

Title: **Do Resources Follow the Epidemic?** An examination of the spatial distribution of the HIV/AIDS epidemic and the location of care providers

Track:

Date/Time: Monday August 25, 2008; 11:00 am – 12:30 pm

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Do Resources Follow the Epidemic?

An examination of the spatial distribution of the HIV/AIDS epidemic and the location of care providers

“Everything is related to everything else, but near things are more related than distant things”.

Waldo Tobler's First Law of Geography
TOBLER, W. R. (1970).
"A computer movie simulating urban growth in the Detroit region".

Goals of Presentation

- To suggest another dimension of “Access to Care” to HAB grantees and their service providers.
- To promote the use of GIS mapping for HIV/AIDS care planning and evaluation (See Healthy People 2010, 23-3)
- To evaluate the progress made so far by HAB and its grantees in addressing the issue of geographic access

Introduction and Overview

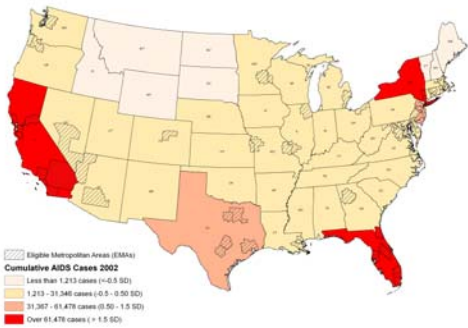
- Access to Care
- National maps of the epidemic
- National maps of Ryan White care providers
- HIV/AIDS Bureau (HAB) funding levels
- Gini coefficient and Lorenz curve
- Maps of national epidemic and care providers
- State profile – South Carolina
- Clinic profile – WINGS Clinic, KY
- Program and Policy implications

Access To Care

- **Definitions of Access**
 - Dimensions of Access
 - Traditional view of Access
- **How important is Geographic Access in health care delivery?**
 - Accessibility
 - Distance-decay
- **Implications for grantees and for HAB**
 - Picture is worth a thousand words .. Or table, or graphs!
 - Visual representation of geographic access

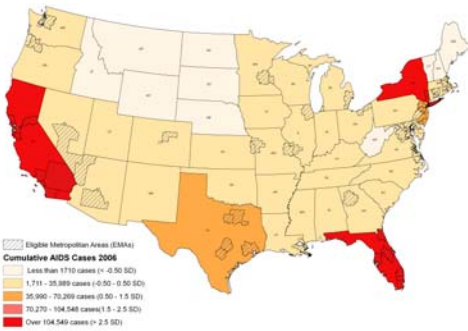
National Maps Cumulative AIDS Cases - 2002

Cumulative AIDS Cases 2002



National Maps Cumulative AIDS Cases - 2006

Cumulative AIDS Cases 2006



National Maps Ryan White Care Providers - 2002

Ryan White Care Providers 2002



National Maps Ryan White Care Providers - 2006



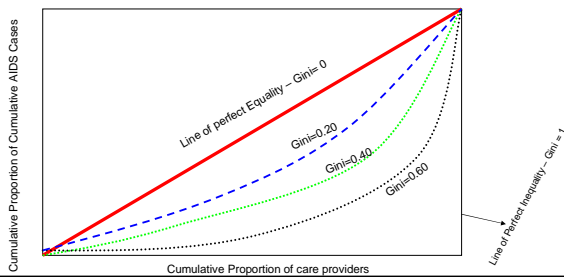
HAB Funding -2002 and 2006

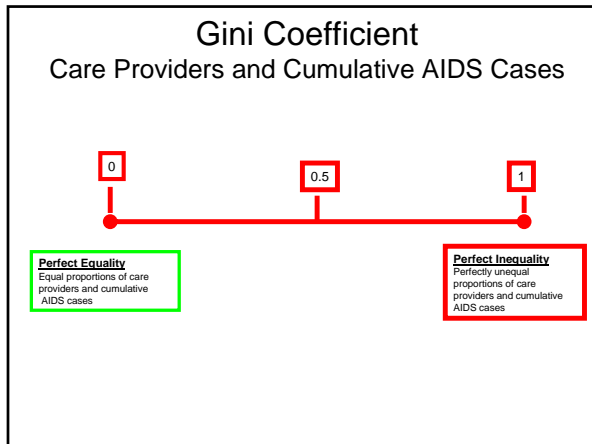
HAB Appropriations

	2002	2006	Percent Change 2002-2006
Part A - Emergency Relief	\$619,381,000	\$611,581,000	-1.26%
Part B HIV Care	\$977,240,000	\$1,134,596,000	16.10%
Part C Early Intervention	\$193,844,000	\$196,054,000	1.14%
Part D Women, Infants Children and Youth	\$70,964,000	\$72,696,000	2.44%
Part F AIDS Education and Training Centers	\$35,282,000	\$34,700,000	-1.65%
Part F Dental Reimbursement Program	\$13,493,000	\$13,086,000	-3.02%
Special Projects of National Significance	\$25,000,000	\$25,000,000	0.00%
Total	\$1,935,206,002	\$2,087,715,006	7.88%

Gini Coefficient and Lorenz Curve – *Illustration* Cumulative AIDS and Care Providers

$$G = \left| 1 - \sum_{i=0}^N (\sigma Y_{i+1} + \sigma Y_i)(\sigma X_{i+1} - \sigma X_i) \right|$$





Gini Coefficients – Selected Examples

*Distribution of Active Non-Federal Physicians			World Bank Ranking of Income Inequality**	
	1963	1980	Country	Gini Coefficient
Medical Practitioners	0.215	0.207	Sweden	0.250
General Practice	0.216	0.216	Ethiopia	0.300
Medical Specialists	0.407	0.334	Lithuania	0.319
Surgical Specialists	0.363	0.279	Indonesia	0.343
Other Specialists	0.577	0.456	Italy	0.360
			United States	0.408
			Russia	0.456
			El Salvador	0.532
			Namibia	0.707

&US Income Inequality Over time

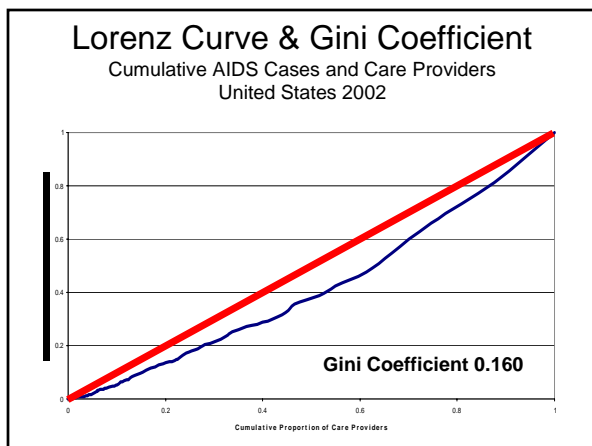
1970	0.394
1980	0.403
1990	0.428
2000	0.462
2005	0.469
2006	0.470

& US Census Bureau

Psychiatric service distribution of 3 Providers\$\$

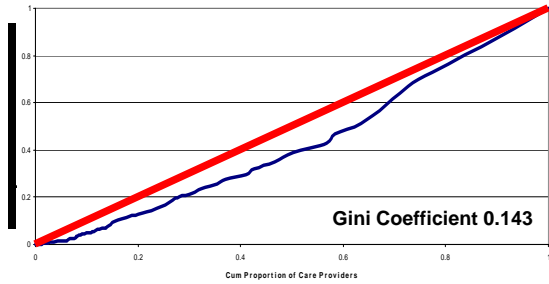
Provider A	0.38
Provider B	0.48
Provider C	0.77

\$\$Lewis, Nash & Kelleher (2003). Lorenz curves: A new model for the distribution of psychiatric services. J. of Child & Family Studies, Vol. 12, No. 4



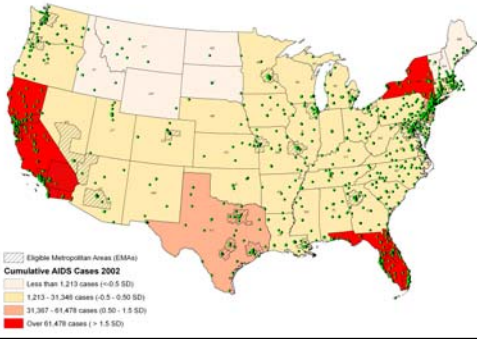
Lorenz Curve & Gini Coefficient

Cumulative AIDS Cases and Care Providers
United States 2006



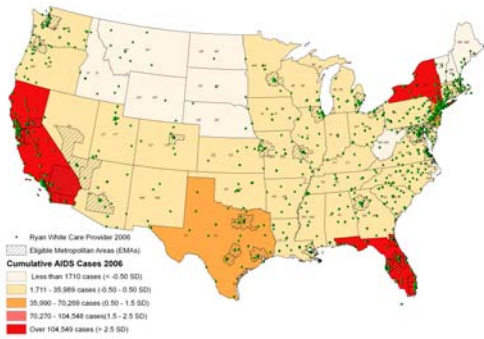
National Maps

Cumulative AIDS Cases and Ryan White Care Providers - 2002
Ryan White Care Providers and HIV Epidemic 2002



National Maps

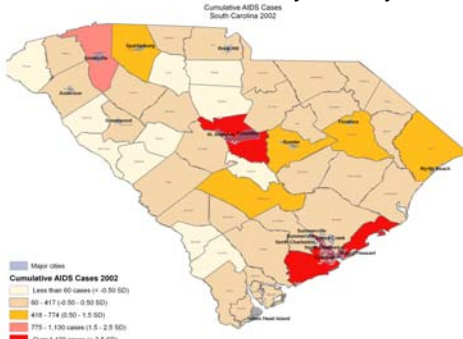
Cumulative AIDS Cases and Ryan White Care Providers - 2006
Cumulative AIDS Cases and Ryan White Care Providers 2006



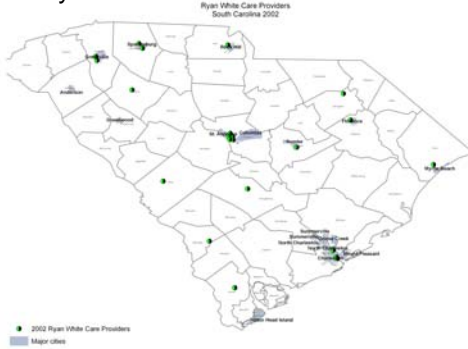
STATES – South Carolina

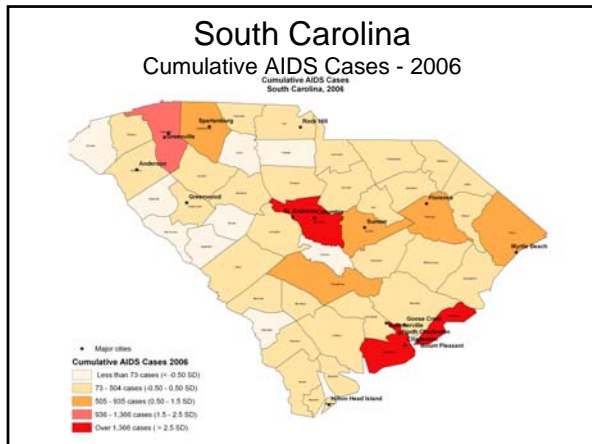
- **Geographic Units of Analysis – Counties**
- **Data sources**
 - SC STD/HIV/AIDS Statistics/Surveillance Reports - <http://www.scdhec.net/health/disease/stdhiv/surveillance.htm>
 - HIV/AIDS Bureau Care Act Data Reports – 2002 and 2006

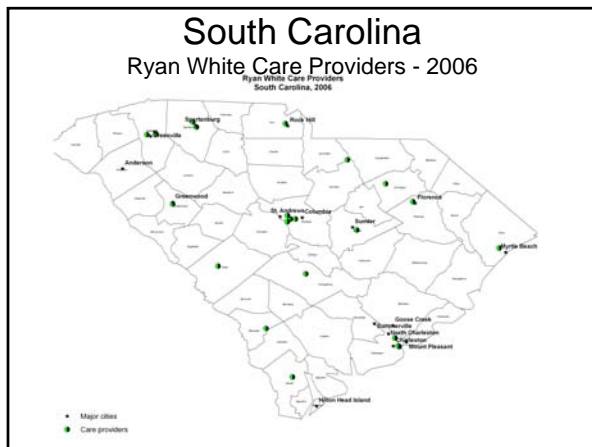
South Carolina Cumulative AIDS Cases by County - 2002

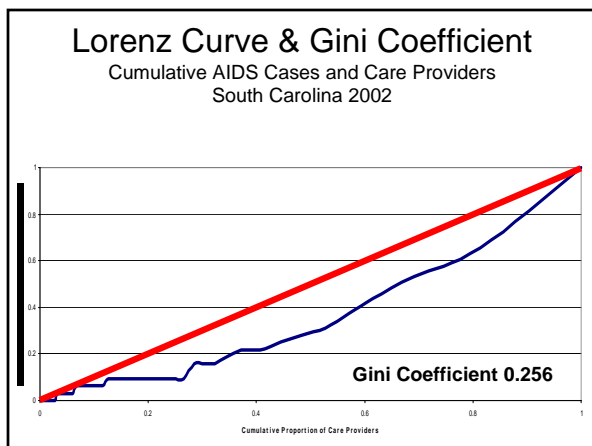


South Carolina Ryan White Care Providers - 2002



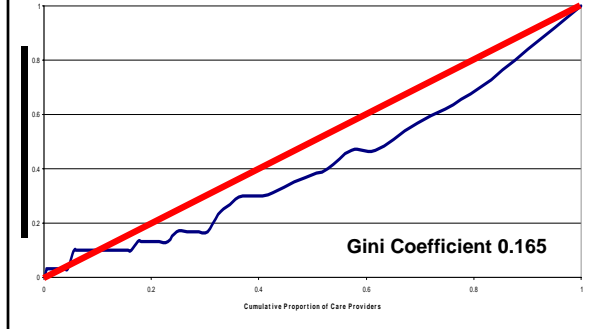






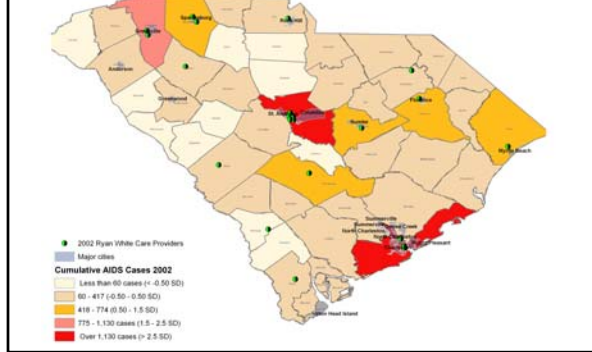
Lorenz Curve & Gini Coefficient

Cumulative AIDS Cases and Care Providers
South Carolina 2006



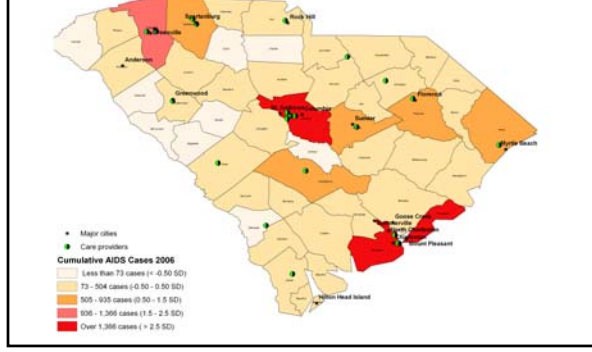
South Carolina

Cumulative AIDS Cases and Ryan White Care Providers - 2002
Cumulative AIDS and Ryan White Care Providers
South Carolina 2002



South Carolina

Cumulative AIDS Cases and Ryan White Care Providers - 2006
Cumulative AIDS Cases and Ryan White Care Providers
South Carolina, 2006



Change in Gini Coefficients US and South Carolina

	2002	2006	Percent Change
United States	0.160	0.143	10.6%
South Carolina	0.256	0.165	35.6%

Clinic – WINGS Clinic, Louisville, KY

- Patient Origin data – 2004
- AIDS cases by county – KY 2004
- AIDS cases by county – IN 2004
- Patient origin geocoded by ZIP codes
- Measures to assure patient confidentiality

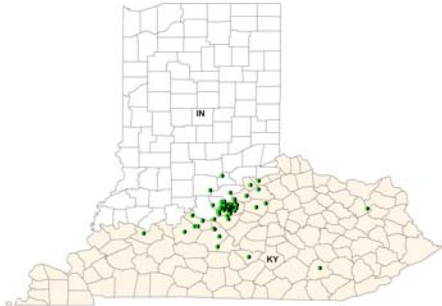
WINGS Clinic, Louisville, KY

WINGS Clinic, Louisville, KY



WINGS Clinic – Patient Origin

WINGS Clinic Patient Origin 2004



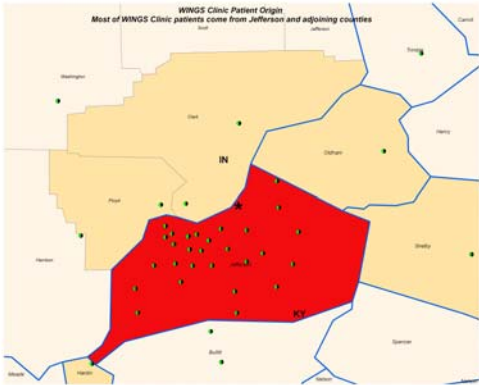
AIDS Cases and WINGS Clinic Patient Origin

WINGS Clinic Patient Origin 2004



WINGS Clinic patients from adjacent counties

WINGS Clinic Patient Origin
Most of WINGS Clinic patients come from Jefferson and adjoining counties



Program and Policy Implications

- HAB Grantees
- HAB
- Resource Implications

Questions and Comments

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