

Disclaimer: We kindly ask to acknowledge that due to the diverse and heterogeneous nature of the questions and the dynamic pandemic situation some of the information might be incomplete or only correct for the time being. Thus, please consider the date and date of the last update with the below information. All available information was provided by a country representative from the PHIRI network during or in connection to the respective meeting.

Date: 27.09.2021 Last update: 28.10.2021

Table 1: Part 1: Country response: Hospitalizations of vaccinated/unvaccinated persons

Country	Hospitalizations of vaccinated/unvaccinated persons	Data collection on vaccinated/unvaccinated hospitalizations
Austria	<p>Hospitalizations (as of 22.9): Since 01.02.2021 out of all individuals who have been hospitalized with symptomatic SARS-CoV-2 infection, 250 (0,14%) were fully vaccinated. A similar rate has been observed in the recent period from 23.08.2021 to 19.09.2021: 57 (0,20%) of all individuals hospitalized with symptomatic SARS-CoV-2 were fully vaccinated. More details including analysis by age group can be found here (in German): https://www.ages.at/download/0/0/ab9c3e49072785c2e7cc4f910fc72036455fc492/fileadmin/AGES2015/Themen/Krankheitserreger_Dateien/Coronavirus/Impfdurchbruch/Impfdurchbr%C3%BCche_20210922.pdf</p> <p>ICU-admissions: Currently the vaccination status of ICU patients in Austria is not routinely published. According to a media article, on 07.09.2021 there were 172 individuals hospitalized with COVID-19, of which 21 (12,2%) were fully vaccinated (https://archive.is/K5U7M, in German; see also a recent fact check by the Austrian Press Agency: https://apa.at/faktencheck/apa-faktencheck-fpoe-video-zu-covid-impfung-enthaelt-desinformation/)</p>	No routine data collection
Belgium	<p>Data on the proportion of vaccinated/unvaccinated hospitalized: Through the LINK-VACC project, Sciensano closely monitors the COVID-19 infections occurring among fully immunized persons, by linking data from the Vaccinnet+ registry and the COVID-19 laboratory test results database. Individuals who have been fully vaccinated for at least 14 days are considered as fully immunized. Clinical information on hospitalized COVID-19 patients is collected in the COVID-19 Clinical Hospital Surveillance. This surveillance does not cover all, but rather approximately 2/3rds of all hospitalized COVID-19 patients in Belgium. Since the 1st of January 2021, only 2% (n=416) of all registered COVID-19 hospitalized cases were among fully immunized patients. Fully vaccinated hospitalized patients were older (median age 82) and more frequently female (62%) when compared to unvaccinated COVID-19 hospitalized cases. The large majority had comorbidities (92%) and a substantial portion were nursing home residents (49%). Further analyses are ongoing to untangle whether these results reflect risk factors for hospitalization or rather the vaccine campaign rollout which initially targeted the elderly and people with comorbidities. Only 3 of the 416 hospitalized breakthrough cases were identified as healthcare workers.</p> <p>The COVID-19 Hospital Clinical Surveillance collects data from hospitalized patients with a COVID-19 infection, independent of whether COVID-19 was the reason for admission or not. It is therefore important to note that a large part of these hospitalized breakthrough cases were identified by systematic screening (50.2%, 209/416), and not because these patients had recognized symptoms compatible with a COVID-19 infection upon admission (44.2%, 184/416).</p> <ul style="list-style-type: none"> • Some patients were tested for other or unknown reasons (5.5%, 23/416). • Among the breakthrough cases identified through systematic screening, 70.8% (148/209) were asymptomatic at the moment of hospital admission. Nonetheless, patients identified through systematic screening may still develop severe symptoms and complications during hospitalization. <p>Data on the proportion of vaccinated/unvaccinated persons who require treatment in ICUs: Of the 416 breakthrough infections, 319 also had a completed discharge form, which allows us to analyze their clinical outcomes. Among the fully immunized patients, 7.5% were transferred to the intensive care unit (ICU) and 17.2% did not survive (all-cause death). Unvaccinated people were</p>	No routine data collection



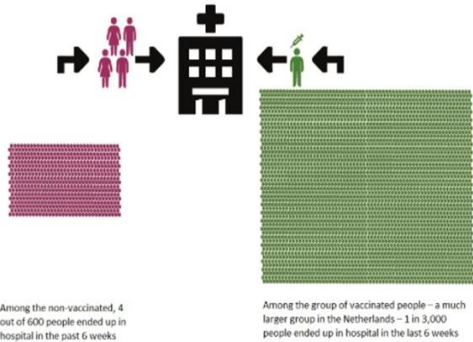
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	<p>more often transferred to ICU (18.8%), however proportionally less patients died (14.0%). The proportion of people whose cause of death was attributed to COVID-19 was similar between the two groups. However, these numbers cannot be taken at face value because the two groups are not comparable. Patients with breakthrough infections were of older age, with more comorbidities and more often nursing home residents, which increases their risk of death. Additionally, nursing home residents are less likely to be transferred to intensive care.</p> <p>Further information: The information above comes from the report below published on the 18th August. https://covid-19.sciensano.be/sites/default/files/Covid19/Preliminary%20analysis%20breakthrough%20infections.pdf</p> <p>Project summary The LINK-VACC-project will link the vaccine registry (VACCINNET+), that collects information on all administered COVID-19 vaccines, with other already existing databases that contain relevant and detailed information. The aim of the project is threefold: 1. Determining the uptake and coverage of the COVID-19 vaccine. The uptake and coverage are two important indicators to evaluate the roll-out of the vaccination campaign and to adjust the campaign where necessary. Therefore, it is also important to estimate these parameters as detailed as possible (by region, type of vaccine, age groups, target groups, ...). 2. Determining the effectiveness of the vaccine. The efficacy of the vaccine as measured in clinical trials may differ from the effectiveness measured after the roll-out of the vaccination campaign. Indeed, clinical trials are typically run in strictly controlled circumstances within well-described populations as opposed to a "real-life setting". Moreover, potential mutations in the virus that may emerge could in time affect the effectiveness of the vaccine. Consequently, the follow-up of the vaccine effectiveness is crucial to evaluate which part of the population is effectively protected and to guide the country's vaccination policy accordingly. A test-negative case-control study design will be used to determine the effectiveness of the different vaccines used in Belgium against the development of a (lab-confirmed) COVID-19 infection. Here too, vaccine effectiveness in certain subgroups (according to age, sex, specific risk groups,...) will be investigated in as much detail as possible. 3. Contributing to the monitoring of the vaccine safety The LINK-VACC project will also monitor certain safety signals, making sure the safety of the vaccine continues to be guaranteed. Amongst others, break-through cases (COVID-19 cases occurring in fully vaccinated persons) will be detected, characterized (level of severity, delay of onset...) and examined as to whether they are associated to a certain vaccination site or lot number. In this way, the project will support the Federal Agency for Medicines and Health Products (FAMHP) in the fulfillment of its tasks. All data will be pseudonymized, which implies that the identity of the persons whose data are involved cannot be traced by the researchers.</p>	
Bulgaria	<p>Data is collected from 2 different systems. The "common system" is publicly available. Additionally, data is collected by 28 regional inspectorates. Data from the regional system is not publicly available. Approx. 10-14% of those who are tested COVID-19 positive are vaccinated. Around 90% of those admitted to hospital are not vaccinated. There is no information on ICU admissions available. The mortality rate of those unvaccinated ranges between 10 and 14%.</p>	Data publicly available (partly)
Croatia	<p>Data is publicly available on the Ministry of Health website. On 14th September, the proportion of unvaccinated hospitalized patients was 77.4%. Regarding ICU patients, only data on patients with mechanical ventilation is collected: 9 out of 10 of these were unvaccinated, 1 out of 10 vaccinated. More information at the following link: https://zdravstvo.gov.hr/vijesti/beros-hrvatska-moze-i-zna-bolje-pozivam-gradjane-da-se-ciepe-i-nastave-s-primrzavanjem-epidemioloskih-mjera/5511</p>	Data publicly available
Czech Republic	<p>Data for hospitalizations /deaths/ICU disaggregated by vaccination status is available daily on the web pages of ministry of Health https://www.mzcr.cz/wp-content/uploads/2021/09/Priloha_04_souhrn_ockovani_nakazy_20210930.xlsx Indicators show, that 70% of those hospitalized are unvaccinated, 71% at ICU are unvaccinated, and the mortality rate is 62% (data from September 2021).</p>	Data publicly available
Estonia	<p>Routinely linked data are available of the proportion of vaccinated and unvaccinated hospitalized and also hospitalized people in ICU. Health Board, who is the main institution responsible for the COVID-19 management in the country have weekly reports on the COVID-19 situation in Estonia and for several weeks the reports have information of hospitalized people who are vaccinated and unvaccinated. At the moment the proportion of unvaccinated people is approximately 70% of the hospitalized ones. https://www.terviseamet.ee/sites/default/files/Nakkushaigused/COVID-19/ulevaade_20.09.2021.pdf</p>	Data publicly available



Finland	<p>Publicly available statistics on hospitalizations and ICU patients can be found at the following link: https://sampo.thl.fi/pivot/prod/en/epirapo/covid19care/fact_epirapo_covid19care?&row=erva-456367&column=measure-547523.547516.456732.445344.</p> <p>This does not include information about number of vaccinated/unvaccinated and since statistics are provided by region, numbers are so small that it would not be possible, due to data privacy, to tell how many are vaccinated/unvaccinated.</p> <p>Information about vaccination status of individuals is available on databases and some information has been provided in the weekly COVID-19 reviews by the Ministry and THL, for example today 23th September, it was stated (time stamp 6:57) than majority of hospitalized cases are unvaccinated in all age groups (https://www.youtube.com/watch?v=YDzpt1Grlw).</p>	Data publicly available
Ireland	<p>Data on the proportion of vaccinated/unvaccinated hospitalized cases are not yet publicly available. However, two reports were recently released on the below topics.</p> <p>(i) Vaccination status of COVID-19 cases admitted to ICU between 1st April and 18th September 2021 (Vaccination Status of ICU admissions.pdf (hpsc.ie))</p> <ul style="list-style-type: none"> - 71% of people (aged 15+) admitted to ICU with confirmed COVID-19 infection were unvaccinated. - 29% of cases had received at least one dose prior to ICU admission. - 19% of cases were fully vaccinated (14 or more days post recommended dosage). Of these, the mean age was 65, 97% had an underlying condition, and 19% died. <p>(ii) Vaccination status of COVID-19 deaths between 1st April and 18th September 2021 (Death and Vaccination Report.pdf (hpsc.ie))</p> <ul style="list-style-type: none"> - 53.5% were not vaccinated - 46.5% had received at least one dose - 31% were fully vaccinated (14 or more days post recommended dosage). Of these, the mean age was 81, and 65.5% had an underlying condition. 	Data not publicly available
Italy	<p>The hospitalization rate in the last 30 days for the unvaccinated is about nine times higher than for the full cycle vaccinated (251.8 vs 28.9 hospitalizations per 100,000 inhabitants); Analyzing in the same way the number of ICU admissions and deaths in the over 80s, it is observed that in the last 30 days the rate of ICU admissions of full-cycle vaccinated people is eleven times lower than those not vaccinated (1.4 vs 15.5 per 100,000 inhabitants).</p> <p>You can find more detailed information at the following link: https://www.epicentro.iss.it/en/coronavirus/sars-cov-2-integrated-surveillance-data (partially in English language)</p>	Data publicly available
Malta	<p>In MT, data on those vaccinated and unvaccinated hospitalized is available from two data sets. However, both are neither publicly available, nor linked on a continuous basis.</p> <p>In general, mortality is higher among those unvaccinated. Most of individuals aged 70 above are almost vaccinated, around 10.000 have received the third dose. MT has seen a rise in the incidence rate amongst those aged 80+ and a rise in COVID-related mortality in this age group as well. This age group has been practically completely vaccinated by late February.</p>	Data not publicly available No routine data collection
Netherlands	<p>These data are not regularly available (as the data of hospitalized patients is not linked to the vaccination registration system because of privacy reasons).</p> <p>On 27 August, RIVM published a study on vaccine effectiveness in preventing admission to hospital or ICU. They used data of 14.605 patients admitted to hospital between 4 April and 20 August 2021. Of these 14.605 patients, 669 (4,6%) were fully vaccinated, 1.074 (7,4%) was partly vaccinated and 12.862 (88,0%) were unvaccinated.</p> <p>The study concluded that in the delta-period, the chance that a fully vaccinated person with the coronavirus SARS-CoV-2 will be admitted is 20 times lower than for a non-vaccinated person. The chance of ICU admission for a fully vaccinated person is 33 times lower. The vaccines offer fully vaccinated people 95% protection against hospital admission and 97% against ICU admission. Percentages are available for different age groups and for the different vaccines. In a period of 6 weeks around mid July – end of August, about 4 out of 600 unvaccinated people with COVID-19 ended up in hospital compared to about 1 out of 3000 vaccinated people.</p> <p>Source: https://www.rivm.nl/en/news/vaccines-very-effective-against-hospital-and-icu-admissions-also-for-delta-variant. Report in Dutch: https://www.rivm.nl/documenten/studie-effectiviteit-van-covid-19-vaccinatie-tegen-ziekenhuis-en-intensieve-care-opname</p>	Data not publicly available No routine data collection



	<p style="text-align: center;">Which people with COVID-19 end up in hospital?</p>  <p style="text-align: center;">Mid July, the “Landelijk Coördinatiecentrum Patiënten Spreiding” (National Coordination Center for Patient Distribution) did a short survey among pulmonologists. Of the 370 COVID-19 patients admitted to hospital in the week of July 12 to July 19, for 320 patients it is known whether they had been vaccinated or not. Of these, 57% were not vaccinated at all, 17% was partly vaccinated (received 1 of 2 doses), 5% was fully vaccinated but with known low immunity (for example, due to an immune disorder or the use of drugs that lower the immune system), 10% was fully vaccinated, and for 11% there was not enough data available. Source: Wel en niet gevaccineerde patiënten in de ziekenhuizen Dashboard Coronavirus Rijksoverheid.nl</p>	
<p>Poland</p>	<p>In Poland, the cases of persons hospitalized infected with coronavirus are registered in the National Register of Patients with COVID-19. National Register of Patients with COVID-19 is a register from which data are not made available to the public pursuant to the Act on Access to Public Information.</p> <p>In the above mentioned register the following data are collected:</p> <p><u>Personal data</u></p> <ul style="list-style-type: none"> •PESEL number or Number of the document confirming the identity •First name and last name •Nationality •Date of birth •Domicile •Contact details <p><u>Medical data</u></p> <ul style="list-style-type: none"> • Contact with someone infected with COVID-19 • Symptoms suggestive of COVID-19 infection • Coexisting (concomitant) symptoms • Medicines used by the patient • Co-morbidities • Information on stimulants 	<p>Data not publicly available</p>



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	<ul style="list-style-type: none"> • Data of diagnostic tests (including test for COVID-19) • Treatment used (including pharmacological) • Consequences of infection • Treatment outcomes • Assessment of the patient's condition according to the MEWS scale • Place of hospitalization <p>Survey of a patient presenting due to suspected SARS-CoV-2 coronavirus infection</p> <p><u>Personal data</u></p> <ul style="list-style-type: none"> • PESEL number or Number of the document confirming the identity • First name and last name • Date of birth • Phone number <p><u>Medical data</u></p> <ul style="list-style-type: none"> • Contact with someone infected with COVID-19 • Symptoms suggestive of COVID-19 infection • Concomitant symptoms • Medicines used by the patient • Co-morbidities • Information about stimulants • Data of diagnostic tests (including test for COVID-19) • Treatment used (including pharmacological) • Consequences of infection • Treatment outcomes • Assessment of the patient's condition according to the MEWS scale • Place of hospitalization <p>Data regarding <u>vaccination data</u> comes from the vaccination register. In order to obtain information on the number of vaccinated / unvaccinated persons infected with coronavirus, hospitalized/staying in the intensive care unit, data from two registers should be combined with individual PESEL numbers and processed. However, policy makers in Poland do have access to such information.</p> <p>Processed information with regard to the fourth wave of coronavirus infections and vaccination program, including information on deaths of those ill with COVID-19 are sometimes made available by the Minister of Health. e.g. information valid for Sept. 24th: From among all deaths of persons infected with coronavirus – 1,75% were those vaccinated (after 14 days of full vaccination) Number of deaths of those infected with coronavirus from the beginning of the vaccination with the second dose: 39 499 Number of deaths among persons fully vaccinated (after 14 days of full vaccination): 694</p>	
Portugal	Mortality in vaccinated individuals is 3 to 7 times lower than in unvaccinated. Only 1,5% of those vaccinated were hospitalized.	N/A
Slovakia	Data is available in SK on both, the proportion of vaccinated/unvaccinated hospitalized and the proportion of vaccinated/unvaccinated persons who require treatment in ICUs. Information on vaccinated/unvaccinated is captured in EHRs, however, it is not automatically extracted for specific data flows. Manual inputs into their pandemic daily reports are required. Public daily reporting in this view is focused on proportion of vaccinated/unvaccinated among the last PCR positive: 21/79; AG positive 27/73; hospitalized with COVID 16/84.	Data publicly available
United Kingdom	No official statistics on admissions in vaccinated groups available (admissions cause coding has a lag of about 3 months) but some useful papers at the following links: https://www.bmj.com/content/374/bmj.n2306 and https://www.bmj.com/content/374/bmj.n2244	Data not publicly available



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