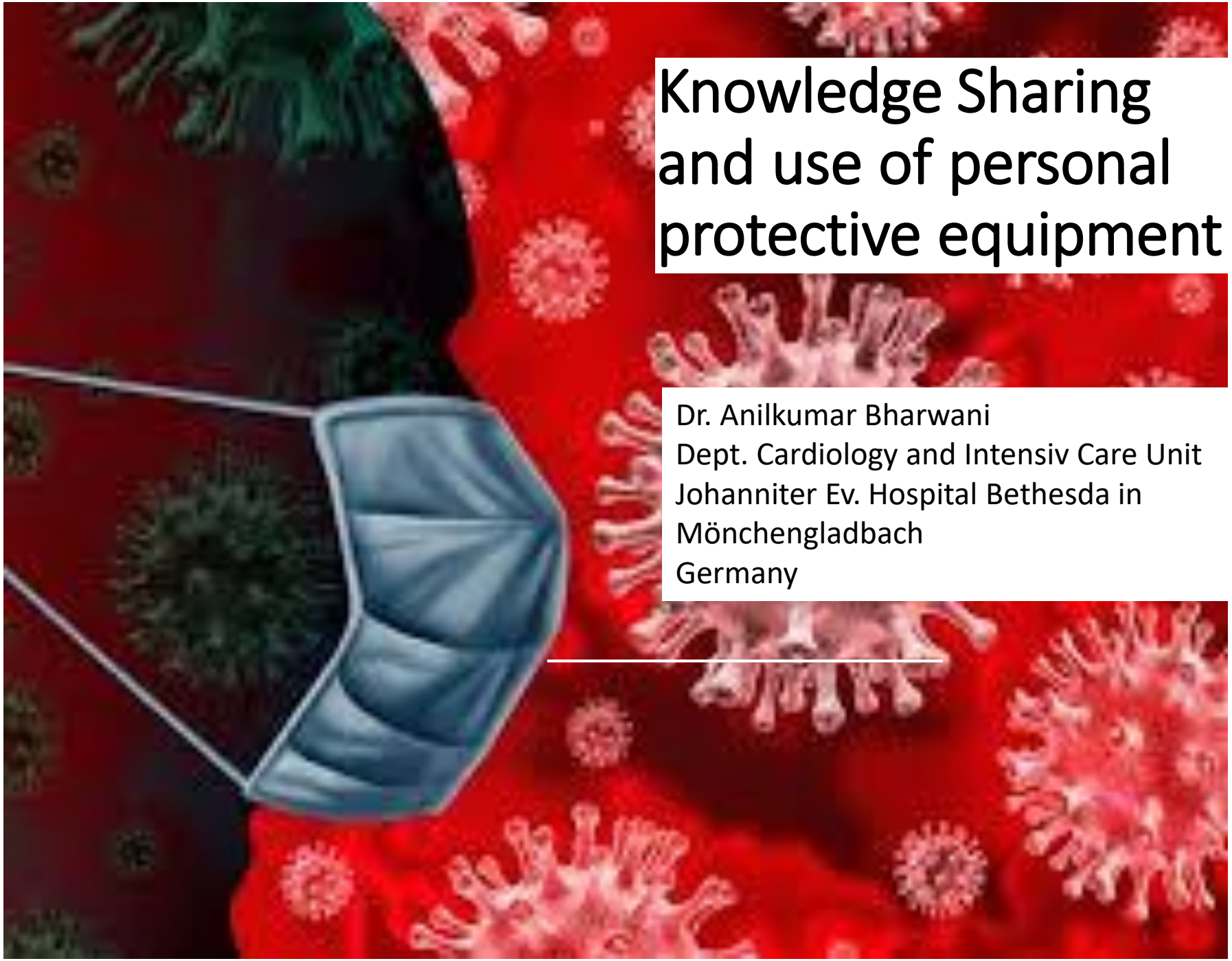
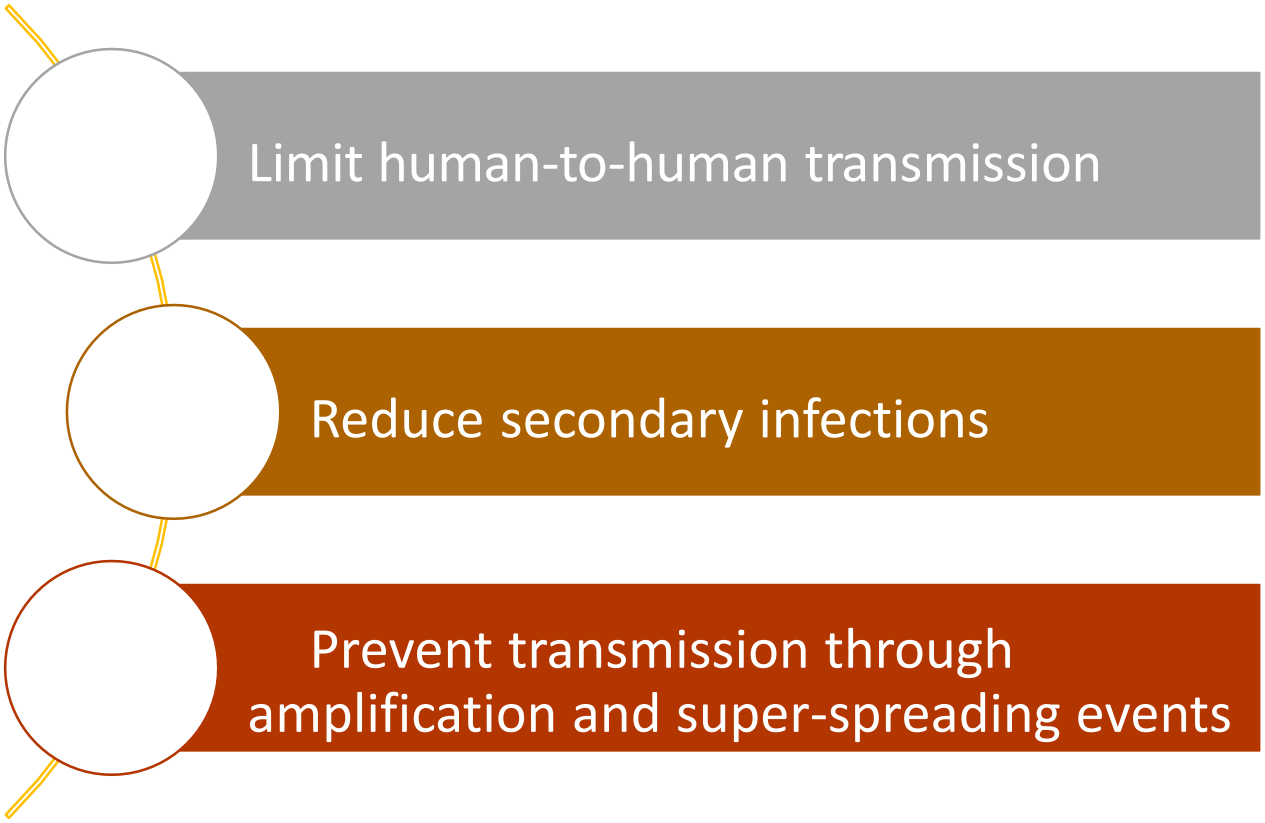


Knowledge Sharing and use of personal protective equipment

Dr. Anilkumar Bharwani
Dept. Cardiology and Intensiv Care Unit
Johanniter Ev. Hospital Bethesda in Mönchengladbach
Germany

Infection Prevention and Control and COVID-19



Outline

Overview of the natural history of COVID-19

Standard precautions Transmission-based

precautions Risk evaluation and PPE

Requirements for the use of PPE

Experience from German Side

Outline

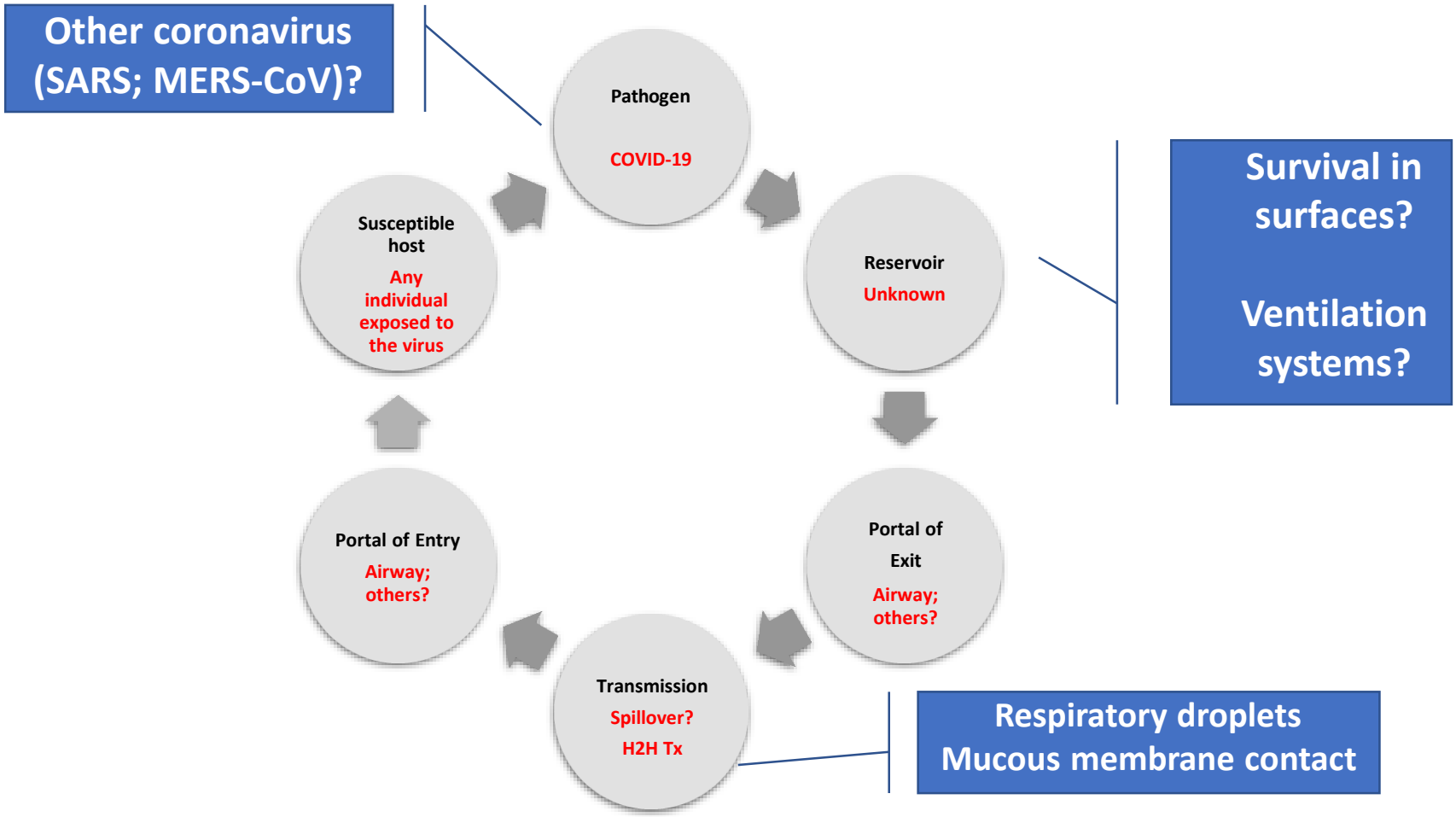
Overview of the natural history of COVID-19

Standard precautions Transmission-based

precautions Risk evaluation and PPE

Requirements for the use of PPE

Natural history of COVID-19



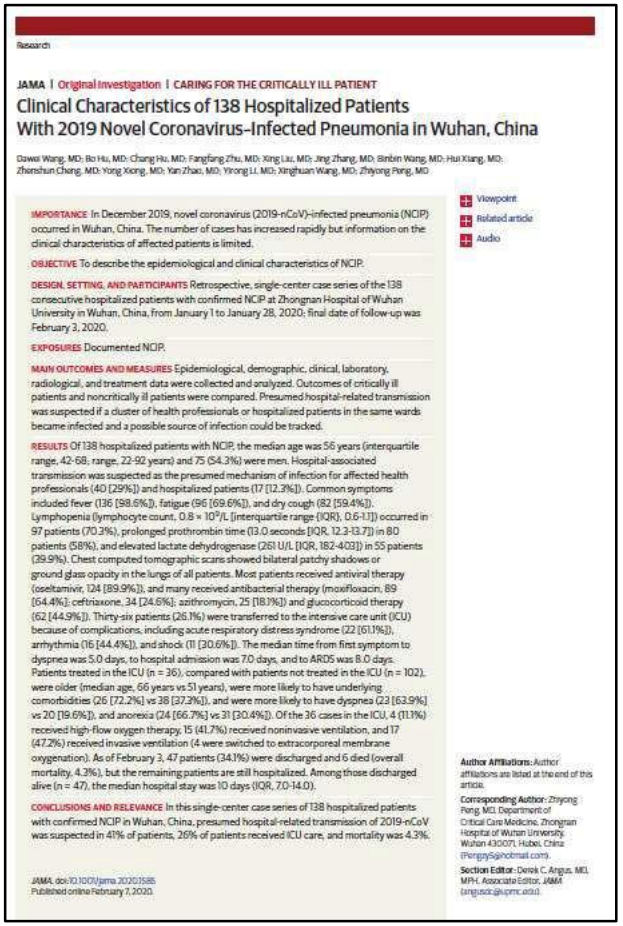
Outline

Overview of the natural history of COVID-19

Standard precautions Transmission-based precautions Risk evaluation and PPE

Requirements for the use of PPE

Healthcare workers and COVID-19



Research

JAMA | Original Investigation | CARING FOR THE CRITICALLY ILL PATIENT

Clinical Characteristics of 138 Hospitalized Patients With 2019 Novel Coronavirus–Infected Pneumonia in Wuhan, China

Dawei Wang, MD; Bo Hu, MD; Chang Hu, MD; Fangfang Zhu, MD; Xing Liu, MD; Jing Zhang, MD; Binbin Wang, MD; Hui Xiang, MD; Zhenshun Cheng, MD; Yong Xiong, MD; Yan Zhao, MD; Yirong Li, MD; Xinghuan Wang, MD; Zhiyong Peng, MD

Viewpoint
Related article
Audio

IMPORTANCE In December 2019, novel coronavirus (2019-nCoV)-infected pneumonia (NCIP) occurred in Wuhan, China. The number of cases has increased rapidly but information on the clinical characteristics of affected patients is limited.

OBJECTIVE To describe the epidemiological and clinical characteristics of NCIP.

DESIGN, SETTING, AND PARTICIPANTS Retrospective, single-center case series of the 138 consecutive hospitalized patients with confirmed NCIP at Zhongnan Hospital of Wuhan University in Wuhan, China, from January 1 to January 28, 2020; final date of follow-up was February 3, 2020.

EXPOSURES Documented NCIP.

MAIN OUTCOMES AND MEASURES Epidemiological, demographic, clinical, laboratory, radiological, and treatment data were collected and analyzed. Outcomes of critically ill patients and noncritically ill patients were compared. Presumed hospital-related transmission was suspected if a cluster of health professionals or hospitalized patients in the same wards became infected and a possible source of infection could be tracked.

RESULTS Of 138 hospitalized patients with NCIP, the median age was 56 years (interquartile range, 42-68; range, 22-92 years) and 75 (54.3%) were men. Hospital-associated transmission was suspected as the presumed mechanism of infection for affected health professionals (40 [29%]) and hospitalized patients (17 [12.3%]). Common symptoms included fever (136 [98.6%]), fatigue (96 [69.6%]), and dry cough (82 [59.4%]). Lymphopenia (lymphocyte count, 0.8×10^9/L [interquartile range (IQR), 0.6-1.1]) occurred in 97 patients (70.3%), prolonged prothrombin time (13.0 seconds [IQR, 12.3-13.7]) in 80 patients (58%), and elevated lactate dehydrogenase (261 U/L [IQR, 182-403]) in 55 patients (39.9%). Chest computed tomographic scans showed bilateral patchy shadows or ground glass opacity in the lungs of all patients. Most patients received antiviral therapy (oseltamivir, 124 [89.9%]), and many received antibacterial therapy (moxifloxacin, 89 [64.4%]; ceftriaxone, 34 [24.6%]; azithromycin, 25 [18.1%]) and glucocorticoid therapy (62 [44.9%]). Thirty-six patients (26.1%) were transferred to the intensive care unit (ICU) because of complications, including acute respiratory distress syndrome (22 [61.1%]), arrhythmia (16 [44.4%]), and shock (11 [30.6%]). The median time from first symptom to dyspnea was 5.0 days, to hospital admission was 7.0 days, and to ARDS was 8.0 days. Patients treated in the ICU (n = 36), compared with patients not treated in the ICU (n = 102), were older (median age, 66 years vs 51 years), were more likely to have underlying comorbidities (26 [72.2%] vs 38 [37.3%]), and were more likely to have dyspnea (23 [63.9%] vs 20 [19.6%]), and anorexia (24 [66.7%] vs 31 [30.4%]). Of the 36 cases in the ICU, 4 (11.1%) received high-flow oxygen therapy, 15 (41.7%) received noninvasive ventilation, and 17 (47.2%) received invasive ventilation (4 were switched to extracorporeal membrane oxygenation). As of February 3, 47 patients (34.1%) were discharged and 6 died (overall mortality, 4.3%), but the remaining patients are still hospitalized. Among those discharged alive (n = 47), the median hospital stay was 10 days (IQR, 7.0-14.0).

CONCLUSIONS AND RELEVANCE In this single-center case series of 138 hospitalized patients with confirmed NCIP in Wuhan, China, presumed hospital-related transmission of 2019-nCoV was suspected in 41% of patients, 26% of patients received ICU care, and mortality was 4.3%.

JAMA. doi:10.1001/jama.2020.1585
Published online February 7, 2020.

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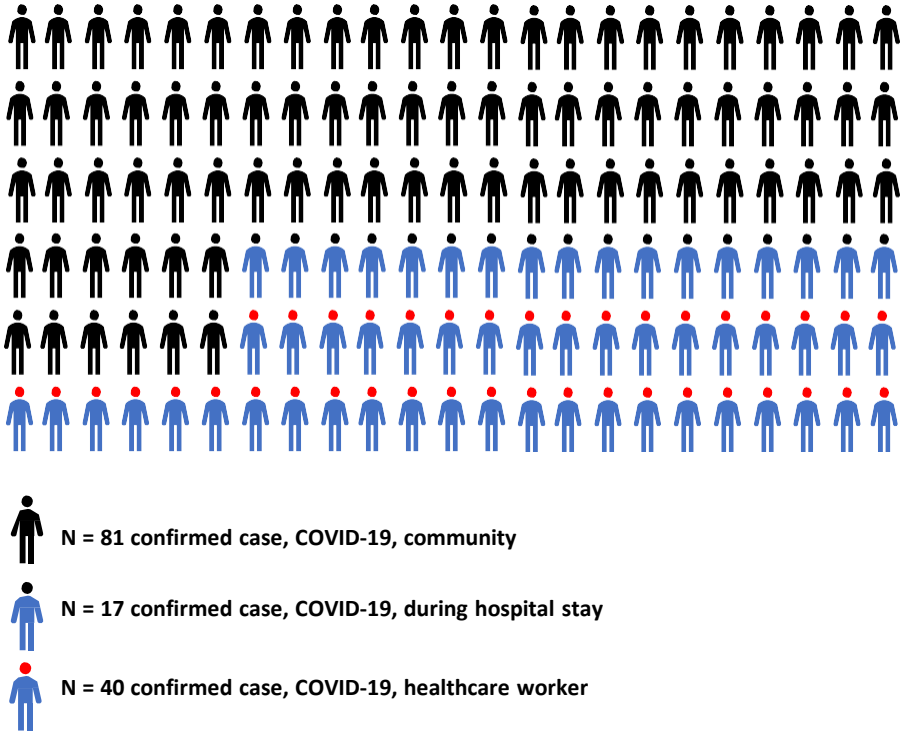
Section Editor: Derek C. Angus, MD, MPH, Associate Editor, JAMA (angusdc@upmc.edu).



Wang D. et al, JAMA.2020. doi:10.1001/jama.2020.1585, adapted

Standard precautions

*"(…) A **set of practices** that are applied to the care of patients, **regardless of the state of infection** (suspicion or confirmation), in any place where health services are provided. (…)"*

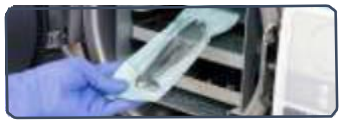
Standard precautions

Hand hygiene (water and soap or alcohol-based solutions)

Use of personal protective equipment (PPE) according to

risk Respiratory hygiene (or cough etiquette)

Safe injection practices

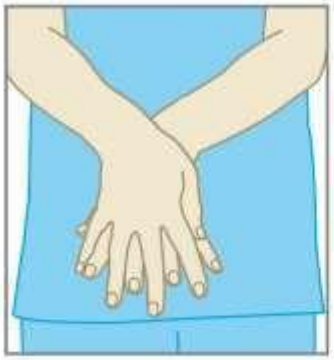


Sterilization / disinfection of medical devices Environmental

cleaning

Today's lecture . . .

. . . Our focus will be on the use of personal protective equipment (PPE) according to the risk



Hand hygiene

Gloves

Gown – other types and styles are also appropriate.

Medical mask – other types and styles are also appropriate.

Protective eyewear - eye visors, goggles, and face shields are examples of protective eyewear

Outline

Overview of the natural history of COVID-19

Standard precautions **Transmission-based**

precautions Risk evaluation and PPE

Requirements for the use of PPE

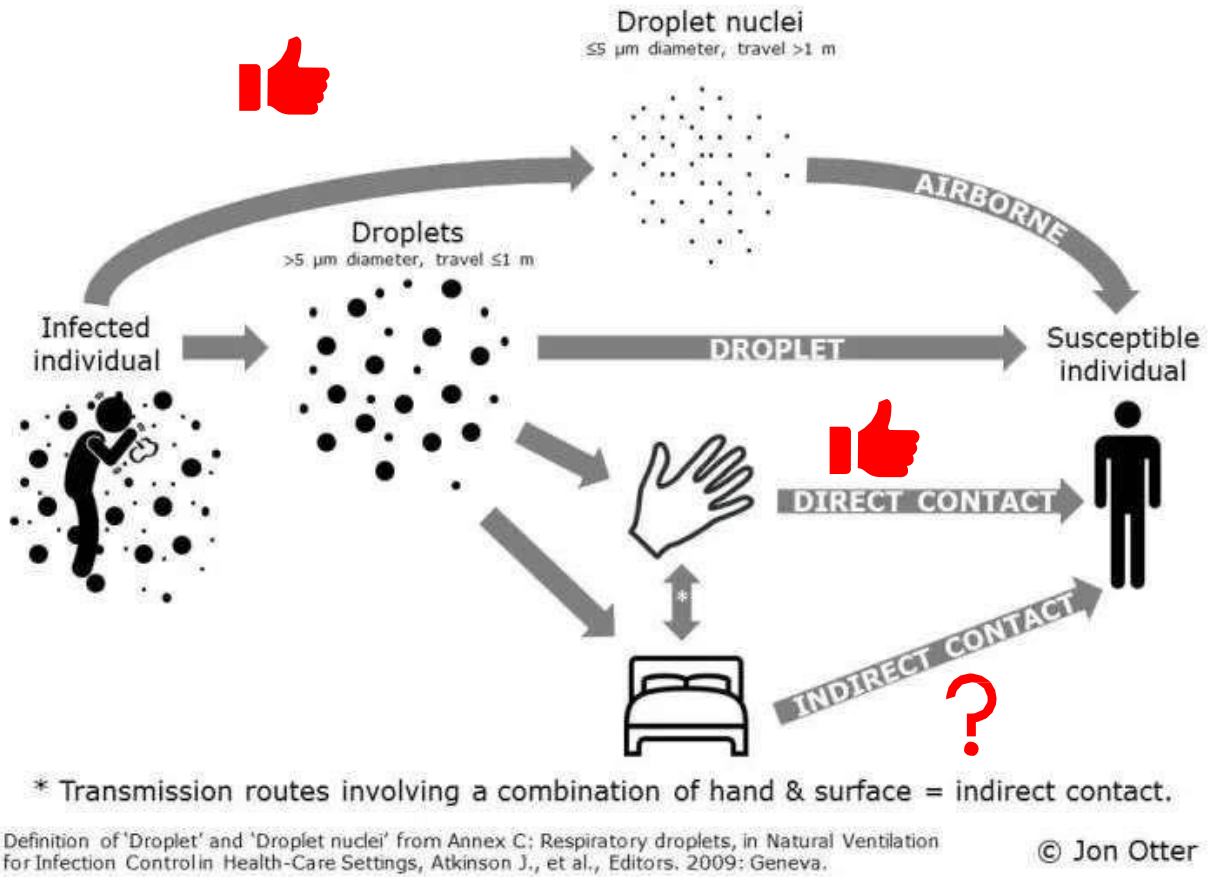
Transmission-based precautions

Contact precaution

Droplet precaution

Airborne precaution

As a reminder, transmission of COVID-19



as of February 19, 2020 – subject to change as new evidence become available

Transmission-based precautions and COVID-19

Scenario	Precaution
For any suspected or confirmed case of COVID-19	**Standard + contact + droplet precautions**
For any suspected or confirmed case of COVID-19 and aerosol-generating procedure (AGP)	**Standard + contact + airborne precautions**

Source: https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance

Outline

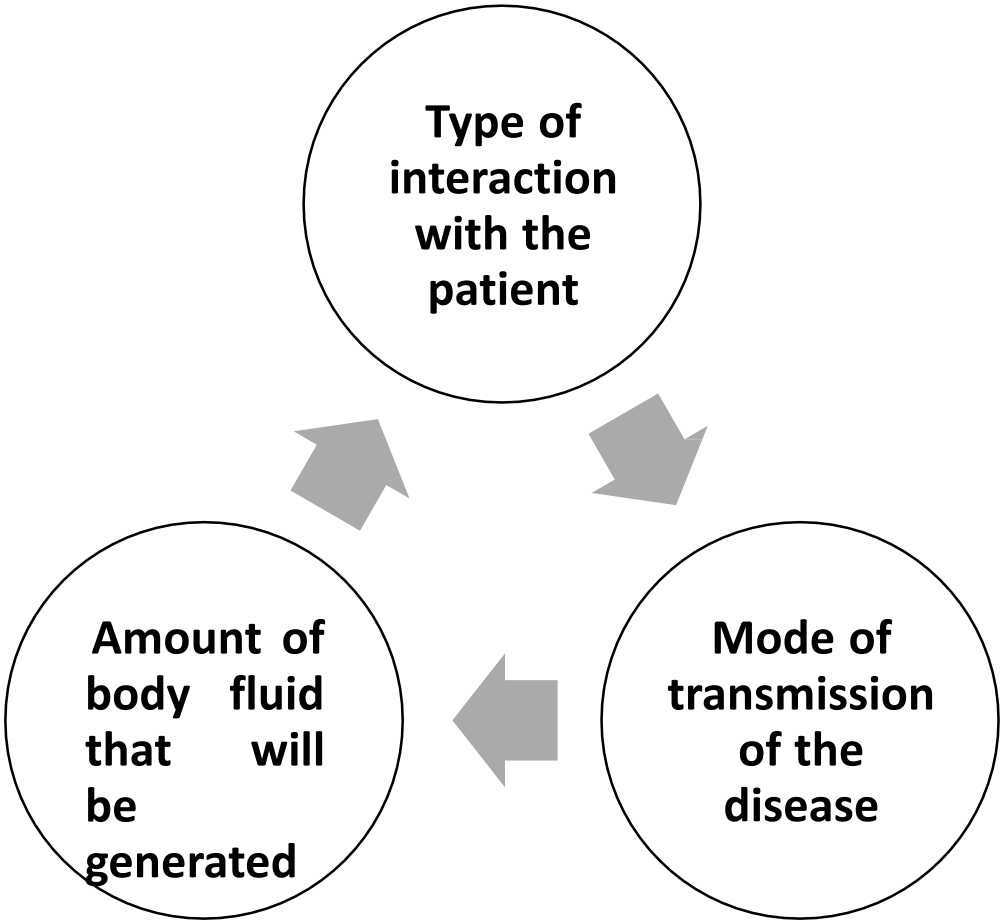
Overview of the natural history of COVID-19

Standard precautions Transmission-based

precautions **Risk evaluation and PPE**

Requirements for the use of PPE

Risk evaluation and PPE



PAHO. Prevention and Control of Healthcare associated infections – Basic Recommendations"- PAHO, 2017 (adapted)

Some questions to consider . . .

Does the patient fulfill case definition criteria for the disease?

What is the infectious agent and its mode of transmission?

What type of procedure will the patient be undergoing?

Is there any risk of contamination?

Where should the patient be located?

What type of PPE will need to be used?

General principles of PPE

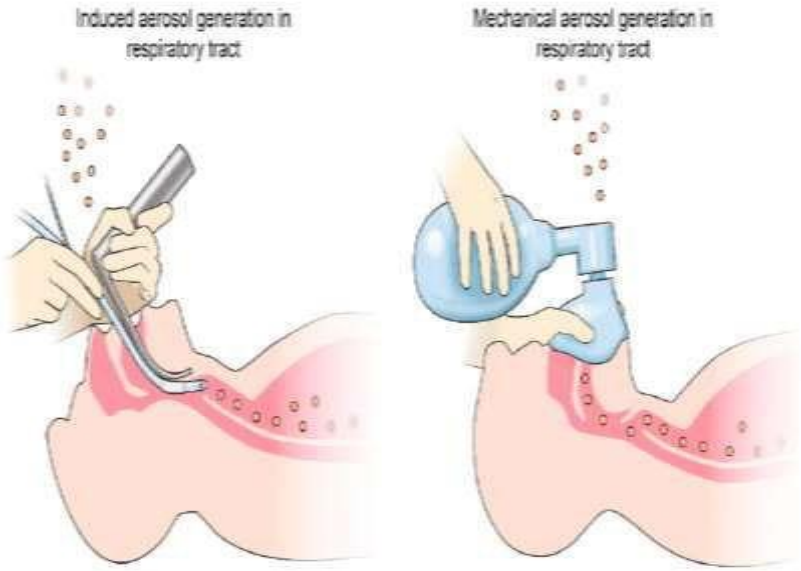
Hand hygiene should always be performed despite PPE use.

Remove and replace if necessary any damaged or broken pieces of re-usable PPE as soon as you become aware that they are not in full working order.

Remove all PPE as soon as possible after completing the care and avoid contaminating the environment outside the isolation room; any other patient or worker; and yourself.

Discard all items of PPE carefully and perform hand hygiene immediately afterwards.

Aerosol-generating procedures (AGP)



Aerosol-generating procedures (AGP)
Bronchoscopy
Cardiopulmonary resuscitation
Noninvasive ventilation (BiPAP, CPAP, HFOV)
Surgery
Tracheal intubation
Manual ventilation
Sputum induction
Suctioning
Laser plume
Necropsy

Number of healthcare providers exposed should be limited

Outline

Overview of the natural history of COVID-19

Standard precautions Transmission-based

precautions Risk evaluation and PPE

Requirements for the use of PPE

Use of PPE according to level of care

Level of care	Hand hygiene	Gown	Medical mask	Respirator (N95 or FFP2)	Goggle (eye protection) OR Face shield (facial protection)	Gloves
Triage	**X**		**X**			
Collection of specimens for laboratory diagnosis	**X**	**X**		**X**	**X**	**X**
Suspected or confirmed case of COVID-19 requiring healthcare facility admission and NO aerosol-generating procedure	**X**	**X**	**X**		**X**	**X**
Suspected or confirmed case of COVID-19 requiring healthcare facility admission and WITH aerosol-generating procedure	**X**	**X**		**X**	**X**	**X**

Atemschutzmaske: Häufige Anwendungsfehler

ROBERT KOCH INSTITUT

Maske nicht über Nase getragen
Kein Schutz, da ungefilterte Atmung durch die Nase.

Nasenbügel nicht angepasst
Kein Dichtsitz der Maske möglich. Brille beschlägt durch Ausatemluft.

Maske nicht vollständig entfaltet
Kein Dichtsitz möglich, da Dichtlippe nicht am Kinn anliegt.

Maske verkehrt herum aufgesetzt
Kein Dichtsitz der Maske möglich.

Maske um den Hals getragen
Kontamination von Hals und Kinn durch Maske. Kontamination der Maskeninnenseite durch Kittel.

Maske mit Bart getragen
Kein Dichtsitz bei Bartträgern oder stark vernarbter Haut im Bereich der Dichtlippe.

Haare nicht zusammen gebunden
Kein Dichtsitz im Wangenbereich.

Maske über Kapuze getragen
Kein Schutz der Schleimhäute durch Maske beim Absetzen der Kapuze.

Haltebänder falsch positioniert
Kein Dichtsitz, wenn Maske verrutscht.

Haltebänder verdreht
Haltebänder können drücken. Verleitet dazu, sich mit kontaminierten Händen an den Kopf zu fassen.

Haltebänder über die Ohren geführt
Haltebänder können drücken. Verleitet dazu, sich mit kon- taminierten Händen an den Kopf/an die Ohren zu fassen.

Regelmäßiges Trainieren erhöht die Sicherheit im Umgang mit persönlicher Schutzausrüstung (PSA)
Es handelt sich hier um eine beispielhafte Darstellung mit einer faltbaren Atemschutzmaske mit Ausatemventil sowie mit einer Schutzbrille. Andere Modelle von Atemschutzmasken (z.B. Korbmaske, Maske ohne Ausatemventil) oder ein Gesichtsvisier können ebenfalls verwendet werden.

Das Robert Koch-Institut ist ein Bundesinstitut im Geschäftsbereich des Bundesministeriums für Gesundheit

Herausgeber: Robert Koch-Institut, Berlin, 2020 Redaktion: Informationsstelle des Bundes für Biologische Gefahren und Spezielle Pathogene (IBBS) Grafik: www.visual-design.de; DOI 10.25646/6881

In summary,

- The use of **personal protective equipment (PPE)** by healthcare workers requires an **evaluation of the risk** related to healthcare-related activities;
- The following precautions are recommended for the care of patients with suspected or confirmed cases of COVID-19:
  - For any suspected or confirmed cases of COVID-19
    - **standard + contact + droplet precautions**
  - For any suspected or confirmed cases of COVID-19 and AGP
    - **standard + contact + airborne precautions**

Stethoscope Disinfecting—We're Just Not Doing It

Disinfection of stethoscopes: Gap between knowledge and practice in an Indian tertiary care hospital

1 Department of Microbiology, R. D. Gardi Medical College, Ujjain, Madhya Pradesh, India

2 Department of Anatomy, R. D. Gardi Medical College, Ujjain, Madhya Pradesh, India

3 Department of Pharmacology, R. D. Gardi Medical College, Ujjain, Madhya Pradesh, India; Division of Global Health, IHCAR, Department of Public Health Sciences, Karolinska Institutet, Stockholm, Sweden

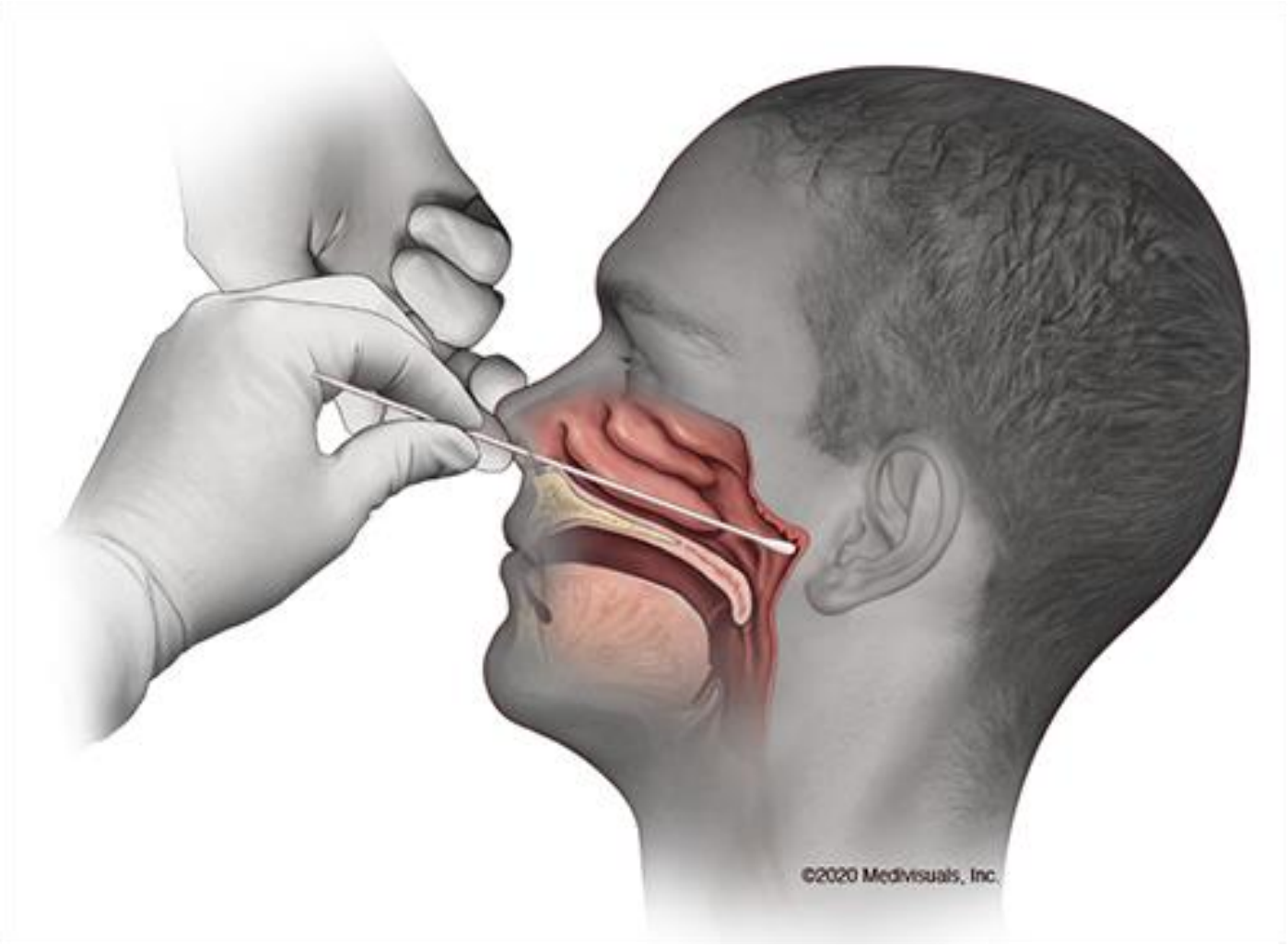
PLEASE DONOT FORGET DISINFECTING STETHS!!

Results: Out of total 80 steth[illegible]%) were found to be contaminated with at least one type of microo[illegible]monas aeruginosa was the most predominant bacterial species fou[illegible]copes, followed by Bacillus subtilis (n = 21) and Staphylococcus spp[illegible] total 10 S. aureus isolated, 3 were methicillin-resistant S. aureus (MRS[illegible]jority (97%) of the HCWs had good knowledge about the topic, but only 22 (27%) reported to apply it in the practice. Conclusions: Our study confirmed that majority of the stethoscopes were contaminated with microorganisms. Besides having knowledge about the importance of cleaning the stethoscopes, lower percentage of HCWs reported to follow it in practice.

Out of total 80 stethoscopes, 69 (86%) were found to be contaminated with at least one type of microorganism. *Pseudomonas aeruginosa* was the most predominant bacterial species found on 58 stethoscopes, followed by *Bacillus subtilis* (n = 21) and Staphylococcus spp. (n = 16). Out of total 10 *S. aureus* isolated, 3 were methicillin-resistant *S. aureus* (MRSA). Majority (97%) of the HCWs had good knowledge about the topic, but only 22 (27%) reported to apply it in the practice.

Organism	Doctors	Nurses	Total
Pseudomonas aeruginosa	44 (72)	14 (73)	58 (72)
Bacillus subtilis	12 (19)	9 (47)	21 (26)
Staphylococcus aureus	8 (13)	2 (10)	10 (12)
Coagulase-negative *Staphylococcus*	5 (8)	1 (5)	6 (7)
Pseudomonas stutzeri	1 (1)	–	1 (1)
No growth	8 (13)	3 (15)	11 (13)

Throat Swab



Studienlage

- Lopinavir/Ritonavir: randomisierte Studie (n=199), keine signifikante klinische Besserung
- Hydroxychloroquin:
  - Zwei randomisierte Studien, eine zur Senkung der Viruslast, eine klinische – beide ohne klaren Vorteil für HQ
- Remdesivir:
  - Auswertung Compassionate Use Programm, kein Vergleich möglich

Studienlage

- Lopinavir/Ritonavir: randomisierte Studie (n=199), keine signifikante [illegible] Besserung
- Hydr[illegible]
  - [illegible]randomisierte Studien, eine zur Senkung der Viruslast, eine klinische – beide ohne klaren Vorteil für HQ
- Remdesivir:
  - Auswertung Compassionate Use Programm, kein Vergleich möglich

NO Prophylactic Use of HCQ

Current Goals in Germany

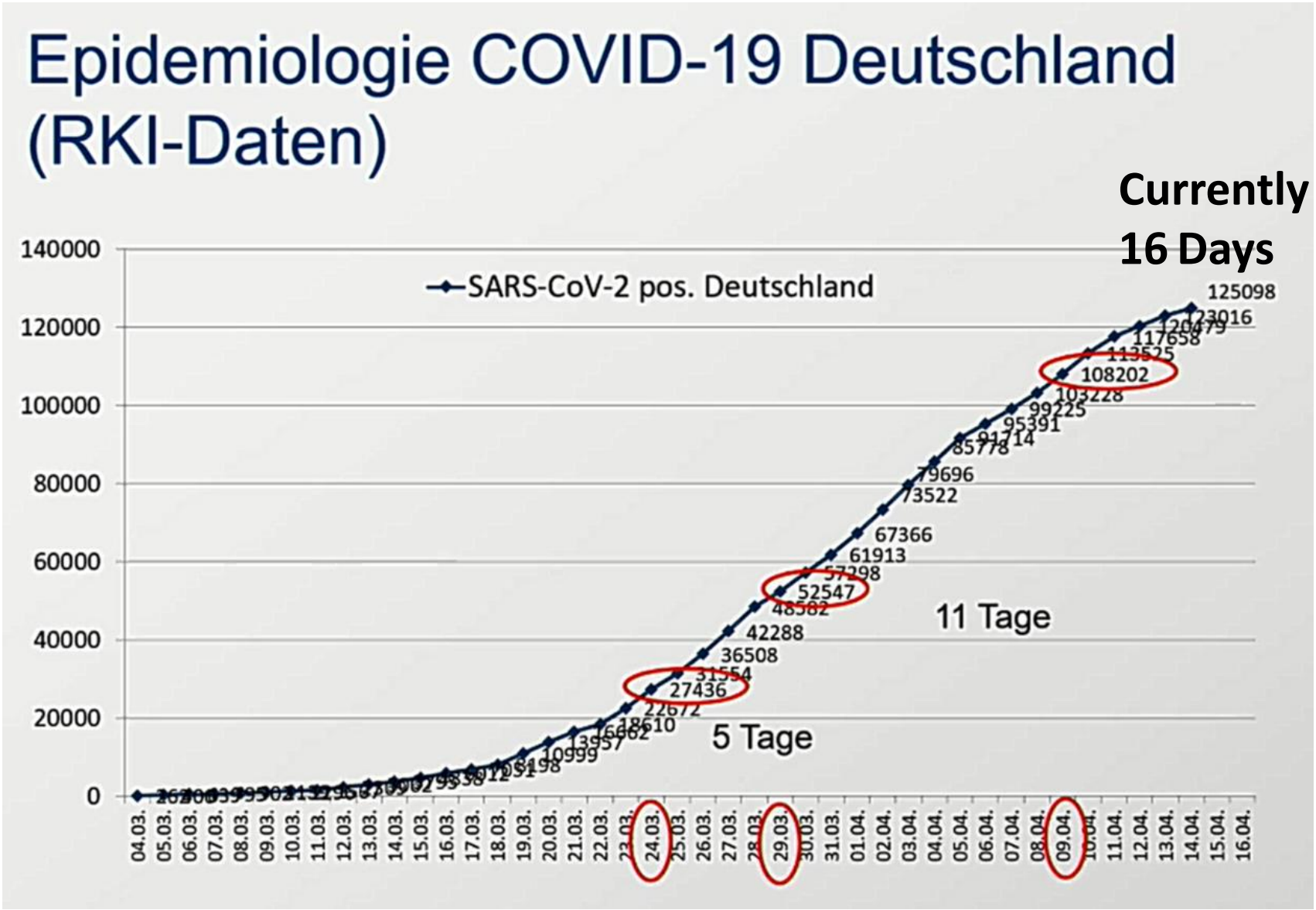
Phase 1: Social quarantine with the aim of slowing down the pandemic and avoiding overburdening of critical care structures, in particular the health care system

Phase 2: Beginning withdrawal of the quarananananization while at the same time ensuring hygienic conditions and behaviors.

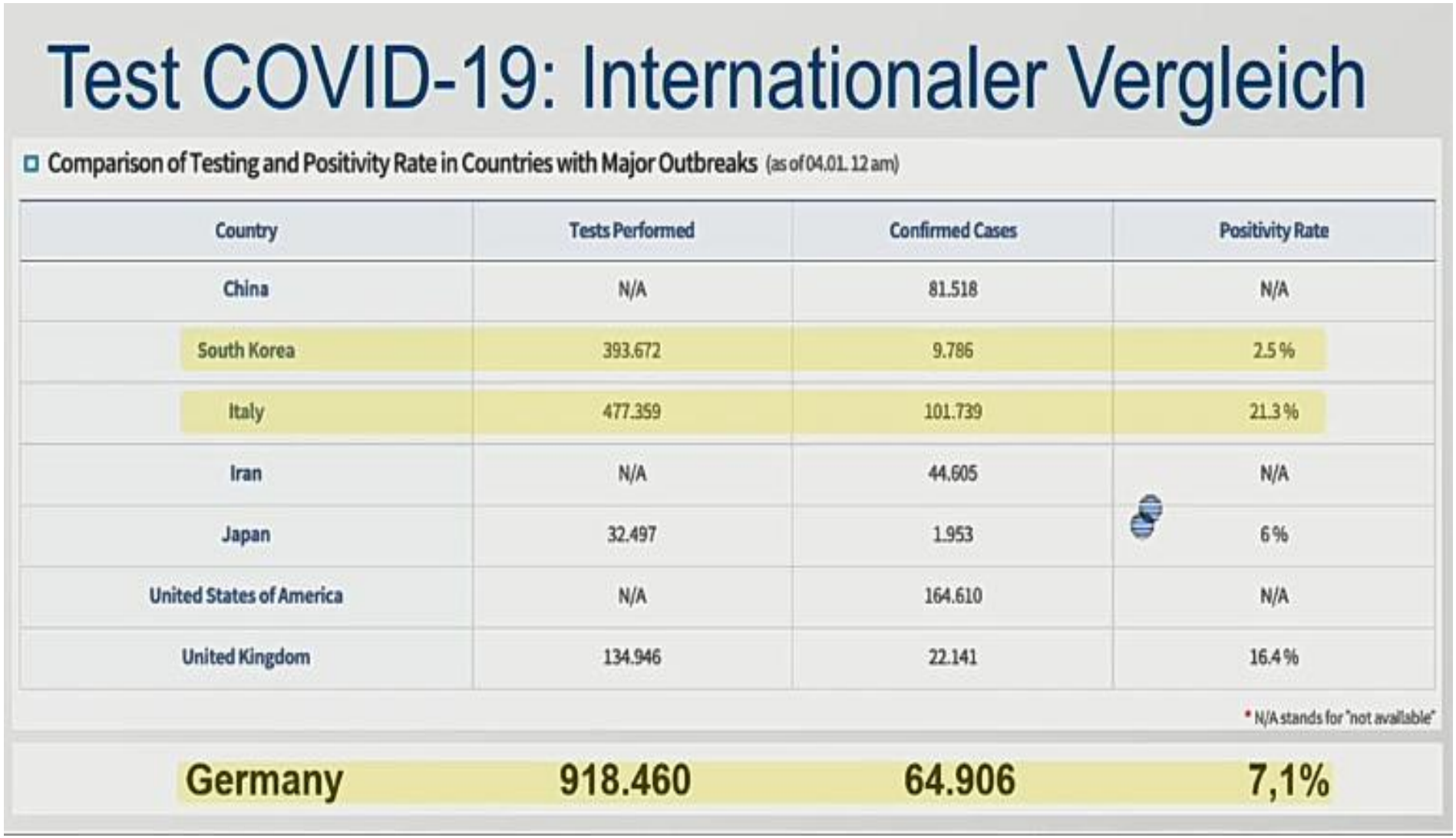
Phase 3: Abolition of quarantine Meassures while further maintaining hygienic conditions

Phase 4: State of public life as before the COVID-19 pandemic (Status quo ante).

Epidemiology COVID 19 in Germany



International Comparison As on 01.04.2020



Test COVID-19: Internationaler Vergleich

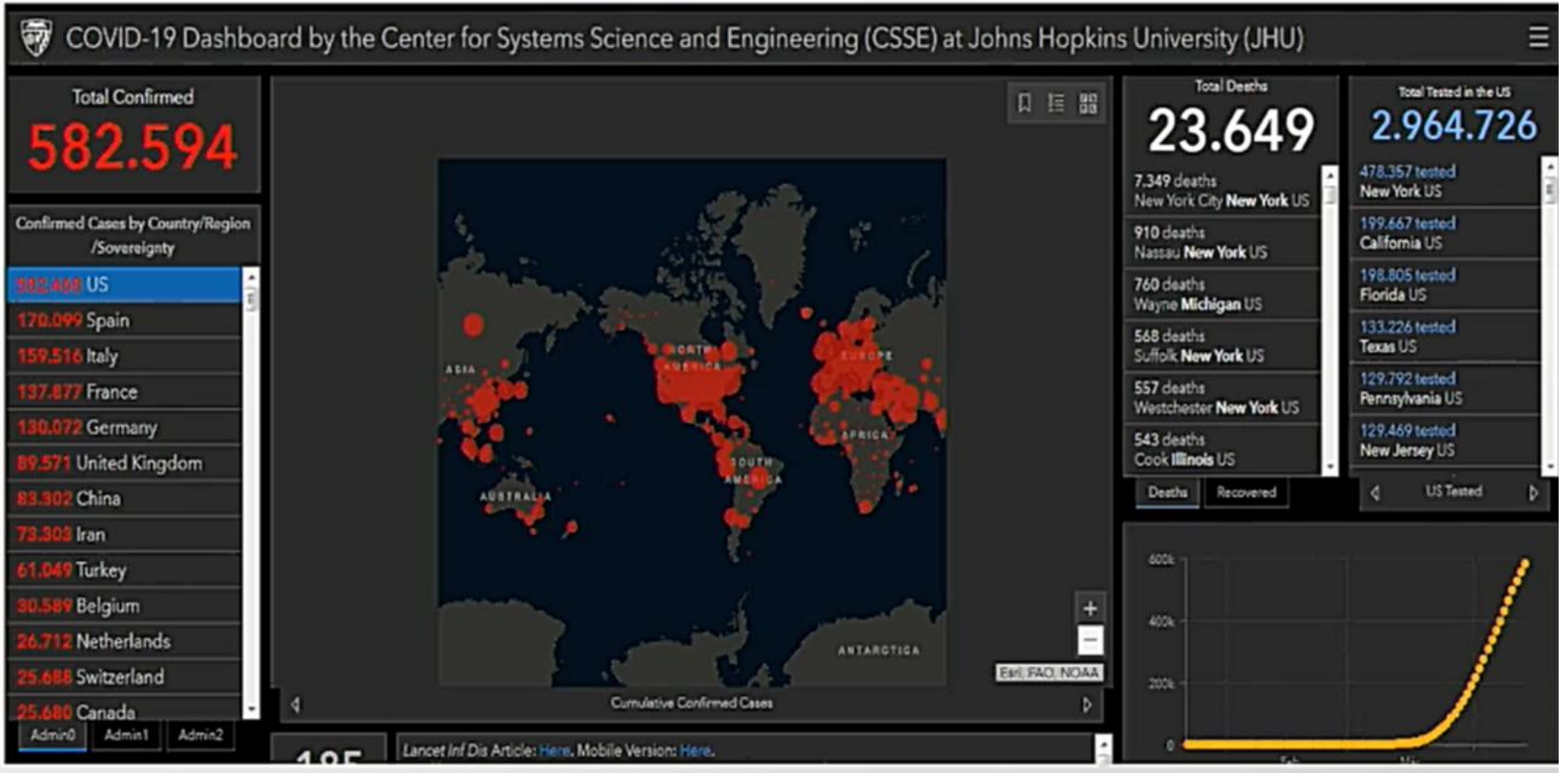
Comparison of Testing and Positivity Rate in Countries with Major Outbreaks (as of 04.01. 12 am)

Country	Tests Performed	Confirmed Cases	Positivity Rate
China	N/A	81.518	N/A
South Korea	393.672	9.786	2.5 %
Italy	477.359	101.739	21.3 %
Iran	N/A	44.605	N/A
Japan	32.497	1.953	6 %
United States of America	N/A	164.610	N/A
United Kingdom	134.946	22.141	16.4 %
Germany	**918.460**	**64.906**	**7,1%**

* N/A stands for "not available"

Test COVID-19: Internationaler Vergleich

Neue Information auf dem Dashboard Johns Hopkins University



Rate an pos. Tests USA: 19,7 %

https://www.cdc.gov/nchs/data/nhis/earlyrelease/insur201905.pdf - letzter Abruf: 14.04.2020;16:00 Uhr

Interconnection of Regional Hospitals

All Hospitals must report the Bed Capacity and ICU Capacity once Daily

Intensivregister - Öffentlich

Aktuelle Belegungssituation intensivmedizinischer Bereiche der Krankenhaus-Standorte Deutschlands

Listendarstellung Kartenansicht **Länder-Tabelle**

	Fälle COVID-19 aktuell in Behandlung	Fälle COVID-19 aktuell beatmet	Prozentualer Anteil beatmeter Patienten	Intensivbetten aktuell belegt	Intensivbetten aktuell frei	Gesamtzahl aktuell betreibbarer Intensivbetten
Total	**2,614**	**1,945**	**74.4%**	**15,212**	**11,245**	**26,457**
Baden-Württemberg	488	356	73.0%	1,855	1,497	3,352
Bayern	667	497	74.5%	2,627	1,509	4,136
Berlin	68	60	88.2%	748	341	1,089
Brandenburg	53	35	66.0%	506	434	940
Bremen	11	6	54.5%	59	68	127
Hamburg	87	65	74.7%	452	302	754
Hessen	186	146	78.5%	1,238	743	1,981
Mecklenburg-Vorpommern	8	6	75.0%	349	254	603
Niedersachsen	136	97	71.3%	1,031	982	2,013
Nordrhein-Westfalen	572	433	75.7%	3,645	2,469	6,114
Rheinland-Pfalz	112	86	76.8%	580	563	1,143
Saarland	60	43	71.7%	196	265	461
Sachsen	42	28	66.7%	604	443	1,047
Sachsen-Anhalt	35	21	60.0%	358	322	680

https://www.intensivregister.de/#/intensivregister

Krankenhaus-Standort	ICU-Verfügbarkeit			Letzte Erfassung	Kontakt
	Low-Care[1]	High-Care[2]	ECMO[3]		
Klinikum Aschaffenburg-Alzenau gemeinnützige GmbH, Standort Aschaffenburg Am Hasenkopf 1 63739 Aschaffenburg Bayern	🟢	🟢		16.04.2020 10:06 Uhr	Kontakte anzeigen
Klinikum Aschaffenburg-Alzenau gemeinnützige GmbH, Standort Alzenau Schloßhof 1 63755 Alzenau in Unterfranken Bayern	🟡	🟢		15.04.2020 09:06 Uhr	Kontakte anzeigen
Helios-Klinik Erlenbach, Hauptstandort Krankenhausstraße 45 63906 Erlenbach am Main Bayern	🟢	🟢		16.04.2020 07:38 Uhr	Kontakte anzeigen
ISAR Klinikum, Hauptstandort Sonnenstraße 24-26 80331 München Bayern	🔴	🟢		15.04.2020 10:13 Uhr	Kontakte anzeigen
Klinikum der Universität München, Klinikum der Universität München - Standort Innenstadt Ziemssenstraße 1 80336 München Bayern	🟢	🟢		16.04.2020 08:39 Uhr	Kontakte anzeigen
Maria-Theresia-Klinik				15.04.2020 14:36 Uhr	Kontakte anzeigen

SARS-CoV-2 Kontaktpersonennachverfolgung

für medizinisches Personal in Arztpraxis und Krankenhaus bei ausreichender Personalkapaziät

Kontaktperson bestätigter COVID-19-Fälle

Ab zwei Tage vor Auftreten der ersten Symptome des bestätigten COVID-19-Falls

Kontaktperson Kategorie I

Kategorie Ia

- Hohes Expositionsrisiko
- Ohne adäquate Schutzausrüstung Kontakt mit Sekreten, gegenüber Aerosolen von COVID-19-Fällen (z. B. bei Bronchoskopie)

Kategorie Ib

- Begrenztes Expositionsrisiko
- Ohne adäquate Schutzausrüstung Kontakt < 2 m zu Covid-19-Fällen
- ≥15 Min face-to-face-Kontakt (ohne Exposition wie unter I a)
- Grundsätzlich gilt: je länger und enger der Kontakt, desto höher das Risiko

Kontaktperson Kategorie III

- Ohne verwendete Schutzausrüstung und Distanz immer > 2 m sowie bei keiner Exposition gegenüber Sekreten, Körperflüssigkeiten oder Aerosolen
- Mit verwendeter Schutzausrüstung und < 2 m Abstand

Gesundheitsamt

- Erfassung der relevanten Kontakte und Rangfolge, je nach Exposition

Hygienefachpersonal

- Tägliche Abfrage und Dokumentation des Selbstmonitoring des betroffenen Personals

Kontaktperson Ia oder Ib

- Häusliche Quarantäne für 14 Tage: **Zeitliche und räumliche Trennung von anderen Haushaltsmitgliedern**
- Einhaltung der Händehygiene und Husten/Niesetikette
- Gesundheitsüberwachung bis zum 14. Tag: **2x täglich Messen der Körpertemperatur**
- Führen eines Tagebuchs
- Tägliche Information an das Gesundheitsamt

Kontaktperson III

- Einsatz in der Patientenversorgung
- Möglichst mit Mund-Nasen-Schutz
- Tägliches Selbstmonitoring

Personal mit Erkältungssymptomen ohne Kontakt

- Keine Patientenversorgung
- Voraussetzungen für Wiederaufnahme der Arbeit:
  - Symptomfreiheit seit mind. 48 Std.
  - Negatives Ergebnis der SARS-CoV-2-Testung

SARS-CoV-2-positives medizinisches Personal

- Keine Patientenversorgung
- Voraussetzungen für Wiederaufnahme der Arbeit:
  - Symptomfreiheit seit mind. 48 Std.
  - 2 negative SARS-CoV-2-Tests im Abstand von 24 Std.

CATEGORY I		CATEGORY III
Category Ia	**Category Ib**	**Category III**
High risk of exposure Without adequate protection armor contact with secretions, towards Aerosols from COVID-19 cases (e.g. in Bronchoscopy)	Limited exposure risk Without adequate protective equipment contact <2 m to co-vid-19 cases ≥15 min face-to-face contact (without exposure as under I a) Basically, the longer and the closer the contact, the more higher the risk	Without protective equipment used armor and distance always > 2 m as well as no exposure towards secretions, body liquids or aerosols With the protection used, armor and <2 m distanc

Patient care with sufficient HCW

Category Ia and Ib	Category III
Health department: Registration of the relevant contacts and ranking, depending on Exposition **Contact person Ia or Ib** Home quarantine for 14 days: **temporary and spatial separation from other household members**	**Contact person III** Allowed further to Work in patient care If possible with mouth-nose protection Daily self- monitoring

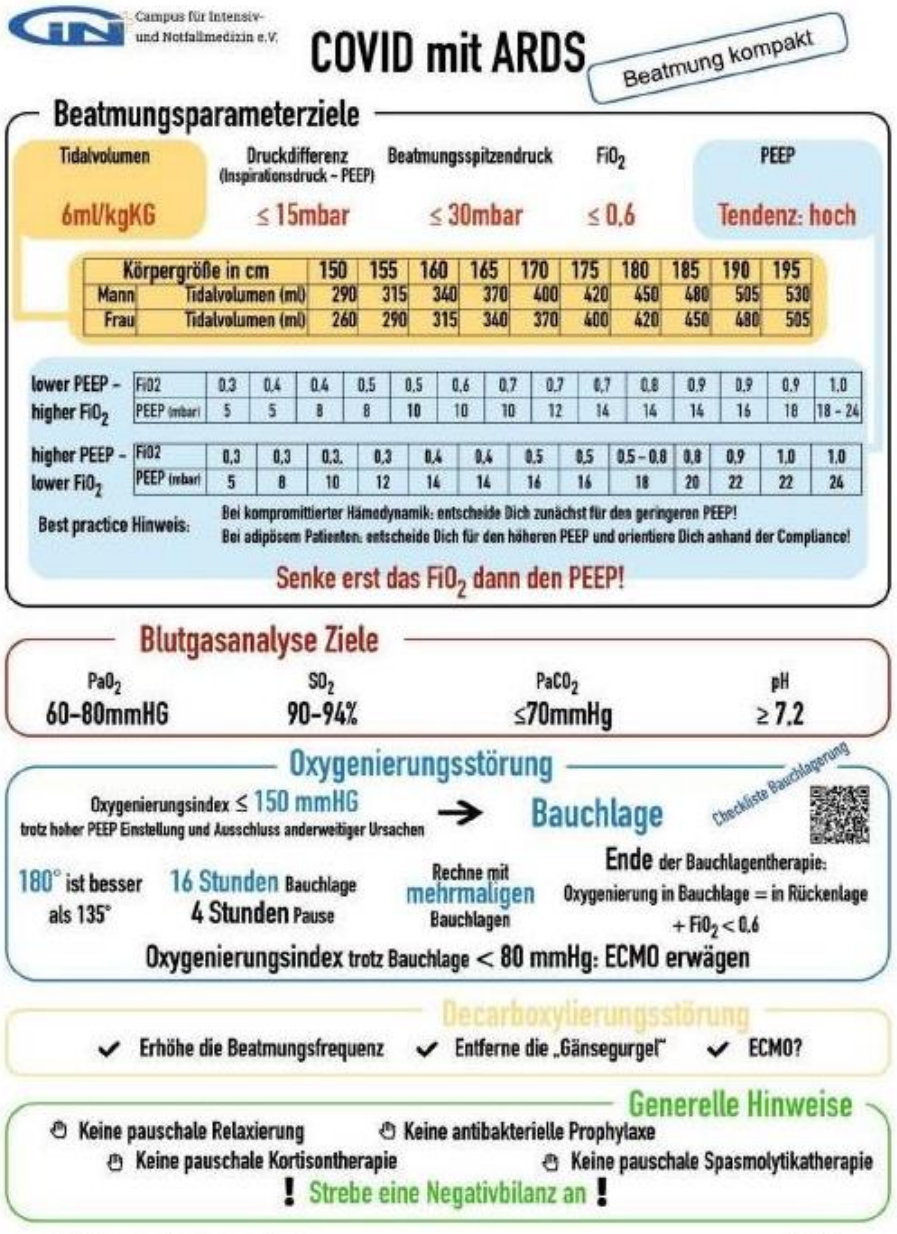
When Sufficient Supply of HCW	
Personnel with cold symptoms without contact No patient care Requirements for resuming work: - Free of symptoms for at least 48 hours - Negative result of SARS-CoV-2 test	**SARS-CoV-2 positive medical staff** No patient care Requirements for resuming work: - Free of symptoms for at least 48 hours - 2 negative SARS-CoV-2 tests with atleast 24 hours interval

Patient Care with deficiency of HCW

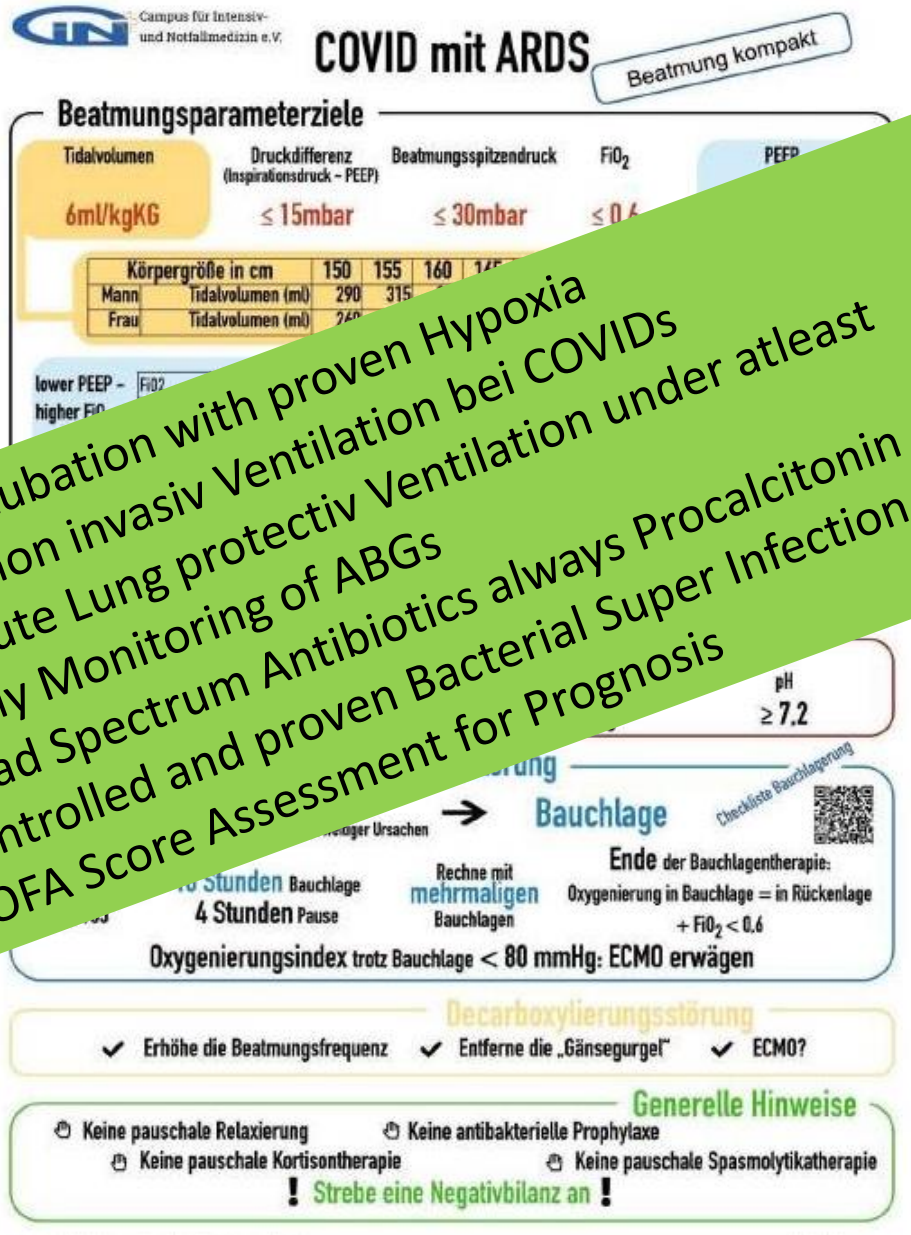
Contact person Ia	Contact person Ib	Contact person III
Home quarantine **for at least 7 days** and then work with no symptoms only with mouth-nose protection (during total presence at the workplace) Supply ONLY for COVID-19-Patients in exceptional cases Self- observation + documentation (up to 14 days after expo sition) If necessary SARS-CoV-2 testing If symptoms occur, ongoing testing for SARS-CoV-2; **if the test is positive see "SARS-CoV-2- positive med. Staff"**	If there are no symptoms, only work with Mouth and nose protection (throughout Presence at work) If possible, no use in the particularly vulnerable Patient groups Self- observation + documentation (up to 14 days after exposition) If necessary SARS-CoV-2 testing If symptoms occur, ongoing testing COVID-19; **if the test is positive see "SARS-CoV-2- positive med. Staff"**	Use in patient care Daily self- monitoring (up to 14 days after exposure) If possible with mouth-nose protection When symptoms occur When symptoms occur immediate testing on SARS CoV-2; **with a positive test see "SARS-CoV-2 positive med. Staff**

Patient Care with deficient HCW or Limited No. HCW	
Personnel with cold symptoms without contact Patient care, prerequisite: Nose-to-mouth protection during the entire presence at the work place Test for SARS-CoV-2; if pos. **see positive tested "SARS-CoV-2 med. Personal " guidance**	SARS-CoV-2 positive medical staff In absolute exceptional cases : serve only for COVID-19 patients With mouth-nose protection during the entire presence at the workplace Requirements for care of non-COVID-19 patients: - Symptoms have been free for at least 48 hours and - 2 negative SARS-CoV-2 tests every 24 hours

Ventilation Therapy for COVID-19 Pneumonie



Ventilation Therapy for COVID-19 Pneumonie



1. Early Intubation with proven Hypoxia
2. Avoid non invasiv Ventilation bei COVIDs
3. Absolute Lung protectiv Ventilation under atleast hourly Monitoring of ABGs
4. Broad Spectrum Antibiotics always Procalcitonin Controlled and proven Bacterial Super Infection Daily SOFA Score Assessment for Prognosis

Take Home Message

1. Motivate the Staff with proper Insights and Educating them correctly. **And important repeatedly.**

2. Prepare the Standard SOPs for your Clinic / Hospital

3. Every Healthworker irrespective of currently treating the COVID Patients or not must be prepared for the case of Replacement of the Staff due to any reason or Catastrophe

4. Mandatory documentation for the Proof of Training about the SOPs and having been educated for the Personal Hygiene to avoid future Conflicts.

5. Providing adequate PPE for the Workers Safety must be the Responsiblity of the Hospital Administration.

6. Appropriate Disposal to prevent further Spread.


DIE JOHANNITER
Ev. Krankenhaus Bethesda
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"THE TIME IS ALWAYS RIGHT ..... TO DO WHAT IS RIGHT"


Thank you!