**Acetaminophen or Tylenol? Medication Communication Practices and Habits in Text Pages**

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**Author Contributions:** Dr. Ouyang had full access to all of the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis.

*Study concept and design*: Ouyang.

*Acquisition of data*: Ouyang, Chi, Chen.

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**Word Count:** 530

**Background:**

Substitution of generic drugs for brand-name equivalents is an important cost control measure within the US healthcare system. Failure to substitute generic for brand-name drugs results in an estimated $8.8 billion in excess drug spending yearly1. The use of trade names for drugs in clinical practice raises awareness of these brand-names and has been associated with their use2. As evidence of this bias has grown3,4, American medical schools have made a concerted attempt in recent years to teach only generic medication names and discourage the use of trade names5. Despite these efforts, usage of trade names persists in the clinical setting. We speculate that this practice is propagated by many influences in a multi-disciplinary team, including pharmacists and nursing staff.

**Objective:**

We sought to better characterize the relative use of trade and generic drug names in the inpatient setting.

**Methods and Findings:**

We analyzed 1,048,576 text pages to internal medicine housestaff between June 1, 2013 and April 24, 2017 at a large academic university hospital. Mentions of medications by both generic and brand names were identified and tallied. When explicitly mentioned in the body of the text page, the occupation of the sender was established. Multivariate analysis was performed on the sender occupation, number of syllables, consonants, and vowels in both the generic and trade names. Text pages were algorithmically processed using Python and statistical tests were performed in R. This study was approved by the Stanford University IRB.

We identified 102,243 pages regarding medications, of which 34,489 (33.7%) pages were from nurses and 20,446 (20.0%) pages were from pharmacists. Sixty-two medications were mentioned more than 240 times. The most common classes of medications were analgesics (12.9%), antibiotics (12.9%), and anticoagulants (11.3%). There was significant variation in the preferential use of brand names vs. generic names (Figure 1). Nurses were more likely to use trade names than pharmacists (p < 0.001). A greater number of syllables in generic name compared to the trade name was also correlated with trade name usage (p = 0.004).

**Discussion:**

Text paging behaviors provide a reflection of real-world provider-to-provider communication outside of formal documentation. . By applying a high-throughput method of assessing medication naming sentiment, we show that there is significant variability in preference of brand name versus generic name usage for common drugs in the inpatient setting. Implicit in this result is that for certain drugs, the use of the brand name overwhelmingly outweighs generic name usage—in some cases, by nearly 100 to 1. These observations suggest that the propagation of brand names in academic medical centers comes from many avenues, including from other members of the multidisciplinary treatment team. There therefore appear to be variable community standards for medication name usage across different medical professions. We also found a preference for medication names with fewer syllables, although this effect may be confounded by the space-limited context of text pages.

While our analysis is limited to one institution, it draws on the depth of over one million text pages. As the medical field continues to value the usage of generic drug names and the economic impact of this usage, we collectively have a long way to go toward minimizing the use of pharmaceutical trade names.

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Table 1

