



# DISEASE ELIMINATION

**A Strategy To End HIV, Malaria, TB and Viral Hepatitis**



**Burnet Institute**  
Medical Research. Practical Action.

# A PATHWAY TO DISEASE ELIMINATION

## ELIMINATE HIV – MALARIA – TB – VIRAL HEPATITIS

For the first time, eliminating these diseases as public health threats is now possible.

Globally, more than four million people die each year from the preventable infectious diseases – HIV, malaria, TB and viral hepatitis (B and C). They are among the leading causes of morbidity and mortality in our region and affect vulnerable communities in Australia. Many of these diseases occur as comorbidities, exacerbating illness and death. An estimated 650 million people are living with a chronic infectious disease, and billions more are at risk.

**Burnet Institute's Disease Elimination program** is a coordinated response focused on elimination of the four major diseases that disproportionately affect vulnerable communities and populations in Australia and in our region. Disease elimination is the absence of transmission of an infection from an area within a country, region or continent so that it becomes free of the infection, or transmission is reduced to such low levels that the disease is no longer a public health problem.

A two-way pipeline will be created where our research discoveries can be tested in the field, and field programs inform discovery research through our long-standing connections with vulnerable target populations in Australia, Papua New Guinea, Myanmar, China and in other African, Asian and Pacific countries.

The Disease Elimination program supports our vision of equity through better health, and the World Health Organization's global elimination targets and the United Nations Sustainable Development Goals. Australia's and the global response to these devastating diseases requires a coordinated approach to prevent new infections and stop infectious disease-related deaths.

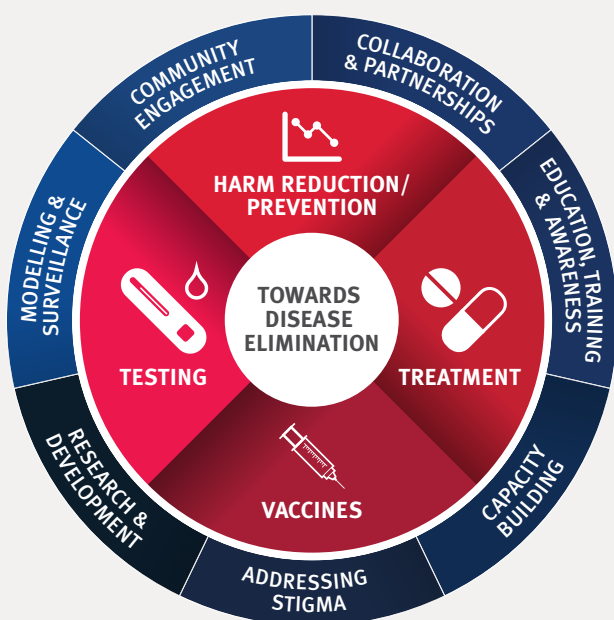
### THE WORLD HEALTH ORGANIZATION 2030 GLOBAL ELIMINATION TARGETS INCLUDE:

Ending the HIV epidemic as a public health threat

90 per cent reduction in new cases of viral hepatitis

Eliminate malaria in 35+ countries

Reduce TB deaths by 90 per cent



### ELIMINATION IS POSSIBLE

Elimination requires an integrated approach to disease prevention, harm reduction, vaccine development and use, testing to identify new and ongoing infections, and treatment strategies.

Burnet's breadth of cross-disciplinary expertise brings together a highly diverse approach to tackling infectious diseases of global significance. This enables us to make a sustainable impact on improving the health of vulnerable communities in Australia and internationally, including people living in resource-constrained settings, people who inject drugs, men who have sex with men, prisoners, and female sex workers.

Cross cutting these interventions will be further strengthening of partnerships and collaborations with communities, governments, organisations, supporters and through industry engagement.



Every **2 minutes**  
a child dies from malaria



**10+ million**  
new cases of TB each year



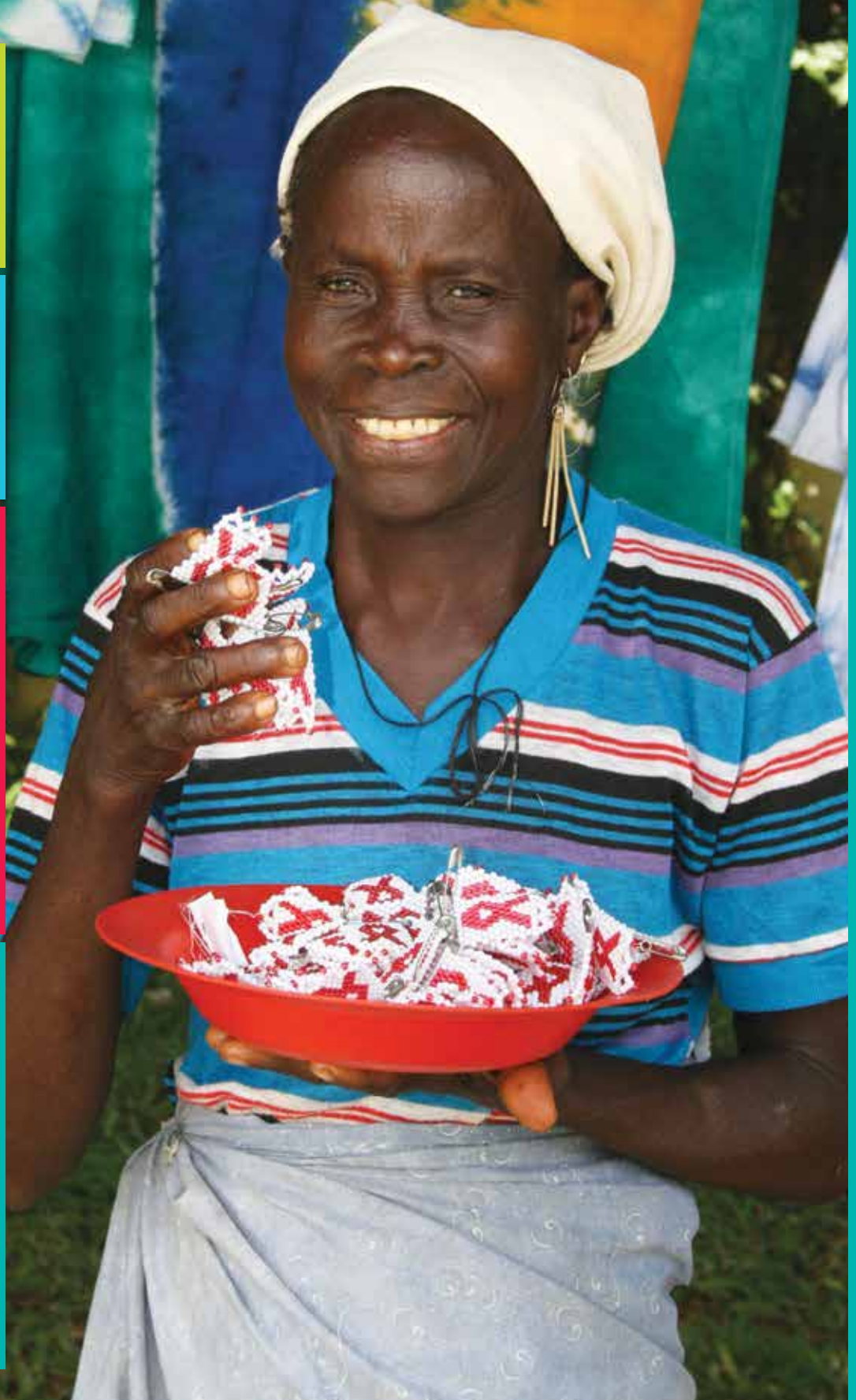
**1+ million**  
people die each year  
from AIDS-related illness

**36+ million**  
people live with  
HIV globally



**70+ million**  
people living with  
chronic hep C

**400,000+**  
deaths caused by hep C  
related liver disease





## Eliminate HIV

### GOALS

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- To facilitate reductions in new HIV infections in Australia and internationally through an improved understanding of the major drivers of transmission.
- To work towards HIV elimination by addressing key barriers to the implementation of evidence-based HIV prevention programs, and expanding access to HIV diagnosis and treatment.
- Use basic, discovery and translational research to develop, trial and implement new strategies and tools that assist in the prevention, diagnosis and treatment of HIV.

### STRATEGIES

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- Maintain and build upon close collaborations with representatives from key populations and people living with HIV in Australia and in resource-constrained settings to guide our work.
- Develop, implement and expand innovative HIV surveillance systems and bio-behavioural data collection and analyses that enhances our understanding of HIV risk and protective behaviours among vulnerable populations.
- In partnerships with government and civil society, strengthen health systems, and reduce social and legislative marginalisation and stigma of HIV risk populations.
- Generate evidence to guide innovative biomedical interventions and communication technology tools for HIV prevention, and facilitate and advocate for their implementation.
- Undertake implementation and demonstration projects, and mathematical modelling, that support and identify the most cost-effective way to expand HIV testing, treatment and primary prevention.
- Advocate for and develop evidence to support peer involvement and leadership in HIV prevention programs.
- Develop HIV vaccine candidates, new drug classes, microbicides, and diagnostics for prioritisation in clinical studies.
- Implement new diagnostic tools for rapid detection of people needing HIV treatment in resource-constrained settings.
- Better understand the biological, social, political and structural factors that lead to exacerbated HIV risk for adolescent girls and women to help guide responses to redress these gender inequalities.



## Eliminate Malaria

### GOALS

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- Reach the WHO elimination targets of a 90 per cent reduction in malaria incidence and mortality through a program of basic, discovery and translational research, and in-field education, prevention and treatment programs.
- Support country programs in our region that assist WHO in reaching targets of elimination in at least 35 countries by 2030.

### STRATEGIES

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- Build partnerships with government and civil society in resource-constrained settings that build health systems and services, which strengthen sustainable community-led responses to malaria.
- Contribute to the development of a highly effective malaria vaccine consistent with the WHO malaria vaccine roadmap.
- Develop and implement new diagnostic tools to enhance rapid and accurate diagnosis of malaria and effective treatment.
- Develop and implement innovative new strategies to identify populations with high transmission for targeted interventions.
- Develop new antimalarial drugs and combination therapies to overcome spreading resistance to current antimalarials.
- Develop new strategies to improve access among rural, remote and marginalised communities to malaria diagnosis and treatment, as well as malaria prevention and control interventions.
- Use mobile and emerging technologies to strengthen malaria surveillance and response, and enhance national malaria programs.
- Use novel modelling approaches to optimise resource allocation to maximise the impact of malaria programs in resource-constrained settings.
- Maximise the integration of basic discovery science, translational research and public health to advance innovations for malaria elimination.
- Support public-private partnerships and cross-sectoral initiatives for malaria elimination.
- Work with regional and national governments to develop and adapt policies for the prevention, diagnosis, treatment and elimination of malaria.



## Eliminate Tuberculosis

### GOALS

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- Work towards the global targets to eliminate TB as a public health threat by 2030 through partnerships, community engagement, technical assistance to national programs, and accelerating the implementation of innovation and research.
- Develop and evaluate new tools, technologies and strategies for prevention, diagnosis, treatment and care, through discovery, translational and operational research.

### STRATEGIES

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- Engage with the TB-affected community and key populations to identify their needs, empower them to be at the forefront of the response and inform our work.
- Address drug-resistant tuberculosis as a crisis and threat to global health security.
- Address TB in key populations: people living with HIV, children and adolescents with TB, people who use drugs, migrants and refugees.
- Establish and strengthen partnerships with governments, national TB programs, academic institutions, reference laboratories, civil society and implementing partners working to end TB.
- Support governments and funders to optimise resource allocation decisions and efficiency, using modelling and software tools.
- Enhance surveillance systems for TB to identify hotspots and drivers of transmission including molecular epidemiology, geo-spatial mapping and new technologies (electronic data systems and mobile health).
- Conduct discovery research to develop a point-of-care test and a test to determine priority of treatment.
- Strengthen health systems for TB, including laboratory capacity in resource-limited settings.
- Implement and evaluate integrated, community-based TB elimination strategies in low-resource settings that use a comprehensive (search-treat-prevent) approach.
- Provide technical assistance to national TB programs in program design, evaluation, implementation support and training.
- Training and capacity building for operational research within country programs and national research institutes.



## Eliminate Viral Hepatitis

### GOALS

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- Achieve a 50 per cent reduction in hepatitis C prevalence in Australia by 2020.
- Support the achievement of the WHO's hepatitis C elimination targets in Australia before 2030 with key partners.
- Work towards Global WHO viral hepatitis elimination strategy by addressing diagnosis, delivery of direct-acting antivirals, prevention and vaccine development.

### STRATEGIES

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- Establish community-based and nurse-led hepatitis C treatment programs, and assess the feasibility of scaling-up treatment in Victoria to achieve elimination.
- Develop, implement and expand innovative viral hepatitis surveillance systems and bio-behavioural research that enhances understanding of viral hepatitis risk and protective behaviours among vulnerable populations.
- Implement and advocate for harm reduction measures to minimise viral hepatitis transmission and prevent new infections in vulnerable populations.
- Undertake modelling to examine the most effective way to treat and prevent hepatitis C transmission among vulnerable populations, and maximise affordability.
- Develop point-of-care tests for viral hepatitis to determine priority of treatment in resource-poor settings.
- Accelerate progress of our hepatitis C vaccine candidate to clinical trial.
- Actively work with community groups to address stigma and discrimination.
- Progress research to better understand how the immune system controls and prevents hepatitis C infection.
- Prevent new hepatitis B infections through behavioral and vaccination approaches.
- Trial and implement novel tools and strategies to deliver best practice clinical care for hepatitis B.
- Enhance collaborations and partnerships with clinical services, government, community organisations and affected populations to improve the transition of people through hepatitis B care.
- Develop and maintain surveillance and clinical monitoring systems that help guide policy, prevention and care responses for hepatitis B in Australia and resource-constrained settings.

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## ABOUT BURNET INSTITUTE




Burnet Institute is an Australian, unaligned, independent, not-for-profit organisation that believes in equity through better health. Our mission is to achieve better health for vulnerable communities in Australia and internationally by accelerating the translation of research, discovery and evidence into sustainable health solutions.



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We have offices or representatives in Australia, Papua New Guinea, Myanmar and China, and also contribute to activities in other African, Asian and Pacific countries.

  
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