

Patented drug extension strategies on healthcare spending: a cost-evaluation analysis

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Background: Drug manufacturers have developed “evergreening” strategies to compete with generic medication after patent termination. These include marketing of slightly modified follow-on drugs. We aimed to estimate the financial impact of these drugs on overall healthcare costs and also to examine the impact of listing these drugs in hospital restrictive drug formularies (RDFs) on the healthcare system as a whole (“spillover effect”).

Methods and Findings: We used hospital and community pharmacy invoice office data in the Swiss canton of Geneva to calculate utilisation of eight follow-on drugs in defined daily doses between 2000 and 2008. “Extra costs” were calculated for three different scenarios assuming replacement with the corresponding generic equivalent for prescriptions of (1) all brand (i.e., initially patented) drugs, (2) all follow-on drugs, or (3) brand and follow-on drugs. To examine the financial spillover effect we calculated a monthly follow-on drug market share in defined daily doses for medications prescribed by hospital physicians but dispensed in community pharmacies, in comparison to drugs prescribed by non-hospital physicians in the community. Estimated “extra costs” over the study period were €15.9 (95% CI 15.5; 16.2) million for scenario 1, €14.4 (95% CI 14.1; 14.7) million for scenario 2, and €30.3 (95% CI 29.8; 30.8) million for scenario 3. The impact of strictly switching all patients using proton-pump inhibitors to esomeprazole at admission resulted in a spillover “extra cost” of €330,300 (95% CI 276,100; 383,800), whereas strictly switching to generic cetirizine resulted in savings of €7,700 (95% CI 4,100; 11,100). Overall we estimated that the RDF resulted in “extra costs” of €503,600 (95% CI 444,500; 563,100).

Conclusions: Evergreening strategies have been successful in maintaining market share in Geneva, offsetting competition by generics and cost containment policies. Hospitals may be contributing to increased overall healthcare costs by listing follow-on drugs in their RDF. Therefore, healthcare providers and policy makers should be aware of the impact of evergreening strategies.