Joint review of Guangxi CDC/MSF-F HIV project

Nanning, Guangxi province, CHINA, 2003-2010
Médecins Sans Frontières (MSF) is an international medical humanitarian organisation that provides emergency medical assistance to populations in danger. MSF currently works in more than 70 countries helping victims of armed conflicts, epidemics, natural and man-made disasters. In 1999, MSF was awarded the international Nobel Peace prize.

Guangxi Centre for Disease Prevention and Control (Guangxi CDC), is a public health centre which integrates disease prevention and control, manages sudden public health events, reports on epidemics, inspects and intervenes on health risks, analyses and evaluates laboratories, performs health education and promotion, and is also a reference centre for provincial hygiene inspections. Guangxi CDC has worldwide cooperation with 23 countries and international organizations including the WHO, UNICEF and International experts on Immunization.

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<td>Lamivudine</td>
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<tr>
<td>ABC</td>
<td>Abacavir</td>
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<td>ACC</td>
<td>AIDS Care China</td>
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<td>Acquired Immune Deficiency Syndrome</td>
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<td>ART</td>
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<td>Antiretroviral</td>
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<td>AZT</td>
<td>Zidovudine</td>
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<td>CBC</td>
<td>Complete blood count</td>
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<td>CDC</td>
<td>Centre for Disease Control and Prevention</td>
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<td>CIN</td>
<td>Cervical Intraepithelial Neoplasia</td>
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<td>CMV</td>
<td>Cytomegalovirus</td>
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<td>CXR</td>
<td>Chest X-Ray</td>
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<td>D4T</td>
<td>Stavudine</td>
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<tr>
<td>DDI</td>
<td>Didanosine</td>
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<tr>
<td>EFV</td>
<td>Efavirenz</td>
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<tr>
<td>EID</td>
<td>Early Infant Diagnosis</td>
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<td>EPTB</td>
<td>Extra-Pulmonary Tuberculosis</td>
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<td>FDC</td>
<td>Fixed Dose Combination</td>
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<td>Follow-Up and Care of HIV Infection and AIDS (software that MSF uses for data collection in HIV projects)</td>
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<td>GONGO</td>
<td>Governmental Non-Governmental Organisation</td>
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<td>HAART</td>
<td>Highly Active Antiretroviral Therapy</td>
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<td>HBsAg</td>
<td>Hepatitis B Surface Antigen</td>
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<tr>
<td>HCV</td>
<td>Hepatitis C Virus</td>
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<tr>
<td>HIV</td>
<td>Human Immunodeficiency Virus</td>
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<td>HPV</td>
<td>Human Papilloma Virus</td>
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<tr>
<td>HSIL</td>
<td>High-grade Squamous Intraepithelial Lesion</td>
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<tr>
<td>ID</td>
<td>Identification</td>
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<tr>
<td>IDU</td>
<td>Injecting Drug Users</td>
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<td>Indinavir</td>
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<tr>
<td>IEC</td>
<td>Information, Education, Communication</td>
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<td>IRIS</td>
<td>Immune Reconstitution Inflammatory Syndrome</td>
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<td>LFT</td>
<td>Liver Function Test</td>
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<td>LSIL</td>
<td>Low-grade Squamous Intraepithelial Lesion</td>
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<tr>
<td>MDR-TB</td>
<td>Multi-Drug-Resistant Tuberculosis</td>
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<td>MSF</td>
<td>Médecins Sans Frontières (Doctors Without Borders)</td>
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<tr>
<td>Acronym</td>
<td>Description</td>
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<tr>
<td>MSI</td>
<td>Marie Stopes International</td>
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<td>MSM</td>
<td>Man who have Sex with Men</td>
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<tr>
<td>NGO</td>
<td>Non-Governmental Organization</td>
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<td>NVP</td>
<td>Nevirapine</td>
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<td>OI</td>
<td>Opportunistic Infection</td>
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<td>PAP smear</td>
<td>Papanicolau cervical smear</td>
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<tr>
<td>PCR</td>
<td>Polymerase Chain Reaction</td>
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<td>PEP</td>
<td>Post-exposure Prophylaxis</td>
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<td>PHB</td>
<td>Public Health Bureau</td>
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<td>PI</td>
<td>Protease Inhibitor</td>
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<tr>
<td>PLWHA</td>
<td>People Living With HIV and AIDS</td>
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<td>PM</td>
<td>Penicilliosis Marneffei</td>
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<td>PMTCT</td>
<td>Prevention of Mother-To-Child Transmission</td>
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<td>PTB</td>
<td>Pulmonary Tuberculosis</td>
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<td>PSI</td>
<td>Population Service International</td>
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<td>RMB</td>
<td>Renminbi</td>
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<td>RPR</td>
<td>Rapid Plasma Reagin</td>
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<td>RRC</td>
<td>Red Ribbon Center</td>
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<td>RTV</td>
<td>Ritonavir</td>
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<td>STD</td>
<td>Sexually Transmitted Disease</td>
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<td>STI</td>
<td>Sexual Transmitted Infection</td>
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<td>TDF</td>
<td>Tenofovir</td>
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<tr>
<td>UNICEF</td>
<td>United Nations Children’s Fund</td>
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<td>VCT</td>
<td>Voluntary Counselling and Testing</td>
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<td>WB</td>
<td>Western Blot</td>
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INTRODUCTION

BACKGROUND

The first confirmed case of HIV infection in China was reported in 1989. Twenty years later, UNAIDS estimates that there are some 740,000 people living with HIV/AIDS across the country, with an estimated 48,000 new infections in 2009. By the early 2000s, Chinese authorities had recognised the widespread nature of the HIV epidemic and reacted by implementing new policies, as well as treatment, prevention and control programmes.

MSF had been present in Guangxi province since the late 1980s, working in various fields, including improving primary healthcare in remote communities and assisting in the response to natural disasters in the region. MSF conducted an exploratory mission in early 2003, and a need was identified in Guangxi for people living with HIV/AIDS. At the time, HIV treatment was neither widely available, nor affordable for the majority of patients. Although the overall number of people infected with HIV in China was relatively low compared to other settings in which MSF works, the number of HIV positive people living in Guangxi was significant. The province had the third highest rate of HIV infection in China, and had at-risk populations such as; female sex workers, men who have sex with men, drug users and migrant workers.

Following the exploratory mission, and after consultation with Public Health Bureau Directors, a memorandum of understanding was signed to begin the joint CDC/MSF project and the first team of expatriates arrived in late 2003 to start collaborating with Chinese partners. As the project began, MSF staff and CDC partners assisted in the drafting of first national protocols to tackle the epidemic. The aim of the project was to offer confidential HIV testing and free treatment and care for people living with HIV. Seven years later, some 1724 patients have received care, many clinicians have been trained in the joint project, and a comprehensive treatment and care model has been designed, modified for a Chinese context and implemented.

After seven years of collaboration, significant progress has been made in Guangxi in terms of HIV detection, treatment and care, and many elements of the CDC/MSF model are being applied in the 45 National ART sites that have been set up across the province.
TIMELINE OF IMPORTANT MILESTONES

The figure in the background represents the total cumulative number of patients enrolled by year since the beginning of the program.

1 FUCHIA : Follow-Up and Care of HIV and AIDS (MSF HIV database used internationally)
3 « Anti-Retroviral Therapy in China. Outcomes and lessons learned after 2 years experience of the MSF Nanning Program », Médecins Sans Frontières – France, August 2006
PARTNERS

- Guangxi Public Health Bureau (PHB) was MSF’s official partner. They signed the original agreement with MSF and approved the project.

- Guangxi Centre for Disease Control (CDC) was the official working partner with MSF, and together ran the Guangxi CDC/MSF clinic. Their doctors worked with the MSF team in the clinic and supervised the writing of prescriptions.

- The Red Ribbon Center (RRC)/AIDS Care China (ACC) operates RRC counselling centres in different ART sites throughout Guangxi as well as in other provinces. They first started their counselling activities in the CDC/MSF clinic in 2006, and over time MSF has developed a strong relationship with RRC, training many of their counsellors. RRC also operates a “shelter” which accommodates patients from outside of Nanning in case they have to stay overnight. ACC runs an orphanage for about 15 children affected by HIV/AIDS in Nanning.

- Hospital number 4 – Nanning city is an infectious disease hospital and is also the HIV referral hospital for Guangxi. CDC/MSF patients requiring hospitalisation were admitted here.

- MSF collaborated with Guangxi Mother and Child Hospital, Guangxi Minzu Hospital, Guangxi Ruikang Hospital to open Voluntary Counselling and Testing (VCT) sites.

- MSF worked with other NGOs in Guangxi such as Population Service International (PSI), Rainbow, Sunshine and Marie Stopes International (MSI) on outreach activities.

- Epicentre is a non-profit organisation created in 1987 by Médecins Sans Frontières, which groups health professionals specialised in public health and epidemiology. Epicentre’s team carries out operational research, and are a WHO Collaborating Center for Research in Epidemiology and Response to Emerging Diseases. Epicentre also offers its expertise to organisations requesting short-term field epidemiology studies in developing countries.

RATIONALE AND METHODOLOGY

Approaching the end of the project Dr Wu Zunyou, Director of the National Centre for AIDS/STD Control and Prevention, visited the clinic and suggested that CDC and MSF do a joint review of the project, as there were many useful lessons to be learned from this cooperative project. MSF agreed and the idea for this project review was born.

The objectives were to describe and analyse the project's outcomes, the specifics of the model of care that was used, as well as the challenges and the lessons that were learned. The methodology used was an in-depth analysis of the medical data base (Fuchia) with the backup of Epicentre, a review of the project reports, and numerous interviews.

A list of interview questions were prepared by CDC and MSF, and CDC and MSF evaluators were appointed. Nineteen interviews were conducted with partners, past and present CDC/MSF staff, and patients. The list of interviewees and questions asked may be found in Annex 3.
DESCRIPTION OF THE MODEL IMPLEMENTED
PATIENT FLOW THROUGH THE CLINIC

**Data clerk:**
- Enters data in FUCHIA
- Enters data for National HIV Surveillance
- Generates monthly and quarterly data reports

**Doctor:**
- History
- WHO staging
- Examination
- Screening for TB (at each visit)
- Screening for CMV retinitis (if low CD4)
- Investigations
- Referrals
- Drug prescription
- Date of next appointment

**Pharmacy dispenser:**
- Counts remaining pills
- Dispenses drugs until the next appointment (+1 extra day)
- Explains how to take pills and to what schedule
- Re-enforces adherence counselling

**Reception nurse:**
- Welcomes patient
- Refers new patients for VCT
- Prepares files
- Records weight / height / temperature
- Identifies coughing patients
  - Educates and provides with sputum cups
  - Provides face masks
  - Sectorises to ‘coughing’ waiting room
- Triage sick, TB/coughing and “detox” patients
- Gives follow-up and appointment card
- Phones patients who fail to show up for their appointment
- Files and follows-up laboratory results

**New patient:**
- VCT
- Hospital
- Other

**Hospital (if patient is sick):**
- Referral letter from MSF doctor to admitting doctor
- Bi-weekly visits by MSF doctor to monitor patient’s progress and liaise with hospital team regarding patient’s medical management
- Ensures continuity of ART

**Blood collection**

**Sick patients**

**Counsellor:**
- Pre- and post-test counselling
- 1st HIV counselling
- 1st and 2nd ARV counselling
- TB / PMTCT counselling
- Adherence counselling
- Pill count
- Child and care givers counselling
- Psychological counselling and referral
- Defaulter tracing
- Group counselling sessions
When a patient attended the clinic for the first time, reception opened a patient file, and temperature, weight, height and blood pressure were measured. The patient’s file was transferred to the counsellor’s tray and the patient was seen by the next available counsellor. The Nurse Clinic Manager co-ordinated and ensured the smooth flow of patients through the clinic.

In accordance with the WHO guidelines to prevent TB transmission in HIV care settings, patients were screened for symptoms of TB at every visit, educated on cough hygiene, separated from other HIV patients¹, and directed to the “coughing” waiting room. Staff members wore high filtration masks while seeing these patients.

The first HIV counselling session assessed the patient’s emotional state regarding their HIV status, their knowledge about HIV, ART, OI treatments, and safe sex (condom demonstration). The counsellor discussed transmission routes and risk reduction strategies, disclosure issues, partner referral, and made an assessment of other psychosocial needs. All of this was recorded in the counselling section of the patient’s files, and any important issues were highlighted in the medical section of the file for the doctor’s attention.

The file was then left in the doctor’s tray, and the next available clinician saw the patient. Standard consultation procedures were followed with documentation of chief complaint, history of present illness, past medical history (in particular a history of TB, varicella, diarrhoea, weight loss, etc), medications (especially any prior ARV exposure), family situation, social situation, injection drug use and a thorough review of systems including a careful assessment for TB and STIs.

The patient’s physical state was assessed: vital signs, weight and height were reviewed. The systems were examined with particular attention to the mouth, skin, lymph nodes and respiratory system for any evidence of OIs. Patients with CD4<100 had their eyes dilated and assessed for CMV retinitis with the indirect ophthalmoscope. The patient was evaluated according to the WHO staging system, and a problem list was generated including OIs, HIV-related conditions, other medical problems, and any social issues. Baseline investigations were ordered: CD4, CBC, liver function tests, RPR, hepatitis B and C, PAP smear, and CXR if clinically indicated. OIs were treated, and Cotrimoxazole prophylaxis prescribed as needed.

After the medical consultation, the file was returned to reception, where the receptionist booked the next appointment time according to the doctor’s request, and the prescription was given to the pharmacy dispenser. In general when the patient was started on ART, his next appointment date was guided by “The ART monitoring and counselling schedule” (refer to annex 1).

“The project has been a model, and the model is used in Guangxi. We have 45 ART sites in using this model in 45 counties. All the doctors working in these clinics have received training in the Guangxi CDC/MSF clinic.” Dr Liu Wei. Director of AIDS Department, Guangxi province Centre for Disease Control.

Throughout the project, efforts were made to continually improve data collection. A patient consultation sheet was designed to record pertinent data at each consultation, including WHO stage, suspicion of TB, active injecting drug use since last visit, investigations ordered and drugs prescribed. A TB summary sheet was kept at the beginning of the patient file to document the type of TB diagnosed, how the diagnosis was made, TB regimen, smear status, sputum follow-up, results of cultures, and the outcome once treatment was complete. Summary sheets were also completed for complicated patients and included parameters such as CD4 count evolution, ARV regimen prescribed (and reasons why it was altered), OIs diagnosed, and results of viral load tests. All these consultation forms can be found in annex 2.

The expatriate doctor regularly reviewed patient files for data inconsistencies and ensured protocols were being followed, and that the medical management was of high quality.

After each consultation data was entered by data clerks onto the FUCHIA database. FUCHIA is the standard database that MSF uses for HIV projects. It records the baseline characteristics of the patient and is updated at each patient visit. WHO stage, the presence of an OI, details about TB diagnosis, PMTCT interventions, ART regimen used, ART side-effects experienced, and important lab results, are all recorded. The software allows easy generation of monthly, quarterly and annual reports, and facilitates looking at trends in the HIV cohort.

The CDC surveillance forms for HIV and TB were also filled and emailed to the central collecting site. Manual registers for TB patients and PMTCT women were also kept. Reports were produced monthly and quarterly, and TB reports produced quarterly. Quarterly reports were distributed to partners.

When the results of laboratory tests were received, one of the doctors checked and signed the result, and acted on any alarming results. Routine results were then filed by the clinic nurse into the patient files.
**Modes of transmission**

The male to female ratio of patients in the CDC/MSF cohort was 64:36. This is in keeping with national estimates of HIV in men and women where, of the estimated 740,000 PLWHA in China at the end of 2009, 30.5% are in women. In 2003, when the project started, the most common mode of HIV transmission was through injecting drug use (mainly men in China), which was consistent with 32% of the cohort disclosing either active or former injecting drug use. More recent reports show that HIV transmission in China is now mainly through sex and is entering the general population. Despite changing modes of transmission, the ratio of men to women has remained relatively consistent in new admissions each year (from 2003 to 2009).

**Age**

*Figure 1: Age distribution of patients at enrolment – Guangxi CDC/MSF clinic – Nanning, Guangxi province, China – Dec 2003-Dec 2009*

About 80% of the patients enrolled at the Guangxi CDC/MSF clinic were aged between 20 and 49 years old.

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Location

Figure 2: Location of patients at enrolment – Guangxi CDC/MSF clinic – Nanning, Guangxi province, China – Dec 2003-Dec 2009

The majority of patients came from Nanning and greater Nanning.

Marital status

Figure 3: Marital status of patients at enrolment – Guangxi CDC/MSF clinic – Nanning, Guangxi province, China – Dec 2003-Dec 2009

More than half of the patients of the cohort were married. All patients were asked about disclosure to partners at their initial consultation and this was followed up by the counsellors in subsequent visits. Disclosure to, and testing of spouses, were encouraged and discordant couple counselling was in place to facilitate this process.
During the project, a total of 1,724 patients were enrolled in the Guangxi CDC/MSF Clinic, including 111 babies born to HIV+ mothers (who were not necessarily HIV+ but were enrolled and followed-up at the clinic until their HIV status was known). New inclusions were restricted from mid-2009 when the decision was made to close the project, and no new patients were enrolled from 2010. However 10 PMTCT babies were enrolled in 2010, having been born to mothers already enrolled in the project. A total of 94 HIV positive children (<15 years old) were ever registered in the project.

There was a noticeable increase in the number of new inclusions to the project from the end of 2007. Possible reasons for this were that VCT and Outreach components of the project had been strengthened, although enrolments to other ART sites also increased around this time period. As a result of the Spring Festival Holidays at the beginning of the year, new inclusions to the program were generally less in the first quarter.

Out of 1,724 patients ever registered in the clinic, 1,134 were started on ART by the end of March 2010. Of these, 83 were children (<15 years old).
Antiretroviral treatment regimens

Figure 5: Treatment regimens for adults and children – Guangxi CDC/MSF clinic – Nanning, Guangxi province, China – Dec 2009

AZT was preferred to D4T by the Chinese National ART guidelines, and by the end of 2009, 60% and 28% of patients were on an AZT or D4T-based regimen respectively. Patients were preferably on an NVP-based regimen, but if they were on TB treatment or had hepatotoxicity (many patients had hepatitis C co-infection), EFV was used, which represented 36% of the adults and 23% of the children.

Routine free viral load testing for children has been available through our CDC partner since 2008. In July 2009, adults on ART for more than one year also became eligible for annual free viral load monitoring, and out of 621 viral loads performed from July until December 2009, 19 patients (3%) had a viral load >1000.

Out of a total of 1,134 patients (1,050 adults and 84 children) who were commenced on ART since the project began, by the end of March 2010, 34 (3%) had been switched to a second line regimen. The median duration on first-line regimen for these patients was 38 months for adults and 20 months for children. Baseline CD4 cell count was measured in 26 adult patients and the median CD4 was 53; baseline median CD4% for children was 12%. Second-line regimens used were TDF/ABC/AZT + DDI/3TC + Kaletra/IDV+RTV for adults. While the second line regimen recommended for children in China is ABC+3TC+Kaletra, MSF initially used DDI in place of 3TC, as 3TC is used in first line ART and efforts were made to provide a more robust second line regimen that avoided recycling 3TC.
At the end of 2009, the majority of patients were still followed on treatment, and including patients who were transferred out, made up 84.1% of the cohort (the transfer-out process was commenced in October 2009, and 182 ART patients had already been transferred by December 2009). National 5-year outcomes in adults on ART (where median follow-up time on ART was 17 months) report 70% of patients being active, 10% “late”, 7% having terminated treatment, and 13% being dead. The low number of defaulters (4.6%) and the high numbers of patients under follow-up (84.1%) seen in the CDC/MSF cohort was attributable to:

- defaulter tracing
- patient-centred approach
- counselling
- non-judgemental staff
- confidentiality
- early management of ART side-effects

A total of 203 patients died since the beginning of the program. The mortality rate in the adult ART cohort was 9.4% and 16.9% in the pre-ART cohort. 86% of deaths were in men and 14% in women. Men were more likely to present in the late stages of HIV compared to women (refer to chapter “Late presenters”, page 27), and probably account for the higher percentage of deaths in men. 44% of the deaths were in IDUs. The median follow-up time on ARV for adults and children was respectively:

- 7.2 and 3.5 months for dead patients
- 4.9 and 1.1 months for patients lost to follow-up
- 24.4 and 24 months for patients still followed on ARVs

---


5 Defaulters in the ART cohort were defined as not coming for 2 months from the time of their last scheduled appointment
Duration on ART

Figure 7: Duration on ART for adults and children – Guangxi CDC/MSF clinic – Nanning, Guangxi province, China – Dec 2009

By the end of 2009, most of the patients had been on ARV for 1 to 2 years.

CD4

A total of 73.1% of patients had a CD4 <200 when they were commenced on ART. Guidelines for ART initiation for the major part of the project were that ART was commenced when the CD4 <200 or if patient was in WHO Stage 3 or 4. However, in 2009, in keeping with the National Chinese and the new WHO Guidelines, patients with a CD4<350 were commenced on ART.

Figure 8: Mean CD4 increase following ART initiation - Guangxi CDC/MSF clinic – Nanning, Guangxi province, China – Dec 2003 – June 2010

Figure 8 shows the mean increase in CD4 count in adults after initiation of ART, with a peak mean increase of CD4 of 344 seen between 63 and 69 months.
Morbidity and mortality

**Opportunistic infections (OI)**

During their follow-up at the Guangxi CDC/MSF clinic, the 6 most serious OIs presented in the figure below were diagnosed a total of 780 times.

**Figure 9:** Opportunistic infections diagnosed – Guangxi CDC/MSF clinic – Nanning, Guangxi province, China – Dec 2003-Dec 2009

The most common OI was TB (both PTB and EPTB) which made up 72% of the OI diagnoses. The other common serious OIs were: Penicilliosis Marneffei (PM), Cytomegalovirus (CMV), Cryptococcal meningitis and Toxoplasmosis.

There is a significant overlap with the clinical presentation of TB and PM, and PM is often considered a differential diagnosis, especially in smear negative TB patients who do not respond well to TB treatment. PM diagnosis was confirmed with blood culture or biopsy of skin lesions that look suspicious, but often treatment was started on clinical suspicion alone.

Access to CT and MRI was widely available to assist with the diagnosis of certain OIs, however accurate radiological interpretation of films for HIV+ patients was often lacking.
**Tuberculosis**

Only 10% of patients in the CDC/MSF cohort diagnosed with TB had smear positive pulmonary TB, while the rest were diagnosed predominantly clinically, by radiological appearance or by culture result.

**Table 1: Tuberculosis treatment outcomes – Guangxi CDC/MSF clinic – Nanning, Guangxi province, China – Dec 2003-Aug 2009**

<table>
<thead>
<tr>
<th></th>
<th>Cured(^6)</th>
<th>Completed treatment(^7)</th>
<th>Failure(^8)</th>
<th>Defaulter</th>
<th>Dead</th>
<th>Transferred out</th>
<th>Adapted</th>
<th>Stopped for toxicity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smear positive pulmonary TB</td>
<td>21</td>
<td>23</td>
<td>1</td>
<td>10</td>
<td>9</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Smear negative pulmonary TB</td>
<td>0</td>
<td>189</td>
<td>3</td>
<td>16</td>
<td>32</td>
<td>3</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Extrapulmonary TB</td>
<td>0</td>
<td>84</td>
<td>1</td>
<td>5</td>
<td>15</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>21</td>
<td>296</td>
<td>5</td>
<td>31</td>
<td>56</td>
<td>3</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Rates of all TB</td>
<td>5.1%</td>
<td>71.5%</td>
<td>1.2%</td>
<td>7.5%</td>
<td>13.5%</td>
<td>0.7%</td>
<td>0.0%</td>
<td>0.2%</td>
</tr>
</tbody>
</table>

Outcomes of TB treatment are known for a total of 414 patients who commenced treatment between December 2003 and August 2009. In general, outcomes for patients being treated for TB were good with 76.6% being cured or completing treatment. However 7.5% of patients defaulted on treatment and 13.5% died during the course of their treatment. TB was a significant cause of mortality in the CDC/MSF cohort, and of the 203 patients who died over the course of the project, 56 (27.6%) were on TB treatment when they died.

Drug resistant TB was rarely diagnosed; with on average one case per year being detected. One man with confirmed Multi-Drug-Resistant TB (MDR-TB) died while undergoing treatment, and one man with suspected MDR-TB successfully completed treatment.

**Hepatitis B and C**

A high proportion of adult patients were co-infected with Hepatitis C (38%) and Hepatitis B (15%). Liver failure was a significant cause of mortality in the cohort (10%). While Hepatitis C treatment in HIV co-infected patients is a complicated and difficult undertaking, stronger referral networks to Hepatitis C services, may have benefitted patients.

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\(^6\) Cured: Patient, initially smear positive on microscopy, who completed treatment and has at least two negative smears

\(^7\) Completed treatment: Patient, initially smear positive on microscopy, who has undergone a complete course of treatment but for whom there is no bacteriological verification available, either because verification has not been correctly done or because the patient could not produce sputum

\(^8\) Failure: Any patient who presents smear positive at 4 months of treatment or thereafter, OR patients initially smear negative or with EPTB with no significant clinical improvement and no significant weight gain after 4 months of treatment.
**ART side effects**

Figure 10: Frequency of side-effects requiring patients to switch ART regimen – Guangxi CDC/MSF clinic – Nanning, Guangxi province, China – Dec 2003-March 2010

Out of a total of 1134 patients ever commenced on ART, 482 patients (42%) required a switch in ART regimen as a result of a drug related side effect. Anaemia, most commonly caused by AZT, was the most frequent side effect requiring a switch, and patients often had no alternative other than D4T, despite its long-term toxicities.

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The trends of mortality rates per 3 month interval (per 100 patient-years) are similar to the trends observed nationally with highest mortality rates observed within the first 3 months. The lower mortality rates seen in the CDC/MSF cohort (9.53 deaths per 100 patient-years in the first 3 months, compared to 22.6 nationally) are possibly explained by the model used, with the provision of free comprehensive care including investigations, diagnosis and treatment of any OIs, free laboratory monitoring tests, early detection of TB, early detection of ART side-effects, the following of OI and ART management protocols, and the strong emphasis on counselling and psychosocial support.

This woman presented in the late stages of HIV and has already lost her vision to CMV retinitis.

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SEVEN IMPORTANT LESSONS LEARNED

As part of the report on the Guangxi CDC/MSF joint HIV project in Nanning, face-to-face interviews were conducted in Guangxi and Beijing with 19 people in late June/early July 2010 (see list of interviewees and questions asked in annex 3).

EARLY DIAGNOSIS

Patients who are aware of their status early in the course of their disease are less likely to transmit HIV, have a better response to ART, are less likely to present with OIs or to need hospitalisation, and will not be a burden on health care resources or be out of pocket for the cost of a hospital admission. They are also more likely to retain their capacity to work and contribute economically and socially to their families.

Throughout the project, efforts to increase earlier diagnosis of HIV were made, including starting outreach to high risk populations and increasing access to HIV testing through VCT.

Outreach

Outreach objectives were to provide targeted information, develop peer leader capacity, and encourage early testing and early treatment. Outreach was originally loose and unstructured, but in 2007 the outreach component of the project was strengthened with the focus on increasing HIV and AIDS awareness in:

1) **High risk populations**: a mapping of Nanning was done to identify areas were these high-risk groups congregated. Attempts were made to recruit outreach workers from the various high-risk groups, who visited the sites where sex workers and their clients, IV drug users and men who have sex with men met (gay bars, methadone clinics, needle exchange sites, and hair dressing salons). They performed health education in groups or individually, distributed condoms and pamphlets, conducted peer leader trainings, put health promotion messages on MSM internet websites, and organised experience-sharing workshops. Combined outreach was done with Population Service International (PSI), Marie Stopes International (MSI), and Sunshine and Rainbow for MSM groups. Outreach was handed over to them at the end of 2009.

2) **Health care professionals**: intensive networking with local health care providers (hospitals, private clinics, STI clinics, prisons and detoxification centres) was organised to educate on HIV and PEP, to increase visibility, and to raise awareness of VCT. The CDC/MSF doctors often contributed to presentations.

3) **General public**: outreach included Information-Education-Communication (IEC) such as posters at bus stations, and visits to construction sites where migrants were working.

“Outreach is important because it is necessary not just to stay in the clinic and wait for the patients to come in. This is not so possible because there are many facets including stigma and discrimination, people do not know where the clinic is and what services can be provided. With outreach more people get information about HIV, so it promotes early testing and treatment. This is significant because if you are diagnosed earlier, you can get the relevant service as soon as possible, so your CD4 count does not get too low.” Wang Jing. Former MSF outreach supervisor.
Access to HIV testing was expanded by collaborating with community centres and hospitals to set up VCT sites in different settings and geographical locations. At the beginning of the project patient numbers were slow to increase, and publicizing our services to vulnerable groups was an important strategy to boost patient numbers, as well as improve early diagnosis of HIV. Since 2003, MSF has established 5 VCT sites in Nanning:

- Guangxi CDC/MSF clinic (May 2007)
- Mother and Child Hospital (July 2007)
- Minzu Hospital (July 2007)
- DashaTian (March 2008)
- Ruikang Hospital (Aug 2009)

At all the VCT sites, except the Guangxi CDC/MSF clinic, rapid testing was performed and results were available to the client immediately. After pre-test counselling, a sample of venous blood was drawn and an HIV Rapid Test (Determine) was performed. If positive, a 2nd Rapid Test (Shanghai Kehua) was performed for confirmation. If both were positive, confirmatory testing by Western Blot (WB) was performed. In all these sites, results were disclosed to the patients based on the rapid test and this ‘same-day’ process prevented clients from being lost to follow-up. Indeed, in the CDC/MSF VCT site, where national guidelines were followed and all testing was performed in a laboratory setting, clients returned for results 2-3 days later, and 139 out of the 1072 tested (13%), did not return for test results. These cases were followed up over the phone, however positive results were never disclosed over the phone.

**Figure 12:** Positivity rates by VCT site – Nanning, Guangxi province, China

A total of 8150 patients were tested from the 5 VCT sites, and 529 (6%) tested HIV positive. The CDC/MSF VCT site had disproportionately high numbers of positive cases, and this was largely due to this being the site where partners or contacts of patients enrolled in the Guangxi CDC/MSF clinic were tested.

“Through the Guangxi CDC/MSF project I learned how to use and implement a non judgemental attitude towards clients. Through my work as a VCT nurse, I have a strong feeling that patients need a lot of help and support. VCT is the door that opens treatment and care for clients. In this initial stage, if you have not set up a good relationship with the client, they can go on to become lost to follow up.” Nurse. VCT site, Nanning.
Late presenters

41% of our patients were referred to our clinic from a hospital or other medical service. The majority of these patients were admitted to hospital with an opportunistic infection and had a subsequent HIV test that confirmed their HIV+ status. These "late presenters" have lost the benefits of timely commencement of ARVs, and are known to have poorer outcomes. The trend of "late presenters" to the Guangxi CDC/MSF clinic was followed over time. Late presenters were defined as patients who presented to the clinic for the first time with WHO Stage 3 or 4, or who had a CD4 count <200 cells/mm^3.

Figure 13: Percent of new HIV-positive patients presenting late by quarter – Guangxi CDC/MSF clinic – Nanning, Guangxi province, China – Dec 2003-Dec 2009

Figure 13 shows that the percentage of late presenters among new patients has been decreasing by 1% each quarter between December 2003 (4th Q 03) and June 2009 (2nd Q 09). Although decreasing, the change is slow and remains high (50% in first quarter 2009).

Employment status or injection drug use, were not significantly associated with being a late presenter. Associated risk factors were: being male, unmarried, living outside Nanning City, and being between 35 to 55 years old.

Patients in the late stages of HIV are immunosuppressed and more likely to present with opportunistic infections. Results of the CDC/MSF cohort are consistent with other studies, which show that early mortality is related to the degree of immunodeficiency at enrolment\(^{10}\). Of those patients who died in the cohort:

- 79% were graded as WHO Stage 3 or 4 at enrolment (46% in the general clinic population)
- 51% had a CD4<50 at enrolment (25% in the general clinic population)
- 55% died in the first 3 months of enrolment, or in the first 6 months of ART treatment.

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A total of 203 patients died in the cohort. There were 114 patients who died while being on ART, with almost half dying within 6 months of their first ART prescription. Deaths in the first few weeks of ART are likely to be caused by conditions that are either pre-existing at program enrolment or new conditions arising in the context of persisting immunodeficiency\textsuperscript{11}. 89 patients who died had not yet been commenced on ART, and similarly, the majority (63\%) died within 3 months of their first visit to the clinic. It is likely that most of these patients were in the late stages of HIV, had advanced immune suppression and would have benefited from ART. However, the clinician may first have been addressing the treatment of any OI before ART commencement.

**Lessons Learned**

- Education campaigns and outreach services, especially to high risk groups, increase awareness of HIV
- Access to VCT and HIV services is needed, particularly in rural areas and in settings where high-risk individuals frequently attend (detoxification centres, methadone treatment centres, STI services, prisons and needle and syringe programs)
- Rapid tests allow provision of same day results and limit the number of patients who do not return
- Training of health care providers in all medical settings helps to recognise OIs and identify at risk populations and therefore limit the number of late presenters
- Newly enrolled patients with advanced immune suppression have high mortality rates and any delay in ART initiation needs to be carefully balanced with the benefits of treating the OI first.

**Outreach to vulnerable populations, access to VCT and improved awareness of HIV in health care providers increases early diagnosis and prevents patients from dying**

**PATIENT-CENTRED APPROACH**

**Organisation of the model**

The CDC/MSF model aimed to deliver patient-centred comprehensive care. Efforts were made to welcome patients, their families and support providers, and to provide a friendly, safe, non-judgemental environment, where confidentiality was maintained. The team worked to address individual patient needs, and regular team meetings were scheduled to come up with the best approach for complicated patients. Patient appointments were scheduled on specific days where group counselling or support groups took place if needed. Group counselling sessions were sometimes difficult to orchestrate as the extra visits to the clinic often meant more transportation costs, and infringed on other commitments such as family or work.

“We had a really good medical team and provided a non-discriminatory environment, which was really good for patients. The different team members - doctors, counsellors and pharmacists – work together as a team to provide support for the patients, which means they have a good response to the treatment. The team provides a package of services and care for the patients, and if any part of the team finds a problem with the patient, they organise a meeting to discuss.” Dr Tang Zhirong. Director, Guangxi HIV CDC Clinic.

To make the clinic more child-friendly, a specific day was allocated for paediatric patient appointments. Children were welcomed with balloons and stickers and encouraged to participate in activities in the waiting room. Urgent or sick cases, active TB patients, or patients who attended from the detoxification centres with an accompanying guard, were prioritized.

**Continuity of care**

The clinic was comprised of 29 national staff, 6 RRC counsellors and 3 expatriate staff (a project coordinator, a medical doctor and a psychologist), who worked together with 3 to 4 CDC staff members. Working with international staff brought new ideas and medical practices to the Chinese partners.
Retaining experienced staff members is important for continuity of care for patients, as well as for cohesion within the team. Providing training, adequate financial remuneration, and respecting the roles and experiences different staff members bring to a multidisciplinary team, helped to maintain staff retention. Given the model of MSF, where expatriate turnover is on an annual basis or more frequently, it is important that national staff have the skills to provide leadership within the project to ensure continuity.

"Each expatriate doctor has their own working style and their own experience, and would prefer things to be done in their way of working. For us partners, it is really hard to adjust. As soon as we get used to the way or style of an expat, they leave and we have to start all over again. It has a great impact on the work.” Dr Tang Zhirong, Director, Guangxi HIV CDC Clinic.

A central element of the Guangxi CDC/MSF project was offering training to clinicians, to enable them to use the model in their workplaces and understand the patient centred approach. At the end of 2005, the national Ministry of Health decided the CDC clinic would become a national training centre for HIV/AIDS clinicians. As a result, scores of clinicians have been trained and had clinical experience in the CDC/MSF model.

"The project hasn’t just provided services to patients, it has also been the basis for training. It is not just Guangxi that benefits, it has provided guidance for the whole nation.” Dr Chen Jie, the Deputy Director of the AIDS Department of Guangxi Province Public Health Bureau.

Hospital referrals

Patients that needed hospital care were referred to Hospital Number 4 – Nanning city, an infectious disease hospital with a dedicated HIV department. A referral letter was sent with the patient, documenting the patients’ chief complaint, possible diagnosis, and background information. Hospital rounds were done twice per week by MSF doctors to supervise the treatment provided to MSF patients, discuss difficult cases with the hospital doctors, provide ART, as well as being a reassuring, familiar face to the patient. Patients were provided with a discharge summary from the hospital attending doctor, which summarized the admission and outlined the investigations performed as well as the management the patient received in hospital. This was included in the patient’s clinic notes to ensure comprehensive records of the patient’s medical history.

Lessons Learned

- Psychosocial support and counselling is an important component of patient-centred care and has added benefits when delivered by trained peers
- In the management of a chronic disease like HIV, it is preferable to have clinicians who stay long term, and that all team members have a well-rounded understanding of the project
- Well-defined frameworks and standard protocols ensures better continuity in patient care
- Establishing good referral networks for patients who require specialised care is important in managing complicated cases (patients with retinal detachment from CMV or Hepatitis C co-infection etc)
- Access to needle and syringe exchange together with stronger collaboration with Methadone and detoxification centres has obvious benefits for patients, as there are many interactions between ARVs and Methadone, and many issues with HIV and injecting drug use that overlap

Patients benefit from a holistic package of care and treatment delivered by experienced, long-term staff
Free comprehensive care included not only free ART, but also laboratory investigations, radiology, hospitalization costs, counselling, psychosocial support, nutritional support, Hepatitis B vaccination, annual PAP smears for women, Syphilis and Hepatitis screening, VCT for spouses and children of patients, PMTCT, early infant diagnosis (with PCR testing), diagnosis and management of OIs, and financial support for patient transport in specific circumstances. A strong emphasis was placed on the counselling component of the model, preparing patients for treatment, as well as providing psychosocial support. MSF nurses and doctors took turns carrying a mobile phone on weekends or holidays to provide medical advice to patients with HIV-related emergencies.

**Prevention of Mother-to-Child Transmission (PMTCT)**

PMTCT is an important intervention to prevent HIV transmission from mother to child, without which, the HIV transmission rate varies from approximately 20 to 30% in the absence of ARVs. Providing ART for mother and newborn as well as avoiding breast-feeding, decreases the rate to less than 2%.

The Guangxi CDC/MSF clinic has provided PMTCT interventions for 89 mothers and babies from October 2004 to May 2010. The PMTCT protocol changed over the course of the project, but the majority of women received triple ART during their pregnancy. Women who received triple ART for a minimum of 8 weeks, with an undetectable viral load, were advised to have a normal vaginal delivery, unless any obstetric condition required a caesarean section to be performed. However, among the 89 women, C-section was performed in 73 (82%).

There were 90 HIV exposed babies born to mothers who had received some level of PMTCT interventions at the Guangxi CDC/MSF clinic. In general, newborns received AZT syrup for 1 to 6 weeks. Artificial feeding was recommended and supplemental formula milk was provided by CDC/MSF for 6 months. Babies were HIV-PCR tested at 4-6 weeks and 4.5 months, and had an ELISA performed at 18 months. There were no babies with confirmed HIV transmission. However, there were 5 cases of false positive PCR results (confirmed by 2 subsequently negative PCR results or a negative ELISA).

Many advances have been made in Early Infant Diagnosis (EID) since the project began, however there are still challenges to overcome. The delay in processing PCR results, as well as the occasional false positive PCR test, caused much anguish to parents, created doubt in the doctor about the reliability of a positive PCR result, and overall delayed diagnosis.
PAP Smear and STI Screening

HIV positive women are 4 to 5 times more likely to develop Cervical Intraepithelial Neoplasia (CIN) than HIV negative women and annual PAP smear screening is recommended to detect abnormalities early so preventative interventions can be offered. Annual PAP smear screening was offered to all women in the CDC/MSF cohort. Of 496 women, 271 (55%) women had at least one PAP smear. A total of 33 (12%) women had an abnormal PAP smear.

Table 2: PAP smear results in women in the CDC/MSF cohort – Nanning, Guangxi province, China – Dec 2003-May 2010

<table>
<thead>
<tr>
<th>Normal</th>
<th>Inflammation/ Cervicitis/HPV</th>
<th>ASCUS</th>
<th>LSIL/CIN1</th>
<th>HSIL/CIN2-3</th>
<th>Cervical cancer</th>
</tr>
</thead>
<tbody>
<tr>
<td>238</td>
<td>12</td>
<td>6</td>
<td>8</td>
<td>6</td>
<td>1</td>
</tr>
</tbody>
</table>

Out of the 33 women with abnormal PAP smears, 16 reverted to normal on a subsequent PAP smear, and 13 others have not yet had a follow-up smear. Two women with CIN 1-2 died prior to any intervention, and 2 had further interventions with surgery and cone biopsy. The impact of PAP smear screening was that 2% of women were identified as having significant abnormalities that required interventions, although not all followed through with recommended follow-up treatments.

STIs such as Syphilis, Hepatitis B and C were routinely screened for, however STIs such as Chlamydia and gonorrhoea (which involve taking genital swabs), were not routinely assessed. Many STIs are asymptomatic, hence the need for regular screening especially among high-risk HIV populations (sex workers and MSM). To provide a truly comprehensive service to HIV patients, full STI screening and PAP smears could have been performed with in the clinic, and perhaps further training in sexual history taking and STI screening for the doctors was warranted.

Cytomegalovirus (CMV) screening

CMV retinitis is a seldom mentioned part of the HIV pandemic, and continues to cause blindness in patients with severely weakened immune systems who have limited access to ophthalmological care. Visual symptoms are frequently absent in the early stages of CMV retinitis, and once visual loss occurs, it is irreversible. Early diagnosis and treatment of CMV retinitis must be the goal, just as it is for certain other HIV-related conditions.\textsuperscript{13}

CMV retinitis is the 3\textsuperscript{rd} most common, serious OI affecting patients in the CDC/MSF cohort. In 2008, both CDD and MSF doctors were trained to use the indirect ophthalmoscope to detect CMV retinitis by a visiting American ophthalmologist.

\begin{quote}
\textit{“International doctors in western countries started HIV/AIDS treatment earlier, so we can learn from them. With MSF here, local doctors have a platform to communicate with international doctors. For example, I can now treat CMV and perform indirect ophthalmoscopies. I was trained to do this by MSF and without them, it might have been difficult to learn this skill.”} Dr Nong Yingxing. Hospital doctor in the HIV department, Hospital Number 4.
\end{quote}

\textsuperscript{13} HIV clinics routinely screen their patients for TB and cervical cancer in order to achieve early diagnosis and treatment, and thereby limit morbidity and mortality from these serious conditions.
Subsequently all patients who presented to the clinic with a CD4<100 were screened for CMV retinitis. If active CMV was detected, the patient had a Digital Retinal Image for the purpose of documentation and quality control. The patient was treated with either intra-vitreal ganciclovir (one HIV clinician was trained in this procedure), and/or intravenous Ganciclovir, and/or oral Valganciclovir until such time as the CMV retinitis looked inactive, the CD4 was >100 and the patient had been on ART for >3 months (refer to CMV treatment protocol in annex 4). However, outside this setting, there is an absence of a convenient and affordable CMV-specific treatment, and Valganciclovir remains an unaffordable option for almost all patients.

**Table 3:** Results of retinal assessments by indirect ophthalmoscopy in the CDC/MSF cohort – Nanning, Guangxi province, China – Nov 2008-Jan 2010

<table>
<thead>
<tr>
<th>Patients assessed</th>
<th>Number</th>
<th>CMV detected* (%)</th>
<th>Significant vision loss**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Screening of asymptomatic patients with CD4&lt;100</td>
<td>64</td>
<td>7 (10.9%)***</td>
<td>3/7 = 42.9%</td>
</tr>
<tr>
<td>Early retinal assessment of symptomatic patients who were referred from other ART sites</td>
<td>17</td>
<td>13 (76.5%)</td>
<td>12/13 = 92.3%</td>
</tr>
<tr>
<td>Assessment of patients with chronic visual loss (including 5 with new visual symptoms)****</td>
<td>8</td>
<td>7 (88%)</td>
<td>7/7 = 100%</td>
</tr>
</tbody>
</table>

*Either active or inactive CMV  
**Significant vision loss by clinical assessment (from review of patient files in April 2010)  
***Two of these patients initially screened negative for CMV, but later developed visual symptoms and CMV was detected  
****New visual symptoms may indicate a risk of retinal detachment

As mentioned in Table 3, 10.9% of patients screened, were detected as having active CMV and were treated appropriately. Without screening, these patients may have developed visual loss or blindness. “Early” retinal assessments were performed in patients who complained of new visual symptoms and had been on ART for less than 6 months and had been referred from other ART sites. Patients who presented with visual symptoms, were twice as likely to suffer from significant visual loss, than those who received screening at initial presentation.

This argues for screening and treatment before visual symptoms develop. In the 8 patients with chronic visual loss, retinal detachment secondary to CMV scarring was seen in 5 patients. Two had inactive CMV retinitis, and one was felt to have ocular Toxoplasmosis.

Even when CMV is successfully treated, patients continue to be at risk of further visual deterioration from retinal detachment. Unfortunately, local ophthalmologists were difficult to access at any stage of the process, and patients with retinal detachment were left without options for repair.
TB Screening and one-stop service

TB is the most common OI in HIV infected adults, and may be difficult to diagnose, especially in children. In the earlier years of the project, the index of suspicion for diagnosing TB was low in the clinic with a likelihood of some early mortality being attributed to undiagnosed TB. This was addressed in 2007 by:

- mandatory screening for symptoms of TB at every patient visit
- introduction of MSF’s smear negative TB algorithm, adapted to the Chinese context to include the possibility of PM (refer to annex 5)
- TB culture (+/- Drug sensitivity Testing) to increase the yield for all smear negative cases.

In the Guangxi CDC/MSF clinic, TB was diagnosed in about a third of patients. The benefit of one-stop TB/HIV care includes:

- one clinician overseeing treatment of both related conditions
- ease for the patient with less risk of defaulting
- combined adherence counselling for both TB and HIV medications
- reduction in duplication of health care resources
- clinicians aware of the complexities of managing the HIV/TB co-infected patients including drug interactions
- improvement of awareness of systematic screening.

Patients who required daily Streptomycin injections for Category 2 TB treatment, were sometimes turned away from their local TB clinic on the grounds of their HIV+ status. Without an alternative, some were admitted to hospital for the two-month duration of their Streptomycin treatment.

Hepatitis B and C

All patients were routinely screened for Hepatitis B and C at enrolment to the project, and non-immune patients were offered Hepatitis B vaccination. Further benefits may have been gained by offering Hepatitis A vaccination to co-infected patients.

Patients with Hepatitis B co-infection may benefit from an ART regimen including Tenofovir and Lamivudine, while Hepatitis C co-infected patients may benefit from specific counselling about maintaining a ‘healthy liver’ as well as referral to Hepatitis C services for further information about treatments.
Evidence-based medicine

MSF practices a Western philosophy of medicine where an evidence basis for patient management is central. MSF’s standardised HIV protocols are built from their experience gained from the field, the latest evidence from the literature, combined with the most cost-effective approach. MSF investing in researching the evidence behind some of the more commonly used Traditional Chinese Medicine (TCM) in HIV patients may have allowed integration of both approaches to the patient care model.

Lessons Learned

- Quality assured PCR tests with a short processing time improves early infant diagnosis
- Systematic screening prevents morbidity and mortality by early identification of debilitating or life-threatening OIs (CMV, PM, TB, cervical cancer) and is feasible within the HIV clinic by trained clinicians (e.g. HIV clinicians trained to screen for CMV retinitis with the indirect ophthalmoscope)
- Routine Hepatitis screening benefits the patient, especially when accompanied by Hepatitis B vaccination in non-immune patients and inclusion of Tenofovir and Lamivudine in those found to be Hepatitis B positive
- The use of evidence-based protocols for the management of OIs helps to standardise management and provide clear guidelines to all clinicians involved in HIV care

Comprehensive HIV care, including screening and a range of other services provided at one site, reduces morbidity and mortality, and is more convenient for the patient
In China, marginalised groups such as Men who have Sex with Men (MSM), Female Sex Workers (FSWs) and Injecting Drug Users (IDUs), are at high risk of HIV and AIDS. Unfortunately due to stigma and discrimination, there is great reluctance to disclose high-risk behaviours. This, along with a lack of systematic questioning about sex work and MSM at each consultation, has made it difficult to estimate the percentage of patients that belong to these groups. Questioning about injecting drug use however, was routinely done at each patient visit and the data recorded was more reliable. 32% of patients disclosed being either active or former IDUs.

“The government is doing what it can regarding stigma, but it goes really deep. You need more and more education campaigns.” Sherry Dubois. MSF Field Coordinator. July 2009 – November 2010.

At the beginning of the project, patients were given the option of being tested anonymously, whereas at the end of the project, following national regulations patients were asked to present their identification card. There is a concern that, if required to produce their ID card, patients may be reluctant to come forward for testing.

In the clinic environment, confidentiality and showing respect to patients by ensuring privacy in the consultation room, were considered important, to prevent disclosure of the patient's HIV status to others, to encourage discussion of high-risk activities, and to enhance the doctor-patient relationship. However this was sometimes difficult to guarantee for the CDC/MSF patients as, along with data about their HIV parameters, their name, address, identification and phone number were also given to the National Reporting System in the later stages of the project.

“There are cultural differences in the interpretation of confidentiality and privacy. From MSF’s perspective, a top priority is to protect the rights of the patients. From our side, we need to be accountable. We need to know how much medicine is being used, we need names and addresses so we can report to an auditor.” Dr Wu Zunyou, Director of the National Centre for AIDS/STD Control and Prevention, Chinese Centre for Disease Control.

Other occasions where confidentiality was an issue, was when the CDC vehicle went to perform visits to the patient’s homes, which sometimes inadvertently lead to the disclosure of patient’s HIV status to members of their family or community.

“The reason we realise confidentiality is so important is that currently, HIV/AIDS is still a very sensitive disease. For patients from the countryside, if villagers know the patients status, they cannot live there anymore, they have to move out. The CDC realises that disclosure happens on some visits. Some people have worn white coats when going on home visits. In the future, the CDC has said they will pay really close attention to this and be as cautious as possible. I am sure that things will improve.” Nurse, VCT site, Nanning.

Gastroscopy, bronchoscopy and other endoscopic procedures as well as referrals to ophthalmologists and psychiatrists were difficult to access as health care professionals often refused or were reluctant to care for the individual if the patient was known to be HIV positive.
"Stigma is very strong. In my daily life, I am terrified of other people finding out about my status, or the status of my child. When women are infected and the husband’s family find out, they are kicked out by the family. My husband’s family do not know and both myself and my husband are very scared about them finding out.”
Female patient, 29 years old. Started treatment at the end of 2008.

Lessons learned

- Barriers to accessing care exist when patients are fearful of discrimination
- Ongoing education and strategies to combat stigma in the general population and within the medical community are important so HIV positive people are accepted in society, have access to medical services and are treated equally
- Access to some medical services (such as ophthalmologists, psychiatrists, endoscopy, some surgical procedures, and TB clinics, etc…) for HIV positive patients is lacking. Efforts to recruit sympathetic staff, or mandate that these medical professionals provide care for the HIV positive patient, may address the shortfall
- Confidentiality and showing respect for the patient by ensuring privacy during the consultation, improves the doctor-patient relationship

Addressing stigma and discrimination in the general public and within health care settings promotes the health and wellbeing of people living with HIV
Adherence support

Since 2007, MSF has put a lot of emphasis on patient’s adherence to treatment, by implementing or improving the following components of the program:

**Counselling**

Counselling was a component of the program since the beginning, but in 2007 MSF started to collaborate with AIDS Care China (ACC) and their sub-project Red Ribbon Center (RRC). Three RRC counsellors were trained by MSF and given incentives to provide counselling for patients and their families at the Guangxi CDC/MSF clinic. In June 2009, 3 more RRC counsellors were added to assist the transfer of patients, and the most experienced were placed in the main ART sites where MSF patients were transferred.

“If a person is confirmed as HIV positive and has a lack of knowledge about HIV/AIDS, it can make them very scared. We give them knowledge to help themselves,” Li Lin, Red Ribbon Center, Guangxi Campaign Director.

The patient centred approach was greatly enhanced when RRC staff joined the counselling team. Having peer HIV positive counsellors as staff members provided valuable contributions and insights to the rest of the team, as well as adding a personal perspective to the approach used with patients. Although they were not formally trained (though they received extensive training through MSF/RRC), they brought added value to the counselling part of the project. The therapeutic relationship was two-way: on one side, the patient was encouraged to live a positive life modelled on the peer counsellor, and on the other side, the counsellors learned more about their own health situation.

“Peer counselling can give patients confidence as we ourselves are examples for them. Peer psychological support is very effective as peer educators can really stand in the same place as the patients.” Peer counsellor, Red Ribbon Center.
Even though at the beginning of the project the counselling focused solely on adherence, later emphasis was also given to the psychological and social needs of the patients (refer to counselling guidelines in annex 6). Those with severe psychological problems were referred to psychologists and cases requiring psychiatric intervention to Hospital Number 5 – Nanning City. To address the social needs of the patients, the counselling team worked together with Guangxi CDC, local GONGOs and NGOs, such as ACC.

“For me, the main achievement of this project has been the psychological support. When I arrived in the clinic I was very sick, and people gave me a lot of encouragement. Before I didn’t have any knowledge about transmission, but now I know. At first, I didn’t understand the importance of taking ARVs at the right time, but the doctors and counsellors emphasized this, and my CD4 count improved. Its good to talk with the counsellors. Talking with them is the only way to relieve my burdens. Every time I talk with them I cry,” Female patient, 28 years old, under treatment since May 2008.

The continuous support provided to patients by the counselling team is key to the positive outcomes of this project, as evidenced by the low rate of defaulters, immunological recovery, and adherence to medications.

“In our previous medical practice, we never paid attention to counselling. When AIDS first started to emerge, there was incorrect propaganda. The media said that AIDS was a death sentence. Through counselling we can give patients correct information about how HIV/AIDS can be treated as well as tell them how to prevent the spread of the disease.” Dr Huang Shaobiao. Director. HIV Department, Hospital number 4, Guangxi.

Appointment system and tracing

The appointment-based system aimed to regulate the workload and identify patients who failed to show up for their follow-up on the day they missed their appointment. These patients were contacted by phone at the end of the workday. Their file was given to the counselling team to try to trace if no contact was made. Lost to follow-up patients were also collected from the FUCHIA database, and again counsellors made every effort to contact these patients.

Reduction of pill burden

FDCs reduce pill burden and in January 2006, MSF imported FDC with D4T, 3TC and NVP for the Nanning project. Most patients reported preferring the convenience of taking a 3-in-1 drug. However, at the end of 2007, in keeping with the Chinese ART Guidelines where AZT is preferred to D4T in the first line regimen, many patients were switched back to Combivir (AZT/3TC) with Nevirapine. When restrictions were placed on the importation of drugs to China, and given that the project was to be handed over, the Guangxi CDC/MSF clinic started to use individual drugs (AZT+3TC+NVP) supplied by the CDC in mid 2009.

TB FDCs were also used for adults and children however, towards the end of the project when the importation of drugs was restricted, individual TB drugs were used for adults. To prevent under or overdosing, and for the convenience of the patient, FDCs are preferable.

Individual TB drugs  

TB FDC
Minimising side-effects

As ART side effects may cause significant morbidity and mortality, certain measures were introduced to try to manage side effects early and may account for the high rate of patients requiring a switch in their ART regimen (42%):
- doctors at the Guangxi CDC/MSF clinic were trained to have a high index of suspicion for side-effects
- a side-effect management wall chart was created and standardized the approach to side-effect management (refer to annex 7)
- a point-of-care lactate machine, which allowed on the spot measurement of lactic acid, was used in the clinic in order to detect lactic acidosis early

Drug quality

MSF prefers to use WHO pre-qualified ARVs in all of its projects so that internationally recognised standards are reached. Using WHO pre-qualified drugs ensures that the patient receives the best treatment possible.

Adherence outcomes

Patient’s adherence was measured at every visit using self-report and pill count, although the efficacy and reliability of these indicators remains questionable. Additional adherence indicators could be: the number of delayed appointments (this was not studied due to lack of data), the number of patients remaining in care and the number on second line ART.

Patients remaining in care after one year of follow-up

Of all patients initiated on ART since the beginning of the program, 1094 were eligible for a “one-year outcome analysis”, as they had been on ART for at least 12 months.

Table 4: One year outcomes of patients on ART for 1 year or more – Nanning, Guangxi province, China – Sept 2010 (N=1094)

<table>
<thead>
<tr>
<th></th>
<th>Non-IDU</th>
<th>IDU</th>
<th>Children</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dead</td>
<td>39</td>
<td>18</td>
<td>11</td>
<td>68</td>
</tr>
<tr>
<td></td>
<td>5.57%</td>
<td>5.75%</td>
<td>13.58%</td>
<td>6.22%</td>
</tr>
<tr>
<td>Transferred</td>
<td>28</td>
<td>11</td>
<td>4</td>
<td>43</td>
</tr>
<tr>
<td></td>
<td>4.00%</td>
<td>3.51%</td>
<td>4.94%</td>
<td>3.93%</td>
</tr>
<tr>
<td>Lost to follow-up</td>
<td>16</td>
<td>15</td>
<td>1</td>
<td>32</td>
</tr>
<tr>
<td></td>
<td>2.29%</td>
<td>4.79%</td>
<td>1.23%</td>
<td>2.93%</td>
</tr>
<tr>
<td>Followed</td>
<td>614</td>
<td>265</td>
<td>65</td>
<td>944</td>
</tr>
<tr>
<td></td>
<td>87.71%</td>
<td>84.66%</td>
<td>80.25%</td>
<td>86.29%</td>
</tr>
<tr>
<td>Unclear outcomes</td>
<td>3</td>
<td>4</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>0.43%</td>
<td>1.28%</td>
<td>0.00%</td>
<td>0.64%</td>
</tr>
<tr>
<td>Total</td>
<td>700</td>
<td>313</td>
<td>81</td>
<td>1094</td>
</tr>
</tbody>
</table>

The number of patients remaining in care after one year was high (86.29%), and was not significantly different between non-IDUs and IDUs (p=0.323) or between adults and children (p=0.100). However, the number of deaths was significantly higher in children than in adults (13.58% vs 5.63% respectively; p=0.004). The median age of children who died was 2 years old, and it is likely that those children were only recognised as having HIV in the late stages of their illness.
The number of patients lost to follow-up or defaulting from the program, was also higher in the IDU population than in the general adult population (4.79% vs 2.29% respectively; p=0.020). As mentioned in chapter “Modes of transmission” page 15, 32% of the MSF cohort were IDUs, and this patient group faced some difficulties in attending regular follow-up.

Although cost was not a barrier, other factors may have hindered IDUs attendance:
- lack of self-control and discipline
- ongoing use of heroin may lead to a chaotic lifestyle
- limited responsibility for their own health
- limited or inexistent social support (many IDUs are abandoned by family and friends)
- if detained in detoxification centres, access to HIV care was limited and many could not attend their clinic appointment

To try to overcome these barriers the CDC/MSF counselling team encouraged IDUs to join the local methadone and needle exchange programs, and invited IDU’s close friends or relatives to follow-up visits.

Efforts were also made to increase collaboration with the detoxification centres in surrounding areas. A good rapport was developed with Detoxification Centre No 2, and patients detained there were brought for follow-up to the clinic by guards and the detoxification centre doctor. Attempts were made to set up a visiting HIV service to other detoxification centres, though this never materialized. As a result many of these patients defaulted from their ART and remain at risk for developing viral failure in the future.

**Second line**

National data suggests that after five years of ART, the cumulative treatment failure rate is 50%14. In the Guangxi CDC/MSF cohort, out of 193 patients who had been commenced on ART 5 years ago or more, 24 patients died and 17 were transferred out of the program. At 5 years, there were 152 patients on active ART, and 14 (9.2%) were on a second line regimen. In July 2009, routine viral load monitoring for patients on ART >1 year was introduced. Of 621 viral load measurements performed from July to December 2009, 19 (3.1%) patients had viral load >1,000 copies/ml. The low number of patients with viral failure and on second line treatment is attributed to the model used, where a strong emphasis is placed on counselling and adherence support, as well as providing comprehensive care to the patient, and the project’s use of quality FDCs (up until June 2009).

**Lessons learned**

- Peer counselling, delivered as an integrated part of the model of HIV care, provides important benefits for patient adherence
- Adherence can be strengthened by using FDCs, safe patient-friendly first line ART with minimal side-effects (e.g.Tenofovir), an appointment based follow-up, and by training more than one care-giver in the child’s ARV regimen
- Having access to a larger repertoire of ARVs will provide options to patients with multiple intolerances or failures to first or second line
- Affordable, accessible and efficient monitoring tests allow early detection of side-effects (e.g. on the spot, point of care lactate tests to detect lactic acidosis in symptomatic patients)
- WHO pre-qualification would standardize the quality of Chinese ARVs in line with the rest of the international community

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Almost a third of the cohort population were either active of former Injecting Drug Users. Given that they made up such a high proportion of the patients, it was important to consider their unique medical needs within the HIV clinic setting.

**Hepatitis B and C co-infection**

Among the 498 active or former IDUs:
- 402 of 457 with results recorded were Hepatitis C positive (88%)
- 95 of 467 with results recorded were Hepatitis B positive (20%)

Given the alarmingly high rates of Hepatitis co-infection in IDUs, introduction of a model of care that deals with both their HIV and hepatitis, needs to be introduced within the HIV care setting, and introduction of Tenofovir as a first line regimen in Hepatitis B co-infected patients, needs to be considered.

**ART outcomes**

Outcomes at one year for IDUs is compared to non-IDUs in the chapter “Patients remaining in care after one year of follow-up” page 41. Longer-term outcomes for IDUs can be seen in the following graph.

**Figure 14:** Kaplan-Meier estimates of the probability of survival by IDU status for all patients after ART initiation – Nanning, Guangxi province, China – 31st Dec 2009 (N=1115)

Although table 4 shows similar outcomes in the short-term (one year follow-up on ART) for IDUs and non-IDUs, longer-term survival outcomes of Figure 14 are significantly different between the two populations (0.74% vs 0.87% respectively; p=0.001).
These poorer outcomes may be explained by the many challenges that were faced with treating HIV positive IDUs:

- poorer adherence (a chapter “Patients remaining in care after one year of follow-up” page 41)
- interactions between methadone and ART
- high rate of Hepatitis B and C co-infection
- limited access to Hepatitis C treatment

While often IDUs are blamed for not taking responsibility for their health, the absence of access to services like Hepatitis C treatment, and the judgemental attitude they often experience from health care providers may also influence outcomes.

Despite challenges, provision of ART for IDUs should not be denied. Even though outcomes for IDUs are not as good as in the non-IDU population, they are still acceptable, and show that care for IDUs is still worth it, and feasible within an outpatient ART clinic.

“In the early stages, we had no experience in providing treatment to drug users and AIDS patients overall. We just started in 2003 and we were very hesitant to launch ART for drug users because we were not convinced they had good adherence rates, but we reviewed MSF data and found they did not have worse adherence rates than non drug users. That convinced us.” Dr Wu Zunyou, Director of the National Centre for AIDS/STD Control and Prevention, Chinese Centre for Disease Control.

Lessons learned

- The majority of IDU patients are also Hepatitis C positive, which emphasises the needs for stronger collaboration between detoxification centres, Hepatitis C referral centres and HIV services.
- Access to HIV care for patients detained in detoxification centres may reduce the risk of patients defaulting on their ARVs and subsequent risk of viral failure
- Hepatitis B and C co-infection rates are very high among HIV patients, especially IDUs, and developing a model that delivers care of both infections within the HIV clinic would have benefitted these patients

Care for IDUs is feasible within an outpatient setting, and developing strong collaboration between detoxification centres, Hep C and HIV services needs to be the next step.
Hospitals in China receive little funding from the government and are forced to operate on a cost-recovery basis where patients pay for services. Often hospital expenses are beyond the ability of poor patients to pay. When hospitals must make a profit in order to survive, poor patients suffer.

The average cost of a hospital admission for the 171 patients who were admitted to Hospital number 4 – Nanning city (the HIV referral hospital in Nanning) in 2008 was RMB 8,487. In 2008 the average per capita annual net income of rural households in Guangxi was 3690 RMB and the per capita annual disposable income in Nanning City was 14,446 RMB. The average duration of a hospital stay was 18 days. MSF in general covered the hospital expenses for the patient.

There have been many advances in the National ART System’s treatment of OIs since the project began. Theoretically anti-fungal drugs for certain OIs were free, but in practice it was difficult for patients to access these benefits: the drugs were not always available, supplies ran out and the hospital admission or monitoring tests associated with the use of the drug, were not covered.

**Table 5: Cost related to diagnosis and treatment of Opportunistic Infections – Nanning, Guangxi province, China**

<table>
<thead>
<tr>
<th>Opportunistic Infection</th>
<th>Theoretically free under the National System †</th>
<th>Not-Free</th>
<th>Estimated cost ††</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tuberculosis</strong></td>
<td>Sputum smear x 3 Chest X-ray</td>
<td>Culture+/- DST Pleural aspirate Lymph node biopsy Category I or II treatment</td>
<td>350 52 141 339-529</td>
<td>339-878</td>
</tr>
<tr>
<td><strong>Penicilliosis</strong></td>
<td>Amphotericin B Itraconazole*</td>
<td>Blood Culture Skin biopsy Amphotericin B Itraconazole</td>
<td>150 250 0-931 0-5271</td>
<td>150-6602</td>
</tr>
<tr>
<td><strong>CMV</strong></td>
<td>Screening (by HIV Doctor trained in indirect ophthalmoscopy)</td>
<td>DRI Intra-ocular Ganciclovir** IV Ganciclovir** Valgancyclovir**</td>
<td>230 1718 3163 73150</td>
<td>1,948-72,380</td>
</tr>
<tr>
<td><strong>Cryptococcal meningitis</strong></td>
<td>Amphotericin B Fluconazole***</td>
<td>Lumbar puncture with laboratory tests</td>
<td>161</td>
<td>161-2,429</td>
</tr>
<tr>
<td><strong>Toxoplasmosis</strong></td>
<td>Lumbar puncture with laboratory tests Cotrimoxazole****</td>
<td></td>
<td>161 131</td>
<td>292</td>
</tr>
</tbody>
</table>

†While in theory these treatments are free under the National ART System, often there is a short-fall when supplies or budget run out
††Costs are estimated in a range represented by the minimum cost of diagnosing and managing an OI, to the maximum cost including special diagnostics and medication costs if there is a shortfall of free medication from the national system

*The average duration of treatment for patients with Penicilliosis until CD4>100 and on ART for 3/12 was 11.5 months
** Of the 20 patients treated for CMV at the MSF/CDC clinic, the median duration of treatment for CMV was 4 months. Often this was made up of a combination of treatments, sometimes with intra-ocular injections, IV Ganciclovir or oral Valganciclovir. Treatment was stopped when the CMV looked inactive, the CD4 count was >100 and the patient had been on ART for at least 3 months
***Of patients who completed CCM treatment, the average duration of time on treatment was 18 months. Patients stopped prophylaxis with Fluconazole when CD4>200
****Initial treatment for Toxoplasmosis was for 8 weeks, followed by an estimated 6 months maintenance therapy until CD4 >200
TB medications are provided free of charge to patients with sputum smear positive pulmonary TB by the national TB program. Patients with smear negative TB, extra-pulmonary TB, those with TB relapse, or those with resistant or MDR TB, are not covered. HIV positive patients present more frequently with smear negative, or extra pulmonary forms of TB, and few were entitled to free treatment for their TB.

In countries where National Health Systems cover the majority of patient costs, there is a strong emphasis on rational prescribing and shortening hospital admissions to minimize costs. This sometimes led to differences of opinion between the MSF expatriate doctors and the hospital doctors about the treatments used and length of hospital admissions.

“My family is not in a good economic situation and before I joined the project I used to feel totally hopeless, but this project has given me hope. It has made me feel like I can face life again.” Female patient, 29 years old, joined at the end of 2008.

Lessons learned

- The Health Care Reform China is currently undergoing has the capacity to realign incentives for health care providers in the provision of care to patients. Until significant changes are made, poor patients will continue to face difficulties accessing care
- Improving access to “free OI treatment” and including the cost of diagnosis and lab tests related to OIs reduces morbidity and mortality in patients (e.g. affordable and convenient treatments for patients with CMV prevent blindness)
- Rational prescribing and minimising length of hospital admissions reduces hospital costs for patients
- Out-patient ART sites set up to provide simple procedures such as Streptomycin injections, IV Ganciclovir infusions and lumbar puncture, may limit the need for hospital admissions for certain patients

When patients bear the cost of healthcare, inequity is created, and the overall health and wellbeing of the wider population suffers
When the Guangxi CDC/MSF project began in late 2003, most Chinese clinicians had very little experience in treating HIV. Around the time the project started, national guidelines were being drafted, and MSF expatriates were able to contribute to the forming of the protocols that would be the basis for national policy in the fight against the disease.

In the early years of HIV in China, the major form of transmission was through injecting drug use. Now, sex is the predominant mode of transmission of HIV, which makes the forceful tackling of discrimination all the more necessary. Attitudes towards HIV in the general population have changed, and awareness campaigns have gone some way to breaking the false view that HIV is an automatic death sentence, but stigma towards people living with HIV/AIDS remains significant. Reaching out more directly to marginalised patients in their own environments could be a way of encouraging early testing and treatment, and therefore go some way to addressing the epidemic in the wider population.

Today, with early diagnosis, patients can live healthy and productive lives for many years, contributing to family life as well as wider society. Making testing and ARV’s free of charge nationally has no doubt increased the amount of people who can access care and treatment, but the continued cost burden to patients for the treatment of certain OIs means that some patients will slip through the cracks. These are messages that should be more broadly disseminated and understood, both in the clinical community and in Chinese society.

The Guangxi CDC/MSF clinic brought a model to China that focussed not just on medical treatment, but also on the patient’s holistic needs. Counselling and social support are not mainstream elements of medical care in China, but undoubtedly improve outcomes. Close follow-up of patients, combined with patient-friendly drugs, are other factors have been shown to improve adherence. The project has also clearly shown that a whole range of patients – including those from marginalised groups – can be treated successfully, stick to a treatment regime and regain levels of quality of life, which they may have thought impossible upon diagnosis.

While some aspects of the Guangxi CDC/MSF model are not reproducible because of limitations on resources, others simply involve a change in the traditional approach to patient care. Many aspects of the model can be duplicated such as the appointment system for patient consultations, integration of patient friendly approach, involvement of all members of the team for the management of complicated patients, or use of the FUCHIA system for collecting patient data.

After seven years of close collaboration, MSF and provincial health authorities have together developed a high level of expertise in the testing and treatment of the disease in Guangxi. This evidence-based expertise was continually updated and shared with clinicians working in HIV/AIDS, and has led to the province becoming nationally recognised as innovative and thorough in its approach to addressing the epidemic.

There has been enormous progress in the field of HIV in Guangxi since the project began. From a handful of sites when the project started, there are now 45 National ART sites throughout the province, staffed by clinicians who have received training and experience from within the Guangxi CDC/MSF model. MSF has gained in-depth knowledge of HIV in Guangxi and has learned the best methods for working with health authority partners. CDC partners were able to benefit from the years of evidence-based experience MSF has in working in HIV/AIDS around the world, as well as having access to the latest treatment protocols. For both MSF and CDC, the Guangxi HIV/AIDS project has been a valuable experience of sharing and learning.
1. ART monitoring and counselling schedule (refer to CD)
2. Consultation forms for patient visits (adult, child, background, follow-up) (refer to CD)
3. List of interviewees and questions asked
4. CMV treatment protocol (refer to CD)
5. MSF’s smear negative TB algorithm adapted to Chinese context (refer to CD)
6. MSF Nanning Counselling Guidelines (refer to CD)
7. Grading of ART side effects (refer to CD)
8. Paediatric ART Dosing Chart (refer to CD)

For those who are interested in reading more about the documents in annex, please contact Dr Tang Zhirong from the Guangxi CDC clinic for copies of the CD (zhirongt@126.com)
ANNEX 3: LIST OF INTERVIEWEES AND QUESTIONS ASKED

List of interviewees

**Partners**

Dr Wu Zunyou  
Director, National Center for AIDS, STD control and prevention, Chinese Center for Disease Control and Prevention (Beijing)

Dr Chen Jie  
Deputy Director of AIDS department of Guangxi Province Public Health Bureau

Dr Liu Wei  
Director of AIDS department of Guangxi Province Center for Disease Control

Dr Tang Zhirong  
Director of Guangxi CDC HIV clinic

Dr Huang Shaobiao  
Director, Hospital Number Four, HIV and infectious diseases department

Dr Nong Xyingxing  
Hospital doctor, Hospital Number Four, HIV and infectious diseases department

Nurse  
VCT centre, Nanning

Dr Jiang Zhongsheng  
Vice Director of AIDS department, Liuzhou People’s Hospital

Li Lin  
Director of Red Ribbon Center, Guangxi office

Programme officer  
Red Ribbon Center, Guangxi office

**MSF staff past and present**

Sherry Dubois  
Guangxi CDC/MSF joint project field coordinator

Dr Lu Zhenzhen  
Former Guangxi CDC/MSF joint project doctor

Wu Chan  
Guangxi CDC/MSF joint project translator and data manager

Chen Lijuan  
Guangxi CDC/MSF translator

Wang Jing  
Former Guangxi CDC/MSF joint project outreach supervisor

**Patients**

Female patient #1

Female patient #2

Male patient #1

Male patient #2
List of questions asked

The interviews were based on a set of questions defined by CDC and MSF.

1. Can you give a general description of that you know about the Guangxi CDC/MSF joint HIV project?
2. What are, for you, the main achievements of this project?
3. What did you learn from this project and how did it define your daily work?
4. Do you think that this project is a model? If yes, how would you describe this model?
5. Do you think this project had an impact in the way HIV patients are treated? If yes, can you give concrete examples?
6. What for you are the points to be improved in this project?
7. What are for you the issues that were not addressed by the project?
8. How do you define the work of MSF as an organisation? What are its strengths and weaknesses? What were the constraints of working with an international medical organisation?
9. What were the main challenges in the implementation of this joint project?
10. What would be your recommendations if this project were to be started today?
11. What are the areas of HIV that still need support?
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