An Empirical Model to Estimate the Potential Impact of Medication Safety Alerts on Patient Safety, Health Care Utilization, and Cost in Ambulatory Care

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eAppendix

We used the following equations to estimate the impact of medication safety alerts:

\[
\sum_{i=1}^{n} a_i(1-b_i)d \left( \sum_{j=1}^{3} s_{ij} \right) = \text{No. of ADEs Prevented}
\]

\[
\sum_{i=1}^{n} a_i(1-h_i)d \left( \sum_{j=1}^{3} s_{ij}h_{ij} \right) = \text{No. of Injuries Prevented}
\]

\[
\sum_{i=1}^{n} a_i(1-b_i)d \left( \sum_{j=1}^{3} s_{ij}h_{ij}c_{ij} \right) = \text{Savings From Prevented ADEs}
\]

where \( a \) indicates the probability that a drug-drug interaction (DDI) alert is accepted; ADE, adverse drug event; \( b \), the probability that a DDI is intercepted in the pharmacy; \( c \), the cost of the expected health consequence; \( d \), the probability that the prescription is filled and the drugs are taken by the patient; \( h \), the probability of an expected health consequence; \( i \), a DDI alert; \( j \), the potential ADE severity level (serious, significant, or minor); \( n \), the number of alerts triggered for DDI; and \( s \), the severity of the alert (indicator variable for serious, significant, or minor).