

Abstract

Background: Irrational use of medicines is a widespread problem; the World Health Organization (WHO) estimated that worldwide more than 50% of all medicines are prescribed, dispensed or sold inappropriately and that 50% of the patients fail to take them correctly. In collaboration with the International Network for Rational Use of Drugs (INRUD), WHO developed 12 core medicine use indicators to measure the medicine use situation in a reproducible manner (5 prescribing indicators, 5 patient care indicators, 2 facility indicators). Since 2005 Pharmaciens sans Frontières Suisse (PSF-CH), an NGO specialized in medicines, is providing pharmaceutical support to the dispensary (centre de santé de base de niveau 2, CSB2) of Aina Vao in Mahajanga, Madagascar and one of the objectives is improvement of the rational use of medicines in the health facility. Swiss volunteer pharmacists are assisting the implementation of the project since the end of 2005.

Objective: The objective of the thesis was to investigate and compare the medicine use practices in this dispensary and three similar health facilities in Mahajanga which don't have pharmaceutical support using the WHO/INRUD core medicine use indicators in order to get a picture of these practices in the four facilities and to see if the pharmaceutical support in the dispensary of Aina Vao has an impact.

Materials and methods: The three comparator health facilities, CSB2 like Aina Vao (AV), were Mahasoia (MS) (managed by Franciscan sisters), Antanimalandy (AL) (public) and Antanimasaja (AS) (public). The type of encounters studied was restricted to general medical outpatient visits for acute and chronic illness in all age groups. The information on the prescribing indicators was collected retrospectively using a sample of 100 encounter records of the month of June 2010. For the patient care indicators, 30 encounters (consultation/dispensing/patient interviews respectively) were measured prospectively during the visit on the sites end of July / beginning of August 2010. The facility indicators were also captured during the visit.

Results: The following results were found for the prescribing indicators:
Average number of medicines per encounter: Similar in MS with 2.9 [95%CI 2.7, 3.1] and AS 2.8 [95%CI 2.6, 3.0], clearly higher in AV with 3.9 [95%CI 3.6, 4.2] and AL with 3.5 [95%CI 3.3, 3.7]. *Percentage of medicines prescribed by generic name:* Very high in AL with 94.6% [95%CI 91.9%, 96.3%] and AS with 96.0% [95%CI 93.2%, 97.9%], remarkably lower in AV with 61.8% [95%CI 56.9%, 66.5%] and MS with 45.1% [95%CI 39.4%, 50.9%]. *Percentage of encounters with an antibiotic prescribed:* Same value in AL and AS with 65.0% [95%CI 55.3%, 73.9%], slightly lower in AV with 59.0% [95%CI 49.2%, 68.3%] and MS with 47.0% [95%CI 37.4%, 56.8%]. *Percentage of encounters with an injection prescribed:* Similar in AL with 24.0% [95%CI 16.4%, 33.1%] and AS with 25.0% [95%CI 17.3%, 34.2%], slightly lower in MS with 20.0% [95%CI 13.0%, 28.7%], higher by trend in AV with 35.0% [95%CI 26.1%, 44.7%]. *Percentage of medicines prescribed from essential medicines list or formulary:* Similar and very high in AL with 94.3% [95%CI 91.5%, 96.4%] and AS with

98.2% [95%CI 96.0%, 99.3%], remarkably lower in AV with 79.5% [95%CI 75.3%, 83.3%] and MS with 75.5% [95%CI 70.3%, 80.2%].

Patient care indicators (only obtained for AV, MS and AL): *Average consultation time*: Longest in AV with 7.1 min. [95%CI 6.0 min., 8.2 min.], shorter by trend in AL with 5.4 min. [95%CI 4.6 min., 6.2 min.], clearly shorter in MS with 4.6 min. [95%CI 3.9 min., 5.3 min.]. *Average dispensing time*: Longest in AV with 3.6 min. [95%CI 3.0 min., 4.2 min.], shorter by trend in MS with 2.9 min. [95%CI 2.4 min., 3.4 min.], remarkably shorter in AL with 2.2 min. [95%CI 1.9 min., 2.5 min.]. *Percentage of medicines adequately labelled*: Comparable in AV with 37.7% [95%CI 26.9%, 50.0%] and MS with 37.3% [95%CI 26.4%, 49.3%], very low in AL with 2.6% [95%CI 0.4%, 8.3%]. *Patients' knowledge of correct dosage*: Highest in AV with 90.0% [95%CI 75.2%, 97.4%], lower by trend in MS with 83.3% [95%CI 66.9%, 93.6%] and AL with 80.0% [95%CI 63.0%, 91.5%]. The *percentage of medicines actually dispensed* does not reflect the ability of the health facilities to provide the prescribed medicines but rather the economic situation of the patients. It was therefore not further interpreted and compared. Facility indicators: A *copy of the essential medicines list of Madagascar* was only available in AV but not in the three other health facilities. *Availability of key medicines*: In AV and AL 100%, in MS AS 83%.

The obtained values for the indicators in this study are in the range of the results of other medicine use indicators studies though this range is very wide.

Conclusion and recommendations: For some indicators the target value is clear; for others there is no global standard but an estimation of the performance of the examined health facilities was yet possible. In CSB2 Aina Vao there is a good performance regarding the patient care indicators (with exception of the labelling) and the facility indicators, areas covered mainly by the pharmacy and the pharmaceutical staff. Obviously, the pharmaceutical support by PSF-CH has a positive impact on the indicators of these areas and only the labelling indicator needs improvement. In view of the prescribing indicators the results are not satisfactory. A stronger collaboration between the volunteer pharmacist and the physicians is recommended in order to improve these indicators. The three comparator health facilities show in general a low performance in facility management and patient care, with a few exceptions. With regard to the prescribing area, the picture is diverse; there is a need for amelioration, but not all the health facilities need to improve the same aspects. Collaboration with a pharmacist or another person qualified in the pharmaceutical field to improve the performance in all areas should be considered in CSB2 Mahasoia, Antanimalandy and Antanimasaja. Before corrective measurements can be designed and implemented, a more detailed investigation of the current practices and examination of the causing factors for the behaviours will be required.