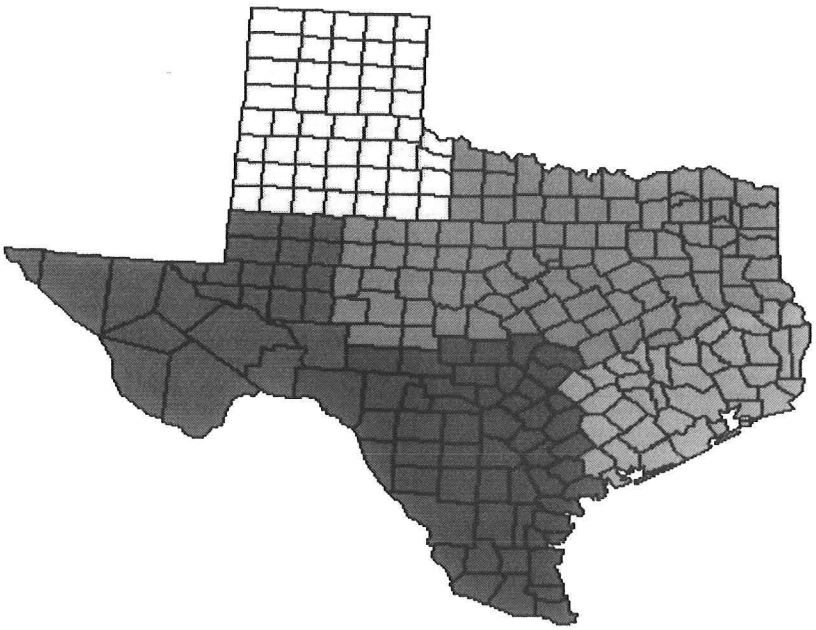
HIV in the Lower Rio Grande Valley



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Improving Access to HIV Care in the Lower Rio Grande Valley
An Example of a Federally Funded Health Service Delivery Research and Demonstration Project

Introduction:

The advent of potent antiviral combination therapy has dramatically altered the nature of the Acquired Immune Deficiency Syndrome epidemic in the United States. HIV-1infection has evolved into a chronic manageable infection with life expectancies comparable to other chronic disease states such as diabetes and coronary artery disease.

As with most chronic disease states, access to competent quality medical care is a major determinant of survival [1-3]. The Ryan White Comprehensive AIDS Resource Emergency Act ("the CARE act") enacted in 1990 has as a major goal the elimination of disparities in access to quality competent, HIV related care. Yet disparities in access to HIV care remain a major weakness in the healthcare delivery system of the United States.

In particular, the U.S-Mexico border poses unique challenges. While scant data exists regarding exact seroprevalence and enrollment into care, most experts agree that individuals along the southern border of the United States have limited access to care, resulting in under-treatment with subsequent excesses in morbidity and mortality for a variety of disease states including HIV [4].

The Health Resources Service Administration's HIV/AIDS Bureau (HRSA/HAB) is the federal agency charged with administering the 1.9 billion dollars appropriated by congress as part of the Ryan White Care Act [5]. In April of 2000, HRSA/HAB's Special Projects of National Significance Division established a 15 million dollar initiative designed to encourage research in the area of innovative approaches to expanding access to HIV care along the U.S.-Mexico border. Five projects and one evaluation center were funded.

In this article, we report on findings from the first two years of the project funded in the Lower Rio Grande Valley entitled "Projecto Juntos: Expanding Access to Care in the Lower Rio Grande Valley".

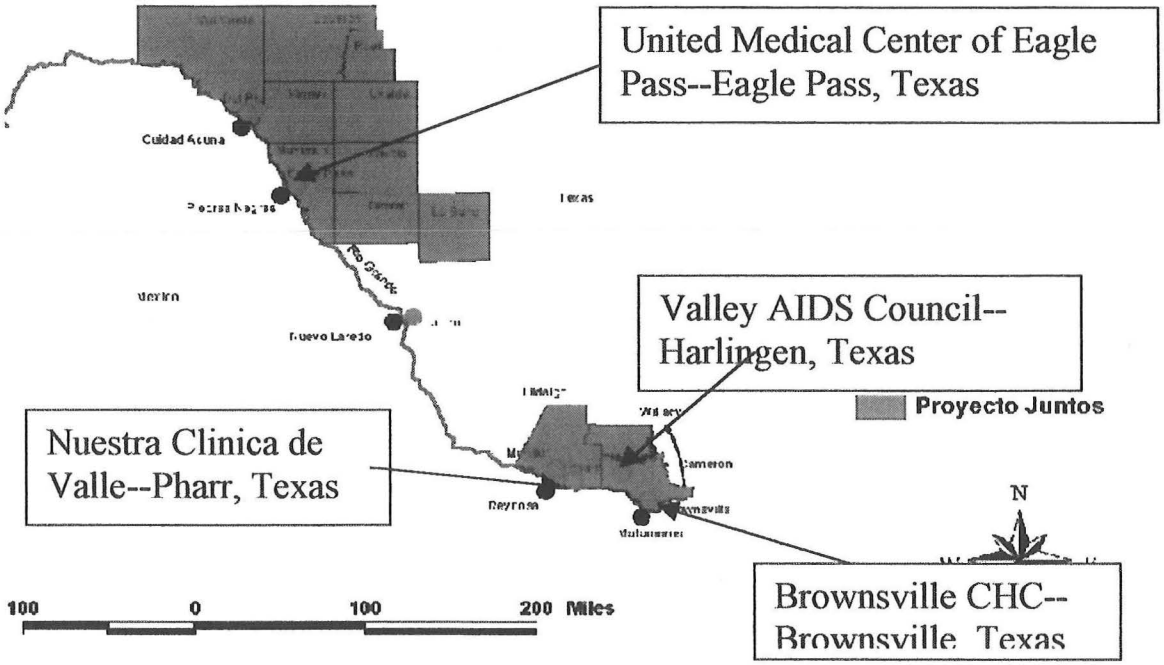
Background

Description of the Current HIV Healthcare system in the Lower Rio Grande Valley

The U.S. portion of the Lower Rio Grande valley is comprised of a 3 county region at the southern tip of Texas (Cameron, Hidalgo, and Willacy Counties). The area is approximately 4000 square miles (the size of the state of New Jersey). Specific data regarding this three-county region is generally not reported. However, the area is highly reflective of the conditions and problems seen throughout the 14 counties which touch the Texas-Mexico border, and the 43 county Texas border region as defined by the La Paz agreement of 1983 [6, 7]. The area is remarkable for a rapid population explosion over the last decade (3% per year during the 1990's[8]). The estimated population on the U.S. side of the 3 county region is 954,972 [9], clustering around three major metropolitan areas: Brownsville/Matamoros; McAllen/Reynosa; and Harlingen (See Map in Figure 1) [10].

Figure 1: Map of the Texas-Mexico Border

**Map 2. The Twelve Texas Counties of Proyecto Juntos:
Maverick, Kinney, Val Verde, Uvalde, Dimmit,
Zavala, La Salle, Real, Eduards,
Hidalgo, Cameron, and Willacy
With Locations of the Proyecto's Health Care Sites
Within the Counties**



The region is notable for its poverty. Thirty-four percent of the population of the 14 county region lives at or below the federal poverty level, as compared to 17% for Texas as a whole [8]. Unemployment in 1999 was 11.4%, as compared to 4.6% for the state of Texas [8]. The average annual pay is approximately $10,000 less per year than for the rest of Texas ($22,368 as compared to $32,254).[8] Seventy thousand migrant and seasonal farm workers reside in the region for portions of the year (personal communication, Yolanda Cantu). Fifty-seven percent of the population identifies Spanish as its primary language [8].

The population on the Mexican side of the Texas-Mexico border is estimated at 9.3 million (including the 4 border Mexican States of Tamaulipas, Chihuahua, Coahuila, and Nuevo Leon)[11]. Eight hundred thousand legal crossings occur each day across the U.S.-Mexico border (~300,000,000/year) [12]. Though it is difficult to obtain accurate data with regard to health care utilization on the part of non U.S citizens that claim U.S. residency, it is known anecdotally that large numbers of non U.S. citizens utilize the federally funded public healthcare system in the Rio Grande valley for both HIV, and non-HIV related health care needs.

Prior to the inception of the Ryan White Care Act, it was anticipated that the HRSA Bureau of Primary Healthcare network of Community Health Centers would shoulder the burden of the largely indigent HIV epidemic in the lower Rio Grande Valley. Indeed, HRSA funded Community Health Centers closer to the epicenter of the epidemic (e.g. New York City's Montefiore Community Health Center and San Antonio's Laurel Heights Community Health Center) have successfully implemented comprehensive arrays of HIV related healthcare services. In the lower Rio Grande Valley, however, this never evolved.

Nearly 100% of all HIV care in the LRGV has been provided by a single Ryan White funded AIDS Service Organization, the Valley AIDS Council (VAC), centered in Harlingen, Texas. VAC (which was created specifically in response to the HIV epidemic and was not part of the pre-existing network of Community Health Centers) provides a comprehensive array of services including

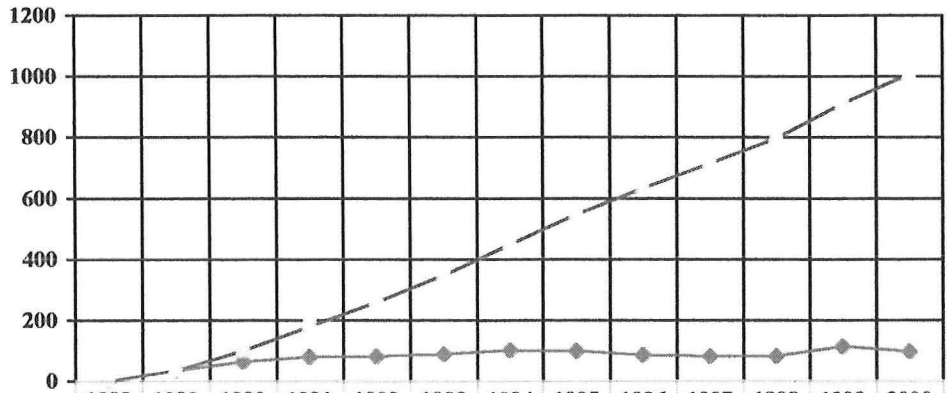
1. Outreach, testing, and counseling services.
2. Case management
3. Psychosocial support
4. Adherence counseling
5. Food bank
6. Housing assistance
7. Primary medical care for the HIV infected.

All services, including medical care, are centralized in one office. VAC maintains one FTE physician, who provides primarily outpatient services. Inpatients are referred to a local hospital, and cared for by staff physicians in consultation with local Infectious Diseases Specialists when appropriate.

Hypothesized Barriers to Accessing HIV Care in the Current System

The current system is widely regarded as having provided excellent services to clients since 1988. However, concerns regarding the system's ability to meet the needs of an expanding epidemic (See Figure 2—Expanding Caseload in the LRGV 1988-2000 [13]) surfaced in the years

Figure 2: Expanding Caseload in the LRGV: 1988 - 2000



	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Cases /Year	1	33	64	80	81	88	100	99	86	83	81	114	96
Cumulative Cases Opened	1	34	98	178	259	347	447	546	632	715	796	910	1006

prior to the study.

While Figure 2 demonstrates a linear growth rate of the epidemic as measured by total new cases of HIV identified by the VAC, the data is somewhat misleading in terms of its impact on the HIV Related Healthcare Delivery System. Since the advent of highly active antiretroviral

therapy in 1996, clinic attrition rates due to HIV related deaths have fallen dramatically. Therefore, despite a relatively constant influx of new cases, clinic volumes have increased dramatically as demonstrated in Table 1 [13].

Table 1: Clinic Contacts Jan-June [13]		
Year	Unique Patients	Visits
1999	181	444
2000	242	720
2001	318	1032

Furthermore, it is believed that VAC only serves a fraction of the region's HIV infected. It is estimated that only 33% of HIV infected individuals are currently receiving care for their HIV infection [14]. Despite its well developed Outreach,Testing, and Counseling Program, 42% of newly enrolled clients in VAC are referred only after diagnosis of first HIV related condition in a local hospital. [13]

Overall, a variety of potentially remediable systemic issues have been postulated as causes of sub-optimal HIV related healthcare utilization and capacity in the Lower Rio Grande Valley (Table 2).

Table 2--Hypothesized barriers to care under the current system
1. "One organization, one clinic, one doctor" system limits client level health care choices and prevents healthy competition with regard to providing excellent services.
2. Central location of current clinic creates transportation barrier for clients living at extremes of the region, which has no public transportation system (~25% of VAC's clients live greater than 30 minutes from the clinic--VAC data).
3. Care is segregated from other systems of medical care, leading to difficulties in accessing non-HIV related medical/surgical services.
4. System is vulnerable to sudden staffing changes and/or losses, particularly with regard to HIV skilled physicians and nurses.
5. Outreach efforts are primarily community based and fail to utilize the LRGV's primary medical care community to identify early HIV infection.
6. Caseload of HIV infected individuals in care is rapidly growing in the LRGV, and the system has no specific plan in place for expanding capacity.
7. Recruitment/retention of additional HIV skilled physicians/mid-level practitioners is extremely difficult despite higher than average salaries.
8. The system lacks linkages to tertiary care centers and other sources of continuing education.
9. The system lacks linkages to non-traditional, 'barrio-based', healers (clergy, pharmacists in Mexico, Curanderas).

Study Intervention

The study consisted of a mixture of quantitative and qualitative evaluation methods as well as a system level intervention. Both the quantitative and qualitative evaluation efforts were conducted by University of Texas Health Science Center in San Antonio (UTHSCSA) Division of Community Pediatrics. The intervention was developed and executed as a cooperative effort

between the Valley AIDS Council (VAC), the Texas Oklahoma AIDS Education and Training Center (TOAETC-centered in Dallas), the UTHSCSA Division of Community Pediatrics, and three partner Community Health Centers (CHCs) located along the Texas-Mexico Border.

Description of the Intervention:

The goals of the study intervention were :

1. To expand the capacity of the Lower Rio Grande Valley Healthcare System to care for increasing numbers of HIV infected patients by increasing the number of HIV-competent physicians in the region and ensuring their willingness to care for the HIV infected.
2. To improve access to HIV care in the Lower Rio Grande Valley by recruiting Federally Funded Community Health Centers at geographically disparate sites into the HIV care process and supporting them through linkages with the existing provider of HIV care (the Valley AIDS Council).

Initially, two Community Health Centers were recruited for the study: Nuestra Clinica de Valle (NCDV) in Pharr, Texas and Brownsville Community Health Center (BCHC) in Brownsville, Texas. To assess replicability of study findings, a third CHC in the Upper Rio Grande Valley, United Medical Center (UMC) of Eagle Pass, was recruited into the process, as it serves a geographically disparate population. Each CHC identified one physician and one nurse within their existing infrastructure who would be responsible to the project.

Multiple meetings of the three Community Health Centers, the Valley AIDS Council, and a representative from the Texas Oklahoma AIDS Education and Training Center occurred during August and September of 2000. During these meetings, its was agreed that the process would begin with a two day training event conducted by TOAETC's physician educator. The participants in the training included

1. The Valley AIDS Council's sole physician (project lead physician), and its two staff nurses.
2. A specific nurse case manager from the Valley AIDS Council whose role was to coordinate with the Community Health Center nurses, and to insure that client services that could not be provided at the CHC's would be provided by the VAC.
3. The three CHC physicians and the three CHC nurses.

The training occurred in October, 2000, and consisted of approximately 6 hours of didactics including the following lectures:

1. Recognizing and Diagnosing HIV Infection across the Spectrum
2. HIV 101: Treatment Issues for the Non-Specialist Provider
3. Salvage Therapy and Resistance Testing
4. Case Studies in Initial and Salvage Therapy

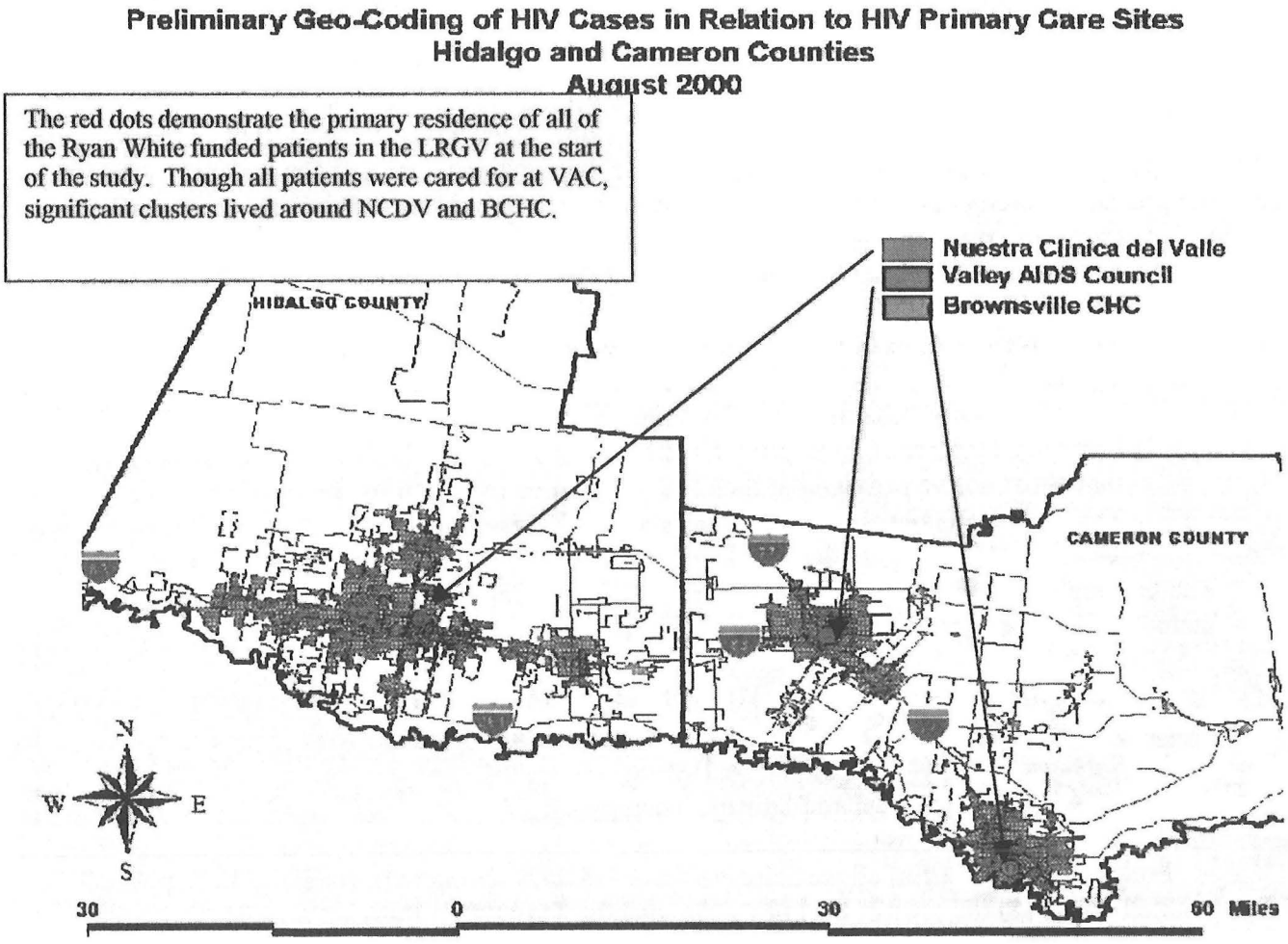
Following the lectures, all participants spent 1.5 days seeing patients at the Valley AIDS Council with both the project lead physician and the TOAETC physician present.

Starting in December of 2000, all newly identified HIV positive patients were offered the opportunity to participate in the study and to receive care from the HIV provider nearest their home (instead of usual care—immediate referral to VAC regardless of residence (see figure 3)). Two levels of informed consent were obtained as per IRB protocol:

1. Consent to participate in the quantitative data collection (survey) portion of the study only.
2. Consent to participate in the quantitative data collection portion of the study **and** consent to be placed with the HIV provider nearest the client's home.

Since it was not anticipated that the Eagle Pass region would accrue many new clients during the study period, existing clients who lived in the vicinity of Eagle Pass were given the option of relocating their care from the UTHSCSA Medical Center (usual care) to their local CHC-United Medical Center of Eagle Pass..

Figure 3: Automatic Assignment of Patients to VAC Regardless of Location of Primary Residence [10]



The CHC physicians began caring for their first HIV infected patients in January 2001. Continuing support for the CHC providers was provided by the TOAETC physician in the form of quarterly visits to their practices where he would see as many of their HIV patients as possible, and provide guidance as to their medical management. In addition, the TOAETC physician made himself available to the CHC physicians for HIV related consultation 24 hours per day. Consultations occurred via telephone, fax, and email. Urgent and emergent consultations were initiated by paging the TOAETC physician.

Quantitative Evaluation Methods

To assess the validity of the hypothesized barriers to care under the present system, a series of surveys were conducted by a specially trained VAC case manager, on all consenting patients as per IRB protocol. Surveys were developed in English, then professionally translated into colloquial Spanish, as spoken along the Texas-Mexico border.

The VAC Compis database was queried to assess changes in healthcare utilization patterns (i.e. number of patients enrolled in care at the various institutions involved in the study).

Characteristics of the consultations between the project physicians and the TOAETC physician were logged on the HRSA Clinical Consultation Form.

Qualitative Evaluation Methods

Qualitative evaluation methods consisted of classical ethnographic observation and recording of the interactions between the VAC lead physician, the TOAETC physician, the CHC physicians, the VAC nursing staff, the CHC nursing staff, and the clients enrolled in the study. A trained ethnographer recorded observations at the initial training as well as the subsequent quarterly follow-up visits by the TOAETC physician. In addition, all email and fax communications between the project physicians were forwarded to the ethnographer for evaluation.

Confidentiality

All participants strictly adhered to confidentiality protocols previously developed by the VAC and the partner CHCs. Project physicians were instructed to delete all patient specific identifiers from Email and Fax communications.

Findings of the First Two Years

Changes in Healthcare Utilization Patterns

All three Community Health Centers began to assume primary care responsibilities for HIV infected patients during the first two years of the project (Table 3)[15]. To our knowledge, this is the first successful attempt to engage the CHC's along the Texas-Mexico border since the beginning of the HIV epidemic.

Table3: Use of HIV Primary Care at Local CHC's (number of unique patients)[15]

	Fall 2000	Fall 2001	Sum 2002
VAC-Harlingen, Texas	411	460	501
Nuestra Clinica de Valle CHC-Pharr, Texas	0	4	10
United Medical Center of Eagle Pass-Eagle Pass, Texas	0	7	10
Brownsville CHC-Brownsville, Texas	0	12	13

Seventy-four patients consented to the quantitative data collection. Thirty-three consented to both the quantitative collection, and to receive their care at the CHCs nearest their home.

Table 4: Demographics of Study Participants (N=74)[15]

AGE (mean +/- s.d.)	*36 +/- 9.809*
GENDER	72% male 28% female
Sexual Orientation	57% heterosexual 29% gay/lesbian 14% bisexual
Country of birth	51% Mexico 49% United States
HIV Medical Care in Mexico	5% yes 95% no
Non-HIV Medical Care in Mexico	16% yes 84% no
Migrant Farm Worker	15% yes 85% no

Barriers to Care from the Patients' Point of View

Table 5 shows results from the patient surveys performed on entry to the study[15]. Patients were read the following statement prior to beginning the survey:

"Sometimes people have problems getting HIV medical care. I am going to read you a list of problems people report. Thinking back to the time before you sought medical care here....."

Table 5: Barriers to HIV Medical Care[15] N=74 except where indicated		%
1. Did you know that HIV medical care existed around here?	Yes No	35 65
2. Did you worry that that the medical doctor does not specialize in HIV/AIDS?	Yes No	37 63
3. Did you think that the people at the agency wouldn't speak the same language as you?	Yes No	20 80
4. Were you too sick or weak to seek medical services? N=73	Yes No	26 74
5. Did you not seek medical care because you preferred alternative treatments (Curanderos, acupuncture)?	Yes No	4 96
6. You did not seek treatment because you thought your health was in God's hands?	Yes No	14 86
7. You didn't want treatment because you believe you got what you deserve?	Yes No	14 86
8. Were you concerned that others might find out that you have HIV if you go to a medical provider?	Yes No	53 47
9. Did you have trouble keeping medical appointments because you couldn't get childcare?	Yes No DK Ref	3 93 3 1
10. Did you have trouble crossing the US/Mexico border to receive medical care?	Yes No	1 97 1
11. Was it hard to get medical care because you lacked transportation? N=73	Yes No	34 66
12. Did the presence of the border patrol keep you from getting medical care? N=73	Yes No DK	0 99 1

Of note, the only question to which the majority of study participants responded "yes" was question number 8, which deals with concerns regarding confidentiality as a barrier to receiving care.

Utilization of the TOAETC Consultation Services by the Project Physicians

The CHC physicians made extensive use of the TOAETC consulting physician. Fifty-two distance encounters (via telephone, fax, pager, and e-mail) between the CHC physicians and the TOAETC physician were logged during the first two years of the project, even though the CHC physicians were only seeing a cumulative total of 33 patients. Most of the 33 patients were actually seen in person by the TOAETC physician on one of his quarterly trips to the CHC's. Consultation length varied from as short as five minutes to greater than one hour. Many consultations involved multiple modalities (e.g. faxed laboratory data followed by a telephone

conversation and/or email). Consultations were described as urgent/emergent, if the consult was initiated by paging the TOAETC physician.

Table 6: Number of Consultations (Routine/Emergent)

	Routine	*Urgent/Emergent*	*Total*
VAC Physician	22	1	**23**
CHC Physicians	36	16	**52**
Total	**58**	**17**	**75**

At the request of the CHC physicians, a form was developed to aid the physicians in gathering data prior to consulting with the TOAETC physician. The form is displayed in appendix 1.

The main topic of each consultation was logged by the TOAETC physician, though most consultations covered several topics. Table 7 shows the consultation topics and their frequency. Table 7 does not represent topics covered during the TOAETC physician's visits to the border CHCs.

Table 7: Topics of Routine and Emergent Consultations

Main Topic-Routine	#	Main Topic-Emergent	#
Resistance testing and salvage therapy	12	Fever with focal neurologic sx	3
Multiple topics	5	Interstitial Pneumonia	3
Diagnosis of HIV	4	Anemia	2
Viral load/CD4/prognosis	3	Abacavir hypersensitivity	1
Opportunistic infection (RX/Proph)	3	Rule out Stevens Johnson Syndrome	1
Toxoplasmosis	3	Secondary syphilis	1
Hepatitis/elevated liver function tests	3	Acute mental status change	1
Cryptococccal Meningitis	2	Cryptococcal meningitis	1
Perinatal transmission	2	HIV Dementia	1
STD's	2	Acute CMV	1
Skin lesions	2	Needle stick injury	1
Initial therapy	2	Pancreatitis	1
Side effects of antiretrovirals	2		
Renal dosing of HIV medications	1		
Lymphadenopathy	1		
CNS lesions	1		
Pill burden	1		
Conception	1		
Viral load monitoring	1		
Syphilis	1		
Transmission of HIV to pets	1		
Routine screening	1		
TB and HIV	1		
Post LP headache	1		
Anemia	1		
Drug interactions	1		

Example of a Distance Consultation

Appendix 2 shows and example of a distance consultation, which occurred mostly by, email during November of 2001 (month 17 of the project). Though portions have been omitted in order to conceal the identity of the participants, the consult appears exactly as it occurred, including spelling and grammatical errors.

Example of a Critical Incident

One project related fatality occurred during the first two years of the study. On May 21, 2002 (month 23 of the project), the evaluators at UTHSCSA received the following report from the TOAETC physician:

> *"Dear (evaluators). I just wanted to make you aware of ....(a) critical incident relating to the medical care of (a) patient involved in Projecto Juntos.*
>
> *Project physician #2 has been taking care of a patient with advanced AIDS whom he recently started on HAART (D4T 3TC and efavirenz). The patient developed fever, hypoxia, and a reticular nodular pattern on (chest xray). The patient was admitted to the hospital and started on levofloxacin. The patient improved initially, but developed worsening symptoms when the course of levofloxacin was completed. The patient was readmitted and started on (trimethoprim-sulfamethoxazole) and (corticosteroids) for presumed PCP. Pulmonary and ID consultation were obtained at the local hospital.*
>
> *The patient has deteriorated with worsening hypoxia, hypotension, and renal failure. Bronchoscopy failed to reveal a diagnosis despite and exhaustive search for PCP, fungus bacteria, AFB, and viruses. The patient is currently being treated broadly with amphotericin, ganciclovir, antibacterials, and the use of pentamidine is being entertained. A thoracic surgeon has agreed to due an open lung biopsy.*
>
> *I spoke with the (lead physician at VAC). (He has been consulting with the CHC physician and the local consultants) and is considering taking the patient in transfer to (his own hospital where he now has admitting privileges). "*

The patient succumbed to his illness within 48 hours of this communication. Informal debriefing performed by the TOAETC physician and the VAC lead physician revealed no evidence of negligence or sub-standard care. The TOAETC physician remarked "*(the above) could have just as easily happened at any major academic medical center*". Formal outside chart review is pending.

Discussion

The project has demonstrated that Community Health Centers along the U.S.-Mexico border are capable of caring for HIV infected patients, provided they are given significant amounts of support from expert HIV physicians and are linked into already existing, nearby systems of care.

However, it is important not to view the results too optimistically.

Despite eager, willing and committed nurses and doctors, two years of intensive effort resulted in redistribution of only a tiny fraction of the total HIV caseload of the Lower Rio Grande Valley to the CHC's. In the observed sessions, project physicians frequently remarked to the TOAETC physician that even this small number of HIV patients stressed their limited time resources. They repeatedly requested a way to "protect their time" so that they could devote more of their energy to learning about HIV, and caring for the HIV infected.

Furthermore, accessing care at a local CHC may not be as appealing to clients as the designers of the study had anticipated. While exact data regarding the percentage of new patients consenting to have their care at a local CHC as opposed to VAC was not obtained, anecdotally a significant number of patients voiced a preference for VAC, regardless of their residence. Data from the barriers survey (Table 5[15]) strengthen this concern. While the logistics of obtaining care (arranging travel, avoiding the border patrol, arranging childcare etc.) were thought to be major barriers by the designers of this study, the majority of the patients surveyed indicated that these were not problems. In fact, the only barrier question to which the majority of the participants answered "yes" was question 8, dealing with confidentiality. It may be the case that the HIV infected individuals in the LRGV actually prefer to travel outside of their communities to receive care, so as to avoid accidental disclosure of their HIV status to their families.

The role of nursing was underestimated by the project. Though not the focus of this paper, recruitment and retention of patients into the new system of care depended heavily on the skill and devotion of the project nurses. In addition, though the project nurses were appreciative of the TOAETC physician's efforts, they began to demand their own educational system "developed by nurses, for nurses, and executed by nurses".

Though the CHC physicians clearly utilized the TOAETC educational and consultative services provided, there were instances in which the TOAETC physician could not provide all of the necessary support. As an example, though the TOAETC physician could easily help identify the differential diagnosis for a mass lesion in the brain of a patient with advanced AIDS, he could not identify which local neurosurgeons would be most likely to perform a brain biopsy on an HIV infected individual. Clearly, a more local expert would be able to offer assistance in a way that an expert at a distant university or hospital can not.

It is unclear how long this intensive period of support will be necessary to enable the CHCs to shoulder a significant portion of the HIV care in the LRGV. The HIV medical association has suggested that "to be an HIV qualified physician an individual should be able to show continuous professional development through....clinical management of at least 25 HIV-infected patients within the last year.....and a minimum of 15 hours of HIV-specific CME" [3]. Data supporting this statement is lacking. This project may help define the term "HIV qualified physician" by seeing at what point the CHC physicians become less reliant on consultative services.

Even if the appropriate and necessary amount of educational and other support is determined, ultimate success of the project may be hampered by physician turnover. During the first two years of the project, the physician assigned to the project by one of the CHCs changed

twice secondary to staffing changes. This necessitated a process of almost continual training and retraining. The physician assigned to the project by another CHC left after two years of service to the project, and a replacement has yet to be identified.

Lastly, studies such as this need to monitor patient safety. At the present stage, the low number of patients enrolled in the "alternative" to usual care makes statistical comparisons meaningless. However, as patient volumes at the CHC's increase it will become important to monitor morbidity and mortality as well as secondary endpoints such as CD4 counts and viral loads to insure that an inferior system of care is not being created at the CHCs.

Future Directions

As a result of this preliminary analysis, several improvements to the model of capacity building will be made.

First, efforts are underway to devise a system which will address the issue of the extra time and effort that CHC physicians must expend in order to include HIV into their clinical practices.

Second, the CHCs have been asked to develop protocols designed to safeguard the confidentiality of HIV infected patients in their systems.

Third, to encourage more patients to accept care at the CHCs, the CHC physicians will begin to spend time each month at VAC, where their initial contact with their HIV patients will occur.

Fourth, the TOAETC is developing an education program specifically for CHC nurses. This curriculum will be developed "by nurses and for nurses".

Fifth, the VAC lead physician will begin to assume more of the consultation and educational responsibilities for the project, using the TOAETC physician as "backup". It is hoped that this kind of networking will create a sense of collegiality among the physicians involved in HIV care in the LRGV. In turn, this may help decrease physician turnover by making the LRGV a more pleasant place to practice medicine.

Lastly, CD4 counts, viral loads, rates of opportunistic infections, morbidity and mortality will be analyzed to ensure that the quality of care is not adversely affected for patients being cared for by the CHCs. Chart review of critical incidents will also be used to rule out incidents of substandard medical care.

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HIV PRIMARY HEALTH CARE CONSULTATION FORM-Appendix 1

MD SUBMITTING CONSULT:			
TODAY'S DATE:			NOTE: Please complete only relevant information.
DATE OF HIV DX	CURRENT CD 4 COUNT	CURRENT VIRAL LOAD	AGE, GENDER, ETHNICITY

PRESENTING ILLNESSES AND COMPLAINTS	LIST OF CURRENT PRESCRIBED MEDICATION(S):	ADHERENT		
		Yes	No	Maybe
HISTORY OF ILLNESSES INCLUDING HOSPITALIZATIONS				
	Allergies/Adverse Drug Reactions (describe reaction):			

HIV PRIMARY HEALTH CARE CONSULTATION FORM-Appendix 1

MD SUBMITTING CONSULT:			
TODAY'S DATE:		NOTE: Please complete only relevant information.	
VACCINE	DATE/RESULT	LABORATORY/CLINICAL TEST	DATE/RESULT
Pnemovax		Toxoplasma IgG	
Inluenza		RPR	
Td		CXR	
Childhood Vaccines		Liver function tests (if abnormal)	
		HepA Total	
HepA		$HepB_s$ Ag	
HepB		$HepB_s$ Ab	
HEALTH MAINTENACE		$HepB_c$ Ab	
Eye		Hep C Ab	
PAP		Glucose 6 Phosphate Dehydrogenase	
Prostate/Male GU		Cholesterol	
Dental		LDL	
Fecal Occult Blood		HDL	
PPD		Triglycerides	
Mammogram/Breast Exam		Lytes, BUN, creatinine (if abnormal)	
		Complete Blood Count (if abnormal)	
Physical examination		RESULTS:	

HIV PRIMARY HEALTH CARE CONSULTATION FORM-Appendix 1

MD SUBMITTING CONSULT:											
TODAY'S DATE:							NOTE: Please complete only relevant information.				
SUMMARY KEY OF CD4, VIRAL-LOAD VALUES AND ANTIRETROVIRAL AGENTS*											
DATE (MONTH/YEAR)											
CD4%											
CD4 (CELLS/:L)											
VIRAL LOAD (COPIES/ML)											
ANTIRETROVIRAL AGENTS											

*** If client has a history of HIV medications longer than there are available columns, make a copy of page 3 and attach.**

Appendix 2: Example of a distance consultation occurring mostly by Email.

Note: Specific Identifiers have been removed. Some editing has occurred for clarity.
Note: Project physician comments have been underlined. He prefers to type all CAPS as a matter of course. TOAETC Physician comments appear in standard Times New Roman.

11/12/01 10:57AM

PLEASE GIVE ME A CALL.
Project MD

11/13/01 1:06PM

To review what we discussed yesterday regarding your HIV patient with new onset disequilibirium:
CNS disease with advanced HIV is common. The Infectious Disease differential diagnosis is very broad. A partial list would include:

1. Toxoplasmosis
2. Tuberculosis
3. Lymphoma
4. Fungal infection such as cryptococcosis, histoplamosis, blastomycosis, coccidiomyocis, and sporothrix
5. CMV
6. Varicella
7. Herpes Simplex
8. PML (Progressive Multifocal Leukoencephalopathy)
9. Bacterial Brain Abscess (e.g. staph, listeria)
10. Endocarditis with mycotic aneurysm in the brain
11. Neurosyphilis

There is also a non-infectious differential including:

1. Stroke (very common in cocaine users with HIV)
2. Wernicke Korsakoff's syndrome (very common in malnoursished alcoholics)
3. Metastatic malignancy

The first step in diagnosis is to know the patient's CD4 count. This helps you focus as to which of the above causes is most likely.
The second step is to obtain a contrasted brain image (preferably MRI with gadolinium). The presence or absence of mass lesions also helps you to narrow the differential diagnosis.
If there is no evidence of hydrocephalus, then you proceed with a lumbar puncture.
Initial studies on CSF and/or blood that I would like to see include the following:

1. Counts, protein, glucose as usual
2. Fungal, bacterial, acid fast bacillus, and viral cultures.
3. MTB pcr on csf
4. HSV pcr on csf
5. 5, VZV pcr on csf
6. EBV pcr on csf
7. CMV pcr on csf
8. JC virus PCR on csf
9. Histoplasmosis antigen on CSF and blood
10. Fungal antibody panel by complement fixation on CSF and blood
11. (this will include antibodies to histoplasma, coccidioides immitis, and blastocystis hominis)
12. Cryptococcal antigen on csf and blood
13. CSF VDRL: and serum RPR

I recognize that is a long and expensive list. Keep me posted on the results of the MRI, and the counts and chemistries from csf. With more information, we can narrow the differential and focus on the more important tests.
If the patient is deteriorating, bold empiric therapy is warranted.
I have treated patients simultaneously for fungal infection with amphotericin, TB with 4 drugs, ganciclovir for HSV and CMV, and ampicillin/ceftriaoxone for bacterial meningitis including Listeria while waiting for tests to come back.

I have also had some ICU physicians strongly regret not following my advice to treat empirically. If you feel empiric treatment is warranted, I would probably consult an ID doctor to help you ...as the drug interactions get real complicated.
If you don't have an ID doctor to help you locally with this patient, feel free to call or write any time..and I will do my best to help you.
Talk to you soon.

11/15/01 10:46 AM

OUR PATIENT CSF INDIA INK IS POSITIVE FOR CRYPTO.
GRAM STAIN SHOWED YEAST.
I GAVE HIM TEST DOSE AMPHO 1 mg.
THEN 30 mg qd.
PREMEDICATE WITH BENADRYL AND TYLENOL.
PLAN 2 WEEKS AMPHO THEN LIFELONG FLUCONAZOLE.
FOLLOW LABS SPECIALLY BUN/Cr. Mg.Ca, LIVER. I ALSO GAVE HIM FLUCYTOSINE.
OPENING PRESSURE WAS NOT BAD, 12.
UNTILL ALL LABS RETURN I PUT HIM ON TX FOR LYSTERIA WITH AMPI PLUS CEFOTAXIME.
ANY ADVISE?

11/15/01 5:05PM

Just to clarify...
It sounds like you have things under control. In fact, you didn't really need my help with this one at all!
I agree with your plan to use amphotericin 1.0 mg/ kg daily and 5FC 25 mg/kg po every 6 hours for two weeks. Before giving the amphotericin I would hydrate the patient with 500 cc normal saline, and consider giving tylenol and benadryl. I usually post hydrate the patient with an addtional 500 cc of normal saline.
As you know, you will need to monitor CBC with dif, liver function, electrolytes, BUN, creatinine, and magnesium daily during this two weeks. Should you choose to use 5 FC, you will need to check a peak and a trough after the third dose.
Since the patient's opening pressure was low, his CSF WBC was high, and his mentation is normal, i suspect he will do very well.
Should he decompensate, you will need to repeat a CT of his brain and consider repeating a lumbar puncture. I would also strongly consider repeating a lumbar puncture at the end of the first two weeks of therapy just to make sure the patient is culture negative. However, I must admit, that this step is often ommited when the patient is doing well clinically.
On occasion, these patients will develop communicating hydrocephalus and require a neurosurgical shunting procedure, but, as I understand, you have already encountered this problem in another one of your patients.
After the initial two week induction phase, you will need to place the patient on fluconazole 400 mg for an additional 8 weeks, followed by fluconazole maintenance therapy at 200mg daily for life.
I agree with continuing cefotaxime and ampicillin until the bacterial cultures are negative. Keep an eye out on the rest of the labs that were ordered. These patients are tricky and will sometimes show up with two or more diagnoses.
One tip regarding amphotericin: its is perfectly acceptable to run the amphotericin in over 24 hours. The slower rate of amphotericin infusion prevents infusion related side effects such as fever and rigors. These complications can also be prevented by adding 25 mg of hydrocortisone to the amphotericin bag tubing (or just to the bag itself if the nurses are confused by that).

Acute rigors can be controlled with 25 -50mg of demerol IV or IM. You do need to be careful with the Demerol. I know this sounds crazy but I have a patient who intentionally refuses to take fluconazole because he prefers to come in for amphotericin. He usually develops (fakes?) rigors 6 times during the infusion and demands Demerol. Its a bad habit to get into, but for rigors, there is nothing else you can do.

Everything else sounds under control. Feel free to call with any questions..or email.
When things have settled a down a bit, perhaps we can look at his antiviral history. I understand he is not completely undetectable in his viral load. We can however certainly deal with that as an outpatient. Is he on Combivir and Crixivan? If so..keep an eye on his kidneys and his bone marrow. I hate to change medicines when so many things are going on, but remember....AZT can cause anemia and Crixivan is a mild nephrotoxin. If he develops complications from amphotericin or 5FC, we may have to change his medicines to avoid cumulative side effects.

11/16/01 1:50PM

GUESS WHAT?

THERE IS NO FLUCYTOSINE LEVELS AVAILABLE AT THE HOSPITAL !!
I AM GOING TO COMPLAIN TO THE ADMINISTRATION.
I WILL KEEP YOU POSTED.
PATIENT IS DOING FINE.
POST LP HEADACHES BETTER WITH REST,FLUIDS, SOME PATIENTS REQUIRE BLOOD PATCH
BUT THIS ONE IS DOING OK.

11/16/01 5:27PM

Don't worry about the 5FC too much..there is no diference in mortality/moribidiy pre/post....Good JOB

11/16/01 5:30PM

I ALREADY SPOKE WITH THE HOSPITAL ADMINISTRATION THEY FIND OUT THAT THEY CAN DO IT
BUT NEED TO BE SENT TO MAYO CLINIC.
HE IS ALREADY ON IT.
I WENT BACK THIS AFTERNOON TO SEE HIM AND DOING FINE. ALREADY GAVE HIM STEROIDS, NO
NEED OF DEMEROL FOR NOW.
THANKS.

11/20/01 9:33AM

OUR PATIENT WITH CRYPTO IS DOING MUCH BETTER, HIS MEMORY AND BALANCE ARE CLEARLY
IMPROVED. HIS CRYPTO ANTIGEN IS HIGH MORE THAN 10 THOUSANDS, THE SPECIMEN DIDN'T SAY
IF WAS DLOOD OR CSF.I WILL CHECK THAT TODAY. THE HOSPITAL RUN OUT OF AMPHO SO NOW HE
IS ON LIPOSOMAL AMPHO. HIS CREATININE ON ADMISSION 1.1, THEN 1.5 BUT I INCREASED IVF AND
NOW 1.3.
HIS MAGNESIUM BEING REPLACED. FLUCYTOSINE TITERS PENDING (SENT TO MAYO CLINIC).

11/20/01 10:09AM

I FORGOT TO TELL YOU THAT HIS H/H IS 9/29.
HEMODILUTION BECAUSE IVF? ALSO AMPHO, ALSO ON AZT(HE IS ON COMBIVIR-CRIXIVAN).
AS EXPECTED WITH AMPHO,TODAY HIS SERUM HCO3 IS 21. I WILL CONTINUE TO FOLLOW ON THIS.
HIS BUN IS 27 (NOT TERIBLE) THIS MAY BE BECAUSE AMPHO ALSO STEROIDS THAT HE IS ON.
EPO?

11/20/01 11;24AM

My suspicion is that his anemia is multifactorial (as you pointed out).

1. AZT
2. Amphotericin
3. Anemia of chronic disease
4. ?Iron deficiency
5. Hemodilution
6. AIDS

I would change AZT to D4T. Normally, you can't make a one to one switch in a patient who is not completely suppressed to <50 copies, but since the resistance patterns of AZT and D4T are similar, I don't think you have much to lose. D4T does not cause anemia to the extent that AZT does

I would give Epo too. Remember its expensive. The dose we ususally use is 40,000 units of Procrit IM weekly. Response usually takes 2-4 weeks. Epo will not work if the patient is iron deficient, so you should check iron studies and replace as necesaary. You then titrate the Epo to maintain a HCT of approximately 35-40.

If the patient is symptomatically anemic, you might choose just to transfuse him two units rather than give Epo. You would probably bring his HCT up to 35, correct any underlying iron deficiency, and improve his hemodynamics. If his HCT starts drifting down after the transfusion, hen you will need to give the Epo. This is a lot cheaper than Epo.

As far as his BUN=27.....renal insufficiency related to amphotericin is thought to be reversible up to a creatinine 2.5. Personally, if the creatinine doubles over baseline or is abnormal to start with, I usually use a liposomal amphotericin formulation. My favorite one is Ambisome 5mg/kg/day. Other than the dose, its given the same as the regular amphotericin B with the same pre/post hydration, electrolyte monitoring requirements (K, Mg), premedication etc.

Realize that Ambisome has FEWER and infusion related side effects and LESS nephrotoxicity than regular amphotericin. It DOES however have infusion related toxicity and nephrotoxicity.

For now, since I'm assuming the creatinine is normal, I would slow the infusion of the amphotericin B as much as you can. (Remember, you can run in the ampho B over 24 hours, and this decreases toxicity). I would make sure the patient is well hydrated (which is another reason why you might want to transfuse the patient). And I would continue to monitor as you are doing.

How many days till the Fluconazole all clear bell i sounded ? :-)

Keep me posted

11/20/01 11:35AM

Woops..I read your second email before I realized you had sent this one.. Fortunately, there are no major changes in what I wrote.

BTW, the crypto antigen will be high for a very long time. The body doesn't metabolize it well. Thus it is good for making a diagnosis, but useless for following response to therapy.

Note to evaluators: Dr. _____ hospital ran out of amphotericin B. I think it highlights the barriers that doctors face to caring for HIV infected patients in the Valley. If they are going to take care of HIV patients..then things like 5FC levels and amphotericin need to be available. Fortunately, they have Dr. _____ around to let them know they can substitute liposomal ampho for ampho b.

Its like a restaurant running out of diet Coke. (I'm not being smart alec..I'm just trying to relate things to a system level).

Okay....that should do it..

11/20/01 11:41 AM

I ALREADY PUT HIM ON EPO 10,000 UNITS. I WILL DC COMBIVIR, START ZERIT AND EPIVIR. CONTINUE AMPHO AT 5MG/KG/DAY.
THANKS

11/20/01 11:43 AM

I LIKE DIET PEPSI BETTER.