

Forecasting Model for Pharmaceutical Returned Products

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Abstract

Pharmaceutical products can be found in hospital, drugstore, and even supermarket for over-the-counter products. All pharmaceutical products have expired date or date which indicates the limit of best consume products, customers should not consume the products when it already exceeds the expire date. Distributors are responsible to return all inventory of expired products to the manufacture starting from three months before the expire date. This is a backward flow where products from the end of chain are travelled back to its origin, known as reverse logistics. Reverse logistics often underestimate by the manufacture yet the activities from it cannot be removed. BPOM (Badan Pengawas Obat dan Makanan Republik Indonesia), a government agency in Indonesia dealing with food and drugs, similar as FDA (Food and Drug Administration), oblige pharmaceutical manufactures to control all of their expired products. Therefore, manufactures should estimate the quantity and time of the expired returned products that will be received in their warehouse in order to prepare all the resources needed to process the administration and disposal. Using Grey Model, manufactures can forecast the quantity and time of their returned expired products that will be received in their warehouse. Grey Model enable manufactures to have their forecasting calculation of the future with small size of historical data without know the statistical distribution first. This paper will use two years of historical data and calculate the forecasting of pharmaceutical returned products using Grey Model.

Keywords

Pharmaceutical manufactures, returned products, reverse logistics, Grey Model