

With 1000minds software, you can make better decisions, prioritize, and understand people's preferences.

All health systems have to decide how best to use their scarce resources. This usually requires confronting trade-offs between multiple decision criteria or objectives from various stakeholders' perspectives.

1000minds software, including group decision-making with as many participants as desired, is widely used in the important health applications summarized below.



USE CASES

Have confidence in how patients are prioritized for elective health care

Since 2004, 1000minds has worked with NZ's Ministry of Health and clinicians to create systems for prioritizing patients for elective (non-urgent) health care, and for prioritizing Covid-19 patients for ICU. This collaboration is described in more detail on the following page.

Develop disease classification systems that are as accurate and practical as possible

For complex illnesses like rheumatic and musculoskeletal diseases, it can be very difficult for clinicians to determine whether or not a given patient is suffering from the disease in question. 1000minds is used by large international teams of experts to develop and test disease classification criteria.

Maximise value for money when prioritizing health technologies for funding

Prioritize pharmaceuticals, devices, equipment, procedures and other 'health technologies'. A framework for health technology prioritization based explicitly on value for money enables decision-makers to focus on the main trade-offs and allocate scarce resources efficiently.

Quickly create value sets representing patients' health-related quality of life (HRQoL)

1000minds provides a user-friendly online tool for eliciting people's preferences in terms of HRQoL – i.e. how they feel about pain, disability, depression, etc. The tool's outputs ("value sets") are used for health technology prioritization and for assessing the performance of health care providers.

Prioritize diseases for R&D collaboratively

The World Health Organization uses 1000minds to survey experts in infectious diseases from around the world to create the Priority Pathogens List of antibiotic-resistant bacteria posing the greatest threats to human health – to guide R&D into new antibiotics. The European Centre for Disease Prevention and Control also used 1000minds to prioritize infectious disease threats.

Make research funding decisions efficiently and fairly

1000minds is used by research organizations – e.g. Australian Clinical Trials Alliance, Women's Health Research, Translation & Impact Network – to prioritize research questions and to decide which projects to fund. 1000minds offers transparent, inclusive, and easy-to-discuss processes that engage stakeholders while providing them with transparency and reliability.

Develop clinical guidelines for treatment

For complex conditions such as hip and knee osteoarthritis, there can be uncertainty with respect to the most effective treatments. 1000minds is used by clinical experts and patients to develop key messages to help patients better manage their condition.

Other health applications for 1000minds:

- Disasters and pandemics, e.g. allocating Covid vaccinations
- Selecting students for medical school
- Allocating hospital budgets and prioritizing business projects, etc
- Ranking health professionals, e.g. junior doctors for hospital positions



Prioritizing elective patients in New Zealand's Health System

Challenge

NZ's health system, like all health systems in the world, is resource constrained. There is insufficient capacity to be able to provide elective (non-urgent) services to everyone who could potentially benefit from them. Inevitably, patients have to be prioritized via waiting lists.

- But how do you decide who gets treated (and who doesn't), and in what order?
- And how do you ensure that these important decisions are made consistently, fairly and transparently?

These fundamental questions have challenged NZ's public health system since its inception more than 80 years ago. These challenges are not unique to NZ – all countries face them.

Solution

Since 2004, 1000minds has been used by the Ministry of Health and groups of clinicians to determine valid and reliable criteria and weights for prioritizing patients. Prioritization systems have been created for the 20+ conditions listed below, and more will be developed in the future. Also, in early 2020, a system for prioritizing Covid-19 patients for intensive care was quickly built as SARS-CoV-2 entered NZ.

- Coronary Artery Bypass Graft
- Aortic regurgitation
- Mitral regurgitation
- Tricuspid regurgitation
- Aortic stenosis
- Mitral stenosis
- Cardiac – other
- Orthopaedic surgery
- Paediatric orthopaedics
- Bariatric surgery
- General surgery
- Cataract surgery
- Non-cataract Ophthalmology
- Otorhinolaryngology
- Skin lesions
- Genetic referral
- Assisted reproductive technology
- General gynaecology
- Sterilization
- Plastic surgery
- Urology

This world-leading body of work has been overseen and reviewed by the National Ethics Advisory Committee, Medical Council, Health and Disability Commission and Human Rights Commission. 1000minds also developed the online platform for implementing the prioritization systems across NZ's hospitals, known as the National Prioritization Web Service.

Results

Patients, clinicians and the Ministry of Health can have more confidence in the patient prioritization decisions made using the prioritization tools created using 1000minds. **They are systematic, transparent and evidence-based, and they differentiate between patients fairly, consistent with established ethical principles.**

These important contributions to NZ's health system have been recognized in several awards for health innovation and impact. See www.1000minds/awards.

30+

patient prioritization systems created using 1000minds

500+

clinicians involved in creating the systems

10,000+

patient interactions per month, National Prioritization Web Service

PROCESSES

Processes for creating tools to prioritize patients

1 • Demonstrate need

Collate 10–20 patient vignettes and run a 1000minds Ranking Survey – a “noise audit” – to capture individual clinician's intuitive rankings. Show them how inconsistent they are! ([see 'Noisy' expert judgments on our website](#)).

2 • Elicit prioritization criteria

Run the same Ranking Survey but this time by group consensus. As the group discusses which patients should be treated and why, mind-map the criteria for doing so.

3 • Refine the criteria

Refine the criteria and levels based on the literature and available evidence and clinical experience.

4 • Inter-rater reliability

Run a Categorization Survey to rate the patient vignettes on the criteria. Refine the criteria / levels, as necessary.

5 • Consensus rating

Resolve disagreements in the ratings of the patients on the criteria using the rating-averaging feature, then together to reach consensus on outliers. Tweak criteria text to improve clarity.

6 • Individual judgments

Run a Preferences Survey for clinicians to experience making trade-offs between hypothetical patients rated on the criteria. Show them areas of agreement and disagreement.

7 • Consensus weighting

Run a 1000minds group decision-making exercise to weight the criteria by group consensus – using 1000minds Voting.

8 • Validate the tool

Compare the ranking of the patient vignettes from the initial consensus ranking with the ranking produced by the tool. Perform other (face) validity and reliability tests.

9 • Implement the tool

Implement the prioritization tool in clinical information systems or prioritization web services, and socialize the new tool with clinicians who will use it.

