Why the South African Department of Health chose

Bluebird

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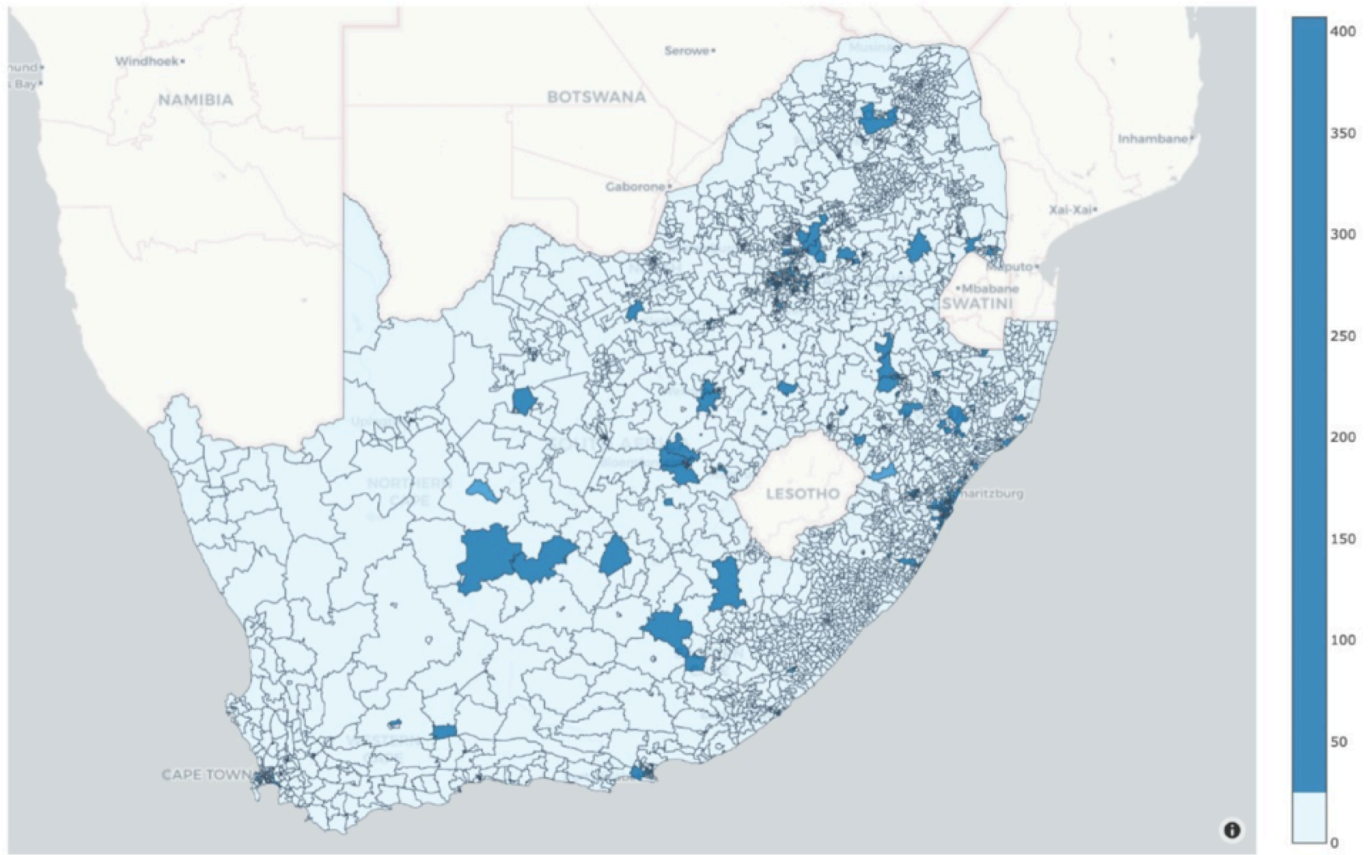## Table of Contents

Introduction

In April 2020 the South African National Department of Health (NDoH) asked Bluebird to power the national emergency response to the COVID-19 pandemic. Bluebird was chosen because:

- Bluebird could immediately provide a browser based interface that, in real-time, consolidated all COVID-19 data for every case in the country. This intuitive interface included test results, risk factors, signs and symptoms, co-morbidities and clinical course as well as an advanced contact tracing capability. Furthermore Bluebird offered a series of dashboards that sliced and diced individual patient information to produce pooled data visualizations nationally and on down to a very granular geographic level. This meant that Bluebird could, for example, in **real-time** show:
    - the number of cases in the last 7 days (or 14 days, 21 days…) per 100 000 population right down to individual voting districts or postal codes.
    - number of staffed hospital and ICU beds and the percentage utilized each day
    - the distribution of ventilators in the country and how many were being used
    - the number of COVID-19 patients in hospital, on oxygen, in ICU
    - hospital mortality
- Bluebird is a trusted national surveillance solution with a 25 year unblemished track record
- Bluebird is **massively scaleable**
- Bluebird's policies for the **protection of personal health information** are well defined and documented and exceed global standards
- Bluebird's **proven support infrastructure** has received regular kudos over two decades from the South African medical profession

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COVID-19 on the 3 July 2020

REFRESH ↻ | Detail: >= X Cases/100k People ▾ | Region: South Africa ▾ | Detail: Ward ▾ | Days: Last 14 Days ▾ | ☐ Show Case Bubbles

Cases per 100k Population:

Note Demonstrative dummy data has been used for this visualization

Background

Bluebird is a proven, battle-tested, secure medical information system successfully used by more than 70 hospitals, including the **Nelson Mandela Children's Hospital** and the **Christiaan Barnard Memorial Hospital**, and more than 200 ICUs (including the **largest ICU in the Southern hemisphere**). Bluebird has proved invaluable in managing other national infectious disease threats including high mortality infections such as CRE and Candida Auris.

That proven industrial capability allowed the Bluebird team to rapidly offer a comprehensive service to the NDoH that went beyond mere National COVID-19 Surveillance.

Intelligent Medical Systems (IMS), the company behind Bluebird, was uniquely positioned to deliver a comprehensive solution to government both in terms of **real-time surveillance** as well as **individual case management**.
Their 25-year experience in professionally integrating data from disparate medical information systems (such as all the laboratories in South Africa and multiple medical facilities) into a single, secure platform, allowed Bluebird to immediately provide a consolidated view of national COVID-19 information. Importantly, Bluebird facilitated data entry both automatically via APIs and manually by NDoH staff. That data access is role based with for example the Minister of Health having national access right down to a district health nurse only seeing district information.
Because Bluebird is cloud based, no software installation or server management by the NDoH was required.

The unified Bluebird Health Platform provided the NDoH the ability to **actively manage** Persons Under Investigation (patient demographics, co-morbidities, symptoms and isolation/quarantine decisions, ICU parameters including ventilator use, outcomes etc.), perform contact tracing and to intelligently analyze comprehensive data and then make that information available in near real-time to the Minister of Health and NDoH Users.

Intelligent Medical Systems' unique ability to rapidly provide this service is explained by their long and unblemished track record both in terms of data integrity as well as patient confidentiality and the robustness and scaleability of the Bluebird Health Systems.

In March 2020 they were the only entity in Africa capable of integrating all the private and public testing facilities in near real-time and making those statistics immediately available to the Minister and the NDoH. The Bluebird Health Platform had provided that service since 1995 and has developed deep operational experience over more than two decades. That capability was not something that could easily be emulated during a global emergency.

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Company History

The company history was important in demonstrating IMS's prolonged and consistent ability to provide this service to the medical profession:

In 1994, the Bluebird founder Dr. D.G. Vine developed the first commercial Electronic Medical Record that ran on Windows. A significant number of South African doctors are still using that ground breaking EMR 25 years later. In 1997 Dr. Vine developed the first system that integrated all the private lab results in South Africa and thereafter he directed the development of the Bluebird cloud based Hospital Information System.

IMS's CTO and Hospital Division Manager have both been with IMS for more than a decade. This deep experience is important because it underpins an ability to deliver.

In 1999 the information technology giant, Datatec, acquired a significant shareholding in IMS and from that partnership IMS inherited an **industrial capability** to run Bluebird at scale. No other national solution available in April 2020 could immediately scale to the extent required to combat the COVID-19 onslaught.

Over decades IMS had developed a robust **case management capability** which allowed them to repurpose existing Bluebird technology to quickly enable the NDoH to manage this epidemic down to an individual case level.

More than National COVID-19 PCR Surveillance

In addition to national COVID lab surveillance, Bluebird was uniquely and rapidly able to solve the other critical data requirements urgently needed for national COVID-19 monitoring, planning and forecasting, namely:

• Individual case management (including co-morbidities, symptoms, progress, hospitalization, ICU admission, ventilator requirement and outcomes)
• Contact management
• Hospital bed capacity and utilization for all facilities (including new field hospitals) accepting COVID-19 patients
• National ventilator capacity and utilization
• National hospital healthcare worker (HCW) health monitoring

Bluebird made this data available in near real-time filtered by multiple criteria including province, district, hospital, age group, gender etc.

Intelligent Medical Systems successfully set up more than 600 health facilities and enabled them to submit data in real-time to the NDoH COVID-19 national dashboard thus providing tools that empowered the NDoH to manage *every* case and to gather information from *every* hospital in the country (and therefore every critical COVID-19 patient).

Privacy and Security

IMS understands the importance of privacy and security of confidential patient information and have built a 25-year reputation on protecting confidential patient information. Bluebird is fully compliant with current legislation.
Please see *http://www.intelms.com/1i* and *intelms.com/211* for more information on Bluebird's privacy and security policies.

Summary

By repurposing existing robust and well proven systems, IMS quickly provided the South African NDoH a single *integrated* system to:

• Monitor national COVID-19 test results in real-time.
• Provide deep insights into national COVID-19 test data.
• Provide individual case monitoring and management.
• Provide every hospital (public and private) in South Africa with an ability to document each patient in their hospital with COVID-19 and whether that patient required oxygen, was ever in ICU, is was ever on high flow nasal oxygen or a ventilator and document that patient's individual outcome (most importantly discharge from hospital or death).
• Monitor clinical staff exposed to COVID-19 and their current health status.

This data was designed to empower national government to effectively manage finite healthcare resources during the initial stages of the pandemic and allowed South Africa the luxury of time to fine tune government systems under the auspices of the National Institute of Communicable Diseases (NICD).

Hospital Capacity Dashboard

Please see http://intelms.com/publichealth.html for a video example.

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