

Bluebird

NDOH Quick Start



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Introduction to the Bluebird DOH Surveillance and Case Management System



This short *Quick Start* manual outlines the basics a nDOH User needs to understand in order to begin using the **Bluebird DOH Surveillance and Case Management System**.

This software is being *actively developed* and new versions of this quick start will be available on intelms.com/397 as new functionality is added. Please ensure you are using the latest download of this document.

Please feel free to pass on suggestions as to how this software should be improved to the **NDoH COVID-19 Project Owner** (Milani Wolmerans) who will vet those suggestions before passing them on to darryl@intelms.com.

The current version only allows a high level view of COVID-19 lab surveillance data in South Africa. The specification for individual case management is included in this manual even though that module is still in development.

A later version will better organize the dashboard graphics interface which has grown substantially over the last 3 weeks and is now too large to show all graphs on a single page without a long page loading time.

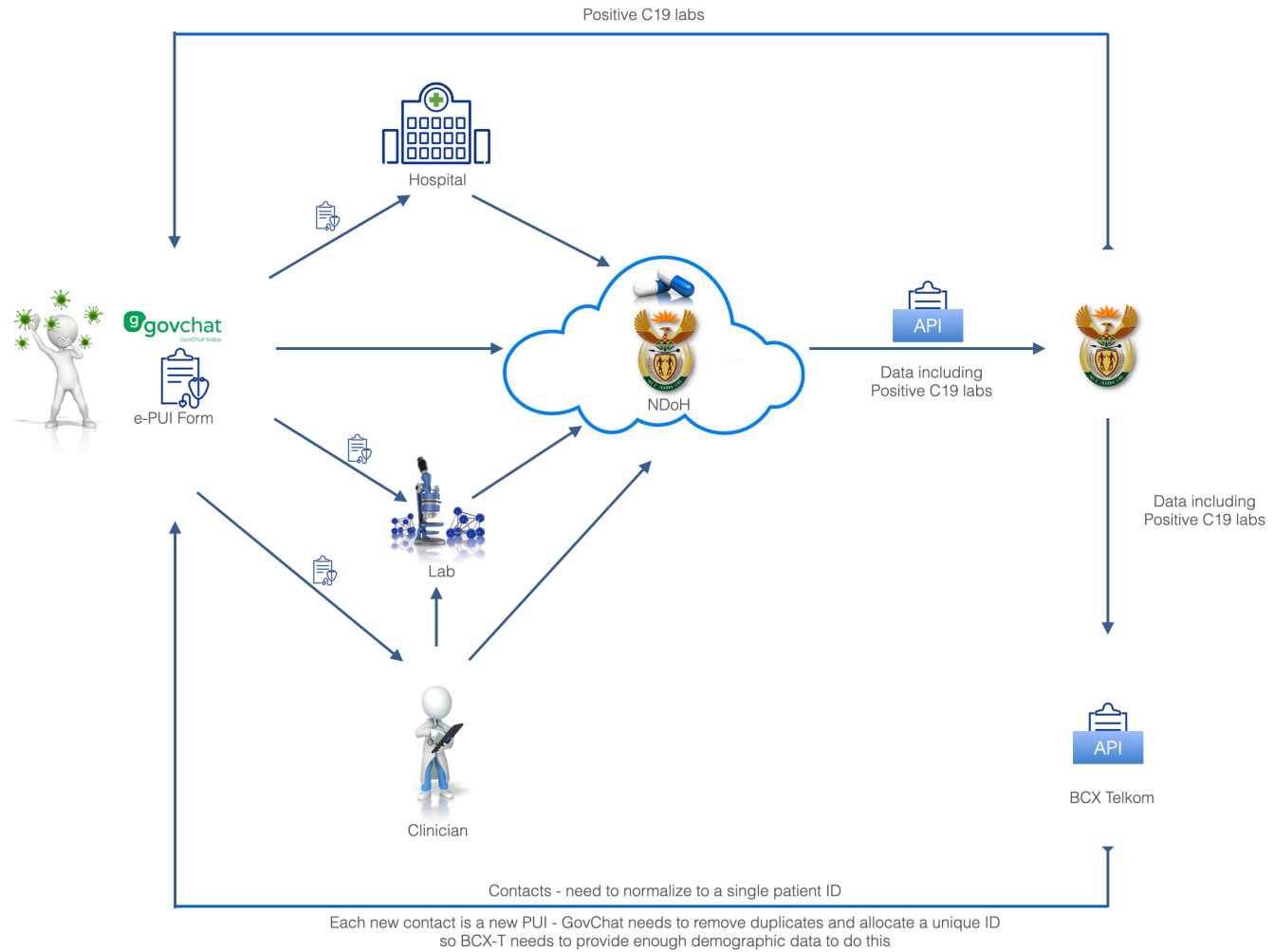
The version which is expected to be live by Thursday (16 April 2020), will allow a drill down to individual patients and individual test results.

The version after that will integrate data collected by GovChat and will thereby automate much of the manual data collection.

The last version currently in planning will allow different access for different DOH Users from the Minister down to the ward level.

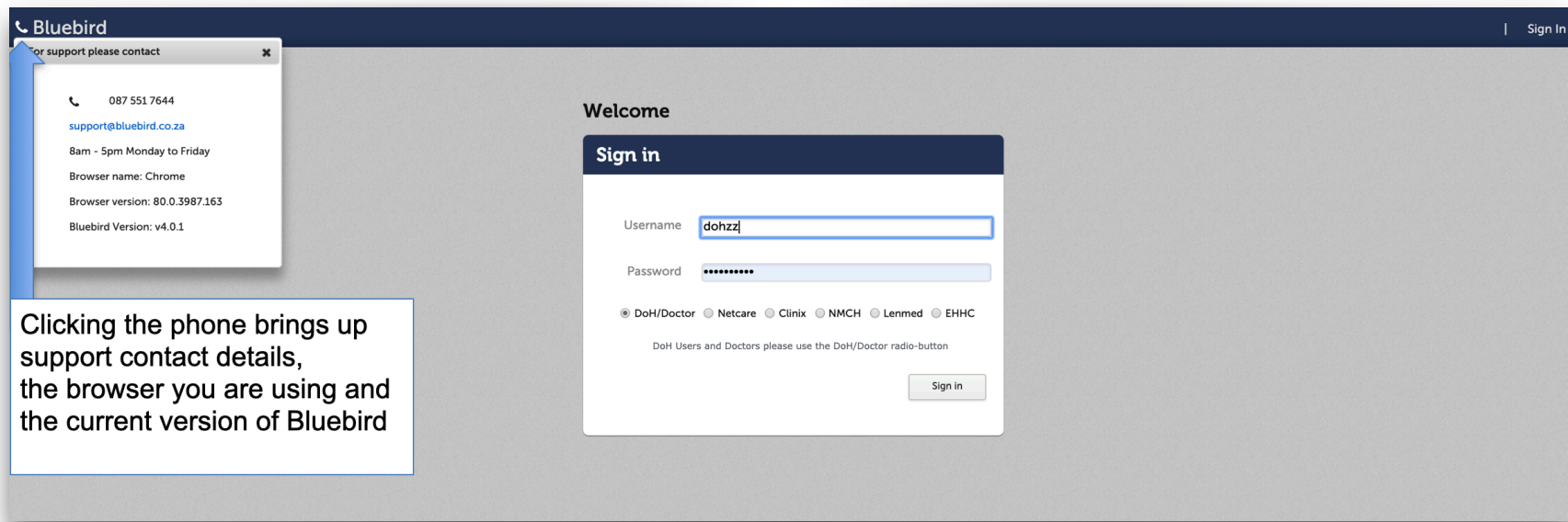
Overview of the Solution

This document will describe how to use the part **inside the blue cloud**, that is, the part that will be used by NDoH Users.



Log-In

Open your browser to this URL: bluebird.co.za/bbw



After typing in your User name and Password, ensure the DoH/Doctor radio-button is selected and click the **Sign In** button.

Sign in

Username

Password

DoH/Doctor Netcare Clinix NMCH Lenmed EHHC

DoH Users and Doctors please use the DoH/Doctor radio-button

DOH Users should select the **DoH/Doctor** radio-button

Once the NDoH Authentication server is Bluebird enabled, a separate NDoH radio-button will be available for all NDoH users and all the hospital Users that the NDoH wishes to enable.

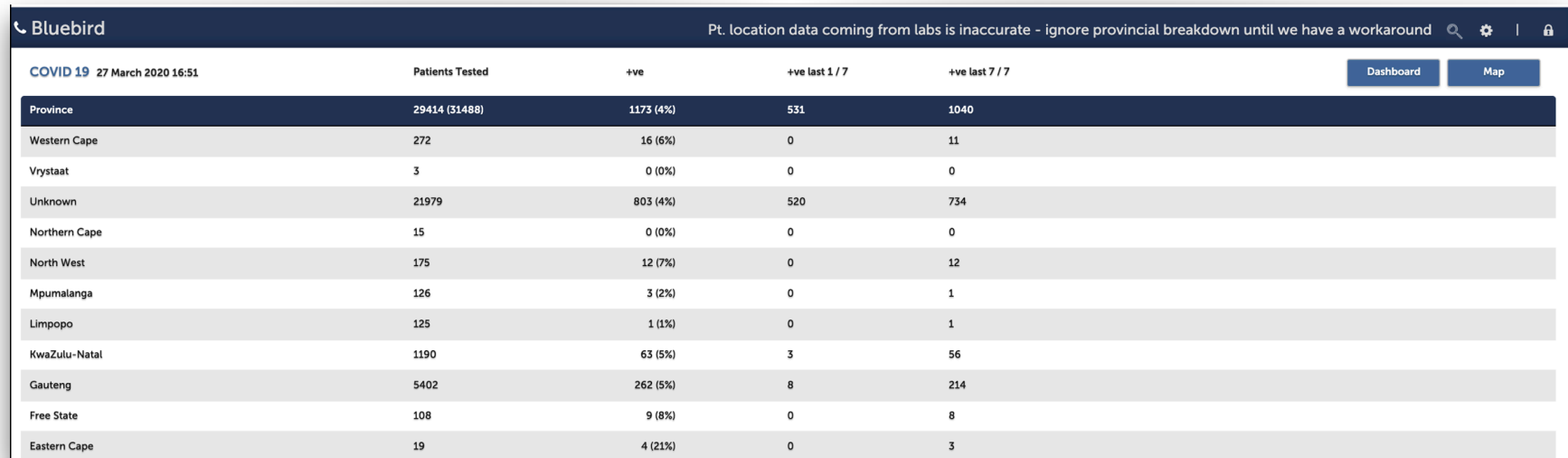
Home Page

After logging in you will see the page below which is a list view that shows the totals of all the patients tested up until this point in time (and, in brackets after the patients tested total, a total of all the tests done thus far).

The number of patients that have tested positive (and the number of positive tests in brackets) is shown as well as the total number of positive patients that the labs have reported in the last day and in the last week. Note that the last 2 totals are based on the date the results were released, not the date on which the sample was collected.

Notes

1. If a specimen was collected 8 days ago but was only reported by the lab in the last 24 hrs it will be counted in both the last day and the last 7 days columns.
2. The message at the top right of the blue bar is no longer showing. We have implemented a workaround that fixes much of the poor demographic data coming from the various labs. Going forward, GovChat will be collecting more accurate data on their PUI forms and will be sending that to Bluebird in real time.



The screenshot shows the Bluebird dashboard for COVID-19 data as of 27 March 2020 at 16:51. A warning message at the top states: "Pt. location data coming from labs is inaccurate - ignore provincial breakdown until we have a workaround". The dashboard features a table with columns for "Province", "Patients Tested", "+ve", "+ve last 1 / 7", and "+ve last 7 / 7". There are also "Dashboard" and "Map" buttons in the top right corner.

Province	Patients Tested	+ve	+ve last 1 / 7	+ve last 7 / 7
Western Cape	272 (31488)	16 (6%)	0	11
Vrystaat	3	0 (0%)	0	0
Unknown	21979	803 (4%)	520	734
Northern Cape	15	0 (0%)	0	0
North West	175	12 (7%)	0	12
Mpumalanga	126	3 (2%)	0	1
Limpopo	125	1 (1%)	0	1
KwaZulu-Natal	1190	63 (5%)	3	56
Gauteng	5402	262 (5%)	8	214
Free State	108	9 (8%)	0	8
Eastern Cape	19	4 (21%)	0	3

Click the padlock to log off

Click the gear to open Preferences

Click the telephone icon to get support contact details

The search icon allows one to filter by select information and then manage cases at an individual patient level. The icon is currently greyed out because this module is not yet live. When it turns white you will know it is available

Bluebird Pt. location data coming from labs is inaccurate - ignore provincial breakdown until we have a workaround

COVID 19 27 March 2020 16:51

	Patients Tested	+ve	+ve last 1 / 7	+ve last 7 / 7
Province	29414 (31488)	1173 (4%)	531	1040
Western Cape	272	16 (6%)	0	11
Vrystaat	3	0 (0%)	0	0
Unknown	21979	803 (4%)	520	734
Northern Cape	15	0 (0%)	0	0
North West	175	12 (7%)	0	12
	126	3 (2%)	0	1
	125	1 (1%)	0	1
	1190	63 (5%)	3	56
Gauteng	5402	262 (5%)	8	214
Free State	108	9 (8%)	0	8
Eastern Cape	19	4 (21%)	0	3

Dashboard Map

Changing passwords. For the initial, temporary User Names and Passwords that Bluebird will supply (as distinct from the NDoH authentication system UN and PWs that will be used after the first week), a password change is forced on first Log-in.

The screenshot shows the Bluebird dashboard with a table of COVID-19 statistics. A settings modal is open, showing a 'Customization' section with fields for 'First name' (Darryl), 'Last name' (ICC), 'Email', and 'Cell'. A red link 'Change Password' is visible next to the 'Password' field. A blue arrow points to the gear icon in the top right corner of the dashboard.

Province	Patients Tested	+ve	+ve last 1 / 7	+ve last 7 / 7
Western Cape	272	16 (6%)	0	11
Vrystaat	3	0 (0%)	0	0
Unknown	21979	803 (4%)	520	734
Northern Cape	15	0 (0%)	0	0
North West	175	12 (7%)	0	12
Mpumalanga	126	3 (2%)	0	1
Limpopo	125	1 (1%)		
KwaZulu-Natal	1190	63 (5%)		
Gauteng	5402	262 (5%)		
Free State	108	9 (8%)		
Eastern Cape	19	4 (21%)		

Click the gear icon to see this page

Click the red link to change your password

Save Cancel

Click to open a **new browser tab*** with all cases on a map of South Africa. One is able to zoom in down to street level

Bluebird Pt. location data coming from labs is inaccurate - ignore provincial breakdown until we have a workaround

COVID 19 27 March 2020 16:51 Dashboard Map

Province	Patients Tested	+ve	+ve last 1 / 7	+ve last 7 / 7
Western Cape	272	16 (6%)	0	11
Vrystaat	3	0 (0%)	0	0
Unknown	21979	803 (4%)	520	734
Northern Cape	15	0 (0%)	0	0
North West	175	12 (7%)		12
Mpumalanga	126	3 (2%)		1
Limpopo	125	1 (1%)		1
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Gauteng	5402	262 (5%)		214
Free State	108	9 (8%)		8
Eastern Cape	19	4 (21%)		3

We have developed an algorithm to help fix poor data entry by the lab and work out the patient address. This gets better as it learns but has already reduced the unknowns to below 200

With all the new visualizations we have added there is now too much on this page so it loads a little slowly* - we are in the process of redesigning the interface to display graphics on different pages

* Both the Dashboard and the Map open on new tabs in your browser. This is to allow you to keep the list view (your primary workspace) open and simply close the dashboard or map browser tab when you are done with the graphics.

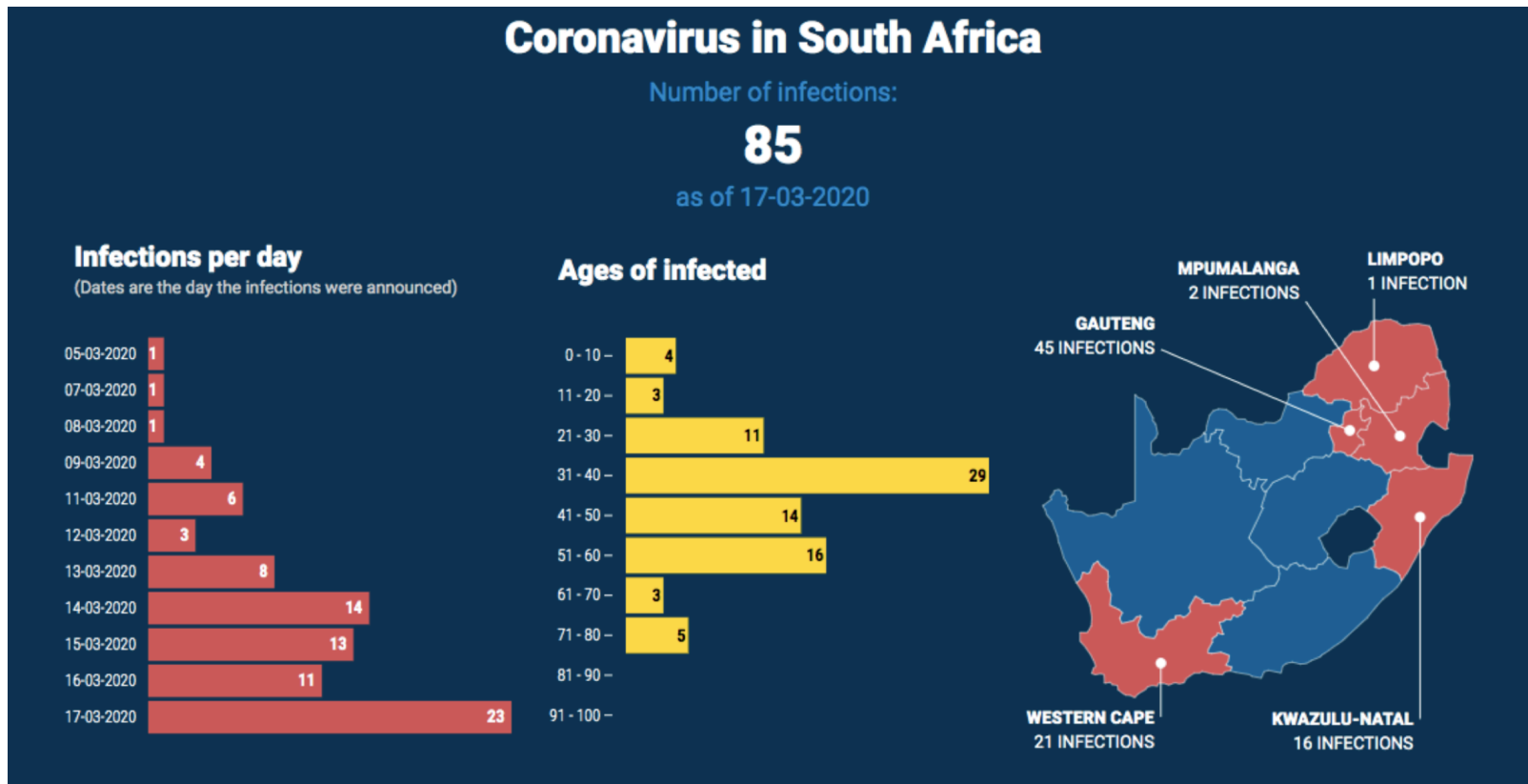
The one problem with this approach arises if you do not refresh your browser periodically, one tab might be a few minutes behind the others and show subtly different figures.

Dashboard

Clicking the “Dashboard” button will open in a NEW browser tab (close this browser tab to exit the dashboard).

In future versions, we will be reorganizing the Home Page because, at present, with all the recently added visualizations, the dashboard page is loading slower than we would like.

Here is the original dashboard which used visualizations supplied (with permission) from mediahack.co.za and which we modified to use real time data. We have steadily been replacing this starter pack of graphs with ones purpose built by our visualization team to use live data feeds. Only the older graphics are used in this manual so as not to display current confidential data.



Hospital Dashboard

This is the Californian dashboard that we are adapting for South Africa. This work is still in progress and we might find an even better way to do this.

COVID-19 Hospital Data

Data last updated April 7, 2020

These data are a snapshot of the capacity of all hospitals reporting data in Santa Clara County. Because of the normal fluctuation in the number of patients seen and cared for in hospitals, it's not uncommon for these data to vary day-to-day. Sometimes hospitals do not report daily updates. In those cases we use data from the previous day for non-reporting hospitals.

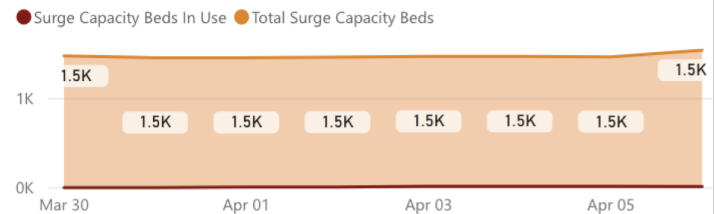
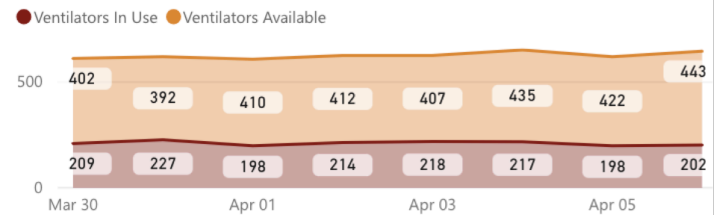
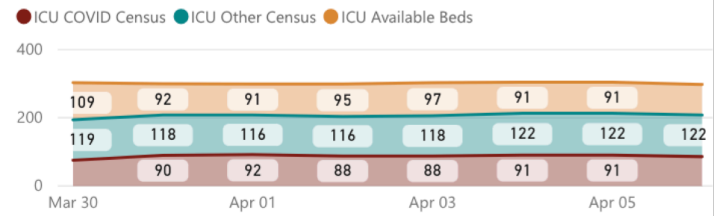
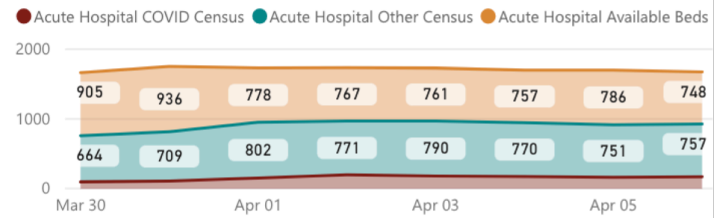
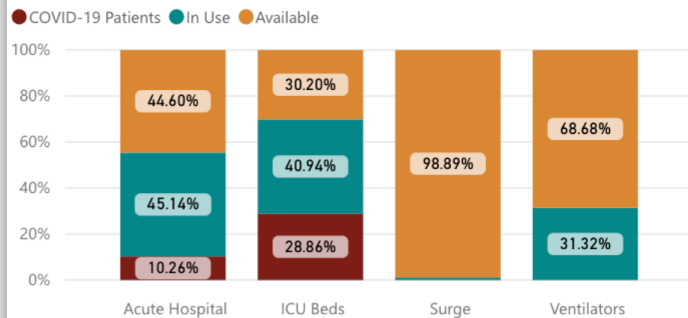
Note: COVID-19 patients includes confirmed cases and those suspected to have the disease. Available beds are beds that hospitals are licensed to use and surge beds are unlicensed beds that the facility can use.

Resource	COVID-19 Patients	In Use	Available
Acute Hospital Beds	172	757	748
ICU Beds	86	122	90
Surge		17	1512
Ventilators		202	443

Currently Hospitalized COVID-19 Patients

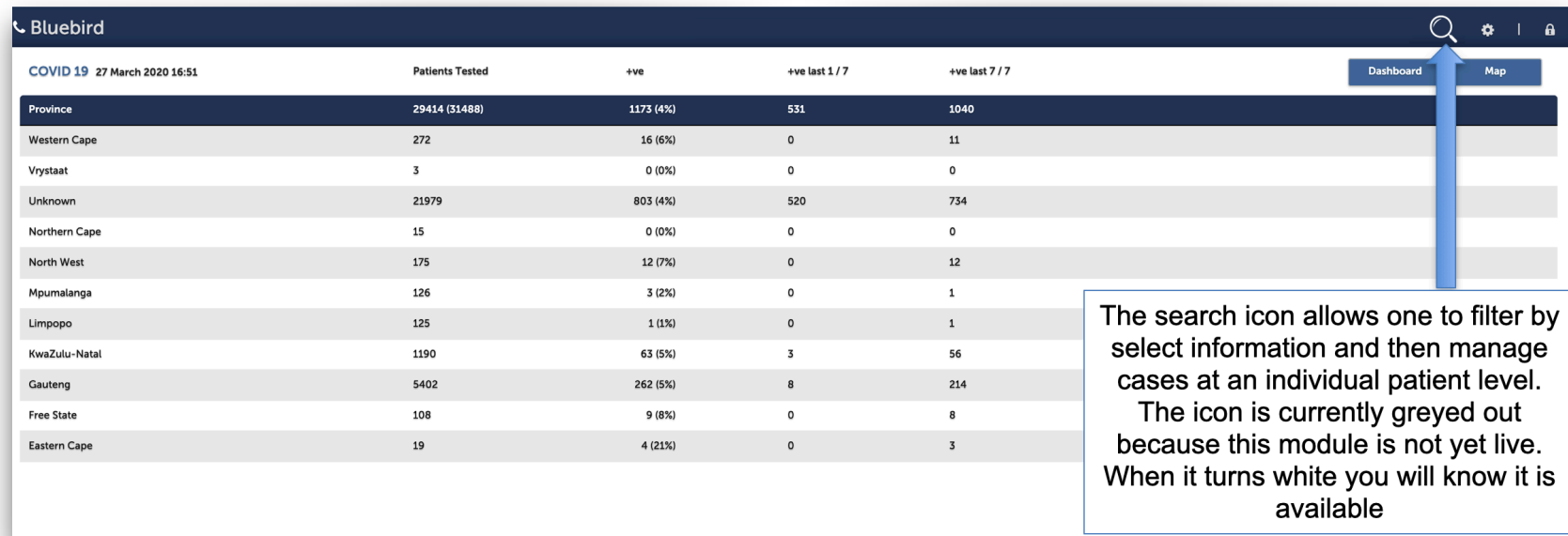
277

* Surge beds and ventilator use does not distinguish between COVID-19 patients and other hospital patients



Accessing the Case List

Clicking the search icon allows one to construct an individualized case list in real time. Different Roles might only be able to see subsets of data, for example a field worker at the ward level will only see individuals for that ward.

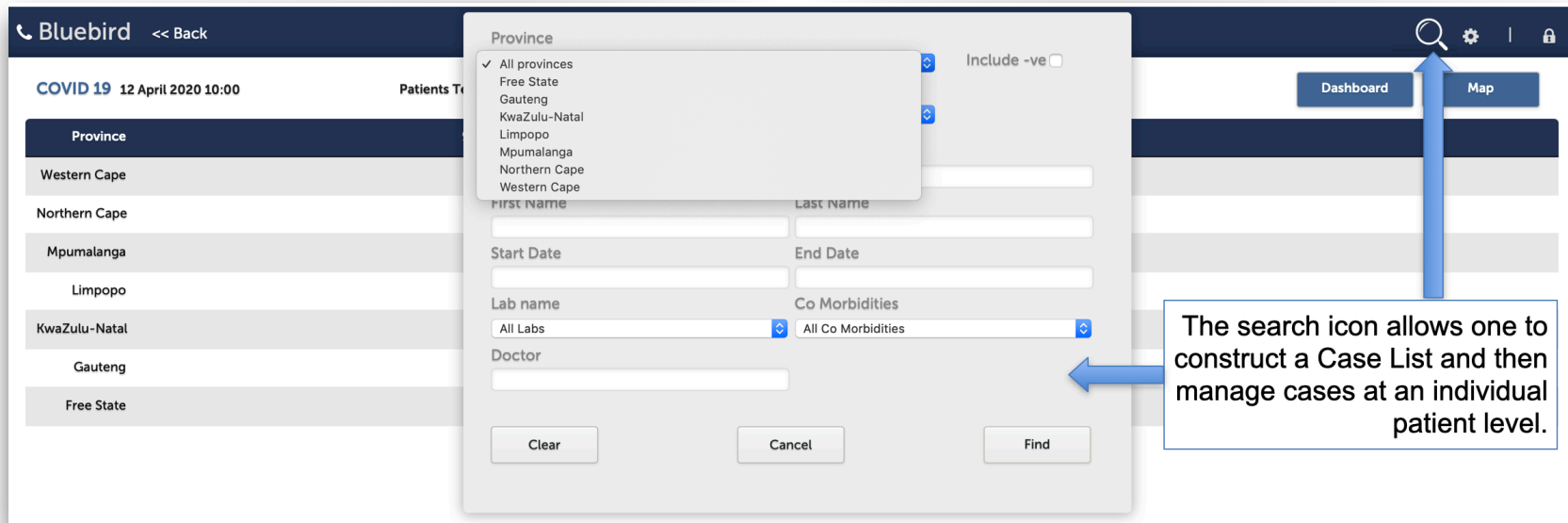


The screenshot shows the Bluebird COVID-19 dashboard. The top navigation bar includes a search icon, a settings gear, and a lock icon. Below the navigation bar, there are buttons for 'Dashboard' and 'Map'. The main content area displays a table with the following data:

Province	Patients Tested	+ve	+ve last 1 / 7	+ve last 7 / 7
Western Cape	272	16 (6%)	0	11
Vrystaat	3	0 (0%)	0	0
Unknown	21979	803 (4%)	520	734
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Free State	108	9 (8%)	0	8
Eastern Cape	19	4 (21%)	0	3

A blue arrow points from the search icon in the top right corner to a callout box containing the following text:

The search icon allows one to filter by select information and then manage cases at an individual patient level. The icon is currently greyed out because this module is not yet live. When it turns white you will know it is available



The search icon allows one to construct a Case List and then manage cases at an individual patient level.

This search box needs more input from the NDoH, we think it would be helpful to be able to search by ward, local municipality, district municipality...

The image on the following page shows a magnified of the search box:

Province
All provinces Include -ve

City
All Cities

ID / Passport / Req No. Date of Birth

First Name Last Name

Start Date End Date

Lab name Co Morbidities

Doctor

Clear Cancel Find

Once the appropriate cases have been found, they will be displayed as a Case List (individual patients) on the left pane in the image below. Selecting any of these patients will show detail about that individual patient on the right pane (which is highlighted in red in the image below).

Note that the top of the right pane has a button that allows one to add a new Person Under Investigation and below that button is a bar showing the selected patient name, their cell phone number and province and whether they have ever tested +ve for COVID-19.

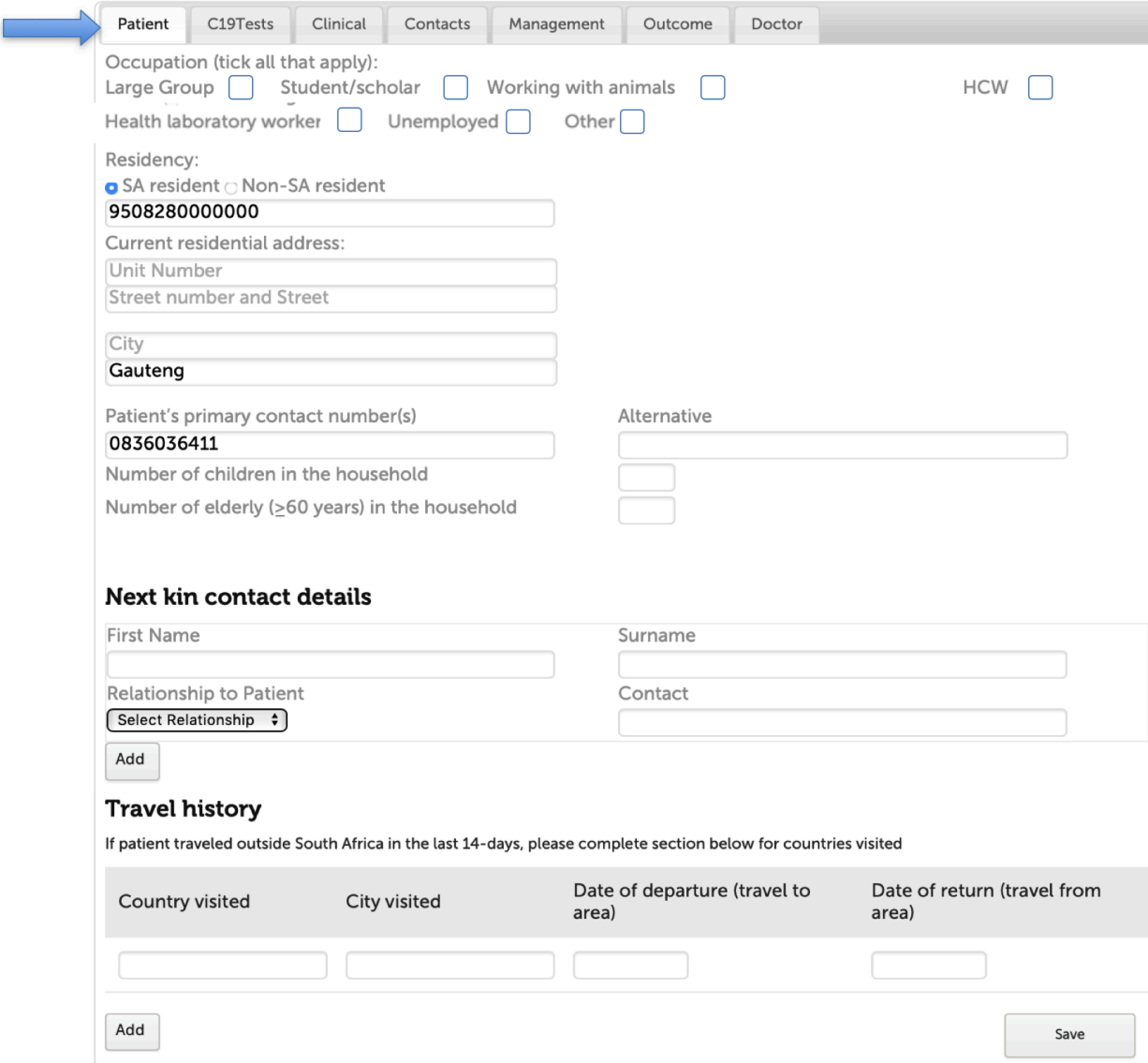
The screenshot displays the Bluebird application interface. On the left, a table lists patients with columns for Arrived/Collected, Patient name, DOB, Lab, Country, Province, City, HCW, and Date 1st +ve. The patient 'Theart, Bianca' is selected and highlighted in blue. On the right, a detailed form for this patient is shown, highlighted in red. The form includes an 'Add PUI' button at the top, followed by a header bar with the patient's name, cell number, and province. Below this are tabs for 'Patient', 'C19Tests', 'Clinical', 'Contacts', 'Management', 'Outcome', and 'Doctor'. The 'Patient' tab is active, showing fields for occupation, residency, address, contact numbers, and travel history.

Arrived/Collected	Patient	DOB	Lab	Country	Province	City	HCW	Date 1st +ve
09/03/2020 11/03/2020	Roux, Gieljam Johannes 1002938602 8212225110082	17/12/1982 Age: 37 Gender: M	AMP	South Africa	KwaZulu-Natal	Berea	No	09/03/2020
11/03/2020 11/03/2020	Theart, Bianca 1002140064 9508280000000	28/08/1995 Age: 24 Gender: F	DSP	South Africa	Gauteng		Yes	11/03/2020
11/03/2020 11/03/2020	Buys, Jacques 1002036737 7207145061085	14/07/1972 Age: 47 Gender: M	Lancet		Gauteng		Yes	11/03/2020
13/03/2020 13/03/2020	Fabris, Anthony George 1000912982 5012225026087	22/12/1950 Age: 69 Gender: M	Vermaak		Western Cape		No	13/03/2020
15/03/2020 15/03/2020	Oosthuizen, Mathys Gerhardus 1002249331 6001265104085	26/01/1960 Age: 58 Gender: M	AMP		Gauteng		No	15/03/2020
16/03/2020 16/03/2020	Marais, Berno Daniel 1002903529 9801180000000	18/01/1998 Age: 22 Gender: M	DSP		Free State		No	16/03/2020
18/03/2020 18/03/2020	McHunu, Lindiwe 1001939805 5406250621087	25/06/1954 Age: 65 Gender: F	Hain		Mpumalanga		No	18/03/2020
23/03/2020 23/03/2020	Bloggs, Onomatopoea 1002100420 7001080019087	01/08/1980 Age: 39 Gender: F	Lancet		Northern Cape		No	23/03/2020
25/03/2020 25/03/2020	Mabaso, Ntombiza Liza 1000367172 5307030477081	03/07/1953 Age: 60 Gender: F	AMP		Limpopo		No	25/03/2020

The following pages will focus on each tab inside the red rectangle, starting with the "Patient" tab.

This tab shows patient demographics, next of kin and travel history.

Note: Please understand that these images are based on the specification currently being used by the Bluebird development team and the images are a little rough. These will be replaced with actual screenshots as this module goes through the development and quality assurance processes.



The screenshot shows a web application interface with a top navigation bar containing tabs: Patient, C19Tests, Clinical, Contacts, Management, Outcome, and Doctor. A blue arrow points to the 'Patient' tab. Below the tabs, the form is divided into several sections:

- Occupation (tick all that apply):** Large Group , Student/scholar , Working with animals , HCW , Health laboratory worker , Unemployed , Other
- Residency:** SA resident Non-SA resident
9508280000000
- Current residential address:**
Unit Number
Street number and Street
City
Gauteng
- Patient's primary contact number(s):** 0836036411
Alternative:
- Number of children in the household:**
- Number of elderly (>=60 years) in the household:**
- Next kin contact details:**
First Name: Surname:
Relationship to Patient: Select Relationship
Contact:
- Travel history:**
If patient traveled outside South Africa in the last 14-days, please complete section below for countries visited

Country visited	City visited	Date of departure (travel to area)	Date of return (travel from area)
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

The C19 Tests tab lists all the COVID-19 tests on on this patient by collection date and gives the result.

Clicking any individual line will pop open the full lab report for that specific test.

The screenshot shows a patient record for Bianca Theart (ID: 021 594 2054, Location: Gauteng). The 'C19Tests' tab is selected, displaying a table with the following data:

CollectionDate	ReleaseDate	Result
11/03/2020	28/03/2020	+

A blue arrow points from the table entry to a callout box that says "Click lab line to open full lab report". Another blue arrow points from the callout box to a window titled "Lab Report - Theart, Bianca 24 F", which contains a document icon representing the full lab report.

The Clinical tab is where all the relevant clinical information documented about this patient is displayed.

Note that much of this will be collected by the GovChat interface and then automatically be displayed here.

Theart, Bianca
021 594 2054
Gauteng
+

Patient
C19Tests
Clinical
Contacts
Management
Outcome
Doctor

Alternate Dx

Weight (kg)

Pneumonia
ARDS
Abnormal CXR

ICU
Ventilated

Symptoms

Fever

Fatigue

Dry cough

Myalgia

Dyspnea

Headache

Dizziness

Abdominal pain

Diarrhoea

Nausea

Vomiting

Chills

Other

Co-morbidity

Asthma

Cardiac disease

Chronic kidney disease

Chronic liver disease

Chronic neurological/neuromuscular disease

COPD/ Chronic pulmonary disease

Diabetes

Immuno-deficiency (excluding HIV)

HIV

Is the patient virally suppressed?

On ARVs

Obesity

Pregnancy

Tuberculosis

Notes

Date	Patient	Title	Note
26/08/2013 12:42	Theart, Bianca 9508280000000	Ward Visit	Ward was visited for the sake of the patient's health
13/05/2014 14:59	Theart, Bianca 9508280000000	Patient Visit	Patient will be visited by sibling today. Contact precautionary measures must be observed for this patient.

The Contacts tab shows individuals that have been in contact with this patient.

The screenshot shows a patient record for Bianca Theart, ID 021 594 2054, in Gauteng. The 'Contacts' tab is selected and highlighted with a blue box. Below the tabs, it states 'No contacts recorded.' and has an 'Add' button. A blue arrow points from the 'Add' button to a 'Contact Form' modal window. The modal window is titled 'Contact Form - Theart, Bianca 24 F' and contains the following fields:

- Contact Detail**
- First Name:
- Last Name:
- Contact date:
- Contact number:
- Sex: Male Female
- Age:
- HCW:
- Relation to case: **Select relation** (dropdown menu)
- Residential address**
- Place name:
- Unit Number:
- Street number and Street:
- City:
- Province:
- Buttons: Cancel, Save

The management tab shows how this patient has been managed over time.

The screenshot shows a web application interface for patient management. At the top, a header bar displays the patient's name 'Theart, Bianca', ID number '021 594 2054', and province 'Gauteng', with a red plus sign on the right. Below the header is a navigation bar with tabs: 'Patient', 'C19Tests', 'Clinical', 'Contacts', 'Management' (highlighted with a blue border), 'Outcome', and 'Doctor'. The main content area is titled 'Date of Onset' and contains an empty text input field. Below this, there are four radio button options: 'Not Isolated', 'Isolated at Home', 'Isolated at HCF', and 'Other'. At the bottom left is an 'Add' button, and at the bottom right is a 'Save' button.

The Outcome tab shows the documented outcome at any point in time.

The screenshot shows a software interface with a horizontal tab bar at the top. The tabs are labeled 'Patient', 'C19Tests', 'Clinical', 'Contacts', 'Management', 'Outcome', and 'Doctor'. The 'Outcome' tab is currently selected and highlighted with a blue border. Below the tabs, the 'Date of Onset' label is followed by an empty text input field. Underneath, there are five radio button options: 'Hospitalized', 'Discharged', 'Transferred', 'Recovered', and 'Died'. Below these is an 'Other' label with a radio button. At the bottom left is an 'Add' button, and at the bottom right is a 'Save' button.

This tab allows one to add doctors associated with this patients care.

The screenshot shows a web interface with a horizontal menu at the top containing the following tabs: Patient, C19Tests, Clinical, Contacts, Management, Outcome, and Doctor. The 'Doctor' tab is selected and highlighted with a blue border. Below the menu, the page title is 'Doctor Detail'. The form consists of two columns of input fields. The left column has a 'Doctor' label above a text input field, followed by an 'Email address' label above another text input field. The right column has a 'Facility Name' label above a text input field, followed by a 'Contact number/s' label above two stacked text input fields. At the bottom left of the form is an 'Add' button, and at the bottom right is a 'Save' button.

Appendix 1: Steps that need completion by the NDoH

NDoH COVID-19 Project Owner

Please nominate the person that will be driving this project from the NDoH side and email full contact details including cell phone and email to darryl@intelms.com.

It will be ideal if this person has WhatsApp so we can send confidential information via a channel that supports end to end encryption. Until the NDoH **Authentication Gateway** is enabled, *only* the NDoH COVID-19 Project Owner will be supplied with temporary User Names and Passwords and WhatsApp will be the channel used by IMS to convey those temporary User Names and Passwords to the NDoH COVID-19 Project Owner.

The NDoH COVID-19 Project Owner will need to specify the end users that the NDoH wishes to give access to the **Bluebird DOH Surveillance and Case Management System** Users, as well as the level of access (which is role specific so roles need to be specified). IMS will need help defining those roles, but I suspect that they should be based on the NDoH geographic breakdown right down to a ward level and that users should only be able to see individual patients that fall under their geographic region? Our suggestion as to roles would therefore be:

- National (members of the National Outbreak Response Team)
- Provincial (members of the Provincial Outbreak Response Team)
- District municipality (District Surveillance Officers)
- Sub-District (Local municipality)
- Ward

Please see the **User Take-On** section below.

The NDoH COVID-19 Project Owner will also need to decide what dashboard information each role has access to, but our suggestion would be that only the National “role” has access to the current dashboard and map (later, we might be able to base dashboards on that User’s level of access so, for example, a district role would only see information pertinent to their specific district).

The NDoH COVID-19 Project Owner will also need to ensure that each hospital that the NDoH wishes to Bluebird enable (public and private) must be sent notification instructing them to become Bluebird enabled and to complete the relevant tasks specified under the **C19 Hospital User Take-On** and **Hospital Take-On (Blueprint)** sections below. Please c.c. those notification emails to ITNewHospital@intelms.com so Bluebird Operations can follow up if required.

Authentication Gateway

This is a web service that allows Bluebird to authenticate End Users against the NDoH Active Directory (or the NDoH equivalent) without giving Bluebird operations staff direct access to the NDoH Active Directory. The authentication Gateway specification allows the **Bluebird DOH Surveillance and Case Management System** users and **Bluebird COVID-19 Hospital System** users to authenticate against the NDoH's Active Directory.

This specification is available at intelms.com/authentication

The Authentication Gateway is the mechanism that empowers the NDoH to manage the authentication process for NDoH users and the hospital users that the NDoH wishes to Bluebird enable including instant de-activation of End-Users.

Fetching the COVID-19 Data from Bluebird

The specification for the API to fetch COVID-19 data from the Bluebird Server Cluster is available at intelms.com/381

In order to access this API, the Authentication Gateway specification will first need to be implemented.

The Authentication Gateway specification is available at intelms.com/authentication

The COVID-19 Data API specification currently includes the data fields (in JSON format) for COVID-19 lab data. As per the Agreement, the additional data to be retrieved by this specification needs to be specified by the NDoH and made available to IMS before the 11 May 2020.

NDoH User Take-On

The NDoH will need to complete the *specific* excel spreadsheet with the required details of each **user** that they wish to grant access to Bluebird. This specific excel spreadsheet can be found here: intelms.com/ndohusers

Please email the completed sheet to ITNewHospital@intelms.com

Please note that *only this excel spreadsheet may be used* (it is specifically designed for machine processing, the volume is too high to do this by hand).

C19 Hospital User Take-On

Each hospital that the NDoH wishes to Bluebird enable will need to complete the *specific* excel spreadsheet with the required details of each **user** at that hospital that the NDoH wishes to give Bluebird access. This specific excel spreadsheet can be found here: intelms.com/c19users. Please note that the NDoH needs to give Usernames (from their active directory) to each of these hospital Users.

For now there will only be x 4 hospital Users per hospital and the "role" will be: **C19 Admin**

Please email the completed sheet to ITNewHospital@intelms.com

Please note that *only this excel spreadsheet may be used* (it is specifically designed for machine processing, the volume is too high to do this by hand).

Hospitals are limited to 4 users at this time, if more than 4 are supplied, the additional Users will be ignored.

Hospital Take-On (Blueprint)

Each Hospital that the NDoH wishes to Bluebird enable will need to complete the *specific* excel spreadsheet with the ward, room and bed detail. The specific excel spreadsheet can be found here: intelms.com/c19blueprint

Please email the completed sheet to ITNewHospital@intelms.com

Please note that *only this excel spreadsheet may be used* (it is specifically designed for machine processing, the volume is too high to do this by hand).