COVID-19
Pandemic Management Module

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As of today, the 24th of March, the number of COVID-19 probable cases in New Zealand sits at 155. We are shortly moving into alert Level-4. We have been witnessing an unprecedented series of events of the past few months, and now is the time to act with conviction.

What can PHOs do to tackle the pandemic?

**BLUF (Bottom line upfront):** Pinga is a national health system with a pandemic management module. This module is being used internationally to triage, screen, and process COVID-19 tests and manage the pandemic response. The core testing business process automation is ready for rapid setup in NZ, where it can deliver significant value in containing the pandemic.

Integration of information across a health system is a critical because this knowledge can have a dramatic impact on the overall response to the Pandemic.

The role played by the primary care sector across the country will be pivotal. It is therefore essential to make two things transparent:

- Supply: COVID-19 testing facilities, and availability of appointment slots for testing.
- Demand: Referrals and bookings

The Pinga platform, a unique healthcare operating system makes it possible to rapidly implement urgent healthcare processes necessary for Pandemic management, addressing both supply and demand.

Pinga has a COVID-19 module built within the larger Pinga ecosystem. This is available **FREE** of cost to be used by PHOs, DHBs and private healthcare organisations.

Pinga allows a healthcare system to function as an integrated unit, instead of depending on e-mails, faxes, phone calls, and irregular and staggered transmission of information.
Overview of Pinga’s pandemic management system

Patient demand management:

○ Intuitive calendar with business rules, built to triage cohort population into low risk, high risk or referred.
○ Patients suspected of Covid-19, at any health facility, can be seamlessly referred for a test
○ Patients can be empowered to book their test online, choosing from a calendar and map of available sites/times. This facilitates social isolation
○ Test booking availability is managed via Pinga
○ Pinga supports these workflows:
  ▪ Management of test capacity. E.g. if the system has the capacity to process 1500 tests per day, we can make many more timeslots available for patients to submit a swab, but close of availability after this cap is reached.
  ▪ Integrated questionnaires delivered online to facilitate social isolation. E.g.
    • Triage questionnaire
    • Post-Covid test questionnaire (e.g. ‘what public places did you visit)
    • Questionnaires are configurable and can be added.
  ▪ Triage. Test priorities can be managed and modified with the system. For example, the system supports a low/medium/high risk scoring system, or a 1-10 score. Booking links for swabs and tests can be sent manually or automatically according to priority.

Workflow management:

○ The list of patients waiting for a test, their booking, and timelines for these patients can be managed through the Pinga platform
○ Test results can be made immediately available through the COVID-19 module, aiding in the communication and management of patients who are sick
  ▪ Pinga can process LOIC messages, or make PDF reports available

We propose to provide a ‘light’ implementation of Pinga’s Pandemic Management module can be provided to you within a matter of days, to facilitate the first phase of the pandemic: testing and isolation. The platform is already integrated to function with the major PMS systems (Medtech32, Indici and Profile). We are in the process of integrating with MT Evolution and My Practice.
Instead of the administrative overhead of phone calls and reports, empower staff to list supply and demand in an intuitive calendar and implement business rules within hours: who is in the high risk category, who should be referred, who should be under isolation.

The Pandemic Management module will provide the integrated platform needed to effectively handle the workload of cases extant during this crisis and to make sure that treatment and isolation protocols do not break down during this time.

Furthermore, by using technology driven workflows, the Pinga module can support the healthcare workforce, aiding in reduced levels of burnout and mental fatigue.

This screen shows the following features:

- Map-based list of potentially infected patients
- Configurable graphs to show disease process and coverage
- Workflow register: list all patients, and enable workflow driving through this interface (e.g. click to send booking link, isolation information, etc)
This is an example of a screen provided to GPs or other referrers. A configurable triage questionnaire enables a patient to be added to the list of those to be tested. Answers to the questions are used to compute the risk level.

A centralised tool

COVID-19 is going to stay so long as there are still infected people – and this situation is certain to persist for some time.

To limit the damage, and restore a functional economy, it is crucial to track cases of infection. Whole regions may be disease-free yet subject to unnecessary restrictions, causing sustained economic damage.

Broad priorities:

As a society we must take the broader view of our priorities; in order these must be:

1. Ensure the disease spread is limited – ‘flatten the curve’
2. Minimize the spread of the disease until an effective prevention is found – minimize harm from the disease
3. Minimize economic damage
Using the Pinga Pandemic Management module and integrating it with Primary Care data sources that are often already available or integrated in the community allows all three targets to be met by a central authority.

We currently are in the midst of community spread within New Zealand. South Korea, Hong Kong and Singapore were able to restrict the spread of COVID-19, predominantly attributed to instituted massive testing programmes, school closures, community response and strict quarantines. This is an exceptional result. It shows that containment is possible.

A centralised, transparent tool supported by reliable sources of data and population information (PHO database), will provide reassurance to our healthcare workforce and comfort to those in charge of protecting public health interests. Only with a central ‘source of truth’ can we be satisfied that the measures are successful.
Health system capacity

However, there is one part of this curve that is rarely discussed – that is, indeed, treated as an immutable figure – and that is the capacity of the health system. Emergency measures are at times taken to expand capacity, but this seen as temporary and not having a significant impact. The most extreme measures – such as the Chinese government erecting entire temporary hospitals – are rare.

In 2012-2013, we implemented our ‘Pinga’ Platform in Macedonia, where it is branded Moj Termin, together with the Ministry of Health and its newly formed E-health directorate.

In just one year, this digital health reform established and deployed a fully integrated healthcare platform for the country. This platform represents a new idea in e-health: a single-instance ‘Source of Truth’ integrating not only one facility, or several facilities, but the entire chain of care across the country. All referrals, prescriptions, and in-patient processing moved to be electronically implemented via the same platform and have been since that time.

The impact was dramatic and extremely relevant in this time of the COVID-19 pandemic. The following chart tells the story:

![Image of chart showing no. of appointments and median waiting time in Macedonia, 2014-2017]

This graph shows two essential numbers. The scatter plot shows, week by week, the median daily appointments. Think of it as a measure of the utilization of the healthcare system. The orange line represents the average waiting time for outpatient care.
The scatter plot shows that the number of occasions of service delivered doubled over four years. At first glance, this appears to indicate a system that was underutilized; thanks to technology, it now runs at capacity. But this is not the case: The orange line tells the most remarkable story, and that is that the average waiting time for care has dropped to a matter of days. Waiting lists for surgery and elective surgery still exist (though these have shortened dramatically). But outpatient waiting lists have been abolished, and care is delivered quickly, orchestrated by the platform.

Access rights and roles
Access is structured in a multilayer hierarchical model, allowing full flexibility to be determined by the health institution, meaning an administrator for a general practice, or a group of practices, will only have access to the waiting lists for their practices. All access is logged for compliance audit purposes.