

Zunyou Wu and Elizabeth Pisani

*Hesitation should be avoided. We must be practical, realistic
and open-minded*

(Former Vice-Premier Wu Yi)

Even before the extent of the epidemic became more reliably known, China's leaders had signalled their renewed determination to tackle HIV in all of its dimensions, social and economic as well as medical. Because dedicated health officials and researchers had been running pilot programmes and building up evidence for well over a decade, there was a lot of information available about which approaches might work best. But most of these approaches went against the grain for many of the local politicians and senior bureaucrats who would have to implement them across the nation.

Former Vice Minister of Health Longde Wang told a story that illustrates some of the early obstacles to getting local leaders on board. At a conference, the Vice Minister ran into a professor from the Communist Party Central Committee's training academy. "He told us that the Vice President of Party School prohibited staff from giving trainees information about HIV/AIDS prevention". The Vice Minister thought this was a lost opportunity to create long-term political support for the fight against AIDS. "If leaders and cadres understood the significance of HIV/AIDS control and prevention, it would be easy to promote interventions in the areas where they governed", he said. The Vice Minister and his staff made an appointment to meet the Vice President of the academy. They pointed out the

Z. Wu, M.D., Ph.D. (✉)

National Centre for AIDS/STD Control and Prevention, Chinese Centre for Disease Control and Prevention, Beijing, China

e-mail: wuzy@263.net

E. Pisani, M.A., M.Sc., Ph.D.

The Policy Institute, King's College London, London, UK

seriousness with which national leaders viewed HIV/AIDS. “We said it was inappropriate to forbid the distribution of an AIDS booklet in Party School”. Not only did the academy Vice President accept their argument, he went further than the Vice Minister had hoped. He invited the Ministry of Health to provide not just booklets but lectures on HIV/AIDS for all party cadres attending the academy. The Vice Minister seized the opportunity. “At the same time, I suggested running a nationwide audio-visual education programme to allow more leaders and cadres in our country to learn these lessons”. The video training, conducted in June 2006, was a great success, attended by some 120,000 government officials. “The situation turned upside down after the lecture”, the Vice Minister noted.

However, he stressed that this sort of initiation for politicians and senior civil servants had to be institutionalised and firmly embedded in regular leadership. “In our [increasingly decentralised] administrative system, there’s a high turnover of leaders. A leader might be supportive of HIV-related work, but when he or she leaves, it’s not by any means certain that their replacement will understand its importance”, Wang said. He told the story of a city mayor who removed an AIDS prevention billboard that his predecessor had erected near the central railway station. “He thought that the publicity would have a negative effect on the image of the city”.

As Chap. 4 mentioned, a frank and impassioned speech by Vice-Premier Wu Yi to the revamped State Council HIV/AIDS Working Committee in July 2004 provided both the permission and the motivation to move forward on a large scale with the unorthodox approaches that had been tried out by the AIDS warriors in the earlier years of the epidemic. The Vice-Premier reminded colleagues that the epidemic related to blood collection was firmly under control, leaving the country to deal with epidemics driven by sex and drug injection, as well as the transmission of HIV from mother to infant. She noted that some interventions in these areas had worked, mentioning specifically condom promotion, needle exchange and methadone maintenance. “But these are only limited pilot experiments” she said. She recognised that they remained controversial in some quarters: “People have different views about them; there are still obstacles in understanding and more work needs to be done around implementation. But hesitation should be avoided. We must be practical, realistic and open-minded. These effective interventions must be firmly put into practice to prevent the further spreading of [the] HIV/AIDS epidemic”.

Here it was, then, a clarion call from the highest level of government to scale up controversial but effective programmes. Immediately, the HIV specialists in the Ministry of Health grabbed the opportunity they had been working towards for so long. The remainder of this chapter describes the successes and continuing challenges China faced in its first phase of rapid programme scale-up.

6.1 HIV Testing as a Gateway to Care

The least controversial area for HIV programmers was providing treatment to those infected with the virus. This was almost universally regarded as desirable, at least in areas where many people had become infected by selling or receiving blood. It was also the central commitment of the high profile “Four Frees and One Care” policy.

Though, as discussed in Chap. 5, HIV testing can sometimes generate debate, it is unquestionably an entry point for care. In 2004, slightly fewer than 20 million HIV tests were carried out in China. These included antenatal testing for pregnant women, as well as all of the tests undertaken in the targeted mass screenings that year. While the number seems vast, the data shown in Fig. 10.9 in the Chap. 10 show that it was to rise quite steadily to more than seven times that number by 2015.

In 2005, after the larger screenings of higher-risk groups were over, close to 41,000 HIV infections were newly identified during 25.3 million tests, a positive-to-test ratio of 0.16%. Ten years later, 143.6 million HIV tests were performed, and over 115,000 infections were identified for the first time; though the ratio of newly identified cases to tests halved, the number of cases identified rose by 143%. The number of places where people could go to get a test rocketed also. In 2007, there were fewer than 3700 testing sites, many of them funded by external organisations to provide voluntary counselling and testing services. By 2015, over 24,700 sites provided testing, one-third of them to individuals who sought out tests voluntarily. The other tests happened in hospital and clinic settings or in places where people at high risk gather. Details of who was tested for HIV in 2015 are given in Table 10.1 in the Chap. 10.

Recently, a trial was conducted to see whether HIV testing could effectively be offered as a routine part of service provision in community health centres, which provide the bulk of primary care in China. By selecting patients who were likely to be at risk, the primary health services detected more cases per test than hospitals did. But in some areas, there is still resistance from care providers to integrating HIV testing into routine primary healthcare. HIV testing adds to their workload, the follow-on services for care and treatment are not always easy to access at the community level and discrimination remains rife. Some worry that patients will be put off seeking treatment for other conditions if they know they'll be tested for HIV [2]. "The will of the mass is not same as the expert's will, but it is also worthy of respect", observed one Chinese doctor involved with HIV testing policy.

China's latest HIV estimates, made with much the same methods as those used in 2005, put the number of people living with HIV in China at 850,000 in 2015. By the end of 2015, 577,423 people had been reported as having confirmed HIV infection since the start of the epidemic, not including 182,882 reported to have died of AIDS. In other words, about 68% of those believed to be currently living with HIV in China have been identified. To go in less than a decade from a state of overwhelming denial to one where more than 60% of those who might need care have been identified is no small achievement.

One thing continues to perplex health officials, however. With the extraordinary scale-up of testing, and especially with efforts to encourage those most likely to be at risk for HIV to come forward for regular tests, authorities expected that they would over time identify people in need of care much earlier in the course of their infection. As we explain below, that's important because earlier diagnosis leads to more effective treatment. Doctors estimate the progression of untreated infections by counting a patient's CD4 blood cells to determine how badly compromised their immune system is. Thinking massive targeted testing would mean earlier diagnosis; they expected to see CD4 count at first diagnosis to rise. In fact, however, it has

remained stubbornly low in some groups. People infected heterosexually are especially likely to present late for testing, perhaps because they do not feel at risk and are less likely to be targeted by public health or outreach programmes than other groups such as drug injectors, sex workers or men who have sex with men.

In an effort to open the door to treatment for even more of the people who need it, Chinese health officials have thus pioneered another intervention that some consider unorthodox: the active tracing and testing of regular and casual sex partners of newly diagnosed individuals. For years contact tracing, as this practice is known, had been considered taboo in the international HIV community; people feared that it would expose the infected partner to blame, rejection or violence. China began contact tracing in the central provinces where most people had been infected while selling plasma, a behaviour that was not frowned upon by society. They judged that offering infected partners treatment and protecting HIV-negative partners from becoming infected was justification enough for actively encouraging people to disclose their status and bring their partners for testing. When the policy was first actively promoted in 2006, the regular sex partners of around 35% people with newly confirmed diagnoses were followed up for testing. By 2012, an astonishing 90% of the spouses or live-in partners of infected heterosexuals had been tested and knew their own HIV status. Those that test HIV negative are actively encouraged to repeat the testing every year.

6.2 The Rocky Road to Treatment

A positive HIV screening test is just the first of several steps towards HIV treatment. Though antiretroviral treatment was also provided free from 2004 under the “Four Frees and One Care” programme, patients had to find money to pay for up to 11 other laboratory tests before they could qualify for free treatment. The costs varied a great deal by region: one study measured them at less than US\$30 in some sites and over US\$150 in others [3]. National protocols required any patient with a positive result on their screening test to come back later and give blood for further testing. About a third of patients never bothered to come back [4]. Blood samples for those who did come back were sent for another screening test at a higher-level laboratory; if that test was positive, the result was confirmed by a test known as a Western blot, which is expensive and complicated to perform. It could take up to a month to go through all the steps required just to get a confirmed HIV diagnosis; in that time health staff sometimes lost contact with patients even before they could be referred to the next stage, the CD4 test. Here was another opportunity for potential patients to be lost to the system. In 2006, at the start of the treatment scale-up, just 20% of those with confirmed HIV diagnoses (and only 13% of those who had initially screened HIV positive) went on to get a CD4 count within six months. In that time, their immune systems suffered further damage, which diminished the prospect for successful treatment. A careful analysis of the national database showed that 9% of people newly diagnosed with HIV between 2006 and 2012 died within 6 months. Seven out of ten of them never got a CD4 test, so they

couldn't access the medicines that might have saved their lives [5]. Figure 10.11 in the Chap. 10 shows how dramatically that has changed.

CD4 tests are important because they give doctors a good indication of how well a patient's immune system is functioning. CD4 cells are an important part of a healthy immune system, defending the body from other infections. A healthy adult will normally have somewhere between 500 and 1200 CD4 cells per millilitre of blood. But HIV attacks those cells, so that over time there are fewer and fewer left, and the body is therefore less and less able to defend itself against disease. When the CD4 cell count falls below 200 or so, people begin to suffer from things that would normally be fought off by the immune system. In the context of HIV infection, these are known as opportunistic infections: they are one of the defining characteristics of the syndrome known as AIDS. An analysis of treatment and survival among those diagnosed in the earlier years of the expansion of China's treatment programme (until 2009) found that CD4 count at diagnosis was exceptionally important in explaining who lived and who died. People who had a CD4 count of between 50 and 199 were twice as likely to die over a given year as those with higher CD4 counts (even though the sicker people were also 2.6 times more likely to be taking antiretroviral treatment). People whose first diagnosis did not come until their CD4 cells were reduced to fewer than 50 per millilitre were between five and six times more likely to die.

This analysis added to a growing body of evidence from around the world showing that sooner was better as far as treatment was concerned. When China first started to scale up HIV treatment, it offered free antiretroviral medicine to anyone whose CD4 count was below 200. That was in line with common practice in lower-income countries at the time. But with new evidence of the strong link between early treatment and survival, China's policymakers changed the rules. From 2008, anyone whose CD4 cell count was below 350 cells per millilitre of blood became eligible for treatment. In 2006, 47% of people qualified for treatment at their first CD4 test. The remainder were asked to come back for tests every 6 months until they fell below that threshold. With the change in rules, a total of 61% of confirmed cases qualified for medication. That added 5000 people to those eligible for treatment just among that year's diagnoses. The treatment threshold was raised again in 2014, so that anyone with CD4 counts below 500 – the lower limit of the normal range – could access free antiretrovirals if they met the other residence and income requirements. Finally, in February of 2016, the government announced it would get rid of the CD4 threshold entirely: anyone with a confirmed HIV diagnosis can seek treatment immediately.

6.3 Getting Medicine to Those Who Need It

Despite repeatedly expanding the pool of people eligible for treatment, China managed to increase not just the number of people on treatment but also treatment "coverage" – the proportion of people who qualify for antiretroviral medications who are actually getting them. In 2005, fewer than one in ten of the Chinese citizens

who had tested eligible for treatment were receiving antiretrovirals. As Fig. 10.12 in the Chap. 10 shows, by 2015 it was closer to nine in ten. In large part because more and more people could get life-saving treatment, the death rate among people with HIV infection plummeted, from 18% a year in 2005 to below 4% in 2015.

The country enrolled close to 108,000 new patients on treatment in 2015, over 12 times as many as were enrolled just 8 years earlier. (For comparison, the number of new patients starting treatment in China in 2015 was about 25% higher than the total number of people ever on treatment in the United Kingdom.) In total, over 387,000 people were receiving antiretroviral treatment in China in 2015.

The sharp rise in treatment, in terms both of coverage and of raw numbers, is an unprecedented success by any measure. However, some public health officials were dissatisfied that every year, over 50,000 people who were known to be eligible for treatment were not getting it. They also knew that the real number in need was higher: the stubbornly low CD4 counts at first test showed that most people were still not coming for testing until they had been infected for several years. And when people did come for testing, the dropout rate between initial screening and entry into care was unacceptably high. That was clearly leading to unnecessary deaths. Overall, 64% of the 21,000 people with a confirmed HIV diagnosis who died in China in 2013 did not survive long enough to begin treatment, and over a third never even got a CD4 count.

In response to this, health officials experimented in two counties with a “one-stop shop” system for diagnosis and entry into HIV care. Between 2010 and 2014, they consolidated the four separate steps previously taken by prospective patients between HIV screening and HIV treatment down to just one. Any person who screened positive at any site in the study area was given an appointment at the local county hospital the following Wednesday. At that hospital visit, blood for confirmatory and CD4 tests was drawn, and the patient underwent a physical exam by a doctor trained in AIDS care. The doctor prescribed immediate treatment for opportunistic infections if needed. Results of the blood tests were returned to the county hospital within 48 h: hospital staff were incentivised to follow up with all patients in need of care. The results were dramatic. The time between a first positive screening test and initiation on antiretrovirals for those that needed them was roughly 2 months using the standard system. The “one-stop shop” system brought that down to less than 2 weeks. Under the old system, fewer than 40% of people with a confirmed HIV infection ever even started taking antiretroviral medicines, and more than one in four died within a year. With the “one-stop shop”, 90% of newly diagnosed people who met the threshold were given medicines, and just one in ten of all those diagnosed died within a year.

It would doubtless be a logistic challenge to provide these one-stop testing and treatment services in all of the 4226 health facilities across the 2415 counties of China that are currently providing antiretroviral medicines for those that need them. But the progress that China has made so far in providing treatment on a massive scale and the dedication of public health officials to trying new things to improve services for users suggest that the country will rise to this challenge more quickly than many would have thought possible just a decade ago.

6.4 Making Treatment Work for Patients and Doctors

Of course getting people on to antiretroviral treatment is not the end of the story. HIV medicines only work if they are taken correctly and consistently. Even then, patients can develop resistance or react badly to particular medicines in the “cocktail” that makes up the treatment regimen. Often, patients need support to help them follow their treatment regime. “Treatment is not just pills, it’s an approach”, explained Bernhard Schwartländer, a physician and former UNAIDS representative who now heads the World Health Organization office in China. “To get sustained viral suppression, the system needs to work for the patient; you need adherence support, and simplified regimens”. That means, for example, giving patients medicines that combine several different active ingredients in one pill, so that they do not have to remember to take several different pills at different times of the day. Combined formulations of pills, often known as “fixed-dose combinations”, have been available on the international market since 1997, but they are not licensed for sale in China. Public health authorities in China would like to see that change.

The early focus on provision of antiretroviral medicine eclipsed another area that some argue is equally important: the treatment of the opportunistic infections that feed on a weakened immune system. If people wait until they feel unwell to present for testing, it is likely that they are already suffering from one or more of these other infections when they are first diagnosed with HIV. Unless these infections are treated quickly, patients could die of tuberculosis, pneumonia or other illnesses before the antiretroviral medicine has a chance to get to work suppressing HIV and restoring the immune system.

Most opportunistic infections are cheaper to treat than HIV. But, especially in the early years of the “Four Frees and One Care” programme, the cost of treating secondary diseases was not automatically covered by the government. In 2004, the Ministries of Health and Finance directed local governments to pay for the treatment of opportunistic infections for those patients who could not afford it, but this instruction was implemented very unevenly. In 2005 and 2006, an international charity working in two provinces recorded what patients would have had to pay out of their own pockets if they weren’t sponsored by the NGO. They showed that the expense of treating other infections ranged between US\$140 and US\$400 a year for patients who did not need hospitalisation and between US\$1200 and US\$4000 a year for patients with complex diseases that required advanced hospital care [3]. Since then, efforts have been made to expand free or subsidised treatment of other diseases associated with HIV. But former Vice Minister of Health Longde Wang said much remains to be done. Speaking a decade after that study was undertaken, he said: “The rate of antiretroviral treatment will not be increased without treating opportunistic infections”. The reason for this is partly embedded in the incentives through which hospitals and doctors get paid. Historically, Chinese hospitals (and by extension doctors) have derived a significant portion of their income by selling drugs to patients. By introducing free HIV treatment, the government cut off a potentially important source of income. HIV is the most

stigmatised infection in China, so health professionals were already reluctant to work with AIDS patients; removing the added income that they might earn from drug sales (by making antiretrovirals free) further reduced the enthusiasm of many doctors for treating these patients.

One way for a hospital to reduce the number of HIV-related patients it had to deal with was to refuse those patients care because they could not afford to pay to be treated for the associated opportunistic infections, which were not always covered by public programmes. “HIV/AIDS cases, most of whom were very poor, went to medical institutions for free treatment. However, the medical institutions still have to support the [rest of the infrastructure of care] because only 3–5% [of the associated cost of care] was subsidised by government”, explained Wang. “HIV/AIDS patients get free antiretroviral treatment in hospital. But, besides HIV, they also contract opportunistic infections, for which there is no free treatment policy. The patients may not be able to afford the treatment. Hence, not every patient can be accepted to get treatment in hospital”. The Vice Minister believed that free treatment should be systematically expanded to include opportunistic infections: “The government should pick up the cost of both of these types of treatment. Because it is not only a personal issue; it also relates to the transmission of an infectious disease”. But he suggested that more action would be needed to resolve the problem of disincentives to treat HIV patients on the part of hospitals. “Maybe we can solve the problem through medical and health service reform”, he said.

Certainly, there are still challenges to be met in increasing the proportion of people who learn of their HIV infection soon after it occurs and in optimising treatment. So far, however, things are headed in the right direction: the number of infections identified continues to rise faster than estimates of new infection; the proportion of people with identified HIV infection in need of treatment who receive antiretrovirals continues to increase and the death rate among both treated and untreated patients has fallen markedly.

6.5 Preventing HIV Transmission from Mother to Infant

Among HIV prevention programmes, just one has developed with relatively little controversy: the programme that aims to help pregnant women to avoid passing the HIV virus on to their newborn children, often referred to by the initials PMTCT, for “prevention of mother to child transmission”. HIV-infected women can pass the virus on to their infants during pregnancy, during the process of childbirth itself and during breastfeeding. Efforts to prevent this transmission start with HIV testing for pregnant women, ideally early in their pregnancy. Those identified as HIV positive should be treated with antiretroviral drugs. In addition, the newborn infant is treated with the drugs for a short period, to reduce susceptibility if they are indeed exposed to the virus.

China ramped up its PMTCT programme very quickly. In 2004, only a tiny handful of pilot projects were testing pregnant women for HIV. The national programme began in 2005; by 2015, over 88 million pregnant women had been

screened for HIV infection, 19 million of them in 2015 alone – or 81% of all women who were known to be pregnant in China that year. Around one in 10,000 of those women was found to be infected with HIV. A surprisingly high proportion – over half in one citywide study over an 11-year period – did not carry the pregnancy to term. Of those who did, however, very high proportions were given antiretroviral medication for both themselves and their infants. In the early years of the programme, most of the testing took place once the woman was already in labour, but over time that proportion has dropped dramatically. By 2011, eight out of ten women identified with HIV because of their pregnancy in China were being started on antiretroviral treatment during antenatal care. The programme has contributed to a 52% fall in the rate of HIV transmission from mother to child between 2005 and 2014, from 12.8 to 6.1%.

6.6 Keeping Drug Users Safe from HIV

It was one thing to invest public money to protect newborns from an incurable virus. But politically and socially, it was quite another thing to spend money on health services for adults who voluntarily took illegal and toxic substances in order to get high. Indeed HIV prevention and care services for drug injectors have been more difficult to implement than programmes for any other risk group in most countries around the world. For more than two decades, no central government funds were spent on clean injecting equipment for drug injectors in the United States because of opposition from conservative politicians. The Thai government, much praised for its pragmatic approach to HIV prevention in the sex trade, failed to reduce infection rates among drug users. To this day, infections continue to spread rapidly through shared needles in some parts of Eastern Europe. And all of this despite the fact that a few brave countries – first Scotland and then the rest of the United Kingdom, as well as Australia and the Netherlands – had shown that ensuring easy access to sterile injecting equipment for drug injectors was one of the most effective, and cost-effective, HIV prevention approaches available.

Things were no different in China. Under the guise of research, the hardworking scientists described in Chap. 3 had, in fact, begun to experiment with approaches that they had witnessed in Australia and elsewhere, including needle exchange and methadone maintenance. Seeing the opportunity presented by the greater openness that followed the SARS epidemic, they rushed to present their early findings to senior policymakers, inviting them also to visit intervention sites. China's Premier, Wen Jiabao, was one of the earliest leaders to appeal for sympathetic treatment of drug users. Former Vice Minister of Health Longde Wang also reported being touched by his visits to drug users. "Young people addicted to drugs tended to be smart and sociable, and very curious", he observed. Noting that relapse rates were typically above 90% (and having met one drug user who was in a compulsory detoxification camp for the 18th time), he believed other approaches were necessary. "In an open, market-based economy, drug use can't be controlled only depending on anti-drug movements or compulsory detoxification", said Wang.

“[In Yunnan] I held discussions with the local police, and I noted that these young people did deserve to be rescued”.

In pushing for a more pragmatic approach, however, the Chinese government had to be careful not to alienate more conservative colleagues, especially those in the security forces who had spent long years trying to keep the threat of drugs at bay with more traditional tactics focusing on prohibition. In her seminal speech of 2004, Vice-Premier Wu Yi described the delicate path that the country must tread. She recognised that the two behaviours thought to be driving HIV in China at the time – drug injection and commercial sex – were illegal and that reducing the incidence of the behaviours could also reduce the spread of HIV. But she called for pragmatism. “These phenomena are hard to uproot immediately, and may persist for a considerable time. So we must combine prevention and crack-down together to deal with these persistent ailments of society”. Specifically mentioning successful pilot projects providing clean needles and methadone to drug injectors, Wu Yi appealed to people with different viewpoints to work together. “Each district and department concerned must apply these intervention measures in a practical and rational way; must fully understand that necessary intervention measures and the crack-down on illegal behaviours share the same fundamental aim. They must stoutly and actively implement interventions, using as a standard of success whether it promotes HIV/IDS prevention and control, and whether it helps maintain people’s health and security”.

In other words, the nation’s leaders were putting health concerns ahead of ideological warfare against behaviours that were considered socially undesirable. The Vice-Premier reiterated this important message in a groundbreaking teleconference in November 2005, during which she addressed some 200,000 officials from across the country, including people working at the county level, where authorities were sometimes resistant to new ideas and approaches. A health official who witnessed the call described its tone. “Essentially, what she said to people was: Listen; if you understand what we are doing and why we are doing it, that’s great. If you don’t understand, that’s fine too, as long as you do it. You can worry about understanding it later”, the official said.

Even though the nation’s most senior leaders repeatedly made known their absolute determination to tackle HIV pragmatically, there were still pockets of resistance, especially from security forces. Many believed that making clean needles and syringes available to drug injectors made it look as though the government supported illegal drug use. Methadone programmes, which give addicts syrup or pills that mimic some of the effects of heroin, seemed even worse to some people – like using public money to buy drugs for people who didn’t want to quit. They found it difficult to suddenly start thinking of drug addiction as an illness, not a crime. In the end it was data, as much as politics, that led to their eventual support for effective HIV prevention for drug injectors. The small projects experimenting with making needles cheaply and easily available had reported significant success in reducing new HIV infections, as did the methadone maintenance programmes. But the eight official pilot projects testing out methadone presented some other very interesting results as well. When drug injectors were recruited into the methadone

programmes, 21% of them admitted to having been involved in crime – theft, drug dealing, etc. After joining the programme, they no longer had to buy heroin every day to feed their drug habit. That meant that they no longer needed as much cash. Self-reported crime rates plummeted by four-fifths, to under 4%. The job security of drug users improved too, as did their relationship with their families [6]. In addition, they grew in confidence. A health official who accompanied Vice Minister of Health Longde Wang on a visit to a methadone clinic described the interaction between the minister and one of the clinic’s clients. “This drug user, he was on methadone, and he was chatting very happily to the minister. He said: ‘For the first time in my adult life, I feel like a human being. I can even look a policeman in the eye. Before I always used to be ashamed and run away’”.

When the Public Security Bureau (PSB) checked with their own records, they found that crime rates had indeed fallen in the areas around the methadone pilot programmes, and the local drug markets also appeared to have shrunk. Even those police officers who were not much interested in the health and welfare of individual drug users were happy to see less petty crime and less drug dealing. “Involving the security services was a complete game-changer”, said Bernhard Schwartländer, who worked for UNAIDS at the time. “Once there was a framework for harm reduction the PSB just got on with it”.

“Getting on with it” happened very quickly indeed once the decision had been made to expand methadone services for drug injectors in parts of the country where heroin use was most common. Even health officials who had been pushing for an expansion of these clearly successful services were taken aback. Zunyou Wu, who was involved in evaluating the pilot programmes, remembers being asked by the Ministry of Health to get 305 clinics up and running in a matter of months. “I said it’s just not possible, we need to buy so many things, you need to have safety monitoring, it takes a lot of time to set up a clinic”. It took over a year to set up the first 101 clinics. But the pressure was on, and the team was gaining experience. “We opened the next 204 methadone maintenance clinics in just 50 days”. Zunyou Wu shook his head at the memory of those frenzied times. New clinics have been opened every year since then; by the end of 2015, there were 785 methadone clinics in operation, including 29 mobile vans. These full service sites support another 325 satellite sites. Since 2011, these sites have been providing services to around 200,000 heroin users a year. The number of clients has fallen slightly since a peak in 2012; at the end of 2015, some 170,000 former injectors were regular clients of methadone services. For those who stay in the programme – about eight in ten clients each year – methadone maintenance is certainly working well. Newly identified HIV infections over a year fell from one person in every 105 clients in 2006 to one in 500 by 2012 and further to one in 1000 by 2015.

Needle and syringe programmes have also expanded quickly over time. They tend to be provided in areas where there are not quite so many injectors – methadone maintenance services require more infrastructure and medical oversight and are thus more cost-effective in areas where many heroin injectors are concentrated in a relatively small geographical area. The very first trial needle and syringe programmes began in the early 2000s, and the number has expanded

dramatically since 2005. They are sometimes run by community groups and were until recently often funded by overseas partners, so the number of active sites fluctuates more than the more institutionalised methadone maintenance services. Over the last few years, around 900 sites have been providing services to an average of around 42,000 drug injectors every month.

Despite growing support from many sectors, it is not always easy to keep clients safe; recently, for example, the police in some areas have been arresting clients of methadone programmes if they suspect they are simultaneously using heroin. Overall, however, methadone and safe injecting programmes have contributed to a steep fall in the proportion of drug users shown to be HIV infected in nationwide sentinel surveillance. Prevalence in this group has fallen by over half since the programmes were first introduced in earnest in 2005, from 7.5 to 3.6%. While some of this reduction will be because infected drug users had difficulty accessing HIV treatment and thus died, a great deal of it will be because methadone and safe injecting programmes are effectively protecting these citizens from becoming infected.

Clients of both types of programmes report being pleased with the services they receive. Health officials have, however, spotted opportunities for further improvement. Prevention services still reach only a minority of the people believed to inject drugs in China; more could be done to help get services to those who need them by helping drug users in one setting access services in another. One example is testing and notification. In line with guidance from the State Council, efforts to reduce drug use through detoxification continue in parallel with services that prioritise disease prevention. Though relapse is, in practice, the norm after compulsory detoxification, rehabilitation centres rarely refer patients to methadone maintenance services on release. HIV testing for drug users in detention and in compulsory detoxification centres continues to be routine, but not all people who test positive are routinely told of their HIV infection, meaning that they can't access care. It also means their sex partners and children, who may also need care, will not be referred for HIV testing. Analysis of the national treatment database shows that people infected during drug injection were just half as likely to be on antiretroviral treatment compared with former blood sellers by 2009; they were also much less likely to be treated compared with people infected sexually [7]. When drug users who are in contact with state services of any sort – both health and security related – are provided with counselling, HIV testing and referral for prevention and care services as appropriate, China will more rapidly reach the national goal of minimising the spread of HIV and the damage it causes to individuals and society.

6.7 Preventing HIV Transmission Between Men and Women During Sex

Early in the HIV epidemic in China, health officials worried that the virus would spread from people who injected drugs to their sex partners. Especially worrying, from the point of view of a national epidemic, was the fact that around a quarter of

male injectors reported in the earliest behavioural surveys that they regularly bought sex from women. Though there were relatively few female injectors, close to half of those that were surveyed said they supported their drug habit by selling sex [1]. By the late 1990s, it was clear to everyone that the sex trade had returned to China with a vengeance. Prostitution was especially active in border areas where men gathered in order to visit casinos in neighbouring countries – precisely the areas where the cross-border trade in heroin had already kick-started the spread of HIV.

As Chap. 3 described, public health officials, researchers and even organisations such as the Women’s Federation had tried out several different approaches to controlling the spread of HIV through commercial sex in the earliest years of the epidemic. When the nation’s top leadership turned its attention to controlling HIV, it recognised these efforts. Vice-Premier Wu Yi noted that the trial of the “100% Condom Use” approach promoted by the World Health Organization had worked well. “Actively popularising the use of condoms, we should dispense condoms for free or install condom vending machines in public places where high-risk populations are concentrated”, she declared. More than a decade later, this hardly sounds radical. But in 2004, when China’s obscenity laws still prohibited condom advertising, it was a big step.

The Ministry of Health was keen to do more to promote condom use in commercial sex. But they had to think carefully about how best to do it, bearing in mind that some colleagues still saw prostitution primarily as a crime that should be stamped out by the police. Former Vice Minister of Health Longde Wang recalled the discussions at the time: “Who would be chosen to do the dissemination and education? We thought [local] health departments were not suitable for this work”. The fear was, in part, that politicians who ran health services locally might not support efforts to extend services to sex workers. Instead, the Ministry of Health proposed that epidemic prevention stations, the frontline of a public health service that was still relatively centralised, be trained to take on the task of HIV prevention in high-risk groups. They formed teams known as “Gao Gan”, which in Chinese sounds the same as “senior cadre”. Forming these special teams was a bold move, but necessary, according to the Vice Minister. “At that time, gay men were under the surface of the water. So the target beneficiaries for our teams work were female sex workers. They worked mainly at night, while we were off duty in the evening. How could we get in touch with the sex workers? That was why we built teams that worked in the evening”.

Once the decision was made, things once again moved quickly. Within a year, with funding provided by the central government, close to 2700 teams were in place around the country, most of them with between six and twelve members [8]. “There were over 20,000 staff in all”, said Longde Wang, “all doing outreach for sex workers in entertainment venues. We didn’t try to stop the work on which the sex workers depended to support their families. But we told them that they were at high risk of getting infected with AIDS and other sexually transmitted diseases. Once you were infected with HIV, how would you be able to support your family?” The Vice Minister observed that the approach was not without its challenges,

particularly in securing the support of public security. But by taking education to the bars and massage parlours, health staff were able to give HIV-related information to over 600,000 sex workers each month.

The active outreach programmes were reported to reach nine out of ten sex workers by 2015, with seven out of ten being tested for HIV annually. These outreach programmes are very likely to have contributed to the low prevalence of HIV among female sex workers in China. Across the country as a whole, around one sex worker out of every 500 is infected with HIV, compared with one in 20 in several other Asian countries. Infections are clustered in the west and south-west of China, and careful analysis of study results shows that a high proportion of infected sex workers are also drug injectors [9]. A recent review of 583 studies of condom use by female sex workers in China reported that the proportion of sex workers using condoms with their most recent client rose from 54% in 2000 to 85% in 2011 [10]. Although condom use with non-paying partners also rose, the increase was more limited, and some studies have reported persistently high rates of other sexually transmitted infections over the same period.

Though the proportion of sex workers reached by HIV prevention programmes grew by over four-fifths between 2007 and 2013, the proportion who said that they had had an HIV test and received the results of it within the last year grew by just over a third, remaining at 38%. That, and continuing infection with curable STIs, suggests that there is still room for expansion in the services offered to sex workers. Treating those sexual infections that can be cured is important to limit their spread and the damage they can do to a woman's health, including her ability to bear children. But it is also critical to HIV control, because people who have other, untreated infections are more likely to pass HIV on to others if they are infected with the virus and more likely to become infected with it if they are uninfected but exposed.

When China started attacking HIV transmission on a large scale in 2004, it was aware that people who were already infected could easily pass HIV on to their regular sex partners if that partner was uninfected (in the medical jargon, if the couple had discordant HIV status). This prompted the proactive finding and testing of partners described earlier. Because treatment lowers the amount of virus in body fluids and thus makes people with HIV less infectious, the government also ignored CD4 count restrictions for HIV-positive people whose spouse was uninfected. The infected person in a discordant couple was able to access treatment whether or not they met the treatment criteria. On top of that, discordant couples were given intensive prevention counselling and free condoms. In badly affected provinces, doctors have to show that they are supporting discordant couples in preventing onward transmission as a condition for getting their medical licenses renewed.

As the programme expanded, the number of couples known to be discordant grew each year. By 2015, the number had reached 110,000, up from 59,000 in 2010. At the start of that period, only 45% of the infected partners in those couples were on treatment. By 2015 that proportion had risen to 78%. In 2015, the Chinese government reported that the proportion of regular partners of heterosexuals living

with HIV who acquired infection in a given year had dropped by nearly two-thirds over the previous 4 years, from 2.6 to 1.0%.

Early in the epidemic, the overwhelming majority of women infected heterosexually reported being infected by their husbands, while most men reported contracting HIV in commercial sex. That has shifted over time, as Fig. 10.6 and other data in the Chap. 10 show. Now, much higher proportions of both men and women report that their heterosexually acquired infection happened during sex with a casual partner. Casual relationships are much more diffuse than commercial sex; it is much more difficult to devise effective (and cost-effective) prevention strategies for this setting than it is for commercial sex.

Another shift in sexual behaviour that poses similar challenges for HIV prevention in China is the apparent increase in sex between men. Chapter 7 will describe just how big this change has been.

6.8 Hitting the Target

China may once have been criticised for being slow to react appropriately to the threat of HIV, but there's no question that it has made up for any early lapses. Observers in other countries have marvelled at the scale of the response and the speed with which it was achieved once political leadership was firmly in place. What, they ask, is the secret to providing so many services to so many people so quickly?

The answers include a dedicated public health workforce with very consistent leadership that had, as Chap. 3 described, been building up experience for some years. But a good portion of the success may be attributed to the judicious use of well-chosen targets. China has always been fond of setting targets to guide performance. In the past, people setting the targets have not always thought very carefully about the effects they might have: encouraging misreporting of statistics, for example, or forcing workers to neglect important tasks which are not driven by targets in order to achieve those that are. That led to a certain amount of trial and error in all areas of government. As former Vice Minister of Health Longde Wang described, HIV was no exception. He pointed to the very first months during which methadone maintenance services were being piloted in eight clinics in 2004. "In the months after the clinics were set up, there was actually a gradual decrease in the number of drug users [coming for methadone]", he said. This was surprising: "Many drug users were very poor and had to commit crimes to get money to buy drugs. Now they could spend just five to ten Renminbi [CNY5–10] per day to get methadone. So why did the numbers go down? Later, primary level medical staff told us that the local plain-clothes police waited at the entrance of the clinic and arrested the clients who came for methadone". It turned out that the police had targets of their own. "Because of their work targets, local police had to arrest a certain number of drug users every month and put them into compulsory detoxification institutions. It was easy for the police to find drug users at the methadone clinics", the Vice Minister said.

It goes without saying that drug injectors were not going to use services that landed them in jail. Active dialogue with a fellow Vice Minister responsible for public security saved the day. Once senior officers realised that the incentive structures for PSB officers might stand in the way of protecting the Chinese public against HIV, things changed. “After the discussion, the Ministry of Public Security supported methadone clinics”, recounted Longde Wang. “He even set the quarterly number of clients who attended the clinics as an evaluation of performance for local police”. It was a useful reminder of both the dangers and the advantages of setting targets.

Targets were first formally used to support the scale-up of HIV services in 2006, when they were set to encourage treatment. Zunyou Wu had at the time just taken over as director of NCAIDS. “I decided to use targets for treatment because treatment is much more predictable than prevention”, he said. That’s mostly because there is a clear denominator: the number of people with confirmed HIV infection.

China CDC set targets for new HIV diagnoses as well, encouraging staff to focus their testing services among the people most likely to have an undiagnosed HIV infection. The idea of targets was not universally welcomed. “At the time, there was huge resistance from some of our colleagues”, Wu said. But the Centre went ahead with target setting, framing them as incentives. Those who failed to meet targets got a small payment; those who met them got a bonus.

In 2011, the Centre hoped to see 75,000 new diagnoses, with 40,000 patients newly enrolled on antiretroviral treatment. Health service providers came up just a fraction short on diagnoses, registering 74,517 newly confirmed cases, but exceeded the treatment target by over 5000 people, or 14%. As health services get better at providing treatment, the targets have become more demanding: 100,000 new diagnoses in 2015 and 90,000 people newly initiated on treatment. Still, hardworking staff continue to exceed targets, by 15% on new diagnoses and 20% on patients newly enrolled on treatment.

Targets, which also help with service planning, are now set across a range of verifiable indicators. Some fear this will eventually encourage misreporting, but experience so far suggests that when targets are kept realistic, they can help motivate service providers to go the extra mile. They have helped China to reach a huge number of people with essential prevention and care services in a few short years. By 2015, the country was well on the way to meeting the ambitious goals it set for itself in 2004. But the challenges in the next phase of the response, discussed in Chap. 7, will require even more innovation.

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