



# **Study on RxChange Request & RxChange Response Messages**

Grant Funded to:

Quandary Peak Research  
MedStar Health Research Institute

NCPDP Integration:

WG11 | ePrescribing & Related Transactions  
- RxChange TG

*This grant was made possible through the NCPDP Foundation's Operating Fund.*

## **RXCHANGE REQUESTS BACKGROUND**

The ability of pharmacists to quickly and unambiguously communicate prescription change requests to prescribers is a vital aspect of safe and effective patient care. To facilitate such communications, the National Council for Prescription Drug Programs (NCPDP) created the electronic RxChange Request and RxChange Response messages as distinct transactions within the SCRIPT Standard. Using the SCRIPT standard through their pharmacy management systems, pharmacists can initiate electronic RxChange Request messages for seven reasons: therapeutic interchange, generic substitution, prior authorization, drug use evaluation, script clarification, out of stock notification, and prescriber authorization. Upon receipt of such pharmacy messages, prescribers can elect to approve these pharmacy change requests as-is, approve them with specific changes, or deny them all together and communicate their decision back to the pharmacist through the RxChange Response message from within their Electronic Health Record (EHR) systems.

## **RESEARCH OBJECTIVE**

To assess RxChange Request and Response messaging transactions between retail pharmacies and a large health system to identify system, workflow, and process gaps that would inform creation of best practice recommendations to enhance adoption and optimal implementation of this important bi-directional messaging transaction set.

## **METHODS & IDENTIFIED LIMITATIONS**

To gather information, the team analyzed RxChange Request and Response messages exchanged between prescribers of a large Mid-Atlantic health system and pharmacists employed by Retail Chain, Independent, and Mail-order pharmacies. They then conducted semi-structured interviews and meetings with a limited set of prescribers and informaticians to help supplement findings and inform recommendations. The health system utilized for this research processes and stores data to their specifications. Three data limitations were identified in this system:

**Data Limitation 1**

- All RxChange messages were not displayed to prescribers within the EHR
- This error is currently under review by a multidisciplinary team

**Data Limitation 2**

- RxChange Request error messages were not linked to the original RxChange Request
- This resulted in limited data on the number of unique RxChange messages

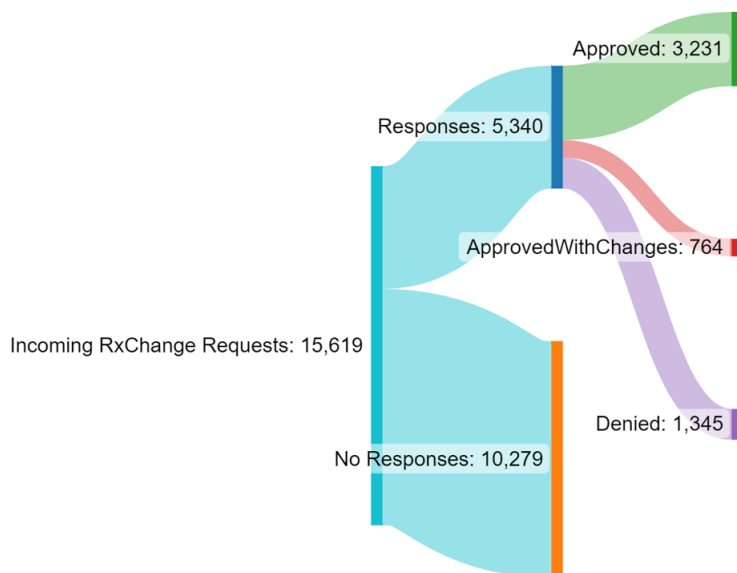
**Data Limitation 3**

- Limited data on RxChange Response error messages
- This resulted in limited data on the number of RxChange Response messages that were not received by the pharmacy

## FINDINGS

### Aim 1 | Identify the total volume and types of different RxChange Request and corresponding RxChange Response Message types

Volume data is shown in the graph below. Of these, only 10-25% of requests were denied showing strong support on the need for and value of the RxChange message for prescribers, thereby validating the request made by the pharmacist.



**Aim 2 | Identify potential causes that result in delayed prescriber responses to pharmacy generated RxChange Request messages**

Observations showed the lowest response rates were among prescribers who receive a high volume of pharmacy generated RxChange Request messages. Results of average response times from the top 10 specialties is shown below. While further study is recommended, results suggest that at least two factors are at play in delayed prescriber response:

1. Large numbers of RxChange Request messages contributes to the prescriber inbox burden leading to processing delays.
2. Numbers and ability of clinical training staff is different across physician and care groups.

Provider Specialty	Number of Responses	Average Response Time (hour:minute)
Physician/Internal Medicine	1,708	29:42
Physician/Family Practice	1,101	25:28
Nurse Practitioner	804	22:20
Student in an Organized Health Care Education/Training Program	650	53:50
Physician/Neurology	179	50:11
Physician/Pediatric Medicine	150	30:03
Physician Assistant	123	23:56
Physician/Gastroenterology	108	35:15
Physician/Ob-Gyn	95	54:37
Physician/Cardiovascular Disease (Cardiology)	76	52:00

### **Aim 3 | Quantify the types of pharmacies that generate RxChange Request messages to better understand the adoption of these messages across the pharmacy landscape**

Findings showed that pharmacy adoption of RxChange Request transactions are increasing and, in the data set, 97% of RxChange Messages originated from a chain pharmacy. Further investigation revealed that widespread adoption of the RxChange transaction could eliminate the need for two workflow streams, streamlining the existing workflow for both the prescriber and pharmacist.

### **Aim 4 | Identify and report on the type of RxChange Request messages generated by pharmacies**

Six of the available RxChange Request messages within the SCRIPT Standard were utilized to some degree with the “Prescriber Authorization” message being the standalone. The majority of RxChange Requests were “Therapeutic Interchange” (75%), followed by “Script Clarification” (15%), then “Out of Stock” (9%).

## **LOOKING FORWARD**

This study found that RxChange Request and RxChange Response transaction messages are promising to reduce administrative burden on both pharmacists and prescribers, speed patient access to the right medication, and improve patient safety. However, benefits of these transactions are not realized without proper implementation for meaningful use.

## **INTEGRATION WITHIN NCPDP**

**WG11**

### **ePrescribing & Related Transactions**

#### **•RxChange TG**

This task group will optimize RxChange workflows and recommendations, including guidance for new use cases, clarifications and best practices for RxChange.