

Promoting Generic Medication prescribing by Order Interface Redesign: Small change, Large impact

Sameer MALHOTRA^{a,1}, Jessica S. ANCKER^a, J Travis GOSSEY^a, Curtis L. COLE^a,
Rainu KAUSHAL^a and Adam D CHERIFF^a

^aWeill Medical College, Cornell University, New York, NY United States 10022

Abstract. Prescription drugs are a significant component of the ever increasing health care costs. We describe the effects on generic medication prescribing behavior achieved through redesign of the order entry interface of our institutions ambulatory electronic health record. The redesign involved custom programming that automatically substituted brand medications with their generic equivalents and only allowed continuation with the brand medication if the clinician made an extra mouse click selecting “dispense as written”. We conducted a before-after retrospective study around the time of the redesign and witnessed a net 36.9% percentage increase in the number of generic medications prescribed.

Keywords. Drug substitution, generic drugs, order entry systems, interface redesign

Introduction

Prescription medication costs are rising rapidly and represent more than 11% of American healthcare costs [1]. One measure that would result in considerable cost savings across the health - care system would be to substitute generic drugs in place of brand name ones. Generics also have lower out - of - pocket expenses for patients and are associated with better adherence [2]. Successful methods to encourage providers to prescribe generics where appropriate thus have major national policy implications. Physician prescribing patterns are known to be affected by pharmaceutical detailing and academic detailing, although these measures are relatively resource intensive and costly. Point of care decision support delivered through medication substitution alerts in the electronic health records (EHR) is another avenue that could affect clinician prescribing patterns [3].

This study, however, is designed to evaluate a much simpler information technology intervention, i.e., automatically substituting brand medications with their generic equivalents.

¹ Corresponding Author. Sameer Malhotra, MD, MA. Weill Cornell Medical College, 575 Lexington Ave, Box 110, New York NY USA 10022. E-mail: sam2032@med.cornell.edu

1. Methods

1.1. Intervention to promote generic medication prescribing

Originally the order entry interface had simple search functionality and returned medication names based on text entered by the clinician in the search box. As part of the redesign (custom programming done within the confines of the vendor EHR), the application populated the search results for a brand medication with generic equivalents as well. At this point, if a brand name is selected from the search results it is automatically replaced with the generic equivalent (brand name still visible in parentheses next to the generic). This substitution can be overridden by making one additional mouse click and selecting “dispense as written” as shown in Figure 1.

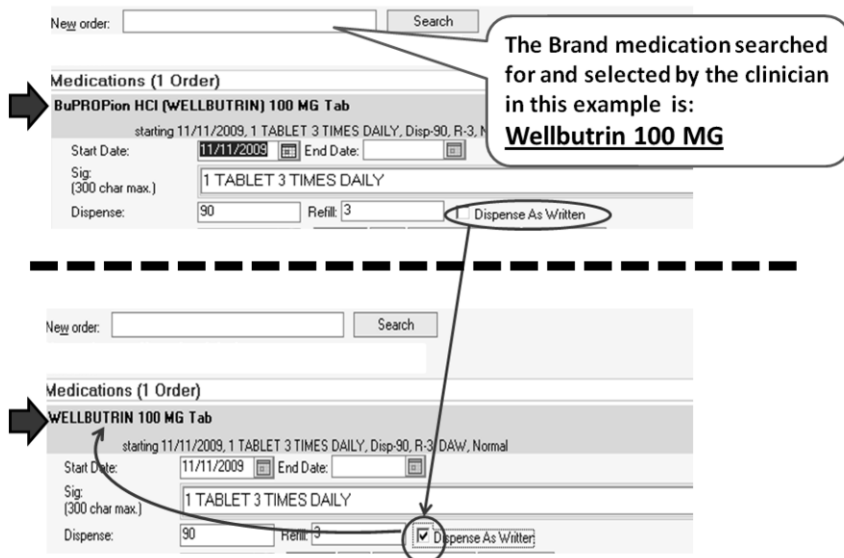


Figure 1. Illustration of order entry interface in intervention period. Generic medication preferentially defaulted even though brand medication originally selected (unless DAW checked off)

1.2. Study design and participants

This retrospective before-after study analyzed outpatient prescriptions written during time periods of 1 year each before (baseline group) and after (intervention group) the introduction of the intervention (Nov 2009). Only new prescriptions were part of the analysis as medication renewals followed a workflow unaffected by the intervention.

2. Results

886 clinicians were common to the two groups and had written close to 1 million new prescriptions during the two years. See figure 2 for details.

In the control year, generic medications made up little more than a quarter (28.2%) of the total newly prescribed medications. This number more than doubled (65.2%) in the intervention year where two thirds of all new prescriptions were generics.

Diving further into the intervention period dataset we were able to determine what medication type (generic or brand) a provider had searched on and selected. We found that one third of the total medications ordered had originally been a brand medication; but as a result of the intervention were steered to a generic equivalent. Only a minor 2.1% of the medications were still prescribed as brands despite having generic equivalents available because the providers selected the “Dispense as Written” option.

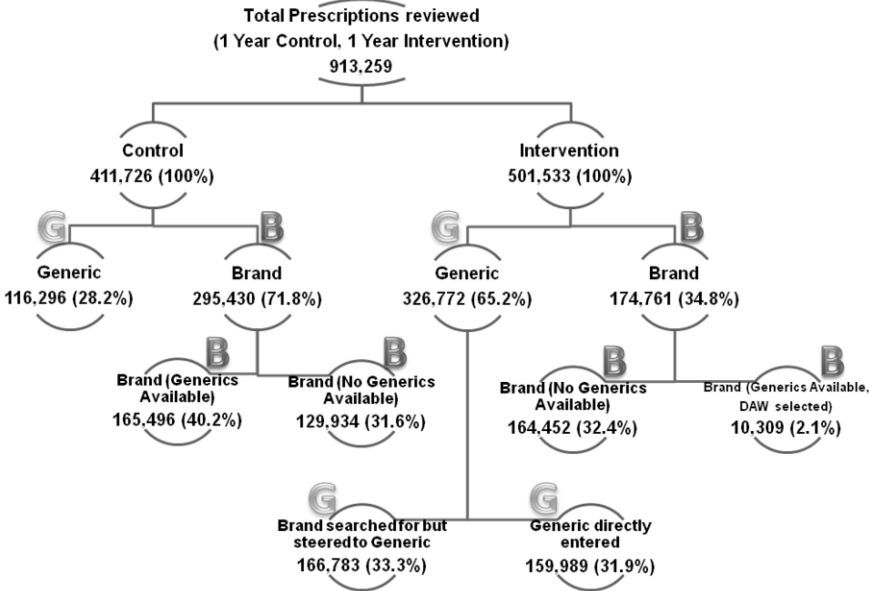


Figure 2. Tree diagram of generic medication analysis in control and intervention period

3. Discussion

The study illustrates how a relatively simple application change can lead to a dramatic increase in generic medication prescribing and consequent healthcare cost savings. Generic names are generally difficult to recall when compared to the strategically named, marketed and more memorable brand name drugs. Our approach takes away the onus of memorizing tedious generic names and offers a seamless workflow steering clinicians towards generic equivalents. However, despite the simplicity of our approach, further work is needed in order to be cautious during automatic generic substitution and possibly exclude drugs that have a narrow therapeutic index [4].

References

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