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Appendix

This appendix was part of the submitted manuscript and has been peer reviewed.
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Appendix to: Hopkins AM, Proudman SM, Vitry AI, et al. Ten years of publicly funded biological disease-modifying antirheumatic drugs in Australia. *Med J Aust* 2016; 204: 64-68. doi: 10.5694/mja mja15.00716.

SUPPLEMENTARY METHODS

A longitudinal study of bDMARD utilisation in Australian was conducted between 2003 and 2014. Medicines were identified by their World Health Organisation Anatomical Therapeutic Chemical (ATC) index with their corresponding defined daily dose (DDD) recorded (Supplementary Table 1) (1). In Australia, bDMARDs are listed on the PBS and Repatriation Pharmaceutical Benefit Scheme (RPBS) as 'authority required benefits', with item codes that correspond to the specific use of each drug (i.e. treatment of rheumatoid arthritis [RA]) (2). Supplementary Table 1 indicates the item codes specific for the use of each bDMARD in RA (2); which were used to retrieve the aggregate dispensing volume data for the years 2000 to 2014, from Medicare Australia's national public database; "PBS statistics" (3). The financial contribution of the PBS and RPBS to provide these services was also retrieved through PBS statistics (3). Drug utilization was measured as the number of DDDs/1,000 inhabitants/day (Supplementary Equation 1) (1, 4). The end of year national population data for the years 2000 to 2014 was obtained from the Australian Bureau of Statistics (5).

The estimated annual PBS expenditure for abatacept, tocilizumab, certolizumab pegol and golimumab for the first five years since their introduction was obtained from the public summary documents (available from www.pbs.gov.au), as provided by the sponsoring company and reviewed by the PBAC before the product was listed on the PBS for the treatment of RA (6-9).

Supplementary Table 1: ATC code, DDD and PBS and RPBS item code for bDMARDs in the treatment of RA.

bDMARDs	ATC code	DDD	PBS and RPBS item's code for RA indication	Added to PBS
Non-TNF bDMARDs				
Abatacept	L04AA24	27 mg	1220F, 1221G, 5605B, 9621J	2008
Anakinra	L04AC03	100 mg	8773R*, 8774T*	2004
Rituximab	L01XC02	16.66 mg ¥	9544H, 9611W	2007
Tocilizumab	L04AC07	20 mg	9657G, 9658H, 9659J, 9671B, 9672C, 9673D	2010
TNF bDMARDs				
Adalimumab	L04AB04	2.9 mg	5281Y, 5282B, 5283C, 5284D, 8737W, 9099X, 8741C, 9100Y	2004
Certolizumab pegol	L04AB05	14 mg	3425G	2010
Etanercept	L04AB01	7 mg	3445H, 3446J, 3447K, 8637N, 9089J, 9459W, 3448L, 3449M, 3450N, 8638P, 9090K, 9460X, 8861J*, 8862K*	2003
Golimumab	L04AB06	1.66 mg	3426H, 3427J, 3428K, 3429L	2010
Infliximab	L04AB02	3.75 mg	4284L, 5757B, 6397Q	2003

ATC, Anatomical Therapeutic Chemical; DDD, defined daily dose
¥ - WHO classify rituximab as chemotherapy with no DDD listed (1); hence DDD calculated based upon dosing in RA in Australia (10).
*** indicates deleted PBS item code; *8773R*, 8774T* - deleted 2010;* 8861J*, 8862K* - deleted 2009**

Supplementary Equation 1

$$\text{Defined Daily Doses (DDDs)/1,000 inhabitants/day} = \frac{N*M*Q*1000}{DDD*P*D}$$

DDD = Defined Daily Dose; *N* = Number of prescriptions dispensed in the year; *M* = Mass of each dose; *Q* = Quantity per prescription; *P* = Total population of the country for the year of data collection; *D* = Number of days in the year

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