

# Aligning Formulary Restrictions Across a Health System and Improving Access to and Clarity of Medication Restrictions

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## ABSTRACT

**Background:** In 2013, formulary medications were aligned among the three hospitals within our health system. However, as formulary medication restrictions were not aligned, the three hospitals continued to have inconsistent medication restrictions. This led to confusion among prescribers and pharmacists about which medications were restricted, what the restrictions were, and where to access information about the restrictions. To alleviate this confusion, we set out to align formulary restrictions and to provide medication restriction details at the points of entering and verifying medication orders.

**Objectives:** The primary objective was to align 100% of the formulary medication restrictions at our health system. The secondary objectives were to improve ease of access to restriction information and to improve the clarity of medication restrictions for pharmacists.

**Methods:** The process of alignment involved completing a gap analysis to identify differences between each site's medication restrictions and site-specific interventions. The gap analysis, proposed restrictions, and proposed interventions were reviewed by the system's pharmacy, nutrition, and therapeutics (PNT) planning committee. The committee reviewed each medication, the restrictions, and the proposed modifications. The consensus of formulary medication restrictions was presented to the PNT committee for approval. Restriction information was added to each drug monograph in the online medication information database and the interventions were built into the electronic medical record (EMR). Five intervention types were included: restriction removal, "outpatient use only" added to the medication name, order-specific questions, alternative alerts, and information put into order instructions seen by both ordering providers and verifying pharmacists. Pharmacists were educated about the restricted medication-alignment initiative. A survey was administered after education to assess the ease of access to restricted medication information and clarity of medication restrictions. Because of the scope of this project, education and survey administration was limited to pharmacists only.

**Results:** Aligned medication restrictions increased from 11% to 100%. Of the 110 medication restrictions that were not aligned, 17 restrictions were removed, 37 medications were restricted to outpatient use only, and 56 restricted medications

were further aligned across the health system. Results from the survey showed that more pharmacists utilized the online medication information database to find information regarding restricted medications and that it was easier for more pharmacists to find this information.

## INTRODUCTION

The Centers for Medicare and Medicaid Services (CMS) requires that a formulary be established and maintained as a condition of participation.<sup>1</sup> At the time of this initiative, the Froedtert and Medical College of Wisconsin (F&MCW) health system was composed of three hospitals. Froedtert Hospital was established in 1980;<sup>2</sup> Community Memorial Hospital, established in 1964, joined the F&MCW health system in 2001;<sup>3</sup> and St. Joseph's Hospital, established in 1930,<sup>4</sup> joined in 2008. Each hospital joined the health system with its own formulary, in compliance with CMS. As part of a strategic initiative to streamline and improve product inventory management, formulary medication alignment began in 2013. However, formulary medication restrictions were not aligned, leaving inconsistencies among the sites. As our health system is expected to grow, complete formulary alignment is all the more imperative.

Restricting medication use as a means to influencing the use of medications can lead to reduced costs, improved therapeutic outcomes, and increased adverse-event prevention.<sup>5</sup> The process of aligning the formulary restrictions was initiated in 2014, with the alignment of 12 restricted medications. At the start of the current restrictions-alignment initiative, over 100 unaligned medication restrictions existed. In addition, there was confusion among prescribers and pharmacists about which medications were restricted, what the restrictions were, and where they could access information about the restrictions.

The primary objective was to align 100% of the formulary medication restrictions, and secondary objectives included improving ease of access to restriction information and improving the clarity surrounding medication restrictions for staff.

## METHODS

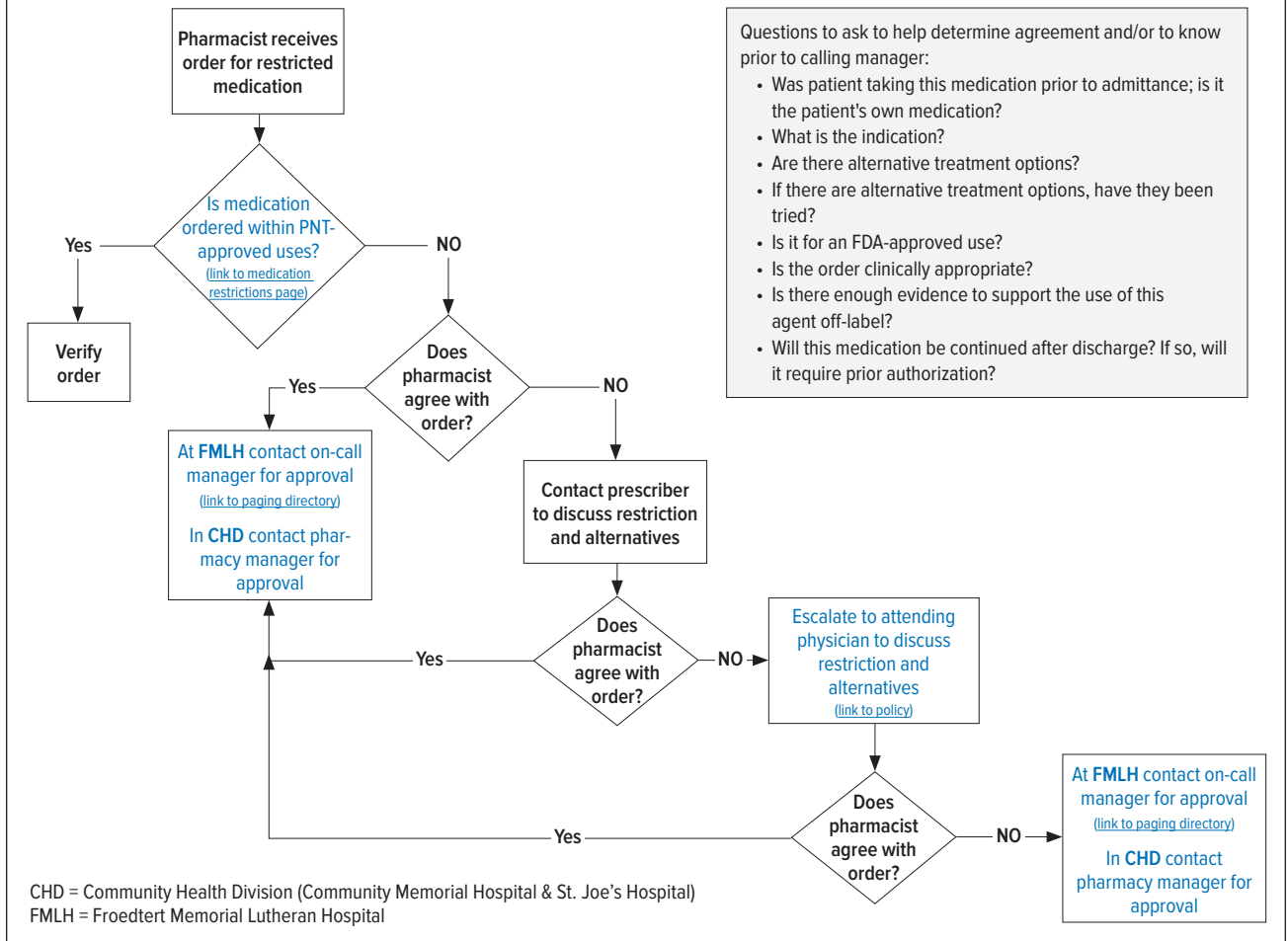
A gap analysis was performed to identify differences between each site's medication restrictions and site-specific interventions, and to determine whether any interventions were in place in the EMR. Every discrepancy was noted and analyzed, and a unique recommendation was made for each restricted medication. The recommendations included a system-wide formulary restriction, removal of the restriction, or removal

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**Figure 1 Restricted Medication Order Pharmacist Workflow**



of the medication from the formulary. If a formulary restriction was recommended, an accompanying intervention in the EMR was recommended as well. The gap analysis, proposed restrictions, and proposed interventions were reviewed by the PNT planning committee. This committee is comprised of pharmacy staff and includes at least one representative from each site. The committee discussed each medication, and reviewed current restrictions, the proposed modifications to the restriction status, and any accompanying interventions. The committee then either approved or made changes to the proposed restrictions and interventions. Once agreement was reached via group discussion, the aligned formulary medication restrictions were presented to the PNT committee for approval. Subsequently, the restriction information was added to each drug monograph in the online medication-information database and the interventions were built into the EMR. There was a total of five types of intervention: restriction removal; "outpatient use only" added to the medication name in the EMR; order-specific questions built into the EMR; alternative alerts added to the EMR; and information added to the order instructions seen by providers (when ordering a restricted medication) and by pharmacists (when verifying a restricted

medication). A formalized workflow was developed to guide pharmacists when they are verifying restricted medication orders (Figure 1).

Education was then provided to pharmacists and encompassed the following: the background of the health system's formulary alignment and restriction alignment; the institution's definition of restricted medication; interventions made in the EMR; the formal workflow required when ordering a restricted medication; and where restricted medication resources could be found. After education was completed, a survey was sent to the inpatient pharmacists practicing at each site to determine the perception of the impact of all interventions (see Figure 2). Due to the scope of this project, education and project assessment were limited to pharmacists only.

## RESULTS

The primary objective was achieved with the alignment of medication restrictions increasing from 11% to 100%. Of the 110 medication restrictions that were not aligned, 17 restrictions were removed, 37 medications were restricted to outpatient use only, and 56 restricted medications were further aligned across the health system (Table 1).

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## Figure 2 Formulary Restrictions Staff Survey

Please use the following definition of a restricted medication while completing the following survey.

**Restricted medication:** A medication that has specified criteria that must be met in order for a medication to be used. The medication may be restricted by indication, hospital location, medical service, prescriber, prescribing criteria, or other criteria.

### Thinking back to one year ago:

- Where did you most often find information regarding restricted medications? (circle one)
 

Epic	Lexicomp	Scout	Sharepoint
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- On a scale of 1–4 (1 being very difficult, 4 being very easy), how easy was it to find information about restrictions?
 

1	2	3	4
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- On a scale of 1–4 (1 being not at all clear, 4 being very clear), how clear were medication restrictions at the point of prescribing or verifying?
 

1	2	3	4
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- How often did you encounter restricted medications? (circle one)
 

1–2 times per day	1–2 times per week	1–2 times per month	< 1 time per month
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- Based on what you saw in practice, when restricted medications were ordered, how often were they ordered outside of PNT-approved uses? (circle one)
 

0–25%	26–50%	51–75%	76–100%
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- On a scale of 1–4 (1 being not at all confident, 4 being very confident), how confident were you in your ability to follow the restricted medication order policy?
 

1	2	3	4
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### Think about how things are now (since the beginning of 2015). Since these changes:

- Where do you most often find information regarding restricted medications? (circle one)
 

Epic	Lexicomp	Scout	Sharepoint
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- On a scale of 1–4 (1 being very difficult, 4 being very easy), how easy is it to find information about restrictions?
 

1	2	3	4
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- On a scale of 1–4 (1 being not at all clear, 4 being very clear), how clear are medication restrictions at the point of prescribing or verifying?
 

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- Based on what you see in practice, when restricted medications are ordered, how often are they ordered outside of PNT-approved uses? (circle one)
 

0–25%	26–50%	51–75%	76–100%
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- On a scale of 1–4 (1 being not at all confident, 4 being very confident), how confident are you in your ability to follow the restricted medication order policy?
 

1	2	3	4
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What other comments do you have about medication restrictions? (How can we further improve this process? What remains unclear to you? What improvements have you seen so far?)

**Table 1 Medication Restriction Alignment**

Aligned Restriction Status	Number of Restricted Medications
Restriction removed (e.g., Oxycodone CR)	17
Restricted to outpatient use only (e.g., Pegfilgrastim)	37
Restriction aligned across the health system (e.g., IV acetaminophen)	56
Total number of aligned medications at the end of project	110

More than 120 pharmacists had the opportunity to participate in the survey. In total, there were 15 respondents, 5 of whom did not answer the post-implementation and education questions. Because of the limited number of responses, all of them were used to analyze the data. Table 2 summarizes the responses. After implementation and education, more pharmacists utilized the online medication-information database for information on restricted medications, and fewer pharmacists had difficulty finding the information. Lastly, respondents had the opportunity to provide written comments. One respondent stated that improvements have been seen in the last year and that having links to the EMR medication-information database has made the process more transparent. Another respondent stated that the workflow chart is helpful in daily activities.

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**Table 2 Staff Survey Questions and Responses**

Survey Question	Response Question	Pre-implementation Response <sup>a</sup>	Post-implementation Response <sup>a</sup>
<b>Where did you most often find information regarding restricted medications?</b>			
	Electronic medical record	4	4
	Online medication information database	5	7
	Organization intranet site	0	1
	Department intranet site	5	1
<b>On a scale of 1–4 (1 being very difficult, 4 being very easy), how easy is it to find information about restrictions?</b>			
	1 and 2	9	1
	3 and 4	6	8
<b>On a scale of 1–4 (1 being not at all clear, 4 being very clear), how clear are medication restrictions at the point of prescribing or verifying?</b>			
	1 and 2	7	3
	3 and 4	7	7
<b>How often do you encounter restricted medications?</b>			
	1–2 times per day	1	1
	1–2 times per week	5	3
	1–2 times per month	7	5
	< 1 time per month	2	1
<b>Based on what you see in practice, when restricted medications are ordered, how often are they ordered outside of PNT-approved uses?</b>			
	0–25%	7	4
	26–50%	5	4
	51–75%	2	2
	76–100%	0	0
<b>On a scale of 1–4 (1 being not at all confident, 4 being very confident), how confident are you in your ability to follow the restricted medication order policy?</b>			
	1 and 2	7	2
	3 and 4	7	7

<sup>a</sup> Number of people who chose the response

### DISCUSSION

Our study is limited by the fact that it was an internal pharmacy department study that was evaluated by our department. A limitation of our findings is that the staff survey was administered one time, after implementation and education took place. Thus, pharmacists were asked to reflect on activities that had occurred a year earlier, prior to implementation, in order to answer the pre-implementation portion of the survey. This method introduced the risk for temporal bias. There may have been other changes during implementation that affected our results. Also, the time delay may have resulted in respondents not accurately remembering details about what the practice for restricted medications was like a year earlier. In retrospect, the survey questions should have been created near the beginning of the initiative and the survey should have been administered both pre-implementation and post-implementation. The potential drawback with this method is that response rates are notoriously low and administering more than one

survey may have put us at risk for an even lower response rate, making a comparison between pre-implementation and post-implementation difficult.

### CONCLUSION

This initiative demonstrates the feasibility of aligning medication restrictions across an expanding health system, having restriction information at the point of order entry and order verification, and incorporating medication-restriction information into an online database. Overall, the initiative has been considered a success by members of our health system. Staff pharmacists have provided positive feedback on the initiative and to date, we have not had any provider resistance.

Formulary maintenance is an ongoing process. Thus, currently aligned and updated medication restrictions will need to be modified as use, indications, and practices change. Likewise, as new medications are reviewed for formulary status, any restrictions associated with those medications should be dis-

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cussed as part of the review process. Lastly, a metric to track and monitor restricted medication use outside of approved uses needs to be developed. Such a tool will allow for monitoring trends and practice changes, and will assist in identifying ways to improve the restricted medications processes.

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