How Do You Review A Medication Order? A France-Québec Comparison

Dubois S[1], Janes A[2], Thibault M[1], Leguelinel G[2], Roux-Marson C[2], Kinowski JM[2], Bussières JF[1,3]

[1]Département de pharmacie et Unité de Recherche en Pratique Pharmaceutique, Centre Hospitalier Universitaire Sainte-Justine, Montréal, Québec, Canada;

[2]Pharmacie, Centre Hospitalier Universitaire de Nîmes, Nîmes, France

[3]Faculté de pharmacie, Université de Montréal, Montréal, Québec, Canada

Background

- **Medication order review:**
  - Fundamental pharmacist activity
  - Essential for the optimisation of drug therapy
- **Several pharmaceutical guidelines:**
  - Specify the essential elements for medication order review
  - None of them specifies the optimal order of these elements

Objectives

- The main objective is to compare the medication order review process in France and Quebec
- The secondary objective is to explore the level of agreement of hospital pharmacists about medication order review

Material and methods

- Descriptive and prospective study
- Selection of 22 validation elements from guidelines
- Development of an online survey (Surveymonkey®) into three parts:

1 Selection of elements required for medication review in 3 situations

#1—Centralized validation (e.g. only centralized pharmacists)
#2—Decentralized validation (e.g. only decentralized pharmacists)
#3—Centralized validation with a pharmacist present in care units (e.g. both)

2 Classification of 22 elements in chronological order

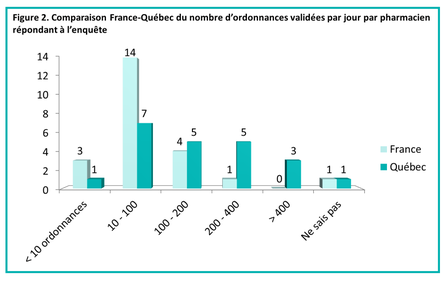
3 Level of agreement on medication order review and training

- Survey sent by email to hospital pharmacists in France and Québec
- From August, 9th to September, 16th 2016

Results

- Response rate: N=45/75 (60%)
  - n= 23 in France
    - 13 pharmacists ; 10 residents
  - n= 22 in Québec
    - 22 pharmacists ; 0 residents

Figure 2. Comparaison France-Québec du nombre d'ordonnances validées par jour par pharmacien répondant à l'enquête



1 Selection of elements required for medication review in 3 situations

- **#1—Centralized validation**
  - Significant difference between French and Quebec pharmacists for 10/22 elements (p-value in red)
  - For 8/10 elements, the Quebec pharmacists indicate a higher support to consider the elements in medication order review
- **#2—Decentralized validation**
  - Significant difference between French and Quebec pharmacists for only 1/22 elements
  - Data not reported in the poster considering only one difference
- **#3—Centralized validation with a pharmacist present in patient care areas**
  - Significant difference between French and Quebec pharmacists for 9/22 elements (p-value in red)
  - 16/22 elements are verified by >50% Quebec pharmacists vs 20/22 elements verified by >50% French pharmacists
- **Other observations**
  - 7 validation elements are common to scenarios #1 and #3 (e.g. patient identification, patient location, intolerances, renal function, lab results, best possible medication history (BPMH), authorized prescriber)
  - 4 validation elements had a low prioritization (e.g. below 33% in at least one scenario for one country : patient location in France, medication reconciliation in France, lab results in Quebec, BPMH in Quebec for scenario #3).

Table 1. Results of French end Quebec pharmacists regarding the necessity of the 22 elements in the scenarios #1 et #3

Situations	#1—Centralized validation			#3—Centralized validation with a decentralized pharmacist		
Validation elements	France N=23	Quebec N=22	P value	France N=23	Quebec N=22	P value
Patient identification	70%	100%	0.009	78%	100%	0.049
Patient location	22%	96%	<0.0001	30%	91%	<0.0001
Age	96%	100%	1	100%	100%	1
Weight	78%	91%	0.414	87%	91%	1
Height	30%	50%	0.181	35%	46%	0.465
Admission diagnosis	74%	64%	0.457	87%	46%	0.005
Contraindications	96%	91%	0.608	100%	86%	0.109
Allergies	78%	100%	0.049	91%	100%	0.489
Intolerances	44%	100%	<0.0001	74%	100%	0.022
Earlier remarks	52%	91%	0.007	70%	86%	0.284
Renal function	96%	68%	0.022	100%	64%	0.001
Laboratory results	91%	23%	<0.0001	100%	14%	<0.0001
Best possible med. history	17%	77%	<0.0001	83%	32%	0.001
Medication reconciliation	9%	77%	<0.0001	74%	46%	0.051
Analysis of all lines	100%	91%	0.233	96%	86%	0.346
Prescribed medication choice	91%	96%	1	96%	96%	1
Data entry for dispensation	100%	100%	1	100%	100%	1
Prescription validity	74%	96%	0.096	74%	91%	0.243
Authorized prescriber	65%	96%	0.022	57%	86%	0.047
Clinical relevance	65%	46%	0.182	87%	36%	0.001
Adverse effects / Interactions	100%	100%	1	100%	96%	0.489
Intervention documentation	91%	77%	0.243	91%	68%	0.071

2 Classification of 22 elements in chronological order

Figure 1. Comparison of different chronological orders of elements for medication order review

Figure legend:

- BPMH: Best Possible Medication History
- The boxes represent items that can be grouped together
  - General patient information
  - History and clinical patient information
  - Biological results
  - Best Possible Medication History
  - Prescription evaluation
- The items in bold in a colored box represent differences of more than two ranks with the initial chronological order proposed

	Initial chronological order proposed	Chronological order in France	Chronological order in Quebec
1	Patient identification	Patient identification	Patient identification
2	Patient location	Age	Weight
3	Age	**Admission diagnosis**	Age
4	Weight	Patient location	Patient location
5	Height	Weight	Allergies
6	Admission diagnosis	Allergies	Intolerances
7	Contraindications	**Renal function**	Admission diagnosis
8	Allergies	Earlier remarks	**Height**
9	Intolerances	Contraindications	Contraindications
10	Earlier remarks	**Height**	Admission BPMH
11	Renal function	Admission BPMH	Renal function
12	Laboratory results	**Intolerances**	Earlier remarks
13	Admission BPMH	Laboratory results	Comparison of BPMH
14	Comparison of BPMH	Comparison of BPMH	Laboratory results
15	Analysis of all lines	Validity (administrative rules)	Validity (administrative rules)
16	Choice of prescribed medication	**Clinical relevance**	Choice of prescribed medication
17	Data entry for dispensation	Authorized prescriber	Analysis of all lines
18	**Validity (administrative rules)**	Adverse effects / Interactions	Adverse effects / Interactions
19	Authorized prescriber	**Analysis of all lines**	Data entry for dispensation
20	Clinical relevance	**Choice of prescribed medication**	Authorized prescriber
21	**Adverse effects / Interactions**	**Data entry for dispensation**	Clinical relevance
22	Documentation of the intervention	Documentation of the intervention	Documentation of the intervention

3 Level of agreement on medication order review and training

	France			Québec			FR vs QC
Statements	Agree	Disagree	Do not know	Agree	Disagree	Do not know	P value
I have been sufficiently trained during my university curriculum to review medication order	22%	78%	0%	50%	50%	0%	0.065
I have been sufficiently trained during pharmacy residency to review medication order	74%	26%	0%	73%	27%	0%	0.928
I have been sufficiently trained on my arrival in the hospital to perform an optimal medication order review	78%	22%	0%	86%	14%	0%	0.699
It is realistic to validate all medication orders fulfilling the 22 validation elements proposed	52%	43%	4%	41%	59%	0%	0.365
It is necessary to periodically verify pharmacists' competence in terms of medication order review	100%	0%	0%	86%	9%	5%	0.222
It is possible to properly validate 30 medication orders per hour	17%	78%	4%	73%	27%	0%	0.001
It would be desirable to view performance statistics for medication review between pharmacists to optimize the process	17%	74%	9%	9%	91%	0%	0.412
At the arrival of a new resident or pharmacist, there should be a structured training on the optimal medication order review process	100%	0%	0%	100%	0%	0%	1
Internal continuing education activities should be included to discuss and improve medication order review	100%	0%	0%	100%	0%	0%	1

Discussion

- The differences between France and Quebec can be explained by differences in practices and organization.

Table 2. A France-Québec comparison of practices and organizations

FRANCE	QUEBEC
• CPOE • Electronic transmission of new prescriptions and renewals to the pharmacy	• Handwritten prescriptions performed by physicians • Faxed to the pharmacy • Transcribed in pharmaceutical software
• Decentralized validation (90% patient care areas) • Centralized validation (10% patient care areas)	• Centralized validation with a pharmacist present in patient care areas (day) • Centralized validation only (evening and weekend)
• Teaching hospital for adults and children • Hospital's capacity : 2000 beds • Pediatrics/Neonatology : 60 beds	• Teaching hospital for mothers and children • Hospital's capacity : 500 beds • Pediatrics/Neonatology : 400 beds

- **Other observations**
  - Both French and Quebec pharmacists have the same level of agreement on statements regarding medication order review and training
  - The Quebec respondents sequence of validation is element is much more similar to the gold standard proposed by the research team
- **#1—Centralized validation**
  - In Nîmes, a computerized prescriber order entry (CPOE) is fully implemented while it is only implemented in pediatric intensive care unit in CHUSJ ; the use of a CPOE influence the validation process as some elements are mandatory and do not need to be validated at the pharmacy level
  - BPMH and Medication reconciliation is a required organizational practices in Canada since 2010 which forces both central and decentralized pharmacists to consider this information when they validate drug orders
- **#2—Decentralized validation**
  - Both hospitals have decentralized pharmacists ; despite differences in pharmacy practice models, there are less differences between both countries for that scenario
- **#3—Centralized validation with a pharmacist present in patient care areas**
  - In France, decentralized pharmacy practice is slowly emerging and pharmacists usually contribute to validate drug order ; this implication does not necessarily include participation to medical rounds and full pharmaceutical care; therefore, French respondents did possibly answer to scenario #3 with a more limited understanding of the implication of this practice model, therefore suggesting less delegation of validation elements to decentralized pharmacists

Limitations

- Both hospitals are different; in France, it is a general adult hospital including pediatrics while in Quebec, it is a mother-child hospital ; this difference influence some elements (e.g. more importance given to renal function in France and more importance given to weight in Quebec)

Conclusion

- Medication order review practices are different between France and Quebec.

Key messages

- The process of medication order review is dependant on local context and workflow
- Nevertheless, there appears to be agreement between French and Quebec pharmacists that medication order review requires initial training as well as ongoing education

Contact: jf.bussieres@ssss.gouv.qc.ca ; alexia.janes@chu-nimes.fr

Conflict of interests: None— **Funding** : None

22nd EAHP Congress, Cannes, 22-24 March 2017