

**(McGuinness Institute,  
2021d)**

**[Chapter 3 Supply and  
demand challenges]**

Working Paper 2020/12

# An analysis of the responses to the 'Open Letter to District Health Boards (dated 25 March 2020)'

<b>Title</b>	<i>Working Paper 2020/12 – An analysis of the responses to the ‘Open Letter to District Health Boards (dated 25 March 2020)’</i>
<b>Published</b>	Copyright © McGuinness Institute Limited 01 April 2021 (last updated 1 April 2021) ISBN 978-1-990013-28-7 (paperback) ISBN 978-1-990013-29-4 (PDF)
<b>Prepared by</b>	This document is available at <a href="http://www.mcguinnessinstitute.org">www.mcguinnessinstitute.org</a> and may be reproduced or cited provided the source is acknowledged. The McGuinness Institute, as part of <i>PandemicNZ</i>
<b>Research team</b>	Reuben Brady and Arne Larsen
<b>Designer</b>	Becky Jenkins
<b>Editor</b>	Johanna Knox
<b>For further information</b>	McGuinness Institute Phone (04) 499 8888 Level 2, 5 Cable Street PO Box 24222 Wellington 6142 New Zealand <a href="http://www.mcguinnessinstitute.org">www.mcguinnessinstitute.org</a>
<b>Disclaimer</b>	The McGuinness Institute has taken reasonable care in collecting and presenting the information provided in this publication. However, the Institute makes no representation or endorsement that this resource will be relevant or appropriate for its readers’ purposes and does not guarantee the accuracy of the information at any particular time for any particular purpose. The Institute is not liable for any adverse consequences, whether they be direct or indirect, arising from reliance on the content of this publication. Where this publication contains links to any website or other source, such links are provided solely for information purposes, and the Institute is not liable for the content of such website or other source.



**Publishing** The McGuinness Institute is grateful for the work of Creative Commons, which inspired our approach to copyright. This work is available under a Creative Commons Attribution-Noncommercial-Share Alike 3.0 New Zealand Licence. To view a copy of this licence visit:  
<http://creativecommons.org/licenses/by-nc-nd/3.0/nz>

# Contents

<b>1.0</b>	<b>Introduction</b>	<b>5</b>
1.1	Purpose	5
1.2	Purpose of Project: <i>PandemicNZ</i>	6
<b>2.0</b>	<b>Methodology</b>	<b>7</b>
Step 1	Determining the supply chain risks of pandemic-related medical items	7
Step 2	OIA request (our OIA 2020/02)	7
Step 3	Collecting responses and other relevant correspondence	7
Step 4	Analysing the data set	8
<b>3.0</b>	<b>Analysis of time taken for DHBs to respond</b>	<b>10</b>
3.1	Introduction	10
3.2	Results	10
3.3	Key findings	13
<b>4.0</b>	<b>Analysis of stock held by each DHB by range</b>	<b>14</b>
4.1	Introduction	14
4.2	Key findings	14
<b>5.0</b>	<b>Analysis of stock held by each DHB by volume</b>	<b>15</b>
5.1	Introduction	15
5.2	Results	15
<b>6.0</b>	<b>Observations</b>	<b>22</b>
6.1	Summary	22
6.2	Three major suggestions for consideration	22
	<b>References</b>	<b>34</b>

## List of Appendices

Appendix 1: 'OIA 2020/02: Open Letter to District Health Boards'	23
Appendix 2: DHB research data (medical items required for pandemics held by district health boards)	24
Appendix 3: Graph of masks per person by DHB over the time it took DHBs to respond	25
Appendix 4: Analysis of PPE volumes with respect to DHB staff and DHB populations	26
Appendix 5: Graphs relating to mask analysis by demographic	32

## List of Figures

Figure 1:	Deprivation and geographic differences between DHBs	9
Figure 2:	Timeliness of DHB responses	13
Figure 3:	Total number of different products held by each DHB	14
Figure 4:	Average masks per person by DHB	15
Figure 5:	Average gloves per person by DHB	16
Figure 6:	Average goggles per person by DHB	16
Figure 7:	Average gowns per person by DHB	17
Figure 8:	Ventilators per person by DHB	17
Figure 9:	CT scanners per person by DHB	18
Figure 10:	Oxygen tanks per person	18
Figure 11:	Masks per person for by the percentage of the DHB's population living in high deprivation areas	19
Figure 12:	Masks per person by the percentage of the DHB's population that is of Māori descent	20
Figure 13:	Masks per person by the percentage of the DHB's population that is over 65 years old	20
Figure 14:	Masks per person by the percentage of the DHB's population living in rural areas	21

## List of Tables

Table 1:	DHB responses as at 17 September 2020	10
Table 2:	Status of DHB responses as at 17 September 2020	11

## List of Tables in Appendices

Table 4.1:	Stock by DHB Staff	26
Table 4.2:	Stock by DHBs population	28

# 1.0 Introduction

## 1.1 Purpose

This research aims to analyse and compare stock levels and types of personal protective equipment (PPE) held across district health boards (DHBs) with respect to characteristics associated with DHB populations. Populations differ by scale, density, ethnicity, age profile and deprivation (Simpson, 2020). Through comparison of DHBs and associated demographics, it is clear that there is a correlation between deprivation and poor health status (Simpson, 2020).

This analysis aims to identify what type of PPE-related shortages exist, in the hope that this will help with preparations for future city/regional lockdowns. Overall, the research aims to explore the current status of PPE practices and stock that exist across DHBs and how it could adversely impact New Zealand during future viral outbreaks.

Since mid-January 2020, the Institute has been trying to ascertain stock levels of PPE, as well as other pandemic-related medical items (e.g. CT scanners, ventilators, oxygen tanks) held by DHBs and the Ministry of Health (MOH). The Institute is particularly interested in the impact that pandemics may have on the availability, accessibility and distribution of PPE and other pandemic-related medical items throughout New Zealand, especially in response to COVID-19. Our interest is in the identification and management of supply-chain risks for future pandemics and the extent to which the current systems are working effectively and align with the 2017 New Zealand Influenza Pandemic Plan, in particular page 13. (MOH, 2017a).

Of key importance is the National Health Emergency Plan, which details the responsibilities of the Ministry and DHBs in managing and using these significant national resources.

### 1.1 Background

The Ministry manages and/or controls a number of national reserve emergency supplies. Some of these are held in DHB stores, and others in bulk stores off DHB sites.

National reserve supply items	Stored by DHBs	Stored by Ministry
P2 respirators and general purpose masks	✓	✓
Personal protective equipment (aprons, gloves, eye protection)	✓	
Clinical equipment (syringes, giving sets, IV fluids, etc)	✓	
Tamiflu (each DHB holds 200 courses)	✓	✓
Pandemic antibiotics	✓	
H5N1 pre-pandemic vaccine		✓
Vaccination supplies		✓
Body bags		✓
<b>Not available at this time</b>		
Pandemic vaccine	N/A	N/A

### 1.2 National reserve supplies – purpose

National reserve supply stocks have been developed to ensure that as far as is possible, DHBs and the wider health sector have continued access to essential supplies during large or prolonged emergencies that generate unusual demands on normal health service stocks or supply chains.

DHB 'business as usual' supplies and supply chain capacity should be managed at a level able to ensure all reasonably predictable local events can be supported without requiring additional resources from national reserves.

During the pandemic, the Institute has been requesting information through the Official Information Act (OIA) about stocks of PPE and other pandemic-related medical items, as well as about how these stocks are being managed and who is responsible/accountable for that management. In relation to COVID-19, the Institute sent a number of OIA requests to government, including an OIA to DHBs on 25 March 2020 (see Appendix 1), with the intention of gathering information to understand New Zealand's current stock levels and stock types. The response by each DHB can be found on the Institute's publications page, under correspondence/OIAs.

In April 2020, the OAG agreed with the Ministry of Health to independently review the Ministry's management of PPE during the early stages of the country's response to COVID-19. The aim was to do a relatively rapid review given the high level of public interest in PPE. John Ryan, Controller and Auditor-General, outlined what OAG found in their rapid review:

The Ministry did not regularly review DHBs' plans to ensure that they were kept current and that they were well aligned with the Ministry's overall plans. We found some misalignment in the plans about roles and responsibilities for both planning for, and providing PPE in a pandemic, which led to confusion.

The gaps in the planning also meant that the Ministry was not well positioned to ensure that PPE was available in enough quantities throughout the country to meet the demand caused by the pandemic.

The health and disability system is semi-devolved, with distributed responsibilities and often complex arrangements between the Ministry, DHBs, and other organisations. The Ministry is responsible for monitoring and forecasting usage of the national reserve of PPE, and prioritising and allocating supplies when needed.

However, in early February 2020, the Ministry did not know what PPE stock the DHBs held in their reserve supplies or have a system to forecast demand. The devolved system of managing and distributing PPE stock for operational use was not able to manage the increased flow of stock needed during the Covid-19 response, and DHBs identified that some of the national reserve stock DHBs held had expired. (OAG, 2020)

The purpose of this working paper is to add to this narrative and highlight not only the data evidenced at that point of time but what a better system might look like. Given the importance of this work and the wide public interest in PPE during times of a pandemic, the Institute may repeat this work in the future to see if better alignment in the plans about roles and responsibilities have occurred and whether a better system of stock management across DHBs has been implemented. Thank you for your interest in this research.

## 1.2 Purpose of Project: *PandemicNZ*

This working paper forms part of Project PandemicNZ, which aims to help New Zealand prepare for future pandemics, as well as manage and learn from the current COVID-19 pandemic. Project PandemicNZ draws together early Institute publications as well as an increasingly comprehensive suite of research and publications relating to the COVID-19 pandemic.

This working paper follows on from previous PandemicNZ publications/initiatives that focus on COVID-19. The first publication in this project was *2006/01 - Managing the Business Risk of a Pandemic: Lessons from the Past and a Checklist for the Future* (2006) followed by *Lessons from the West African Ebola Outbreak in Relation to New Zealand's Supply Chain Resilience* (2015). To learn more about recent research, please see our PandemicNZ project page on our website. Recent initiatives include:

- *SupplyNZ: Winning the war against COVID-19 is a sub-project of PandemicNZ, and aims to connect makers, suppliers and purchasers of important equipment in the battle against COVID-19.*
- *An analysis of the 2020 NZNO PPE Survey.*

## 6.0 Observations

### 6.1 Summary

The research process as a whole has indicated weaknesses associated with PPE systems within DHBs across New Zealand. This process has been difficult; namely due to the time it took for DHBs to respond (in some cases, up to six months) and DHBs being responsible for their own PPE procurement. These difficulties (alongside others) associated with the data collection process expresses that not all DHBs have:

- a. effective processes in place to be able to easily identify their inventory (especially in times of high demand);
- b. certainty over who is responsible for reporting stock levels (and possibly procurement); and who is to be held accountable when stocks are not maintained regularly .

Analysis regarding the range and volume of stocks has also indicated that a lack of a consistent product code exists for PPE across all DHBs (including certain items that also form part of the national reserve supply). This suggests there has been no central direction provided to DHBs, as PPE stock levels do not appear to be controlled or monitored. This has been indicated both by:

- (i) the time taken for some responses; and
- (ii) the large variance of the amounts of stock between DHBs (even for those of similar sizes).

This means that the MOH cannot easily identify PPE shortages and plan effectively. The Institute's opinion is that the lack of central direction represents a failure of risk management.

The experienced weaknesses within New Zealand's PPE protocols and procurement systems places emphasis on how poor risk management (especially in the face of large-scale, uncertain, and complex public health events) has the potential derail a country (e.g. USA's COVID-19 response). It is dangerous when issues associated with systems responsible for risk management only present themselves in response to shocks. The lack of central oversight highlights that DHBs across New Zealand were not ready to deal with COVID-19. This draws attention to the effectiveness of other risk management systems that exist in New Zealand that may also be outdated and unprepared to deal with other types of emergencies. How can New Zealand ensure that our systems are robust and able to deal with shocks without finding out the hard way?

### 6.2 Three major suggestions for consideration

In light of the discrepancies that this research has indicated, the Institute would like to make the following suggestions:

1. PPE procurement and protocol should have a standardised product code across all DHBs. This would enable consistent and confident communication of PPE levels between the MOH and DHBs, ensuring that supply shortages are identified before they become an issue. Create a standardised product code system to go with this that will ensure PPE across different DHBs is the same.
2. Establish a real-time PPE stock reporting system that is publicly accessible. This would ideally be run by a central organisation (such as the MOH or a health coordination body) and would allow for the DHBs to know exactly how much they have and whether they need to restock.
3. Put in place a minimum level of stock of pandemic PPE per capita and ensure each DHB can meet these requirements.

What is clear is that DHBs are required to collect stock level data for accounting and governance purposes and a simple systemised system could be put in place that is accurate, meaningful and timely. The Institute hopes that such a system as outlined in this working paper could easily be designed, implemented and made available to the those working in the healthcare system as well as members of the general public. It could also be easily audited so that there is complete trust in the stock the country holds going forward.