

# Evaluating statin utilisation in clinical practice in Scotland: Impact of statin intensity on adherence and persistence to therapy

*Tanja Mueller<sup>1</sup>, Renata Cristina R. Macedo do Nascimento<sup>2</sup>, Marion Bennie<sup>1,3</sup>, Brian Godman<sup>1,4</sup>, Simon Hurding<sup>5</sup>, Sean MacBride Stewart<sup>6</sup>, Augusto Afonso Guerra Junior<sup>2</sup>, Francisco de Assis Acurcio<sup>2</sup>, Alec Morton<sup>7</sup>, Amanj Kurdi<sup>1</sup>*

<sup>1</sup>*Strathclyde Institute of Pharmacy and Biomedical Sciences, University of Strathclyde, Glasgow, UK*

<sup>2</sup>*School of Pharmacy, Federal University of Minas Gerais, Belo Horizonte, MG, Brazil*

<sup>3</sup>*Public Health and Intelligence Strategic Business Unit, NHS National Services Scotland, Edinburgh, UK*

<sup>4</sup>*Division of Clinical Pharmacology, Karolinska Institutet, Stockholm, Sweden*

<sup>5</sup>*Directorate for Health Finance, The Scottish Government, Edinburgh, UK*

<sup>6</sup>*Prescribing and Pharmacy Support Unit, NHS Greater Glasgow & Clyde, Glasgow, UK*

<sup>7</sup>*Strathclyde Business School, University of Strathclyde, Glasgow, UK*

**Background:** Based on recent clinical trial evidence, updated treatment guidelines in the UK recommend high-intensity statin therapy (atorvastatin 80mg) for secondary prevention of cardiovascular disease. However, with this high statin dose, there are concerns about a potential increase in the incidence of statin-related side effects, which might affect patients' adherence and, in turn, clinical outcomes. Hence, this study aimed to evaluate the effect of statin intensity on adherence and persistence to therapy.

**Objectives:** To evaluate adherence, discontinuation, and persistence to high-intensity statin in comparison to moderate and low-intensity in Scotland.

**Methods:** Retrospective cohort study using linked health records. The study population included patients ( $\geq 18$  years) initiated on statins between January 2010 and December 2015. Statin treatment was stratified into high, moderate, and low-intensity based on the current National Institute for Health and Care Excellence classifications. Treatment discontinuation and persistence were evaluated using the refill-gap and anniversary methods, respectively; adherence was assessed by calculating the proportion of days covered (PDC).

**Results:** A total of 73,716 patients (mean age 61.4 years [SD 12.6]) initiated statins during the study period: high-intensity  $n=7,163$  (9.7%), moderate-intensity  $n=65,125$  (88.3%), and low-intensity  $n=1,428$  (1.9%). High-intensity therapy was more common among males (10.7%) than females (8.6%), and most common (17.1%) in the youngest age group (18 – 24 years). The majority of patients initiating high-intensity treatment received either atorvastatin 20mg (43.1%) or 40mg (32.3%), while 22.8% received atorvastatin 80mg. Crude discontinuation rates (50.9% high-intensity versus 75.5% low-intensity) and 1-year persistence (74.7% high-intensity versus 53.1% low-intensity) differed significantly between

intensity levels; crude adherence (PDC  $\geq$  80%) was highest among high-intensity patients with 63.7%, compared to 51.6% and 40.5% in moderate and low-intensity, respectively.

**Conclusion:** Increasing the intensity of statin therapy does not seem to negatively impact adherence and persistence to treatment, although findings could be due to confounders (e.g. primary versus secondary prevention) and/or the low proportion of patients using the recommended high dose statin. Further analysis is ongoing to adjust for confounders, and to evaluate clinical outcomes associated with high-intensity statin therapy.

Word count: 334