- No sacudirla
- Evitar contacto directo de la ropa del paciente con quien la trasporta
- transporte en contenedores cerrados.
- no se requiere separar la ropa de pacientes infectados de la de pacientes no infectados.

lavado

- Usar agua caliente sobre 75 °C.
- Remoción mecánica de la suciedad y materia orgánica, no mediante manipulación manual.
- Utilizar detergente de textiles habitual doméstico.

Utilizar EPP de acuerdo a la evaluación de riesgo

- Usar bata, pechera y guantes gruesos.
- Uso de mascarillas y antiparras si se prevee salpicaduras o ontacto con la boca o conjuntiva

desechos

- No se tiene conocimiento de casos asociados a manipulación de desechos
- **Cumpla REAS**

- La desinfección de desechos no tiene evidencia de disminuir infecciones

Para el traslado de pacientes en ambulancia

- Mantener separada la cabina del conductor de la cabina sanitaria
  - Si las cabinas están interconectadas, sellarlas para que estén separadas
- El conductor no realizará actividades que involucren estar a menos de un metro del paciente sin usar EPP
- Desinfectar la cabina sanitaria con los procesos habituales

¿Hasta cuando aplicar las precauciones?

- Precauciones estándares **siempre**
- Las precauciones adicionales por contacto y las gotitas al menos **hasta que el paciente esté asintomático**.
  - Se necesita más información sobre el modo de transmisión de la infección por el 2019-nCoV para determinar cuánto tiempo deben aplicarse las precauciones adicionales.

EPP: las imágenes en los medios

Todas enfocadas en EPP y desinfección

PLAN DE ACCIÓN CORONAVIRUS

Más EPP no es más protección

- Cubre cabeza
- Antiparras
- Mascarilla preformada que no toque la boca
- Delantal largo
- Guantes
- Botas
- Mantenga distancia del paciente

así era cuando no sabíamos de mircrobiología, epidemiología ni de infecciones

Ministerio de Salud

Gobierno de Chile

Chile en marcha