

# DEVELOPMENT OF A TOOL FOR SIMPLE VISUALIZATION OF PERIODS OF ARV THERAPY AVAILABILITY IN A CONTEXT OF EXPANDING TREATMENT COVERAGE

Etienne Guillard<sup>1</sup>; Xavier Paris<sup>1</sup>; Sophie Ouvrard<sup>2</sup>; Mouslihou Diallo<sup>3</sup>; Louis Pizarro<sup>1</sup>  
<sup>1</sup> Solthis France ; <sup>2</sup> Solthis Niger ; <sup>3</sup> Solthis Guinée

## ABSTRACT

### PROBLEM STATEMENT:

The increase in active patient files results in an increase in the supplies of ARV needed as well as in the complexity of evaluating coverage of needs. This lack of visibility makes it difficult to anticipate shortages and compromises the implementation of emergency procurement mechanisms.

### OBJECTIVES:

Develop a simple tool to measure the period of availability of ARV supplies in a structure, a region, or a country, taking into account the increase in ARV needs associated with expanding treatment coverage, and to test it in Guinea and Niger.

### DESIGN:

Intervention descriptive study

### SETTING:

This intervention was conducted in collaboration with the National HIV/AIDS Control Program from Niger and Guinea.

### METHOD:

For each drug, the period of availability  $n$  can be determined from 3 parameters: monthly needs for treatment initiation  $a$ ; needs for patients already receiving treatment, determined with either morbidity or AMC data  $b$ ; and available stock  $AS$ . The model of the sum of needs during a period  $N$  corresponds to  $a \times \text{factor time-inclusion} + b \times n$ , factor time-inclusion is the total number of months during which patients who are included for the period  $n$  will need treatment. This factor can be obtained by the formula  $n \times (n + 1)/2$ . The resulting equation is  $an^2 + (a + 2b)n - 2AS = 0$  and  $n$  is obtained by  $n = [-(a + 2b) + \sqrt{(a + 2b)^2 + 8aSD}]/2a$ . Using a spread sheet, the periods of coverage for all ARV treatments can be obtained and visualized graphically. The number of patients concerned and the stock-out beginning estimated date are mentioned to help decision makers. Tests were performed to validate the results.

### INTERVENTION(S):

This tool has been used at the national level in Guinea and Niger with the National HIV AIDS Control Program with both available stock and short-term ordered quantities.

### RESULTS:

The use of this tool in Niger and Guinea allowed national partners to visualize the periods of ARV availability, to share this information easily, and to speed up ongoing procurement orders. Although this model is simple to use, a minimum of quality data are necessary. Graphic representations produced by the tool can be viewed at <http://www.solthis.org/pharmacie-r171.html?lg=uk>

### CONCLUSIONS:

By its graphic representation, this tool makes it possible to have a rapid, clear image of periods of ARV coverage and of the number of patients covered by each drug within the context of extending treatment. It also makes it possible to notify all the actors involved in cases of impending shortages or oversupply, which are possible in Niger and Guinea. Nevertheless, the precision of the results is correlated to the quality of data. To act effectively on stock-outs, it is essential to regularly update this tool and to act at different stages of the procurement and supply management cycle (accelerate ongoing procurement orders, emergency procurement). To optimize supply management of HIV medical products (opportunistic infections drugs, reagents, diagnostics), similar tools have been developed by Solthis.

### FUNDING SOURCE:

Solthis, Fondation Bettencourt Schueller (France)

### KEYWORDS:

HIV/AIDS, ARV, supply management, stock-outs, dashboard

## INTRODUCTION / BACKGROUND

The increase number of patients on ART results in an increase in the supplies of ARV needed as well as in the complexity of evaluating coverage of needs. This lack of visibility makes it difficult to anticipate shortages and compromises :

- the quality of care and adherence to treatment by the patients
- the implementation of emergency procurement mechanisms

## RESULTS

➤ The use of this tool in Niger and Guinea allowed national partners to visualize the periods of ARV availability, to share this information easily, and to speed up ongoing procurement orders.

➤ Although this model is simple to use, a minimum of quality data are necessary

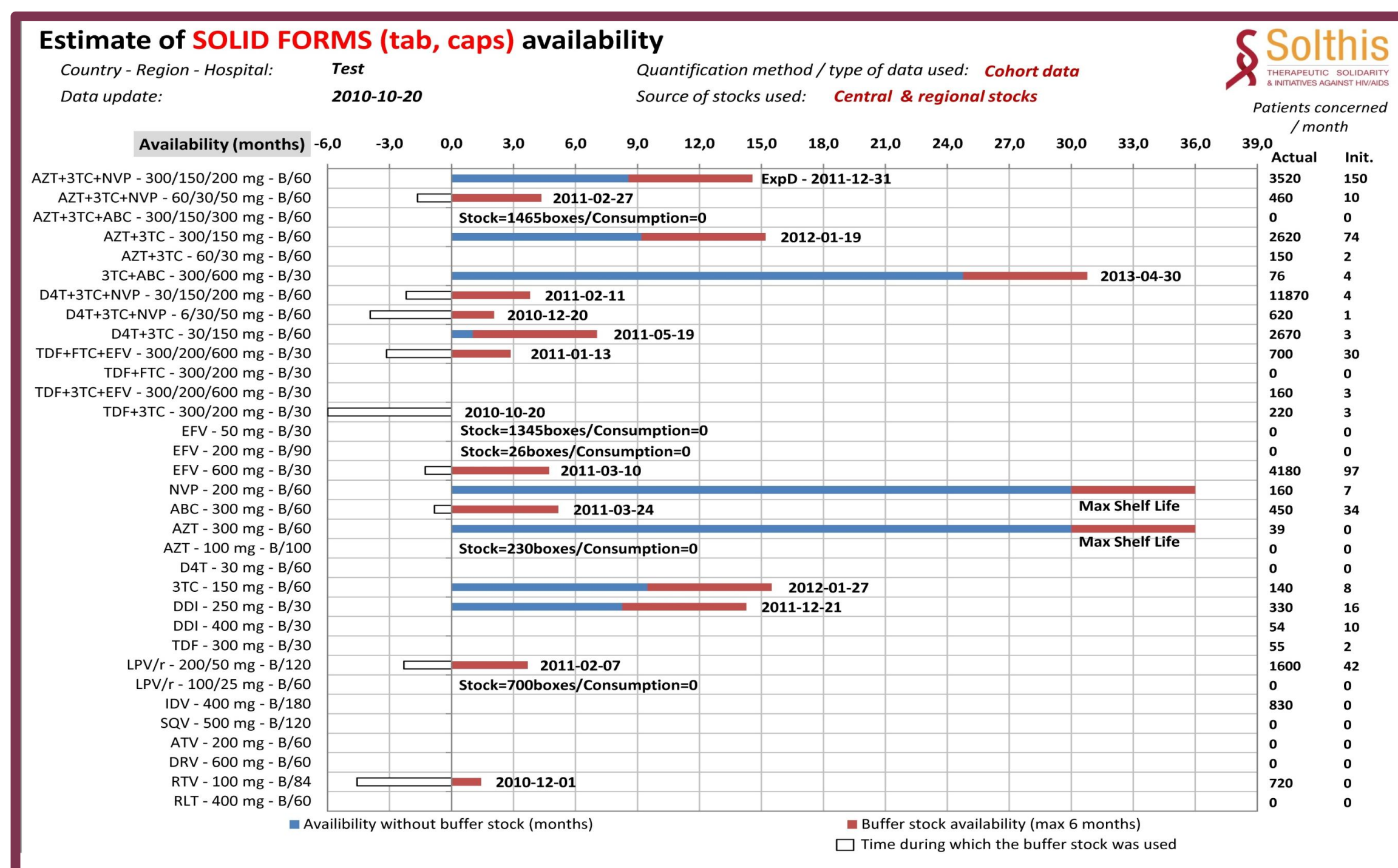


Fig. 1: example of visualization of availabilities of central & regional stocks of solid forms

## OBJECTIVES

Develop a simple tool to measure the period of availability of ARV supplies in a structure, a region, or a country, taking into account the increase in ARV needs associated with expanding treatment coverage, and to test it in Guinea and Niger.

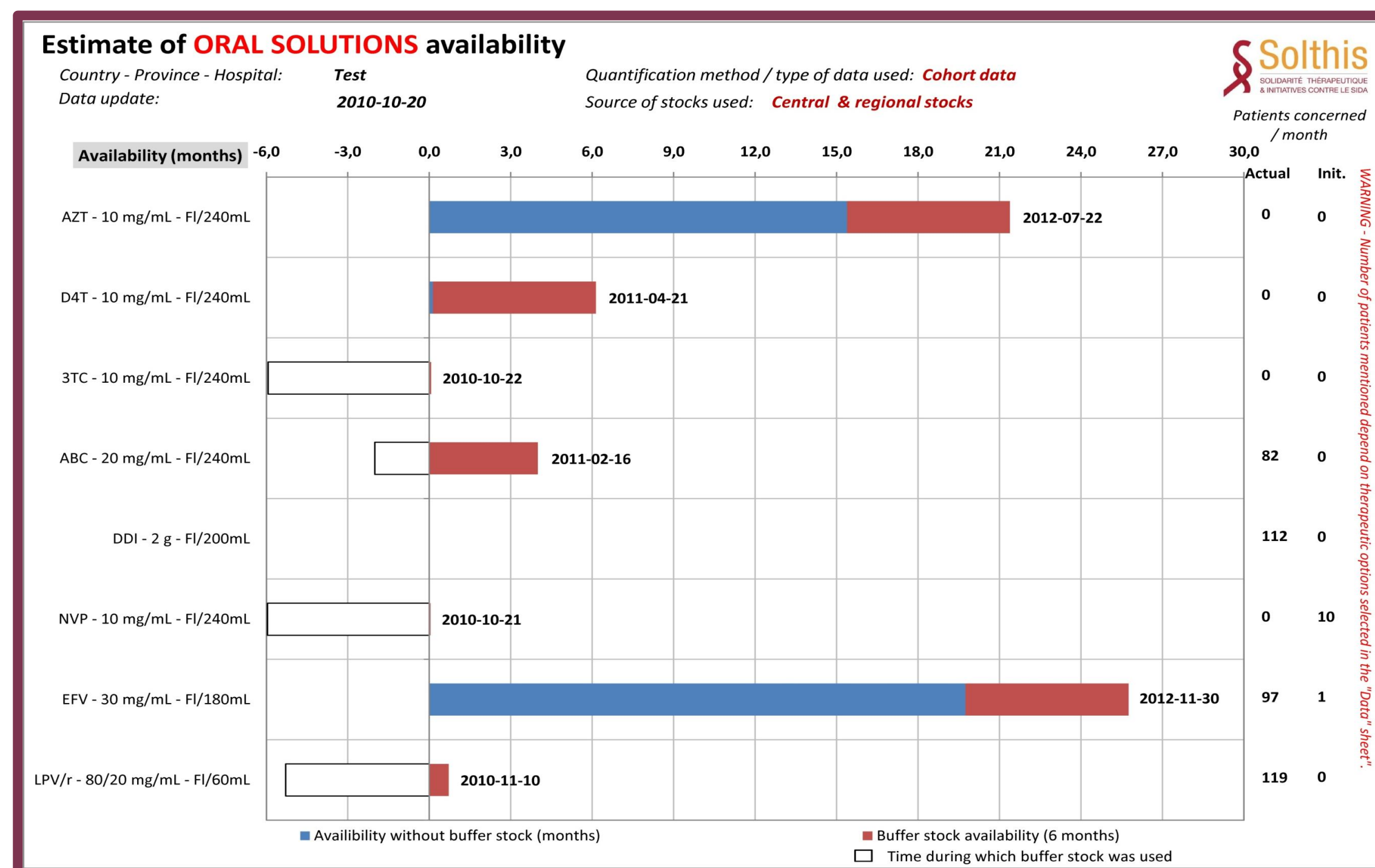


Fig. 2: example of visualization of availabilities of central & regional stocks of oral solutions

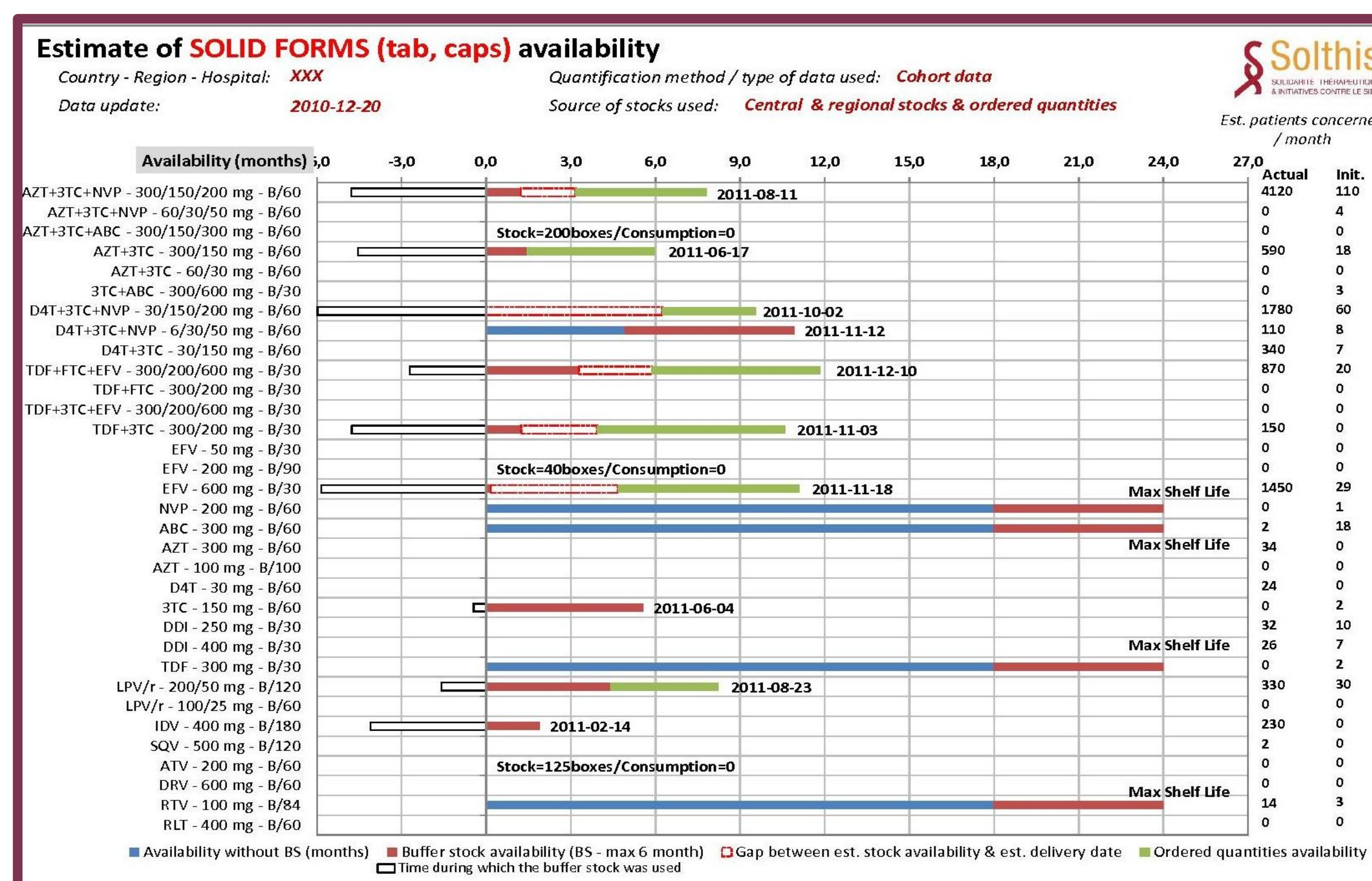


Fig. 3: example of visualization of availabilities of central & regional stocks & ordered quantities of solid forms

## METHODS

➤ Intervention descriptive study  
➤ This intervention was conducted in collaboration with National HIV/Aids Control Program from Niger and Guinea  
➤ For each molecule the period of availability (n) can be determined from 3 parameters:

- monthly needs for treatment initiation (a)
- needs for patients already receiving treatment, determined with either morbidity or AMC data (b)
- available stock (AS)

The resulting equation is:  $an^2 + (a + 2b)n - 2AS = 0$  and  $n$  is obtained by:  $n = [-(a + 2b) + \sqrt{(a + 2b)^2 + 8aAS}]/2a$

Tests were performed to validate the results

➤ Using a spread sheet, the periods of coverage for all ARV treatment can be obtained and visualized graphically with both available stock & short term orders quantity. More information are mentioned in order to help decision:

- Number of patients concerned
- Stock-out beginning estimated date
- Estimated delivery date for the ordered quantity

➤ This tool has been use at a national level in Guinea and Niger with National HIV Aids Control Program

## IMPLICATION AND CONCLUSIONS

➤ By its graphic representation, this tool makes it possible to have a rapid clear image of periods of ARV coverage and of the number of patients concerned by each drug, within the context of extending treatment. It also makes it possible to notify all the actors involved in case of impending shortages, or oversupply, which was possible in Niger and Guinea

➤ Nevertheless:

- precision of the results is correlated to the quality of data
- to act effectively on stock-outs or overstocks, it is essential:
  - ✓ to regularly update this tool
  - ✓ to act at different stages of the procurement and supply management cycle (accelerate ongoing procurement orders, emergency procurement)
  - ✓ to anticipate and to be proactive

➤ To optimize supply management of HIV medical products: opportunistic infections drugs, reagents and diagnostics, similar tools have been developed by Solthis.

Contact : Etienne Guillard

Pharmaceutical & Health Product Management Specialist

Solthis

[etienne.guillard@solthis.org](mailto:etienne.guillard@solthis.org)

Solthis - Head office

58A rue du dessous des berges

75 013 Paris

France

[www.solthis.org](http://www.solthis.org)

[contact@solthis.org](mailto:contact@solthis.org)