Implementation of a standardized HIV patient monitoring system in Guyana

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ABSTRACT **Objective.** *To describe the process used to implement a comprehensive, standardized, and reliable national system for data collection for HIV care and treatment in Guyana; to provide examples of the program-level data resulting from implementation; and to highlight the monitoring benefits for national programs.*

Methods. *In 2007, Guyana's Ministry of Health and other key stakeholders adapted the World Health Organization's generic HIV care and antiretroviral therapy (ART) patient monitoring guidelines to fit the Guyana context, which included modifying the patient chart, patient registers, and cross-sectional and cohort reports. Following initial training and feedback from clinical staff, a national patient monitoring system (PMS) was finalized, piloted, and implemented at all care and treatment sites. Thereafter, sites received monthly supportive supervisory visits to review data collection and validate reports.*

Results. *Implementation of the PMS enabled analysis of cohort data for patients on ART. After 12 months, 79% of a combined national cohort of all 50 patients who started ART in June 2007 were alive and on first-line ART regimens. After six years, 58% of the first (April 2002) cohort of ART patients in the country were alive and on ART, with only two (8%) patients on second-line regimens.*

Conclusions. *Implementation of a national PMS for standardized data collection and reporting across multiple clinical sites ultimately provided important and reliable information on utilization of services, patient outcomes, and survival rates on treatment. These data are used at the national level to monitor the efficacy of the HIV care and treatment program. Successful implementation requires early inclusion of all committed stakeholders and a dedicated human resource team to ensure sustainability of the system.*

Key words HIV; acquired immunodeficiency syndrome; monitoring; health systems, organization and administration; Guyana.

Effective and reliable data collection and epidemic monitoring systems are essential tools for effective allocation of resources in combating any epidemic. With an estimated prevalence of 1.55% (1), Guyana has one of the highest burdens of human immunodeficiency virus (HIV) infection in the Caribbean. The success of antiretroviral therapy (ART) in decreasing mortality and improving life expectancy among people living with HIV and acquired immune deficiency syndrome (AIDS) has made treatment of HIV infection and the establishment of a systematic monitoring system a priority for the health sector in Guyana. Guyana has had a well-established HIV care and treatment program since 2002 (2). There are currently 16 full-service care and treatment sites, in both the public and private sectors. Most of these sites are located in villages and towns in highly populated areas along the coast. A mobile clinic visits patients in the more isolated interior regions of the country to ensure program coverage

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in all 10 of Guyana's administrative regions. At the end of June 2008, 3 523 patients were actively enrolled in the program and 2 185 of those were actively on ART.[5]

Estimates of the burden of HIV infection in Guyana were based initially on epidemiologic case reports and later on demographic health surveys. However, prior to 2007, Guyana did not have a standardized, national system for HIV patient monitoring and was therefore unable to comprehensively track either the epidemic or the national response. The use of different types of administrative systems (e.g., health facility logbooks, registers, databases, and lists) to monitor and track patients at the various HIV care and treatment sites precluded uniformity in data collection and reporting. Data were aggregated and submitted to the National AIDS Programme Secretariat (NAPS) in multiple formats, resulting in the omission of salient variables as well as data duplication. This led to frequent discrepancies in the program data, ultimately decreasing confidence in their reliability. In addition, the reports did not meet national, international, and donor criteria related to HIV care and treatment program indicators.

Another weakness in the reporting system was the lack of standardization of individual patient chart components across sites, leading to inconsistent clinical documentation. An attempt to implement standardized patient encounter forms in 2005 ultimately failed, partially due to the excessive amount of required forms (as many as 10 per adult patient at baseline visit), and their cumbersome nature (the questions were comprehensive yet overly complex, resulting in inconsistent completion and data that were difficult to extract and often of poor quality). It was therefore difficult to monitor patient outcomes at either the facility or national level. To resolve these system deficits and thus allow for the comprehensive monitoring of patients that is required to improve care and management, stakeholders in HIV care and treatment in Guyana consolidated the information collected in the patient chart and simplified data collection and reporting.

This report 1) describes the process used to implement a simplified, standardized patient monitoring system in Guyana; 2) provides examples of the program-level data resulting from implementation; and 3) highlights the monitoring benefits for national programs.

MATERIALS AND METHODS

The Guyana Ministry of Health and other key stakeholders in national HIV care and treatment collectively designated the implementation of a comprehensive patient monitoring system as a national health priority to help alleviate some of the data quality and collection issues. Due to Guyana's frequent power outages and inadequate information technology infrastructure, it was determined that it would not be feasible to use an electronic, computer-based system like the one used successfully in rural Haiti (3). All stakeholders agreed that the ideal system for Guyana would be one that 1) was paper-based, 2) had been used and validated in other countries, 3) could be adapted to the Guyanese context, and 4) could fulfill all of the country's data requirements. The patient monitoring system (PMS) set out in the World Health Organization (WHO) generic guidelines for HIV care and ART (4) was the only one with all of these attributes. In addition, the WHO system had already been adapted, implemented, and validated in seven other countries and was the only HIV patient monitoring system endorsed by that organization as well as the Joint United Nations Programme on HIV/AIDS (UNAIDS) and the U.S. President's Emergency Plan for AIDS Relief (PEPFAR). Designed to comply with international rules of security, good clinical practices, and data management principles, the WHO monitoring system allowed for easy and accurate collection of all necessary variables and used standardized definitions agreed upon at the international level. Therefore, the reports it produced fulfilled international as well as national requirements.

In 2006, national and international stakeholders from the following agencies and organizations collaborated to form a technical working group: Guyana's NAPS; the Pan American Health Organization (PAHO); the U.S. Centers for Disease Control and Prevention Global AIDS Program (CDC GAP); the U.S. Agency for International Development (USAID), and its Guyana HIV/AIDS Reduction Project (GHARP); and FXB-Guyana, a project of the François-Xavier Bagnoud Center of the University of Medicine and Dentistry of New Jersey (USA). The working group assessed information and data needs for HIV care and treatment and developed a minimum set of monitoring indicators that would meet national and international programmatic, reporting, and research requirements.

That same year, WHO provided training on the HIV care and ART PMS, and the technical working group adapted each component for Guyana. The extensive consensus-making process that ensued helped to strengthen the partnerships between the various stakeholders involved in the working group.

The physical components of the WHO HIV care and ART PMS include a patient chart, two patient registers, and cross-sectional and cohort analysis reporting forms (4). The information captured by the patient chart and registers in the system adapted for Guyana is summarized in Table 1. The patient chart includes 1) a box on the outside cover of the chart that summarizes important details about HIV diagnosis, enrollment into care, and ART treatment history; 2) a single-page summary sheet where the clinical team documents essential variables of HIV care over multiple visits; and 3) a follow-up sheet where the physician can make additional notes about clinical impressions and the physical exam (as needed). Information about care and treatment variables, drawn primarily from the patient chart's summary sheet, is used to complete two longitudinal registers—one for pre-ART patients, which follows all patients in HIV care prior to starting ART on a quarterly basis, and one for ART patients, which follows all patients on ART on a monthly basis. To facilitate cohort reporting from the ART register, patients are grouped into monthly cohorts based on the month and year that they began ART. The cohort analysis report collects information on treatment outcomes over time for patients on ART, whereas the monthly cross-sectional report collects information on new, cumulative, and current pre-ART and ART patients. The cohort analysis is based on information from the combined monthly cohorts in the ART register (i.e., all those who begin ART at the same time). Therefore each group of ART patients can be analyzed separately, at six- and 12-month

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[5] Guyana Ministry of Health National HIV/AIDS Programme, unpublished data, 2008.

TABLE 1. Information captured by various components of Guyana's national HIV patient monitoring system, implemented at 15 care and treatment sites from January 2007–March 2008

Component	Information captured
Patient chart	At first visit (updated as needed): clinic ID, name, age, gender, demographic information, emergency contact/treatment supporter information, referral source, questions regarding sexual history, presenting concern(s), symptoms, past medical history (including gynecologic history), baseline physical examination, baseline clinical impression and laboratory tests, medications prescribed
Summary box (on outside back cover of patient chart)	At first visit (updated as needed): HIV care history, including HIV diagnosis, enrollment in care, dates starting antiretroviral therapy (ART), starting and enrollment clinical and immunologic staging, ART regimen history, dates and reasons for change of ART regimens, family information, and counseling information
Summary sheet (single sheet attached to patient chart)	At all visits: date of visit, duration on ART, weight, pregnancy status, functional status, World Health Organization (WHO) clinical stage,[a] tuberculosis (TB) status, side effects, additional opportunistic infection or other medical condition, cotrimoxazole prophylaxis, ART drugs given (and duration), lab parameters collected (CD4 cell count, etc.), and hospitalizations and/or referrals
Follow-up sheet(s) (attached to patient chart; one sheet per four visits)	At follow-up visits (as needed): date of visit, presenting concern(s), adherence, physical examination, clinical impression, tests requested, and medications prescribed
Pre-ART patient register	At enrollment: date of enrollment, clinic ID, name, age, gender, referral source When applicable: dates of isoniazid (INH) prophylaxis, cotrimoxazole prophylaxis, TB treatment and pregnancies; eligibility information for ART (including reasons and dates transferred to the ART register) Quarterly: whether patient received care, recent weight/height, and CD4 cell count
ART patient register	At enrollment: date started on ART; clinic ID; name; age; gender; status at start of ART (WHO clinical stage, functional status, cotrimoxazole prophylaxis, CD4 cell count, and initial regimen) When applicable: dates of pregnancies, cotrimoxazole prophylaxis, and ART regimen changes and substitutions Monthly: regimen and patient status (e.g., "enrolled," "dropped") Quarterly: recent CD4 cell count and functional status

[a] As defined in Interim WHO Clinical Staging of HIV/AIDS and HIV/AIDS Case Definitions for Surveillance: Africa Region (2005). Available from: http://www.who.int/hiv/pub/guidelines/casedefinitions/en/index.html.

intervals after the start of treatment. Results for these cohorts can then be aggregated and analyzed across sites.

A national training and feedback session on Guyana's new PMS was conducted in January 2007 for doctors, nurses, and data entry clerks from each care and treatment site. This training session 1) informed participants about the anticipated changes to the HIV monitoring system, 2) elicited feedback on any site-specific concerns not addressed by the proposed system, and 3) encouraged system buy-in among the individuals who would ultimately implement the system. System tools were modified based on feedback from the training session participants, and a pilot PMS was subsequently implemented at one site. During the pilot, all existing patient charts were converted to match the new charting system, and the pre-ART and ART registers were updated with all available patient information (dating back to the opening of the care and treatment program at that site). Upon the successful completion of the pilot, the PMS was implemented at all existing care and treatment sites, one site at a time. After PMS implementation, each site received monthly visits from a member of the working group. During these follow-up visits, the working group representative reviewed patient charts and registers, validated the monthly cross-sectional reports and cohort analysis reports, and addressed any issues that may have emerged in implementing the system. In between visits, throughout the implementation process, working group members were available for technical consultation.

RESULTS

Full implementation of Guyana's PMS took a total of 15 months (January 2007–March 2008) for 15 clinical sites. At small and moderately sized clinical sites (those with less than 300 patients), full implementation was achieved in two weeks or less. Implementation at the national care and treatment referral center (which served a cumulative patient total of more than 3 000) required eight months. By the end of March 2008, all care and treatment sites except one had fully implemented the new PMS and were submitting both cross-sectional and cohort analysis reports on a monthly basis (the one site that only partially implemented the PMS had a pre-existing electronic system that was able to produce most of the data required for the reports; however, the site later decided to fully implement the paper-based system, which was completed in December 2009). The majority of the sites were able to complete the cross-sectional and cohort analysis reports with limited assistance.

As expected, a large discrepancy was found between the data provided in the cross-sectional reports submitted prior to the use of the PMS and the data from those submitted after its implementation. In most cases, the numbers of patients both in care and on treatment in the reports produced by the PMS were lower than those submitted in earlier reports. The higher numbers, which were deemed inaccurate, were attributed to poor documentation of patients that had transferred, died, or become lost to follow-up and were thus erroneously counted as active (currently receiving care or on treatment).

In June 2008, a PMS supportive supervision team was established with existing staff from NAPS. As mentioned above, this team conducts monthly monitoring visits at all national HIV care and treatment sites to 1) review patient charts and registers for data quality, 2) collect and validate the monthly cross-

TABLE 2. Baseline and follow-up data for patients from Guyana's June 2007 national HIV cohort who received antiretroviral therapy (ART),[a] June 2007–June 2008

	At baseline (Jun 2007)	Month 6 (Dec 2007)	Month 12 (Jun 2008)
A. Number of patients in ART program	50	50	50
B. Number of patients who transferred into ART program	NA[b]	2	4
C. Number of patients who transferred out of ART program	NA	2	6
D. Net current cohort (A+B–C)	50	50	48
E. Number of patients who died	NA	2	4
F. Number of patients who stopped ART	NA	0	0
G. Number of patients dropped from ART program ("lost to follow-up")	NA	3	6
H. Number of patients on original first-line ART regimen	50	45	36
I. Number of patients on alternate (substituted) first-line ART regimen	NA	0	2
J. Number of patients who switched to second-line ART regimen	NA	0	0
K. Percentage of cohort alive and on ART (H+I+J)/D × 100	100	90	79

[a] Aggregated cohort data from the 13 full-service HIV care and treatment sites in operation in Guyana at the time of the study.
[b] NA = not applicable.

TABLE 3. Baseline and six-year data for Guyana's first HIV cohort to receive antiretroviral therapy (ART), at six months and 12-month follow-up,[a] April 2002–April 2008

	At baseline (Apr 2002)	Month 6 (Oct 2002)	Month 12 (Apr 2003)	Month 24 (Apr 2004)	Month 36 (Apr 2005)	Month 48 (Apr 2006)	Month 60 (Apr 2007)	Month 72 (Apr 2008)
A. Number of patients in ART program	25	25	25	25	25	25	25	25
B. Number of patients who transferred into ART program	NA[b]	0	0	0	0	0	0	0
C. Number of patients who transferred out of ART program	NA	0	0	0	0	0	0	1
D. Net current cohort (A+B–C)	25	25	25	25	25	25	25	24
E. Number of patients who died	NA	1	1	1	4	4	4	4
F. Number of patients dropped from ART program ("lost to follow-up")	NA	2	2	2	3	3	4	4
G. Number of patients who stopped ART[c]	NA	0	1	1	2	1	1	2
H. Number of patients on original first-line ART regimen	25	19	18	18	13	11	7	0
I. Number of patients on alternate (substituted) first-line ART regimen	NA	3	3	3	3	5	8	12
J. Number of patients who switched to second-line ART regimen	NA	0	0	0	0	1	1	2
K. Percentage of cohort alive and on ART (H+I+J)/D × 100	100	88	84	84	64	68	64	58

[a] Cohort data from the Guyana Ministry of Health National Care and Treatment Centre (known as the Genito Urinary Medicine Clinic at the time of the study).
[b] NA = not applicable.
[c] The change in "number of patients who stopped ART" (from "2" to "1" in 2006 and from "1" to "2" in 2008) reflects the fact that one patient stopped ART in 2005, resumed it for 2006–2007, and then stopped it again in 2008.

sectional reports and cohort analysis reports, and 3) resolve any issues that may arise with regard to the PMS. Copies of all reports remain at each site as well as at NAPS.

Full implementation across all national care and treatment sites has allowed NAPS to aggregate and analyze cohort data for all patients receiving ART in Guyana, and reporting of cohort data has allowed for comparisons with HIV programs in other parts of the world. After 12 months, in the combined national cohort for June 2007 (all 50 patients who started ART during that month), 79% were alive and on first-line ART (Table 2) (i.e., none had migrated to second-line regimens). After six years, of the 25 patients from the first cohort of ART patients in Guyana (those who began ART in April 2002), 58% were alive and on ART (with only two or 8% on second-line regimens); 16% had died; 8% had stopped treatment; and 16% were lost to follow-up (Table 3). In an aggregation of 10 cohorts (January through October 2006), nearly 75% of the patients were still alive and on ART after 12 months (Table 4). These 12-month retention rates are similar to results reported for Malawi (5), Rwanda (6), and Mozambique (7).

DISCUSSION

Development and implementation of a PMS in Guyana has achieved three overall objectives. First, it has standardized data collection and record-keeping across all care and treatment sites, both improving patient care and increasing the reliability of the data collected. Second, in keeping with the "Three Ones" principles for better coordination of scaled-up national HIV programs (one action framework, one national coordinating authority, and one country-level monitoring and evaluation system) (8), Guyana's HIV care and treatment program now has one unified reporting system, which facilitates national and international reporting requirements. Lastly, implementation of the PMS has improved NAPS program monitoring and treatment planning tools (e.g., cohort analyses). The inclusion of representatives from national and international agencies and organizations in the development of

TABLE 4. Proportion (%) of 10 national HIV cohorts alive and on antiretroviral therapy (ART) 12 months after initial treatment, by date and by sex and age,[a] Guyana, January 2006–October 2007

Sex and age	Jan 2006–Jan 2007	Feb 2006–Feb 2007	Mar 2006–Mar 2007	Apr 2006–Apr 2007	May 2006–May 2007	Jun 2006–Jun 2007	Jul 2006–Jul 2007	Aug 2006–Aug 2007	Sep 2006–Sep 2007	Oct 2006–Oct 2007	Average
Males											
0–14 years	100.00	100.00	100.00	100.00	100.00	100.00	66.67	0	100.00	100.00	86.67
≥ 15 years	78.57	75.00	66.67	68.18	57.89	69.23	55.00	66.67	47.06	84.00	66.83
All	82.35	77.27	70.37	72.00	65.22	72.41	56.52	66.67	52.63	84.62	70.01
Females											
0–14 years	100.00	100.00	100.00	0	100.00	100.00	0	100.00	100.00	0	70.00
≥ 15 years	91.67	82.14	69.57	80.77	82.35	59.09	67.74	81.25	78.57	76.00	76.92
All	92.31	82.76	73.08	80.77	83.33	62.5	67.74	83.33	80.00	76.00	78.18
Males and females											
0–14 years	100.00	100.00	100.00	100.00	100.00	100.00	66.67	100.00	100.00	100.00	99.67
≥ 15 years	86.84	79.17	68.09	75.00	69.44	64.58	62.75	72.97	66.67	80.00	72.55
Total	88.37	80.39	71.7	76.47	73.17	67.92	62.96	74.36	69.39	80.39	74.51

[a] Aggregated cohort data from the 10 full-service HIV care and treatment sites in operation in Guyana at the time of the study.

the PMS further strengthened the system by increasing buy-in from stakeholders and solidifying partnerships.

The PMS has also provided other advantages. By simplifying, standardizing, and streamlining data collection, the new system has not only helped minimize use of Guyana's limited resources but also improved the quality of the information. For example, in addition to saving time and material resources, the consolidation of the patient charts has helped to increase the level of detail captured in each form. In addition, by focusing on fewer elements of patient assessment, the newly standardized documentation system has allowed NAPS to designate priority criteria for quality care. The new methods for chart documentation have improved not only the data collected for patient registers but also the reports they generate. As noted by clinicians using the system, the PMS summary sheet facilitates monitoring of each patient's progress over time and thus improves patient care and individual case management. PMS users have also praised the system's ability to generate information that helps them evaluate progress at the site level.

Other PMS components have further strengthened the system. For example, the PMS registers facilitate tracking of active versus defaulting patients, allowing site outreach staff to identify and trace the latter group more easily. Monthly cross-sectional reports provide regular updates on patient demographics as well as uptake of care and treatment services at clinical sites. The cohort analyses reveal patient outcomes over time, including survival rates, numbers on first- versus second-line treatment, functional status, and CD4 cell count. This type of information can facilitate monitoring of the efficacy of an HIV care and treatment program at both the facility and national level. Taken together, these data can be used to inform and improve national program resource allocation, and identify gaps in service. They also allow for comparison of retention data with previously published results.

In the case of Guyana, data from the PMS have been used in all of the applications described above and have thus satisfied the information needs of the Ministry of Health. Since the initial implementation of the system, PMS data have been used for NAPS programmatic and reporting purposes, in Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM) quarterly reports, and in various indicators, including those for universal access to comprehensive HIV prevention programs, treatment, care, and support, recommended by the United Nations General Assembly Special Session (UNGASS), and for drug resistance. Indeed, one indication of the system's success is the current supply of data that was not available prior to PMS implementation (e.g., information on patient survival on ART over time). These new data allow NAPS to generate timely, accurate, and complete reports that help fulfill the requirements of donors and other international agencies and inform national policy-makers. While the system's role in generating strategic information for policy-making is still evolving, the data it has produced in Guyana are taken into account by the Ministry of Health and used regularly to support NAPS decision-making.

As mentioned above, Guyana has a relatively high rate of retention on ART over time—an encouraging outcome, especially in a resource-limited setting. However, more complete analysis of national cohort data could provide insight on the causes of non-retention (e.g., death versus loss to follow-up) and thus develop more informed benchmarks for measuring the impact of NAPS interventions (e.g., outreach programs to keep patients in care), and changes in recommended ART regimens. Therefore, Guyana's NAPS plans to continue analyzing the longitudinal cohort data provided by the PMS for reporting, programmatic, and research purposes, using an electronic database currently under development.

Lessons learned

Several challenges were encountered during the implementation of the national PMS. The most striking was the need for extensive human resources, particularly at the oldest treatment site, which had provided HIV care and treatment for nine years (including six years of ART). Tracking all patient records and harmonizing various charting systems with the newly implemented PMS proved extremely labor-intensive and thus required a very committed human resource team. At two of the largest sites, additional contract staff had to be hired to meet the needs of the new system. PMS implementation at the smaller and newer care and treatment sites was much simpler, underscoring the benefit of implementing this type of monitoring system as early as possible.

It also became clear that successful implementation of the PMS required having at least one focal person at each site to oversee the system. In addition, to ensure successful implementation and uptake at the facility level, monthly follow-up visits and ongoing support from stakeholders at each care and treatment site is crucial, particularly during the first three months after the initial PMS implementation. Lastly, on-site training must be provided on a continual basis, as staff turnover is common and has proven to be one of the main threats to the sustainability of the PMS.

Based on the Guyana experience, effective implementation of this type of monitoring system requires 1) strong leadership from the Ministry of Health and 2) national ownership of the system. Without these supports, implementation and sustainability would most likely prove challenging. This has also been found to be true in other countries implementing adapted versions of the WHO PMS (9). Another crucial factor is the formation of a technical working group that meets regularly to 1) develop the country-specific system; 2) oversee the implementation process; 3) make adjustments and changes to the system, as needed; and 4) deal with unexpected challenges. Early and comprehensive inclusion of all committed working group participants greatly facilitates the system's implementation. In addition, because the PMS provides information used at the national and international level as well as the facility level, any staff involved in PMS data collection should be trained on how to make the best use of the system's output. For example, periodic reports comparing data between sites over time should be provided at all levels of the system to better inform policy-making, program management, and monitoring of trends and/or patient care.

Guyana is currently the only country in the Western hemisphere to have fully implemented a national, standardized patient monitoring system for HIV care and treatment. The lessons learned during the PMS implementation experience in Guyana can be used to better inform other countries in the region in need of information systems that can both improve patient care and produce high-quality data to inform programmatic and policy decisions.

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RESUMEN

Establecimiento de un sistema estandarizado de vigilancia de los pacientes infectados por el VIH en Guyana

Objetivo. Describir el proceso utilizado con el objeto de poner en práctica un sistema nacional integral, estandarizado y confiable de recopilación de datos sobre la atención y el tratamiento de la infección por el VIH en Guyana; suministrar ejemplos de los datos que se obtuvieron mediante el programa durante la ejecución; y subrayar las ventajas de la vigilancia para los programas nacionales.

Métodos. En el 2007, el Ministerio de Salud de Guyana y otros actores claves adaptaron al contexto de Guyana las directrices básicas de la Organización Mundial de la Salud sobre el seguimiento de los pacientes con VIH que reciben atención y tratamiento antirretrovírico; la adaptación implicó modificaciones en el expediente clínico, el registro de los pacientes, los informes transversales y los informes de cohortes. Después de una capacitación inicial y la retroalimentación por parte del personal médico, se finalizó un sistema nacional de seguimiento de los pacientes, que se puso a prueba y se puso en marcha en todos los centros de atención y tratamiento. Posteriormente, se realizaron visitas mensuales de supervisión y apoyo a los centros, con el fin de examinar la recopilación de los datos y validar los informes.

Resultados. La ejecución del programa de vigilancia de los pacientes permitió el análisis de los datos de las cohortes de pacientes en tratamiento antirretrovírico. Después de 12 meses, se encontró que 79% de una cohorte nacional combinada de los 50 pacientes que comenzaron tratamiento antirretrovírico en junio del 2007 estaban vivos y recibían tratamiento con antirretrovíricos de primera línea. Después de seis años, 58% de la primera cohorte de pacientes tratados con antirretrovíricos en el país (abril del 2002) estaban vivos, continuaban el tratamiento y solo dos pacientes (8%) recibían medicamentos de segunda línea.

Conclusiones. La ejecución de un programa nacional de supervisión de los pacientes con recopilación y notificación estandarizada de los datos en múltiples centros clínicos suministró en último término información importante y confiable sobre la utilización de los servicios, el desenlace clínico de los pacientes y las tasas de supervivencia con el tratamiento. Estos datos se usan a escala nacional con el fin de vigilar la eficacia del programa de atención y tratamiento de la infección por el VIH. La ejecución eficaz del programa exige la participación temprana de todos los actores claves comprometidos y un equipo de recursos humanos dedicado a velar por la sostenibilidad del sistema.

Palabras clave VIH; síndrome de inmunodeficiencia adquirida; monitoreo; sistemas de salud; organización y administración; Guyana.