Message

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Sent: 10/27/2011 8:14:39 AM
To: Provost, Kristie R. [kristie.provost@walgreens.com]; Dungca, Ferdinand B. [ferdinand.dungca@walgreens.com]
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Subject: DEA Business Reason.
Attachments: DEA Presentation.doc

Hi Kristie,

As per your request, I am sending you this document, which explains the business reason behind the DEA project.

Please let me know if you have any question.

Thanks,
Rakesh Khanna 847 527-5238
Store Replenishment & Forecasting

PLAINTIFFS TRIAL EXHIBIT
P-23857_00001

Walgreens
The Pharmacy America Trusts

DEA Intercept Suspicious Order

Overview

The Controlled Substances Act is the primary federal law regulating the flow of controlled substances into the marketplace for medical purposes. Among other requirements, the act requires that distributors register with the Drug Enforcement Agency (DEA) to sell controlled substances to retail pharmacies and report to the DEA suspicious orders. The DEA is requiring that Walgreens monitor orders for control substances that are placed at the stores and sent to our DCs for filling. Such drugs are to be monitored for suspicious activity. Suspicious orders are defined by the DEA in terms of an Order Size or Order Frequency.

The purpose of this project is to create a process to systematically identify and prevent suspicious orders based on a formula used to determine inconsistent (suspicious) ordering patterns for controlled drugs. Any Control Drug Orders that are deemed suspicious will be flagged as suspicious and populated in a file to be sent up centrally to Loss Prevention and Rx services for review/analysis. The order that is flagged as suspicious on the store side will be intercepted and the order qty will be reduced to a non-suspicious (order limits) level. The item will be reduced to a non-suspicious level in order to prevent suspicious orders from being sent over to the DC. This method will help to insure that the DC does not receive suspicious orders from stores and limit the possibility of fines that may be imposed by the DEA.

Due to conditions outside of a stores control, functionality will be added to the application to allow stores to be removed from the suspicious ordering limits or to have individual items removed from the suspicious ordering limits. This is done to account for stores that may need to order more of an item for a certain amount of time. A file will be created to store all stores

that have the application or items turned off along with a reason code that will be used to better understand why the store or items were turned off.

To monitor the **orders size**, tolerance limits will be established for each store/item combination. If an order is placed on the DC that exceeds its tolerance limit the order is flagged as suspicious.

To monitor **orders frequency** the geometric distribution can be used to determine the probability P(n) that it will be n weeks or more till the next order is created. Using P(n) we determine the minimum number till the next order deemed acceptable. If the next orders is placed earlier than expected the order is flagged as suspicious.

In either case, if the order quantity does not exceed the SIMS suggested order quantity then the order should no longer be considered suspicious. If the order is identified as suspicious, a detailed report should be created to aid the analysis that has to make a quick decision to allow or stop the order.

Tolerance Limits

To monitor the orders size (Q), tolerance limits are established for each item. It is assumed that the order sizes are normally distributed with a fixed mean and standard deviation. Further more, the frequencies of orders are assumed to fluctuate in accordance with the customer demand patterns. In this way, the application is applicable to any type of demand patterns. In other words, the customer demands may not be normally distributed, however the size of the orders placed on the DC will be normally distributed.

See Tolerance Limit Calculation document.

Note: The item is not a candidate if the order quantity Q = 0 or $S_Q = 0$ or N <= 2.

Using tolerance limits a value of K is found so that one can assert with confidence P_1 that the proportion of orders sizes Q <= $\bar{Q}$ + K*S_Q is at least P_2. Note: d is the mean order quantity and S_d is the standard deviation estimated from the data. Table 1 lists K value for P_1 = (0.95, 0.99) and P_2 = (0.90, 0.95, 0.99) and for selected values of sample size N. For example, with a sample size of 40, P_1 = 0.99 and P_2 = 0.95, K = 3.21 and the upper tolerance limit becomes $\bar{Q}$ + 3.21* S_Q. (This limit should be round to the nearest multiple.) This means that with a 99% confidence, the proportion of the population within ($\bar{Q}$ + 3.21* S_Q) is at least 0.95. Any entry beyond that limit is questionable.

Order Quantity Logic Matrix:

		Order Qty vs Tolerance Limit	
		Q > TL	Q <= TL
Order Qty vs Suggested Qty	Q > SQ	Flaged as Suppicious	OK
	Q <= SQ	OK	OK

Order Frequency

If two consecutive orders are generated relatively close together in comparison to past history it may be considered suspicious. We can use the geometric distribution to establish the minimum number of weeks[1] (min_weeks) until the next orders deemed acceptable. If an order is created earlier that the min_weeks it is flagged as suspicious.

See Order Frequency Calculation document:

Order Frequency Logic Matrix:

w = next order in weeks		Order Frequency	
n = min # weeks acceptable		w < n	w >= n
Order Qty vs Suggested Qty	Q > SQ	Flaged as Suppicious	OK
	Q <= SQ	OK	OK

1 Alternative, days can be used in place of weeks

Appendix A (See a separate document for K-Value)

Table 1: Values of K for Tolerance Limits for Normal Distributions.

	$P_1 = 0.95$			$P_1 = 0.99$		
$n\backslash P_2$	0.9	0.95	0.99	0.9	0.95	0.99
2	32.019	37.674	48.43	160.193	188.491	242.3
3	8.38	9.916	12.861	18.93	22.401	29.055
4	5.369	6.37	8.299	9.398	11.15	14.527
5	4.275	5.079	6.634	6.612	7.855	10.26
6	3.712	4.414	5.775	5.337	6.345	8.301
7	3.369	4.007	5.248	4.613	5.488	7.187
8	3.136	3.732	4.891	4.147	4.936	6.468
9	2.967	3.532	4.631	3.822	4.55	5.966
10	2.839	3.379	4.433	3.582	4.265	5.594
11	2.737	3.259	4.277	3.397	4.045	5.308
12	2.655	3.162	4.15	3.25	3.87	5.079
13	2.587	3.081	4.044	3.13	3.727	4.893
14	2.529	3.012	3.955	3.029	3.608	4.737
15	2.48	2.954	3.878	2.945	3.507	4.605
16	2.437	2.903	3.812	2.872	3.421	4.492
17	2.4	2.858	3.754	2.808	3.345	4.393
18	2.366	2.819	3.702	2.753	3.279	4.307
19	2.337	2.784	3.656	2.703	3.221	4.23
20	2.31	2.752	3.615	2.659	3.168	4.161
25	2.208	2.631	3.457	2.494	2.972	3.904
30	2.14	2.549	3.35	2.385	2.841	3.733
35	2.09	2.49	3.272	2.306	2.748	3.611
40	2.052	2.445	3.213	2.247	2.677	3.518
45	2.021	2.408	3.165	2.2	2.621	3.444
50	1.996	2.379	3.126	2.162	2.576	3.385
55	1.976	2.354	3.094	2.13	2.538	3.335
60	1.958	2.333	3.066	2.103	2.506	3.293
65	1.943	2.315	3.042	2.08	2.478	3.257
70	1.929	2.299	3.021	2.06	2.454	3.225
75	1.917	2.285	3.002	2.042	2.433	3.197
80	1.907	2.272	2.986	2.026	2.414	3.173
85	1.897	2.261	2.971	2.012	2.397	3.15
90	1.889	2.251	2.958	1.999	2.382	3.13
95	1.881	2.241	2.945	1.987	2.368	3.112
100	1.874	2.233	2.934	1.977	2.355	3.096
150	1.825	2.175	2.859	1.905	2.27	2.983
200	1.798	2.143	2.816	1.865	2.222	2.921
250	1.78	2.121	2.788	1.839	2.191	2.88
300	1.767	2.106	2.767	1.82	2.169	2.85
400	1.749	2.084	2.739	1.794	2.138	2.809
500	1.737	2.07	2.721	1.777	2.117	2.783
600	1.729	2.06	2.707	1.764	2.102	2.763
700	1.722	2.052	2.697	1.755	2.091	2.748
800	1.717	2.046	2.688	1.747	2.082	2.736
900	1.712	2.04	2.682	1.741	2.075	2.726
1000	1.709	2.036	2.676	1.736	2.068	2.718
∞	1.645	1.96	2.576	1.645	1.96	2.576

Tolerance Limit Examples: The 9 items that had recent theft cases

PLN	Description
40000563756	HYDROCOD-APAP 10-325 TAB(WAT)+500
40000672664	HYDROCODONE/APAP 10/650 TAB +100
40000673037	ALPRAZOLAM 2MG TAB (PPC) + 100
40000675756	HYDROCOD-APAP 10-500 TB (WT)+500
40000673036	ALPRAZOLAM 1MG TAB (PPC) + 500
40000684278	OXYCONTIN 40MG TAB (PUR) 100
40000563756	HYDROCOD-APAP 10-325 TAB(WAT)+500
40000563756	HYDROCOD-APAP 10-325 TAB(WAT)+500
40000672663	HYDROCODONE/APAP 5/500+TAB(WT)500