COMMENTARY

Urgent Need for Coordination in Adopting Standardized Antiretroviral Adherence Performance Indicators

John Chalker, MBChB, MSc, PhD,* Anita Wagner, PharmD, MPH, DrPH,† Goran Tomson, MD, PhD,‡§ Richard Laing, MD,¶ Keith Johnson, MSc,* Rolf Wahlström, MD, PhD,‡ and Dennis Ross-Degnan, ScD† on behalf of INRUD-IAA

In recent years, global health initiatives have greatly increased the number of patients in low-income countries started on antiretroviral therapy (ART). This creates an urgent need to know how well HIV/AIDS programs maintain patients on therapy. This was emphasized in a recent comment with reference to the President’s Emergency Plan for AIDS Relief program.¹ Consensus, however, is lacking on practical, reliable, and valid indicators to monitor program performance on adherence.

The World Health Organization (WHO) in 2006² stated, “The March 2004 patient monitoring meeting was unable to reach consensus on internationally standardized guidelines for measuring patient adherence, although there was full agreement on the importance of supporting and monitoring adherence.” The 2008 Joint United Nations Programme on HIV/AIDS (UNAIDS) progress report³ said that “optimal strategies for measuring and improving treatment adherence have yet to be characterized.”

The recognized need for monitoring has stimulated donors to craft indicators and guidelines to monitor their own ART programs.⁴–⁸ To track the abundance of indicators for monitoring HIV/AIDS programs, UNAIDS maintains an indicator registry,⁹ which on July 10, 2009 listed 251 indicators. Surprisingly, not a single indicator in this registry referred to adherence.

Different data sources have been used to construct adherence indicators, most frequently to monitor individual patient performance rather than to summarize adherence in patient populations in facilities or programs. Because of its relative simplicity and low cost of data collection, the most common adherence monitoring method is through patient self-report,¹⁰ a measure that has been shown to predict clinical outcomes,¹¹ a finding confirmed in resource-poor settings.¹² However, self-report tends to overestimate adherence,¹² and very high self-reported adherence rates make it an insensitive indicator for comparing facilities or evaluating changes in performance over time. Nevertheless, self-reporting remains an efficient way to identify individual patients at risk because any patient reporting less than perfect adherence is likely to need further support.

Pill counts are associated with viral load and CD4 counts;¹² however, they also overestimate adherence compared with electronic medication monitoring, which records whenever a pill box has been opened. Pill counts also require an additional recording process. In a series of recent surveys, only 15% of more than 8000 pharmacy or clinical records examined in four sub-Saharan African countries had any record of pill counts.
TABLE 1. Suggested Adherence Indicators and Their Data Sources

<table>
<thead>
<tr>
<th>Adherence Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Based on dispensing</td>
</tr>
<tr>
<td>Percent of days covered by ART dispensed over 6 mo (INRUD-IAA)</td>
</tr>
<tr>
<td>Percent of patients with a gap in medicines dispensed of 30 or more consecutive days in the last 6 mo (INRUD-IAA)</td>
</tr>
<tr>
<td>Percent of ART patients picking up all prescribed antiretroviral drugs on time (before previous drugs run out) (WHO early warning indicator 4a)</td>
</tr>
<tr>
<td>Percent of people starting ART who picked up all prescribed antiretroviral drugs on time (Global Fund)</td>
</tr>
<tr>
<td>Based on appointment keeping</td>
</tr>
<tr>
<td>Percent of patients attending appointments on or before day scheduled (INRUD-IAA)</td>
</tr>
<tr>
<td>Percent of patients attending appointments within 3 days of day scheduled (INRUD-IAA)</td>
</tr>
<tr>
<td>Percent of ART patients attending clinic appointments on time (WHO early warning indicator 5a)</td>
</tr>
</tbody>
</table>

(unpublished data). Introducing pill counts in these settings would add considerably to the clinic workload.

Pharmacy refill records are commonly used to calculate adherence indicators for other chronic diseases in settings with electronic pharmacy data systems, either as the percentage of days within a defined period covered by medicines dispensed or as the occurrence of gaps in medication supply between refills. For the patient, time without dispensed medicine is by definition a time of nonadherence. Dispensing-based adherence measurement has now been shown to be feasible using the types of manual pharmacy record systems common in resource-poor settings in Africa.

In resource-rich environments, poor clinic attendance has been correlated with mortality. Failure to attend clinic when expected is objective information and easy to ascertain in most record systems, even in resource-poor settings, and inconsistent attendance may identify patients in need of outreach or adherence counseling.

At least two groups have responded to the pressing need to develop practical and reliable indicators to monitor adherence and retention: The International Network for the Rational Use of Drugs Initiative on Adherence to ART (INRUD-IAA) and the WHO HIV Drug Resistance Team. In 2006 and 2007, INRUD-IAA country teams tested the feasibility of collecting data on patient appointment keeping and pharmacy refills and calculating indicators in 80 diverse facilities in Kenya, Rwanda, Uganda, and Ethiopia. These indicators were shown to predict weight gain and increased CD4 counts in newly treated patients (unpublished data). The WHO HIV Drug Resistance Team has developed a series of indicators to provide an early warning about possible development of resistance to ART, including indicators addressing adherence based on pharmacy refill and appointment keeping. The suggested adherence indicators from these two teams are listed in Table 1. Enough evidence now exists to show that it is feasible for facilities at all levels to collect dispensing and attendance data and calculate adherence and retention indicators.

Recently, the Global Fund became the first funding organization to recommend an adherence indicator to monitor program performance. This is a welcome beginning. International organizations and national AIDS control programs have a clear and urgent need to finalize agreement about standard indicators to monitor patient adherence and retention and to begin to make such data publicly available. UNAIDS and the WHO Department of HIV/AIDS should take the lead in coordinating donor and country collaboration in this important endeavor.

ACKNOWLEDGMENTS

The authors acknowledge the other members of the INRUD Initiative on Adherence to Antiretroviral Therapy, which include staff at the national AIDS control programs, local INRUD groups, and local Management Sciences for Health offices in Ethiopia, Kenya, Rwanda, Tanzania, and Uganda, as well as staff in partner organizations: Harvard Medical School and Harvard Pilgrim Health Care Institute, Boston, MA; Division of Global Health IHCAR, the Karolinska Institutet, Stockholm, Sweden; Center for Pharmaceutical Management, Management Sciences for Health, Arlington, USA; and Department of Essential Medicines and Pharmaceutical Policies, World Health Organization, Geneva, Switzerland. The authors thank all patients and staff in the respective health facilities. They also thank the colleagues who met in Entebbe in April 2006 to discuss results from a survey of program adherence indicators, plan a way forward, and form the INRUD Initiative on Adherence to Antiretrovirals.

REFERENCES


© 2010 Lippincott Williams & Wilkins


