# Costs and Benefits of ADHD: An Economic Perspective

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Economists generally prefer a societal perspective when assessing the opportunity cost (i.e., the value foregone by alternative use) of all resources utilized for diagnostic and therapeutic interventions ("direct" costs) and loss of productivity ("indirect" costs) attributable to a defined condition. In practice, however, many analysts adopt the narrow perspective of a health care payer, i.e., that of a national health scheme (NHS) or that of insurance companies, be it public or private ones. Accordingly, most studies of the cost of attention-deficit/hyperactivity disorder (ADHD) have reported direct medical costs only. A further limitation of most studies published to date has been the limited time horizon evaluated. In particular, almost all studies using administrative claims data to determine the direct cost from a payer's perspective have been cross-sectional in nature.

Children and adolescents with ADHD have been found to receive significantly more therapy, and have more physician and emergency department visits and more hospitalizations compared to their siblings without ADHD. Consequently, the health care costs for children and adolescents with ADHD are, across studies, consistently higher than those of control patients without mental health problems. Further to this, additional costs in the education system associated with ADHD may result from extra lessons, special classes and additional staff. Increased rates of criminal behavior, delinquency, and substance use add to the excess costs associated with ADHD in adolescents; and ADHD in children and adolescents can also result in indirect costs for their parents due to loss of productivity.

Any interpretation of these findings needs to take into account the prevalent coexistence of other mental health problems in patients with ADHD. For example, following observations from the Nordbaden Project in Germany, the additional presence of conduct and personality disorder, mood and affective disorders, specific development disorders, and adjustment disorders resulted in substantially increased direct medical costs. Even in the absence of ADHD, these conditions had a profound impact on the costs of health care, in many cases exceeding the cost associated with pure ADHD. To date, the overall economic impact of coexisting conditions has not yet been systematically evaluated.

Studies of adult patients with ADHD found significantly increased absenteeism from work. According to the WHO World Mental Health Survey (2008), ADHD was

associated with a statistically significant 22.1 annual days of lost excess role performance compared to control persons without ADHD. Furthermore, adult ADHD was associated with increased numbers of workplace injuries and accidents, reductions in work performance, and decreased annual household incomes for affected families. Data also show increased direct medical costs in adults with ADHD, but again these data should be interpreted with some caution given the likely selection of severe cases related to often relatively low diagnosis rates of adult ADHD.

The potential bias introduced by naïve extrapolation from small studies is illustrated by some recent reviews suggesting social costs of ADHD higher than the total cost of all cancers. More reliable estimates are cumbersome and should address the impact severity, coexistent conditions, and explicitly take into account international and regional differences. It will be argued that exaggerated estimates of social costs may do more harm than good, especially from the perspective of patients.

Future studies are needed to estimate the true cost of ADHD, applying more complex longitudinal models of the natural history of the disorder. Furthermore, it should be noted that cost of illness studies by definition cannot provide insights into the value of interventions.

Invited Plenary Presentation

4th World Congress on ADHD, From Childhood to Adult Disease, Milan / Italy, June 7, 2013.

Abstract published in

**Attention-Deficit/Hyperactivity Disorders (ADHD)** 5 [2] (2013) 113.