SUPPLEMENTAL MATERIALS

KIDNEY FUNCTION AND THE RISK OF COMMUNITY ACQUIRED INFECTIONS.

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Supplemental Material S1: Construction of ICD-10-CM algorithms for site-specific community-acquired infections.

The specific algorithms of ICD-10-CM codes for the families of lower respiratory tract infections and sepsis were kindly provided by the authors of recent validation analyses (PLoS One. 2013 Sep 11; 8 (9):e75131; and Diabet Med. 2014 May; 31(5):606-14). For other infection families, we inspected previously-published algorithms and whenever necessary utilized online conversion calculators for previous versions into ICD-10-CM coding. Verification and/or possible expansion of the considered codes were done by Dr. Khaled Mzayen, and the resulting list was reviewed cross-checked again by Dr. Guobin Su. When discrepancies between both assessments were found, a third reviewer, Dr. Hong Xu, was involved for final composition of the codes listed in Supplementary Table S1.

Supplementary Table S1: List of ICD-10 codes and corresponding family considered Community-Acquired-Infections

Infection categories	ICD-10 codes
Upper respiratory tract infections	A360, A361, A362, A368, A369, B002, B085, B442, J00, J010, J011, J012, J013, J014, J018, J019, J020, J028, J029, J030, J038, J039, J040, J050, J051, J060, J068, J069, J340, J390, J391
Lower respiratory tract infections	A065, A202, A212, A221, A310, A37, A420, A430, A481, B012, B052, B250, B334, B371, B380, B382, B392, B402, B410, B420, B440, B441, B450, B460, B481, B960, J041, J042, J09, J10, J100, J101, J108, J11, J110, J111, J118, J12, J120, J121, J122, J128, J129, J13, J14, J15, J151, J152, J153, J154, J155, J156, J157, J158, J159, J16, J160, J168, J17, J18, J181, J182, J188, J189, J200, J201, J202, J203, J204, J205, J206, J207, J208, J209, J210, J218, J219, J22, J40, J411, J440, J47, J850, J851, J852, J853, J860, J869, U04, U049
Gastro-intestinal tract infections	A000, A001, A009, A010, A011, A012, A013, A014, A020, A030, A031, A032, A033, A038, A039, A040, A041, A042, A043, A044, A045, A046, A047, A048, A049, A050, A051, A052, A053, A054, A058, A059, A060, A062, A063, A064, A070, A071, A072, A073, A078, A079, A080, A081, A082, A083, A084, A085, A090, A099, A213, A222, A421, B054, B150, B159, B160, B161, B162, B169, B170, B171, B172, B178, B179, B190, B199, B251, B258, B462, K350, K351, K359, K36, K37, K570, K572, K574, K578, K610, K611, K612, K613, K614, K630, K650, K659, K750, K810, K818, K819, K521, K658, K830
Urinary tract infections	N10, N12, N136, N151, N159, N160, N300, N303, N308, N309, N340, N341, N342, N343, N390
Skin and soft tissues infections	A067, A201, A220, A260, A268, A269, A311, A320, A363, A431, A441, A46, A480, B000, B001, B029, B07, B088, B09, B350, B351, B352, B353, B354, B355, B356, B358, B359, B360, B361, B362, B363, B368, B369, B372, B383, B403, B421, B430, B432, B452, B463, B480, L00, L010, L011, L020, L021, L022, L023, L024, L028, L029, L030, L031, L032, L033, L038, L039, L040, L041, L042, L043, L048, L049, L050, L059, L080, L081, L088, L089, L303, L700, L702, L732, L401, L403, L84, L88, L980, R02
Nervous system infections	A066, A203, A321, A390, A83, A830, A84, A85, A86, A87, A870, A871, A872, A878, A879, A888, A89, B003, B004, B010, B011, B020, B021, B022, B050, B051, B060, B261, B262, B375, B384, B431, B451, B461, G000, G001, G002, G003, G008, G009, G040, G042, G060, G061, G062, G937, F059, G039, G048, G049, G629
Sepsis	A021, A207, A227, A241, A267, A327, A391, A392, A394, A400, A401, A402, A403, A408, A409, A410, A411, A412, A413, A414, A415, A418, A419, A427, A483, B007, B377, R651, R650, R652, U049
Musculoskeletal system infections	M000, M001, M002, M008, M009, M462, M463, M465, M600, M650, M651, M710, M711, M860, M861, M862, M868, M869, M468
Cardio-vascular system infections	A395, B332, B376, I010, I011, I012, I018, I019, I301, I32, I330, I39, I400, I410, I411, I412, I430

Supplemental Table S2. List of ICD-10 and ATC codes of covariates.

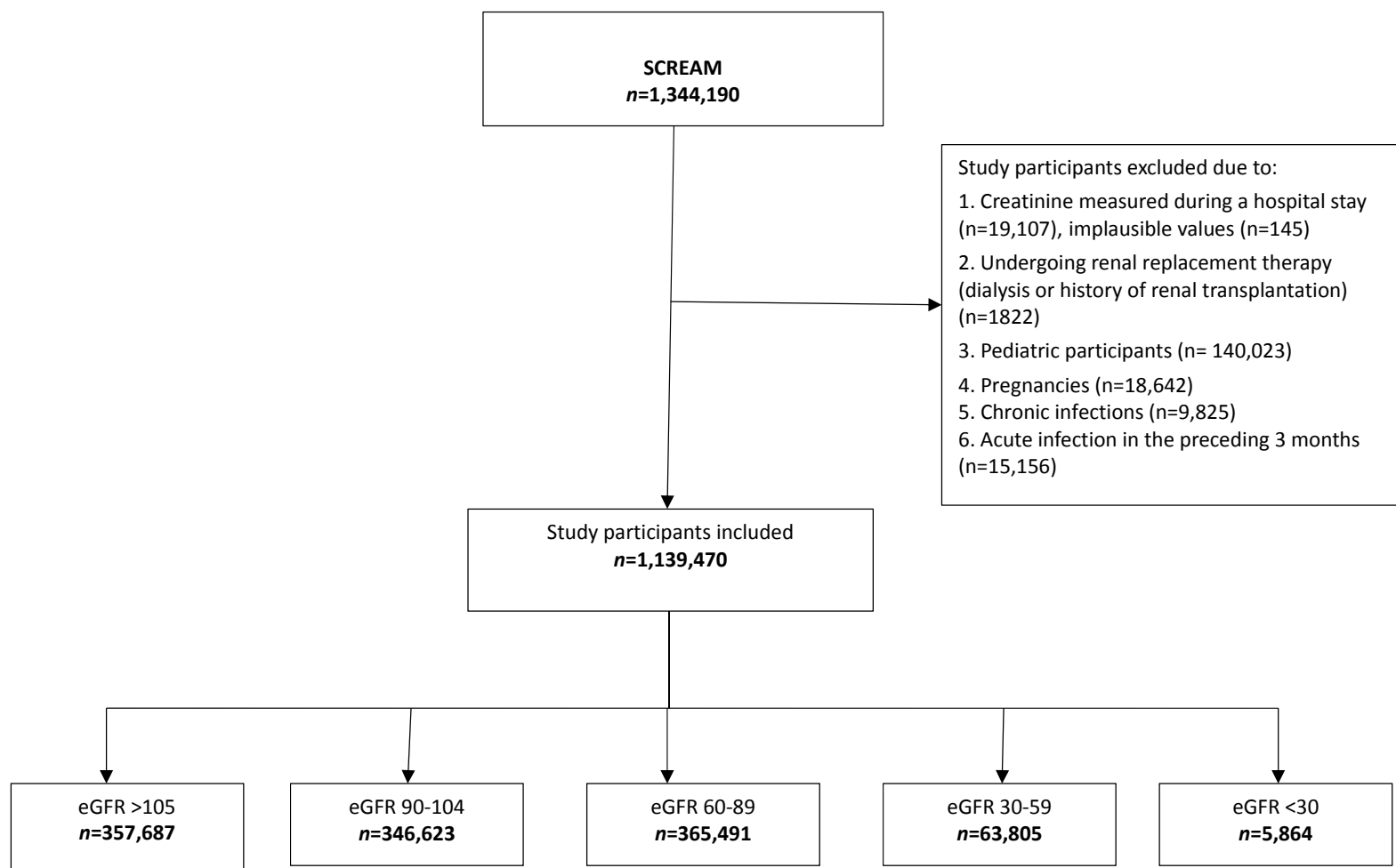| Covariates	ICD-10 codes	ATC codes
Recent or current use of medications		
Use of immunosuppressive drugs		L04
Antibiotics		J01,D06AA, D06AX
Antimycotic		J02
Antivirals		J05
Medical history		
Hypertension	I10-15	C03, C07, C08, C09
Cardiovascular disease		
Myocardial infarction	I21, I22, I252	
Congestive heart failure	I099, I110, I130, I132, I255, I420, I425-429, I43, I50, P290	
Peripheral vascular disease	I70, I71, I731, I738, I739, I771, I790, I792, K551, K558, K559, Z958, Z959	
Cerebrovascular disease	G45-46, H340, I60-69	
Diabetes mellitus	E10-14	A10A, A10B
Cancer	Any malignancy, including lymphoma and leukemia (C00-C26, C30-C34, C37-C41, C43, C45-C58, C60-C76, C81-C85, C88, C90-C97) OR Metastatic solid tumor (C77-C80)	
Chronic obstructive pulmonary disease	I278, I279, J40-47, J60-67, J684, J701, J703	
Rheumatic disease	M05, M06, M315, M32-M34, M351, M353, M360	
Dementia	F00-F03, F051, G30, G311	
Peptic ulcer disease	K25-K28	
Liver disease	Mild (B18, K700-K703, K709, K713-K715, K717, K73, K74, K760, K762-K764, K768, K769, Z944) OR moderate/severe (I850, I859, I864, I982, K704, K711, K721, K729, K765, K766, K767)	
Hemiplegia or paraplegia	G041, G114, G801, G802, G81, G82, G830-G834, G839	

Supplementary Table S3: List of ICD-10 codes considered hospital-acquired-infections

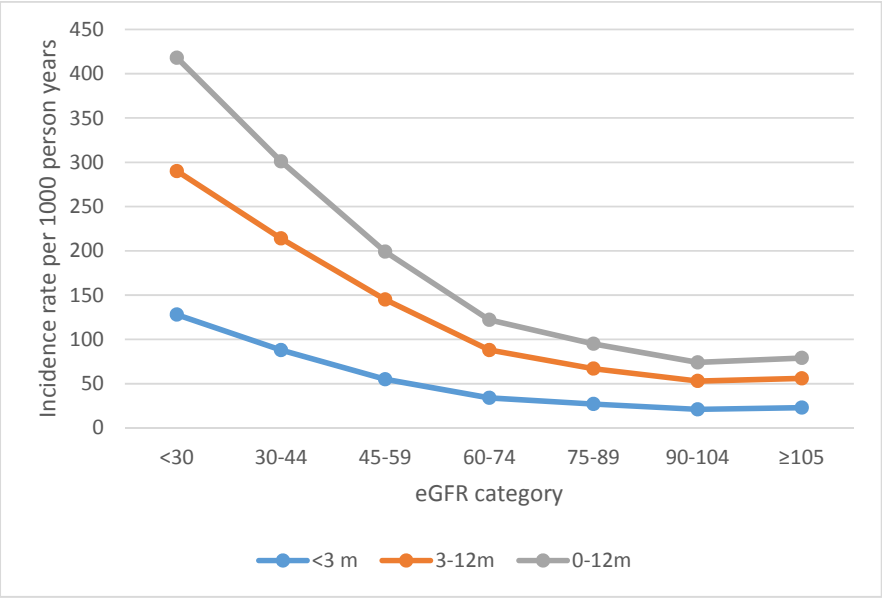| Hospital-acquired-infections	ICD-10 codes
Central Line-associated Bloodstream Infection	T80.2 T80.21 T80.211 T80.212 T80.218 T80.219
Catheter-associated Urinary Tract Infections	T82.6 T82.7 T83.5 T83.6 T84.5 T84.6 T84.7 T85.7
Ventilator-associated Pneumonia	J95.851
Surgical site infections	T81.4 T87.4 T79.3 T88.0 O85 O86

Supplementary Table S4: Number of type-specific infections and incidence rates overall and by eGFR (ml/min/1.73 m^2) categories within 12 months of follow up.

Counts of infections [incidence rate /1000 person-years (95% CI)]	eGFR ≥ 105 (n = 357,687)	eGFR 90-104 (n = 346,623)	eGFR 60-89 (n = 365,491)	eGFR 30-59 (n = 63,805)	eGFR < 30 (n = 5,864)	Total (n = 1,139,470)
All-type infections	28,097 [79 (78-80)]	25,362 [74(73-74)]	37,394 [103(102-105)]	13,850 [227(223-230)]	2,104 [419(401-436)]	106,807 [95(94-95)]
Type-specific infections						
Respiratory tract	8,025 [23(22-23)]	7,095 [21(20-21)]	10,088 [28(27-28)]	3,673 [60(58-62)]	553 [110(101-119)]	29,434 [26(25-26)]
Upper respiratory tract	5,246 [15(14-15)]	3,309 [10(9-10)]	2,822 [8(7-8)]	454 [7(7-8)]	36 [7(5-10)]	11,867 [11(10-11)]
Lower respiratory tract	2,779 [8(7-8)]	3,786 [11(10-11)]	7,266 [20(20-21)]	3,219 [53(51-54)]	517 [103(94-112)]	17,567 [15(15-16)]
Gastro-intestinal tract	3,551 [10(9-10)]	2,863 [8(8-9)]	3,540 [10(9-10)]	1,231 [20(19-21)]	180 [36(31-41)]	11,365 [10(9-10)]
Urinary tract	4,762 [13(13-14)]	4,072 [12(11-12)]	8,904 [25(24-25)]	4,635 [76(74-78)]	794 [158(147-169)]	23,167 [21(20-21)]
Skin and soft tissue	9,818 [28(27-28)]	8,526 [25(24-25)]	10,229 [28(28-29)]	2,629 [43(41-45)]	310 [62(55-69)]	31,512 [28(27-28)]
Nervous system	650 [2(1-2)]	1260 [4(3-4)]	2136 [6(5-6)]	624 [10(9-11)]	58 [12(9-15)]	4,728 [4(4-5)]
Sepsis	341 [1(0-1)]	703 [2(1-2)]	1,513 [4(3-4)]	737 [12(11-13)]	155 [31(26-36)]	3,449 [3(2-3)]
Musculoskeletal system	878 [3(2-3)]	784 [2(2-3)]	889 [3(2-3)]	291 [5(4-5)]	50 [10(7-13)]	2,892 [2.6 (2-3)]
Cardiovascular system	72 [0.2(0.1-0.2)]	59 [0.2(0.1-0.2)]	95 [0.3(0.2-0.3)]	30 [0.5(0.3-0.7)]	4 [0.8(0.1-1.6)]	260 [0.2(0.2-0.3)]

SCREAM
n=1,344,190

Study participants excluded due to:

1. Creatinine measured during a hospital stay (n=19,107), implausible values (n=145)

2. Undergoing renal replacement therapy (dialysis or history of renal transplantation) (n=1822)

3. Pediatric participants (n= 140,023)

4. Pregnancies (n=18,642)
5. Chronic infections (n=9,825)
6. Acute infection in the preceding 3 months (n=15,156)

Study participants included
n=1,139,470

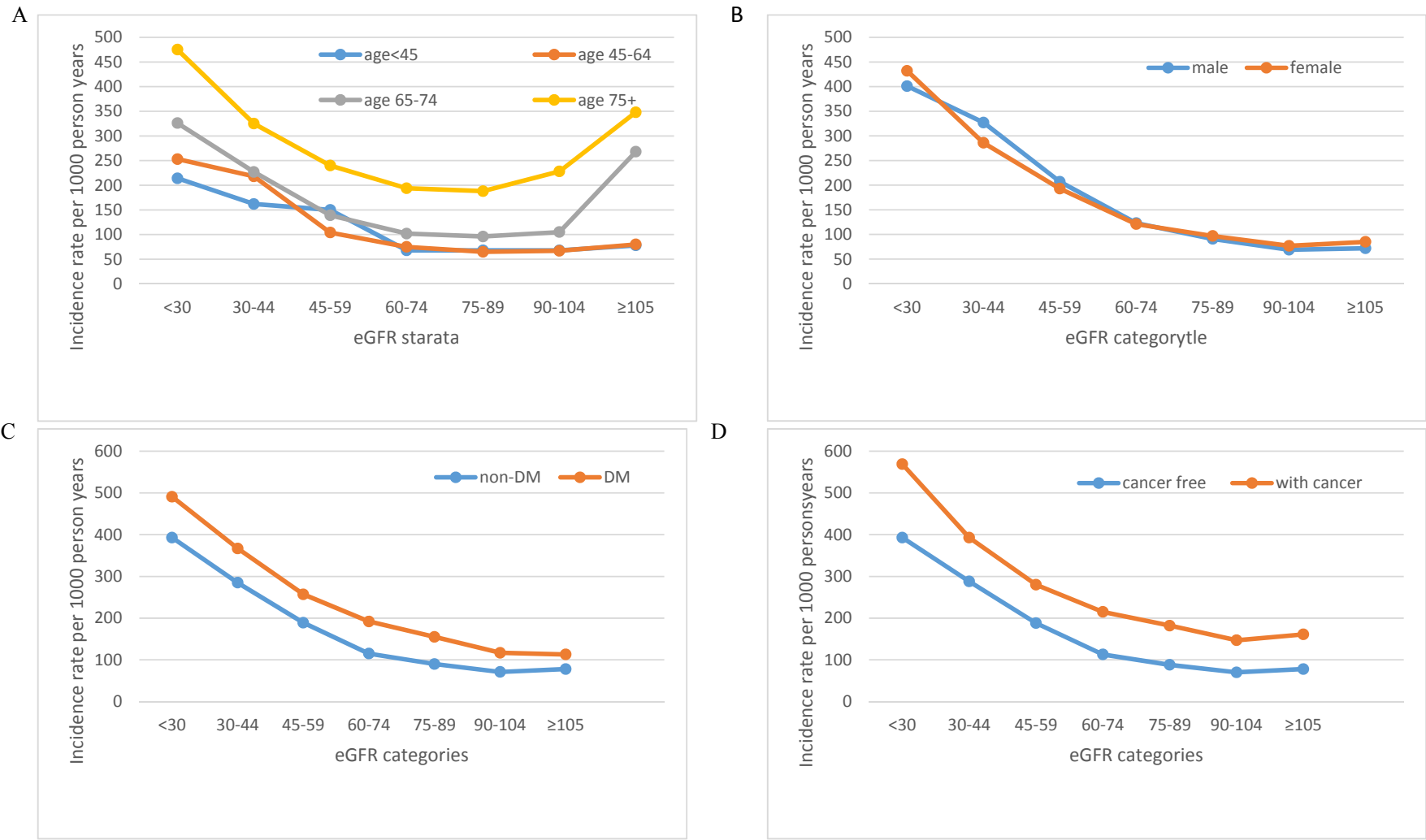| eGFR >105	eGFR 90-104	eGFR 60-89	eGFR 30-59	eGFR <30
n=357,687	*n=346,623*	*n=365,491*	*n=63,805*	*n=5,864*

Supplementary Figure S1: Overall study design and analytical cohort selection. Abbreviations: SCREAM, Stockholm CREAtinine Measurements; eGFR, estimated glomerular filtration rate, expressed as ml/min/1.73 m^2.

Supplementary Figure S2: Incidence rate of infections (any type) across eGFR strata within 3 months, 3-12 months and 12 months of follow up.

Supplementary Figure S3: Incidence rate of infections (any type) across eGFR strata within 12 months stratified by A) age, B) sex, C) diabetes, and D) cancer status.