

**SUPPLEMENTARY TABLES AND FIGURES**

**Simonsen JR et al,**

**“Bacterial infections in patients with type 1 diabetes: A 14-year follow-up study”**

**Supplementary Table 1:** Classification of infection-related International Classification of Diseases (ICD) 10<sup>th</sup> revision codes according to their microbial aetiology.

Microbe	ICD-code	Specification	NDC - n [%]	T1D - n [%]
Bacterial	A00-A05	Intestinal infectious diseases	28 [1.0]	108 [2.7]*
	A15-A19	Tuberculosis	24 [0.8]	10 [0.2]
	A40-A41	Sepsis	76 [2.6]	308 [7.7]*
	A51, A53.9, A54-A58, N41, N43.1, N45, N48.1, N70-N72, N73.0, N73.3-N73.5, N73.8-N73.9, N75.1, N75.8, N76.4	Infections with a predominantly sexual mode of transmission, male genital infections and female pelvic organ infections	119 [4.1]	52 [1.3]*
	D73.3, E32.1, K75.0, K61, K63.0	Abscesses	22 [0.8]	26 [0.6]
	G00, G04.2, G06, G08	Central nervous system infections	2 [0.1]	2 [<0.1]
	H04.3, H05.0, H44.0	Eye infections	1 [<0.1]	6 [0.1]
	H60.0-H60.1, H66.0-H66.4	Ear infections	5 [0.2]	7 [0.2]
	I33, I38	Heart infections	9 [0.3]	9 [0.2]
	J01, J02.0, J03.0, J32, J36	Upper respiratory tract infections	373 [12.9]	225 [5.6]*
	J13-J15, J16.0, J18.9, J20.0-J20.2, J85, J86	Lower respiratory tract infections	424 [14.7]	595 [14.8]
	K04.0-K04.7, K05.0, K05.2-K05.3, K10.2-K10.3, K11.3, K12.2	Infections of oral cavity, salivary glands, and jaws	81 [2.8]	32 [0.8]*
	K35-K37	Appendicitis	260 [9.0]	147 [3.7]*
	K65.0, K65.9	Peritonitis	8 [0.3]	327 [8.1]*
A46, L00-L05, L08.0-L08.1, L73.2	Infections of the skin and subcutaneous tissue	396 [13.7]	574 [14.3]	
M00, M46.1-M46.5, M60.0, M65.0-M65.1, M71.0-M71.1, M72.6, M72.8, M86	Osteomyelitis, infections of joints, muscles and fascia	33 [1.1]	210 [5.2]*	
N10-N11.1, N13.6, N15.1, N15.9, N30.0, N30.8, N30.9, N34.0, N34.1, N36.2, N39.0	Renal tubulo-interstitial infections and urinary tract infections	180 [6.2]	427 [10.6]*	
A20-A28, A30-A32, A36-A39, A42-A45, A48-A49, A65-A79, B95-B96, B98.1, E06.0, I00-I02	Other bacterial diseases	61 [2.1]	164 [4.1]*	
Viral	A08	Intestinal infectious diseases	60 [2.1]	151 [3.8]*
	A60, A63.8, A64	Infections with a predominantly sexual mode of transmission	4 [0.1]	5 [0.1]
	B00-B02, B08.0, B08.2-B08.8, B09	Viral infections characterized by skin and mucous membrane lesions	18 [0.6]	26 [0.6]
	B15-B19	Viral hepatitis	36 [1.2]	16 [0.4]*
	J00, J09-J12	Upper respiratory tract infections	105 [3.6]	47 [1.2]*
	J20.3-J20.7, J21.0-J21.1	Lower respiratory tract infections	2 [0.1]	1 [<0.1]
	A81-A99, B25-B27, B33-B34, B97	Other viral infections	87 [3.0]	109 [2.7]
Mycoses	B37-B49	Mycoses	10 [0.3]	20 [0.5]
Unspecified	B99	Other unspecified infectious diseases	2 [0.1]	19 [0.5]
	G03, G04.0-G04.1, G04.8-G04.9	Central nervous system infections	23 [0.8]	9 [0.2]
	H44.1	Eye infections	0 [0.0]	1 [<0.1]
	H60.3-H60.9, H65, H68, H66.9, H70, H73.0-H73.1, H83.0	Ear infections	34 [1.2]	27 [0.7]
	I30.1-I30.9, I40	Heart infections	30 [1.0]	18 [0.4]
	J02.8-J02.9, J04-J06, J03.8-J03.9	Upper respiratory tract infections	283 [9.8]	157 [3.9]*
	J16.8, J18.0-J18.8, J20.8-J20.9, J21.8-J21.9, J22	Lower respiratory tract infections	88 [3.0]	152 [3.8]
	K05.1	Infections of oral cavity, salivary glands, and jaws	2 [0.1]	5 [0.1]
	L08.8-L08.9	Infections of the skin and subcutaneous tissue	4 [0.1]	29 [0.7]
<b>Total number of infections</b>			<b>2,890 [100]</b>	<b>4,021 [100]</b>
<b>Total number of hospitalizations</b>			<b>2,882</b>	<b>3,980</b>

\* Fisher's exact test (p<0.0001)

**Supplementary Table 2: ICD-, ATC- reimbursement codes for identification of co-morbidities**

<b>Co-morbidity</b>	<b>ICD-codes</b>	<b>ATC-codes</b>	<b>Reimbursement codes</b>
Respiratory disease: asthma and chronic obstructive pulmonary disease (COPD)	493, 496, 4912, J44–J46	R03	203
Cancer	140-208, C00-C99	L01 [excluding L01BA01]	115-117, 128, 130, 180, 184,185, 189, 311, 312, 316
Cardiovascular diseases	400-414, 428, 430-438, 440, I10-I15, I20-I25, I50, I60-I68, I70		
Hypertension	I10-I15, 400-404	C03, C07, C08	205
Atherosclerosis	I70, 440		
Mental disorders	295-298, F20-34	N05A [excluding N05AB01 and N05AB04], N06A [excluding N06AA09, N06CA01, N06AX16 and N06AX21]	112, 188
Neurological disease: Parkinson's disease, multiple sclerosis, epilepsy	345, 340, 332, G40, G35, G20		109-111, 303
Rheumatoid arthritis	M02, M05-06, M08, M13, M45-46, M79		202, 313
Alcoholism	F10-F19, 291, 303-305,	N07BB	

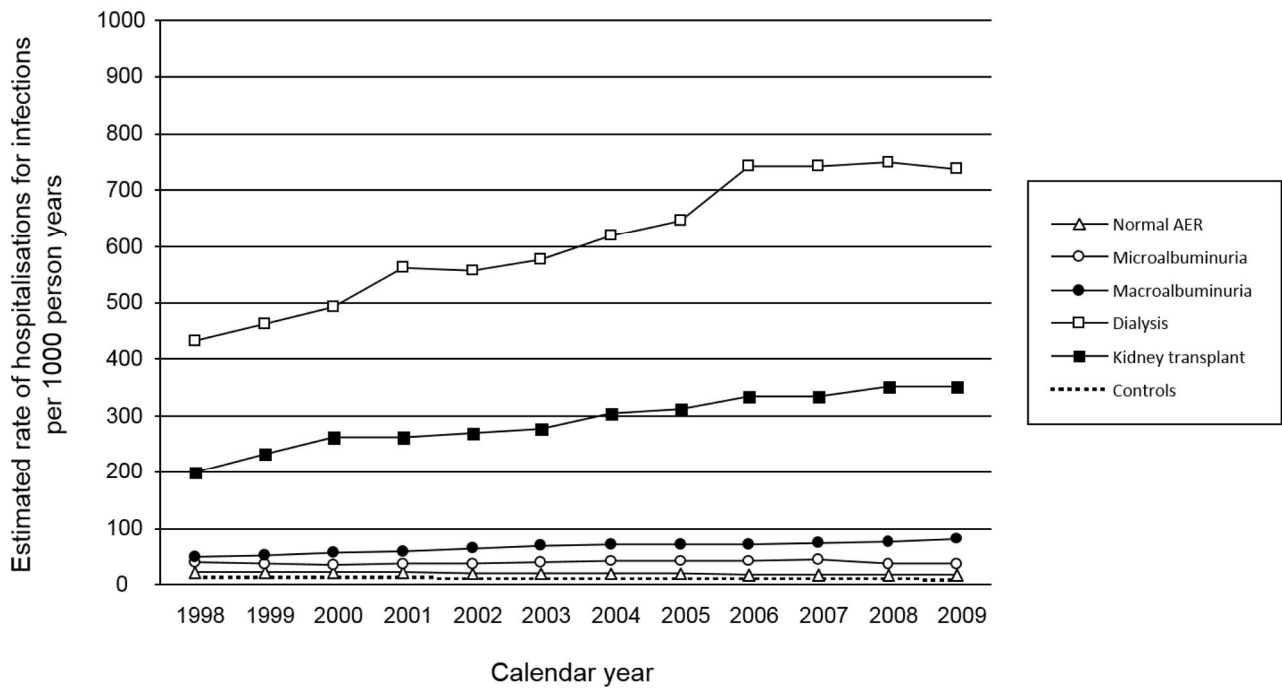
Co-morbidities based on the data drawn from the Hospital Discharge Register (ICD-codes), the National Drug Prescription Register (ATC-codes) and Drug Reimbursement Register (reimbursement codes).

**Supplementary Table 3.** Multivariate ZIP-modelling and incidence rate ratios (RRs, 95%CI) of the hospitalisation due to infections and antibiotic purchases according to diabetic nephropathy groups, adjusted for comorbidities.

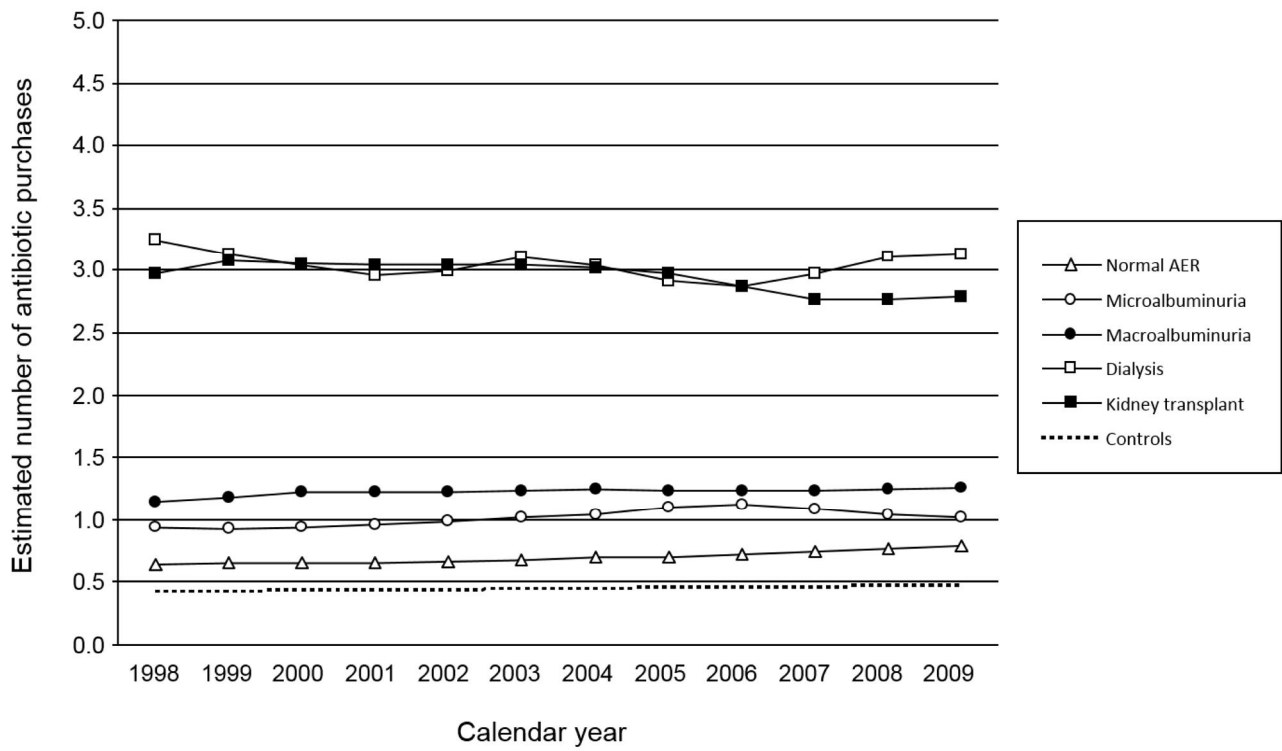
	<b>Normal AER</b> (Type 1 diabetes)	<b>Microalbuminuria</b> (Type 1 diabetes)	<b>Macroalbuminuria</b> (Type 1 diabetes)	<b>Dialysis</b> (Type 1 diabetes)	<b>Kidney transplant</b> (Type 1 diabetes)
<b>Hospitalisation</b>					
Age (years)	0.98 (0.96-0.99)	1.00 (0.97-1.03)	0.99 (0.97-1.02)	0.99 (0.97-1.01)	1.00 (0.97-1.02)
Duration of diabetes (years)	1.01 (0.99-1.03)	0.98 (0.95-1.00)	1.01 (0.99-1.03)	1.00 (0.98-1.02)	1.01 (0.98-1.03)
Sex (men as reference)	0.78 (0.59-1.03)	1.62 (1.04-2.53)	0.64 (0.45-0.89)	1.12 (0.81-1.54)	1.31 (0.95-1.82)
Calendar year	0.99 (0.98-0.99)	1.04 (1.04-1.04)	1.07(1.07-1.07)	1.05 (1.01-1.10)	1.05 (1.02-1.09)
HbA <sub>1c</sub> (%)	1.26 (1.15-1.37)	1.15 (1.01-1.31)	1.28 (1.16-1.41)	1.01 (0.93-1.10)	1.16 (1.05-1.27)
eGFR / 10 unit decrease	1.03 (0.95-1.12)	1.01 (0.91-1.13)	1.08 (1.02-1.14)	NA	NA
Smoking #	1.06 (0.82-1.37)	0.91 (0.59-1.41)	1.30 (0.93-1.81)	0.74 (0.54-1.01)	1.01 (0.80-1.44)
<b>Antibiotic purchases</b>					
Age (years)	0.99 (0.98-0.99)	1.00 (0.99-1.01)	1.00 (0.99-1.01)	1.00 (0.99-1.02)	0.99 (0.97-1.00)
Duration of diabetes (years)	1.01 (1.01-1.02)	1.01 (1.00-1.02)	0.996 (0.98-1.01)	1.00 (0.99-1.02)	0.99 (0.97-1.01)
Sex (men as reference)	1.52 (1.39-1.66)	1.80 (1.51-2.14)	1.58 (1.33-1.86)	1.59 (1.29-1.96)	1.41 (1.16-1.73)
Calendar year	1.02 (1.02-1.03)	1.02 (1.00-1.03)	1.02 (1.01-1.03)	1.02 (0.97-1.04)	0.99 (0.99-1.00)
HbA <sub>1c</sub> (%)	1.06 (1.03-1.09)	1.10 (1.04-1.16)	1.07 (1.02-1.13)	0.96 (0.90-1.01)	1.05 (0.99-1.12)
eGFR/ 10 unit decrease	1.02 (0.99-1.05)	0.99 (0.94-1.04)	1.01 (0.98-1.00)	NA	NA
Smoking #	1.09 (1.00-1.16)	1.04 (0.88-1.24)	1.13 (0.96-1.33)	1.10 (0.90-1.36)	1.10 (0.91-1.33)

# Non-smokers as reference. eGFR, estimated glomerular filtration rate; NA, not applicable.

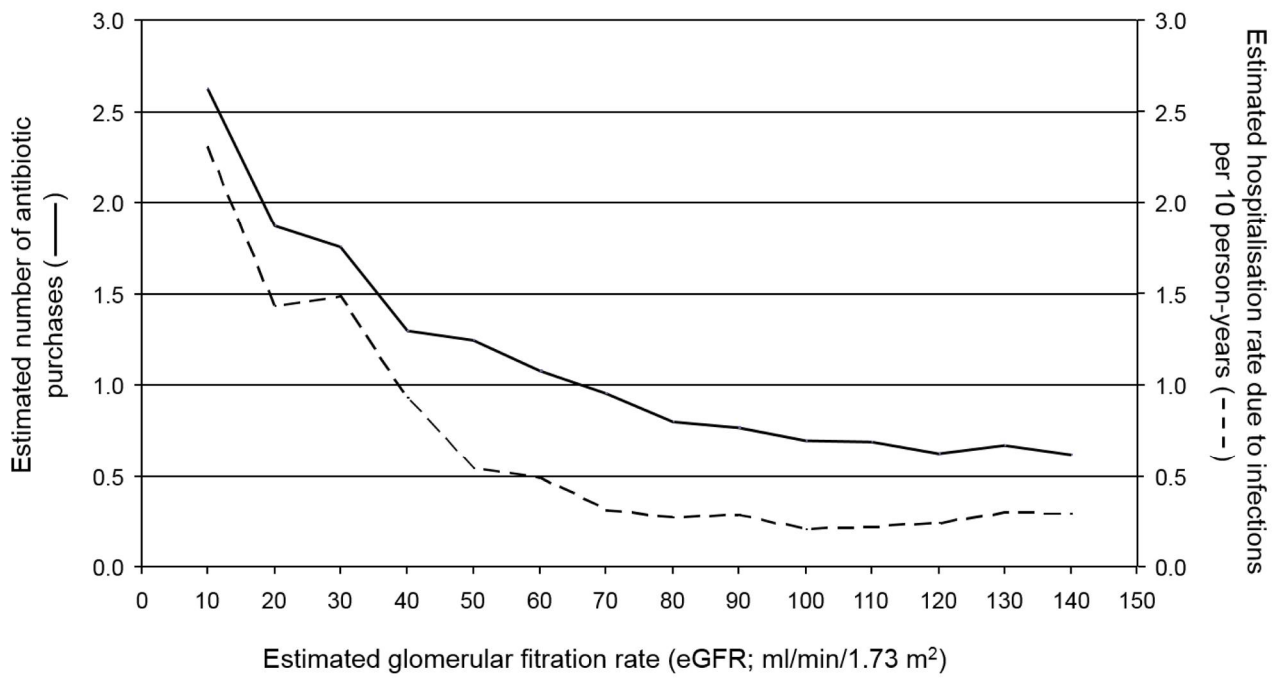
**Supplementary Figure 1.** Estimated rate of hospitalisation due to bacterial infections per 1000 person-years in patients with type 1 diabetes at different stages of nephropathy and in non-diabetic control subjects, between 1998-2009.



**Supplementary Figure 2.** Estimated number of antibiotic purchases per patient in patients with type 1 diabetes at different stages of nephropathy and in non-diabetic control subjects, between 1998-2009.



**Supplementary Figure 3.** Estimated rates of antibiotic purchases and hospitalisations due to bacterial infections according to eGFR in patients with type 1 diabetes.



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