

Effect of removing user fees on attendance for curative and preventive primary health care services in rural South Africa

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Abstract User fees are used to recover costs and discourage unnecessary attendance at primary care clinics in many developing countries. In South Africa, user fees for children aged under 6 years and pregnant women were removed in 1994, and in 1997 all user fees at all primary health care clinics were abolished. The intention of these policy changes was to improve access to health services for previously disadvantaged communities. We investigated the impact of these changes on clinic attendance patterns in Hlabisa health district. Average quarterly new registrations and total attendances for preventive services (antenatal care, immunization, growth monitoring) and curative services (treatment of ailments) at a mobile primary health care unit were studied from 1992 to 1998. Regression analysis was undertaken to assess whether trends were statistically significant. There was a sustained increase in new registrations ($P=0.0001$) and total attendances ($P=0.0001$) for curative services, and a fall in new registrations ($P=0.01$) and total attendances for immunization and growth monitoring ($P=0.0002$) over the study period. The upturn in demand for curative services started at the time of the first policy change. The decreases in antenatal registrations ($P=0.07$) and attendances ($P=0.09$) were not statistically significant. The number of new registrations for immunization and growth monitoring increased following the first policy change but declined thereafter. We found no evidence that the second policy change influenced underlying trends. The removal of user fees improved access to curative services but this may have happened at the expense of some preventive services. Governments should remain vigilant about the effects of new health policies in order to ensure that objectives are being met.

Keywords Fees and charges; Ambulatory care facilities/economics; Primary health care/economics; Health policy; Preventive health services/utilization; Patient care; Regression analysis; South Africa (source: *MeSH*).

Mots clés Tarifs et honoraires; Services soins ambulatoires/économie; Programme soins courants/économie; Politique sanitaire; Service médecine préventive/utilisation; Soins aux patients; Analyse régression; Afrique du Sud (source: *INSERM*).

Palabras clave Honorarios y precios; Instituciones de atención ambulatoria/economía; Atención primaria de salud/economía; Política de salud; Servicios de salud preventivos/utilización; Atención al paciente; Análisis de regresión; Sudáfrica (fuente: *BIREME*).

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Voir page 670 le résumé en français. En la página 670 figura un resumen en español.

Introduction

Until recently, most basic health services in sub-Saharan Africa were free to the user. Driven in part by international agencies, including the World Bank, many countries have embarked on a process of health sector reform, of which the introduction of user fees

is a key component (1). The introduction of such fees has generally led to a decrease in attendances. Some commentators have suggested that the important principle of equity in access to health services is compromised by user fees (2). The potential benefits of fees include the generation of revenue for maintaining and developing health services, increasing the perceived value of services, and deterring their frivolous use. However, fees may only raise small amounts of revenue, their collection may create a security risk, and they may deter appropriate use of services by the most needy (3). Little is known about the impact of removing user fees on the differential utilization of preventive and curative services (3).

In 1994, against the international trend, South Africa removed user fees for pregnant and lactating women and children aged under 6 years. In the 18 months following the introduction of this policy

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Fig. 1. Trends in new registrations for care of children aged under 6 years, curative services, and antenatal care, 1992–98

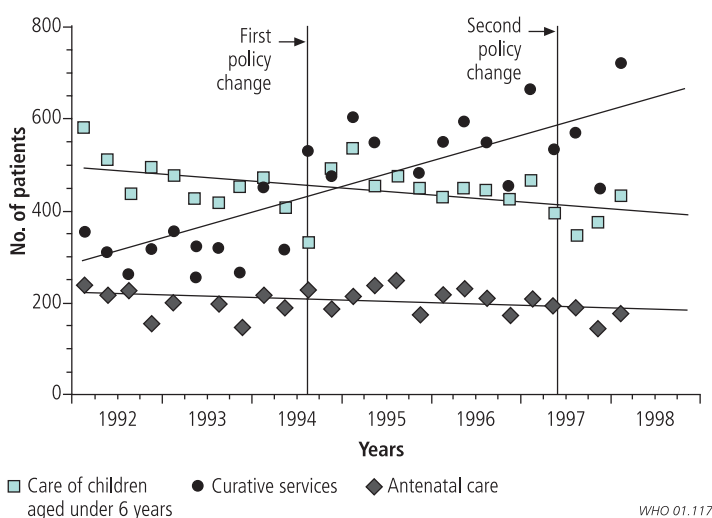
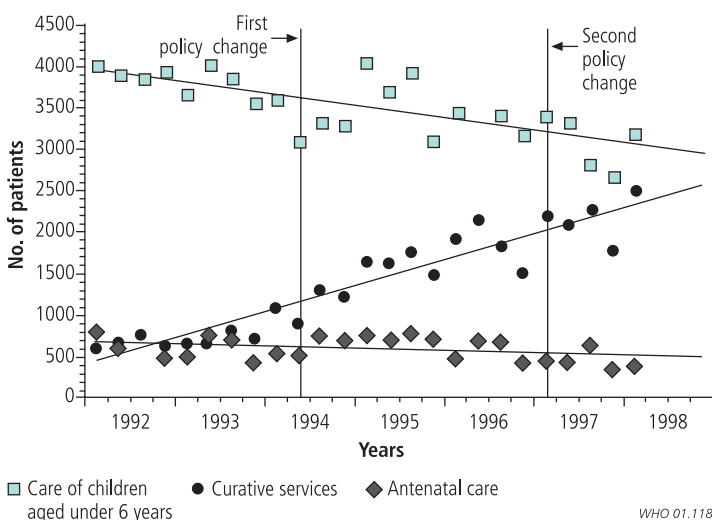


Fig. 2. Trends in total attendances for care of children aged under 6 years, curative services, and antenatal care, 1992–98



there were changes in attendance patterns at a mobile primary health care service in the rural Hlabisa health district (4). While there was little or no increase in attendance for preventive services such as antenatal care and childhood immunization and growth monitoring, for which coverage was already very high, attendance for curative services increased by 77% (4). In 1997 the fees for all primary health care services for all people were withdrawn. The effect of this on attendance for curative and preventive services is described below.

Analysis

Setting

Hlabisa health district is situated in northern KwaZulu/Natal. The mainly rural population of 205 000 is served by a 450-bed district hospital, 10 primary health care clinics, and, in the most

remote areas, two mobile units staffed by nurses. One mobile team was chosen for this study because the 14 communities it served were widely dispersed and broadly representative of the district, and because record-keeping by the clinic team was excellent. Most of the 14 clinic points were visited monthly and, typically, between 100 and 150 patients were seen each day. Each patient attending the clinic for the first time was recorded as a “new registration”. Subsequent visits by the same patient were recorded as repeat visits and counted among “total attendances”.

Services and costs

Patients were placed into the following three categories: pregnant women receiving antenatal care; children under 6 years attending for immunization and growth monitoring; and patients requiring curative services (treatment of ailments). The curative services were used mostly by children, with the consultations being initiated by their carers who perceived them to be sick and in need of medical attention. The preventive services of immunization and growth monitoring had always been free. Before 1994, pregnant women paid R5 (US\$ 1.00) per antenatal care visit for up to four visits, with subsequent visits being free of charge. Patients, including children, seeking curative services paid R3 (US\$ 0.60) per visit. From June 1994 all services for pregnant and lactating women and children aged under 6 years were provided free of charge. In early 1997 all user fees for all patients attending primary health care clinics were cancelled.

Data handling

Data on average quarterly attendances were extracted from clinic registers. The average quarterly number of new registrations and total attendances for each of the three patient categories between January 1992 and March 1998 are shown in Figs 1–4. We have previously presented data for the period January 1992 to December 1995 (4). In late 1996, two of the 14 mobile clinic points were converted to fixed clinics. The data were therefore adjusted: from 1994 to 1997 individual clinic data were available and we simply excluded data from clinics that subsequently closed. Before 1994 we had only aggregate data and so we calculated the average difference in the number of attendances, including and excluding the two clinics for the period 1994–97, and adjusted for the period before 1994 accordingly. The differences per quarter between 1994 and 1997 remained constant, suggesting that this approach was reasonable.

For the period January 1992 to March 1998, data for total cases were plotted and a simple regression analysis of numbers of patients against time was undertaken, using SAS version 6.12. A line of best fit was generated by the least squares method. A trend was regarded as statistically significant if the slope differed from zero with $P < 0.05$. The slope provided an estimate of the increase or decrease in the number of attendances for each service per unit time (Fig. 1 and Fig. 2).

In addition, separate regression analyses were performed for the periods 1992–94 (period 1, before the introduction of free care) and 1994–98 (period 2, after free care was introduced). Two dummy variables were included for the two occasions at which price policy changed. Interactions between time and the dummy variables were included in the regression analysis but as the results were not significant they were excluded from the final model. The analysis tested for a change in intercept as well as for a change in slope between the different periods.

Effect on attendances

Fig. 1 and Fig. 2 show quarterly attendances for new registrations and total attendances for the three clinic services between January 1992 and March 1998, with regression lines drawn for the full study period. Fig. 3 and Fig. 4 show the same data with separate regression lines for the period preceding the 1994 policy change and the period following this policy change.

Curative services

Over the entire study period there was a substantial and sustained increase in the number of new registrations ($P = 0.0001$) and total attendances ($P = 0.0001$) for curative services (Table 1). Before the first policy change the quarterly numbers of new registrations and total attendances were stable. They increased rapidly, however, at the time of the 1994 policy change and continued to increase into 1998. For new registrations the slopes of the regression lines for periods 1 and 2 were similar and not significantly different from zero (Table 2). For total attendances the regression lines were significantly steeper. As shown in Table 3, the second policy change had little effect on underlying trends for curative services.

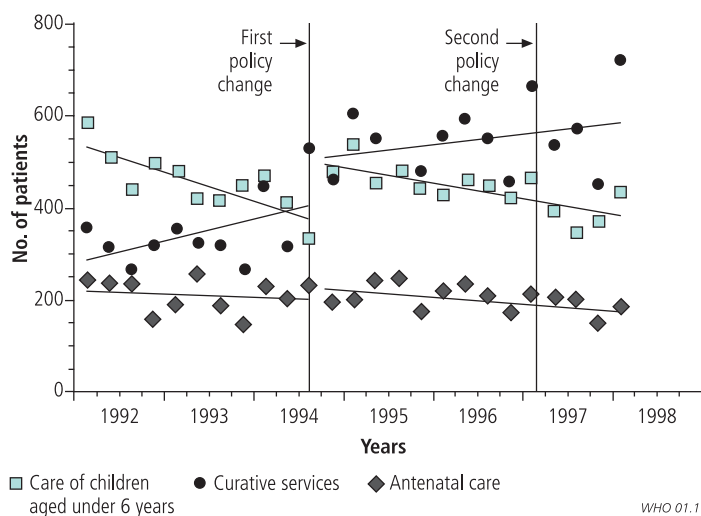
Antenatal care

Over the entire study period there was a gradual and sustained fall, of borderline statistical significance, in the number of women presenting for antenatal care (Table 1, Fig. 1, and Fig. 2) (for new registrations, $P = 0.07$; for total attendances, $P = 0.08$). Higher and statistically significant values for R^2 (Table 2) suggested that the rate of fall in new registrations and total attendances increased after the second policy change. However there was no evidence that this policy change further influenced the underlying trend (Table 3).

Care of children aged under 6 years: immunization and growth monitoring

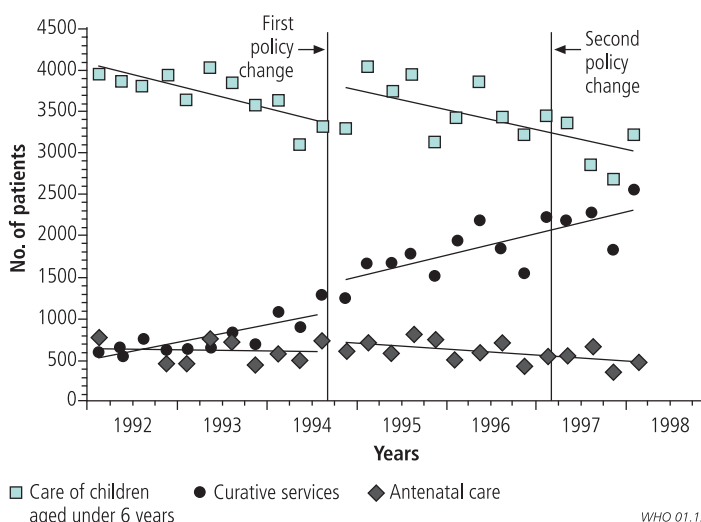
Over the entire study period the numbers of new registrations ($P = 0.01$) and total attendances ($P = 0.0002$) fell for children aged under 6 years (Table 1, Fig. 1, and Fig. 2). There was a clear increase in the numbers of new registrations and total

Fig. 3. Trends in new registrations for care of children aged under 6 years, curative services, and antenatal care, 1992–98, with separate regression lines for the period before and after the 1994 policy change



WHO 01.119

Fig. 4. Trends in total attendances for care of children aged under 6 years, curative services, and antenatal care, 1992–98, with separate regression lines for the period before 1994 policy change and subsequent period



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attendances at the time of the first policy change (Fig. 3 and Fig. 4) but the numbers of both continued to fall at a similar rate thereafter. There was no evidence that the second policy change further influenced underlying trends (Table 3).

Discussion

Following the introduction of free primary health care the total number of consultations for curative care in the mobile unit almost doubled, while the number of consultations for preventive services fell. The removal of user fees encouraged and increased access to curative services but subsequent clinic congestion and reduced consultation times may have discouraged some women from attending for

Table 1. Regression analysis of numbers of new registrations and total attendances for three services, 1992–98

Type of clinic	Total attendances		New registrations	
	Regression equation ^a	R ²	Regression equation ^a	R ²
Antenatal care	$y = 681.08 - 5.23 \times \text{TIME}$	0.12 ($P = 0.08$) ^a	$y = 221.59 - 1.49 \times \text{TIME}$	0.14 ($P = 0.07$)
Care of children aged under 6 years	$y = 3996.49 - 34.68 \times \text{TIME}$	0.46 ($P = 0.0002$)	$y = 493.99 - 3.78 \times \text{TIME}$	0.26 ($P = 0.01$)
Curative services	$y = 367.2 + 80.3 \times \text{TIME}$	0.88 ($P = 0.0001$)	$y = 276.3 + 13.9 \times \text{TIME}$	0.64 ($P = 0.001$)

^a y represents the intercept of the regression line and the number of attendances at a particular time. TIME refers to any point along the x-axis (the period of time in the study).

^b Probability values are shown in parentheses.

Table 2. Regression analysis for period before first policy change (pre-1994, period 1) and following period (post-1994, period 2)

Type of clinic	Period 1		Period 2	
	Regression equation ^a	R ²	Regression equation ^a	R ²
Total attendances				
Antenatal care	$y = 659.7 - 5.5 \times \text{TIME}$	0.02 ($P = 0.657$) ^b	$y = 951.7 - 18.9 \times \text{TIME}$	0.55 ($P = 0.0024$)
Care of children aged under 6 years	$y = 4128.5 - 68.2 \times \text{TIME}$	0.63 ($P = 0.0035$)	$y = 4520.7 - 60.1 \times \text{TIME}$	0.42 ($P = 0.0122$)
Curative services	$y = 480.1 + 53.2 \times \text{TIME}$	0.64 ($P = 0.0031$)	$y = 715.3 + 63.5 \times \text{TIME}$	0.56 ($P = 0.0021$)
New registrations				
Antenatal care	$y = 219.5 - 1.9 \times \text{TIME}$	0.04 ($P = 0.5786$)	$y = 269.6 - 3.9 \times \text{TIME}$	0.36 ($P = 0.0240$)
Care of children aged under 6 years	$y = 547.1 - 15.5 \times \text{TIME}$	0.63 ($P = 0.0028$)	$y = 596.3 - 8.6 \times \text{TIME}$	0.56 ($P = 0.0022$)
Curative services	$y = 274.9 + 11.7 \times \text{TIME}$	0.24 ($P = 0.1246$)	$y = 436.7 + 5.9 \times \text{TIME}$	0.09 ($P = 0.2806$)

^a See Table 1, footnote a.

^b Probability values are shown in parentheses.

antenatal care and from bringing their children for growth monitoring and immunization.

The present study complemented our earlier analyses (4) by considerably extending the period of observation and reporting an apparent reduction in the utilization of preventive services. We previously reported a substantial increase in the utilization of curative services and no change in that of preventive services.

Trends in attendance patterns and before-and-after comparisons should be interpreted with caution. It is easy to perceive cause and effect when no such relationship exists. What alternative explanations might there be for the observations? It is unlikely that they resulted from data artefacts. The same two nurses had been using the same data collection and reporting system for over 30 years. As no alterations were made to case definitions or recording systems during the study period, moreover, the reported changes in attendance patterns were likely to be reliable.

Influence of the HIV epidemic

Could the changes be a reflection of the HIV epidemic? Fertility rates might have fallen because of high HIV prevalence, reducing the demand for antenatal care and for childhood preventive services. The demand for curative services was possibly a

reflection of increased HIV-related morbidity. Reduced fertility among HIV-infected women has been reported from Uganda (5). In KwaZulu/Natal the prevalence rate of HIV infection ranged from 4% in 1992 to 40% in 1998. An increased demand for curative care secondary to the HIV epidemic has been reported in Hlabisa (6).

It is doubtful, however, whether any such changes in HIV/AIDS epidemiology in Hlabisa account for all the observed changes in health service utilization. The total number of deliveries in the district has remained quite stable since 1991 (7), averaging approximately 350 per month. It is probable that HIV-related morbidity would have increased the rate of referral to hospital and that the attendance of both adults and children at the clinic would have increased, but no such changes were observed. The findings of our previous study (4) were confirmed by data relating to much of South Africa, including areas where the HIV epidemic was localized and prevalence was low (8).

Differential effect on curative and preventive services

The temporal association between the change in attendance patterns for curative services and the first policy change suggests that the policy change and/or its method of implementation resulted in the change

Table 3. Regression analysis of attendances, 1992–98, as function of time, including dummy variables for the two occasions on which policy changed, and interaction between dummy variables and time variable

Variable	Coefficient		
	Antenatal care	Care of children aged under 6 years	Curative services
Total attendances			
Intercept	775.5 ($P = 0.0001$) ^a	4506.1 ($P = 0.0001$)	668.7 ($P = 0.016$)
Time	-6.9 ($P = 0.36$)	-57.7 ($P = 0.009$)	68.9 ($P = 0.0003$)
Dummy 1 (1994)	-107.3 ($P = 0.21$)	-440.6 ($P = 0.06$)	-282.6 ($P = 0.12$)
Dummy 2 (1997)	-107.4 ($P = 0.16$)	-71.3 ($P = 0.72$)	-122.5 ($P = 0.44$)
R ²	0.32	0.57	0.9
New registrations			
Intercept	239.4 ($P = 0.0001$)	668.9 ($P = 0.0001$)	360.8 ($P = 0.0001$)
Time	-1.8 ($P = 0.40$)	-13.3 ($P = 0.0001$)	11.1 ($P = 0.07$)
Dummy 1 (1994)	-20.2 ($P = 0.40$)	-135.1 ($P = 0.0004$)	-82.5 ($P = 0.22$)
Dummy 2 (1997)	-20.2 ($P = 0.40$)	-34.7 ($P = 0.23$)	-175.5 ($P = 0.42$)
R ²	0.25	0.62	0.7015

^a Probability values are shown in parentheses.

in attendance patterns. There is a clear cyclical variation in attendance patterns for all three services studied (Fig. 1 and Fig. 2). Attendances for preventive services were gradually falling before the first policy change but there is no significant evidence that it accelerated the decline. It is not clear why there was a substantial increase in clinic attendances by children aged under 6 years at the time of the first policy change, followed by a sustained reduction. For curative services the increase in attendances seen at the time of the first policy change continued without a plateau effect (Fig. 1 and Fig. 2). The second policy change evidently did not alter the rate of increase (Table 3).

The introduction of free care in 1994 was intended to increase access to health services among the poorest people. A large and sustained increase in health service utilization has been reported throughout the country (4, 8). In most of South Africa, preventive services for children have always been free and therefore it was scarcely surprising that attendances for such services did not increase in 1994 and 1995 (4).

Similarly, maternity services have always been priced well within the means of the great majority of women and more than 90% attend for antenatal care (9, 10), with most of them paying. The initial impact of the removal of user fees seems to have been to increase attendances for curative services but to have little effect, either positive or negative, on attendances for preventive services (4), which is encouraging. However, following the hurried implementation of this policy there was congestion in clinics and a reduction in consultation times (8). Our data imply that while attendances for curative services have continued to increase, those for preventive services have fallen.

Is it possible that patients chose to attend the mobile clinic for curative services and a more distant village clinic, or private medical services in distant towns, for preventive services? This is unlikely, since most private doctors do not provide antenatal care or immunizations. Other district clinics are experiencing similar increases in attendances for curative services, and patients seem unlikely to travel long distances for preventive services at equally busy facilities.

The large number of patients who used the curative services may have benefited from these services. Treatment may have been given earlier and more effectively and efficiently, reducing the frequency of hospital referral and of unnecessary morbidity and even mortality. However, we have previously shown no reduction in the referral rate from this clinic (4) and the impression persists that many consultations for curative services relate to minor and self-limiting conditions (8). Clinic nurses report strong pressure to spend less time with each patient than formerly, and some find their work more frustrating and tiring than it used to be (8).

The consequences could be very unfavourable if the increased demand for curative services generated by the removal of user fees has made the health system unattractive for clients seeking preventive services. Reduced attendance for antenatal care can lead to an increase in perinatal mortality (7, 10). If fewer children attend for immunization, outbreaks of vaccine-preventable diseases may occur.

Implementation of policy changes

Important, widely supported, and well-intentioned changes in health policy may have unexpected and negative effects in the medium to long term. A distinction should be made between policy and

implementation. The introduction of free care in South Africa has been criticized as hurried and unplanned (8), although it has been widely supported by health workers and communities. A slower, perhaps phased, introduction might have avoided some of the adverse effects that have been reported (4, 8).

Although the effects of policy may be difficult to separate from those of demographic change,

epidemics, and other changes in health systems, it is important that governments monitor the impact of changes in policy. The need for long-term monitoring is highlighted by the indications in our data that the utilization of preventive services has started to increase. ■

Conflicts of interest: none declared.

Résumé

Effet de la suppression de la participation financière demandée aux usagers sur l'utilisation des services de soins de santé primaires curatifs et préventifs dans une zone rurale d'Afrique du Sud

Dans de nombreux pays en développement, une participation financière est demandée aux usagers des services de soins de santé primaires, dans un but de recouvrement des coûts et pour décourager les consultations superflues. En Afrique du Sud, cette participation a été supprimée en 1994 pour les enfants de moins de six ans et les femmes enceintes et en 1997 pour toutes les catégories d'usagers de ces services, dans le but d'améliorer l'accès des populations jusque-là défavorisées aux services de santé. Nous avons étudié l'impact de ces changements de politique sur la fréquentation des dispensaires dans le district sanitaire de Hlabisa. Les moyennes trimestrielles des nouvelles inscriptions et du total des consultations pour les services préventifs (soins anténatals, vaccinations, contrôles de croissance) et curatifs (traitements) dans une unité mobile de soins de santé primaires ont été étudiées de 1992 à 1998. La signification statistique des tendances a été vérifiée au moyen d'une analyse de régression. Nous avons observé une augmentation constante des nouvelles inscriptions

($p = 0,0001$) et du total des consultations ($p = 0,0001$) pour les services curatifs, et une baisse des nouvelles inscriptions ($p = 0,01$) et du total des consultations ($p = 0,0002$) pour les vaccinations et les contrôles de croissance sur la période considérée. L'augmentation de la demande de services curatifs a coïncidé avec le premier changement de politique. La diminution du nombre d'inscriptions ($p = 0,07$) et de consultations ($p = 0,09$) pour les soins anténatals n'était pas statistiquement significative. Le nombre de nouvelles inscriptions pour les vaccinations et les contrôles de croissance a augmenté après le premier changement de politique mais a diminué par la suite. Rien ne montre que le deuxième changement de politique ait eu une influence sur les tendances générales. La suppression de la participation financière des usagers a amélioré l'accès aux services curatifs mais peut-être au détriment de certains services préventifs. Les gouvernements doivent rester attentifs aux effets des nouvelles politiques de santé de façon à assurer que les objectifs seront bien atteints.

Resumen

Efecto de la eliminación del pago de honorarios por los usuarios en el uso de los servicios de atención primaria curativa y preventiva en una zona rural de Sudáfrica

El pago de honorarios por los usuarios es una opción empleada en muchos países en desarrollo para cubrir parte de los gastos y desincentivar las visitas innecesarias a los dispensarios de atención primaria. En Sudáfrica se eliminó en 1994 el sistema del pago de honorarios por los usuarios para los niños menores de seis años y las mujeres embarazadas, y en 1997 se acabó con esa práctica en general en todos los dispensarios de atención primaria. El objetivo de esos cambios de política era mejorar el acceso a los servicios de salud de comunidades previamente desfavorecidas. Decidimos investigar el efecto de esos cambios en los hábitos de asistencia a dispensarios en el Distrito de Salud de Hlabisa. Entre 1992 y 1998 se estudiaron en una unidad móvil de atención primaria los valores trimestrales medios de los registros nuevos y del número total de visitas efectuadas para recibir atención preventiva (atención prenatal, inmunización, vigilancia del crecimiento) y curativa (tratamiento de enfermedades). Se realizó un análisis de regresión para determinar si las tendencias eran estadísticamente significativas. Se ob-

servó un aumento sostenido de los nuevos registros ($P = 0,0001$) y del número total de visitas ($P = 0,0001$) para los servicios curativos, así como una disminución de los nuevos registros ($P = 0,01$) y de las visitas totales para la inmunización y la vigilancia del crecimiento ($P = 0,0002$) a lo largo del periodo de estudio. El repunte de la demanda de servicios curativos se inició coincidiendo con el primer cambio de política. Los descensos experimentados por los registros ($P = 0,07$) y las visitas ($P = 0,09$) para atención prenatal no fueron estadísticamente significativos. El número de nuevos registros para inmunización y vigilancia del crecimiento aumentó tras el primer cambio de política pero disminuyó posteriormente. No hallamos ningún indicio de que el segundo cambio de política influyera en las tendencias subyacentes. La supresión del pago de honorarios por los usuarios mejoró el acceso a los servicios curativos, pero ello podría haber ocurrido a expensas de algunos servicios preventivos. Los gobiernos deberían permanecer atentos a los efectos de las nuevas políticas sanitarias a fin de asegurar que se alcancen los objetivos.

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