Ethnic Disparities in Access to Care in Post-Apartheid South Africa

Zeida R. Kon, MPH, and Nuha Lackan, PhD

Objectives. We investigated ethnic disparities in obtaining medical care among the 4 major ethnic groups (Blacks, Whites, Coloreds [i.e., those of mixed race], and Asians) in post-apartheid South Africa.

Methods. Data for the study came from the 2002 Afrobarometer: Round II Survey of South Africa. Bivariate and multivariate analyses were used to examine differences across racial and ethnic groups in how often respondents went without medical care.

Results. A total of 40.8% of Blacks and 22.9% of Coloreds reported going without medical care at some point in the past year, compared with 10.9% of Whites and 6.9% of Asians. Disparities were found not only in health but in education, income, and basic public health infrastructures. Sociodemographic characteristics and perceptions regarding democracy, markets, and civil society were similar for Blacks and Coloreds and for Whites and Asians.

Conclusions. Fourteen years after the end of apartheid, Blacks and Coloreds in South Africa are still underserved and disadvantaged compared with their White and Asian counterparts, especially regarding health care. (*Am J Public Health.* 2008;98:2272–2277. doi:10.2105/AJPH.2007.127829)

South Africa's political and economic situation has dramatically changed in the past decade because of the abrupt transition from an apartheid government to a democratic government. During the apartheid era, the ruling National Party's goal was to secure White control and promote racial separation by classifying all South Africans into White, Black, Colored (i.e., those of mixed race), or Asian ethnic categories. The government prohibited interracial marriage; established a segregated employment system in which race was the qualifying factor; and allowed for legal discrimination and many other injustices.[1]

Apartheid laws and policies affected all aspects of the citizen's life, including the health sector. According to the American Association for the Advancement of Science and the Physicians for Human Rights Organization, the South African health care system not only limited access to health care for Blacks and often ignored quality-of-care guidelines but also created an environment in which abuses such as the refusal of emergency care treatment, falsification of medical records, denial or limitation of Blacks' access to ongoing medical care, and mistreatment of the mentally ill could occur.

Under apartheid there were 4 independent homelands—Bophuthatswana, Ciskei, Transkei, and Venda—and 6 self-governing territories—Gazankulu, Kangwane, KwaNdebele, Kwazulu, Lebowa, and Qwaque. These lands have now been incorporated into the united South Africa, but unfortunately they remain the most underserved areas. Under apartheid these areas had their own departments of health, and 400 local authorities also had separate health departments. As a result, coordination was poor, causing major disparities in health care. After the end of apartheid in 1994, this fragmented system was absorbed into 9 provincial health services.[2–11]

Currently, there are 2 health care systems in South Africa: one that is largely publicly funded that serves most South Africans and a privately funded health care system that serves the small percentage of people who are able to afford it, mainly Whites and Asians. During apartheid, most of the national health expenditure was allocated to building a medical infrastructure that would be used by urban inhabitants and the privately insured. Even today, privately insured patients pay a highly subsidized fee for medical care and receive tax benefits for their contributions to the private health sector. From 1992 to 1993, 59% of doctors, 93% of dentists, and 89% of pharmacists worked in the private sector. The competition between the private and public sectors still exists as medical professionals often choose to work in the more profitable private sector.[12]

Marked disparities in health between Blacks and Whites during apartheid have been documented. In 1981, there was 1 physician for every 330 Whites but only 1 for every 91 000 Blacks. Infant mortality was 20% in the Black population compared with 2.7% in the White population. The life expectancy in 1980 was 55 years for Blacks, 58 years for Coloreds, 65 years for Asians, and 70 years for Whites. The incidence (per 100 000) of tuberculosis in 1985 was 211 for Blacks, 429 for Coloreds, 80 for Asians, and 18 for Whites.[13] In the economic sector, 10% of the population accounted for 51% of annual income earned in South Africa, whereas the poorest 40% accounted for less than 4% of annual income earned in South Africa. In addition to income disparity there were also differences in social service provision among ethnic groups because of apartheid policies that allocated different services for each group. These disparities illustrate the inequities experienced not only in the health sector but in other societal structures.[12]

Most authors have concluded that the state of the health care system for Blacks has not improved much since apartheid and that extensive work must be done to comply with new constitutional regulations of equality and access to health care. Although equity is at the top of the current government's agenda, the type and form of this desired equity is not uniformly agreed upon at all levels of government. It is suggested that instead of horizontal equity, in which equity is sought for those within the same socioeconomic level, the goal of the national government should be to implement vertical equity, in which attempts are made to pull up those in the lower socioeconomic levels and the disenfranchised.[14,15]

Has health care improved, worsened, or remained the same among South Africans after apartheid? There have been many reports

documenting post-apartheid South Africa, with descriptions of isolated events, national statistics, summaries, and testimonials. Few studies have examined the South African health care system using data obtained from surveys of South African citizens. We investigated ethnic disparities in obtaining medical care in post-apartheid South Africa.

METHODS

Data Sources

The data used for this study are from the national survey, the 2002 Afrobarometer: Round II Survey of South Africa.[16] It was developed and administered by the Afrobarometer network, which includes a consortium of social scientists from 16 African nations and Michigan State University. The Institute for Democracy in South Africa and the Centre for Democratic Development in Ghana also played major roles as principal investigators. The data set is available through the Inter-University Consortium for Political and Social Research.[16]

The Afrobarometer: Round II Survey of South Africa sample is a national probability sample that represents a cross-section of the voting-age population of South Africa. Random selection was used in every stage of sampling; the survey was administered in all provinces of South Africa in proportion to the relative size of each province and racial group in the national population. The national sample as a whole was used in this study. The survey, which assesses respondents' perceptions regarding democracy, markets, and civil society in South Africa, is part of a series of surveys that enable researchers to track perceptions over time.

The survey included questions addressing respondents' current economic situation, their perceptions of the government's handling of the national economy, what they believe to be the major political and social issues facing the country, and their political involvement and trust in government and business entities. In addition, it compared individuals' perceptions of various issues during and after apartheid. The survey questions also examined sociodemographic characteristics, access to health care, and other factors that may influence health, such as the presence of a health clinic and piped water in the community. For our study, certain questions have been selected to investigate whether previously documented inequalities in health care in apartheid South Africa still exist in post-apartheid South Africa—especially the question of whether, and how often, the respondent had gone without medical care.

Population and Measures

The sample comprised 1522 individuals divided among South Africa's 4 major ethnic groups: Whites; Blacks; Coloreds, who are of mixed White and Black descent; and Asians, who are predominantly Indian and Chinese.

Marital status was measured as married or single and gender was male or female. All respondents were older than 18 years. The weighting variable adjusted the distribution of the sample to account for oversamples or undersamples with respect to province and ethnicity.

Our study focused on 1 dependent variable: how often the respondent went without medical care. The question read, "Over the past year, how often, if ever, have you or your family gone without medicine or medical treatment?" The data were adjusted for the following variables: respondent's education level, household income, and gender; respondent's perception of how the government was handling (1) the improvement of basic health services, (2) the provision of education, and (3) the gap between rich and poor; respondent's perception of how often his or her ethnic group was treated unfairly; how often the respondent or the respondent's family had gone without food or water; and whether or not there was a clinic in the surrounding community.

Education was divided into 4 categories: (1) none or informal schooling, (2) primary school, (3) secondary school, and (4) university or postgraduate education. Household income per month in South African rand (US$1=7.25 rand in 2007) was grouped as follows: 0 to 100, 101 to 500, 501 to 1400, 1401 to 3000, and 3001 or higher. All variables related to perceptions of government's handling of important issues were recoded into 2 categories: "badly" and "well."

Analysis

To study post-apartheid access to health care, societal infrastructure, and perceptions of government, we chose a cross-sectional study. The previous rounds of this survey were all carried out post-apartheid, starting in the year 2000. Differences among the various independent variables for the 4 ethnic groups were analyzed by the Mantel–Haenszel χ^2 test. We used multiple regression analysis to predict differences among the 4 ethnic groups in how often respondents had gone without medical care, controlling for the independent effects of selected sociodemographic and perception variables.

Each ethnic-specific analysis includes 3 models (A, B, and C) adjusted for age and the presence of a health clinic in the primary sampling unit (or enumeration area). Model A included only sociodemographic variables, including education and income. Model B included perception variables and basic access to food and water. Model C was the full model and included sociodemographic variables, perception variables, and basic access to food and water. All analyses were performed with SAS system for Windows version 9.1 (SAS Institute Inc, Cary, NC).

RESULTS

Table 1 presents the distribution of sociodemographic characteristics, perception variables, and measures of well-being for the 4 ethnic groups. The ethnic breakdown of the sample was 67% Black, 13% White, 15% Colored, and 5% Asian. All comparisons were significant across ethnic groups except for age and gender, which were evenly distributed throughout.

Regarding education, 32.8% of Blacks and 31.4% of Coloreds had only a primary school education or less; for Whites and Asians, the figures were 3.0% and 15.3%, respectively. No formal schooling was reported by 7.4% of Blacks and by 0.5% of Whites. More Blacks than Whites were living in the lowest income bracket (i.e., 0–100 rand; 27.7% vs 7.9%, respectively; $P<.001$). Only 12.6% of Blacks belonged to the highest income bracket (≥3001 rand) as opposed to 70.6% of Whites and 63.9% of Asians.

Blacks had the highest rate of going without medical care during the past year (40.8%), followed by Coloreds (22.9%), Whites (10.9%), and Asians (6.9%). The same trend is found in

TABLE 1—Selected Sociodemographic Characteristics, Perceptions, and Well-Being Measures of Survey Respondents (N = 1522), by Race: The Afrobarometer: Round II Survey of South Africa, 2002

	Total, No.	Black	White	Colored	Asian	P[a]
Sociodemographic Characteristics						
Race, %		67.02	13.21	15.05	4.73	
Age, y, mean		52	55	55	39	
Gender, %						.642
Men	776	52.3	49.8	50.4	51.7	
Women	746	47.7	50.2	49.6	48.3	
Education, %						.004
None/informal	90	7.4	0.5	3.9	7.0	
Primary school	334	25.5	2.5	27.5	8.3	
Secondary school	1076	66.2	93.5	67.7	83.3	
University/postgraduate	20	1.0	3.5	0.9	1.4	
Monthly household income, rand, %						<.001
0–100	298	27.7	7.9	14.1	4.9	
101–500	156	14.2	1.6	10.8	1.6	
501–1400	323	26.8	4.8	33.5	8.2	
1401–3000	236	18.6	15.1	16.2	21.3	
≥3001	293	12.6	70.6	25.4	63.9	
Perceptions						
Perception of government's handling of health care, %						
Bad	664	39.8	67.3	38.5	62.0	<.001
Good	835	60.2	32.7	61.5	38.0	
Perception of government's handling of education, %						
Bad	567	31.5	57.0	40.1	71.8	<.001
Good	921	68.5	43.0	59.9	28.2	
Perception of government's handling of gap between rich and poor, %						
Bad	1089	72.6	84.9	80.4	85.5	.001
Good	345	27.4	15.1	19.6	14.5	
Measures of Well-Being						
How often respondent had no health care during past year, %						
Never	1031	59.2	89.1	79.0	93.1	<.001
Sometimes	364	29.8	9.5	17.7	6.9	
Many times/always	127	11.0	1.5	5.2	0	
How often respondent's ethnic group was treated unfairly during past year, %						
Never	353	27.9	22.2	17.5	27.9	.027
Sometimes	616	43.9	50.6	44.2	41.2	
Often	226	15.3	16.7	20.3	17.7	
Always	185	12.9	10.5	19.0	13.2	
Health clinic in PSU/EA						
No	550	46.3	29.6	22.1	32.4	<.001
Yes	830	53.7	70.4	77.9	67.7	
How often respondent had gone without food during past year, %						
Never	884	56.1	87.7	72.4	91.2	<.001
Just once or twice	207	17.7	7.4	12.4	4.4	
Several times	169	15.4	3.1	8.3	2.9	
Many times	96	8.6	1.9	5.5	1.5	

Continued

going without food: 43.9% of Blacks had gone without food at least once the past year, followed by Coloreds (27.6%), Whites (12.4%), and Asians (8.8%).

Asked how the government was handling education, 69% of Blacks and 60% of Coloreds thought it was doing well, whereas among Whites and Asians, most thought that the government was doing badly (57% and 72%; $P<.001$). Asked how well the government was handling the improvement of basic health services, 60% of Blacks and 62% of Coloreds thought the government was doing well, whereas most Whites and Asians thought it was doing badly (67% and 62%; $P<.001$). Asked how the government was handling the gap between rich and poor, all ethnic groups reported that it was doing poorly (Blacks, 73%; Whites, 85%; Coloreds, 80%; Asians, 86%; $P<.001$). Interestingly, there was a pairing trend in perceptions of how the government was handling education and improving basic services: Blacks and Coloreds seemed more optimistic whereas Whites and Asians were less so.

Table 2 presents 4 sets of regression models, one for each ethnic group, predicting how often respondents went without medical care. In the full model (model C), the largest predictors of how often an individual had gone without medical care across all ethnic groups were how often they had gone without food and how often they had gone without water. The full model was able to explain 30% of the variation in going without medical care for Blacks, 37% for Whites, 37% for Coloreds, and 43% for Asians.

Model A shows the effect of education and income, with adjustment for gender, age, and the presence of a health clinic in the primary sampling unit. For all groups, sociodemographic characteristics and the presence of a health facility explained very little of the variation in going without medical care, whereas perception variables accounted for 29% to 39% of the variation.

In model C, one variable was particularly significant among Blacks: perception of the government's handling of the gap between rich and poor (B=–0.12; SD=0.05; $P=.013$). Respondent's education was significant in the full model for both Blacks (B=–0.06; SD=0.02; $P=.013$) and Asians (B=–0.07; SD=0.03;

TABLE 1—*Continued*

Always	24	2.3	0	1.38	0	
How often respondent had gone without water during past year, %						<.001
Never	1147	66.7	96.0	88.7	98.6	
Just once or twice	117	10.2	0.5	4.8	1.4	
Several times	98	8.9	0.5	2.6	0	
Many times	63	5.7	1.0	1.3	0	
Always	97	8.5	2.0	2.6	0	

Note. PSU/EA = primary sampling unit/enumeration area. Significance was set at α less than or equal to .05.
[a]By the Mantel-Haenszel χ^2 test.

P=.06). For all 4 ethnic groups, the full model explained anywhere from 30% to 43% of the variation in going without medical care.

Comparison of the results of the 4 race-specific models makes evident that the strongest predictor of having gone without medical care is having gone without food. Interestingly, the substantive impact of this variable is much greater for Whites and Asians than for Blacks and Coloreds. Having gone without water was also a strong predictor of having gone without medical care, but for this variable, the pairing trend was not observed. Finally, for White and Asians, no other variables were significantly associated with having gone without medical care. For Blacks, those who reported that the government was handling the gap between rich and poor well went without medical care less often; the same held true for Coloreds.

DISCUSSION

Our study focused primarily on ethnic differences in access to health care and perceptions of governmental actions that affect health among residents of South Africa. Marked ethnic disparities in access to health care exist across levels of education and income. Whites were more educated than were Blacks, Coloreds, and Asians. Significantly more Whites were college educated than were Blacks or Coloreds. Whites had significantly higher incomes than did Blacks. More Blacks and Coloreds lived with no formal income than did Whites or Asians. Among South Africa's 4 main ethnic groups, differences in the frequency of going without medical care indicate health care disparities. Across all ethnic groups, how often one had gone without food and how often one had gone without water were the largest predictors of how often one had gone without medical care. Significantly more Blacks and Coloreds than Whites or Asians reported going without food or water at least once during the past year. In South Africa, socioeconomic status is closely connected with going without medical care. If one does not have clean water or enough food to eat, seeking medical care may not be a priority.

Significant disparities in income can be seen: 69% and 58% of Blacks and Coloreds, respectively, make 1400 rand or less a month, whereas most Whites and Asians (86% and 85%, respectively) make more than 1400 rand a month. Even though South Africa is considered an upper-middle-income country, a large percentage of its residents live in poverty.[17]

Equity

Because of the disadvantaged position of Blacks in South Africa, they lack adequate public health services (e.g., sustainable access to clean water, proper sewer systems, access to health care) and are vulnerable to disease. Blacks are still concentrated mainly in disadvantaged territories, which remain underserved and are the poorest regions of the country. These gross disparities extend into the health care sector and are manifested through racial disparities in health outcomes.

Equity is an issue that must be further explored in South Africa to ensure that resources and services are equally distributed throughout the population. Current efforts to bring the health sector into compliance with constitutional decrees have not been successful. Little has been done to reallocate subsidies from the private to the public health sector. According to May et al., "Despite a strong political commitment to redressing historical inequities, recent government policy actions in these two areas appear to fall short of desirable goals when viewed through a vertical equity lens."[14 (p236)]

Structural inequalities are promoted when some members of the population are poor and may earn their living through informal methods while the rest are financially stable and may have jobs in the formal market sector. The latter will demand the type of health care available in advanced market economies, while the former continue to have limited health access. This structural inequality also points to geographic inequalities. This is evident in South Africa, where individuals in rural areas have limited access to health care compared with inhabitants of urban areas, who may be part of the formal market sector.[12]

Health care relies not only on the source of services but also on the infrastructure that supports a population's health. Twenty-two percent of the primary sampling units in which Blacks resided had no piped water system. This weakness in the basic public health infrastructure is indicative of an overburdened public health system that is not capable of providing consistent quality care across ethnic groups. Public health may not be meeting the needs of the Black population nor providing the adequate infrastructure that is essential for a healthy society.

Perceptions

Although the South African health care system has significant shortcomings, public perceptions of how the government is handling health care are not completely negative. In the survey, overwhelming majorities of Blacks and Coloreds thought that the government was doing a good job in improving health care, whereas the reverse was true for Whites and Asians. Blacks and Coloreds tended to have similar perceptions and socioeconomic status, as did Whites and Asians. This pairing trend is seen for several variables, including perceptions of how the government was handling education, respondent's income, how often the respondent had gone without medical care, how often the respondent had gone without food, and perceptions of how well or badly the current government was handling improvement of basic health services. Interestingly,

TABLE 2—Results of Race-Specific Multiple Regression Models Predicting How Often Respondents Went Without Medical Care: The Afrobarometer: Round II Survey of South Africa, 2002

	Blacks (n = 1082)			Whites (n = 227)			Coloreds (n = 252)			Asians (n = 87)		
	Model A, B (SE)	Model B, B (SE)	Model C, B (SE)	Model A, B (SE)	Model B, B (SE)	Model C, B (SE)	Model A, B (SE)	Model B, B (SE)	Model C, B (SE)	Model A, B (SE)	Model B, B (SE)	Model C, B (SE)
Education	−0.06 (0.02)***		−0.06 (0.02)*	−0.09 (0.06)		0.03 (0.05)	−0.05 (0.065)		−0.00 (0.05)	−0.07 (0.03)		−0.07 (0.03)
Income	−0.06 (0.01)***		−0.02 (0.01)	0.00 (0.03)		0.02 (0.00)	−0.09 (0.03)***		0.00 (0.02)	−0.01 (0.03)		0.01 (0.02)
Treated unfairly		0.02 (0.02)	0.02 (0.02)		−0.01 (0.03)	0.00 (0.04)		0.02 (0.03)	0.01 (0.04)		. . .	. . .
Government handling of education		−0.01 (0.05)	−0.01 (0.05)		−0.01 (0.06)	−0.01 (0.04)		0.15 (0.08)*	0.19 (0.09)*		0.11 (0.06)	0.06 (0.07)
Government handling of gap between rich and poor		−0.12 (0.06)**	−0.12 (0.05)*		−0.03 (0.07)	−0.01 (0.12)		0.03 (0.08)	0.03 (0.09)		−0.00 (0.08)	0.05 (0.08)
Government handling of health care		0.06 (0.05)	0.07 (0.05)		0.02 (0.06)	−0.02 (0.09)		−0.09 (0.08)	−0.13 (0.09)		. . .	. . .
How often went without food		0.20 (0.02)***	0.21 (0.02)***		0.28 (0.05)***	0.40 (0.06)***		0.22 (0.03)***	0.22 (0.04)***		0.30 (0.05)***	0.29 (0.05)***
How often went without water		0.16 (0.02)***	0.17 (0.02)***		0.16 (0.04)***	0.18 (0.05)***		0.26 (0.05)***	0.28 (0.05)***		. . .	. . .
Adjusted R^2	0.03	0.29	0.30	0.02	0.31	0.37	0.11	0.34	0.37	0.005	0.33	0.43

Note. Data were adjusted for gender, age, and the presence of a health clinic in primary sampling unit and enumeration area. Model A included sociodemographic variables (education and income). Model B included perception variables and basic access to food and water. Model C included sociodemographic and perception variables and basic access to food and water. Ellipses indicate the variable was not included in the analysis because of inadequate sample size.

*$P < .05$; **$P < .01$; ***$P < .001$.

perceptions of government functions since the end of apartheid seemed to improve for Blacks and Coloreds but deteriorate for Whites and Asians. Apartheid ended swiftly, not gradually; this may have left Whites and Asians with a sense of personal instability and vulnerability, whereas the quality of life may have relatively improved for Blacks and Coloreds compared with conditions during apartheid. This relative improvement may have positively influenced perceptions of the government.

Surprisingly, the pairing trend was not evident in perceptions of government handling of the gap between rich and poor: all 4 ethnic groups thought the government was handling this issue poorly. Similarly, all 4 groups reported experiencing some degree of unfair treatment. This may be because relatively fairer treatment of Blacks and Coloreds has resulted in more equal treatment of the 4 ethnic groups compared with what existed during apartheid. Further research is needed to explore equal and fair treatment among the underserved groups in South Africa.

Numerous studies have examined the past and present health care systems by reviewing health and human rights after apartheid,[18–25] assessing the influence of ethnicity and socioeconomic class on access to health care,[18,26,27] documenting the atrocities committed by health care workers during the apartheid system,[1,28] and looking at health as a socioeconomic right in South Africa.[29] Although policy has been created to ameliorate the health care system and improve the quality of life of all South Africans, it is unknown how much of this policy has been implemented and is benefiting Black South Africans, who are in most need of it.[30]

Future Research and Policy Implications

This study has several limitations. The study models do not explain most of the observed variation in how often respondents had gone without medical care. Variables that address type of health care, and where and how often it is accessed, might possibly better and more directly address access to health care after apartheid. In addition, geographical variations of socioeconomic status and health have been shown to exist in South Africa. Future research should examine differences in access by geographic location by comparing apartheid-era homelands and territories with the same areas

after apartheid. Although our findings support what has been reported in socioeconomic, political, and health assessments, there is much more ground to cover to establish conclusive cause-and-effect relationships related to ethnic disparities.

Although there have been advances in the equalizing of services, there has also been a deterioration of the public health care system. With the proliferation of HIV/AIDS in South Africa, that system is overburdened and unable to care for those most in need. Further research is needed to understand health disparities, especially by exploring indicators of disadvantage such as race, housing, access to energy sources, water and sanitation, educational status, employment status, food access and nutritional status, geographical location (rural vs urban), and fragmentation of the family, especially through labor migration within South Africa.[14] This evidence will contribute to the development of a comprehensive health policy that can be implemented to benefit the underserved of South Africa. ■

About the Authors

Zeida R. Kon and Nuha Lackan are with the University of North Texas Health Science Center, Fort Worth.

Request for reprints should be sent to Zeida R. Kon, MPH, Department of Health Management and Policy, University of North Texas Health Science Center, EAD 1-752, 3500 Camp Bowie Blvd, Fort Worth, TX 76107 (e-mail: zrojas@hsc.unt.edu).

This article was accepted February 18, 2008.

Contributors

Z.R. Kon originated the study, performed the analysis, and led the writing. N. Lackan provided assistance with the study and the analysis and helped review drafts of the article.

Human Participant Protection

This study was exempt from further review by the University of North Texas Health Science Center's institutional review board because it used secondary, publicly available data stripped of any identifiers. No human participants were involved in this study.

References

1. Cameron N. Physical growth in a transitional economy: the aftermath of South African apartheid. *Econ Hum Biol.* 2003;1:29–42.

2. American Association for the Advancement of Science and Physicians for Human Rights (AAAS). Human rights and health: the legacy of apartheid. 1998. Available at: http://shr.aaas.org/loa/contents.htm. Accessed July 12, 2006.

3. Afrobarometer Network. The changing public agenda: South Africans' assessments of the country's most pressing problems. Institute for Democracy in South Africa (IDASA), Ghana Center for Democratic Development (CDD), and Michigan State University (MSU). 2003. No. 5. Available at: http://www.afrobarometer.org/publications.html. Accessed July 3, 2006.

4. Afrobarometer Network. Trends in political party support in South Africa. IDASA, CDD, and MSU. 2003. No. 6. Available at: http://www.afrobarometer.org/publications.html. Accessed July 3, 2006.

5. Afrobarometer Network. Afrobarometer round 2: compendium of comparative results from a 15-country survey. IDASA, CDD, and MSU. 2004. No. 34. Available at: http://www.afrobarometer.org/publications.html. Accessed July 3, 2006.

6. Coovadia HM. Sanctions and the struggle for health in South Africa. *Am J Public Health.* 1999;89:1505–1508.

7. Benatar SR. Medicine and health care in South Africa. *N Engl J Med.* 1986;315:527–532.

8. Benatar SR. Medicine and health care in South Africa—five years later. *N Engl J Med.* 1991;325:30–36.

9. Van Rensburg HCJ, Benatar SR. The legacy of apartheid in health and health care. *S Afr J Sociol.* 1993;24:99–111.

10. Kale R. Restructuring South Africa's health care: dilemmas for planners. *BMJ.* 1995;310:1397–1399.

11. Benatar SR. Health care reform in the new South Africa. *N Engl J Med.* 1997;336:891–895.

12. Bloom G, McIntyre D. Towards equity in health in an unequal society. *Soc Sci Med.* 1998;47:1528–1538.

13. Kale R. Impressions of health in the new South Africa: a period of convalescence. *Br Med J.* 1995;310:1119–1122.

14. McIntyre D, Gilson L. Redressing disadvantage: promoting vertical equity within South Africa. *Health Care Anal.* 2000;8:235–258.

15. Whitehead M. The concepts and principles of equity and health. *Int J Health Serv.* 1992;313:429–445.

16. Inter-University Consortium for Political and Social Research (ICPSR). The Afrobarometer: Round II Survey of South Africa, 2002. Available at: http://www.icpsr.umich.edu. Accessed January 14, 2006.

17. McIntyre D, Gilson L. Putting equity in health back onto the social policy agenda: experience from South Africa. *Soc Sci Med.* 2002;54:1637–1656.

18. May J, Abrahams G, Annecke W, et al. Poverty and inequality in South Africa, 1998. Available at: http://www.info.gov.za/otherdocs/1998/poverty/report.pdf. Accessed January 28, 2006.

19. Sarkin J. Health and human rights in post-apartheid South Africa. *S Afr Med J.* 1999;89:1259–1263.

20. Sarkin J. A review of health and human rights after five years of democracy in South Africa. *Med Law.* 2000;19:287–307.

21. Pillay Y, Bond P. Health and social policies in the new South Africa. *Int J Health Serv.* 1995;25:727–743.

22. Pillay Y. The impact of South Africa's new constitution on the organization of health services in the post-apartheid era. *J Health Polit Policy Law.* 2001;26:747–766.

23. McIntyre D, Muirhead D, Gilson L. Geographic patterns of deprivation in South Africa: informing health equity analyses and public resource allocation strategies. *Health Policy Plan.* 2002;17(suppl 1):30–39.

24. Nightingale E, Stover E. A question of conscience: physicians in defense of human rights. *JAMA.* 1986;255:2794–2797.

25. Nightingale E, Hannibal K, Geiger HJ, Hartmann L, Lawrence R, Spurlock J. Apartheid medicine: health and human rights in South Africa. *JAMA.* 1990;264:2097–2102.

26. Lalloo R, Myburgh NG, Smith MJ, Solanki GC. Access to health care in South Africa—the influence of race and class. *S Afr Med J.* 2004;94(8):639–642.

27. Choi S. Mechanisms of racial inequalities in prevalence of diarrhea in South Africa. *J Health Popul Nutr.* 2003;21:264–272.

28. Baleta A. South Africa's apartheid era doctor found not guilty. *Lancet.* 2002;359:1416.

29. Ngwena C. Access to health care services as justifiable socio-economic right under the South African constitution. *Med Law Int.* 2003;6:13–23.

30. Baldwin-Ragaven L, London L, De Gruchy J. Learning from our apartheid past: human rights challenges for health professionals in contemporary South Africa. *Ethn Health.* 2000;5:227–241.