Investments in diagnostic networks
Global HIV viral load demand

The annual growth rate of global demand for VL testing over the past 7 years is ~24%, and unmet need as a % of total need has fallen from ~65% (in 2012) to ~31% (in 2019)

Source: Data from 21 high-burden countries, supplemented by linear extrapolations of “Rest of World” by Avenir Health.
Note: Need is estimated using ART patient numbers and country-level testing guidelines. Where national guidelines are unknown, the WHO’s recommendations of 2 tests for new patients and 1 annual test for existing patients are used.
Global Cepheid TB testing volumes

The annual growth rate of TB tests on Cepheid over the past 6 years is ~45%

Source: Data obtained from Cepheid on historical testing volumes
Investments in diagnostics

- Disease priorities – increasing needs for molecular testing (HIV, TB, hepatitis, HPV, Ebola, SARS-CoV-2...)
- Technology evolution – point of care, multiplexing solutions
- Funding considerations, including past investments
- Moving from parallel programmes to a system approach
- Integrated Diagnostics Consortium – a platform of partners and procurers in the molecular diagnostics space across diseases
The diagnostic network optimization is an approach that aims to redesign the diagnostic network set-up in order to increase access, maximize impact, and generate efficiencies.

It aligns testing demand and capacity in the most cost-effective way by defining the optimal instruments mix, identifying the most appropriate locations where instruments should be placed, and/or designing the referral network linkages across that revised network.
DNO could aim to...

- **Increase access to testing, and generate greater public health impact**, as improved device placement and integrated specimen referral network aim to bring capacity where it is lacking, and shorten turnaround time (TAT)

- **Increase operational efficiencies**, through the implementation of integrated supporting systems, such as sample transportation, results delivery and data management

- **Decrease total cost per test**, as the increase in instrument utilization reduces the contribution of fixed costs over the total cost per test

- **Create greater visibility leading to more effective allocation of funding**, increasing the value of money spent by the range of donors supporting diagnostics services in country

- **Enhance MOH decision-making capacity and coordination through greater understanding of network**

- **Create a more competitive and dynamic marketplace**, as data visibility and increased competition increase bargaining leverage with suppliers
## DNO principles

<table>
<thead>
<tr>
<th>Principle</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Be led by MoH and aligned with country health strategies and priorities</td>
<td>All the relevant disease control programs within the Ministry of Health are actively engaged throughout the DNO process, and supported by partners to drive optimization, to make final decision on optimal new network and lead implementation.</td>
</tr>
<tr>
<td>Be patient-centric and achieve improved Public Health impact</td>
<td>DNO must be centred around patients, and lead to greater public health impact. It should help MoH more efficiently and effectively deliver its diagnostics services, so more health is achieved for every $ spent.</td>
</tr>
<tr>
<td>Aim to be comprehensive</td>
<td>National is better than regional, and including multiple disease assays - based on MoH’s priorities - is preferable, so DNO becomes an integrated national exercise that leads to impact ad cost improvements across disease areas.</td>
</tr>
<tr>
<td>Be Implementable and Lead to a Sustainable Network</td>
<td>The optimal scenario that is designed through this exercise should be implementable and sustainable, under funding available. Systems should be in place to enable continuous improvement through iterative network optimization exercises.</td>
</tr>
<tr>
<td>Build accountability</td>
<td>Clear targets must be set, and a robust M&amp;E process established to ensure DNO leads to positive change once implemented, informing continuous improvements.</td>
</tr>
<tr>
<td>Not penalize any disease area</td>
<td>Every effort should be made to ensure that no disease program should be penalized as a result of a DNO exercise, in terms of access, impact and/or cost, and all disease programs should benefit overall.</td>
</tr>
<tr>
<td>Be collaborative and transparent</td>
<td>All key stakeholders act together, in a close and coordinated partnership, sharing resources and expertise, and communicating with transparency.</td>
</tr>
</tbody>
</table>
Thank you