

		Source	Hint
Number of inhabitants BRD rounded down	83.000.000 individuals	[4]	
70% of the inhabitants become infected	58.100.000 individuals	[3]	B.-Repro. (R0)=3
20% of the above 58.100.000 will have symptoms	11.620.000 individuals	[2]	
5% of the above 11.620.000 will require ventilation	581.000 patients	[1]	
Average ventilation time of COVID-19 patients	9 days	[1]	
cumulative total number of ventilation days	5.229.000 days		
<b>40-50% of ventilation time is spent weaning* the patient (*=needed time to free someone from the ventilator)</b>		[5][6][7][8]	
<b>Physiotherapy and breathing training significantly reduces the ventilation time by at least 1 to 2.15 days</b>		[5][9][10][11] [12][13][14]	
Reduction of the cum. Total ventilation days required (with reduction by 1 day) to only	4.648.000 days		
This releases ventilation resources (with 9-day ventilation) for	64.555 patients		
Reduction of the cum. Total ventilation days required (with reduction by 2.15 days) to only	3.979.850 days		
This releases ventilation resources (with 9-day ventilation) for	442.205 patients		
Pathophysiology of Weaning Failure: [5]			
Hypercapnic insufficiency	Can be influenced by physiotherapy and breathing therapy, muscle training and metabolic training [16][17][18]		
Respiratory Center			
Nerval control			
Respiratory Muscles			
Muscular overload			
diseases of the respiratory tract			
Thoracic restriction			

Hypoxic insufficiency due to lung parenchyma disease and cardio-pulmonary interactions	
Oxygen intake and consumption	
Critical illness-related polyneuropathy and Critical illness-related myopathy	
Other metabolic aspects	
Special features for paediatric patients	

Quellenangabe:

[1] Rapid communication Influenza-associated pneumonia as reference to assess seriousness of coronavirus disease (COVID-19) Kristin Tolksdorf<sup>1</sup>, Silke Buda<sup>1</sup>, Ekkehard Schuler<sup>2</sup>, Lothar H Wieler<sup>1</sup>, Walter Haas<sup>1</sup> 1. Robert Koch Institute, Berlin, Germany 2. Helios Kliniken GmbH, Berlin, Germany Correspondence: Kristin Tolksdorf (tolksdorfk@rki.de) Citation style for this article: Tolksdorf Kristin, Buda Silke, Schuler Ekkehard, Wieler Lothar H, Haas Walter. Influenza-associated pneumonia as reference to assess seriousness of coronavirus disease (COVID-19). Euro Surveill. 2020;():pii=2000258. <https://doi.org/10.2807/1560-7917.ES.2020.25.11.2000258> Article submitted on 06 Mar 2020 / accepted on 16 Mar 2020 / published on 19 March 2020

[2] SARS-CoV-2 Steckbrief zur Coronavirus-Krankheit-2019 (COVID-19), Stand 21.03.2020 RKI

[3] Feasibility of controlling COVID-19 outbreaks by isolation of cases and contacts, Joel Hellewell, Sam Abbott\*, Amy Gimma\*, Nikos I Bosse, Christopher I Jarvis, Timothy W Russell, James D Munday, Adam J Kucharski, W John Edmunds, Centre for the Mathematical Modelling of Infectious Diseases COVID-19 Working Group, Sebastian Funk†, Rosalind M Eggo†

[4] Statistisches Bundesamt:

[https://www.destatis.de/DE/Themen/GesellschaftUmwelt/Bevoelkerung/Bevoelkerungsstand/\\_inhalt.html](https://www.destatis.de/DE/Themen/GesellschaftUmwelt/Bevoelkerung/Bevoelkerungsstand/_inhalt.html)

[5] Prolongiertes Weaning S2k-Leitlinie herausgegeben von der Deutschen Gesellschaft für Pneumologie und Beatmungsmedizin e.V., Prolonged Weaning S2k-Guideline Published by the German Respiratory Society Autoren B. Schönhofer<sup>1</sup>, 2, J. Geiseler<sup>2</sup>, D. Dellweg<sup>2</sup>, O. Moerer<sup>2</sup>, T. Barchfeld<sup>3</sup>, H. Fuchs<sup>3</sup>, O. Karg<sup>3</sup>, S. Rosseau<sup>3</sup>, H. Sitter<sup>3</sup>, 4, S. Weber-Carstens<sup>3</sup>, M. Westhoff<sup>3</sup>, W. Windisch<sup>3</sup>, AWMF Register-Nr 02/015

[6] Vassilakopoulos T, Petrof BJ. Ventilator-induced diaphragmatic dysfunction. Am J Respir Crit Care Med 2004; 169: 336–341

[7] Jubran A. Critical illness and mechanical ventilation: effects on the diaphragm. Respir Care 2006; 51: 1054–1061

[8] Schild K, Neusch C, Schönhofer B. Ventilator induzierter Zwerchfellschaden. Pneumologie 2008; 62: 33–39

[9] Thomas DC, Kreizman IJ, Melchiorre P et al. Rehabilitation of the patient with chronic critical illness. Crit Care Clin 2002; 18: 695–715

[10] Morris PE, Goad A, Thompson C et al. Early intensive care unit mobility therapy in the treatment of acute respiratory failure. Crit Care Med 2008; 36: 2238–2243

- [11] Schweickert WD, Pohlman MC, Pohlman AS et al. Early physical and occupational therapy in mechanically ventilated, critically ill patients: a randomised controlled trial. *Lancet* 2009; 373: 1874–1882
- [12] Gosselink R, Bott J, Johnson M et al. Physiotherapy for adult patients with critical illness: recommendations of the European Respiratory Society and European Society of Intensive Care Medicine Task Force on Physiotherapy for Critically Ill Patients. *Intensive Care Med* 2008; 34: 1188–1199
- [13] Hodgson CL, Bailey M, Bellomo R et al. A Binational Multicenter Pilot Feasibility Randomized Controlled Trial of Early Goal-Directed Mobilization in the ICU. *Crit Care Med* 2016; 44: 1145-1152
- [14] Wright SE, Thomas K, Watson G et al. Intensive versus standard physical rehabilitation therapy in the critically ill (EPICC): a multicentre, parallel-group, randomised controlled trial. *Thorax* 2018; 73: 213-221
- [15] SARS-CoV-2-Infektion: Wenn COVID-19-Patienten intensivpflichtig werden Dtsch Arztebl 2020; 117(12): A-582 / B-503, Zylka-Menhorn, Vera
- [16] *Pneumologie*. 2011 Jul;65(7):419-27. doi: 10.1055/s-0030-1255938. Epub 2011 Feb 22. Pulmonary rehabilitation before and after lung transplantation, Kenn K1, Sczepanski B.
- [17] *Thorac Surg Clin*. 2005 May;15(2):203-11. The value of preoperative pulmonary rehabilitation. Takaoka ST1, Weinacker AB.
- [18] Preoperative physiotherapy for the prevention of respiratory complications after upper abdominal surgery: pragmatic, double blinded, multicentre randomised controlled trial *BMJ* 2018; 360 doi: <https://doi.org/10.1136/bmj.j5916> (Published 24 January 2018)Cite this as: *BMJ* 2018;360;j5916