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High 5s initiative: implementation of medication reconciliation in France a 5 years experimentation

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Abstract

The International High 5s Project was developed by the World Health Organisation to address major concerns about patient safety. The Standard Operating Protocol (SOP) for ensuring medication accuracy during transitional care is a part of the High 5s Project. The impetus behind medication reconciliation is to prevent adverse drug events by decreasing the rate of undocumented discrepancies as patients move from one level of care to another. The aim of this article is to present the results of the French experimentation.

During 5 years, 9 healthcare facilities implemented the SOP Medication Reconciliation at admission. Eligible inpatients included patients aged over 65 years admitted through the Emergency Department. The indicator for the rate of undocumented discrepancies is assessed as the time required per reconciliation.

From 2010 to 2014, 27 447 inpatients were reconciled (14.0% of eligible patients for reconciliation). The mean of undocumented discrepancies per patient was 1.7 (46 188). Among the undocumented discrepancies, unintentional medication errors which are at the same time non documented and non intentional stand out (however one health facility used a different methodology): the mean of intercepted and corrected medication errors was 0.9 (21 320 for 22 863 patients). All were resolved during the collaborative exchange between pharmacists and physicians. The mean time to perform the reconciliation was about 31.8 min (IC 95% [31.6; 32.0]).

In France the medication reconciliation process has demonstrated to be a powerful strategy to reduce undocumented discrepancies and in particular medication errors. The next steps should focus on extending the process either to all stages of the transitional care or to different types of patients (other than Emergency room patients) or health sectors.

Keywords: High 5s, Medication reconciliation, Inpatients, Discrepancy, Medication error

Initiative of the High 5s

The High 5s initiative is an international cooperation programme launched in 2006 by the World Alliance for Patient Safety by the WHO. Within the context of "Action on Patient Safety", the initiative has been built on the basis of a partnership with the WHO, the Commonwealth Fund and the Joint Commission International. The key element of High 5s is to implement Standard Operating Protocols (SOP) within health facilities irrespective of the type of health system and cultural context in order to promote patients' safety widely and efficiently [1].

In 2009, in collaboration with four other countries – Germany, Australia, USA and the Netherlands, France has joined one of the High 5s project named SOP on Medication Reconciliation (SOP Med'Rec) [2]. The Haute Autorité de Santé has coordinated this project in France; the target was to reinforce the comprehensiveness and accuracy of prescriptions during the transitional stage of the patients' care to improve the patients' safety.

Description of the patient safety problem

Adverse drug events are a leading cause of injury and death within healthcare systems. Communication's failures between the different levels of care are a significant factor in their occurrence [3, 4]. When transitioning between levels of care, patients' prescription

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information is not always transferred to all care providers in a timely manner. Consequently, the patients may not receive the most appropriate regimen for their condition and circumstances [5, 6]. The impetus behind medication reconciliation is the prevention of adverse drug events by decreasing the rate of undocumented discrepancies as patients move from one level of care to another. Undocumented discrepancies comprise intentional discrepancies and medication errors (unintentional discrepancies). All medication errors are not fatal. However, five independent studies found that 5.6, 5.7, 6.3, 6.4 and 11,7% of the errors intercepted through the reconciliation could have had major consequences either critical or catastrophic for the patients [7–11].

Description of the SOP Med'Rec

A SOP is a standardised organisational practice developed on the basis of research work and on the expertise of international specialists. It is a body of tangible instructions allowing for the standardised (regular and measurable) implementation by professionals of a defined process to follow the patient.

The SOP Med'Rec of High 5s includes a defined and standardised process, an implementation plan and an evaluation plan [2]. It focuses on prevention and interception of medication errors which could happen during the transition point that is the admission of a patient to a health facility. Medication errors are errors by omission or by addition as well as errors of medication, dosage, type of treatment and time of administration. The SOP Med'Rec targets all the medication taken or to be regularly taken by the patients before their hospitalisation, whether they were prescribed by a doctor or taken via self-medication.

The medication reconciliation is a formal process of 4 steps:

- Obtaining complete and accurate information about the patient's current medication taken at home;
- Analysing the collected data to establish the best possible medication list;
- Validating the medication list to attest its reliability and to allow its dissemination;
- Sharing and using this medication list when writing prescriptions at admission or using it to compare it against the patients' prescriptions in order to bring any undocumented discrepancies to the attention of the prescriber. Either the intentional discrepancies are documented or the medication errors are corrected by the prescriber. All discrepancies and any resulting changes in orders have to be documented.

Description and results of the French experimentation

To undertake this project over a 5 years period (2010–2014), 9 health facilities have volunteered: Centre hospitalier universitaire de Bordeaux, Centre hospitalier de Compiègne Noyon, Centre hospitalier universitaire de Grenoble, Centre hospitalier de Lunéville, Clinique de la Croix blanche de Moutier Rozeille, Centre hospitalier universitaire de Nîmes, Hôpital de Bichat-Claude Bernard de l'Assistance publique des hôpitaux de Paris, Centre hospitalier de Saint Marcellin, Hôpitaux universitaires de Strasbourg. Eligible patients to the SOP Med'Rec were patients over 65 years old, admitted for short hospitalisation via the Emergency Department. The pharmacists were involved in gathering and validating the data for the measuring performance of the reconciliation rates and discrepancies but not of the adverse drug events. Monthly data for each health facility, as well as their annual report are available of the Haute Autorite de Sante website [11].

From 2010 to 2014, 27 447 inpatients were reconciled (14.0% of the eligible patients of the 9 healthcare facilities). The percentage of reconciled patients within 24 h varied from 2.6 to 64.9% depending of the type of healthcare facilities and the assigned resources. The mean of undocumented discrepancies per patient was 1.7 (46 188) (Table 1).

Only 8 of the 9 facilities distinguished medication errors from the intentional discrepancies (no detailed data about the CHU de Grenoble). The mean of intentional discrepancies per patients was 1.0 (23 720 for 22 863 patients of the 8 healthcare facilities). The mean of medication errors was 0.9 (21 320 for 22 863 patients) (Table 2). All medication errors were resolved during the collaborative exchange between pharmacists and physicians. The mean time to perform the reconciliation was assessed by 10 780 patients and was about 31.8 min ± 1.5 min per patient (IC 95% [31.6; 32.0]).

The year 2010 is the year of implementation of the SOP Med'Rec in a pilot facility. From 2011, it was joined by the other facilities. The increase of the percentage of patients reconciled from 2011 to 2014 is due firstly to an increase in hospitalisation in health facilities and due

Table 1 Undocumented discrepancies intercepted by reconciliation (9 healthcare facilities)

Year	Patients			Undocumented Discrepancies	
	Eligible	Reconciled	%	UD	UD/Patient
2010	1548	268	17.3	522	1.9
2011	45686	3334	7.3	5639	1.7
2012	47339	6096	12.9	8850	1.5
2013	48262	7744	16.0	10672	1.4
2014	53466	10005	18.7	20505	2.0
TOTAL	196301	27447	14.0	46188	1.7

Table 2 Medication errors and intentional discrepancies intercepted by reconciliation (8 healthcare facilities)

Year	Patients			Medication Errors		Intentional Discrepancies	
	Eligible	Reconciled	%	ME	ME/Patient	ID	ID/Patient
2010	1548	268	17.3	242	0.9	280	1.0
2011	34343	2357	6.9	1624	0.7	3758	1.6
2012	35610	4933	13.9	3890	0.8	4448	0.9
2013	35951	6417	17.8	5370	0.8	4996	0.8
2014	40652	8888	21.9	10194	1.1	9899	1.1
TOTAL	148104	22863	15.4	21320	0.9	23381	1.0

secondly to an increased command of the technique of conciliation which has progressively been set up by health professionals.

Discussion

The time spent on reconciling a patient seems to be a barrier to the implementation of the reconciliation. However, this time spent is necessary as it decreases the work that would have resulted from the management of medication errors, not only at admission but also during the patients' discharge.

Before the High 5s experimentation, there was no formal medication reconciliation in France. The SOP Med'Rec is a positive experience which underlined the importance of recognising medication errors at a transition point such as admission of inpatients. Indeed, with nearly one error per patient, the risks for the patients were sometimes dramatic. With awareness on this process, health professionals and patients are being sensitised to the importance of safety in medication management.

Conclusions

In several countries, the medication reconciliation process has been demonstrated to be a powerful strategy to reduce medication errors and undocumented discrepancies. This process is now being implemented in France too. At the time of writing, a national study carried out by the Ministery of Health shows that more than 363 French healthcare facilities (14.4% of 2537 hospitals) have implemented the medication reconciliation at admission [12]. The next steps should focus on extending the process either to all stages of the transitional care or to different types of patients (other than Emergency room patients) or health sectors [13].

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Availability of data and materials
The data that support the findings of this study are available from OMEDIT Aquitaine but restrictions apply to the availability of these data, which were used under the HAS's license for the current study, and so are not publicly available except for the synthesis. Data are however available from the authors for their own healthcare facility upon reasonable request and with permission of OMEDIT Aquitaine.

Authors' contributions
This work was carried out as part of the High 5s project set up by the WHO in 2007 and coordinated by the WHO Collaborating Center on patient Safety. The Joint Commission in the USA, with the participation of the French Lead Technical Agency, National Authority for Health- HAS for Health partnered with OMEDIT Aquitaine and the Study Group High 5s France Medication reconciliation. DE, DS, AI & MML analysed and interpreted the data regarding the annual Med'Rec indicators for each of the 9 healthcare facilities. DE & DS were the major contributors in writing the manuscript. DE, MB, RMC, GA, LAM, LK, TN, AB, DB have handled the implementation of the project within the health facility they manage. They ensure the formation the relevant team and validated the monthly results which were sent to the HAS and to the OMEDIT Aquitaine for control. Results were subsequently entered onto the WHO website as per the protocol of the SOP Med'Rec. AI & MML from the Haute Autorité de Santé managed the WHO's High 5s Project bringing the methodological support to 9 involved healthcare facilities. All authors read and approved the final manuscript.

Competing interests
The authors declare that they have no competing interests.

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