Te Pokapū Hātepe o Aotearoa
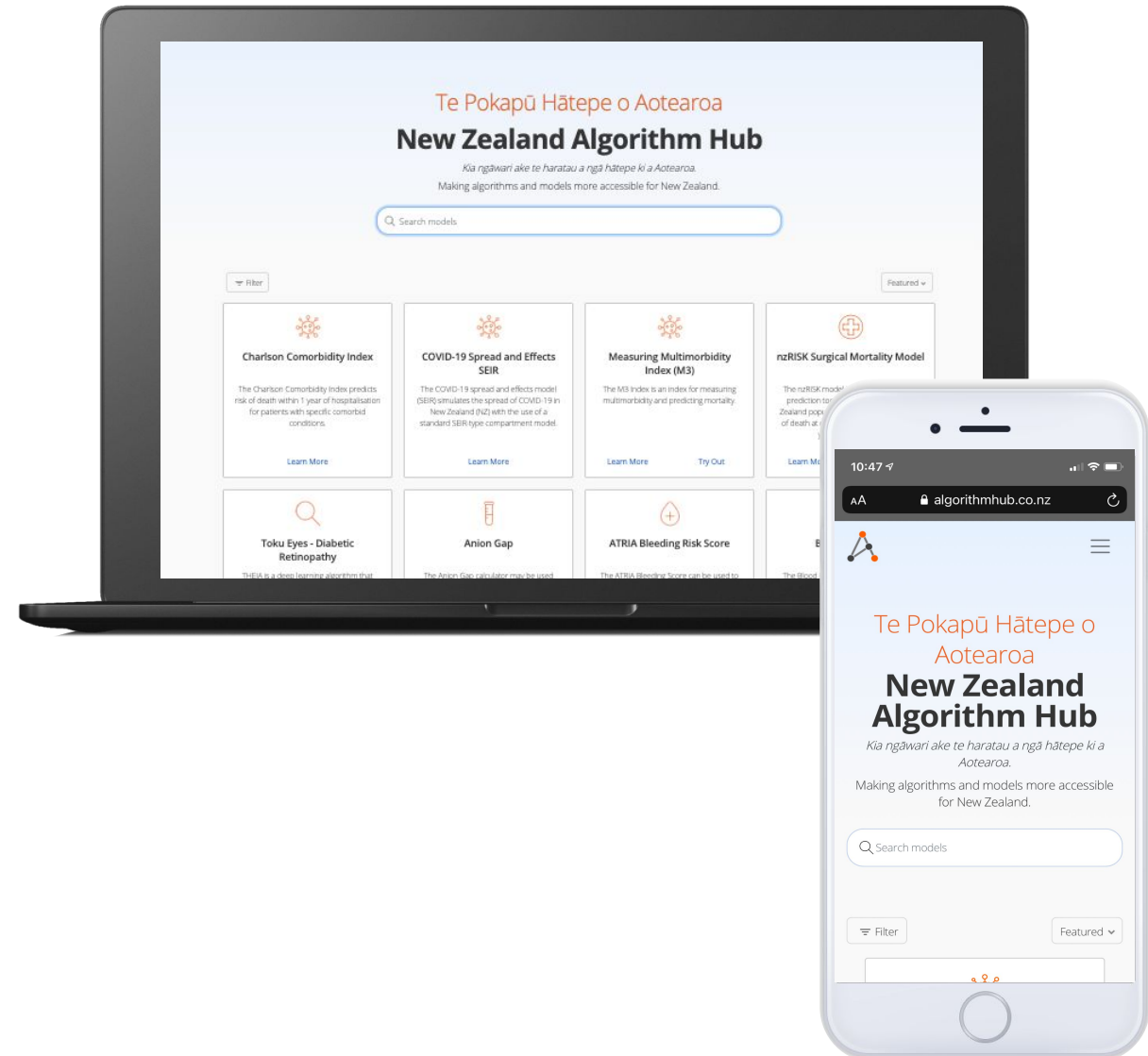
New Zealand Algorithm Hub

Innovations in Applied Data Symposium

Pieta Brown, June 2021

Algorithm Hub Overview

- National algorithm management solution - the New Zealand Algorithm Hub.

- Provides a central repository for algorithms and models for NZ

- Six-month initiative to implement use cases supporting NZ's COVID-19 response

- Three different interaction channels **- website, API, SFTP**

Website   REST API   SFTP

algorithmhub.co.nz

What are the benefits?

For citizens:

- Ensuring equitable access and that decisions are being made with the best available toolkit

For NZ hospitals, clinicians and government decision makers:

- Free use of models deployed via this initiative

- Access to insights that will help to inform decision making and planning.

- Ability to automate model inputs and dissemination of outputs into workflows, where data sources and systems allow.

- Opportunity to create a central, shared knowledgebase of NZ-validated algorithms and models

For data scientists, researchers and others creating algorithms and models:
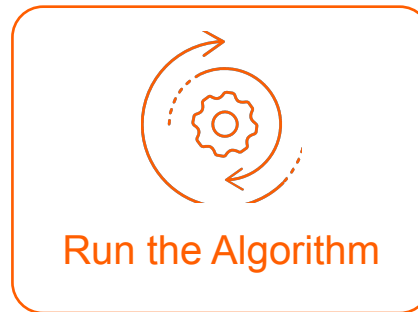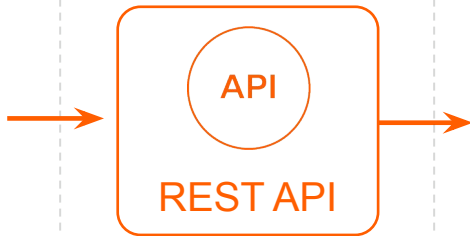
- Path to adoption / use without burden of support falling on creator.

- Deployed in a stable, automated and scalable system.

- Frees up time to focus on solving new challenges or making improvements.
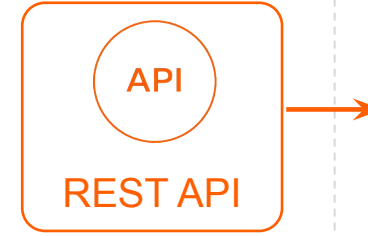
What it looks like in action (REST API)

Input Data Example

```
{
"Alpha": 0.25,
"testRate": 0.25,
"CFR0": 0.0088,
"presymptomTrans": 0.5,
"Delta": 1.0,
"Gamma": 0.1,
"Reff": 2.5,
"Rcontrol1": 1.8,
"Rcontrol2": 1.4,
"Rcontrol3": 0.9 ,
"Rcontrol4": 1.75,
"Rpost": 2.5,
"nICU": 500.0,
"pICU": 0.0165,
"pHosp": 0.0524,
"popnSize": 5000000.0,
"tControlOn": 24.0,
"ControlDuration": 28,
"initialCases": 139.0,
"tLevel4ControlOn": 24,
"level4ControlDuration": 28,
"level3ControlDuration": 0,
"level2ControlDuration": 0,
"level1ControlDuration": 0
}
```

Send Data

API

REST API

Run the Algorithm

Results

API

REST API

Summary Result Example

```
{
'finalSize': 0.7966886214669863,
'pDeath': 0.013421567984781113,
'peakCases': 0.10491557229645515,
'peakInd': 509,
'tPeak': 509,
'tEnd': 627,
'Population': 5000000.0,
'Infections': 3983443.1073349314,
'Hospitalisations': 208732.4188243504,
'Cases requiring ICU': 65726.81127102637,
'Peak infections': 524577.8614822758,
'Peak hospitalisations': 27487.87994167125,
'Peak cases requiring ICU': 8655.53471445755,
 'Available ICU capacity': 500,
'Deaths': 67107.83992390557
}
```

Governance Process

Review
Options available

Select
Highest priority
based on criteria

Approve
When ready for use

Please get in touch - pieta.brown@orionhealth.com, @pieta_brown

Kevin Ross
Chair

Frith Tweedie
Legal, Privacy

Tim Dare
Ethics

Gill Dobbie
Data Science

Daniel Wilson
Māori Interests

**Juliet
Rumball-Smith**
Public Health

Alex Kazemi
Clinical Practice

Vince Galvin
All of Govt

Judy Blakey
Consumer