IS VICTORIA FACING AN ICE EPIDEMIC?

DISCOVERING NEW DRUGS FOR HIV PREVENTION

TIBET HEALTH: STRENGTHENING SYSTEMS, ENHANCING SKILLS
Welcome to the Autumn issue of *IMPACT*. There has been much political and public discussion over the past six months around a Medical Research Future Fund (MRFF). Unfortunately much of this has focused on a Medicare co-payment, as opposed to the significant long-term health benefits an MRFF would bring to the community. While all sides of politics agree that medical research funding is essential to a healthy Australia, and an integral factor in our ability to continue delivering among the best health and medical research in the world, very few commentators have acknowledged this to the degree it deserves.

There is international evidence that hospitals and health care facilities that do research deliver higher quality care, have better patient outcomes and are more efficient. In its 2009 final report, *A healthier future for all Australians*, the National Health and Hospitals Reform Commission presented recommendations for creating an agile, responsive and self-improving health system. Central to these recommendations was embedding research in clinical and health services settings, and fostering a culture of improvement. More recently, a key theme in the Strategic Review of Health and Medical Research (the McKeon Review) presented to the Federal Government in 2013, was that the best performing health systems are those that embed research in health delivery, leading to better health outcomes. This belies the proposition that it makes more sense to spend our limited public funds on health care, especially when it comes to the vulnerable groups in our community.

It is not true to say that almost all the medical research discoveries and cures of the future will come from beyond our shores. Australian discoveries, such as the cochlear implant and the recombinant human papillomavirus vaccine against cervical cancer, show that Australia is well and truly capable of health and medical research that has a transformational effect on the health of our community and around the world. Furthermore, a strong home-grown medical research culture and capacity is required to selectively import the fruits of the 97 per cent of medical research performed outside Australia that is relevant to our health system.

Research in many fields, including that on the human brain, genomics, genetic discovery for diseases such as melanoma and multiple sclerosis, and bionics, is increasingly undertaken through international collaborations. The MRFF investment will position Australia as a valuable collaborator and contributor to such global efforts. Having local scientific and public health expertise is vital for our national biosecurity, and for taking urgent, effective local action to protect the Australian community against pandemics such as influenza A(H1N1)pdm09, Ebola virus and severe acute respiratory syndrome, or other worldwide health threats.

The benefits of research are also finally becoming visible among our Indigenous communities, where infant mortality is falling, life expectancy is improving and, for the first time, hope is emerging that we can “close the gap” over the coming decades. The health needs of Australian Aboriginal and Torres Strait Islander people are unique and will not be addressed by research conducted in Europe or the United States.

We need to ensure a strong, vibrant and competitive medical research sector in Australia. We all benefit from its success. We just need to determine the most effective mechanism for ensuring its long-term funding.

Best wishes,

Professor Brendan Crabb AC
Director and CEO
AC honour for Professor Brendan Crabb

“An unexpected delight and tremendous honour” was how Burnet Institute Director and CEO, Professor Brendan Crabb described his Companion of the Order of Australia (AC) awarded in the Australia Day Honours.

Professor Crabb was recognised for his contribution as a malaria research scientist; for his leadership of Burnet Institute; and for his work to promote medical research through the Association of Australian Medical Research Institutes (AAMRI).

“The award is as much about the issues I care about and the people I work for. My focus is on the poorest, most marginalised and vulnerable people in our community and around the globe. Any award to me recognises them,” he said.

Former Burnet Chairman, Alastair Lucas AM said the honour was richly deserved.

“The entire Burnet family is incredibly proud of Brendan’s achievements and this recognition is just reward for Brendan’s extraordinary contribution to the community,” Mr. Lucas said.

Burnet Patron and former High Court Justice, the Hon Michael Kirby AC CMG, paid tribute to Professor Crabb as a passionate and effective advocate for practical science.

“What I like most about Brendan Crabb is that he is always concerned to interpret the complex scientific work in which he is involved to the Australian public,” Justice Kirby said.

Dame Carol Kidu
Healthy Mothers, Healthy Babies Patron

Dame Carol Kidu DBE, a tireless campaigner for women’s and children’s rights, and the first female parliamentarian in her adopted homeland of PNG is the new Patron of Burnet Institute’s Healthy Mothers, Healthy Babies program.

The five-year collaborative research program is aimed at providing life-saving health care for women and children. Having experienced infant mortality in her own extended family, Dame Carol said she understood the urgent need for a research-based approach to address the high maternal and newborn mortality rates in PNG. She welcomed Burnet’s partnership and widely consultative approach with representatives at district, provincial and national level.

“The issue of maternal mortality, maternal health and child health is not a health issue, it’s a social issue and a development issue,” Dame Carol said.

“I’ve been a strong advocate on maternal mortality, not just in PNG but regionally, and I know that we are nowhere near reaching any of the targets that we are supposed to meet.

“The need for evidence-based approaches is critical, and I’m confident that Healthy Mothers, Healthy Babies will inspire and assist enormously. But we need to remember that Healthy Mothers, Healthy Babies is only the beginning of a long road. Communities need to take responsibility for the safety of mothers and babies, and that includes men.”
HEALTHY MOTHERS, HEALTHY BABIES

Help us fit out the Kokopo laboratory

An empty room in St Mary’s Hospital, Kokopo is currently being transformed into a functional laboratory to support the HMHB research studies. While some basic equipment has arrived from Melbourne, more than AUD$80,000 is still required to fully fit the laboratory, which will analyse samples taken from women pre-and-post delivery, and from their newborn babies.

The laboratory will help change lives.

“This is going to be the first laboratory in East New Britain that has the capability of doing a range of tests. We need to be testing mothers for STIs because these are the main contributing factors to low birth weights, which we know often leads to poor outcomes for babies,” HMHB Team Leader, Pele Melepia said.

“The laboratory is going to be a huge bonus because mothers will be tested and they’ll be treated together with their partners. This will help save the baby and help the mother as well.”

For more information about how your gift could support this life-saving initiative, please contact Paul Rathbone at prathbone@burnet.edu.au or call +613 92822111.
**FINDING NEW SOLUTIONS TOGETHER!**

**“With the Healthy Mothers, Healthy Babies laboratory at the moment we can only test for STIs. If we had more money we would be able to train more lab technicians to do a greater range of tests which will help mothers and babies. That would be a bonus not only for East New Britain but all PNG.”**

— Pele Melepia

**HMHB Team Leader.**

A young local mum who was born prematurely, Pele Melepia epitomises the vision of Burnet’s Healthy Mothers, Healthy Babies (HMHB) project – finding new solutions together!

Based in Kokopo in Papua New Guinea’s (PNG) East New Britain Province, Pele is juggling the responsibilities of looking after a newborn baby with her role as Team Leader and Community Liaison Officer for HMHB.

“I really want to contribute to a research program that will not only make me understand why I was born prematurely and why some babies are born with low birth weight, but also to help other mothers and babies,” she said.

“Being a local person will make others understand it is not only just about work, but it’s about saving mothers and babies. There are a lot of mothers and babies who are suffering. I want to know more – what is it that affects the mother so she gives birth to a premature baby or at full-term but with a low birth weight baby.”

In PNG each year, more than 5,000 babies die in the first month of life. Two out of three newborn deaths are considered preventable. More than 10 per cent of newborns suffer from low birth weight, often caused by diseases affecting the mother such as malaria, tuberculosis or syphilis, and this according to Pele, can lead to a precarious outcome.

“Low birth weight is a problem. There are so many mothers who give birth to full-term babies who are smaller and have lower weight, and also premature babies. My role is also around community engagement. We need to talk to leaders in the communities about the project and how it will benefit not only mothers but also others in the community as well,” she said.

As the local Team Leader, Pele will oversee a team of six field research officers in the first of five HMHB studies. Burnet is partnering with the five busiest health facilities in the Province, both in urban and rural areas, where more than 6,000 babies are delivered each year.

The Observational Cohort Study, which began in March 2015, is recruiting up to 700 pregnant women to track their progress and health status from the first antenatal clinic visit until their child reaches one year of age.

The researchers will conduct questionnaires at the clinics and collect samples from the women and children to investigate the presence of any diseases, and to understand the women’s health care utilisation patterns. This will allow the identification of the major diseases that contribute to the deaths and serious illness of women and children, and ultimately to better address and prevent them.

Women in remote areas have limited access to health care services, if at all. But as Pele points out, women living close to Kokopo’s health centres also have to overcome many challenges to ensure a healthy pregnancy. Among the hurdles, is a lack of knowledge about when to visit a hospital if health ‘danger signs’ appear.

“The Healthy Mothers, Healthy Babies project will help to educate the communities, the mothers, and also the health workers in the hospital,” she said.

“It’s something special in East New Britain as it is the first of its kind here. It will contribute a lot to improving our knowledge, the health facilities and services.”
Once considered a death sentence, an HIV diagnosis is now a chronic manageable disease thanks to the advent of combined antiretroviral therapy. The use of HIV specific drugs, antiretrovirals, to combat the virus has had a tangible and dramatic impact on the natural history of HIV. In contrast to the grim early days of the global AIDS-epidemic of the 1980s, HIV is now treatable with increased survival rates and an improved quality of life for people living with HIV.

However, more than 35 million people are living with HIV globally and the World Health Organization reports that 2.1 million new HIV infections occur each year, primarily through sexual transmission. Of those infected, 50 per cent are women, with this figure increasing to 58 per cent in sub-Saharan Africa. Global HIV eradication will require both a cure, to eliminate the virus from individuals already infected, and a vaccine to prevent infection in uninfected individuals. But, an effective cure or vaccine for HIV remains elusive.

PrEP: drug-based intervention as prevention

Pre-exposure prophylaxis (PrEP) is gaining momentum in a variety of settings as a key tool in HIV prevention strategies. Since antiretrovirals are highly active against HIV, they are now being exploited for a different purpose as drug-based intervention strategies, to prevent the sexual transmission of HIV in uninfected individuals, particularly those who are at high-risk of acquiring the virus.

PrEP can be delivered in a variety of ways including topically to the vagina and rectum, known as ‘microbicides’, orally in the form of a pill, or as a long-acting injectable.

“The concept of topical PrEP emerged from the need to prevent HIV and to empower women to protect themselves against other sexually transmitted infections. Whilst the use of male condoms can be effective in preventing HIV, negotiating their use by male partners is often very difficult for women in many settings,” Associate Professor Tachedjian said.

“The very first microbicides were used ‘on demand’ by applying the gels to the vagina around the time of sex. However, they contained nonspecific (i.e. detergents) or moderately specific active ingredients (i.e. linear polyanions), that lacked the high anti-HIV activity of antiretroviral drugs, and failed to protect women from acquiring HIV during sex as determined in clinical trials.”

The oral PrEP approach has shown the greatest progress towards translation into practice. Several clinical trials have shown that oral PrEP, where uninfected individuals take oral pills that contain anti-HIV drugs to prevent HIV infection, is effective. But it usually relies on the participants regularly taking the drugs each day.

“Novel classes of drugs specifically for HIV prevention are urgently needed as existing anti-HIV drugs are from the same drug classes used for therapy which may lead to increased transmission of drug-resistant HIV.”

– Associate Professor Gilda Tachedjian, Head of the Retroviral Biology and Antivirals Laboratory, Burnet Institute.
Studies in couples showed that the anti-HIV drugs TRUVADA (Partners PrEP study) and tenofovir (TDF2 study) protected uninfected males or females from HIV infection, while TRUVADA was effective in men who have sex with men (IPREX study). The successful outcomes from these clinical trials has led to the approval of TRUVADA by the United States Food and Drug Administration for use as oral PrEP in individuals who are at high risk of acquiring HIV through sex. While these oral tablets are prescribed for daily use, the same risk reduction in HIV (96 – 100 per cent) is observed for men taking four versus seven doses per week. TRUVADA is not currently licensed for this use in Australia, although PrEP demonstration trials are underway.

Burnet, in collaboration with The Alfred hospital in Melbourne, is involved in the Victorian Pre-exposure Prophylaxis (PrEP) Demonstrations Project to assess acceptability, uptake, and impact of daily PrEP in high-risk individuals. Associate Professor Edwina Wright and Associate Professor Mark Stoové are contributing to this groundbreaking study of the efficacy of daily antiretroviral therapy for the prevention of HIV in people who are at high risk of infection. This could include relationships in which one partner is HIV-positive and the other is HIV-negative. The study brings together clinical, social and epidemiological aspects of the uptake of PrEP and will inform the introduction of PrEP in a comprehensive HIV strategy in Australia.

Burnet study identifying novel classes of drugs for HIV prevention

It is critical that PrEP is implemented quickly and safely to prevent more HIV infections, particularly in marginalised and high-risk populations.

“However, there is increasing concern that the anti-HIV drugs that are being used in PrEP programs are from the same drug classes used for therapy,” Associate Professor Tachedjian said.

“This overlap could increase transmission of drug-resistant HIV and would undermine future prevention efforts and compromise treatment success. Drug-resistant strains would especially have a major impact in settings with no resistance testing and limited treatment options coinciding with areas of high HIV prevalence such as sub-Saharan Africa.”

To address the risks of using existing drugs for prevention strategies, the Tachedjian Laboratory, including Dr Cath Latham, are working towards developing novel classes of drugs specifically for HIV prevention that target the vital HIV reverse transcriptase protein.

Funded by a National Health and Medical Research Council Project Grant awarded in 2013, the study brings together a multidisciplinary and multinational team of investigators from the Monash Institute of Pharmaceutical Sciences (MIPS) in Australia, and the US-based Rutgers University and University of Pittsburgh, combining expertise in virology, biochemistry, structural biology and synthetic medicinal chemistry.

“The ultimate goal is to develop drugs with distinct activities and drug resistance profiles compared to drugs currently being used for HIV therapy and PrEP, that can be delivered as either a long-acting injectable or topically in the form of an intravaginal ring,” Associate Professor Tachedjian said.

Instead of using conventional drug screening, the Tachedjian Laboratory and collaborators are employing an innovative and validated paradigm for discovering new drugs, Fragment Based Drug Discovery (FBDD).

“FBDD involves identifying very small chemical compounds or ‘fragments’ that due to their far smaller size are more efficient than drug-like molecules used in conventional screens to find new drug binding pockets in target proteins,” she said.

“Once a fragment has been discovered that binds to its target and the location of the binding pocket in the target is known at the molecular level, this information can be used by chemists to make molecules that are larger and fit more tightly in the binding pocket to generate more active inhibitors.”

The study began in 2007 with a PhD student, Jennifer La, supervised by Associate Professor Tachedjian and Dr David Chalmers from MIPS. A successful screen of a fragment library led to the identification of several fragment ‘hits’ that bound to the HIV reverse transcriptase target and validated paradigm for developing novel classes of drugs specifically for HIV with The Alfred hospital in Melbourne, is involved in the Victorian Pre-exposure Prophylaxis (PrEP) Demonstrations Project to assess acceptability, uptake, and impact of daily PrEP in high-risk individuals. Associate Professor Edwina Wright and Associate Professor Mark Stoové are contributing to this groundbreaking study of the efficacy of daily antiretroviral therapy for the prevention of HIV in people who are at high risk of infection. This could include relationships in which one partner is HIV-positive and the other is HIV-negative. The study brings together clinical, social and epidemiological aspects of the uptake of PrEP and will inform the introduction of PrEP in a comprehensive HIV strategy in Australia.

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The study began in 2007 with a PhD student, Jennifer La, supervised by Associate Professor Tachedjian and Dr David Chalmers from MIPS. A successful screen of a fragment library led to the identification of several fragment ‘hits’ that bound to the HIV reverse transcriptase target protein and blocked its activity in the test tube. One of these hits was also able to block the virus in cell culture. Further studies in the Tachedjian Laboratory showed that these hits, and their closely related chemical molecules, block the function of the reverse transcriptase in ways that are different to drugs used in the clinic.

“One of our collaborators, Professor Eddy Arnold from Rutgers University is employing structural biology to discover where the hits bind to the HIV reverse transcriptase target so this vital information can be used to optimise the most promising fragments to higher potency drug leads,” Associate Professor Tachedjian said.

“These leads will then undergo preclinical evaluation that will include expanded activity studies against the virus, and safety, bioavailability and pharmacokinetics in animal models, followed by clinical studies to ultimately develop a new class of HIV drugs for use in PrEP.”

Antiviral-Based Prevention Strategies

HIV PREVENTION

ANTIRETROVIRAL PROPHYLAXIS

› Microbicide Gel (Topical PrEP)
› Vaginal Ring (Topical PrEP)
› Oral Pre-exposure Prophylaxis (PrEP)
› Long-acting Injectable (PrEP)
› Microbicide Film (Topical PrEP)
› Post-exposure Prophylaxis (PEP)

ANTIRETROVIRAL THERAPY

› Treatment As Prevention

PMTCT

› Preventing Mother-to-Child Transmission
IS VICTORIA FACING AN ICE EPIDEMIC?

Is methamphetamine use on the rise?
– By Dr Brendan Quinn

The Australian media’s ongoing preoccupation with methamphetamine, particularly the crystalline form, colloquially known as ‘ice’, has led to heightened public concern that Victoria is facing an ‘ice epidemic’. Recent media articles declared ‘Ugly ice age hits Victoria’ and ‘Australia warned its ice problem is reaching pandemic proportions’, suggesting the prevalence of ice use is skyrocketing throughout the state and nationally. But is the popular perception the reality? Are we in the throes of an epidemic? What, precisely, is the problem with ice, and how do we address it?

Analysis suggests that ice is the purest type of methamphetamine compared to other methamphetamine forms such as ‘speed’ in the form of powder, and ‘base’, a sticky paste. This enhanced purity is associated with an increased likelihood of experiencing the myriad harms that can result from methamphetamine consumption in general (particularly as a result of more frequent and heavy use patterns), including:

- physical impairment such as acute injury/trauma, significant weight loss and malnutrition, dependence, and cardiovascular and cerebrovascular complications
- psychological co-morbidity such as anxiety, depression, psychosis, insomnia and suicidality
- the transmission of blood-borne virus and sexually transmitted infections, including hepatitis C and HIV
- involvement in criminal behaviours.

Given the substantial impact of these harms on individuals, families, communities, and the health and law enforcement sectors, any public concern resulting from potential surges in methamphetamine use among Australians is certainly understandable.

But has methamphetamine use actually increased among the general community and specific drug-using sub-groups? An examination of Australian drug monitoring research – including key studies conducted by Burnet Institute’s Alcohol and other Drug Research team – suggests not.

Firstly, the triennial National Drug Strategy Household Survey reported that during 2007–2013, the percentage of people who had used any methamphetamine in the previous 12 months remained stable, accounting for around two per cent of all Australians. However, 50 per cent of these individuals reported that ice was the main form of methamphetamine they had used in 2013, versus 22 per cent in 2010. The Illicit Drug Reporting System (IDRS) found that among injecting drug users (PWID), recent ice use remained stable during 2012–2013 at around 55 per cent. Use of other methamphetamine forms (speed and base) decreased in this group. Lastly, among Australian ecstasy and related drug users surveyed for the Ecstasy and related Drugs Reporting System (EDRS), recent use of any form of methamphetamine dropped from 61 per cent to 50 per cent during 2012–2013. Recent ice use fell from 29 per cent to 23 per cent among this group.

Importantly, these findings suggest that there has not been a considerable uptake in ice use by non-methamphetamine users. Rather, it is likely that those already using other methamphetamine forms are shifting to ice. Such evidence of stable or declining patterns of methamphetamine use contradicts the media’s depictions of an Australian ‘ice epidemic’.

Nevertheless, we are seeing indications of more
What is the best response to these changes?

Costly, stigmatising and ineffective population-wide approaches (e.g., the well-known ‘US Faces of Meth’ campaign) should be avoided. Rather, to adopt an evidence-based and non-sensationalistic approach, the following measures are needed:

- Improving treatment pathways to address barriers to service utilisation for people who use methamphetamine.

- A focus on key populations (e.g., young people, PWID, men who have sex with men) for tailored treatment and harm reduction education.

- Improving access to sterile injecting equipment by expanding needle/syringe program opening hours, implementing vending machines in high-use areas, and distributing clean smoking paraphernalia through existing services (noting that selling and possessing ice pipes is illegal in some Australian states and territories, including Victoria). This will cater to the differing schedules and sleep-wake cycles of methamphetamine users and aid in preventing the spread of blood-borne virus infections.

- Continue education of frontline workers such as police and ambulance paramedics about methamphetamine use (e.g., use contexts, patterns and related harms) and how to adequately address users’ needs.

The recent redevelopment of the Victorian drug treatment sector provides an opportunity to be more responsive to the needs of clients, including those who use methamphetamine. We must avoid inaccurate, stigmatising and scare-mongering depictions of drug use in the community, and focus on implementing evidence-based treatment and harm reduction initiatives.

Burnet’s work to address crucial knowledge gaps

Burnet researchers are involved in addressing crucial knowledge gaps around methamphetamine use in Australia and contributing to relevant policy and program development.

What is methamphetamine?

> Methamphetamine is an illicit, synthetically-produced stimulant. It acts on the body’s central nervous system, causing the release of monoamine neurotransmitters including norepinephrine, dopamine and serotonin.

> Desired benefits of methamphetamine use include enhanced feelings of euphoria, wellbeing, self-esteem, alertness/wakefulness, increased libido and reduced appetite.

> Adverse consequences of methamphetamine use include increased blood pressure, bruxism (teeth clenching, grinding), cardiac arrhythmia, stroke and numerous psychological outcomes.

> Methamphetamine is produced, sold and used in various forms. In Australia, the two main forms of methamphetamine are ‘speed’ powder and crystal methamphetamine/‘ice’. Ice is generally considered to be of higher purity.

> Methamphetamine is commonly ingested via smoking, injecting, snorting or oral administration.

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**Figure 1:** Scott, N., Caulkins, J. P., Ritter, A., Quinn, Q., & Dietze, P. (2014). High-frequency drug purity and price series as tools for explaining drug trends and harms in Victoria, Australia. *Addiction*, DOI: 10.1111/add.12740.
Expansion appears the natural next step for the PRONTO! rapid HIV testing service, judging by the overwhelming community response at this year’s GLBTI Midsumma Carnival in Melbourne.

It was the first time rapid HIV testing had been offered at a Victorian festival or public event, and interest was so strong the service was booked-out by early afternoon at Alexandra Gardens.

Feedback at Midsumma indicated that while clients tested regularly with their doctor, many were not previously familiar with PRONTO! - a joint initiative of Burnet and the Victorian AIDS Council - and were trying it for the first time.

Operating from two mobile testing vans, PRONTO! offered the Midsumma Carnival clients the same peer-managed service available from the PRONTO! clinic in Fitzroy. The process takes just 30 minutes, including a 10-minute turnaround for the rapid HIV test results.

Head of Burnet’s HIV Research Group in the Centre for Population Health, Associate Professor Mark Stoové, said there were many lessons to be learned from taking PRONTO! into the field.

“One of the important things is to demonstrate that you can be in these types of spaces and people find testing comfortable and acceptable in a social environment. I think what Midsumma demonstrated is that it’s a highly-acceptable place for people to go and test,” he said.

“What we now need to think of is how we use the branding of PRONTO! to expand using different outreach models, because a single fixed site in Fitzroy in Melbourne necessarily has only a finite amount of reach.”

Associate Professor Stoové also identified scope to refine the consultation process and to promote the service more prominently at public events, while respecting the clients’ entitlement to privacy and confidentiality.

The mobility of a PRONTO! service delivered from an onsite van offers the potential to reach Victorian communities outside inner Melbourne.

“We’ve had plenty of feedback that the service is great, but it needs to be accessible to people outside inner urban Melbourne and go into the suburbs and rural and regional locations. That’s the real benefit of point-of-care testing, that it can occur in a whole range of environments that otherwise couldn’t offer this kind of testing,” he said.

“There’s potential to link in with the Country AIDS Network for example, so that you have something like a travelling road show equivalent of a mobile library.

“We could be in, say, Bendigo on the first Monday of every month and regional communities will know there’s a regular testing day.

“Over the coming years we need to refine the model so that it becomes a feasible, sustainable and cost-effective way of getting large numbers of people testing frequently.”
by 2020

‘90-90-90’ by 2020 was declared at last year’s International AIDS Conference in Melbourne as the new ambitious global target set by UNAIDS in the pursuit of ‘Getting to Zero’. This would require:

- **90%** of people living with HIV **KNOWING THEIR STATUS**
- **90%** of people diagnosed with HIV **TO BE ON TREATMENT**
- **90%** of people on treatment **TO HAVE SUPPRESSED VIRAL LOAD**

by 2030

UNAIDS TARGETS PROJECTED:

**TO END THE HIV EPIDEMIC**

Meaning a reduction in annual HIV transmissions by **90%**

**TO AROUND 200,000 NEW ANNUAL INFECTIONS GLOBALLY**

**IN AUSTRALIA** this would mean:

- **1200 CURRENT ANNUAL DIAGNOSES**
- **120 NEW CASES**

Pursuit of ‘GETTING TO ZERO’

Head of HIV research in Burnet’s Centre for Population Health, Associate Professor Mark Stoové, outlines the implications for Australia.

‘90-90-90’ by 2020 was declared at last year’s International AIDS Conference in Melbourne as the new ambitious global target set by UNAIDS in the pursuit of ‘Getting to Zero’.

In Australia, this would mean a dramatic reduction from the current 1,200 annual diagnoses to just 120 new cases in 2030. But is such a decline in diagnoses realistic in a country already doing well in relation to the ‘90-90-90’ indicators?

Our best estimates suggest about 86 per cent of people living with HIV know their status, about 80 per cent of people diagnosed are on antiretroviral therapy (ART), and about 85 per cent of people on ART are virally suppressed. We also have reliable data at high caseload clinics in Melbourne and Sydney that overall HIV testing numbers among gay men are increasing. Yet in this context we have still seen increases in annual HIV diagnoses over recent years that remain at post-HAART (highly active antiretroviral therapy) era highs.

Often bold declarations about disease outcomes such as ‘Getting to Zero’ dominate prevention success or failure, yet these are sometimes more politically driven than evidence-informed.

If Australia plays the numbers game, are some HIV prevention programs considered a failure because changes in diagnoses are not consistent with getting to zero? Are they considered a success if the numbers of undiagnosed HIV and the numbers on treatment are approaching the ambitious UNAIDS targets?

We must ensure we focus on the right measures of success, not simply the number of people diagnosed with HIV. We must also recognise that despite our best efforts, there will always be a certain number of people unaware of their status and people who, for whatever reason, engage in risk.

‘Getting to Zero’ new infections must be viewed as a laudable, aspirational goal, rather than an absolutist yardstick measuring prevention success or failure. Such a goal can however:

- Inspire us and drive our prevention efforts
- Provoke a sustained commitment and investment from government
- Encourage innovative services like peer-delivered and community-based HIV testing at PRONTO!
- Drive health systems to offer people choice such as allowing home-based testing for those who want it, or providing opportunities to access PrEP (pre-exposure prophylaxis)
- Deliver effective collaborations between community organisations, such as the Victorian AIDS Council and Living Positive Victoria, and research organisations like Burnet Institute.

While we enjoy our freedoms in Australia, these are not always shared equally. Aspirations of ‘Getting to Zero’ also means a global push towards ZERO discrimination.
TIBET HEALTH: Strengthening systems, enhancing skills

“The right program, at the right time, in the right place, with the right people.”

That was the conclusion of a recent independent technical review of the Tibet Health Capacity Building Program (Tibet Health), an Australian Aid program underway in the Tibet Autonomous Region (TAR), managed by Burnet Institute in association with Australian Red Cross. Implemented in partnership with the Tibet Regional Health & Family Planning Commission, Tibet Health represents the latest in a decade-long relationship between the three agencies, funded by the Australian government, working together to strengthen the TAR health system.

Tibet Health focuses on providing technical support to improve management and clinical capacity within the TAR health system. Since 2012, training for more than 1,000 senior and mid–level managers from health bureaus, hospitals and Centres for Disease Control has been conducted. Guided by the TAR’s plan for health reform, the program supports participants to plan and instigate changes in their own workplaces based on theoretical training. Tibet Health also provides opportunities for managers and staff not directly involved in program activities to join study trips to observe and learn more about successful approaches adopted elsewhere.

Standardising practice to promote systems improvements

A key early activity supported the Tibet Regional Health & Family Planning Commission (TRHPC) in developing guidelines for county hospitals and township clinics to standardise services. After intensive consultation between TAR and national experts, these service guidelines were approved nationally and are currently in use. It is expected their application will strengthen county hospital and township clinic staff capacity in management and priority clinical areas, and assist the TRHPC to assess and monitor the provision of services.

Bomi County Hospital has established a clinical and nursing quality leadership group, developed a performance assessment scheme, rebuilt pharmacy and patient registration points, and developed a hospital classification assessment plan.

Building capacity for sustainable change

Tibet Health seeks to provide technical assistance to support capacity building at individual, organisation and health system levels, drawing on expertise from within China, and, increasingly, from within TAR and the western region of China. Providing the opportunity for national and local experts to collaborate has created and nurtured professional networks.

“Before I attended the TOT, I was not good at interacting with trainees and I did not usually listen to feedback about my training. I only prepared PowerPoint slides, but never thought about training methodology. Now I think about what methods I should use to improve training outcomes, what the trainees will be interested in and how to evaluate the training outcomes.”

Paediatrician, Dr. Dazhen, at Regional No.2 People’s Hospital, TAR.

Building the capacity of health trainers working within the TAR health system also involves a training–of–trainers (TOT) course, tailored by an expert from the University of Melbourne. It is delivered by a group of national and international experts, providing a series of modules to a group with responsibilities for medical training at Tibet.
University Medical College and within hospitals.

As their skills and confidence increase, it is expected some TOT participants will co-facilitate or lead select sessions of the paediatrics, gynaecology and obstetrics clinical skills training initiated by Tibet Health in 2015. This training will target county, and maternal and child health hospitals, and will improve the quality of services available to mothers, babies and children.

The first phase of Tibet Health concludes at the end of 2015. Much progress has been made towards realising the program’s goal of improving the health of the people in Tibet, reinforcing this through improving clinical and management capacity within the health system.

As one respondent to the recent technical review commented: “A focus on capacity building is more sustainable than providing equipment.”

Ensuring safe blood supply in Lhasa and beyond

The Regional Blood Centre (RBC) has been supported since its inception in 2005 by Australian Aid, initially through the Tibet Health Sector Support Program (2004-2010) and more recently by Tibet Health.

In 2013, the RBC, through the Tibet Health program, addressed challenges in both management and technical capacity. A plan developed by an expert from Shandong University enabled managers to join the senior level management training series. It also invited experts from two leading Beijing hospitals to lead tailored clinical training and support a study tour for managers from RBC and prefecture blood stations to visit three inland blood centres to observe processes.

These initiatives have led to increasing confidence among RBC managers to lead change, strengthened internal management processes and improved motivation of staff.

New processes to manage blood collection and record keeping have been developed, new methods of blood donor recruitment trialled, and a blood donor law drafted for consideration by regional authorities.

Burnet in China

From the rural setting of the Tibet Autonomous Region to our biomedical research laboratory in Nanjing, Burnet continues to strengthen its long-term commitment to its China program.

Building on nearly 20 years of engagement, Burnet is actively developing its presence in this complex and fast-changing environment.

“Our team is doing an incredible job of supporting tangible improvements in the management and delivery of essential health services. This is quite distinct from our emerging program of biomedical research with partners in Beijing, Shanghai and Nanjing, which focuses on our expertise in translational research. Our vision for the China Program is a complementary suite of initiatives that are responsive to local priorities and capacities, working collaboratively with our partners to deliver better health for all.” – Ms Lisa Renkin, Head, China Program, Burnet Institute

Recent successes with sourcing Chinese government grants and independent Chinese investment have supported the establishment of the Institute’s first commercial offshore entity, in Victoria’s sister-state Jiangsu. The Institute’s Nanjing-based company, Nanjing BioPoint Diagnostic Technology Ltd will facilitate the development of a low-cost, point-of-care assay for liver function, and eventually become a vehicle for a pipeline of Burnet diagnostic innovations with ready access to domestic Chinese and global markets.

A continuing focus on public health research in the Western region of China includes our partnership with Kunming Medical University, the National Centre for STDs, the National Centre for Women and Children’s Health (part of the Chinese CDC system), and joint initiatives such as field validation studies for the VISITECT® CD4 point-of-care test to be conducted in Guangxi and Yunnan provinces.

For more information on Burnet’s China Program visit burnet.edu.au
It’s been my honour to play a role in three of the four technical cooperation projects funded by Australia in the Tibet Autonomous Region (TAR) of China since 1998, with a primary focus of supporting Tibet’s health system. The most significant change over time has been the shift away from requests by counterparts for physical resources and towards capacity building.

Tibet Health was designed to provide support to build the capacity of individuals, health agencies and the health system. Since its commencement, the program has been assisting the Tibet Regional Health and Family Planning Commission (TRHFPC) to fulfill the Twelfth National Five Year Plan for Health, which concentrates on improving health system capacity through improved management and clinical capacity from regional to township level.

Strategically, the program works with the TRHFPC to develop guidelines and standards while ensuring that its plans are aligned with the TAR’s. In practical terms, the program provides support to individuals and agencies in the form of training, work placement, study tours, field guidance and qualification courses. The program is designed to raise awareness of good practice, apply skills learnt through training, and institutionalise these standards.

During the first two years of the program, a range of training activities including hospital management, public health management and clinical workflow has been provided. Following the training, many participants have carried out operational research (or ‘field improvements’, as the term is best understood in China) through the program field activities or under their own auspices. These include modifications to management rules and regulations, revised clinical standards, and setting up new rules or committees for improving the management of essential areas within the agencies, such as hospital infection control. Key counterparts have been closely involved in the development of guidelines and standards. This has proved to be one of the most effective ways to build capacity and promote ownership, as well as encouraging sustainability.

Of the many factors contributing to the effective implementation of the program, a strong, well qualified team is at the top of the list. The program’s 10 technical staff – comprising two PhDs, six with Masters’ degrees and two with Bachelor’s qualifications – has extensive international and TAR-specific experience. As the program is developing, so too is the professionalism of its team members. This has long-term benefits for the ongoing health system reform currently underway throughout China, as I’m sure our team members will continue to contribute to improvements in health outcomes well beyond their time with us here in Lhasa.

“The Tibet Health program is rightly viewed as a prime example of collaborative development through partnership at all levels. An extremely skilled and talented team is led by our excellent Team Leader, Lai Youwen (Tony). His vast experience, extensive networks, institutional memory, and the esteem in which he is held, make him the perfect advocate for improving health system capacity in Tibet.”

– Professor Robert Power, Program Director, Tibet Health, Burnet Institute.
“I lost my sister Daniela to a brain tumour when she was only seven. After all these years, she’s still here with me.”

Dr Irina Caminschi
Burnet Institute

We need to raise $250,000 by 30 June to help Irina and other Burnet cancer scientists apply their immune system research into new forms of treatment.

“My sister’s death had a profound impact on me.
I was only three when she passed away. As a young girl I remember asking my mum so many questions about cancer, but she didn’t have any answers. We’ve made remarkable headway in recent years but funding has never been so tight and we rely on you to take our research to the next level.” – Irina

Please give today!
A gift in your Will may lead to the next breakthrough

“I have lived with HIV for 30 years and owe my life to medical research. I’m proud to have left a gift in my Will to help Burnet change the lives of people living with HIV.” – Paul

Every gift in every Will, no matter how small or large, is appreciated and helps Burnet Institute create a healthier future.

For a confidential discussion about your wishes, please contact:

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