DELIVERED BY:

Employee Name	
Position/Title/Professional	
Company/Institution/Other	
Employee Address	
ID/Passport Number	

DELIVERED TO:

Employer Name	
Position/Title/Professional	
Company/Institution/Other	
Employer Address	
ID/Passport Number	

ACKNOWLEDGEMENT OF RECEIPT/FAILURE TO RECEIVE

I, _____ (Employer Name) hereby acknowledge that I have received the following document entitled “END OF MANDATORY VACCINATION POLICY” from _____ (Employee Name)

Signed as received (by Employer)	
ID/Passport Number	
Date	
Place	

AS WITNESS(ES): *(tick the applicable box and witness beneath)*
☐ RECEIVED
☐ FAILED TO RECEIVE OR ACKNOWLEDGE RECEIPT

Witness 1 Name	
ID/Passport Number	
Date	
Place	
Signature	

Witness 2 Name	
ID/Passport Number	
Date	
Place	
Signature	

Date:

Dear _____

END OF MANDATORY VACCINATION POLICY

The state of disaster declared by the Minister of Cooperative Governance and Traditional Affairs (the "**COGTA Minister**") on 15 March 2020 was terminated by the COGTA Minister effective midnight on 4 April 2022.

The company implemented a mandatory vaccination policy in terms of a direction (the "**Direction**") made by the Minister of Employment and Labour ("**Minister**") on 28 May 2021 under Regulation 4(10) of the Regulations passed by the COGTA Minister under Section 27(2) of the Disaster Management Act (the "**DMA**"). With the termination of the state of disaster, the Direction ceased to be of force and effect. The Direction can therefore no longer be relied upon by the company as a justification for the imposition of a vaccination policy.

On 15 March 2022, the Minister published a document titled "Code of Practice: Managing Exposure to SARS-CoV-2 in the Workplace, 2022," (the "**Code**"). The Minister has the power to pass such Codes, only where Nedlac is not agreeable to a proposal, in terms of Section 203(2A) of the Labour Relations Act (the "**LRA**"). The Code purportedly takes effect on the date of the lapsing of the declaration of the state of disaster.

A Code of Good Practice is not a law, but merely a guideline to be taken into account when interpreting an actual law.[1] A Code of Good Practice cannot create new rights or obligations either for employers or employees. As stated in the Code, its purpose is merely to "guide employers and employees," and to set out the "interpretation of the law" supported by the Minister and his Department. As such, the company cannot rely on the Code as a law that provides for the imposition of mandatory vaccination. The Code merely sets out the Minister's views on the correct interpretation of the LRA.

In the Code, the Minister appears to suggest that the LRA can be interpreted as allowing employers to impose a mandatory vaccination policy. There is no obligation on the employer to impose such a policy and failing to implement a policy would not result in a breach by the company of any law. The Minister's interpretation of the LRA is plainly very aggressive, inconsistent with the opinion the Minister evidently held in February 2022 when he passed the Direction. If the Minister genuinely believed that mandatory vaccination was authorised under the LRA, he would never have passed the Direction.

It seems clear that the Minister has adopted the Code simply to maintain mandatory vaccination policies without Parliamentary oversight or public comment. The Minister knows this is deeply unpopular and will

[1] "Employment and the Law: A Practical Guide for the Workplace", Helga Landis and Lesley Grossett, 2014, Juta, page 6.

not pass Constitutional scrutiny. Multiple legal scholars have noted that mandatory vaccination is inconsistent with Constitutional rights that can only be limited by a *law* of general application that did not exist prior to the Direction and which limitation must be reasonable and justifiable in an open and democratic society.

In light of the above, with effect from midnight on 4 April 2022, the law reverted to the pre-state of disaster situation in which mandatory vaccination was universally confirmed as incompatible with statute. The Minister's interpretation set out in the Code is not binding on the company and I submit that it is plainly wrong. Should the company adopt this interpretation and continue to implement a mandatory vaccination policy, it is clear that this policy will be illegal and that the company will be exposed to liability.

I would therefore request that you either confirm, by close of business on [ ] that the company's mandatory vaccination policy has been suspended or that you provide me with a legal opinion from a reputable firm of attorneys or senior counsel confirming that the policy is legal and explaining what *law* the company relies on in continuing to implement such a policy.

In closing, I would note that the Direction was made at a time when it was assumed that the Vaccines would prevent viral transmission in order to contribute to herd immunity. This is evident from the definition of "COVID-19 Vaccines" in the Direction. It has since transpired that the Vaccines do not contribute to herd immunity because they do not prevent or reduce infection or transmission. For this reason, the definition of Vaccine in the Code no longer refers to transmission or herd immunity. Without this effect, there is no logical basis to mandate vaccines. They simply do not make the workplace safer. As such, it may be that the company's policy was implemented with the best intentions but that developments in science have proven that the policy is irrational. This is the conclusion that the University of Cape Town and many other companies have come to (including Medi-Clinic and Anglo American) in abandoning their mandatory vaccination policies.

Yours sincerely,

_____

APPENDIX

1. Effect of Vaccines on Transmission

1.1. Acharya et al. found "no significant difference in cycle threshold values between vaccinated and unvaccinated, asymptomatic and symptomatic groups infected with SARS-CoV-2 Delta." [1]

1.2. Dr Herman Edeling's study found that, "One has read, and previously made publicly available, copies of numerous scientific articles that have found that the Covid-19 "vaccines" are not effective at prevention of infection or transmission of the SARS- CoV-2 virus. Examples of such scientific articles can be found at the Edeling Medico-Legal Consultancy Trust , where each document bearing the prefix "NE" provides scientific evidence that the Covid-19 "vaccines" are not effective." "An abundance of scientific evidence finds that the Covid-19 "vaccines" are not effective at preventing infection by or transmission of the SARS-CoV-2 virus."[2]

1.3. Riemersma et al. found, "no difference in viral loads when comparing unvaccinated individuals to those who have vaccine "breakthrough" infections. Furthermore, individuals with vaccine breakthrough infections frequently test positive with viral loads consistent with the ability to shed infectious viruses." Results indicate that "if vaccinated individuals become infected with the delta variant, they may be sources of SARS-CoV-2 transmission to others." They reported "low Ct values (<25) in 212 of 310 fully vaccinated (68%) and 246 of 389 (63%) unvaccinated individuals. Testing a subset of these low-Ct samples revealed infectious SARS-CoV-2 in 15 of 17 specimens (88%) from unvaccinated individuals and 37 of 39 (95%) from vaccinated people."[3]

1.4. Riemersma et al. reported that vaccinated individuals who get infected with the Delta variant can transmit SARS-CoV-2 to others. They found an elevated viral load in the unvaccinated and vaccinated symptomatic persons (68% and 69% respectively, 158/232 and 156/225). Moreover, in the asymptomatic persons, they uncovered elevated viral loads (29% and 82% respectively) in the unvaccinated and the vaccinated respectively. This suggests that the vaccinated can be infected, harbor, cultivate, and transmit the virus readily and unknowingly.[4]

1.5. Chau et al. looked at transmission of SARS-CoV-2 Delta variant among vaccinated healthcare workers in Vietnams. Of 69 healthcare workers that tested positive for SARS-CoV-2, 62 participated in the clinical study, all of whom recovered. For 23 of them, complete-genome sequences were obtained, and all belonged to the Delta variant. "Viral loads of breakthrough Delta variant infection cases were 251 times higher than those of cases infected with old strains detected between March-April 2020". In other words, the viral load in vaccinated individuals was found to be significantly higher than in unvaccinated individuals.[5]

1.6. In Barnstable, Massachusetts, Brown et al found that among 469 cases of COVID-19, 74% were fully vaccinated, and that "the vaccinated had on average more virus in their nose than the unvaccinated who were infected."[6]

1.7. Subramanian reported that, "at the country-level, there appears to be no discernable relationship between percentage of population fully vaccinated and new COVID-19 cases." When comparing 2,947 counties in the United States, there was no clear discernible relationship between vaccination and a reduction in cases.[7]

1.8. Reporting on a nosocomial hospital outbreak in Finland, Hetemäli et al. observed that "both symptomatic and asymptomatic infections were found among vaccinated health care

workers, and secondary transmission occurred from those with symptomatic infections despite use of personal protective equipment."[8]

1.9. In a hospital outbreak investigation in Israel, Shitrit et al. observed "high transmissibility of the SARS-CoV-2 Delta variant among twice vaccinated and masked individuals."[9]

1.10. Singanayagam et. al found that, "[F]ully vaccinated individuals with breakthrough infections have peak viral load similar to unvaccinated cases and can efficiently transmit infection in household settings, including to fully vaccinated contacts. Host–virus interactions early in infection may shape the entire viral trajectory." They found that (in 602 community contacts (identified via the UK contract-tracing system) of 471 UK COVID-19 index cases were recruited to the Assessment of Transmission and Contagiousness of COVID-19 in Contacts cohort study and contributed 8145 upper respiratory tract samples from daily sampling for up to 20 days) "vaccination reduces the risk of delta variant infection and accelerates viral clearance. Nonetheless, fully vaccinated individuals with breakthrough infections have peak viral load similar to unvaccinated cases and can efficiently transmit infection in household settings, including to fully vaccinated contacts."[10]

1.11. A very recent study published by the CDC reported that a majority (53%) of patients who were hospitalized with Covid-19-like illnesses were already fully vaccinated with two-dose RNA shots. Table 1 reveals that among the 20,101 immunocompromised adults hospitalized with Covid-19, 10,564 (53%) were fully-vaccinated with the Pfizer or Moderna vaccine (Vaccination was defined as having received exactly 2 doses of an mRNA-based COVID-19 vaccine ≥14 days before the hospitalization index date, which was the date of respiratory specimen collection associated with the most recent positive or negative SARS-CoV-2 test result before the hospitalization or the hospitalization date if testing only occurred after the admission). This highlights the ongoing challenges faced with Delta breakthrough when vaccinated.[11]

1.12. Salvatore et al. examined the transmission potential of vaccinated and unvaccinated persons infected with the SARS-CoV-2 Delta variant in a federal prison, July-August 2021. They found a total of 978 specimens were provided by 95 participants, "of whom 78 (82%) were fully vaccinated and 17 (18%) were not fully vaccinated….clinicians and public health practitioners should consider vaccinated persons who become infected with SARS-CoV-2 to be no less infectious than unvaccinated persons."[12]

1.13. Di Fusco et al. conducted an evaluation of COVID-19 vaccine breakthrough infections among immunocompromised patients fully vaccinated with BNT162b2. "COVID-19 vaccine breakthrough infections were examined in fully vaccinated (≥14 days after 2nd dose) IC individuals (IC cohort), 12 mutually exclusive IC condition groups, and a non-IC cohort." They found that" of 1,277,747 individuals ≥16 years of age who received 2 BNT162b2 doses, 225,796 (17.7%) were identified as IC (median age: 58 years; 56.3% female). The most prevalent IC conditions were solid malignancy (32.0%), kidney disease (19.5%), and rheumatologic/inflammatory conditions (16.7%). Among the fully vaccinated IC and non-IC cohorts, a total of 978 breakthrough infections were observed during the study period; 124 (12.7%) resulted in hospitalization and 2 (0.2%) were inpatient deaths. IC individuals accounted for 38.2% (N = 374) of all breakthrough infections, 59.7% (N = 74) of all hospitalizations, and 100% (N = 2) of inpatient deaths. The proportion with breakthrough infections was 3 times higher in the IC cohort compared to the non-IC cohort (N = 374 [0.18%] vs. N = 604 [0.06%]; unadjusted incidence rates were 0.89 and 0.34 per 100 person-years, respectively."[13]

1.14. Mallapaty (NATURE) reported that the protective effect of being vaccinated if you already had infection is "relatively small, and dwindles alarmingly at three months after the receipt of the second shot." Mallapaty further adds what we have been warning the public health

community which is that persons infected with Delta have about the same levels of viral genetic materials in their noses "regardless of whether they'd previously been vaccinated, suggesting that vaccinated and unvaccinated people might be equally infectious." Mallapaty reported on testing data from 139,164 close contacts of 95,716 people infected with SARS-CoV-2 between January and August 2021 in the United Kingdom, and at a time when the Alpha and Delta variants were competing for dominance. The finding was that "although the vaccines did offer some protection against infection and onward transmission, Delta dampened that effect. A person who was fully vaccinated and then had a 'breakthrough' Delta infection was almost twice as likely to pass on the virus as someone who was infected with Alpha. And that was on top of the higher risk of having a breakthrough infection caused by Delta than one caused by Alpha."[14]

1.15. Wilhelm et al. reported on reduced neutralization of SARS-CoV-2 omicron variant by vaccine sera and monoclonal antibodies. "in vitro findings using authentic SARS-CoV-2 variants indicate that in contrast to the currently circulating Delta variant, the neutralization efficacy of vaccine-elicited sera against Omicron was severely reduced highlighting T-cell mediated immunity as essential barrier to prevent severe COVID-19."[15]

1.16. CDC reported on the details for 43 cases of COVID-19 attributed to the Omicron variant. They found that "34 (79%) occurred in persons who completed the primary series of an FDA-authorized or approved COVID-19 vaccine ≥14 days before symptom onset or receipt of a positive SARS-CoV-2 test result."[16]

1.17. Dejnirattisai et al. presented live neutralisation titres against SARS-CoV-2 Omicron variant, and examined it relative to neutralisation against the Victoria, Beta and Delta variants. They reported a significant drop in "neutralisation titres in recipients of both AZD1222 and BNT16b2 primary courses, with evidence of some recipients failing to neutralise at all."[17]

1.18. Cele et al. assessed whether Omicron variant escapes antibody neutralization "elicited by the Pfizer BNT162b2 mRNA vaccine in people who were vaccinated only or vaccinated and previously infected." They reported that Omicron variant "still required the ACE2 receptor to infect but had extensive escape of Pfizer elicited neutralization."[18]

1.19. UK reporting showed that boosters protect against symptomatic COVID-19 caused by Omicron for about 10 weeks; the UK Health Security Agency reported protection against symptomatic COVID-19 caused by the variant dropped from 70% to 45% following a Pfizer booster for those initially vaccinated with the shot developed by Pfizer with BioNTech. Specifically reporting by the UK Health Security Agency showed "Among those who received an AstraZeneca primary course, vaccine effectiveness was around 60% 2 to 4 weeks after either a Pfizer or Moderna booster, then dropped to 35% with a Pfizer booster and 45% with a Moderna booster by 10 weeks after the booster. Among those who received a Pfizer primary course, vaccine effectiveness was around 70% after a Pfizer booster, dropping to 45% after 10-plus weeks and stayed around 70 to 75% after a Moderna booster up to 9 weeks after booster."[19]

1.20. Buchan et al. used a test-negative design to assess vaccine effectiveness against OMICRON or DELTA variants (regardless of symptoms or severity) during November 22 and December 19, 2021. They found that receipt of 2 doses of COVID-19 vaccines was not protective against Omicron. Vaccine effectiveness against Omicron was 37% (95%CI, 19-50%) ≥7 days after receiving an mRNA vaccine for the third dose."[20]

1.21. Public Health Scotland COVID-19 & Winter Statistical Report (Publication date: 19 January 2022) provided startling data on page 38 (case rates), page 44 (hospitalization), and page 50 (deaths), showing that the vaccination has failed Delta but critically, is failing omicron. It shows across the multiple weeks of study that across each dose (1 vs 2 vs 3 booster

inoculations) that the vaccinated are greatly more infected than the unvaccinated, with the 2nd dose being alarmingly elevated. Age-standardized rates of acute hospital admissions are stunningly elevated after 2nd inoculation (over the unvaccinated) during January 2022.[21]

1.22. Regev-Yochay et al. in Israel looked at (publication date March 16th 2022) the immunogenicity and safety of a fourth dose (4th) of either BNT162b2 (Pfizer–BioNTech) or mRNA-1273 (Moderna) administered 4 months after the third dose in a series of three BNT162b2 doses). This was an open-label, nonrandomized clinical study. Researchers reported that most of the infected participants were potentially infectious, with relatively high viral loads (nucleocapsid gene cycle threshold, ≤25)'. Researchers 'observed low vaccine efficacy against infections in health care workers, as well as relatively high viral loads suggesting that those who were infected were infectious. Thus, a fourth vaccination of healthy young health care workers may have only marginal benefits'.[22]

2. Effect Of The Vaccines On Susceptibility To Infection

2.1. In a study from Qatar, Chemaitelly et al. reported vaccine efficacy (Pfizer) against severe and fatal disease, with efficacy in the 85-95% range at least until 24 weeks after the second dose. As a contrast, the efficacy against infection waned down to around 30% at 15-19 weeks after the second dose.[23]

2.2. In the UK COVID-19 vaccine Surveillance Report for week #42, it was noted that there is "waning of the N antibody response over time" and "that N antibody levels appear to be lower in individuals who acquire infection following 2 doses of vaccination." The same report (Table 2, page 13), shows that in the older age groups above 30, the double vaccinated persons have greater infection risk than the unvaccinated.[24]

2.3. The UK's COVID-19 vaccine surveillance report Week 3, 20 January 2022, raises very serious concern as to the failure of the vaccines on Delta (which is basically now being replaced by omicron for dominance) and omicron. We see greater case numbers of cases for the 2nd and 3rd inoculations with persons in receipt of the 3rd inoculation (booster) at far greater risk of infection/cases than the unvaccinated (30 years of age and above age strata).[25]

2.4. In the recent UK Public Health surveillance reports Week 9, Week 8, as well as week 7 (UK COVID-19 vaccine surveillance report Week 7 17 February 2022), week 6 (COVID-19 vaccine surveillance report Week 6 10 February 2022) and week 5 for 2022 (COVID-19 vaccine surveillance report Week 5 3 February 2022) as well as the reports accumulated for 2021 since vaccine roll-out, we see that the vaccinated are at higher risk of infection and especially for age groups above 18 years old, as well as hospitalization and even death. This is particularly marked for those in receipt of double vaccinations. There is increased risk of death for those who are triple vaccinated and especially as age increases. The same pattern emerges in the Scottish data.[26]

3. Waning Of The Vaccine Effect

3.1. In a paper titled, "Covid-19 vaccines and treatments: we must have raw data, now", Doshi et al noted that: "In the pages of The BMJ a decade ago, in the middle of a different pandemic, it came to light that governments around the world had spent billions stockpiling antivirals for influenza that had not been shown to reduce the risk of complications, hospital admissions, or death. The majority of trials that underpinned regulatory approval and government

stockpiling of oseltamivir (Tamiflu) were sponsored by the manufacturer; most were unpublished, those that were published were ghostwritten by writers paid by the manufacturer, the people listed as principal authors lacked access to the raw data, and academics who requested access to the data for independent analysis were denied. The Tamiflu saga heralded a decade of unprecedented attention to the importance of sharing clinical trial data. Public battles for drug company data, transparency campaigns with thousands of signatures, strengthened journal data sharing requirements, explicit commitments from companies to share data, new data access website portals, and landmark transparency policies from medicines regulators all promised a new era in data transparency. Progress was made, but clearly not enough. The errors of the last pandemic are being repeated. Memories are short. Today, despite the global rollout of covid-19 vaccines and treatments, the anonymised participant level data underlying the trials for these new products remain inaccessible to doctors, researchers, and the public—and are likely to remain that way for years to come. This is morally indefensible for all trials, but especially for those involving major public health interventions."[27]

3.2. In a paper titled, "The ONS data provide no reliable evidence that the vaccine reduces all-cause mortality" Neil et al note that, "By Occam's razor we believe the most likely explanations are systemic miscategorisation of deaths between the different categories of unvaccinated and vaccinated; delayed or non-reporting of vaccinations; systemic underestimation of the proportion of unvaccinated; and/or incorrect population selection for Covid deaths."[28]

3.3. In an article titled “Waning Immunity after the BNT162b2 Vaccine in Israel”, published in the New England Journal of Medicin, Goldberg et al. reported that “immunity against the delta variant of SARS-CoV-2 waned in all age groups a few months after receipt of the second dose of vaccine.”[29]

3.4. In an article titled, “The impact of SARS-CoV-2 vaccination on Alpha & Delta variant transmission, Eyre et al. reported that “while vaccination still lowers the risk of infection, similar viral loads in vaccinated and unvaccinated individuals infected with Delta question how much vaccination prevents onward transmission… transmission reductions declined over time since second vaccination, for Delta reaching similar levels to unvaccinated individuals by 12 weeks for ChAdOx1 and attenuating substantially for BNT162b2. Protection from vaccination in contacts also declined in the 3 months after second vaccination…vaccination reduces transmission of Delta, but by less than the Alpha variant.”[30]

3.5. In a paper published in Nature titled, “Viral loads of Delta-variant SARS-CoV-2 infections after vaccination and booster with BN 162b2”, Levine-Tiefenbrun reported the viral load reduction effectiveness declines with time after vaccination, “significantly decreasing at 3 months after vaccination and effectively vanishing after about 6 months.”[31]

3.6. In their paper titled, “Vaccine effectiveness against SARS-CoV-2 infection with the Omicron or Delta variants following a two-dose or booster BNT162b2 or mRNA-1273 vaccination series: A Danish cohort study”, Hansen et al demonstrated negative vaccine effectiveness in vaccinated individuals when exposed to Omicron after just 3 months from the injection. This means that vaccinated individuals are more likely to catch the virus and spread it.[32]

4. Vaccine Safety

4.1. A paper[33] by Schauer et al titled "Persistent Cardiac MRI Findings in a Cohort of Adolescents with post COVID-19 mRNA Vaccine Myopericarditis" found that, “In a cohort of

adolescents with COVID-19 mRNA vaccine-related myopericarditis, a large portion have persistent LGE abnormalities, raising concerns for potential longer-term effects. Despite these persistent abnormalities, all patients had rapid clinical improvement and normalization of echocardiographic measures of systolic function. For patients with short acute illness, no dysfunction demonstrated by echocardiogram at presentation and resolution of symptoms at follow-up, return to sports was guided by normalization of CMR alone. In patients with persistent CMR abnormalities we performed exercise stress testing prior to sports clearance per myocarditis recommendations[6]. We plan to repeat CMR at 1 year post-vaccine for our cohort to assess for resolution or continued CMR changes. The CDC notes that even though the absolute risk for myopericarditis following mRNA COVID-19 vaccine is small, the relative risk is higher for particular groups, including males 12-39 years of age. Some studies have suggested that increasing the interval between the first and second dose may reduce the incidence of myopericarditis in this population. These data led to an extension in CDC recommended dosing interval between dose 1 and dose 2 to 8 weeks. Further follow up assessment and larger multicenter studies are needed to determine the ultimate clinical significance of persistent CMR abnormalities in patients with post COVID-19 vaccine myopericarditis."

4.2. Vaccine adverse events reporting systems are early warning systems designed to identify potential problems with the safety of vaccines. These systems, the world over, have been indicating problems with the Vaccines. As at 5 April 2022, the vaccine adverse events reporting system maintained by the US Government had received over 1.2 million reports of adverse events following vaccination, including more than 26,000 deaths. Such reports are made under strict guidelines issued by the US government and as such, the argument that they are manipulated is easily refutable. The graph below shows all reports in relation to all vaccines over the history of the US reporting system and the increase in reports with the introduction of the Vaccines is evident. As noted, the purpose of these systems is to function as an early warning system. Clearly a signal has been generated by this system and there can be no argument that these Vaccines are generating signals consistent with other vaccines.[34] It is also noteworthy that most of the deaths reported to the US system occur within 48 hours of vaccination. A volunteer group in South Africa has established an adverse event reporting system which, as at 9 March 2022, had recorded 738 cases with 72 deaths, which is 9% of total post vaccination adverse events reports.[35]

4.3. A paper by Molina-Rios et al, titled "Systemic lupus erythematosus & antiphospholipid syndrome after CovidVaccination", in which it was noted that: "After a few days, she presented a massive pericardial effusion with cardiac tamponade that required surgical management."[36]

4.4. A paper by Saraiva et al titled, "Varicella zoster virus reactivation following CovidVaccination" which found that "... our work calls for more effective vigilance of COVID-19 vaccines side effects."[37]

4.5. A paper by Moslemi et al titled, "Herpes simplex encephalitis (inflammation of the brain) following CovidVaccination", which found that this side effect "requires immediate medical attention and can lead to devastating consequences if left undiagnosed and untreated."[38]

4.6. A paper by Maroufi et al titled, "Longitudinally extensive transverse myelitis (inflammation of the spinal cord) after CovidVaccination" which found that "... it may be reasonable to consider anti-NMDAR encephalitis upon encountering progressive neurological symptoms following vaccination."

4.7. A case report on 4 cases of myocarditis (3 men, 1 woman, 16 to 47 years old) after CovidVaccination by Nunn et al that conculded, "... we recommend further investigation into the adverse effects of the new mRNA vaccine technology, which may be used for most vaccines in the future."[39]

4.8. A paper by Munasinghe et al titled, "Reactivation of varicella-zoster virus after CovidVaccination" which found that, "The incidence of different cutaneous manifestations following vaccination, including the reactivation of herpes is on the rise ..."[40]

4.9. An article titled, "Acute kidney rejection after CovidVaccination" which found, in relation to a 25-year-old woman with a kidney transplant, " ... it is worth considering monitoring graft function after vaccination against COVID-19 ..."[41]

4.10. A case report titled, "Effusive–constrictive pericarditis after CovidVaccination[42]" by Conte et al, that found, "a strong temporal relation between the second dose of BNT162b2 vaccine and symptoms occurrence".[43]

5. Natural Immunity

5.1. Eyran, 2020 examined, "The longitudinal kinetics of antibodies in COVID-19 recovered patients over 14 months", and found "a significantly faster decay in naïve vaccinees compared to recovered patients suggesting that the serological memory following natural infection is more robust compared to vaccination. Our data highlights the differences between serological memory induced by natural infection vs. vaccination."[44]

5.2. A paper titled, "One-year sustained cellular and humoral immunities of COVID-19 convalescents", by Jie Zhang et al showed that in COVID-19 convalescents from 6 months to 12 months after disease onset the percentages of convalescents with positive SARS-CoV-2-specific T-cell responses (at least one of the SARS-CoV-2 antigen S1, S2, M and N protein) were 71/76 (93%) and 67/73 (92%) at 6m and 12m, respectively. Furthermore, both antibody and T-cell memory levels of the convalescents were positively associated with their disease severity."[45]

5.3. In a paper titled, "Comparing SARS-CoV-2 natural immunity to vaccine-induced immunity: reinfections versus breakthrough infections", Sivan Gazit et al concluded that, "Our analysis demonstrates that SARS-CoV-2-naïve vaccinees had a 13.06-fold increased risk for breakthrough infection with the Delta variant compared to those previously infected, when the first event (infection or vaccination) occurred during January and February of 2021. The increased risk was significant for a symptomatic disease as well…. This analysis demonstrated that natural immunity affords longer lasting and stronger protection against infection, symptomatic disease and hospitalization due to the Delta variant of SARS-CoV-2, compared to the BNT162b2 two-dose vaccine-induced immunity."[46]

5.4. In "Necessity of COVID-19 vaccination in previously infected individuals", Nabin K. Shrestha et al found that "Individuals who have had SARS-CoV-2 infection are unlikely to benefit from COVID-19 vaccination, and vaccines can be safely prioritized to those who have not been infected before."[47]

5.5. Discrete Immune Response Signature to SARS-CoV-2 mRNA Vaccination Versus Infection, by Ellie Ivanova, Joseph Devlin, et al. found that, "While both infection and vaccination induced robust innate and adaptive immune responses, our analysis revealed significant qualitative differences between the two types of immune challenges. In COVID-19 patients, immune responses were characterized by a highly augmented interferon response which was largely absent in vaccine recipients."

5.6. In "Longitudinal analysis shows durable and broad immune memory after SARS-CoV-2 infection with persisting antibody responses and memory B and T cells", Kristen W. Cohen et al noted that, "Ending the COVID-19 pandemic will require long-lived immunity to SARS-CoV-2. We evaluated 254 COVID-19 patients longitudinally from early infection and for eight months thereafter and found a predominant broad-based immune memory response. SARS-CoV-2 spike binding and neutralizing antibodies exhibited a bi-phasic decay with an extended half-life of >200 days suggesting the generation of longer-lived plasma cells. In addition, there was a sustained IgG+ memory B cell response, which bodes well for a rapid antibody response upon virus re-exposure."[48]

5.7. In "Incidence of Severe Acute Respiratory Syndrome Coronavirus-2 infection among previously infected or vaccinated employees", Kojima et al found, "no difference in the infection incidence between vaccinated individuals and individuals with previous infection."[49]

5.8. In "Immunological memory to SARS-CoV-2 assessed for up to 8 months after infection", Jennifer M. Dan et al "analyzed multiple compartments of circulating immune memory to SARS-CoV-2 in 254 samples from 188 COVID-19 cases, including 43 samples at ≥ 6 months post-infection. IgG to the Spike protein was relatively stable over 6+ months."[50]

5.9. Persistence of neutralizing antibodies a year after SARS-CoV-2 infection, by Anu Haveri et al "assessed the persistence of serum antibodies following wild-type SARS-CoV-2 infection six and twelve months after diagnosis in 367 individuals of whom 13% had severe disease requiring hospitalization. We determined the SARS-CoV-2 spike (S-IgG) and nucleoprotein IgG concentrations and the proportion of subjects with neutralizing antibodies (NAb)."

5.10. In "Quantifying the risk of SARS-CoV-2 reinfection over time", Eamon O Murchu et al found that, "naturally acquired SARS-CoV-2 immunity does not wane for at least 10 months post-infection."[51]

5.11. In "SARS-CoV-2 antibody-positivity protects against reinfection for at least seven months with 95% efficacy", Abu-Raddad et al noted that "Reinfection is rare in the young and international population of Qatar. Natural infection appears to elicit strong protection against reinfection with an efficacy ~95% for at least seven months."[52]

5.12. In "Protection of previous SARS-CoV-2 infection is similar to that of BNT162b2 vaccine protection: A three-month nationwide experience from Israel", Yair Goldberg et al found that "the overall estimated level of protection from prior SARS-CoV-2 infection for documented infection is 94·8% (CI:[94·4, 95·1]); hospitalization 94·1% (CI:[91·9, 95·7]); and severe illness 96·4% (CI:[92·5, 98·3]). Our results question the need to vaccinate previously-infected individuals."[53]

5.13. Immune Memory in Mild COVID-19 Patients and Unexposed Donors Reveals Persistent T Cell Responses After SARS-CoV-2 Infection, by Asgar Ansari et al "found detectable immune memory in mild COVID-19 patients several months after recovery in the crucial arms of protective adaptive immunity." "This study provides the evidence of both high magnitude pre-existing and persistent immune memory in Indian population."

5.14. In "Highly functional virus-specific cellular immune response in asymptomatic SARS-CoV-2 infection", Nina Le Bert et al found that "asymptomatic SARS-CoV-2–infected individuals are not characterized by weak antiviral immunity; on the contrary, they mount a highly functional virus-specific cellular immune response."[54]

5.15. In a paper titled, "SARS-CoV-2 re-infection risk in Austria", Stefan Pilz et al confirmed that "Protection against SARS-CoV-2 after natural infection is comparable with the highest available estimates on vaccine efficacies."[55]

5.16. In "Anti-spike antibody response to natural SARS-CoV-2 infection in the general population", Jia Wei et al noted that, "We estimated antibody levels associated with protection against reinfection likely last 1.5-2 years on average, with levels associated with protection from severe infection present for several years. These estimates could inform planning for vaccination booster strategies."[56]

5.17. In "SARS-CoV-2 infection rates of antibody-positive compared with antibody-negative health-care workers in England: a large, multicentre, prospective cohort study (SIREN)", Victoria Jane Hall et al found that, "A previous history of SARS-CoV-2 infection was associated with an 84% lower risk of infection, with median protective effect observed 7

months following primary infection. This time period is the minimum probable effect because seroconversions were not included. This study shows that previous infection with SARS-CoV-2 induces effective immunity to future infections in most individuals."[57]

5.18. In "SARS-CoV-2 Natural Antibody Response Persists for at Least 12 Months in a Nationwide Study From the Faroe Islands", Maria Skaalum Petersen et al showed that, "Although the protective role of antibodies is currently unknown, our results show that SARS-CoV-2 antibodies persisted at least 12 months after symptom onset and maybe even longer, indicating that COVID-19-convalescent individuals may be protected from reinfection. Our results represent SARS-CoV-2 antibody immunity in nationwide cohorts in a setting with few undetected cases, and we believe that our results add to the understanding of natural immunity and the expected durability of SARS-CoV-2 vaccine immune responses. Moreover, they can help with public health policy and ongoing strategies for vaccine delivery."[58]

5.19. In "Associations of Vaccination and of Prior Infection With Positive PCR Test Results for SARS-CoV-2 in Airline Passengers Arriving in Qatar", Roberto Bertollini et al found that, "Of 9180 individuals with no record of vaccination but with a record of prior infection at least 90 days before the PCR test (group 3), 7,694 could be matched to individuals with no record of vaccination or prior infection (group 2), among whom PCR positivity was 1.01% (95% CI, 0.80%-1.26%) and 3.81% (95% CI, 3.39%-4.26%), respectively. The relative risk for PCR positivity was 0.22 (95% CI, 0.17-0.28) for vaccinated individuals and 0.26 (95% CI, 0.21-0.34) for individuals with prior infection compared with no record of vaccination or prior infection."[59]

5.20. In "Longitudinal observation of antibody responses for 14 months after SARS-CoV-2 infection", Puya Dehgani-Mobaraki et al noted, "In Conclusion, our study findings are consistent with recent studies reporting antibody persistency suggesting that induced SARS-CoV-2 immunity through natural infection, might be very efficacious against re-infection (>90%) and could persist for more than six months. Our study followed up patients up to 14 months demonstrating the presence of anti-S-RBD IgG in 96.8% of recovered COVID-19 subjects."[60]

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