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# COVID-19: we must not forget about Indigenous health and equity

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As New Zealand's cases of COVID-19 rapidly rose, a national state of emergency was declared and the country placed in shutdown in an effort to achieve disease elimination.<sup>1</sup> However, a looming crisis of Māori (Indigenous peoples of New Zealand) health and equity appeared to have had little attention from decision-makers should our elimination strategy fail. There is major concern among those working in Māori health about the disproportionately negative impact a COVID-19 pandemic is likely to have on Māori communities in the event of widespread illness ([www.uruta.maori.nz](http://www.uruta.maori.nz)) – concerns that are relevant to Indigenous communities globally. In this paper we discuss risk to Māori and the need to consider Māori health equity in all levels of decision-making and in all strategies aimed at mitigating the impact of an overwhelming COVID-19 outbreak. The themes within this call to action are immediately transferable to other future pandemic crises and to the underlying and longstanding crisis of embedded ethnic health inequities for Indigenous peoples.

## Transmission may be increased in Indigenous populations

History warns us of the price of assuming that diseases such as COVID-19 will impact ethnic groups evenly. The death rate following the 1918 influenza pandemic was seven times higher for Māori compared to European ethnic groups.<sup>2</sup> More recently during the 2009 H1N1 influenza pandemic, disease rates were twice as high for Māori compared to European/Other,<sup>3</sup> while Māori were three times as likely to be hospitalised with the disease<sup>3</sup> and nearly three times as likely to die.<sup>4</sup> Inequities in disease rates and mortality during the 2009 H1N1 influenza pandemic

were seen for Indigenous populations in Australia<sup>5</sup> and Canada.<sup>6,7</sup>

These inequitable outcomes, in part, reflect differences between Indigenous and non-Indigenous populations in factors that increase communicability of infectious diseases. In New Zealand, such factors include social deprivation, the quality of housing, fuel and heating, poverty and household crowding.<sup>8-10</sup> The latter is crucial with respect to disease transmission among Māori: one in every five Māori live in overcrowded housing, compared to only one in 25 NZ European/Pākehā.<sup>9</sup> Combined, these factors manifest in substantial inequities in rates of most infectious diseases, including influenza,<sup>11</sup> meningococcal disease,<sup>12</sup> tuberculosis<sup>13</sup> and the sequelae of *Streptococcal* infection such as rheumatic fever.<sup>14</sup>

Differences in factors relating to living conditions and crowding are poignant in the context of COVID-19. In Italy, it has been hypothesised that intergenerational interactions and co-residence may have contributed to the rapid spread of SARS-CoV-2.<sup>15</sup> Evidence from China suggests that the vast majority of transmission has occurred through families within households (78-85% of cases).<sup>16</sup> In Singapore, outbreaks occurred among migrant workers living in overcrowded conditions with limited access to sanitation, resources and power to complain.<sup>17</sup> In the New Zealand context, this means that because of differences in living conditions, Māori will be more likely to be exposed to SARS-CoV-2 than NZ European/Pākehā. For example, universal recommendations of home-isolation for mild cases<sup>18</sup> may well lead to differential household transmission among families living in more crowded conditions, with higher risk for those in multi-generational households.

Internationally, racial/ethnic inequities in rates of infection have been identified.<sup>19</sup> Higher infection rates have been shown for Indigenous communities, including for example, Native Hawaiian and Pacific peoples in some states of the US and the Navajo nation.<sup>20,21</sup>

## The health impact of COVID-19 will be greater for Māori

The severity of COVID-19 illness – and subsequent risk of death – is increased among those with underlying health conditions such as cardiovascular, cancer, pulmonary, renal and endocrine comorbidity.<sup>22-24</sup> It follows that those population groups with a greater likelihood of living with these conditions stand to experience the greatest impact of COVID-19 on health and mortality. We, as Māori, are substantially more likely to have all comorbidities relevant to COVID-19 (Figure 1) and thus will experience a significant disproportionate burden of serious COVID-19 outcomes compared to European ethnic groups.<sup>25</sup>

In addition to a greater overall burden of relevant comorbidities, the age at which these comorbidities occur is also different for Māori (Figure 2). Without exception, these important chronic conditions occur earlier in life for Māori: we get sicker, younger. This is highly relevant to discussions of age cut-offs when prioritising health care (see section below).

A little-understood factor also at play is the impact on COVID-19 outcomes where several of these relevant conditions are occurring at once. If one of these relevant conditions can impact outcomes, it is likely that multiple conditions will have a compounding effect – possibly additive, but potentially multiplicative.<sup>27</sup> Crucially, Māori are much more likely to have multimorbidity than those from European ethnic groups (Figure 3).

## The strong focus on numerical age as a risk factor is to the detriment of Indigenous populations

The reported case fatality rates from COVID-19 show a strong gradient by age, with those aged over 80 years demonstrating the highest rates.<sup>29</sup> It may therefore be assumed that Indigenous populations, by virtue of our younger age structure, are

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relatively protected from high case fatality from COVID-19, however, such an assumption is a mistake.

*Age is more than just a number.* While there is no denying that age is an important predictor of outcomes for those diagnosed with COVID-19, it is unclear as to the mechanism by which age acts as a risk factor. If older age is a risk factor because those in older age groups have a higher burden of health conditions that increase risk (such as cardiovascular and respiratory disease),<sup>30</sup> age will not be protective for younger Indigenous populations. As discussed above, the rates of many health conditions for Māori are similar to NZ European rates 10–20 years earlier, which contributes to the lower life expectancy and healthy life expectancy of Indigenous populations compared to our non-Indigenous counterparts.<sup>31</sup> If age is a risk factor independent of comorbid conditions, it may still operate differently for Māori with evidence of processes of accelerated aging

at the cellular level in those more likely to experience racism.<sup>32</sup>

*Strong public messaging of age as the primary risk factor does not allow Indigenous populations to adequately prepare and respond.* Initial evidence of the relative importance of age versus comorbidity for COVID-19 severity was unclear.<sup>33,34</sup> More recently, a large UK study showed that increased age and comorbidity were independently associated with risk of hospital death from COVID-19, as was non-white ethnicity.<sup>35</sup> More appropriate public messaging would identify Indigenous populations as at increased risk of severe impacts, and messages should be extended to include younger Indigenous populations.<sup>36</sup>

**Existing inequities in healthcare access and quality will likely increase if services become overloaded**

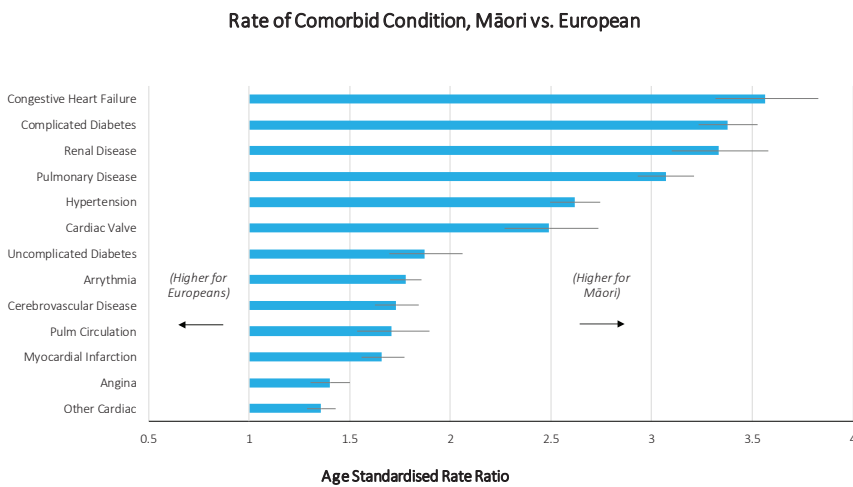
Differential access to health care as a result of colonisation and racism plays an important

role in the creation and maintenance of inequities in health for Indigenous populations. It has been estimated that a quarter of the absolute difference between Māori and non-Māori in all-cause mortality was the result of conditions considered amenable to healthcare.<sup>37</sup>

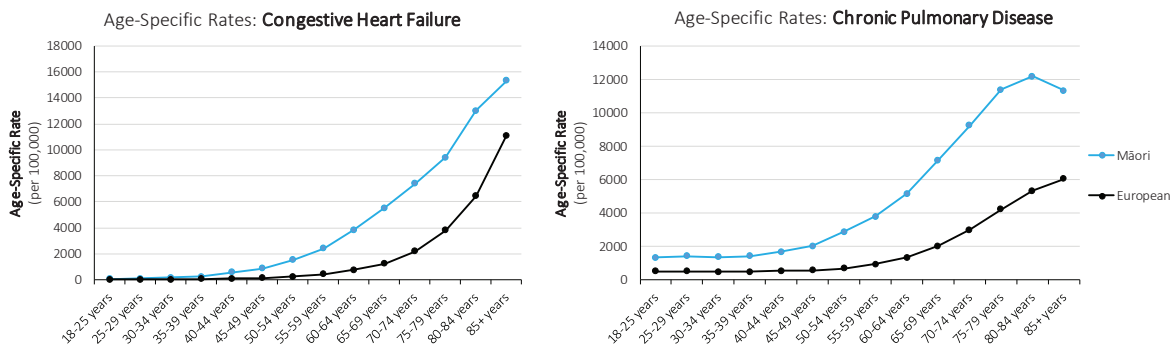
*Existing inequities in healthcare access may lead to differences in COVID-19 detection.* New Zealand is currently seeing very small numbers of COVID-19 cases with the focus currently on early detection and rapid management of cases and contacts.<sup>38,39</sup> However, potential inequities in access to testing could lead to a higher risk of undetected cases as demonstrated in a recent modelling paper. The authors highlight the particular risk for Māori and Pacific communities where there are known inequities in access to primary care.<sup>40</sup>

*Existing inequities in healthcare access will be amplified when the system is put under pressure.* In New Zealand, despite a wide package of publicly-funded secondary and tertiary healthcare, and primary care being subsidised by the Government, there are significant ethnic inequities in access to healthcare. The greatest identified barrier to healthcare is financial.<sup>41</sup> Māori report higher rates than non-Māori of unmet need for GP and afterhours care and unfilled prescriptions.<sup>42</sup> Māori also experience greater rates of hospitalisation for conditions that are either avoidable (through health and injury prevention strategies) or amenable (through appropriate healthcare).<sup>43</sup> There is also evidence across a range of diseases of a lower quality of care being provided to Māori compared with non-Māori.<sup>44</sup> In addition, institutionalised racism impacts Māori health and inequities through the underlying values and structuring of our health system,<sup>45</sup>

**Figure 1: Age-standardised rate ratios comparing rates of conditions relevant to COVID-19 among all New Zealanders in 2014, between Indigenous Māori (n=402,108) and Europeans (n=2,292,963). Prioritised ethnicity using the Statistics New Zealand prioritisation algorithm 26 was used to categorise ethnicity.**



**Figure 2: Age-specific rates of (for example) congestive heart failure (left) and chronic pulmonary disease (right), for Māori and European ethnic groups.**



while individual level racism from health professionals is disproportionately reported by Māori,<sup>46</sup> with evidence of health provider implicit and explicit racial/ethnic bias against Māori.<sup>47</sup>

Even where containment strategies are implemented, health services may be overloaded.<sup>48</sup> Without careful planning, the reductions in access and quality of care over this time will differentially impact Indigenous populations because the 'usual' barriers to care will be amplified – for example, through simultaneous increased unemployment and financial hardship. Existing health provider racism is more likely to be activated in pressured situations,<sup>49</sup> and tools used to decide on limited healthcare have the potential to discriminate against Māori and other groups marginalised by oppressive systems if equity is not carefully considered and embedded throughout, and if they are developed without partnership with the groups most likely to be impacted.<sup>50</sup>

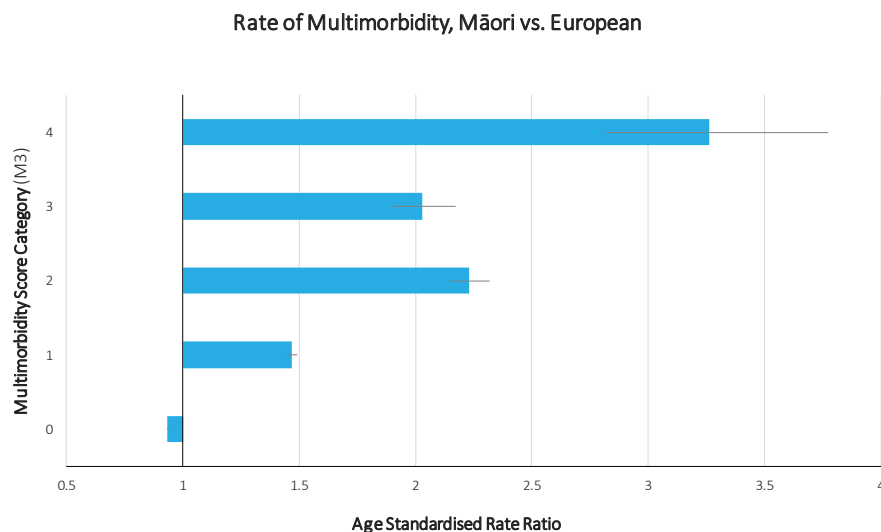
It is unclear how other shifts in healthcare service provision during the pandemic may impact on inequities in healthcare access for Māori, such as the move to provide primary care through telehealth and further primary care subsidies. For example, have these taken into account differing access to technology and appropriate communication needs? When new strategies are developed, it is important that these centre Māori health and equity and are monitored in real time.

Reductions in healthcare access will differentially impact on Indigenous populations for non-COVID-19 outcomes for which we already have inequities. There is evidence from previous influenza pandemics of inequitable increases in all-cause mortality driven by deaths from influenza but also from an increase in other health events, in part due to reductions in access to care.<sup>51</sup>

### More than just direct health effects of COVID-19

We have focused on the implications of increased disease transmission, risk of severe disease and healthcare for Māori in this report. However, a COVID-19 epidemic and the actions to eliminate or mitigate it, have far-reaching social and economic consequences that are likely to disproportionately impact Māori whānau and communities and exacerbate social and health inequities. Health and welfare implications related to multiple issues such as disability, care and protection, mental health,

**Figure 3: Age-standardised rate ratios, comparing M3 multimorbidity score between Māori and Europeans. Categories are based on multimorbidity scores, which are calculated for each patient as the weighted sum of 60 individual morbidities.<sup>28</sup> Increasing score (and category) relates to increasing multimorbidity burden.**



addiction, prison health, poverty, housing and homelessness, and family violence, will all differentially affect Māori.

As Māori researchers and health professionals, we are deeply concerned about the potential impact of COVID-19 on Māori communities. Similar concerns have been expressed by other Indigenous nations.<sup>21,36</sup> We are also concerned that there appears to be limited focus on Māori health equity in the current health system and whole-of-government planning. Māori communities, health workers and leaders are taking action to protect Māori health and wellbeing (for example, [www.uruta.maori.nz](http://www.uruta.maori.nz)).

In New Zealand, the Treaty of Waitangi forms the foundation of the contractual relationship between Māori and the British Crown (represented by the State). We call for the State as Treaty partner to uphold its Treaty obligations and Māori Indigenous rights contained within the United Nations Declaration on the Rights of Indigenous peoples<sup>52</sup> by acting to protect Māori health and wellbeing. In partnership with Māori, the State must consider Māori health and equity in all actions aimed at combating and responding to a COVID-19 pandemic, both now and beyond. In addition, real-time modelling, monitoring and rapid analysis of data using high quality ethnicity data underpinned by principles of Indigenous Data Sovereignty,<sup>53</sup> is required across multiple levels including case numbers and rates, transmission, severity and access to and quality of care (including the performance of

public health responses), to inform and assess intervention strategies for Māori. If Māori health, and Indigenous health more globally, is not given the necessary attention required now, history will repeat itself.

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