An analysis of diabetes mortality risk

Tables and Figures

by B. Grechuk*, A. Gorban, E. Mirkes, Scott Reid

Institute and Faculty of Actuaries

February 2026

Table 1. Table Patient, green background highlighted unique identifier field, yellow background corresponds to field linked to another table

Column name	Field name	Description	Mapping	Type	Format
Patient Identifier	patid	Encrypted unique identifier given to a patient in CPRD GOLD	None	TEXT	20
VAMP Identifier	vmid	Old VM id for the patient when the practice was using the VAMP system	None	INTEGER	20
Patient Gender	gender	Patient's gender	Lookup SEX	INTEGER	1
Birth Year	yob	Patient's year of birth. This is actual year of birth e.g. 1984	None	INTEGER	4
Birth Month	mob	Patient's month of birth (for those aged under 16). 0 indicates no month set	None	INTEGER	2
Marital Status	marital	Patient's current marital status	Lookup MAR	INTEGER	3
Family Number	famnum	Family ID number	None	INTEGER	20
CHS Registered	chsreg	Value to indicate whether the patient is registered with Child Health Surveillance	Lookup Y_N	INTEGER	1
CHS Registration Date	chsdate	Date of registration with Child Health Surveillance	DD/MM/YYYY	DATE	DD/MM/YYYY
Prescription Exemption	prescr	Type of prescribing exemption the patient has currently (e.g. medical / maternity)	Lookup PEX	INTEGER	3
Capitation Supplement	capsup	Level of capitation supplement the patient has currently (e.g. low, medium, high)	Lookup CAP	INTEGER	3
First Registration Date	frd	Date the patient first registered with the practice. If patient only has 'temporary' records, the date is the first encounter with the practice; if patient has 'permanent' records it is the date of the first 'permanent' record (excluding preceding temporary records)	DD/MM/YYYY	DATE	DD/MM/YYYY
Current Registration Date	crd	Date the patient's current period of registration with the practice began (date of the first 'permanent' record after the latest transferred out period). If there are no 'transferred out periods', the date is equal to 'frd'	DD/MM/YYYY	DATE	DD/MM/YYYY
Registration Status	regstat	Status of registration detailing gaps and temporary patients	PAT_STAT1	INTEGER	2
Registration Gaps	reggap	Number of days missing in the patient's registration details	PAT_GAP2	INTEGER	5
Internal Transfer	internal	Number of internal transfer out periods, in the patient's registration details	None	INTEGER	2
Transfer Out Date	tod	Date the patient transferred out of the practice, if relevant. Empty for patients who have not transferred out	DD/MM/YYYY	DATE	DD/MM/YYYY
Transfer Out Reason	toreason	Reason the patient transferred out of the practice. Includes 'Death' as an option	Lookup TRA	INTEGER	3

Column name	Field name	Description	Mapping	Type	Format
Death Date	deathdate	Date of death of patient – derived using a CPRD algorithm	DD/MM/YYYY	DATE	DD/MM/YYYY
Acceptable Patient Flag	accept	Flag to indicate whether the patient has met certain quality standards: 1 = acceptable, 0 = unacceptable	Boolean	INTEGER	1

Table 2. Table Practice, green background highlighted unique identifier field, yellow background corresponds to field linked to another table

Column name	Field name	Description	Mapping	Type	Format
Practice identifier	pracid	Encrypted unique identifier given to a specific practice in CPRD GOLD	None	INTEGER	5
Region	region	Value to indicate where in the UK the practice is based. The region denotes the Strategic Health Authority for practices within England, and the country i.e. Wales, Scotland, or Northern Ireland for the rest	Lookup PRG	INTEGER	3
Last Collection Date	lcd	Date of the last collection for the practice	DD/MM/YYYY	DATE	DD/MM/YYYY
Up-to-standard date	uts	Date at which the practice data is deemed to be of research quality. Derived using a CPRD algorithm that primarily looks at practice death recording and gaps in the data	DD/MM/YYYY	DATE	DD/MM/YYYY

Table 3. Table Staff, green background highlighted unique identifier field, yellow background corresponds to field linked to another table

Column name	Field name	Description	Mapping	Type	Format
Staff Identifier	staffid	Encrypted unique identifier given to the practice staff member entering the data	None	INTEGER	20
Staff Gender	gender	Staff member's gender	Lookup SEX	INTEGER	1
Staff Role	role	Role of the member of staff who created the event	Lookup ROL	INTEGER	3

Table 4. Table Consultation, green background highlighted unique identifier field, yellow background corresponds to field linked to another table, red background corresponds to missing link

Column name	Field name	Description	Mapping	Type	Format
Patient Identifier	patid	Encrypted unique identifier given to a patient in CPRD GOLD	None	TEXT	20
Event Date	eventdate	Date associated with the event, as entered by the GP	DD/MM/YYYY	DATE	DD/MM/YYYY
System Date	sysdate	Date the event was entered into Vision	DD/MM/YYYY	DATE	DD/MM/YYYY
Consultation Type	constype	Type of consultation (e.g. Surgery Consultation, Night Visit, Emergency etc.)	Lookup COT	INTEGER	3
Consultation Identifier	consid	The consultation identifier linking events at the same consultation, when used in combination with pracid	Link **Event** tables	INTEGER	20
Staff Identifier	staffid	The identifier of the practice staff member entering the data. A value of 0 indicates that the staffid is unknown	Link **Staff** table	INTEGER	20
Duration	duration	The length of time (minutes) between the opening, and closing of the consultation record	None	INTEGER	10

Table 5. Table Clinical, green background highlighted unique identifier field, yellow background corresponds to field linked to another table, red background corresponds to missing link

Column name	Field name	Description	Mapping	Type	Format
Patient Identifier	patid	Encrypted unique identifier given to a patient in CPRD GOLD	None	TEXT	20
Event Date	eventdate	Date associated with the event, as entered by the GP	DD/MM/YYYY	DATE	DD/MM/YYYY
System Date	sysdate	Date the event was entered into Vision	DD/MM/YYYY	DATE	DD/MM/YYYY

Column name	Field name	Description	Mapping	Type	Format
Consultation Type	constype	Code for the category of event recorded within the GP system (e.g. diagnosis or symptom)	Lookup SED	INTEGER	3
Consultation Identifier	consid	Identifier that allows information about the consultation to be retrieved, when used in combination with pracid	Link **Consultation** table	INTEGER	20
Medical Code	medcode	CPRD unique code for the medical term selected by the GP	Lookup Medical Dictionary	INTEGER	20
Staff Identifier	staffid	Identifier of the practice staff member entering the data. A value of 0 indicates that the staffid is unknown	Link **Staff** table	INTEGER	20
Episode	episode	Episode type for a specific clinical event	Lookup EPI	INTEGER	3
Entity Type	enttype	Identifier that represents the structured data area in Vision where the data was entered	Lookup Entity	INTEGER	5
Additional Details Identifier	adid	Identifier that allows additional information to be retrieved for this event, when used in combination with pracid. A value of 0 signifies that there is no additional information associated with the event.	Link **Additional Clinical Details** table	INTEGER	20

Table 6. Table Additional Clinical Details, green background highlighted unique identifier field, yellow background corresponds to field linked to another table, red background corresponds to missing link

Column name	Field name	Description	Mapping	Type	Format
Patient Identifier	patid	Encrypted unique identifier given to a patient in CPRD GOLD	None	TEXT	20
Entity Type	enttype	Identifier that represents the structured data area in Vision where the data was entered	Lookup Entity	INTEGER	5

Column name	Field name	Description	Mapping	Type	Format
Additional Details Identifier	adid	Identifier that allows information about the original clinical event to be retrieved, when used in combination with pracid	Link **Clinical** table	INTEGER	20
Data 1	data1	Depends on entity type ▯	Lookup Entity	NUMERIC DATE	15.3 DD/MM/YYYY
Data 2	data2	Depends on entity type ▯	Lookup Entity	NUMERIC DATE	15.3 DD/MM/YYYY
Data 3	data3	Depends on entity type ▯	Lookup Entity	NUMERIC DATE	15.3 DD/MM/YYYY
Data 4	data4	Depends on entity type ▯	Lookup Entity	INTEGER DATE	12 DD/MM/YYYY
Data 5	data5	Depends on entity type ▯	Lookup Entity	INTEGER DATE	12 DD/MM/YYYY
Data 6	data6	Depends on entity type ▯	Lookup Entity	INTEGER DATE	12 DD/MM/YYYY
Data 7	data7	Depends on entity type ▯	Lookup Entity	INTEGER DATE	4 DD/MM/YYYY

Table 7. Table Referral, green background highlighted unique identifier field, yellow background corresponds to field linked to another table, red background corresponds to missing link

Column name	Field name	Description	Mapping	Type	Format
Patient Identifier	patid	Encrypted unique identifier given to a patient in CPRD GOLD	None	TEXT	20
Event Date	eventdate	Date associated with the event, as entered by the GP	DD/MM/YYYY	DATE	DD/MM/YYYY
System Date	sysdate	Date the event was entered into Vision	DD/MM/YYYY	DATE	DD/MM/YYYY
Consultation Type	constype	Code for the category of event recorded within the GP system (e.g. management or administration)	Lookup SED	INTEGER	3
Consultation Identifier	consid	Identifier that allows information about the consultation to be retrieved, when used in combination with pracid	Link **Consultation** table	INTEGER	20
Medical Code	medcode	CPRD unique code for the medical term selected by the GP	Lookup Medical Dictionary	INTEGER	20
Staff Identifier	staffid	Identifier of the practice staff member entering the data. A value of 0 indicates that the staffid is unknown	Link **Staff** table	INTEGER	20
Source	source	Classification of the source of the referral e.g. GP, Self	Lookup SOU	INTEGER	2
NHS Speciality	nhsspec	Referral speciality according to the National Health Service (NHS) classification	Lookup DEP	INTEGER	3
FHSA Speciality	fhsaspec	Referral speciality according to the Family Health Services Authority (FHSA) classification	Lookup SPE	INTEGER	3
In Patient	inpatient	Classification of the type of referral, e.g. Day case, In patient	Lookup RFT	INTEGER	2
Attendance Type	attendance	Category describing whether the referral event is the first visit, a follow-up etc.	Lookup ATT	INTEGER	2
Urgency	urgency	Classification of the urgency of the referral e.g. Routine, Urgent	Lookup URG	INTEGER	2

Table 8. Table Immunisation, green background highlighted unique identifier field, yellow background corresponds to field linked to another table, red background corresponds to missing link

Column name	Field name	Description	Mapping	Type	Format
Patient Identifier	patid	Encrypted unique identifier given to a patient in CPRD GOLD	None	TEXT	20
Event Date	eventdate	Date associated with the event, as entered by the GP	DD/MM/YYYY	DATE	DD/MM/YYYY
System Date	sysdate	Date the event was entered into Vision	DD/MM/YYYY	DATE	DD/MM/YYYY
Consultation Type	constype	Code for the category of event recorded within the GP system (e.g. intervention)	Lookup SED	INTEGER	3
Consultation Identifier	consid	Identifier that allows information about the consultation to be retrieved, when used in combination with pracid	Link **Consultation** table	INTEGER	20
Medical Code	medcode	CPRD unique code for the medical term selected by the GP	Lookup Medical Dictionary	INTEGER	20
Staff Identifier	staffid	Identifier of the practice staff member entering the data. A value of 0 indicates that the staffid is unknown	Link **Staff** table	INTEGER	20
Type	immstype	Individual components of an immunisation, e.g. Mumps, Rubella, Measles	Lookup IMT	INTEGER	4
Stage	stage	Stage of the immunisation given, e.g. 1, 2, B2	Lookup IST	INTEGER	2
Status	status	Status of the immunisation e.g. Advised, Given, Refusal	Lookup IMM	INTEGER	3
Compound	compound	Immunisation compound administered – may be a single or multi-component preparation, e.g. MMR	Lookup IMC	INTEGER	4
Source	source	Location where the immunisation was administered, e.g. In this practice	Lookup INP	INTEGER	3
Reason	reason	Reason for administering the immunisation, e.g. Routine measure	Lookup RIN	INTEGER	3

Column name	Field name	Description	Mapping	Type	Format
Method	method	Route of administration for the immunisation, e.g. Oral, Intramuscular	Lookup IME	INTEGER	3
Batch Number	batch	Immunisation batch number	Lookup BatchNumber	INTEGER	20

Table 9. Table Test, green background highlighted unique identifier field, yellow background corresponds to field linked to another table, red background corresponds to missing link, fields with the same name have different meaning for different entities

Column name	Field name	Description	Mapping	Type	Format
Patient Identifier	patid	Encrypted unique identifier given to a patient in CPRD GOLD	None	TEXT	20
Event Date	eventdate	Date associated with the event, as entered by the GP	DD/MM/YYYY	DATE	DD/MM/YYYY
System Date	sysdate	Date the event was entered into Vision	DD/MM/YYYY	DATE	DD/MM/YYYY
Consultation Type	constype	Code for the category of event recorded within the GP system (e.g. examination)	Lookup SED	INTEGER	3
Consultation Identifier	consid	Identifier that allows information about the consultation to be retrieved, when used in combination with pracid	Link **Consultation** table	INTEGER	20
Medical Code	medcode	CPRD unique code for the medical term selected by the GP	Lookup Medical Dictionary	INTEGER	20
Staff Identifier	staffid	Identifier of the practice staff member entering the data. A value of 0 indicates that the staffid is unknown	Link **Staff** table	INTEGER	20
Entity Type	enttype	Identifier that represents the structured data area in Vision where the data was entered	Lookup Entity	INTEGER	5

Data 1	data1	Qualifier	Lookup TQU	INTEGER	3
Data 2	data2	Normal range from	None	NUMERIC	16.3
Data 3	data3	Normal range to	None	NUMERIC	16.3
Data 4	data4	Normal range basis	None	NUMERIC	16.3
Data 1	data1	Operator	Lookup OPR	INTEGER	3
Data 2	data2	Value	None	NUMERIC	16.3
Data 3	data3	Unit of measure	Lookup SUM	INTEGER	4
Data 4	data4	Qualifier	Lookup TQU	INTEGER	3
Data 5	data5	Normal range from	None	NUMERIC	16.3
Data 6	data6	Normal range to	None	NUMERIC	16.3
Data 7	data7	Normal range basis (or peak flow device for entity type 311)	Lookup POP (or PFD)	INTEGER	2
Data 1	data1	Operator	Lookup OPR	INTEGER	3
Data 2	data2	Value	None	NUMERIC	16.3
Data 3	data3	Unit of measure	Lookup SUM	INTEGER	4
Data 4	data4	Qualifier	Lookup TQU	INTEGER	3
Data 5	data5	Normal range from	None	NUMERIC	16.3
Data 6	data6	Normal range to	None	NUMERIC	16.3

| Data 7 | data7 | Normal range basis | Lookup POP | INTEGER | 2 |
| Data 8 | data8 | Expected delivery date (entity type 284) / Weeks (entity type 154) | DD/MM/YYYY None | DATE INTEGER | DD/MM/YYYY 10 |

Table 10. Table Therapy, green background highlighted unique identifier field, yellow background corresponds to field linked to another table, red background corresponds to missing link

Column name	Field name	Description	Mapping	Type	Format
Patient Identifier	patid	Encrypted unique identifier given to a patient in CPRD GOLD	None	TEXT	20
Event Date	eventdate	Date associated with the event, as entered by the GP	DD/MM/YYYY	DATE	DD/MM/YYYY
System Date	sysdate	Date the event was entered into Vision	DD/MM/YYYY	DATE	DD/MM/YYYY
Consultation Identifier	consid	Identifier that allows information about the consultation to be retrieved, when used in combination with pracid	Link **Consultation** table	INTEGER	20
Product Code	prodcode	CPRD unique code for the treatment selected by the GP	Lookup Product Dictionary	INTEGER	20
Staff Identifier	staffid	Identifier of the practice staff member entering the data. A value of 0 indicates that the staffid is unknown	Link **Staff** table	INTEGER	20
Dosage Identifier	dosageid	Identifier that allows dosage information on the event to be retrieved. Use the Common Dosages Lookup to obtain the anonymised dosage text and extracted numerical information such as daily dose.	Lookup Common Dosages	TEXT	64
BNF Code	bnfcode	Code representing the chapter & section from the British National Formulary for the product selected by GP	Lookup BNFCodes	INTEGER	5

Column name	Field name	Description	Mapping	Type	Format
Total Quantity	qty	Total quantity entered by the GP for the prescribed product	None	INTEGER	20
Number of Days	numdays	Number of treatment days prescribed for a specific therapy event	None	INTEGER	20
Number of Packs	numpacks	Number of individual product packs prescribed for a specific therapy event	None	INTEGER	8
Pack Type	packtype	Pack size or type of the prescribed product	Lookup PackType	INTEGER	10
Issue Sequence Number	issueseq	Number to indicate whether the event is associated with a repeat schedule. Value of 0 implies the event is not part of a repeat prescription. A value ^{3} 1 denotes the issue number for the prescription within a repeat schedule	None	INTEGER	20

Table 11. Links between fields, presented tables are highlighted by unique colours

Table	Primary key	Linked to						
Patient	patid	SEX	MAR	Y_N	PEX	CAP	TRA	
Practice	pracid	PRG						
Staff	staffid	SEX	ROL					
Consultation	consid	Patient	Event	Staff	COT			
Clinical		Patient	Consultation	Medical Dictionary	Staff	Entity	Additional Clinical Details	
		SED	EPI					
Additional Clinical Details	adid	Entity						
Referral		Patient	Consultation	Medical Dictionary	Staff	SED	SOU	
		RFT	ATT	URG	DEP	SPE		
Immunisation		Patient	Consultation	Medical Dictionary	Staff	SED	IMT	IST
		IMC	INP	BatchNumber	IME	RIN	IMM	
Test		Patient	Consultation	Medical Dictionary	Staff	Entity	SED	
		SUM	POP	PFD	TQU	OPR		
Therapy		Patient	Consultation	Product Dictionary	Staff	BNFCodes	PackType	Common Dosages

Table	Primary key	Linked to						
Medical dictionary	medcode							
Product dictionary	prodcode							
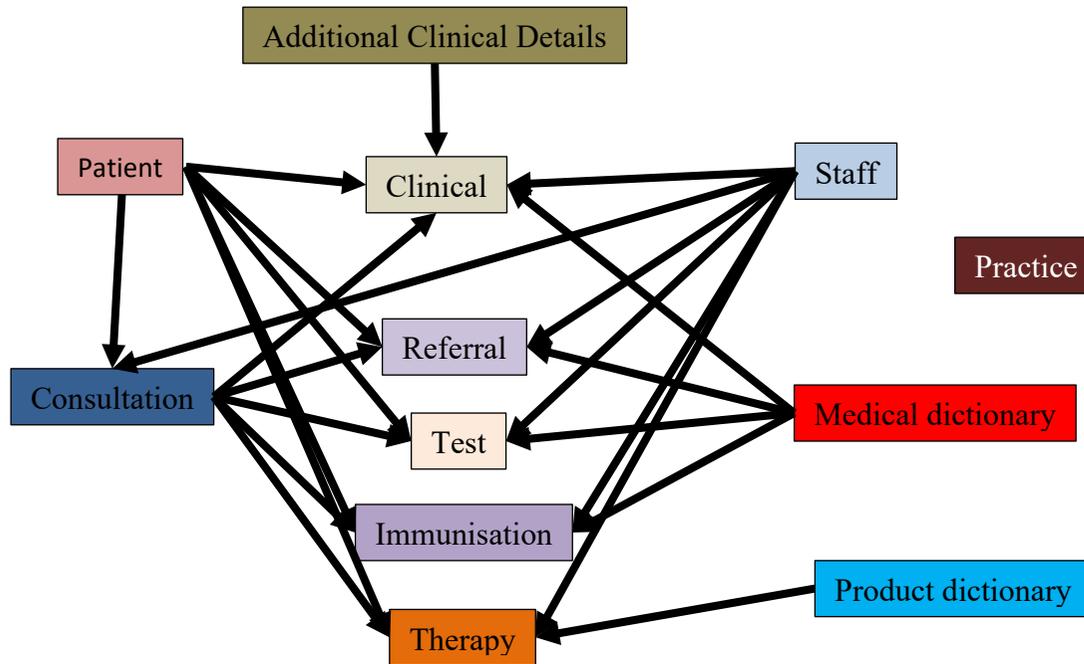
Figure 1. Table dependences: arrow go from table with list of object to table with reference to the first table

Table 12. Tables linked but not presented or described

Table	Patient	Practice	Staff	Consultation	Clinical	Additional Clinical Details	Referral	Immunisation	Test	Therapy
SEX	X		X							
MAR	X									
Y_N	X									
PEX	X									
CAP	X									
TRA	X									
PRG		X								
ROL			X							
COT				X						
SED					X		X	X	X	
EPI					X					
SOU							X			
RFT							X			
ATT							X			
URG							X			
DEP							X			
SPE							X			
IMT								X		
IST								X		
IMC								X		
INP								X		
BatchNumber								X		
IME								X		
RIN								X		
IMM								X		
SUM									X	
POP									X	
PFD									X	
TQU									X	
OPR									X	
BNFCodes										X
PackType										X
Common Dosages										X
Entity					X	X			X	

Table	Patient	Practice	Staff	Consultation	Clinical	Additional Clinical Details	Referral	Immunisation	Test	Therapy
Event				X						

Table 13. Table Medical dictionary, green background highlighted unique identifier field

Column name	Description	Mapping	Type	Format
medcode	CPRD unique code for the medical term selected by the GP	None	INTEGER	20
readcode	Read Code	None	TEXT	7
desc	Description of the medical term	None	TEXT	100

Table 14. Table Product dictionary, green background highlighted unique identifier field

Column name	Description	Mapping	Type	Format
prodcode	CPRD unique code for the treatment selected by the GP	None	INTEGER	20
dmdcode	Unique product identifier from the NHS Dictionary of Medicines and Devices (dm+d) – the NHS standard dictionary for products licensed in the UK	None	TEXT	100
gemscriptcode	Gemscript product code for the corresponding product name - should be treated as a string field as it contains leading '0''s	None	TEXT	8
productname	Product name as entered at the practice	None	TEXT	500
drugsubstance	Drug substance	None	TEXT	1500
strength	Strength of the product	None	TEXT	500
formulation	Form of the product e.g. tablets, capsules etc	None	TEXT	100
route	Route of administration of the product	None	TEXT	100
bnfcode	British National Formulary (BNF) code	None	TEXT	100

	bnfchapter	British National Formulary (BNF) chapter	None	TEXT	500

Table 15. Patient (hes_patient.txt)

Column	Description	Type	Format
patid	Encrypted unique key given to a patient in CPRD GOLD or CPRD Aurum [primary key]	INTEGER	20
pracid	Encrypted unique key given to a practice in CPRD GOLD or CPRD Aurum	INTEGER	5
gen_hesid	A CPRD generated unique key assigned to a patient across all CPRD linked HES datasets within a linkage set. An individual that has contributed data to more than one CPRD practice has the same gen_hesid but this may change between linkage sets	INTEGER	20
n_patid_hes	Number of individuals in CPRD GOLD or CPRD Aurum assigned the same gen_hesid. Linked HES data for patients where n_patid_hes is large (>20) may not be reliable. Users should consider excluding these patients from analysis.	INTEGER	3
gen_ethnicity	Ethnicity derived from HES data (including Admitted patient care, Outpatient, A&E, PROMs and DID)	CHAR	10
match_rank	Indicates the quality of matching between a record in HES and CPRD primary care data and gives the level of confidence that an HES record has been correctly matched to a patient in CPRD GOLD or CPRD Aurum.	INTEGER	1

Table 16. Hospitalisations (hes_hospital.txt)

Column	Description	Type	Format
patid	Encrypted unique key given to a patient in CPRD GOLD or CPRD Aurum [primary key, in combination with spno]	INTEGER	20
spno	Spell number uniquely identifying a hospitalisation [primary key, in combination with patid]	INTEGER	20
admidate	Date of admission	DATE	dd/mm/yyyy

discharged	Date of discharge	DATE	dd/mm/yyyy
admimeth3	Method of admission	CHAR	5
admisorc	Source of admission	INTEGER	3
disdest	Destination on discharge	INTEGER	3
dismeth	Method of discharge	INTEGER	1
duration4	Duration of hospitalisation spell in days	INTEGER	5
elecdate	Date of decision to admit patient	DATE	dd/mm/yyyy
elecdur	Waiting time (difference in days between elecdate and admidate)	INTEGER	5

Table 17. Episodes (hes_episodes.txt)

Column	Description	Type	Format
patid	Encrypted unique key given to a patient in CPRD GOLD or CPRD Aurum [primary key, in combination with epikey]	INTEGER	20
spno	Spell number uniquely identifying a hospitalisation	INTEGER	20
epikey5	Episode key uniquely identifying an episode of care [primary key, in combination with patid]	INTEGER	20
admidate	Date of admission	DATE	dd/mm/yyyy
epistart	Date of start of episode	DATE	dd/mm/yyyy
epiend	Date of end of episode	DATE	dd/mm/yyyy
discharged	Date of discharge	DATE	dd/mm/yyyy
eorder	Order of episode within spell	INTEGER	3

Column	Description	Type	Format
epidur6	Duration of episode in days	INTEGER	5
epitype	Type of episode (general, delivery, birth, psychiatric etc.)	INTEGER	1
admimeth3	Method of admission	CHAR	2
admisorc	Source of admission	INTEGER	2
disdest	Destination on discharge	INTEGER	2
dismeth	Method of discharge	INTEGER	1
mainspef	Speciality under which consultant is contracted	CHAR	3
tretspef	Speciality under which consultant is working in period of care	CHAR	3
pconsult	Consultant code (pseudonymised)	CHAR	16
intmanig	Intended management	INTEGER	1
classpat	Patient classification: (Actual Management) 1=Ordinary admission; 2=Day case admission; 3=Regular day attendee; 4=Regular night attendee; 5=Mothers and babies using only delivery facilities; 8=Not applicable (other maternity event)	INTEGER	1
firstreg	First regular day or night admission?	CHAR	2
ethnos	Patient ethnicity as recorded with the HES Admitted Patient Care episode	CHAR	10

Table 18. Diagnoses By episode (hes_diagnosis_epi.txt): ICD10 codes across an episode

Column	Description	Type	Format
patid	Encrypted unique key given to a patient in CPRD GOLD or CPRD Aurum [primary key, in combination with epikey & d_order]	INTEGER	20
spno	Number uniquely identifying a hospitalisation	INTEGER	20
epikey	Episode key uniquely identifying an episode of care [primary key, in combination with patid & d_order]	INTEGER	20
epistart	Start date of episode of care	DATE	dd/mm/yyyy
epiend	Date of end of episode	DATE	dd/mm/yyyy
ICD	An ICD10 diagnosis code in XXX or XXX.X format	CHAR	5
ICDx	5th/6th characters of the ICD code (if available)	CHAR	5
d_order	Ordering of diagnosis code in episode, within range 1-20 [primary key, in combination with patid & epikey]	INTEGER	2

Table 19. Diagnoses By hospitalisation (hes_diagnosis_hosp.txt): Unique ICD10 codes across a hospitalisation

Column	Description	Type	Format
patid	Encrypted unique key given to a patient in CPRD GOLD or CPRD Aurum [primary key, in combination with spno & ICD]	INTEGER	20
spno	Spell number uniquely identifying a hospitalisation [primary key, in combination with patid & ICD]	INTEGER	20
admidate	Date of admission	DATE	dd/mm/yyyy
discharged	Date of discharge	DATE	dd/mm/yyyy
ICD	An ICD10 diagnosis code in XXX or XXX.X format [primary key, in combination with patid & spno]	CHAR	5
ICDx	5th/6th characters of the ICD code (if available)	CHAR	5

Table 20. Primary diagnoses across a hospitalisation (hes_primary_diag_hosp.txt)

Column	Description	Type	Format
patid	Encrypted unique key given to a patient in CPRD GOLD or CPRD Aurum [primary key, in combination with spno & ICD_PRIMARY]	INTEGER	20
spno	Spell number uniquely identifying a hospitalisation [primary key, in combination with patid & ICD_PRIMARY]	INTEGER	20
admidate	Date of admission	DATE	dd/mm/yyyy
discharged	Date of discharge	DATE	dd/mm/yyyy
ICD_PRIMARY	Primary ICD10 diagnosis code in XXX or XXX.X format [primary key, in combination with patid & spno]	CHAR	5
ICDx	5th/6th characters of the ICD code (if available)	CHAR	5

Table 21. Procedures (hes_procedures_epi.txt)

Column	Description	Type	Format
patid	Encrypted unique key given to a patient in CPRD GOLD or CPRD Aurum [primary key, in combination with epikey & p_order]	INTEGER	20
spno	Spell number uniquely identifying a hospitalisation	INTEGER	20
epikey	Episode key uniquely identifying an episode of care [primary key, in combination with patid & p_order]	INTEGER	20
admidate	Date of admission	DATE	dd/mm/yyyy
epistart	Start date of episode of care	DATE	dd/mm/yyyy
epiend	Date of end of episode	DATE	dd/mm/yyyy
discharged	Date of discharge	DATE	dd/mm/yyyy

Column	Description	Type	Format
OPCS	An OPCS 4 procedure code	CHAR	4
evdate	Date of operation / procedure	DATE	dd/mm/yyyy
p_order	Ordering of OPCS code in episode, within range 1-24 [primary key, in combination with patid & epikey]	INTEGER	2

Table 22. Augmented Care Periods – ACP (hes_acp.txt). Data in these tables are collected from 01/10/1997 – 31/03/2006. Data continued to appear in HES until 31/03/2008. Please note that the coverage and quality of ACP data collected within HES across the entire period is uncertain. From 2008/2009 onward, augmented care period data was replaced by the critical care dataset.

Column	Description	Type	Format
patid	Encrypted unique key given to a patient in CPRD GOLD or CPRD Aurum [primary key, in combination with epikey]	INTEGER	20
spno	Spell number uniquely identifying a hospitalisation	INTEGER	20
epikey	Episode key uniquely identifying an episode of care [primary key, in combination with patid]	INTEGER	20
epistart	Date of start of episode	DATE	dd/mm/yyyy
epiend	Date of end of episode	DATE	dd/mm/yyyy
eorder	Order of episode within spell	INTEGER	3
epidur	Duration of episode in days	INTEGER	5
numacp	Number of augmented care periods within episode	INTEGER	2
acpn	Order of an augmented care episode within a sequence of episodes that make up a period of augmented care	INTEGER	2
acpstar	Start date of a period of augmented care	DATE	dd/mm/yyyy
acpend	End date of a period of augmented care	DATE	dd/mm/yyyy

Column	Description	Type	Format
acpdur7	Duration of augmented care period in days	INTEGER	8
intdays	Number of days of intensive care in a period of augmented care	INTEGER	5
depdays	Number of days of high dependency care in a period of augmented care	INTEGER	5
acploc	Location of a patient during a period of augmented care	INTEGER	2
acpsour	Location of patient immediately before the period of augmented care	INTEGER	2
acpdisp	Destination of a discharged patient after a period of augmented care	INTEGER	2
acpout	Augmented care period outcome indicator	INTEGER	2
acpplan	Flag for whether ACP was planned in advance of admission to ACP location	CHAR	1
acpspef	Code for main specialty of consultant clinically managing the ACP	CHAR	3
orgsup	Number of organ support systems used (up to five) during an ACP	INTEGER	2
acpdqind	Augmented Care Period Quality Indicator (G = Good, P = Poor, R = Real V = Very Good)	CHAR	1

Table 23. Critical Care (hes_ccare.txt). Data in these tables are collected from 2008/2009 onward.

Column	Description	Type	Format
patid	Encrypted unique key given to a patient in CPRD GOLD or CPRD Aurum [primary key, in combination with epikey]	INTEGER	20
spno	Spell number uniquely identifying a hospitalisation	INTEGER	20
epikey	Episode key uniquely identifying an episode of care [primary key, in combination with patid]	INTEGER	20
admidate	Date of admission	DATE	dd/mm/yyyy

Column	Description	Type	Format
discharged	Date of discharge	DATE	dd/mm/yyyy
epistart	Date of start of episode	DATE	dd/mm/yyyy
epiend	Date of end of episode	DATE	dd/mm/yyyy
eorder	Order of episode within spell	INTEGER	3
ccstartdate	Date on which the critical care period started	DATE	dd/mm/yyyy
ccstarttime	Time at which the critical care period started	CHAR	8
ccdisrdydate	Critical care discharge ready date	DATE	dd/mm/yyyy
ccdisrdytime	Critical care discharge ready time	CHAR	8
ccdisdate	Critical care discharge date	DATE	dd/mm/yyyy
ccdistime	Critical care discharge time	CHAR	8
ccadmitype	Critical care admission type	INTEGER	2
ccadmisorc	Critical care admission source	INTEGER	2
ccsorcloc	Specific location in the admission source	INTEGER	2
ccdisstat	Patient's status at time of discharge	INTEGER	2
ccdisdest	Critical care discharge destination	INTEGER	2
ccdisloc	Principle location the patient is being discharged to for further care	INTEGER	2
cclev2days	Total calendar days during which level 2 care alone was provided during the period	INTEGER	5

Column	Description	Type	Format
cclev3days	Total calendar days during which level 3 care was provided during the period	INTEGER	5
bcardsupdays	Number of days of basic cardiovascular support	INTEGER	5
acardsupdays	Number of days of advanced cardiovascular support	INTEGER	5
bressupdays	Number of days of basic respiratory support	INTEGER	5
aressupdays	Number of days of advanced respiratory support	INTEGER	5
gisupdays	Number of days of gastrointestinal support	INTEGER	5
liversupdays	Number of days of liver support	INTEGER	5
neurosupdays	Number of days of neurological support	INTEGER	5
rensupdays	Number of days of renal support	INTEGER	5
dermsupdays	Number of days of dermatological support	INTEGER	5
orgsupmax	Maximum number of organ systems supported at any one time, at any point in the critical care period	INTEGER	2
ccunitfun	Critical care unit function	INTEGER	2
unitbedconfig	Critical care unit bed configuration	INTEGER	2
bestmatch	Flag stating whether the row represents the best match between the critical care & episode start & end dates for this critical care period	INTEGER	2
ccapcrel	Comparison of dates of the critical care period and the associated inpatient episode. Used in derivation of the 'bestmatch' field	INTEGER	2

Table 24. Maternity (hes_maternity.txt)

Column	Description	Type	Format
patid	Encrypted unique key given to a patient in CPRD GOLD or CPRD Aurum [primary key, in combination with epikey]	INTEGER	20
spno	Spell number uniquely identifying a hospitalisation	INTEGER	20
epikey	Episode key uniquely identifying an episode of care [primary key, in combination with patid]	INTEGER	20
epistart	Date of start of episode	DATE	dd/mm/yyyy
epiend	Date of end of episode	DATE	dd/mm/yyyy
eorder	Order of episode within spell	INTEGER	3
epidur	Duration of episode in days	INTEGER	5
numbaby	Number of babies delivered at the end of a single pregnancy. Both live and stillborn babies are counted	CHAR	2
numtailb	Number of baby tails	INTEGER	1
matordr	Order of birth	INTEGER	1
neocare	Neonatal level of care	INTEGER	1
wellbaby	Well baby check flag - indicates whether the episode relates to a well-baby (a neonate receiving normal levels of care, usually given by a mother or mother substitute)	CHAR	1
anasdate	First antenatal assessment date	DATE	dd/mm/yyyy
birordr	The position in the sequence of births	CHAR	1
birstat	Indicates whether the baby was born alive or dead (still birth).	INTEGER	1
biresus	Identifies resuscitation method used to get the baby breathing	INTEGER	1

Column	Description	Type	Format
sexbaby	Sex of baby	CHAR	1
birweit	Weight of the baby in grams immediately after birth	INTEGER	4
delmeth	Method used to deliver a baby that is a registrable birth	CHAR	1
delonset	Method used to induce (initiate) labour, rather than to accelerate it	INTEGER	1
delinten	Intended type of delivery place	INTEGER	1
delplac	Actual type of delivery place	INTEGER	1
delchang	Reason for changing the delivery place type	INTEGER	1
delprean	Anaesthetic or analgesic administered before and during labour and delivery	INTEGER	1
delposan	Anaesthetic or analgesic administered after delivery	INTEGER	1
delstat	Status of the person conducting the delivery	INTEGER	1
anagest	Gestation period in weeks at the date of the first antenatal assessment (calculated from anasdate, gestat and dobbaby)	INTEGER	2
gestat	Length of gestation - number of completed weeks of gestation	INTEGER	2
numpreg	Number of previous pregnancies that resulted in a registered birth (live or still born)	INTEGER	2
matage	Mother's age at delivery	INTEGER	3
neodur	Baby's age in days	INTEGER	3
antedur	Antenatal days of stay	INTEGER	3
postdur	Postnatal days of stay	INTEGER	3

Table 25. Health Resource Group (hes_hrg.txt)

Column	Description	Type	Format
patid	Encrypted unique key given to a patient in CPRD GOLD or CPRD Aurum [primary key, in combination with epikey]	INTEGER	20
spno	Spell number uniquely identifying a hospitalisation	INTEGER	20
epikey	Episode key uniquely identifying an episode of care [primary key, in combination with patid]	INTEGER	20
domproc	NHS Trust derived dominant procedure	CHAR	5
hrglate35	HRG version 3.5 derived by HES	CHAR	4
hrgnhs	NHS Trust derived HRG value	CHAR	4
hrgnhsvn	Version number of Trust derived HRG	CHAR	3
suscorehrg	SUS8¥ generated Core Spell HRG	CHAR	3-5
sushrg	SUS8 generated HRG	CHAR	3-5
sushrgvers	SUS8 generated HRG version number	NUMERIC	3
hes_yr1	Year of HES record	NUMERIC	4

Table 26. Patient file (death_patient.txt)

Column name	Description	Type	Format
patid	Encrypted unique key given to a patient in CPRD GOLD or CPRD Aurum [primary key]	INTEGER	20
pracid	Encrypted unique key given to a practice in CPRD GOLD or CPRD Aurum	INTEGER	5

Column name	Description	Type	Format
gen_death_id	A generated unique key assigned to a patient in the death registration data. An individual that has contributed data to more than one CPRD practice has the same gen_death_id	INTEGER	20
n_patid_death	Number of individuals in CPRD GOLD or CPRD Aurum assigned the same gen_death_id	INTEGER	3
match_rank	Indicates the quality of matching between a record in death registration data and CPRD primary care data and gives the level of confidence that an ONS death registration record has been correctly matched to a patient in CPRD GOLD or CPRD Aurum.	INTEGER	1
dor	Date of registration of death	DATE	dd/mm/yyyy
dod	Date of death	DATE	dd/mm/yyyy
dod_partial	Partial date of death: where exact date of death is not known, a missing month or day is represented as '00'. This field is only used for some patients where the date of death is missing.	CHAR	YYYY-MM-DD
nhs_indicator	NHS establishment indicator for place of death: 0= elsewhere/at home; 1= NHS establishment; 2 = non-NHS establishment	INTEGER	1
pod_category	Indicates a category for the place of death	CHAR	255
cause	Underlying cause of death	CHAR	6
cause1	Cause of death mention ICD10 (non-neonatal deaths only)	CHAR	6
cause2	Cause of death mention ICD10 (non-neonatal deaths only)	CHAR	6
cause3	Cause of death mention ICD10 (non-neonatal deaths only)	CHAR	6

Column name	Description	Type	Format
cause4	Cause of death mention ICD10 (non-neonatal deaths only)	CHAR	6
cause5	Cause of death mention ICD10 (non-neonatal deaths only)	CHAR	6
cause6	Cause of death mention ICD10 (non-neonatal deaths only)	CHAR	6
cause7	Cause of death mention ICD10 (non-neonatal deaths only)	CHAR	6
cause8	Cause of death mention ICD10 (non-neonatal deaths only)	CHAR	6
cause9	Cause of death mention ICD10	CHAR	6

Table 27. patient_imd2015_20_000213.txt

Column name	Description	Type	Format
patid	The encrypted unique key given to a patient in CPRD GOLD or CPRD Aurum [primary key]	INTEGER	20
pracid	The encrypted unique key given to a practice in CPRD GOLD or CPRD Aurum	INTEGER	5
imd2015_5	IMD2015: quintile (1=LEAST deprived)	INTEGER	1

imd2015_10	IMD2015: decile (1=LEAST deprived)	INTEGER	2
imd2015_20	IMD2015: 'twentile' (1=LEAST deprived)	INTEGER	2

Table 28. Medcodes for BMI with values

Medcode	Readcode	Description
8105	22K..00	Body Mass Index
28946	22K1.00	Body Mass Index normal K/M2
28937	22K2.00	Body Mass Index high K/M2
32914	22K3.00	Body Mass Index low K/M2
9015	22K4.00	Body mass index index 25-29 - overweight
13278	22K5.00	Body mass index 30 - obesity
24496	22K6.00	Body mass index less than 20
22556	22K7.00	Body mass index 40 - severely obese
44291	22K8.00	Body mass index 20-24 - normal
101047	22K9.00	Body mass index centile
105791	22K9000	Baseline body mass index centile
108168	22K9100	Child body mass index centile
109492	22K9200	Child body mass index less than 0.4th centile
109462	22K9300	Child body mass index 0.4th-1.9th centile
110295	22K9400	Child body mass index on 2nd centile
110525	22K9500	Child body mass index 3rd-8th centile
109889	22K9600	Child body mass index on 9th centile
110280	22K9700	Child body mass index 10th-24th centile
110054	22K9800	Child body mass index on 25th centile
110233	22K9900	Child body mass index 26th-49th centile
109072	22K9A00	Child body mass index on 50th centile
109150	22K9B00	Child body mass index 51st-74th centile
110145	22K9C00	Child body mass index on 75th centile
110151	22K9D00	Child body mass index 76th-90th centile
110146	22K9E00	Child body mass index on 91st centile

Medcode	Readcode	Description
110029	22K9F00	Child body mass index 92nd-97th centile
110209	22K9G00	Child body mass index on 98th centile
109248	22K9H00	Child body mass index 98.1st-99.6th centile
109140	22K9J00	Child body mass index greater than 99.6th centile
107231	22KA.00	Target body mass index
105800	22KB.00	Baseline body mass index
108694	22KC.00	Obese class I (body mass index 30.0 - 34.9)
108610	22KD.00	Obese class II (body mass index 35.0 - 39.9)
108478	22KE.00	Obese class III (BMI equal to or greater than 40.0)

Table 29. Medcodes for BMI with interval values

Medcode	Readcode	Description	Value	
			From	To
28946	22K1.00	Body Mass Index normal K/M2	18.5	24.8
28937	22K2.00	Body Mass Index high K/M2	25	100
32914	22K3.00	Body Mass Index low K/M2	6	18.4
9015	22K4.00	Body mass index index 25-29 - overweight	25	29.9
13278	22K5.00	Body mass index 30 - obesity	30	39.9
24496	22K6.00	Body mass index less than 20	6	19.9
22556	22K7.00	Body mass index 40 - severely obese	40	100
44291	22K8.00	Body mass index 20-24 - normal	20	24.9
108694	22KC.00	Obese class I (body mass index 30.0 - 34.9)	30	34.5
108610	22KD.00	Obese class II (body mass index 35.0 - 39.9)	35	39.9
108478	22KE.00	Obese class III (BMI equal to or greater than 40.0)	40	100

Table 30. Test of independence of missingness of BMI and appearing of diagnoses, Entropy is Shannon entropy of disease, p-value is defined for independence χ^2 test and is the probability of observing by chance the same or greater value of χ^2 statistics if event to have missing BMI and to have diagnosis of disease are independent, effect size is absolute value of fraction of patients with specified diagnosis for patients with known and missing BMI, RIG is relative information gain – the fraction of entropy which can be removed if we know missing BMI or not

Disease	Entropy	p-value	Effect size	RIG
Alc	0.3518	<0.0001	0.0144	0.000842
Amp	0.0313	<0.0001	0.0007	0.000367
Ang	0.6466	<0.0001	0.0872	0.008140
Ast	0.7076	<0.0001	0.0775	0.004999
AF	0.5456	<0.0001	0.0576	0.005211
CHD	0.8006	<0.0001	0.1041	0.006721
COP	0.6228	<0.0001	0.0637	0.004590
Can	0.8014	<0.0001	0.1221	0.009403
Dem	0.9685	<0.0001	0.1459	0.008049
DIB	0.9949	<0.0001	0.3964	0.055636
Epi	0.2376	0.2409	0.0006	0.000003
HF	0.5364	<0.0001	0.0047	0.000033
Lip	0.0837	<0.0001	0.0057	0.003703
MVD	0.7492	<0.0001	0.0497	0.001720
Str	0.6037	<0.0001	0.0079	0.000070
Ano	0.0841	<0.0001	0.0014	0.000200
Anx	0.7085	<0.0001	0.1091	0.010336
Bli	0.1557	<0.0001	0.0048	0.000592
Bro	0.0990	<0.0001	0.0094	0.007540
AID	0.0041	0.0823	0.0001	0.000475
MLD	0.0912	<0.0001	0.0071	0.004817
SLD	0.1213	<0.0001	0.0084	0.003524
CLD	0.1663	<0.0001	0.0135	0.004485
CyF	0.0084	<0.0001	0.0004	0.002486
Dep	0.8006	<0.0001	0.1198	0.009050
DDI	0.4929	<0.0001	0.0727	0.011382
HeL	0.5468	<0.0001	0.0646	0.006622

Disease	Entropy	p-value	Effect size	RIG
Hem	0.1313	<0.0001	0.0031	0.000326
Hyp	0.9997	<0.0001	0.3336	0.039751
IBD	0.1032	<0.0001	0.0078	0.004385
IBS	0.3180	<0.0001	0.0449	0.012612
LD	0.0539	0.0066	0.0006	0.000084
MSc	0.0294	0.1112	0.0002	0.000051
PUD	0.4059	<0.0001	0.0450	0.006552
PrD	0.3386	<0.0001	0.0438	0.009993
PsE	0.7073	<0.0001	0.1053	0.009626
PuF	0.0590	<0.0001	0.0047	0.005850
RhA	0.3030	<0.0001	0.0293	0.005431
Sch	0.1502	<0.0001	0.0018	0.000085
CS	0.1324	<0.0001	0.0151	0.010641
ThD	0.4620	<0.0001	0.0581	0.008185

Table 31. Independence test for missing BMI, statistically insignificant deviation from independence is highlighted by green, significance level is 99%

Atribute	Entropy	p-value of independence test	Effect size	RIG
gender	0.999	<0.01	0.079	0.004
ONSLinked	0.979	<0.01	0.098	0.007
IMDLinked	0.978	<0.01	0.099	0.007
Alc	0.210	<0.01	0.013	0.005
Amp	0.007	0.083	0.000	0.001
Ang	0.265	<0.01	0.014	0.003
Ast	0.553	<0.01	0.057	0.009
AF	0.219	<0.01	0.018	0.008
CHD	0.362	<0.01	0.020	0.003
COP	0.343	<0.01	0.026	0.006

Atribute	Entropy	p-value of independence test	Effect size	RIG
Can	0.520	<0.01	0.057	0.010
Dem	0.806	<0.01	0.122	0.017
DIB	0.355	<0.01	0.053	0.023
Epi	0.133	<0.01	0.007	0.004
HF	0.209	<0.01	0.006	0.001
Lip	0.049	<0.01	0.003	0.005
MVD	0.313	<0.01	0.007	0.001
Str	0.267	0.758	0.000	0.000
Ano	0.060	<0.01	0.003	0.004
Anx	0.571	<0.01	0.100	0.027
Bli	0.063	0.056	0.001	0.000
Bro	0.046	<0.01	0.004	0.013
AID	0.004	0.024	0.000	0.004
MLD	0.050	<0.01	0.003	0.007
SLD	0.049	<0.01	0.001	0.001
CLD	0.080	<0.01	0.004	0.003
CyF	0.004	<0.01	0.000	0.010
Dep	0.637	<0.01	0.113	0.026
DDI	0.251	<0.01	0.031	0.018
HeL	0.346	<0.01	0.032	0.009
Hem	0.057	<0.01	0.003	0.003
Hyp	0.663	<0.01	0.121	0.027
IBD	0.073	<0.01	0.006	0.011
IBS	0.258	<0.01	0.043	0.033
LD	0.036	<0.01	0.002	0.004
MSc	0.021	<0.01	0.001	0.003
PUD	0.227	<0.01	0.020	0.009

Atribute	Entropy	p-value of independence test	Effect size	RIG
PrD	0.154	<0.01	0.014	0.010
PsE	0.566	<0.01	0.081	0.017
PuF	0.022	<0.01	0.001	0.004
RhA	0.162	<0.01	0.014	0.009
Sch	0.105	<0.01	0.005	0.003
CS	0.092	<0.01	0.012	0.025
ThD	0.257	<0.01	0.032	0.018

Table 1a. Independence test for missing BP, statistically insignificant deviation from independence is highlighted by green, significance level is 99%

Disease	Entropy	p-value	Effect size	RIG
gender	0.999	<0.01	0.127	0.009
ONSLinked	0.979	<0.01	0.170	0.018
IMDLinked	0.978	<0.01	0.171	0.018
Alc	0.210	<0.01	0.020	0.009
Amp	0.007	0.030	0.000	0.002
Ang	0.265	<0.01	0.046	0.033
Ast	0.553	<0.01	0.070	0.012
AF	0.219	<0.01	0.039	0.038
CHD	0.362	<0.01	0.068	0.035
COP	0.343	<0.01	0.057	0.027
Can	0.520	<0.01	0.113	0.041
Dem	0.806	<0.01	0.189	0.037
DIB	0.355	<0.01	0.072	0.042
Epi	0.133	<0.01	0.012	0.010
HF	0.209	<0.01	0.028	0.020
Lip	0.049	<0.01	0.004	0.010
MVD	0.313	<0.01	0.054	0.031

Str	0.267	<0.01	0.041	0.025
Ano	0.060	<0.01	0.005	0.012
Anx	0.571	<0.01	0.124	0.039
Bli	0.063	<0.01	0.007	0.018
Bro	0.046	<0.01	0.006	0.026
AID	0.004	0.018	0.000	0.004
MLD	0.050	<0.01	0.004	0.011
SLD	0.049	<0.01	0.003	0.006
CLD	0.080	<0.01	0.007	0.009
CyF	0.004	<0.01	0.000	0.011
Dep	0.637	<0.01	0.146	0.041
DDI	0.251	<0.01	0.046	0.039
HeL	0.346	<0.01	0.054	0.024
Hem	0.057	<0.01	0.005	0.010
Hyp	0.663	<0.01	0.194	0.072
IBD	0.073	<0.01	0.008	0.017
IBS	0.258	<0.01	0.047	0.038
LD	0.036	<0.01	0.002	0.006
MSc	0.021	<0.01	0.002	0.010
PUD	0.227	<0.01	0.034	0.025
PrD	0.154	<0.01	0.024	0.032
PsE	0.566	<0.01	0.102	0.026
PuF	0.022	<0.01	0.002	0.024
RhA	0.162	<0.01	0.024	0.028
Sch	0.105	<0.01	0.007	0.006
CS	0.092	<0.01	0.013	0.028
ThD	0.257	<0.01	0.047	0.038

Table 32. Cholesterol level description (https://benecol.co.uk/healthy-tips/about-cholesterol/#test-cholesterol)
(https://www.heartuk.org.uk/cholesterol/understanding-your-cholesterol-test-results-)

Attribute	Normal level (mmol/L)	Mg/dL
Total cholesterol	Below 5	below 193
Non-HDL or 'bad' cholesterol	Below 4	below 155 (154.4)
LDL cholesterol	Below 3	below 116 (115.8)
HDL or 'good' cholesterol	Above 1 for men and 1.2 for women. (ideally around 1.4, but higher levels might not give extra protection)	above 39 for a man above 46 for a woman
TC:HDL ratio	The lower the better – above 6 is considered a high risk	The same
Triglycerides	Below 2.3 (non-fasting) Below 1.7 (fasting)	204 150

Table 33. Readcodes and medcodes for cholesterol test

Medcode	Readcode	Description	Type
26915	44d2.00	Plasma random HDL cholesterol level	Good
13762	44d3.00	Plasma fasting HDL cholesterol level	Good
33304	44d4.00	Plasma random LDL cholesterol level	Bad
29699	44d5.00	Plasma fasting LDL cholesterol level	Bad
34548	44dA.00	Plasma HDL cholesterol level	Good
19764	44dB.00	Plasma LDL cholesterol level	Bad
14105	44l2.00	Cholesterol/HDL ratio	FracG
14371	44lF.00	Serum cholesterol/HDL ratio	FracG
40935	44lG.00	Plasma cholesterol/HDL ratio	FracG
35583	44lH.00	Serum cholesterol/LDL ratio	FracB
50393	44lI.00	Plasma cholesterol/LDL ratio	FracB
63314	44lJ.00	Serum cholesterol/VLDL ratio	Useless
114918	44lK.00	Plasma cholesterol/VLDL ratio	Useless
109989	44lzY00	Serum HDL cholesterol:triglyceride ratio	Useless
18040	44OE.00	Plasma total cholesterol level	Total

Medcode	Readcode	Description	Type
12	44P..00	Serum cholesterol	Total
622	44P1.00	Serum cholesterol normal	?
29202	44P2.00	Serum cholesterol borderline	?
2493	44P3.00	Serum cholesterol raised	?
35720	44P4.00	Serum cholesterol very high	?
44	44P5.00	Serum HDL cholesterol level	Good
65	44P6.00	Serum LDL cholesterol level	Bad
13816	44P7.00	Serum VLDL cholesterol level	Useless
14370	44P8.00	Serum HDL:non-HDL cholesterol ratio	FracR
37206	44P9.00	Serum cholesterol studies	
13760	44PB.00	Serum fasting HDL cholesterol level	Good
13761	44PC.00	Serum random HDL cholesterol level	Good
13765	44PD.00	Serum fasting LDL cholesterol level	Bad
46224	44PE.00	Serum random LDL cholesterol level	Bad
14372	44PF.00	Total cholesterol:HDL ratio	FracG
14108	44PG.00	HDL : total cholesterol ratio	FracGR
18147	44PH.00	Total cholesterol measurement	Total
13766	44PI.00	Calculated LDL cholesterol level	Bad
13733	44PJ.00	Serum total cholesterol level	Total
12821	44PK.00	Serum fasting total cholesterol	Total
93756	44PL.00	Non HDL cholesterol level	Bad
108302	44PL000	Serum non high density lipoprotein cholesterol level	Bad
108902	44PL100	Estimated serum non-HDL cholesterol level	Bad
112374	44PL200	Target serum non high density lipoprotein cholesterol level	Bad
26902	44PZ.00	Serum cholesterol NOS	??

Table 34. Independence test for missing cholesterol data, statistically insignificant deviation from independence is highlighted by green, significance level is 99%

Disease	Entropy	p_value	Effect_size	RIG
gender	0.999	<0.01	0.016	0.000
ONSLinked	0.979	<0.01	0.101	0.007
IMDLinked	0.978	<0.01	0.102	0.007
Alc	0.210	<0.01	0.018	0.007
Amp	0.007	<0.01	0.000	0.006
Ang	0.265	<0.01	0.082	0.088
Ast	0.553	<0.01	0.051	0.006
AF	0.219	<0.01	0.067	0.090
CHD	0.362	<0.01	0.119	0.091
COP	0.343	<0.01	0.068	0.034
Can	0.520	<0.01	0.148	0.061
Dem	0.806	<0.01	0.219	0.049
DIB	0.355	<0.01	0.146	0.143
Epi	0.133	<0.01	0.010	0.006
HF	0.209	<0.01	0.041	0.037
Lip	0.049	<0.01	0.005	0.012
MVD	0.313	<0.01	0.095	0.080
Str	0.267	<0.01	0.068	0.060
Ano	0.060	<0.01	0.003	0.002
Anx	0.571	<0.01	0.117	0.031
Bli	0.063	<0.01	0.010	0.029
Bro	0.046	<0.01	0.009	0.051
AID	0.004	0.649	0.000	0.000
MLD	0.050	<0.01	0.005	0.014
SLD	0.049	<0.01	0.005	0.013
CLD	0.080	<0.01	0.009	0.015

Disease	Entropy	p_value	Effect_size	RIG
CyF	0.004	<0.01	0.000	0.020
Dep	0.637	<0.01	0.126	0.028
DDI	0.251	<0.01	0.078	0.089
HeL	0.346	<0.01	0.075	0.039
Hem	0.057	<0.01	0.008	0.022
Hyp	0.663	<0.01	0.343	0.189
IBD	0.073	<0.01	0.008	0.013
IBS	0.258	<0.01	0.047	0.030
LD	0.036	<0.01	0.002	0.006
MSc	0.021	<0.01	0.002	0.011
PUD	0.227	<0.01	0.047	0.041
PrD	0.154	<0.01	0.042	0.077
PsE	0.566	<0.01	0.097	0.022
PuF	0.022	<0.01	0.004	0.047
RhA	0.162	<0.01	0.036	0.052
Sch	0.105	<0.01	0.008	0.007
CS	0.092	<0.01	0.017	0.040
ThD	0.527	<0.01	0.071	0.070

Table 35. Readcodes and medcodes for smoker status

Medcode	Readcode	Description	Smoker
54	137..00	Tobacco consumption	Y
12942	137..11	Smoker - amount smoked	Y
33	1371.00	Never smoked tobacco	N
11788	1371.11	Non-smoker	N
12958	1372.00	Trivial smoker - < 1 cig/day	Y
12941	1372.11	Occasional smoker	Y

Medcode	Readcode	Description	Smoker
12944	1373.00	Light smoker - 1-9 cigs/day	Y
1878	1374.00	Moderate smoker - 10-19 cigs/d	Y
3568	1375.00	Heavy smoker - 20-39 cigs/day	Y
1822	1376.00	Very heavy smoker - 40禝s	Y
12961	1377.00	Ex-trivial smoker (<1/day)	E
12957	1378.00	Ex-light smoker (1-9/day)	E
12955	1379.00	Ex-moderate smoker (10-19/day)	E
12956	137A.00	Ex-heavy smoker (20-39/day)	E
12967	137a.00	Pipe tobacco consumption	Y
31114	137b.00	Ready to stop smoking	Y
12959	137B.00	Ex-very heavy smoker (40禝)	E
12964	137C.00	Keeps trying to stop smoking	Y
30423	137c.00	Thinking about stopping smoking	Y
46654	137D.00	Admitted tobacco cons untrue ?	Y
30762	137d.00	Not interested in stopping smoking	Y
12962	137E.00	Tobacco consumption unknown	R
41979	137e.00	Smoking restarted	Y
12946	137F.00	Ex-smoker - amount unknown	E
46321	137f.00	Reason for restarting smoking	Y
12240	137G.00	Trying to give up smoking	Y
46300	137g.00	Cigarette pack-years	Y
12947	137H.00	Pipe smoker	Y
62686	137h.00	Minutes from waking to first tobacco consumption	Y
13351	137I.00	Passive smoker	R
106891	137i.00	Ex-tobacco chewer	R
101069	137I000	Exposed to tobacco smoke at home	R
12943	137J.00	Cigar smoker	Y

Medcode	Readcode	Description	Smoker
97210	137j.00	Ex-cigarette smoker	E
776	137K.00	Stopped smoking	E
97029	137k.00	Refusal to give smoking status	R
99838	137K000	Recently stopped smoking	E
100495	137l.00	Ex roll-up cigarette smoker	E
60	137L.00	Current non-smoker	N
12945	137M.00	Rolls own cigarettes	Y
101338	137m.00	Failed attempt to stop smoking	Y
105711	137n.00	Total time smoked	Y
26470	137N.00	Ex pipe smoker	E
19488	137O.00	Ex cigar smoker	E
105501	137o.00	Waterpipe tobacco consumption	Y
93	137P.00	Cigarette smoker	Y
1823	137P.11	Smoker	Y
12952	137Q.00	Smoking started	Y
12951	137Q.11	Smoking restarted	Y
10558	137R.00	Current smoker	Y
90	137S.00	Ex smoker	E
12878	137T.00	Date ceased smoking	E
23017	137U.00	Not a passive smoker	R
12966	137V.00	Smoking reduced	Y
32973	137W.00	Chews tobacco	R
12965	137X.00	Cigarette consumption	Y
12963	137Y.00	Cigar consumption	Y
12960	137Z.00	Tobacco consumption NOS	Y
98447	9km..00	Ex-smoker annual review - enhanced services administration	E
100963	9km..11	Ex-smoker annual review	E

Medcode	Readcode	Description	Smoker
98177	9kn..00	Non-smoker annual review - enhanced services administration	N
101878	9kn..11	Non-smoker annual review	N
98347	9ko..00	Current smoker annual review - enhanced services admin	Y
104310	9ko..11	Current smoker annual review	Y
105809	ZV4D700	[V]Exposure to tobacco smoke	R
37018	6893.00	Tobacco usage screen	R
42495	68T..00	Tobacco usage screen	R
32687	E251.00	Tobacco dependence	R
95610	E251000	Tobacco dependence, unspecified	Y
70746	E251100	Tobacco dependence, continuous	Y
108835	E251200	Tobacco dependence, episodic	Y
72706	E251300	Tobacco dependence in remission	E
68658	E251z00	Tobacco dependence NOS	Y
61905	Eu17.00	[X]Mental and behavioural disorder due to use of tobacco	Y
111853	Eu17000	[X]Mental & behav dis due to use tobacco: acute intoxication	Y
56144	Eu17100	[X]Mental and behav dis due to use of tobacco: harmful use	Y
107792	Eu17200	[X]Mental and behav dis due to use tobacco: dependence syndr	Y
101519	Eu17300	[X]Mental and behav dis due to use tobacco: withdrawal state	Y
112529	Eu17500	[X]Mental & behav dis due to use tobacco: psychotic disorder	Y
43433	SMC..00	Toxic effect of tobacco and nicotine	Y
12954	ZV4K000	[V]Tobacco use	Y
35055	ZV6D800	[V]Tobacco abuse counselling	Y

Table 36. Independence test for missing smoker status, statistically insignificant deviation from independence is highlighted by green, significance level is 99%

Disease	Entropy	p_value	Effect_size	RIG
gender	0.999	<0.01	0.052	0.001
ONSLinked	0.979	<0.01	0.206	0.023

Disease	Entropy	p_value	Effect_size	RIG
IMDLinked	0.978	<0.01	0.207	0.023
Alc	0.210	<0.01	0.024	0.013
Amp	0.007	0.106	0.000	0.001
Ang	0.265	<0.01	0.035	0.016
Ast	0.553	<0.01	0.086	0.017
AF	0.219	<0.01	0.030	0.019
CHD	0.362	<0.01	0.049	0.015
COP	0.343	<0.01	0.047	0.016
Can	0.520	<0.01	0.096	0.025
Dem	0.806	<0.01	0.180	0.030
DIB	0.355	<0.01	0.060	0.025
Epi	0.133	<0.01	0.013	0.010
HF	0.209	<0.01	0.014	0.004
Lip	0.049	<0.01	0.004	0.010
MVD	0.313	<0.01	0.036	0.011
Str	0.267	<0.01	0.024	0.007
Ano	0.060	<0.01	0.005	0.008
Anx	0.571	<0.01	0.127	0.037
Bli	0.063	<0.01	0.005	0.008
Bro	0.046	<0.01	0.005	0.017
AID	0.004	<0.01	0.000	0.008
MLD	0.050	<0.01	0.004	0.010
SLD	0.049	<0.01	0.003	0.005
CLD	0.080	<0.01	0.007	0.009
CyF	0.004	<0.01	0.000	0.008
Dep	0.637	<0.01	0.148	0.039
DDI	0.251	<0.01	0.040	0.025

Disease	Entropy	p_value	Effect_size	RIG
HeL	0.346	<0.01	0.049	0.017
Hem	0.057	<0.01	0.003	0.003
Hyp	0.663	<0.01	0.162	0.042
IBD	0.073	<0.01	0.008	0.018
IBS	0.258	<0.01	0.047	0.036
LD	0.036	<0.01	0.003	0.007
MSc	0.021	<0.01	0.001	0.007
PUD	0.227	<0.01	0.029	0.016
PrD	0.154	<0.01	0.021	0.020
PsE	0.566	<0.01	0.111	0.028
PuF	0.022	<0.01	0.002	0.013
RhA	0.162	<0.01	0.020	0.016
Sch	0.105	<0.01	0.007	0.005
CS	0.092	<0.01	0.013	0.026
ThD	0.257	<0.01	0.039	0.023

Table 2. Medcodes for interval measurement of HbA1c

Medcode	Readcode	Description	Value
13597	42W1.00	Hb. A1C < 7% - good control	6.5
29218	42W2.00	Hb. A1C 7-10% - borderline	8.5
13604	42W3.00	Hb. A1C > 10% - bad control	11

Table 38. Codes to extract HbA1c

	Medcode	Readcode	Description
	9958	42W..00	Hb. A1C - diabetic control
	5717	42W..11	Glycosylated Hb
	14052	42W..12	Glycated haemoglobin
	13597	42W1.00	Hb. A1C < 7% - good control

	29218	42W2.00	Hb. A1C 7-10% - borderline
	13604	42W3.00	Hb. A1C > 10% - bad control
	14053	42W4.00	HbA1c level (DCCT aligned)
	96968	42W5.00	Haemoglobin A1c level - IFCC standardised
	110935	42W5000	
	110929	42W5100	
	14049	42WZ.00	Hb. A1C - diabetic control NOS
	37035	66Ae.00	HbA1c target
	101208	66Ae000	HbA1c target level - IFCC standardised
	112237	8OAJ.00	Provision written information abt diabetes & high HbA1c levl
	14051	44TB.00	Haemoglobin A1c level
	108943	44TB000	Haemoglobin A1c (diagnostic reference range)
	108963	44TB100	Haemoglobin A1c (monitoring ranges)

Table 39. List of units used in measurements of HbA1c

Unit	# records	min	max	mean	Description
0	1,344,489	-8.5	7122005	48.60811	No Data Entered
1	4,887,060	0	3.72E+09	44923.42	%
2	41	5.6	11.9	7.809756	(bdsk u)
3	2	8	8.1	8.05	(bsa)
4	2	5.5	6.8	6.15	(cfU)
5	3	5	9	7.666667	(knk u)
6	1	7.3	7.3	7.3	(mclg u)
9	1	9.5	9.5	9.5	pH
14	2	12.5	12.5	12.5	/(hpf)
17	4	7.4	107	34.25	/L
21	8	5.6	85	28.675	/mL
23	1	6.5	6.5	6.5	/second
26	22	5.1	81	12.55455	1

Unit	# records	min	max	mean	Description
27	3	6.3	114	43.43333	1(tot)
29	1	7.9	7.9	7.9	10*-2(%)
31	8	4.11	5.65	4.915	10*12/L
37	6	6.4	12.4	9.683333	10*9/L
40	4	7	7.4	7.2	cm(H2O)
41	1	9.2	9.2	9.2	d
45	2	5.9	5.9	5.9	ft
47	853	4	135	58.78393	fL
49	1	5.9	5.9	5.9	g
51	38	5.2	14	9.007895	g(hgb)
55	1	58	58	58	g(wet_tis)
56	161	4.8	118	16.15839	g/dL
57	38	8.1	154	115.8447	g/L
58	16	6.6	74	12.3	h
59	3	7.3	45	32.43333	IU
60	4	6	9.6	7.45	IU/d
61	244,892	0	1505	8.070483	IU/L
62	9	6.7	27	10.61111	IU/mL
63	2	6.2	6.2	6.2	kat
66	1	63	63	63	Kgs
74	4	54	66	57.5	m
79	2	9.9	9.9	9.9	meq/L
80	1	9.7	9.7	9.7	mg
83	16	3	26.5	10.175	mg/L
86	352	1	1047	73.87244	mg/mmol
89	2	78	78	78	mL
90	10	5.4	22	8.17	mL/min

Unit	# records	min	max	mean	Description
93	1	66	66	66	mm(Hg)
94	2	13.3	13.3	13.3	mm/h
95	4	8.1	68	35.3	mmol/d
96	7149	0	158	14.51562	mmol/L
97	5,740,854	-23.5	96010910	128.0532	mmol/mol
98	9	44	57	52	mol/kg
99	31	5.8	136	30.85806	mol/L
104	3	6.1	8.7	6.966667	ng
106	1	6.8	6.8	6.8	ng/mL
110	11	8.7	74	38.98182	nmol/L
112	1	8.7	8.7	8.7	ns
113	4	6.6	8	7.2	Pa
114	8	20.8	28.7	25.4375	pg
120	1	41	41	41	pmol/L
121	3	7.7	10.3	8.7	ps
122	1	8.6	8.6	8.6	rad
126	3	7.5	10.9	8.633333	u
127	7	6	10	7.971429	U/L
133	3	8.8	14.3	12	ug/L
142	91	6.7	104	49.59451	umol/L
145	1	8.8	8.8	8.8	umol/mmol
146	2	6.8	7.2	7	us
148	1	131	131	131	year
149	5	5.6	9.2	7.08	MicroU/L
150	1	0	0	0	cms
151	5	5.5	12.2	7.54	ratio
154	7	6.2	10.7	8.257143	L

Unit	# records	min	max	mean	Description
156	13981	4.6	166	56.94003	mmol
159	1	7.1	7.1	7.1	cP
160	4	3.8	58	18.3	mU/L
161	34	34	119	57.85294	44197
162	1	10.1	10.1	10.1	/100(WBC)
164	1	7.8	7.8	7.8	/uL
165	2	8	8	8	IU/dL
166	4	29.5	83.5	56.75	kg
169	3	6.7	52	23.6	mg/mmol(creat)
171	2223	6.5	151	63.32883	mmol/mmol(creat)
180	462	6.2	121	57.34437	umol/mol
181	11	0.65	256	82.87727	umol/mol(Hb)
183	2	7.8	8.7	8.25	10*-2
187	30644	0	172	56.97476	mmol/mmol
191	19	37	107	62.47368	nmol/mmol
205	22790	0	175	59.06892	mmol/mol Hb
209	30	49	113	76	#/[tot]
210	1	96	96	96	#/HPF
211	1	7	7	7	#G ( )/L
214	1	6.9	6.9	6.9	#T ( )/L
215	11967	0	17.5	7.446935	%Hb
249	2	65	65	65	mL/24h/1.73m*2
255	1	79	79	79	mmol/kg
262	2	46	57	51.5	nmol/mmol(creat)
289	1	8.8	8.8	8.8	% dec abs
305	10	0	110	39.8	No unit
316	2	50	50	50	U/mmol

Table 40. List of units used in measurements of HbA1c (general sample)

Unit	# records	min	max	mean	Description
0	40,041	0	456	10.64	No Data Entered
1	139374	0	3.7×10^9	80087.	%
2	2	6.1	6.1	6.1	(bdsk u)
5	2	9	9	9	(knk u)
31	5	4.11	5.26	4.584	10*12/L
47	27	38	90	58.67	fL
51	2	11	11	11	g(hgb)
56	19	6.5	15.5	12.45	g/dL
57	10	112	140	124	g/L
61	6611	0	98.8	8.08	IU/L
83	2	3	3	3	mg/L
86	12	9	67	39.58	mg/mmol
96	413	4.5	106	13.89	mmol/L
97	209758	0	306	54.04	mmol/mol
114	5	24.5	28.7	26.98	pg
142	4	20	67	47.75	umol/L
156	403	9.2	135	50.24	mmol
159	2	5.7	5.7	5.7	cP
160	3	55	56	55.33	mU/L
161	2	8	8	8	44197
165	5	24.5	28.7	26.98	IU/dL
171	105	37	96	60.39	mmol/mmol(creat)
180	21	42	98	66.90	umol/mol
187	1115	12	124	55.92	mmol/mmol
205	975	26	129	54.3	mmol/mol Hb

Unit	# records	min	max	mean	Description
215	418	4.6	13.8	7.1	%Hb
305	1	31	31	31	No unit

Table 41. Independence test for missing HbA1c, statistically insignificant deviation from independence is highlighted by green, significance level is 99%

Disease	Entropy	*p*-value	Effect size	RIG
gender	0.999	0.034	0.006	0.000
ONSLinked	0.979	<0.01	0.033	0.000
IMDLinked	0.978	<0.01	0.033	0.000
Alc	0.210	<0.01	0.018	0.004
Amp	0.007	<0.01	0.001	0.009
Ang	0.265	<0.01	0.070	0.032
Ast	0.553	<0.01	0.058	0.005
AF	0.219	<0.01	0.061	0.037
CHD	0.362	<0.01	0.101	0.033
COP	0.343	<0.01	0.058	0.013
Can	0.520	<0.01	0.118	0.021
Dem	0.806	<0.01	0.207	0.024
DIB	0.355	<0.01	0.292	0.243
Epi	0.133	<0.01	0.012	0.005
HF	0.209	<0.01	0.037	0.016
Lip	0.049	<0.01	0.004	0.005
MVD	0.313	<0.01	0.080	0.029
Str	0.267	<0.01	0.055	0.020
Ano	0.060	<0.01	0.003	0.001
Anx	0.571	<0.01	0.117	0.017
Bli	0.063	<0.01	0.009	0.013
Bro	0.046	<0.01	0.007	0.018

Disease	Entropy	*p*-value	Effect size	RIG
AID	0.004	0.625	0.000	0.000
MLD	0.050	<0.01	0.005	0.008
SLD	0.049	<0.01	0.006	0.010
CLD	0.080	<0.01	0.009	0.009
CyF	0.004	<0.01	0.001	0.015
Dep	0.637	<0.01	0.131	0.017
DDI	0.251	<0.01	0.070	0.035
HeL	0.346	<0.01	0.069	0.018
Hem	0.057	<0.01	0.006	0.007
Hyp	0.663	<0.01	0.316	0.081
IBD	0.073	<0.01	0.007	0.006
IBS	0.258	<0.01	0.047	0.016
LD	0.036	<0.01	0.003	0.006
MSc	0.021	<0.01	0.002	0.008
PUD	0.227	<0.01	0.036	0.013
PrD	0.154	<0.01	0.035	0.027
PsE	0.566	<0.01	0.095	0.012
PuF	0.022	<0.01	0.003	0.017
RhA	0.162	<0.01	0.032	0.021
Sch	0.105	<0.01	0.011	0.007
CS	0.092	<0.01	0.016	0.019
ThD	0.257	<0.01	0.070	0.034

Table 42. Codes of D1T

medcode	readcode	Description
17858	C108.12	Type 1 diabetes mellitus
21983	C108012	Type 1 diabetes mellitus with renal complications

medcode	readcode	Description
102740	C108112	Type 1 diabetes mellitus with ophthalmic complications
61829	C108212	Type 1 diabetes mellitus with neurological complications
97474	C108412	Unstable type 1 diabetes mellitus
68390	C108512	Type 1 diabetes mellitus with ulcer
41049	C108712	Type 1 diabetes mellitus with retinopathy
45914	C108812	Type 1 diabetes mellitus - poor control
97446	C108912	Type 1 diabetes mellitus maturity onset
70766	C108E12	Type 1 diabetes mellitus with hypoglycaemic coma
110400	C108F12	Type 1 diabetes mellitus with diabetic cataract
18230	C108J12	Type 1 diabetes mellitus with neuropathic arthropathy
98392	C10C.12	Maturity onset diabetes in youth type 1
1549	C10E.00	Type 1 diabetes mellitus
47582	C10E000	Type 1 diabetes mellitus with renal complications
47649	C10E100	Type 1 diabetes mellitus with ophthalmic complications
42831	C10E200	Type 1 diabetes mellitus with neurological complications
47650	C10E300	Type 1 diabetes mellitus with multiple complications
43921	C10E400	Unstable type 1 diabetes mellitus
18683	C10E500	Type 1 diabetes mellitus with ulcer
69993	C10E600	Type 1 diabetes mellitus with gangrene
18387	C10E700	Type 1 diabetes mellitus with retinopathy
35288	C10E800	Type 1 diabetes mellitus - poor control
40682	C10E900	Type 1 diabetes mellitus maturity onset
69676	C10EA00	Type 1 diabetes mellitus without complication
68105	C10EB00	Type 1 diabetes mellitus with mononeuropathy
46301	C10EC00	Type 1 diabetes mellitus with polyneuropathy
10418	C10ED00	Type 1 diabetes mellitus with nephropathy
39070	C10EE00	Type 1 diabetes mellitus with hypoglycaemic coma

medcode	readcode	Description
49554	C10EF00	Type 1 diabetes mellitus with diabetic cataract
93468	C10EG00	Type 1 diabetes mellitus with peripheral angiopathy
18642	C10EH00	Type 1 diabetes mellitus with arthropathy
54008	C10EJ00	Type 1 diabetes mellitus with neuropathic arthropathy
30323	C10EK00	Type 1 diabetes mellitus with persistent proteinuria
30294	C10EL00	Type 1 diabetes mellitus with persistent microalbuminuria
10692	C10EM00	Type 1 diabetes mellitus with ketoacidosis
40837	C10EN00	Type 1 diabetes mellitus with ketoacidotic coma
22871	C10EP00	Type 1 diabetes mellitus with exudative maculopathy
55239	C10EQ00	Type 1 diabetes mellitus with gastroparesis
114401	C108612	Type 1 diabetes mellitus with gangrene
111106	C108A12	Type 1 diabetes mellitus without complication
113197	C108D12	Type 1 diabetes mellitus with nephropathy
109628	C10P011	Type 1 diabetes mellitus in remission
24423	C108.13	Type I diabetes mellitus
61344	C108011	Type I diabetes mellitus with renal complications
49146	C108211	Type I diabetes mellitus with neurological complications
108007	C108311	Type I diabetes mellitus with multiple complications
60107	C108411	Unstable type I diabetes mellitus
51957	C108511	Type I diabetes mellitus with ulcer
38161	C108711	Type I diabetes mellitus with retinopathy
46850	C108811	Type I diabetes mellitus - poor control
63017	C108911	Type I diabetes mellitus maturity onset
95992	C108A11	Type I diabetes mellitus without complication
99231	C108B11	Type I diabetes mellitus with mononeuropathy
66872	C108D11	Type I diabetes mellitus with nephropathy
42729	C108E11	Type I diabetes mellitus with hypoglycaemic coma

medcode	readcode	Description
17545	C108F11	Type I diabetes mellitus with diabetic cataract
62352	C108H11	Type I diabetes mellitus with arthropathy
60208	C108J11	Type I diabetes mellitus with neuropathic arthropathy
12455	C10E.11	Type I diabetes mellitus
109837	C10E011	Type I diabetes mellitus with renal complications
99311	C10E111	Type I diabetes mellitus with ophthalmic complications
91942	C10E311	Type I diabetes mellitus with multiple complications
49949	C10E411	Unstable type I diabetes mellitus
93878	C10E511	Type I diabetes mellitus with ulcer
102112	C10E611	Type I diabetes mellitus with gangrene
95343	C10E711	Type I diabetes mellitus with retinopathy
105337	C10E811	Type I diabetes mellitus - poor control
96235	C10E911	Type I diabetes mellitus maturity onset
62613	C10EA11	Type I diabetes mellitus without complication
91943	C10EC11	Type I diabetes mellitus with polyneuropathy
102620	C10EL11	Type I diabetes mellitus with persistent microalbuminuria
62209	C10EM11	Type I diabetes mellitus with ketoacidosis
66145	C10EN11	Type I diabetes mellitus with ketoacidotic coma
97894	C10EP11	Type I diabetes mellitus with exudative maculopathy
108724	C10EQ11	Type I diabetes mellitus with gastroparesis
113975	C108C11	Type I diabetes mellitus with polyneuropathy
113863	C10ED11	Type I diabetes mellitus with nephropathy
108360	C10P000	Type I diabetes mellitus in remission
24490	C100000	Diabetes mellitus, juvenile type, no mention of complication
53200	C101000	Diabetes mellitus, juvenile type, with ketoacidosis
40023	C102000	Diabetes mellitus, juvenile type, with hyperosmolar coma
42567	C103000	Diabetes mellitus, juvenile type, with ketoacidotic coma

medcode	readcode	Description
93922	C104000	Diabetes mellitus, juvenile type, with renal manifestation
69748	C105000	Diabetes mellitus, juvenile type, + ophthalmic manifestation
67853	C106000	Diabetes mellitus, juvenile, + neurological manifestation
70448	C107000	Diabetes mellitus, juvenile +peripheral circulatory disorder
68792	C10z000	Diabetes mellitus, juvenile type, + unspecified complication
110997	C10y000	Diabetes mellitus, juvenile, other specified manifestation
8842	66A5.00	Diabetic on insulin
1038	C100011	Insulin dependent diabetes mellitus
54856	C101100	Diabetes mellitus, adult onset, with ketoacidosis
68843	C103100	Diabetes mellitus, adult onset, with ketoacidotic coma
69124	C107300	IDDM with peripheral circulatory disorder
1647	C108.00	Insulin dependent diabetes mellitus
18505	C108.11	IDDM-Insulin dependent diabetes mellitus
46963	C108000	Insulin-dependent diabetes mellitus with renal complications
49276	C108100	Insulin-dependent diabetes mellitus with ophthalmic comps
52283	C108200	Insulin-dependent diabetes mellitus with neurological comps
52104	C108300	Insulin dependent diabetes mellitus with multiple complicatn
26855	C108400	Unstable insulin dependent diabetes mellitus
44443	C108500	Insulin dependent diabetes mellitus with ulcer
60499	C108600	Insulin dependent diabetes mellitus with gangrene
6509	C108700	Insulin dependent diabetes mellitus with retinopathy
6791	C108800	Insulin dependent diabetes mellitus - poor control
56448	C108A00	Insulin-dependent diabetes without complication
24694	C108B00	Insulin dependent diabetes mellitus with mononeuropathy
41716	C108C00	Insulin dependent diabetes mellitus with polyneuropathy
57621	C108D00	Insulin dependent diabetes mellitus with nephropathy
44440	C108E00	Insulin dependent diabetes mellitus with hypoglycaemic coma

medcode	readcode	Description
44260	C108F00	Insulin dependent diabetes mellitus with diabetic cataract
64446	C108G00	Insulin dependent diab mell with peripheral angiopathy
65616	C108H00	Insulin dependent diabetes mellitus with arthropathy
39809	C108J00	Insulin dependent diab mell with neuropathic arthropathy
51261	C10E.12	Insulin dependent diabetes mellitus
98071	C10E112	Insulin-dependent diabetes mellitus with ophthalmic comps
45276	C10E312	Insulin dependent diabetes mellitus with multiple complicat
54600	C10E412	Unstable insulin dependent diabetes mellitus
98704	C10E512	Insulin dependent diabetes mellitus with ulcer
93875	C10E712	Insulin dependent diabetes mellitus with retinopathy
72702	C10E812	Insulin dependent diabetes mellitus - poor control
97849	C10E912	Insulin dependent diabetes maturity onset
99719	C10EA12	Insulin-dependent diabetes without complication
101311	C10EC12	Insulin dependent diabetes mellitus with polyneuropathy
99716	C10EE12	Insulin dependent diabetes mellitus with hypoglycaemic coma
100770	C10EF12	Insulin dependent diabetes mellitus with diabetic cataract
95636	C10ER00	Latent autoimmune diabetes mellitus in adult

Table 43. Codes of D2T

medcode	readcode	Description
17859	C109.12	Type 2 diabetes mellitus
18209	C109012	Type 2 diabetes mellitus with renal complications
70316	C109112	Type 2 diabetes mellitus with ophthalmic complications
45919	C109212	Type 2 diabetes mellitus with neurological complications
108005	C109312	Type 2 diabetes mellitus with multiple complications
65704	C109412	Type 2 diabetes mellitus with ulcer
46150	C109512	Type 2 diabetes mellitus with gangrene
42762	C109612	Type 2 diabetes mellitus with retinopathy

medcode	readcode	Description
45913	C109712	Type 2 diabetes mellitus - poor control
105784	C109912	Type 2 diabetes mellitus without complication
24836	C109C12	Type 2 diabetes mellitus with nephropathy
61071	C109D12	Type 2 diabetes mellitus with hypoglycaemic coma
44779	C109E12	Type 2 diabetes mellitus with diabetic cataract
60699	C109F12	Type 2 diabetes mellitus with peripheral angiopathy
49869	C109G12	Type 2 diabetes mellitus with arthropathy
66965	C109H12	Type 2 diabetes mellitus with neuropathic arthropathy
18278	C109J00	Insulin treated Type 2 diabetes mellitus
36695	C10D.00	Diabetes mellitus autosomal dominant type 2
59991	C10D.11	Maturity onset diabetes in youth type 2
758	C10F.00	Type 2 diabetes mellitus
18777	C10F000	Type 2 diabetes mellitus with renal complications
47321	C10F100	Type 2 diabetes mellitus with ophthalmic complications
34268	C10F200	Type 2 diabetes mellitus with neurological complications
65267	C10F300	Type 2 diabetes mellitus with multiple complications
49074	C10F400	Type 2 diabetes mellitus with ulcer
12736	C10F500	Type 2 diabetes mellitus with gangrene
18496	C10F600	Type 2 diabetes mellitus with retinopathy
25627	C10F700	Type 2 diabetes mellitus - poor control
47954	C10F900	Type 2 diabetes mellitus without complication
62674	C10FA00	Type 2 diabetes mellitus with mononeuropathy
18425	C10FB00	Type 2 diabetes mellitus with polyneuropathy
12640	C10FC00	Type 2 diabetes mellitus with nephropathy
46917	C10FD00	Type 2 diabetes mellitus with hypoglycaemic coma
44982	C10FE00	Type 2 diabetes mellitus with diabetic cataract
37806	C10FF00	Type 2 diabetes mellitus with peripheral angiopathy

medcode	readcode	Description
59253	C10FG00	Type 2 diabetes mellitus with arthropathy
35385	C10FH00	Type 2 diabetes mellitus with neuropathic arthropathy
1407	C10FJ00	Insulin treated Type 2 diabetes mellitus
26054	C10FL00	Type 2 diabetes mellitus with persistent proteinuria
18390	C10FM00	Type 2 diabetes mellitus with persistent microalbuminuria
32627	C10FN00	Type 2 diabetes mellitus with ketoacidosis
51756	C10FP00	Type 2 diabetes mellitus with ketoacidotic coma
25591	C10FQ00	Type 2 diabetes mellitus with exudative maculopathy
63690	C10FR00	Type 2 diabetes mellitus with gastroparesis
109865	C109B12	Type 2 diabetes mellitus with polyneuropathy
36633	C109K00	Hyperosmolar non-ketotic state in type 2 diabetes mellitus
34450	C10FK00	Hyperosmolar non-ketotic state in type 2 diabetes mellitus
110611	C10P111	Type 2 diabetes mellitus in remission
18219	C109.13	Type II diabetes mellitus
50225	C109011	Type II diabetes mellitus with renal complications
59725	C109111	Type II diabetes mellitus with ophthalmic complications
67905	C109211	Type II diabetes mellitus with neurological complications
55075	C109411	Type II diabetes mellitus with ulcer
62107	C109511	Type II diabetes mellitus with gangrene
58604	C109611	Type II diabetes mellitus with retinopathy
24458	C109711	Type II diabetes mellitus - poor control
109103	C109911	Type II diabetes mellitus without complication
50813	C109A11	Type II diabetes mellitus with mononeuropathy
47409	C109B11	Type II diabetes mellitus with polyneuropathy
64571	C109C11	Type II diabetes mellitus with nephropathy
56268	C109D11	Type II diabetes mellitus with hypoglycaemic coma
48192	C109E11	Type II diabetes mellitus with diabetic cataract

medcode	readcode	Description
54899	C109F11	Type II diabetes mellitus with peripheral angiopathy
18143	C109G11	Type II diabetes mellitus with arthropathy
47816	C109H11	Type II diabetes mellitus with neuropathic arthropathy
18264	C109J12	Insulin treated Type II diabetes mellitus
22884	C10F.11	Type II diabetes mellitus
57278	C10F011	Type II diabetes mellitus with renal complications
100964	C10F111	Type II diabetes mellitus with ophthalmic complications
98616	C10F211	Type II diabetes mellitus with neurological complications
43227	C10F311	Type II diabetes mellitus with multiple complications
91646	C10F411	Type II diabetes mellitus with ulcer
104323	C10F511	Type II diabetes mellitus with gangrene
49655	C10F611	Type II diabetes mellitus with retinopathy
47315	C10F711	Type II diabetes mellitus - poor control
53392	C10F911	Type II diabetes mellitus without complication
95351	C10FA11	Type II diabetes mellitus with mononeuropathy
50527	C10FB11	Type II diabetes mellitus with polyneuropathy
102201	C10FC11	Type II diabetes mellitus with nephropathy
98723	C10FD11	Type II diabetes mellitus with hypoglycaemic coma
93727	C10FE11	Type II diabetes mellitus with diabetic cataract
104639	C10FF11	Type II diabetes mellitus with peripheral angiopathy
103902	C10FG11	Type II diabetes mellitus with arthropathy
109197	C10FH11	Type II diabetes mellitus with neuropathic arthropathy
64668	C10FJ11	Insulin treated Type II diabetes mellitus
60796	C10FL11	Type II diabetes mellitus with persistent proteinuria
85991	C10FM11	Type II diabetes mellitus with persistent microalbuminuria
106528	C10FN11	Type II diabetes mellitus with ketoacidosis
106061	C10FP11	Type II diabetes mellitus with ketoacidotic coma

medcode	readcode	Description
113495	C109311	Type II diabetes mellitus with multiple complications
107701	C10FK11	Hyperosmolar non-ketotic state in type II diabetes mellitus
111798	C10FQ11	Type II diabetes mellitus with exudative maculopathy
113609	C10FR11	Type II diabetes mellitus with gastroparesis
107824	C10P100	Type II diabetes mellitus in remission
7563	66A3.00	Diabetic on diet only
14889	C100111	Maturity onset diabetes
506	C100112	Non-insulin dependent diabetes mellitus
43139	C102100	Diabetes mellitus, adult onset, with hyperosmolar coma
41389	C105100	Diabetes mellitus, adult onset, + ophthalmic manifestation
39317	C106100	Diabetes mellitus, adult onset, + neurological manifestation
56803	C107400	NIDDM with peripheral circulatory disorder
31310	C108900	Insulin dependent diabetes maturity onset
4513	C109.00	Non-insulin dependent diabetes mellitus
5884	C109.11	NIDDM - Non-insulin dependent diabetes mellitus
52303	C109000	Non-insulin-dependent diabetes mellitus with renal comps
50429	C109100	Non-insulin-dependent diabetes mellitus with ophthalm comps
55842	C109200	Non-insulin-dependent diabetes mellitus with neuro comps
62146	C109300	Non-insulin-dependent diabetes mellitus with multiple comps
34912	C109400	Non-insulin dependent diabetes mellitus with ulcer
40401	C109500	Non-insulin dependent diabetes mellitus with gangrene
17262	C109600	Non-insulin-dependent diabetes mellitus with retinopathy
8403	C109700	Non-insulin dependent diabetes mellitus - poor control
29979	C109900	Non-insulin-dependent diabetes mellitus without complication
72320	C109A00	Non-insulin dependent diabetes mellitus with mononeuropathy
45467	C109B00	Non-insulin dependent diabetes mellitus with polyneuropathy
59365	C109C00	Non-insulin dependent diabetes mellitus with nephropathy

medcode	readcode	Description
43785	C109D00	Non-insulin dependent diabetes mellitus with hypoglyca coma
69278	C109E00	Non-insulin depend diabetes mellitus with diabetic cataract
24693	C109G00	Non-insulin dependent diabetes mellitus with arthropathy
40962	C109H00	Non-insulin dependent d m with neuropathic arthropathy
37648	C109J11	Insulin treated non-insulin dependent diabetes mellitus
46624	C10C.11	Maturity onset diabetes in youth
63762	C10z100	Diabetes mellitus, adult onset, + unspecified complication
54212	C109F00	Non-insulin-dependent d m with peripheral angiopath

Table 44. Codes for unspecified diabetes

medcode	readcode	Description
6813	1434	H/O: diabetes mellitus
16946	13L4.11	Diabetic child
1684	66A4.00	Diabetic on oral treatment
13071	66AI.00	Diabetic - good control
2378	66AJ.00	Diabetic - poor control
9013	66AJ.11	Unstable diabetes
2478	66AJ100	Brittle diabetes
22023	66AJz00	Diabetic - poor control NOS
43951	66AK.00	Diabetic - cooperative patient
17869	66AL.00	Diabetic-uncooperative patient
101728	66As.00	Diabetic on subcutaneous treatment
28769	66AV.00	Diabetic on insulin and oral treatment
711	C10..00	Diabetes mellitus
38986	C100.00	Diabetes mellitus with no mention of complication
14803	C100100	Diabetes mellitus, adult onset, no mention of complication
50972	C100z00	Diabetes mellitus NOS with no mention of complication
1682	C101.00	Diabetes mellitus with ketoacidosis

medcode	readcode	Description
38617	C101y00	Other specified diabetes mellitus with ketoacidosis
42505	C101z00	Diabetes mellitus NOS with ketoacidosis
21482	C102.00	Diabetes mellitus with hyperosmolar coma
72345	C102z00	Diabetes mellitus NOS with hyperosmolar coma
15690	C103.00	Diabetes mellitus with ketoacidotic coma
59288	C103y00	Other specified diabetes mellitus with coma
65062	C103z00	Diabetes mellitus NOS with ketoacidotic coma
16502	C104.00	Diabetes mellitus with renal manifestation
2475	C104.11	Diabetic nephropathy
35105	C104100	Diabetes mellitus, adult onset, with renal manifestation
13279	C104y00	Other specified diabetes mellitus with renal complications
35107	C104z00	Diabetes mellitus with nephropathy NOS
33254	C105.00	Diabetes mellitus with ophthalmic manifestation
47377	C105y00	Other specified diabetes mellitus with ophthalmic complicatn
34283	C105z00	Diabetes mellitus NOS with ophthalmic manifestation
16230	C106.00	Diabetes mellitus with neurological manifestation
59903	C106.11	Diabetic amyotrophy
7795	C106.12	Diabetes mellitus with neuropathy
16491	C106.13	Diabetes mellitus with polyneuropathy
61523	C106y00	Other specified diabetes mellitus with neurological comps
22573	C106z00	Diabetes mellitus NOS with neurological manifestation
35399	C107.00	Diabetes mellitus with peripheral circulatory disorder
32403	C107.11	Diabetes mellitus with gangrene
32556	C107.12	Diabetes with gangrene
63357	C107100	Diabetes mellitus, adult, + peripheral circulatory disorder
33807	C107200	Diabetes mellitus, adult with gangrene
65025	C107z00	Diabetes mellitus NOS with peripheral circulatory disorder

medcode	readcode	Description
46290	C108y00	Other specified diabetes mellitus with multiple comps
64449	C108z00	Unspecified diabetes mellitus with multiple complications
52236	C10A.00	Malnutrition-related diabetes mellitus
66675	C10A000	Malnutrition-related diabetes mellitus with coma
33969	C10A100	Malnutrition-related diabetes mellitus with ketoacidosis
100347	C10A500	Malnutritn-relat diabetes melitus wth periph circul complctn
43453	C10C.00	Diabetes mellitus autosomal dominant
102946	C10E012	Insulin-dependent diabetes mellitus with renal complications
101735	C10E212	Insulin-dependent diabetes mellitus with neurological comps
109051	C10E612	Insulin dependent diabetes mellitus with gangrene
102163	C10ED12	Insulin dependent diabetes mellitus with nephropathy
95539	C10FS00	Maternally inherited diabetes mellitus
51697	C10G.00	Secondary pancreatic diabetes mellitus
96506	C10G000	Secondary pancreatic diabetes mellitus without complication
43857	C10M.00	Lipoatrophic diabetes mellitus
22487	C10N.00	Secondary diabetes mellitus
94383	C10N000	Secondary diabetes mellitus without complication
93380	C10N100	Cystic fibrosis related diabetes mellitus
33343	C10y.00	Diabetes mellitus with other specified manifestation
63371	C10y100	Diabetes mellitus, adult, + other specified manifestation
10098	C10yy00	Other specified diabetes mellitus with other spec comps
70821	C10yz00	Diabetes mellitus NOS with other specified manifestation
45491	C10z.00	Diabetes mellitus with unspecified complication
64283	C10zy00	Other specified diabetes mellitus with unspecified comps
64357	C10zz00	Diabetes mellitus NOS with unspecified complication
52212	Cyu2.00	[X]Diabetes mellitus
41686	Cyu2000	[X]Other specified diabetes mellitus

medcode	readcode	Description
100292	Cyu2300	[X]Unspecified diabetes mellitus with renal complications
5002	F372.11	Diabetic polyneuropathy
2342	F372.12	Diabetic neuropathy
39420	F381300	Myasthenic syndrome due to diabetic amyotrophy
2340	F381311	Diabetic amyotrophy
37315	F3y0.00	Diabetic mononeuropathy
1323	F420.00	Diabetic retinopathy
3286	F420100	Proliferative diabetic retinopathy
2986	F420200	Preproliferative diabetic retinopathy
10099	F420300	Advanced diabetic maculopathy
3837	F420400	Diabetic maculopathy
10755	F420600	Non proliferative diabetic retinopathy
30477	F420700	High risk proliferative diabetic retinopathy
65463	F420800	High risk non proliferative diabetic retinopathy
11626	F420z00	Diabetic retinopathy NOS
45499	K01x111	Kimmelstiel - Wilson disease
50960	L180500	Pre-existing diabetes mellitus, insulin-dependent
50609	L180600	Pre-existing diabetes mellitus, non-insulin-dependent
109133	L180700	Pre-existing malnutrition-related diabetes mellitus
55431	L180X00	Pre-existing diabetes mellitus, unspecified
112402	C107y00	Other specified diabetes mellitus with periph circ comps
39406	C109800	Reaven's syndrome
114439	C10A200	Malnutrition-related diabetes mellitus with renal complicatn
11551	C10B.00	Diabetes mellitus induced by steroids
26108	C10B000	Steroid induced diabetes mellitus without complication
54773	C10F800	Reaven's syndrome
39481	C10F811	Metabolic syndrome X

medcode	readcode	Description
61122	C10H.00	Diabetes mellitus induced by non-steroid drugs
67212	C10H000	DM induced by non-steroid drugs without complication
68517	C10J.00	Insulin autoimmune syndrome
114017	C10J000	Insulin autoimmune syndrome without complication
37957	C10K.00	Type A insulin resistance
56885	C10K000	Type A insulin resistance without complication
107603	C10P.00	Diabetes mellitus in remission
113115	C10Q.00	Maturity onset diabetes of the young type 5
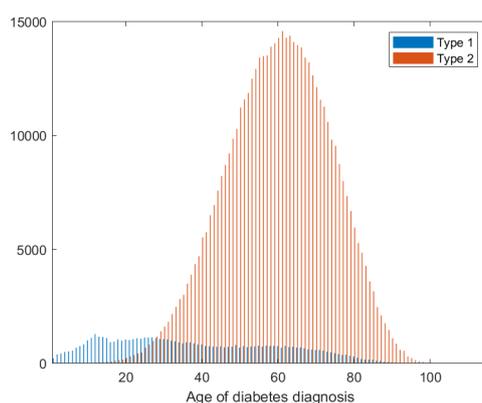
Figure 2. Distributions of number of patients with the firstly diagnosed diabetes of Type 1 and Type 2.

Table 45. Table of codes for diagnoses identification

Disease	Abbr	Codes
'Anorexia'	'Ano'	605, 912, 2135, 4377, 6583, 8027, 9581, 30570, 33863, 34929, 53746
'Anxiety'	'Anx'	191, 276, 636, 655, 966, 1510, 1723, 1758, 1907, 2030, 2076, 2188, 2300, 2366, 2571, 2775, 2826, 2871, 3076, 3208, 3361, 3438, 3685, 3869, 4069, 4167, 4171, 4199, 4269, 4534, 4634, 4659, 4775, 4963, 5067, 5249, 5304, 5305, 5385, 5652, 5678, 6071, 6075, 6221, 6939, 7537, 7716, 8205, 9125,

		9265, 9386, 9686, 9785, 10001, 10344, 10390, 10455, 11098, 11336, 11602, 11607, 11913, 11940, 12228, 12453, 12508, 12707, 12838, 14729, 14780, 14979, 15034, 15035, 15224, 15284, 15292, 15321, 15371, 15431, 15483, 15551, 15566, 15665, 15939, 15959, 16178, 16199, 16415, 16484, 16561, 18049, 18399, 18603, 19921, 20053, 20109, 20245, 20634, 21753, 22019, 22136, 22721, 23327, 23354, 23413, 23462, 23490, 23598, 23808, 23838, 23869, 24066, 24212, 24439, 24525, 24847, 26138, 27390, 27633, 27685, 28090, 28106, 28938, 29322, 29448, 29461, 29707, 30179, 30961, 31422, 31515, 31672, 31957, 32034, 32387, 34064, 34664, 34696, 34978, 35632, 35914, 37669, 38134, 38640, 38809, 39518, 39747, 39826, 40311, 40994, 41038, 41455, 41572, 41615, 42000, 42737, 43050, 43302, 44212, 44321, 44331, 44547, 44739, 45205, 45603, 47809, 48561, 48588, 48671, 48906, 49628, 51497, 53362, 53766, 54373, 54658, 55781, 56141, 56800, 56924, 56966, 57877, 58013, 62002, 62400, 64166, 66398, 67304, 68379, 71437, 72171, 73547, 88758, 89237, 96391, 99609, 104891
'Blindness'	'Bli'	510, 555, 1444, 1990, 2746, 3851, 3976, 6020, 6661, 6768, 7203, 8367, 9342, 9645, 10868, 12493, 13152, 15269, 18819, 20256, 20585, 20607, 23742, 25168, 25547, 25831, 26722, 29387, 32044, 32467, 33014, 33015, 33016, 33017, 33447, 34957, 35515, 37086, 37893, 38000, 38166, 38167, 38168, 40451, 41060, 42262, 44954, 45030, 45786, 47158, 47911, 47912, 47956, 48983, 49283, 50679, 50925, 51274, 54513, 54514, 54962, 55108, 55436, 55844, 56574, 57631, 58787, 60032, 60043, 60078, 60401, 62657, 63045, 63298, 63732, 63928, 65144, 65569, 66372, 66391, 66731, 67296, 67594, 67765, 67872, 68386, 68391, 69998, 71319, 72411, 73224, 73534, 96455, 98637, 98672, 99165, 99166, 99191, 99504, 100755, 100999, 101051, 104077, 104087, 104666, 104853, 105206, 105493, 105665
'Bronchiectasis'	'Bro'	2195, 20364, 32679, 41491
'AIDS'	'AID'	8281, 23770, 23951, 27641, 27853, 36294, 37006, 44303, 44617, 47632, 50076, 51708, 53636, 58859, 62854, 62891, 65117, 66368, 67575, 69766, 69767, 70528, 70869, 71450, 80831, 83845, 96751, 100769,

		101836, 102117, 102252, 104134, 105324, 107807, 111979, 112030, 112031, 112032, 112034, 112035, 112036, 112037
'Mild Liver Disease'	'MLD'	1754, 2834, 2860, 6800, 7602, 7943, 7957, 9029, 10539, 11431, 15489, 16766, 18652, 21713, 23578, 24813, 25383, 25589, 26037, 26367, 27663, 28703, 28798, 30586, 30729, 31008, 32277, 33597, 34642, 40963, 41096, 41237, 42843, 50245, 53480, 53704, 53877, 60104, 66534, 69313, 71453, 96085, 98148, 99898, 100592, 104572
'Moderate or Severe Liver Disease'	'SLD'	1638, 1641, 1755, 3450, 4743, 5129, 5638, 6015, 6863, 8206, 8363, 9494, 10636, 10797, 11960, 15424, 16455, 16725, 16759, 17219, 18739, 19512, 20233, 20912, 22841, 24220, 24989, 26319, 27438, 28929, 30655, 31897, 39351, 40567, 43404, 44120, 44424, 44676, 46647, 47214, 47257, 48102, 48928, 55454, 58184, 58630, 62582, 64750, 65050, 68376, 69053, 69204, 73139, 73482, 91591, 92909, 96664, 96756, 100253, 100474, 102922, 105611, 108800
'Chronic Liver Disease and Viral Hepatitis'	'CLD'	1638, 1641, 1754, 1755, 2834, 2860, 3450, 4743, 5129, 5638, 6015, 6800, 6863, 7602, 7943, 7957, 8206, 8363, 9029, 9494, 10539, 10636, 10797, 11431, 11960, 15424, 15489, 16455, 16725, 16759, 16766, 17219, 18652, 18739, 19512, 20233, 20912, 21713, 22841, 23578, 24220, 24813, 24989, 25383, 25589, 26037, 26319, 26367, 27438, 27663, 28703, 28798, 28929, 30586, 30655, 30729, 31008, 31897, 32277, 33597, 34642, 39351, 40567, 40963, 41096, 41237, 42843, 43404, 44120, 44424, 44676, 46647, 47214, 47257, 48102, 48928, 50245, 53480, 53704, 53877, 55454, 58184, 58630, 60104, 62582, 64750, 65050, 66534, 68376, 69053, 69204, 69313, 71453, 73139, 73482, 91591, 92909, 96085, 96664, 96756, 98148, 99898, 100253, 100474, 100592, 102922, 104572, 105611, 108800
'Cystic Fibrosis'	'CyF'	6220, 13264, 18905, 18914, 24137, 36622, 49770, 65344, 69017, 73065, 93380, 100520, 100610, 102922, 103224, 106432, 110454
'Depression'	'Dep'	324, 543, 595, 655, 1055, 1131, 1533, 1908, 1996, 2639, 2716, 2923, 2970, 2972, 3291, 3292, 4323, 4639, 4824, 4979, 5879, 5987, 6482, 6546, 6854,

		6932, 6950, 7011, 7604, 7737, 7749, 7953, 8584, 8826, 8851, 8902, 9055, 9183, 9211, 9667, 9796, 10015, 10438, 10455, 10610, 10667, 10720, 10825, 11252, 11329, 11717, 11913, 12122, 12399, 13307, 14709, 15099, 15155, 15219, 15220, 16506, 16632, 18510, 19054, 19439, 19696, 21887, 22116, 22806, 25563, 25697, 27491, 27677, 28248, 28756, 29342, 29520, 29784, 30405, 30483, 32841, 32845, 33469, 34390, 35671, 36246, 36616, 41989, 42931, 43292, 43324, 44300, 44936, 47731, 55384, 56273, 56609, 57409, 59386, 73991, 74050, 74079, 74155, 74293, 74296, 74352, 74470, 74624, 74775, 75087, 75612, 76768, 77005, 77229, 78918, 79163, 79246, 79553, 80858, 83126, 83254, 84210, 84554, 85574
'Diverticular disease of intestine	'DDI'	347, 1101, 2044, 2536, 3538, 3593, 5686, 5857, 7662, 8322, 9511, 10437, 10483, 12345, 14942, 17105, 19935, 27444, 31365, 37588, 37813, 38941, 42866, 44647, 47924, 48173, 48589, 49066, 49084, 50313, 51511, 53092, 61664, 61722, 62979, 69918, 71130, 72590, 73334, 106340
'Hearing loss'	'HeL'	412, 467, 536, 626, 686, 1151, 1681, 1752, 1774, 2061, 2348, 2552, 2625, 2876, 3171, 3747, 3912, 4035, 5016, 5149, 5967, 6082, 6641, 6846, 7085, 7301, 7344, 7825, 7891, 8033, 8941, 9830, 9882, 10112, 10170, 10367, 10665, 11619, 11704, 12324, 12339, 12692, 13113, 13114, 13115, 14805, 14893, 14983, 15723, 15940, 16393, 16648, 17407, 17699, 18008, 18375, 18520, 18945, 19068, 19084, 19417, 19666, 19694, 20715, 22102, 26539, 27901, 29191, 30206, 30355, 30394, 31374, 31748, 33583, 35178, 36660, 38563, 39022, 42893, 43581, 44282, 45751, 47440, 47475, 52758, 53800, 54116, 58602, 60293, 62906, 69894, 71827, 94782, 96245, 96803, 98253
'Hemiplegia'	'Hem'	1749, 3063, 3293, 3514, 8492, 8933, 9271, 9375, 16117, 20122, 22135, 36133, 37160, 39085, 46175, 74113, 75246, 77463, 77811, 80917, 84112, 84651, 88688, 91960, 99040
'Hypertension'	'Hyp'	204, 351, 799, 1894, 3712, 4372, 7057, 7329, 10818, 15377, 16059, 18765, 25371, 31341, 31387, 31755, 34744, 42229, 51635, 57288, 59383, 69753, 73293, 83473, 102458

'Inflammatory bowel disease'	'IBD'	593, 704, 1784, 5133, 6538, 6650, 8347, 9359, 11286, 15207, 15773, 20688, 22516, 23950, 24550, 24858, 28476, 29616, 30433, 33456, 36913, 39037, 39278, 42822, 43090, 44426, 48732, 51576, 51578, 52449, 53743, 59994, 62628, 63036, 64773, 66238, 69959, 71945, 104259
'Irritable bowel syndrome'	'IBS'	451, 923, 16560, 29835
'Learning disability	'LD'	302, 1362, 1543, 1680, 1787, 4477, 4825, 6123, 7226, 10628, 10759, 18415, 19436, 23489, 27691, 28740, 28962, 32603, 32820, 33949, 34174, 34734, 36143, 37867, 37887, 37911, 39016, 39412, 42520, 42589, 42886, 44327, 45133, 46504, 47948, 50606, 50751, 50947, 51268, 52602, 54179, 54881, 55560, 55848, 56547, 56577, 57199, 59407, 60062, 60473, 60913, 61627, 63273, 65468, 66383, 66783, 70008, 70102, 71196, 90276, 98100, 98293, 98342, 99774, 100648
'Multiple sclerosis'	'MSc'	684, 2298, 20493, 23730, 40344, 43232, 44985, 50161, 69886, 95972, 96246, 96291, 96607
'Peptic Ulcer Disease'	'PUD'	352, 657, 670, 1262, 1295, 3101, 3462, 4741, 5521, 5928, 6333, 6865, 9853, 11104, 11124, 14671, 15175, 15403, 15821, 15979, 18001, 18027, 18324, 18625, 18654, 19928, 20677, 22918, 23082, 23688, 24021, 24040, 24342, 26261, 28366, 29317, 29771, 30054, 32856, 33438, 33914, 36461, 36583, 37620, 40997, 41271, 42274, 44073, 44284, 44309, 44324, 44335, 44637, 45184, 45304, 48730, 48946, 50048, 50497, 51406, 52138, 52313, 52323, 53081, 53126, 53336, 53669, 53797, 53822, 57958, 60249, 60346, 63001, 63482, 63582, 63718, 64014, 64111, 64165, 64556, 64710, 64913, 65737, 66092, 67082, 67356, 67711, 68661, 69663, 70005, 70390, 70456, 71150, 71403, 71881, 71897, 71904, 73338, 73417, 73697, 74496, 74539, 74848, 75354, 75550, 75673, 76394, 77740, 79977, 82043, 82405, 83017, 83963, 84227, 88061, 88070, 88195, 90208, 90899, 92695, 93436, 94104, 94397, 96090, 96622, 96628, 99430, 99670, 102177, 106330, 109546, 110244
'Prostate disorders'	'PrD'	929, 1053, 2041, 2627, 2946, 3045, 4235, 5906, 7094, 7555, 10146, 14871, 16035, 23601, 27479, 29437, 29497, 33389, 33409, 35676, 47717, 48181,

		53550, 59599, 62232, 64296, 65775, 67204, 71783, 72679
'Psoriasis or eczema'	'PsE'	162, 172, 230, 610, 653, 1095, 1240, 1741, 2859, 2945, 3193, 3437, 3699, 3733, 4231, 4684, 5000, 5391, 5869, 6218, 6399, 8014, 8994, 11761, 15372, 15879, 17094, 18755, 20222, 21104, 21633, 22501, 22764, 24136, 29779, 30210, 30272, 30975, 39721, 41149, 42008, 48257, 60169, 65839, 66711, 93511, 102327, 102515, 105229
'Pulmonary Fibrosis'	'PuF'	5519, 6051, 6837, 7791, 8317, 11312, 15588, 19492, 22536, 23446, 23461, 25013, 27345, 28229, 30235, 31423, 31447, 36240, 41694, 43417, 44015, 45427, 46460, 46795, 46977, 47782, 49194, 51858, 53095, 53205, 53851, 53943, 54706, 54822, 55552, 56652, 60805, 62200, 62233, 62442, 63172, 65060, 65376, 67709, 69452, 70286, 71853, 89206, 91912, 91989, 93206, 93577, 94575, 94894, 103472, 103559, 103753, 104915, 105628, 105939, 109815
'Rheumatoid arthritis & …'	'RhA'	476, 844, 1408, 2667, 3649, 3944, 4125, 4186, 4578, 4908, 5492, 5723, 6916, 7196, 7522, 7871, 8350, 8583, 9707, 12019, 12500, 12575, 15511, 17675, 18155, 20615, 21358, 21533, 23552, 23833, 24747, 25020, 25390, 26368, 27512, 27557, 27603, 28316, 28417, 28456, 30548, 31054, 31181, 31360, 31724, 32001, 32649, 34880, 36276, 36597, 37418, 37431, 41941, 42299, 42405, 44141, 46436, 46622, 47831, 48832, 49067, 49227, 50644, 50863, 51238, 51239, 59738, 63198, 63365, 70658, 71083, 71784, 73619, 94854, 96880, 99414, 100776, 100914, 107112, 107791, 107963
'Schizophrenia '	'Sch'	576, 694, 854, 1494, 1531, 2113, 2117, 2560, 2741, 2882, 3702, 3890, 3984, 4390, 4677, 4678, 4732, 6710, 6874, 8407, 8567, 8766, 9281, 9422, 9521, 10575, 11055, 11596, 12099, 12173, 12771, 12831, 13024, 14656, 14784, 14971, 15249, 15733, 15923, 15958, 16347, 16537, 16562, 16764, 16808, 16861, 16905, 17281, 17385, 18053, 18909, 19967, 20785, 21065, 21455, 22188, 22644, 22713, 23616, 24107, 24171, 24345, 24689, 25546, 26143, 26161, 26227, 26299, 27739, 27770, 27890, 27935, 27986, 28168, 28277, 28562, 28677, 29451, 30282, 30619, 30985, 31316, 31362, 31493, 31535, 31633, 31738, 31757,

		31984, 32088, 32222, 32295, 33338, 33383, 33410, 33425, 33426, 33693, 33751, 33847, 34236, 34389, 34966, 35274, 35607, 35734, 35738, 35877, 36126, 37102, 37296, 37580, 37681, 37764, 38063, 39062, 39316, 41022, 41207, 41992, 43225, 43405, 43800, 44498, 44513, 44693, 46415, 46425, 46434, 47619, 47947, 48054, 48632, 49223, 49420, 49761, 49763, 49852, 50060, 51032, 51322, 51494, 51903, 53032, 53840, 53985, 54195, 54607, 55221, 55829, 56143, 57605, 57666, 58532, 58716, 58862, 58866, 60013, 60178, 61098, 61501, 62222, 62405, 63150, 63284, 63478, 63583, 63698, 63701, 63867, 64264, 64533, 65811, 66077, 66153, 66506, 68326, 68647, 70399, 70925, 71250, 73295, 73423, 73924, 91547, 92994, 94001, 94604, 97919, 98417, 98821, 99000, 99070, 99199, 103915, 104051, 104065, 104760, 104763, 107222
'Chronic sinusitis'	'CS'	848, 1140, 1400, 1673, 1674, 2257, 3938, 4128, 4433, 4640, 5437, 6354, 6491, 7243, 7738, 7981, 8220, 10546, 11711, 11744, 12747, 15163, 16022, 16626, 17173, 18083, 18271, 18302, 18869, 19480, 19742, 19995, 20806, 20832, 21213, 21923, 22555, 23673, 23740, 24535, 25174, 27869, 28764, 29429, 30744, 32764, 33336, 33437, 33603, 33709, 33756, 33922, 33956, 34107, 34165, 34257, 34973, 35389, 35897, 36047, 37481, 39139, 39381, 39469, 39501, 41457, 41877, 41887, 42166, 42196, 44432, 44645, 44876, 45832, 45995, 46336, 48497, 48703, 48896, 49348, 49369, 49548, 50787, 53961, 54292, 54375, 57098, 59019, 59339, 60356, 61629, 62763, 62936, 63552, 63733, 64359, 64766, 66885, 67200, 67275, 68003, 68405, 69374, 70776, 86064, 88274, 90287, 91681, 92311, 92967, 94014, 95634, 95857, 96692, 97338, 99561, 100959, 103022, 105121, 105781, 110252
'Thyroid disorders	'ThD'	273, 1472, 1619, 3290, 3941, 10097, 11322, 11892, 14704, 15743, 18282, 20310, 23014, 24748, 25913, 27533, 28852, 31612, 31971, 34221, 38976, 46345, 47449, 47521, 50275, 50860, 51481, 51706, 56722, 59702, 67513, 69290, 93159, 93323, 94915, 95830, 97090

Table 36. Differences of dates of death in CPRD and ONS ("dateofDeath check 2.xlsx")

CPRD before ONS	# Cases		CPRD after ONS	# Cases
More than 2 years	3		More than 2 years	13
More than 1 year	18		More than 1 year	32
More than 9 months	18		More than 9 months	102
More than 6 months	48		More than 6 months	9
More than 3 months	194		More than 3 months	12
More than 2 months	67		More than 2 months	8
More than month	106		More than month	43
More than 15 days	1656		More than 15 days	122
Less than 15 days	7545		Less than 15 days	1035

Table 47. Contingency table for gender and linkage

	Female	Male	Fraction
Linked	312,620	343,790	0.47626
Non-linked	262,660	286,700	0.47812
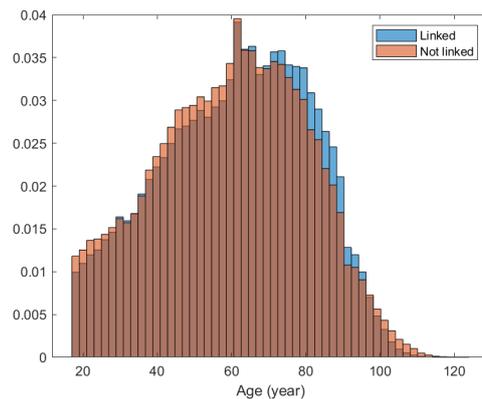
Figure 3. Distribution of Age for linked and non-linked samples (the right is corrected)

Table 48. Contingency tables, fractions of not in sample in linked and non-linked data sets, *p*-value of χ^2 test of independence and effect size for 41 diagnosed diseases, green background highlights *p*-values greater than 1% and effect sizes less than 1%

Subset	Not in sample	In sample	Fraction		*p*-value
					Effect size
AF					
Non-linked	583,560	72,852	0.88901		<0.00001
Linked	470,590	78,759	0.85663		0.03238
AID					
Non-linked	656,270	134	0.99980		<0.00001
Linked	549,110	242	0.99956		0.00024
Alc					
Non-linked	618,330	38,075	0.94199		<0.00001
Linked	507,540	41,813	0.92389		0.01811
Amp					
Non-linked	655,330	1,075	0.99836		<0.00001
Linked	546,540	2,811	0.99488		0.00348
Ang					
Non-linked	581,170	75,236	0.88538		<0.00001
Linked	425,420	123,930	0.77440		0.11098
Ano					
Non-linked	652,950	3,458	0.99473		<0.00001
Linked	540,140	9,213	0.98323		0.01150
Anx					
Non-linked	541,580	114,830	0.82507		<0.00001
Linked	431,030	118,320	0.78461		0.04046
Ast					
Non-linked	559,960	96,450	0.85306		<0.00001
Linked	413,150	136,210	0.75206		0.10100
Bli					
Non-linked	645,030	11,382	0.98266		<0.00001

Subset	Not in sample	In sample	Fraction		p-value / Effect size
Linked	533,510	15,845	0.97116		0.01150
			Bro		
Non-linked	650,350	6,063	0.99076		<0.00001
Linked	539,950	9,404	0.98288		0.00788
			CHD		
Non-linked	519,840	136,570	0.79194		<0.00001
Linked	392,510	156,840	0.71450		0.07745
			CLD		
Non-linked	646,130	10,282	0.98434		<0.00001
Linked	530,030	19,320	0.96483		0.01951
			COP		
Non-linked	571,350	85,062	0.87041		<0.00001
Linked	447,240	102,110	0.81413		0.05629
			CS		
Non-linked	645,260	11,151	0.98301		<0.00001
Linked	538,310	11,041	0.97990		0.00311
			Can		
Non-linked	514,550	141,860	0.78389		<0.00001
Linked	397,150	152,210	0.72293		0.06096
			CyF		
Non-linked	655,980	431	0.99934		0.03155
Linked	548,940	418	0.99924		0.00010
			DDI		
Non-linked	601,220	55,186	0.91593		<0.00001
Linked	474,710	74,647	0.86412		0.05181
			DIB		

Non-linked	309,300	347,110	0.47120		<0.00001
Linked	242,750	306,600	0.44189		0.02931
	Dem				
Non-linked	426,660	229,750	0.65000		<0.00001
Linked	301,670	247,680	0.54914		0.10085
	Dep				
Non-linked	510,550	145,860	0.77779		<0.00001
Linked	401,800	147,560	0.73140		0.04639
	Epi				
Non-linked	632,580	23,828	0.96370		<0.00001
Linked	526,180	23,169	0.95782		0.00587
	HF				
Non-linked	595,700	60,712	0.90751		<0.00001
Linked	462,410	86,940	0.84174		0.06577
	HeL				
Non-linked	582,390	74,022	0.88723		<0.00001
Linked	471,270	78,079	0.85787		0.02936
	Hem				
Non-linked	652,970	3,435	0.99477		<0.00001
Linked	530,830	18,519	0.96629		0.02848
	Hyp				
Non-linked	385,800	270,610	0.58774		<0.00001
Linked	228,550	320,800	0.41603		0.17170
	IBD				
Non-linked	649,040	7,369	0.98877		<0.00001
Linked	540,440	8,918	0.98377		0.00501
	IBS				
Non-linked	621,300	35,112	0.94651		<0.00001

Linked	514,960	34,390	0.93740		0.00911
			LD		
Non-linked	652,760	3,645	0.99445		<0.00001
Linked	545,610	3,746	0.99318		0.00127
			Lip		
Non-linked	651,820	4,590	0.99301		<0.00001
Linked	541,350	8,001	0.98544		0.00757
			MLD		
Non-linked	652,500	3,904	0.99405		<0.00001
Linked	539,280	10,073	0.98166		0.01239
			MSc		
Non-linked	654,350	2,059	0.99686		0.00150
Linked	547,800	1,549	0.99718		0.00032
			MVD		
Non-linked	520,380	136,030	0.79277		<0.00001
Linked	427,270	122,090	0.77776		0.01501
			PUD		
Non-linked	624,790	31,620	0.95183		<0.00001
Linked	483,250	66,101	0.87967		0.07215
			PrD		
Non-linked	630,100	26,304	0.95993		<0.00001
Linked	499,910	49,446	0.90999		0.04994
			PsE		
Non-linked	540,450	115,960	0.82334		<0.00001
Linked	432,820	116,530	0.78787		0.03547
			PuF		
Non-linked	651,460	4,945	0.99247		<0.00001
Linked	546,060	3,295	0.99400		0.00154

	RhA				
Non-linked	628,530	27,881	0.95752		<0.00001
Linked	512,180	37,177	0.93233		0.02520
	SLD				
Non-linked	649,020	7,389	0.98874		<0.00001
Linked	536,850	12,505	0.97724		0.01151
	Sch				
Non-linked	644,480	11,926	0.98183		<0.00001
Linked	535,270	14,081	0.97437		0.00746
	Str				
Non-linked	574,180	82,227	0.87473		<0.00001
Linked	453,680	95,676	0.82584		0.04889
	ThD				
Non-linked	596,340	60,066	0.90849		<0.00001
Linked	491,500	57,854	0.89469		0.01381

Table 49. Fraction of old people without any records after 01.01.2010

Upper bound of age	# of cases		Fraction of 'dead'
	without records	totally	
80	109	1833	5.95%
90	743	6048	12.29%
100	290	356	81.46%
110	104	105	99.05%
120	5	5	100.00%

Table 50. Probability of primary and secondary diseases for General Control Sample (GCS prob) and diabetes sample (DIB), p-value is probability of observing by chance the same or greater χ^2 statistics if both samples are taken from the same population

Diagnose	DIA	Cases	GCS prob	DIB prob	p-value
Alcohol	Alc	79,888	0.03320	0.05702	<10-300

Amputation	Amp	3,886	0.00058	0.00308	<10-300
Angina	Ang	199,169	0.04520	0.19605	<10-300
Asthma	Ast	232,657	0.12849	0.19138	<10-300
AtrialFibr	AF	151,611	0.03518	0.13225	<10-300
CHD	CHD	293,413	0.06923	0.28076	<10-300
COPD	COP	187,172	0.06418	0.15526	<10-300
Cancer	Can	294,062	0.11692	0.26320	<10-300
Dementia	Dem	477,427	0.24706	0.41661	<10-300
Diabetes	DIB	653,708	0.06761	0.99671	<10-300
Epilepsy	Epi	46,997	0.01866	0.02756	<10-300
Heart failure	HF	147,652	0.03325	0.13255	<10-300
Lipids	Lip	12,591	0.00548	0.01233	<10-300
Macrovascular	MVD	258,116	0.05657	0.22897	<10-300
Stroke	Str	177,903	0.04568	0.15411	<10-300
Anorexia	Ano	12,671	0.00694	0.01003	<10-300
Anxiety	Anx	233,148	0.13497	0.19997	<10-300
Blindness	Bli	27,227	0.00749	0.02666	<10-300
Bronchiectasis	Bro	15,467	0.00504	0.01352	<10-300
AIDS	AID	376	0.00033	0.00032	0.768746
Mild Liver Disease	MLD	13,977	0.00558	0.01391	<10-300
Moderate or Severe Liver Disease	SLD	19,894	0.00550	0.02128	<10-300
Chronic Liver Disease and Viral Hepatitis	CLD	29,602	0.00992	0.03048	<10-300
Cystic Fibrosis	CyF	849	0.00033	0.00094	<10-300
Depression	Dep	293,419	0.16118	0.26188	<10-300
Diverticular disease of intestine	DDI	129,833	0.04213	0.12671	<10-300
Hearing loss	HeL	152,101	0.06487	0.13889	<10-300
Hemiplegia	Hem	21,955	0.00664	0.01989	<10-300
Hypertension	Hyp	591,414	0.17297	0.63874	<10-300

Inflammatory bowel disease	IBD	16,287	0.00880	0.01497	<10-300
Irritable bowel syndrome	IBS	69,502	0.04355	0.05915	<10-300
Learning disability	LD	7,391	0.00374	0.00649	<10-300
Multiple sclerosis	MSc	3,608	0.00205	0.00322	<10-300
Peptic Ulcer Disease	PUD	97,721	0.03691	0.09239	<10-300
Prostate disorders	PrD	75,750	0.02235	0.07373	<10-300
Psoriasis or eczema	PsE	232,492	0.13327	0.20481	<10-300
Pulmonary Fibrosis	PuF	8,240	0.00211	0.00808	<10-300
Rheumatoid arthritis & ...	RhA	65,058	0.02376	0.06102	<10-300
Schizophrenia	Sch	26,007	0.01374	0.02369	<10-300
Chronic sinusitis	CS	22,192	0.01174	0.01962	<10-300
Thyroid disorders	ThD	117,920	0.04328	0.11874	<10-300

Table 51. Age related statistics for GCS and DIB samples, QXX is quantile with probability 0.XX, STD means standard deviation

Sample	Min	Q20	Q40	Q50	Q60	Q80	Max	Mean	STD
GCS	17	28	38	43	49	66	124	47.28	21.47
DIB	17	49	60	64	69	78	121	63.32	16.81

Figure 4. Distributions of age for GCS and DIB samples

Table 52. Conditional probabilities of one disease (row) given another disease (column) for GCS sample, yellow background highlights conditional probabilities off greater than 50%, blue background highlights conditional probabilities off greater than 70%, green background highlights conditional probabilities off greater than 99%

	Alc	Amp	Ang	Ast	AF	CHD	COP	Can	Dem	DIB	Epi	HF	Lip	MVD	Str	Ano	Anx	Bli	Bro	AID	MLD	SLD	CLD	CvF	Dep	DDI	HeI	Hem	Hyp	IBD	IBS	LD	MSc	PUD	PrD	PsE	PuF	RhA	Sch	CS	ThD

Alc

Amp

Ang

Ast

AF

CHD

COP

Can

Dem

DIB

Epi

HF

Lip

MVD

Str

Ano

Anx

Bli

Bro

AID

MLD

SLD

CLD

CyF

Dep

DDI

HeL

Hem

Hyp

IBD

IBS

LD

MSc																																									
PUD																																									
PrD																																									
PsE																																									
PuF																																									
RhA																																									
Sch																																									
CS																																									
ThD																																									

Figure 5. Diagrams of conditional probabilities: arrow goes from given disease to conditional diseases

Table 53. Conditional probabilities of one disease (row) given another disease (column) for GCS sample, yellow background highlights conditional probabilities off greater than 30%, blue background highlights conditional probabilities off greater than 60%, green background highlights conditional probabilities off greater than 99%

Can

Dem

DIB

Epi

HF

Lip

MVD

Str

Ano

Anx

Bli

Bro

AID

MLD

SLD

CLD

CyF

Dep

DDI

HeL

Hem

Hyp

IBD

IBS

LD

MSc

PUD

PrD

PsE

PuF

RhA

Sch

CS																																	
ThD																																		

Table 54. Conditional probabilities (%) of one disease (row) given another disease (column) for GCS sample

	Alc	Amp	Ang	Ast	AF	CHD	COP	Can	Dem	DIB	Epi	HF
Alc	0.00	18.06	6.91	5.55	6.07	6.23	8.04	4.43	3.95	6.83	10.06	5.74
Amp	0.31	0.00	0.50	0.09	0.17	0.38	0.15	0.13	0.07	0.29	0.15	0.38
Ang	9.41	38.89	0.00	9.14	27.64	65.15	17.89	12.34	8.27	19.68	7.83	36.09
Ast	21.49	20.14	25.98	0.00	22.70	23.09	36.36	16.49	18.40	21.13	19.77	30.13
AF	6.43	10.42	21.51	6.21	0.00	20.35	12.07	10.29	6.46	13.11	6.26	34.24
CHD	13.00	45.14	99.80	12.44	40.06	0.00	24.43	17.42	11.69	28.11	11.08	52.08
COP	15.54	16.67	25.40	18.16	22.03	22.64	0.00	14.84	11.15	16.48	11.32	29.88
Can	15.61	25.69	31.92	15.01	34.19	29.41	27.04	0.00	18.82	25.56	16.64	30.37
Dem	29.36	31.25	45.22	35.37	45.38	41.72	42.93	39.77	0.00	38.72	37.71	41.43
DIB	13.90	34.03	29.44	11.12	25.20	27.45	17.36	14.78	10.60	0.00	11.81	28.44
Epi	5.65	4.86	3.23	2.87	3.32	2.99	3.29	2.65	2.85	3.26	0.00	3.15
HF	5.75	22.22	26.55	7.80	32.36	25.01	15.48	8.64	5.58	13.99	5.62	0.00
Lip	1.84	2.78	1.22	1.01	0.89	1.12	1.16	0.82	0.86	1.17	1.42	1.06
MVD	10.66	44.44	44.31	8.36	31.89	47.95	18.65	13.75	9.56	21.99	13.83	38.37
Str	8.61	17.36	24.62	6.58	28.22	22.58	13.92	11.65	8.67	16.17	15.29	25.96
Ano	2.23	3.47	1.79	1.18	1.21	1.42	1.58	1.34	1.19	1.33	1.78	1.90

	Alc	Amp	Ang	Ast	AF	CHD	COP	Can	Dem	DIB	Epi	HF
Anx	37.20	18.75	21.27	21.90	18.57	19.48	24.54	19.43	22.49	20.27	22.92	18.05
Bli	1.07	4.17	3.61	1.08	3.46	3.20	2.30	1.90	1.53	2.57	2.38	4.28
Bro	1.06	3.47	2.47	1.70	2.43	2.05	3.88	1.53	0.93	1.49	0.90	2.77
AID	0.16	0.00	0.03	0.02	0.00	0.02	0.02	0.05	0.03	0.02	0.02	0.02
MLD	3.84	2.78	1.74	1.02	1.51	1.39	1.46	1.37	0.76	1.86	1.24	1.86
SLD	8.63	4.17	1.94	0.98	1.66	1.58	1.60	1.18	0.62	2.39	1.52	2.05
CLD	10.64	6.25	3.15	1.75	2.82	2.59	2.72	2.28	1.25	3.60	2.32	3.49
CyF	0.01	0.00	0.02	0.07	0.03	0.03	0.02	0.06	0.05	0.11	0.04	0.02
Dep	49.71	30.56	27.39	26.43	21.76	24.49	29.92	22.98	25.10	26.37	28.11	24.00
DDI	6.28	10.42	18.61	7.27	18.27	16.12	12.93	12.78	7.97	12.56	5.81	16.39
HeL	8.72	12.50	17.93	9.85	18.22	15.93	14.54	13.58	15.55	12.71	10.61	17.04
Hem	1.99	4.86	3.77	1.20	3.55	3.10	2.04	1.50	1.19	2.63	4.93	3.22
Hyp	28.45	52.78	70.58	25.33	67.34	65.24	42.02	41.02	28.35	61.78	25.26	62.84
IBD	1.17	0.00	1.69	1.43	1.66	1.47	1.66	1.49	1.29	1.54	1.31	1.67
IBS	5.28	2.78	5.63	7.19	4.98	5.15	6.91	6.53	7.86	5.29	5.53	4.26
LD	0.78	1.39	0.30	0.50	0.39	0.29	0.47	0.32	0.60	0.78	5.36	0.54
MSc	0.14	0.69	0.23	0.21	0.18	0.22	0.26	0.27	0.28	0.33	0.56	0.17
PUD	11.12	20.14	15.66	6.81	12.45	13.42	11.41	8.93	6.04	10.06	6.41	13.11
PrD	3.58	9.03	11.58	3.40	11.35	10.04	7.23	7.62	4.37	7.02	3.37	9.65
PsE	17.02	22.22	18.87	23.54	19.56	17.65	22.33	19.26	23.49	18.08	17.26	17.95
PuF	0.17	1.39	1.04	0.37	1.08	0.96	1.06	0.62	0.35	0.64	0.21	1.32

	Alc	Amp	Ang	Ast	AF	CHD	COP	Can	Dem	DIB	Epi	HF
RhA	3.51	9.03	8.87	4.11	8.78	7.91	6.63	5.59	4.25	6.27	3.67	9.28
Sch	7.95	5.56	2.37	2.11	1.58	2.20	2.62	1.54	1.93	3.31	4.25	2.43
CS	1.41	0.69	1.77	2.19	1.94	1.65	2.32	2.11	2.45	1.72	1.37	1.32
ThD	5.24	6.25	12.27	6.67	13.58	11.35	9.17	9.38	7.37	11.54	7.70	13.44

Continue

	Lip	MVD	Str	Ano	Anx	Bli	Bro	AID	MLD	SLD	CLD	CyF
Alc	11.17	6.26	6.26	10.66	9.15	4.75	6.99	15.85	22.87	52.11	35.59	1.22
Amp	0.29	0.45	0.22	0.29	0.08	0.32	0.40	0.00	0.29	0.44	0.36	0.00
Ang	10.07	35.41	24.36	11.64	7.12	21.79	22.16	3.66	14.12	15.94	14.35	2.44
Ast	23.72	18.98	18.52	21.77	20.85	18.54	43.45	9.76	23.44	22.85	22.61	25.61
AF	5.69	19.83	21.73	6.11	4.84	16.24	17.00	0.00	9.53	10.63	10.00	3.66
CHD	14.16	58.69	34.22	14.11	9.99	29.54	28.20	3.66	17.20	19.94	18.06	6.10
COP	13.58	21.16	19.56	14.57	11.67	19.71	49.40	3.66	16.85	18.70	17.61	4.88
Can	17.59	28.42	29.81	22.52	16.83	29.70	35.42	17.07	28.60	25.18	26.80	20.73
Dem	38.98	41.77	46.88	42.51	41.17	50.48	45.67	20.73	33.48	27.87	31.20	35.37
DIB	14.45	26.28	23.93	12.96	10.16	23.18	20.02	3.66	22.58	29.40	24.55	21.95
Epi	4.82	4.56	6.24	4.78	3.17	5.93	3.34	1.22	4.16	5.17	4.35	2.44
HF	6.42	22.55	18.90	9.10	4.45	19.02	18.27	2.44	11.11	12.37	11.69	2.44
Lip	0.00	0.98	1.07	1.09	1.10	1.12	1.91	0.00	2.08	1.75	1.85	1.22
MVD	10.07	0.00	65.38	11.98	7.44	26.76	20.33	4.88	9.82	14.05	12.25	6.10

	Lip	MVD	Str	Ano	Anx	Bli	Bro	AID	MLD	SLD	CLD	CyF
Str	8.91	52.80	0.00	11.35	6.35	25.43	16.36	6.10	8.89	10.12	9.79	4.88
Ano	1.39	1.47	1.72	0.00	1.78	2.08	2.07	0.00	2.01	3.35	2.50	0.00
Anx	27.01	17.75	18.77	34.56	0.00	22.01	24.62	12.20	26.67	30.28	27.89	21.95
Bli	1.53	3.54	4.17	2.25	1.22	0.00	2.38	1.22	1.65	1.67	1.61	0.00
Bro	1.75	1.81	1.80	1.50	0.92	1.60	0.00	0.00	2.58	1.89	2.26	9.76
AID	0.00	0.03	0.04	0.00	0.03	0.05	0.00	0.00	0.43	0.36	0.40	0.00
MLD	2.12	0.97	1.09	1.61	1.10	1.23	2.86	7.32	0.00	20.96	56.23	4.88
SLD	1.75	1.36	1.22	2.65	1.23	1.23	2.07	6.10	20.65	0.00	55.38	0.00
CLD	3.36	2.15	2.13	3.57	2.05	2.14	4.45	12.20	100.00	100.00	0.00	4.88
CyF	0.07	0.04	0.04	0.00	0.05	0.00	0.64	0.00	0.29	0.00	0.16	0.00
Dep	31.90	23.67	25.60	46.49	56.73	26.71	30.50	23.17	34.84	41.27	36.84	37.80
DDI	8.98	14.11	15.42	9.16	7.69	15.54	20.33	2.44	16.42	12.45	14.15	6.10
HeL	10.44	16.04	17.24	11.81	10.39	23.66	20.02	4.88	10.47	9.02	9.75	12.20
Hem	5.55	7.82	10.31	3.17	1.16	4.65	2.38	1.22	2.29	2.18	2.10	0.00
Hyp	31.39	60.92	62.56	26.67	25.91	52.56	52.98	20.73	38.92	42.87	40.47	20.73
IBD	1.31	1.45	1.55	2.13	1.48	1.76	2.94	2.44	3.37	2.69	2.98	1.22
IBS	7.30	4.37	4.60	10.66	11.62	6.57	8.82	1.22	6.24	4.29	5.32	10.98
LD	0.51	0.45	0.57	0.63	0.61	3.10	0.87	0.00	0.29	0.80	0.48	1.22
MSc	0.15	0.34	0.35	0.58	0.33	1.28	0.24	0.00	0.29	0.36	0.36	0.00
PUD	9.64	11.36	11.29	9.22	7.51	11.97	16.92	3.66	14.98	19.65	16.89	14.63

	Lip	MVD	Str	Ano	Anx	Bli	Bro	AID	MLD	SLD	CLD	CyF
PrD	4.60	9.14	9.24	4.55	2.90	8.60	10.72	0.00	6.74	4.00	5.40	0.00
PsE	18.61	17.71	17.49	21.83	21.84	22.06	21.45	17.07	17.13	18.20	17.53	23.17
PuF	0.44	0.79	0.65	0.35	0.27	0.53	4.13	0.00	0.57	0.51	0.48	2.44
RhA	5.04	7.18	7.65	5.47	4.04	7.32	12.31	1.22	6.95	6.11	6.65	7.32
Sch	3.43	2.18	2.89	5.18	4.43	3.37	2.78	7.32	4.23	6.04	4.76	1.22
CS	1.82	1.35	1.50	1.56	2.74	1.76	5.08	0.00	2.08	1.46	1.73	3.66
ThD	7.01	10.83	12.13	8.24	7.76	12.34	12.47	2.44	9.46	10.41	9.71	12.20

Continue

	Dep	DDI	HeL	Hem	Hyp	IBD	IBS	LD	MSc	PUD	PrD	PsE
Alc	10.24	4.95	4.46	9.94	5.46	4.41	4.02	6.94	2.34	10.00	5.32	4.24
Amp	0.11	0.14	0.11	0.42	0.18	0.00	0.04	0.21	0.19	0.31	0.23	0.10
Ang	7.68	19.97	12.49	25.66	18.44	8.69	5.84	3.63	5.07	19.18	23.41	6.40
Ast	21.07	22.17	19.50	23.19	18.81	20.92	21.22	17.09	13.26	23.70	19.55	22.69
AF	4.75	15.26	9.88	18.80	13.70	6.64	4.02	3.63	3.12	11.87	17.86	5.16
CHD	10.52	26.49	17.01	32.35	26.11	11.55	8.19	5.45	7.41	25.16	31.11	9.17
COP	11.91	19.70	14.39	19.76	15.59	12.10	10.18	8.01	7.99	19.84	20.76	10.75
Can	16.67	35.46	24.47	26.33	27.73	19.83	17.53	10.04	15.20	28.29	39.88	16.89
Dem	38.48	46.74	59.23	44.34	40.50	36.29	44.57	39.32	33.72	40.40	48.31	43.55
DIB	11.06	20.16	13.25	26.81	24.15	11.82	8.22	14.00	10.92	18.43	21.23	9.17

	Dep	DDI	HeL	Hem	Hyp	IBD	IBS	LD	MSc	PUD	PrD	PsE
Epi	3.25	2.57	3.05	13.86	2.72	2.77	2.37	26.71	5.07	3.24	2.81	2.42
HF	4.95	12.93	8.73	16.14	12.08	6.32	3.25	4.81	2.73	11.81	14.35	4.48
Lip	1.08	1.17	0.88	4.58	0.99	0.82	0.92	0.75	0.39	1.43	1.13	0.77
MVD	8.31	18.95	13.99	66.63	19.93	9.32	5.68	6.84	9.36	17.41	23.14	7.52
Str	7.26	16.72	12.14	70.90	16.52	8.05	4.82	6.94	7.80	13.97	18.88	5.99
Ano	2.00	1.51	1.26	3.31	1.07	1.68	1.70	1.18	1.95	1.73	1.41	1.14
Anx	47.50	24.63	21.61	23.61	20.22	22.74	36.02	21.90	21.83	27.46	17.54	22.11
Bli	1.24	2.76	2.73	5.24	2.28	1.50	1.13	6.20	4.68	2.43	2.88	1.24
Bro	0.95	2.43	1.55	1.81	1.54	1.68	1.02	1.18	0.58	2.31	2.42	0.81
AID	0.05	0.02	0.02	0.06	0.04	0.09	0.01	0.00	0.00	0.03	0.00	0.04
MLD	1.21	2.17	0.90	1.93	1.26	2.14	0.80	0.43	0.78	2.26	1.68	0.72
SLD	1.41	1.62	0.76	1.81	1.36	1.68	0.54	1.18	0.97	2.93	0.98	0.75
CLD	2.27	3.33	1.49	3.13	2.32	3.37	1.21	1.28	1.75	4.54	2.40	1.31
CyF	0.08	0.05	0.06	0.00	0.04	0.05	0.08	0.11	0.00	0.13	0.00	0.06
Dep	0.00	29.36	25.18	31.63	23.99	27.10	38.58	25.43	31.77	31.88	20.53	25.00
DDI	7.68	0.00	11.38	13.98	13.75	15.19	11.22	2.78	5.65	17.66	18.45	6.66
HeL	10.14	17.53	0.00	14.82	13.64	11.19	11.01	15.81	8.38	14.79	20.82	11.41
Hem	1.30	2.20	1.52	0.00	2.37	1.46	0.67	3.74	4.87	2.41	2.97	0.84
Hyp	25.74	56.44	36.37	61.75	0.00	30.79	23.17	15.81	20.08	47.05	56.49	24.10
IBD	1.48	3.17	1.52	1.93	1.57	0.00	2.49	1.28	1.75	2.25	1.88	1.49
IBS	10.42	11.60	7.39	4.40	5.83	12.32	0.00	4.27	7.41	9.04	5.76	8.32

	Dep	DDI	HeL	Hem	Hyp	IBD	IBS	LD	MSc	PUD	PrD	PsE
LD	0.59	0.25	0.91	2.11	0.34	0.55	0.37	0.00	0.00	0.42	0.36	0.61
MSc	0.40	0.28	0.27	1.51	0.24	0.41	0.35	0.00	0.00	0.37	0.18	0.29
PUD	7.30	15.48	8.42	13.37	10.04	9.46	7.66	4.17	6.63	0.00	14.30	5.60
PrD	2.85	9.79	7.17	10.00	7.30	4.77	2.96	2.14	1.95	8.66	0.00	3.70
PsE	20.67	21.08	23.44	16.93	18.57	22.60	25.47	21.79	18.91	20.21	22.07	0.00
PuF	0.26	0.79	0.58	0.36	0.58	0.59	0.28	0.21	0.00	0.63	1.00	0.37
RhA	4.25	9.58	5.48	7.23	6.82	7.14	4.66	2.24	3.31	8.04	6.26	4.62
Sch	4.54	1.82	1.89	4.10	1.88	2.50	1.58	16.35	2.53	2.74	1.81	1.53
CS	2.45	2.93	2.39	1.45	1.94	2.09	3.81	0.64	1.56	2.43	2.33	2.32
ThD	8.15	12.74	8.75	11.20	10.87	7.59	8.63	13.78	7.02	9.70	5.67	6.46

Continue

	PuF	RhA	Sch	CS	ThD
Alc	2.66	4.90	19.22	3.99	4.02
Amp	0.38	0.22	0.23	0.03	0.08
Ang	22.20	16.87	7.80	6.81	12.81
Ast	22.39	22.24	19.77	24.01	19.80
AF	18.03	12.99	4.05	5.82	11.04
CHD	31.50	23.04	11.09	9.71	18.15
COP	32.26	17.89	12.26	12.67	13.61
Can	34.35	27.49	13.13	20.98	25.34
Dem	40.61	44.18	34.62	51.63	42.06
DIB	20.68	17.83	16.28	9.91	18.03
Epi	1.90	2.88	5.77	2.18	3.32
HF	20.87	12.98	5.88	3.75	10.32
Lip	1.14	1.16	1.37	0.85	0.89

	PuF	RhA	Sch	CS	ThD
MVD	21.25	17.10	8.97	6.51	14.16
Str	14.04	14.71	9.61	5.82	12.80
Ano	1.14	1.60	2.62	0.92	1.32
Anx	17.08	22.93	43.56	31.54	24.20
Bli	1.90	2.31	1.83	1.12	2.14
Bro	9.87	2.61	1.02	2.18	1.45
AID	0.00	0.02	0.17	0.00	0.02
MLD	1.52	1.63	1.72	0.99	1.22
SLD	1.33	1.41	2.42	0.68	1.32
CLD	2.28	2.78	3.44	1.46	2.23
CyF	0.38	0.10	0.03	0.10	0.09
Dep	20.11	28.83	53.29	33.58	30.37
DDI	15.75	16.98	5.59	10.52	12.40
HeL	17.84	14.96	8.94	13.18	13.12
Hem	1.14	2.02	1.98	0.82	1.72
Hyp	47.63	49.62	23.73	28.61	43.43
IBD	2.47	2.64	1.60	1.57	1.54
IBS	5.69	8.53	5.01	14.13	8.69
LD	0.38	0.35	4.46	0.20	1.19
MSc	0.00	0.29	0.38	0.27	0.33
PUD	11.01	12.49	7.37	7.63	8.27
PrD	10.63	5.89	2.94	4.43	2.93
PsE	23.34	25.89	14.85	26.29	19.89
PuF	0.00	1.30	0.17	0.34	0.62
RhA	14.61	0.00	3.41	5.38	7.36
Sch	1.14	1.97	0.00	1.50	2.82
CS	1.90	2.66	1.28	0.00	2.47

	PuF	RhA	Sch	CS	ThD
ThD	12.71	13.40	8.88	9.09	0.00

Table 55. Conditional probabilities of one disease (row) given another disease (column) for DIB sample, yellow background highlights conditional probabilities off greater than 50%, blue background highlights conditional probabilities off greater than 70%, green background highlights conditional probabilities off greater than 99%

Table 55 (matrix). Columns (left to right): Alc, Amp, Ang, Ast, AF, CHD, COP, Can, Dem, Epi, HF, Lip, MVD, Str, Ano, Anx, Bli, Bro, AID, MLD, SLD, CLD, CyF, Dep, DDI, HeL, Hem, Hyp, IBD, IBS, LD, MSc, PUD, PrD, PsE, PuF, RhA, Sch, CS, ThD. Rows (top to bottom): Alc, Amp, Ang, Ast, AF, CHD, COP, Can, Dem, Epi, HF, Lip, MVD, Str, Ano, Anx, Bli, Bro, AID, MLD, SLD, CLD, CyF.

Highlighted cells:
- Ang: yellow at Amp, yellow at CHD
- Ast: yellow at Bro
- CHD: yellow at Amp, green at Ang, yellow at AF, yellow at Lip, yellow at Str, yellow at Hem
- COP: yellow at Bro
- Dem: yellow at COP, yellow at Lip, yellow at Str, Ano, Anx, Bli, Bro, yellow at Dep, DDI, HeL, Hem, yellow at IBS, yellow at PUD, PrD, PsE, yellow at RhA, yellow at CS
- MVD: yellow at Amp, Ang, yellow at AF, blue at Str, blue at Hem
- Str: blue at Hem
- SLD: yellow at CLD
- CLD: green at SLD, green at CLD

Dep		
DDI		
HeL		94
Hem		
Hyp		
IBD		
IBS		
LD		
MSc		
PUD		
PrD		
PsE		
PuF		
RhA		
Sch		
CS		
ThD		

Table 56. Conditional probabilities of one disease (row) given another disease (column) for DIB sample, yellow background highlights conditional probabilities off greater than 30%, blue background highlights conditional probabilities off greater than 60%, green background highlights conditional probabilities off greater than 99%

	Alc	Amp	Ang	Ast	AF	CHD	COP	Can	Dem	Epi	HF	Lip	MVD	Str	Ano	Anx	Bli	Bro	AID	MLD	SLD	CLD	CyF	Dep	DDI	HeL	Hem	Hyp	IBD	IBS	LD	MSc	PUD	PrD	PsE	PuF	RhA	Sch	CS	ThD
Alc																																								
Amp																																								
Ang																																								
Ast																																								
AF																																								
CHD																																								
COP																																								
Can																																								
Dem																																								
Epi																																								
HF																																								
Lip																																								
MVD																																								
Str																																								
Ano																																								
Anx																																								
Bli																																								
Bro																																								
AID																																								
MLD																																								
SLD																																								
CLD																																								
CyF																																								
Dep																																								
DDI																																								
HeL																																								
Hem																																								
Hyp																																								
IBD																																								

	IBS
LD	
MSc	
PUD	
PrD	
PsE	
PuF	
RhA	
Sch	
CS	
ThD	

Table 57. Conditional probabilities (%) of one disease (row) given another disease (column) for DIB sample

	Alc	Amp	Ang	Ast	AF	CHD	COP	Can	Dem	Epi	HF	Lip
Alc	0.00	19.36	7.35	7.78	6.53	6.66	8.68	5.58	5.72	12.16	7.05	10.33
Amp	1.05	0.00	0.99	0.53	0.47	0.76	0.51	0.28	0.30	0.53	0.81	1.08
Ang	25.26	63.00	0.00	31.23	38.19	69.63	34.19	25.16	23.39	23.76	49.46	26.16
Ast	26.11	32.62	30.48	0.00	27.29	27.06	43.58	20.67	22.27	26.21	35.69	24.79
AF	15.14	20.25	25.76	18.86	0.00	24.36	21.41	18.36	15.45	16.15	40.94	14.30
CHD	32.78	69.36	99.71	39.70	51.71	0.00	44.25	33.88	31.43	31.48	66.07	34.22
COP	23.64	25.47	27.07	35.35	25.14	24.47	0.00	20.42	18.97	20.21	32.25	19.24
Can	25.76	24.22	33.77	28.43	36.55	31.76	34.62	0.00	29.72	26.82	33.23	27.93
Dem	41.76	40.81	49.70	48.49	48.67	46.63	50.91	47.04	0.00	49.88	46.73	51.55
Epi	5.88	4.70	3.34	3.77	3.36	3.09	3.59	2.81	3.30	0.00	3.27	4.75
HF	16.39	34.60	33.44	24.72	41.03	31.19	27.54	16.74	14.87	15.75	0.00	15.84

	Alc	Amp	Ang	Ast	AF	CHD	COP	Can	Dem	Epi	HF	Lip
Lip	2.23	4.33	1.64	1.60	1.33	1.50	1.53	1.31	1.53	2.13	1.47	0.00
MVD	27.10	61.59	53.15	27.87	41.05	55.37	34.31	27.17	25.31	33.04	49.48	25.99
Str	18.43	28.29	27.13	18.56	31.01	25.03	22.13	19.02	18.95	31.69	29.35	17.58
Ano	2.26	2.92	1.74	1.60	1.53	1.47	1.76	1.45	1.38	2.02	1.89	1.35
Anx	35.61	20.30	22.59	27.50	19.48	20.81	26.98	20.54	25.88	28.65	19.94	28.72
Bli	3.22	7.52	4.54	3.46	4.24	4.13	3.98	3.22	3.47	4.79	5.36	3.58
Bro	1.98	2.45	2.36	3.62	2.42	2.09	5.01	1.89	1.73	1.78	2.85	1.48
AID	0.07	0.00	0.03	0.04	0.01	0.03	0.03	0.03	0.03	0.07	0.02	0.04
MLD	6.52	2.61	1.86	2.04	1.73	1.61	2.06	2.04	1.48	2.16	2.04	2.17
SLD	15.98	4.70	2.75	2.83	2.65	2.47	2.99	2.90	2.11	3.43	3.29	3.13
CLD	18.72	6.26	4.00	4.17	3.83	3.54	4.35	4.25	3.10	4.85	4.54	4.47
CyF	0.10	0.00	0.06	0.18	0.05	0.05	0.12	0.08	0.09	0.11	0.09	0.04
Dep	48.13	35.02	30.18	35.89	24.90	27.96	35.05	26.09	32.09	38.03	27.38	36.12
DDI	14.99	11.43	20.63	17.35	20.71	18.50	19.81	19.04	16.05	13.38	19.31	15.33
HeL	13.76	12.89	19.51	17.00	20.33	18.06	19.22	18.23	21.32	16.47	19.29	16.52
Hem	3.27	5.90	4.36	3.07	3.81	3.60	3.12	2.30	2.51	7.84	4.24	4.09
Hyp	67.76	81.16	82.01	71.10	81.30	77.99	72.72	73.03	68.79	64.07	79.85	73.11
IBD	1.69	2.45	1.90	1.94	1.78	1.77	1.98	1.80	1.74	1.79	1.64	2.18
IBS	6.58	5.17	6.29	8.58	5.15	5.76	7.57	6.47	8.27	6.88	4.83	8.65
LD	0.93	0.73	0.36	0.80	0.36	0.37	0.54	0.35	0.70	4.92	0.49	0.84
MSc	0.30	0.16	0.22	0.31	0.20	0.23	0.31	0.29	0.34	0.75	0.25	0.34

	Alc	Amp	Ang	Ast	AF	CHD	COP	Can	Dem	Epi	HF	Lip
PUD	17.61	18.68	16.69	13.70	13.87	14.57	15.41	12.46	11.22	11.96	15.14	13.30
PrD	8.84	12.21	13.92	9.03	13.31	12.14	11.51	12.11	9.61	7.97	12.46	8.91
PsE	23.14	20.56	23.74	26.49	23.22	22.20	27.07	22.95	26.95	23.23	22.71	25.78
PuF	0.82	0.73	1.36	1.19	1.39	1.29	2.03	1.07	0.89	0.72	1.68	0.80
RhA	6.54	10.54	9.41	8.95	9.46	8.54	9.60	7.68	7.68	7.00	9.70	6.87
Sch	6.32	2.71	1.98	2.93	1.56	1.90	2.94	1.77	2.65	5.99	2.13	3.66
CS	2.31	1.67	2.05	3.11	2.04	1.91	2.76	2.24	2.92	2.17	1.71	3.20
ThD	10.16	11.90	14.54	14.76	15.96	13.78	14.12	13.42	13.78	15.29	16.01	13.36

Continue

	MVD	Str	Ano	Anx	Bli	Bro	AID	MLD	SLD	CLD	CyF	Dep
Alc	6.75	6.82	12.87	10.15	6.88	8.37	12.24	26.74	42.81	35.02	5.85	10.48
Amp	0.83	0.57	0.90	0.31	0.87	0.56	0.00	0.58	0.68	0.63	0.00	0.41
Ang	45.51	34.51	33.98	22.15	33.40	34.25	17.86	26.21	25.37	25.71	12.56	22.59
Ast	23.30	23.04	30.48	26.32	24.85	51.27	23.47	28.01	25.49	26.20	37.18	26.23
AF	23.71	26.61	20.19	12.88	21.05	23.62	5.10	16.41	16.47	16.62	6.37	12.57
CHD	67.89	45.59	41.08	29.21	43.49	43.46	22.45	32.47	32.52	32.62	16.01	29.97
COP	23.26	22.30	27.32	20.95	23.18	57.48	15.82	22.97	21.80	22.18	20.14	20.78
Can	31.24	32.48	37.97	27.03	31.74	36.81	26.02	38.52	35.84	36.71	21.69	26.22
Dem	46.06	51.22	57.39	53.92	54.24	53.23	33.16	44.43	41.29	42.43	41.82	51.05
Epi	3.98	5.67	5.54	3.95	4.95	3.63	6.12	4.28	4.44	4.38	3.10	4.00

	MVD	Str	Ano	Anx	Bli	Bro	AID	MLD	SLD	CLD	CyF	Dep
HF	28.64	25.24	24.96	13.22	26.62	27.98	7.14	19.39	20.46	19.74	12.05	13.86
Lip	1.40	1.41	1.65	1.77	1.65	1.35	1.53	1.92	1.82	1.81	0.52	1.70
MVD	0.00	70.11	33.06	22.25	38.70	29.78	15.31	22.69	23.95	23.78	12.74	23.76
Str	47.18	0.00	27.56	15.99	30.94	21.05	11.22	16.94	17.01	16.94	11.53	17.37
Ano	1.45	1.79	0.00	1.65	2.33	2.08	1.53	3.01	2.57	2.62	2.58	1.77
Anx	19.44	20.75	32.92	0.00	24.12	26.90	25.51	27.83	26.62	26.73	23.75	47.95
Bli	4.51	5.35	6.19	3.22	0.00	4.04	3.06	3.07	2.78	2.87	1.38	3.29
Bro	1.76	1.85	2.81	1.82	2.05	0.00	2.55	3.22	2.58	2.75	22.89	1.67
AID	0.02	0.02	0.05	0.04	0.04	0.06	0.00	0.28	0.14	0.17	0.00	0.04
MLD	1.38	1.53	4.17	1.94	1.60	3.31	12.24	0.00	22.17	45.65	14.29	1.96
SLD	2.23	2.35	5.46	2.83	2.22	4.06	9.69	33.92	0.00	69.83	11.36	3.01
CLD	3.16	3.35	7.96	4.07	3.28	6.19	16.33	100.00	100.00	0.00	19.28	4.25
CyF	0.05	0.07	0.24	0.11	0.05	1.58	0.00	0.96	0.50	0.59	0.00	0.11
Dep	27.18	29.52	46.24	62.80	32.28	32.36	34.18	36.95	37.10	36.55	31.15	0.00
DDI	16.67	18.25	20.11	16.38	17.01	24.87	7.65	20.86	19.82	20.12	9.64	15.85
HeL	17.71	19.18	19.19	16.55	24.88	23.39	11.73	15.27	13.91	14.60	13.08	16.02
Hem	7.00	10.72	5.97	2.32	5.06	2.99	1.02	3.26	2.83	2.95	2.58	2.73
Hyp	75.96	79.43	73.18	66.69	75.34	74.10	52.04	72.91	70.65	71.33	36.66	65.54
IBD	1.60	1.63	2.44	1.84	1.52	2.92	1.53	3.01	2.63	2.63	1.55	1.87

	MVD	Str	Ano	Anx	Bli	Bro	AID	MLD	SLD	CLD	CyF	Dep
IBS	4.81	5.11	9.37	12.40	6.00	8.42	2.55	8.19	6.86	7.35	5.85	10.96
LD	0.40	0.55	1.16	0.93	2.35	0.64	0.00	0.91	0.70	0.71	0.69	0.83
MSc	0.28	0.32	0.47	0.37	0.54	0.29	0.00	0.35	0.26	0.30	0.00	0.50
PUD	13.05	13.37	20.27	12.59	13.11	18.61	7.65	22.06	24.05	22.09	15.15	12.26
PrD	11.35	11.81	11.72	7.04	10.34	14.22	4.08	10.45	8.17	9.11	1.38	6.92
PsE	21.73	21.74	25.04	27.30	24.30	28.60	17.35	24.23	24.90	24.43	21.00	25.41
PuF	1.22	1.03	0.95	0.88	0.80	6.12	0.00	1.05	1.14	1.13	3.96	0.83
RhA	7.78	8.49	10.70	7.92	8.95	14.68	7.14	9.95	8.69	9.10	6.88	7.84
Sch	1.98	2.58	5.54	5.27	4.18	2.12	4.59	3.71	3.39	3.43	1.55	5.21
CS	1.72	1.74	2.49	3.44	2.19	5.29	3.06	2.49	2.46	2.39	7.06	2.99
ThD	13.19	14.44	17.22	14.75	15.67	16.08	10.20	13.61	13.90	13.75	13.94	14.94

Continue

	DDI	HeL	Hem	Hyp	IBD	IBS	LD	MSc	PUD	PrD	PsE	PuF
Alc	6.75	5.65	9.38	6.05	6.46	6.34	8.19	5.35	10.87	6.84	6.44	5.78
Amp	0.28	0.29	0.91	0.39	0.51	0.27	0.35	0.15	0.62	0.51	0.31	0.28
Ang	31.92	27.54	42.97	25.17	24.86	20.83	10.75	13.44	35.41	37.02	22.72	32.99
Ast	26.21	23.43	29.53	21.30	24.84	27.76	23.56	18.59	28.37	23.43	24.75	28.19
AF	21.61	19.36	25.35	16.83	15.72	11.51	7.35	8.10	19.85	23.88	14.99	22.71
CHD	41.00	36.52	50.78	34.28	33.15	27.35	15.99	19.94	44.29	46.23	30.43	44.99
COP	24.27	21.49	24.36	17.68	20.55	19.87	13.03	14.79	25.91	24.23	20.52	39.07

	DDI	HeL	Hem	Hyp	IBD	IBS	LD	MSc	PUD	PrD	PsE	PuF
Can	39.56	34.54	30.43	30.09	31.58	28.80	14.15	23.34	35.48	43.25	29.49	34.85
Dem	52.78	63.96	52.54	44.87	48.57	58.22	45.16	43.98	50.60	54.28	54.82	45.87
Epi	2.91	3.27	10.86	2.76	3.29	3.21	20.93	6.40	3.57	2.98	3.13	2.47
HF	20.20	18.41	28.23	16.57	14.50	10.82	10.00	10.09	21.73	22.39	14.70	27.52
Lip	1.49	1.47	2.53	1.41	1.80	1.80	1.59	1.30	1.77	1.49	1.55	1.22
MVD	30.13	29.20	80.57	27.23	24.55	18.62	14.25	19.74	32.34	35.26	24.29	34.67
Str	22.20	21.29	83.06	19.16	16.83	13.33	13.11	15.54	22.30	24.68	16.36	19.57
Ano	1.59	1.39	3.01	1.15	1.64	1.59	1.79	1.45	2.20	1.59	1.23	1.18
Anx	25.85	23.83	23.28	20.88	24.58	41.90	28.80	23.04	27.25	19.11	26.66	21.72
Bli	3.58	4.78	6.78	3.15	2.70	2.70	9.68	4.45	3.79	3.74	3.16	2.63
Bro	2.65	2.28	2.03	1.57	2.64	1.92	1.34	1.20	2.72	2.61	1.89	10.24
AID	0.02	0.03	0.02	0.03	0.03	0.01	0.00	0.00	0.03	0.02	0.03	0.00
MLD	2.29	1.53	2.28	1.59	2.80	1.93	1.96	1.50	3.32	1.97	1.65	1.81
SLD	3.33	2.13	3.03	2.35	3.74	2.47	2.31	1.75	5.54	2.36	2.59	3.01
CLD	4.84	3.20	4.52	3.40	5.36	3.79	3.33	2.80	7.29	3.77	3.63	4.24
CyF	0.07	0.09	0.12	0.05	0.10	0.09	0.10	0.00	0.15	0.02	0.10	0.46
Dep	32.75	30.21	35.93	26.87	32.80	48.51	33.52	40.53	34.75	24.58	32.49	26.90
DDI	0.00	18.96	17.79	15.61	24.70	25.24	6.03	9.15	24.12	21.73	15.62	19.98
HeL	20.79	0.00	18.22	15.62	17.22	18.00	18.37	12.74	19.27	24.17	18.14	20.48
Hem	2.79	2.61	0.00	2.66	2.46	1.72	3.80	6.45	3.77	3.76	2.19	1.67

	DDI	HeL	Hem	Hyp	IBD	IBS	LD	MSc	PUD	PrD	PsE	PuF
Hyp	78.67	71.84	85.52	0.00	67.70	66.07	49.55	53.27	77.53	78.69	68.10	68.48
IBD	2.92	1.86	1.85	1.59	0.00	3.04	0.97	1.65	2.39	2.12	1.96	1.87
IBS	11.78	7.67	5.11	6.12	12.03	0.00	4.94	7.75	9.22	5.92	8.80	6.59
LD	0.31	0.86	1.24	0.50	0.42	0.54	0.00	0.75	0.58	0.32	0.78	0.18
MSc	0.23	0.30	1.04	0.27	0.36	0.42	0.37	0.00	0.33	0.22	0.35	0.22
PUD	17.59	12.82	17.52	11.21	14.78	14.40	8.22	9.50	0.00	17.06	11.11	14.17
PrD	12.64	12.83	13.92	9.08	10.45	7.37	3.65	5.15	13.61	0.00	9.23	12.03
PsE	25.25	26.76	22.52	21.84	26.84	30.48	24.73	22.04	24.62	25.63	0.00	25.68
PuF	1.27	1.19	0.68	0.87	1.01	0.90	0.22	0.55	1.24	1.32	1.01	0.00
RhA	10.89	8.52	9.24	7.26	10.92	9.42	3.35	5.50	10.00	7.56	9.22	15.00
Sch	1.88	2.16	3.45	2.00	2.29	3.11	19.51	2.70	2.57	1.62	2.49	1.51
CS	2.99	2.91	1.69	2.06	2.80	5.34	1.02	2.45	2.86	2.66	3.05	2.73
ThD	16.08	14.05	13.92	12.96	13.91	16.40	17.95	14.99	13.39	8.25	13.60	14.64

Continue

	RhA	Sch	CS	ThD
Alc	6.11	15.21	6.71	4.88
Amp	0.53	0.35	0.26	0.31
Ang	30.23	16.42	20.52	24.01
Ast	28.06	23.71	30.29	23.79
AF	20.49	8.69	13.73	17.77
CHD	39.28	22.57	27.39	32.57
COP	24.44	19.25	21.84	18.46
Can	33.14	19.71	30.11	29.75

	RhA	Sch	CS	ThD
Dem	52.40	46.66	62.09	48.34
Epi	3.16	6.97	3.05	3.55
HF	21.08	11.93	11.54	17.87
Lip	1.39	1.90	2.01	1.39
MVD	29.19	19.16	20.02	25.44
Str	21.43	16.79	13.69	18.74
Ano	1.76	2.34	1.27	1.45
Anx	25.96	44.50	35.01	24.84
Bli	3.91	4.70	2.98	3.52
Bro	3.25	1.21	3.64	1.83
AID	0.04	0.06	0.05	0.03
MLD	2.27	2.18	1.76	1.59
SLD	3.03	3.04	2.67	2.49
CLD	4.55	4.42	3.72	3.53
CyF	0.11	0.06	0.34	0.11
Dep	33.66	57.58	39.93	32.96
DDI	22.62	10.03	19.31	17.16
HeL	19.39	12.65	20.56	16.44
Hem	3.01	2.90	1.71	2.33
Hyp	75.95	54.02	67.21	69.73
IBD	2.68	1.45	2.13	1.75
IBS	9.13	7.75	16.10	8.17
LD	0.36	5.34	0.34	0.98
MSc	0.29	0.37	0.40	0.41
PUD	15.15	10.03	13.47	10.42
PrD	9.13	5.04	9.98	5.12
PsE	30.94	21.50	31.80	23.46

PuF	1.99	0.52	1.12	1.00
RhA	0.00	4.95	9.44	9.53
Sch	1.92	0.00	1.89	3.31
CS	3.04	1.56	0.00	2.44
ThD	18.54	16.58	14.76	0.00

Figure 6. Diagrams of conditional probabilities for DIB sample:
arrow goes from given disease to conditional diseases

Table 58. Relative information gain of one disease (row) given another disease (column) for GCS sample, yellow background highlights RIG off greater than 5%, blue background highlights RIG off greater than 10%, green background highlights RIG off greater than 20%

	Alc	Amp	Ang	Ast	AF	CHD	COP	Can	Dem	DIB	Epi	HF	Lip	MVD	Str	Ano	Anx	Bli	Bro	AID	MLD	SLD	CLD	CyF	Dep	DDI	HeL	Hem	Hyp	IBD	IBS	LD	MSc	PUD	PrD	PsE	PuF	RhA	Sch	CS	ThD
Alc																									�																
Amp			▨yellow			▨yellow								▨yellow																											
Ang					▨yellow	▩green				▨yellow		▨yellow		▦blue	▨yellow														▦blue												
Ast																																									
AF			▨yellow			▦blue						▦blue		▨yellow	▨yellow														▦blue												

CHD

COP

Can

Dem

DIB

Epi

HF

Lip

MVD

Str

Ano

Anx

Bli

Bro

AlD

MLD

SLD

CLD

CyF

Dep

DDl

HeL

Hem

Hyp

IBD

IBS

LD

MSc

PUD

PrD

PsE

PuF

RhA

Sch

Table 59. Values of RIG of one disease (row) given another disease (column) for GCS sample, yellow background highlights RIG off greater than 5%, blue background highlights RIG off greater than 10%, green background highlights RIG off greater than 20%

	Alc	Amp	Ang	Ast	AF	CHD	COP	Can	Dem	DIB	Epi
Alc		0.00067	0.00509	0.00677	0.00241	0.00551	0.01213	0.00162	0.00132	0.00753	0.00613
Amp	0.02015		0.06680	0.00245	0.00552	0.06584	0.00738	0.00876	0.00129	0.03807	0.00202
Ang	0.00403	0.00177		0.01614	0.06190	0.75182	0.04790	0.03758	0.02566	0.06305	0.00109
Ast	0.00257	0.00003	0.00775		0.00349	0.00772	0.03274	0.00192	0.01099	0.00504	0.00093
AF	0.00230	0.00018	0.07484	0.00879		0.10911	0.03163	0.04216	0.02421	0.04085	0.00114
CHD	0.00319	0.00127	0.55011	0.01177	0.06603		0.04279	0.03438	0.02068	0.06324	0.00087
COP	0.00742	0.00015	0.03701	0.05269	0.02022	0.04519		0.02570	0.02296	0.01895	0.00132
Can	0.00065	0.00012	0.01918	0.00204	0.01780	0.02398	0.01698		0.02044	0.01493	0.00056
Dem	0.00034	0.00001	0.00845	0.00754	0.00660	0.00931	0.00979	0.01319		0.00624	0.00141
DIB	0.00443	0.00075	0.04692	0.00781	0.02514	0.06432	0.01825	0.02177	0.01411		0.00130
Epi	0.00962	0.00011	0.00216	0.00386	0.00186	0.00237	0.00340	0.00219	0.00850	0.00346	
HF	0.00179	0.00100	0.12228	0.02438	0.13229	0.18042	0.06239	0.02970	0.01589	0.05300	0.00089
Lip	0.00980	0.00039	0.00436	0.00711	0.00096	0.00517	0.00535	0.00241	0.00802	0.00587	0.00270
MVD	0.00301	0.00165	0.14404	0.00415	0.05733	0.27741	0.03349	0.02873	0.01936	0.05278	0.00401

	Alc	Amp	Ang	Ast	AF	CHD	COP	Can	Dem	DIB	Epi
Str	0.00281	0.00035	0.06340	0.00334	0.06338	0.08563	0.02544	0.03093	0.02987	0.03921	0.00867
Ano	0.00911	0.00040	0.00704	0.00513	0.00138	0.00532	0.00704	0.00783	0.01277	0.00413	0.00276
Anx	0.01548	0.00002	0.00273	0.01000	0.00093	0.00261	0.00767	0.00461	0.02616	0.00323	0.00157
Bli	0.00049	0.00050	0.03216	0.00222	0.02237	0.03997	0.01686	0.01999	0.02624	0.02351	0.00494
Bro	0.00257	0.00069	0.03103	0.04562	0.02293	0.03362	0.11212	0.03053	0.01652	0.01515	0.00077
AID	0.01453	0.00006	0.00010	0.00051	0.00397	0.00110	0.00082	0.00139	0.00049	0.00101	0.00014
MLD	0.04372	0.00038	0.01139	0.00679	0.00600	0.00973	0.01048	0.01696	0.00314	0.02093	0.00174
SLD	0.18053	0.00083	0.01526	0.00609	0.00798	0.01469	0.01393	0.01123	0.00043	0.03839	0.00328
CLD	0.10689	0.00066	0.01317	0.00647	0.00757	0.01243	0.01318	0.01536	0.00194	0.02841	0.00223
CyF	0.00100	0.00006	0.00066	0.00653	0.00000	0.00006	0.00024	0.00367	0.00313	0.01327	0.00009
Dep	0.02385	0.00008	0.00437	0.01168	0.00090	0.00392	0.00930	0.00480	0.02053	0.00561	0.00196
DDI	0.00091	0.00011	0.04056	0.00835	0.02974	0.04717	0.02525	0.04907	0.02880	0.02479	0.00031
HeL	0.00054	0.00006	0.01513	0.00509	0.01211	0.01711	0.01181	0.01846	0.07849	0.00781	0.00095
Hem	0.00758	0.00080	0.04376	0.00670	0.02950	0.04762	0.01660	0.01346	0.01527	0.03231	0.02798
Hyp	0.00284	0.00041	0.07235	0.00661	0.04924	0.09442	0.02537	0.04626	0.02801	0.07990	0.00083
IBD	0.00030	0.00010	0.00282	0.00443	0.00202	0.00247	0.00382	0.00480	0.00583	0.00297	0.00035
IBS	0.00018	0.00001	0.00047	0.00689	0.00009	0.00030	0.00259	0.00374	0.02384	0.00040	0.00016

	Alc	Amp	Ang	Ast	AF	CHD	COP	Can	Dem	DIB	Epi
LD	0.00239	0.00019	0.00015	0.00113	0.00000	0.00028	0.00030	0.00021	0.00789	0.00494	0.07643
MSc	0.00023	0.00014	0.00005	0.00001	0.00003	0.00002	0.00027	0.00077	0.00284	0.00163	0.00267
PUD	0.01135	0.00070	0.03562	0.01067	0.01602	0.04011	0.02470	0.02475	0.01446	0.01869	0.00104
PrD	0.00113	0.00033	0.04717	0.00378	0.03449	0.05653	0.02420	0.05576	0.02776	0.02378	0.00045
PsE	0.00048	0.00004	0.00145	0.01470	0.00140	0.00142	0.00531	0.00468	0.03372	0.00166	0.00030
PuF	0.00010	0.00055	0.02720	0.00481	0.02257	0.03746	0.04233	0.02458	0.00852	0.01443	0.00000
RhA	0.00074	0.00029	0.02356	0.00725	0.01759	0.02871	0.01666	0.02010	0.01952	0.01510	0.00052
Sch	0.03749	0.00029	0.00199	0.00362	0.00008	0.00222	0.00439	0.00019	0.00471	0.01021	0.00519
CS	0.00012	0.00001	0.00099	0.00858	0.00123	0.00100	0.00481	0.00650	0.03105	0.00129	0.00005
ThD	0.00018	0.00001	0.01407	0.00484	0.01406	0.01804	0.00854	0.01815	0.01838	0.01845	0.00120

Continue

	HF	Lip	MVD	Str	Ano	Anx	Bli	Bro	AID	MLD	SLD
Alc	0.00179	0.00229	0.00449	0.00358	0.00259	0.04205	0.00015	0.00056	0.00030	0.01036	0.04223
Amp	0.02994	0.00273	0.07362	0.01335	0.00337	0.00127	0.00449	0.00447	0.00004	0.00268	0.00579
Ang	0.09686	0.00080	0.17007	0.06390	0.00158	0.00586	0.00770	0.00534	0.00000	0.00214	0.00282
Ast	0.00927	0.00063	0.00235	0.00162	0.00055	0.01032	0.00026	0.00377	0.00000	0.00061	0.00054
AF	0.12670	0.00021	0.08185	0.07725	0.00037	0.00241	0.00648	0.00447	0.00008	0.00136	0.00179
CHD	0.10457	0.00070	0.23967	0.06316	0.00088	0.00411	0.00701	0.00423	0.00001	0.00133	0.00199

	HF	Lip	MVD	Str	Ano	Anx	Bli	Bro	AID	MLD	SLD
COP	0.03819	0.00076	0.03055	0.01982	0.00122	0.01273	0.00312	0.01490	0.00001	0.00152	0.00199
Can	0.01201	0.00023	0.01732	0.01591	0.00090	0.00505	0.00244	0.00268	0.00001	0.00162	0.00106
Dem	0.00414	0.00049	0.00753	0.00992	0.00095	0.01852	0.00207	0.00094	0.00000	0.00019	0.00003
DIB	0.03124	0.00081	0.04638	0.02941	0.00069	0.00516	0.00419	0.00194	0.00001	0.00292	0.00529
Epi	0.00140	0.00099	0.00940	0.01735	0.00123	0.00668	0.00235	0.00026	0.00000	0.00065	0.00121
HF		0.00045	0.11601	0.06433	0.00171	0.00193	0.00981	0.00607	0.00000	0.00229	0.00291
Lip	0.00192		0.00244	0.00277	0.00044	0.01029	0.00051	0.00153	0.00005	0.00208	0.00136
MVD	0.07783	0.00038		0.30420	0.00093	0.00198	0.00805	0.00293	0.00000	0.00035	0.00122
Str	0.05055	0.00051	0.35634		0.00143	0.00281	0.01034	0.00269	0.00000	0.00051	0.00079
Ano	0.00604	0.00036	0.00488	0.00642		0.02408	0.00166	0.00109	0.00006	0.00112	0.00355
Anx	0.00071	0.00088	0.00109	0.00132	0.00252		0.00051	0.00057	0.00000	0.00086	0.00132
Bli	0.03245	0.00040	0.03966	0.04352	0.00156	0.00459		0.00131	0.00001	0.00052	0.00053
Bro	0.02795	0.00165	0.02011	0.01578	0.00143	0.00708	0.00182		0.00005	0.00385	0.00197
AID	0.00015	0.00061	0.00007	0.00027	0.00077	0.00008	0.00014	0.00056		0.01366	0.01030
MLD	0.00969	0.00204	0.00219	0.00276	0.00135	0.00984	0.00066	0.00353	0.00117		0.09567
SLD	0.01245	0.00136	0.00775	0.00432	0.00432	0.01531	0.00069	0.00183	0.00089	0.09689	
CLD	0.01215	0.00174	0.00562	0.00432	0.00256	0.01286	0.00068	0.00299	0.00118	0.49801	0.48982

	HF	Lip	MVD	Str	Ano	Anx	Bli	Bro	AID	MLD	SLD
CyF	0.00015	0.00034	0.00002	0.00001	0.00077	0.00294	0.00083	0.02232	0.00004	0.00705	0.00061
Dep	0.00161	0.00095	0.00259	0.00319	0.00400	0.16363	0.00062	0.00073	0.00001	0.00132	0.00224
DDI	0.02197	0.00068	0.02739	0.02683	0.00092	0.01125	0.00419	0.00504	0.00001	0.00353	0.00178
HeL	0.00947	0.00025	0.01398	0.01371	0.00056	0.00716	0.00478	0.00212	0.00000	0.00026	0.00011
Hem	0.02288	0.00977	0.21962	0.27174	0.00437	0.00622	0.00982	0.00171	0.00002	0.00173	0.00152
Hyp	0.03890	0.00071	0.06335	0.05387	0.00041	0.00801	0.00527	0.00361	0.00000	0.00159	0.00214
IBD	0.00196	0.00010	0.00188	0.00202	0.00089	0.00552	0.00052	0.00152	0.00006	0.00231	0.00134
IBS	0.00000	0.00027	0.00000	0.00002	0.00135	0.04150	0.00022	0.00053	0.00003	0.00012	0.00000
LD	0.00046	0.00005	0.00019	0.00086	0.00021	0.00400	0.01196	0.00050	0.00005	0.00003	0.00041
MSc	0.00008	0.00004	0.00151	0.00139	0.00107	0.00360	0.00660	0.00001	0.00005	0.00005	0.00019
PUD	0.01709	0.00122	0.02125	0.01656	0.00136	0.01649	0.00296	0.00434	0.00000	0.00370	0.00644
PrD	0.02310	0.00051	0.03658	0.02957	0.00062	0.00139	0.00385	0.00414	0.00007	0.00160	0.00030
PsE	0.00075	0.00015	0.00117	0.00085	0.00048	0.01103	0.00055	0.00032	0.00000	0.00008	0.00013
PuF	0.03156	0.00034	0.01948	0.00950	0.00017	0.00072	0.00087	0.02882	0.00005	0.00079	0.00056
RhA	0.01878	0.00057	0.01798	0.01674	0.00095	0.00707	0.00230	0.00491	0.00001	0.00150	0.00104
Sch	0.00160	0.00084	0.00169	0.00432	0.00305	0.05206	0.00109	0.00039	0.00029	0.00151	0.00336
CS	0.00005	0.00013	0.00012	0.00031	0.00006	0.02008	0.00015	0.00288	0.00006	0.00025	0.00003

	HF	Lip	MVD	Str	Ano	Anx	Bli	Bro	AID	MLD	SLD
ThD	0.01291	0.00023	0.01262	0.01380	0.00058	0.01054	0.00224	0.00154	0.00001	0.00076	0.00101

Continue

	CLD	CyF	Dep	DDI	HeL	Hem	Hyp	IBD	IBS	LD	MSc
Alc	0.04083	0.00002	0.07228	0.00109	0.00089	0.00208	0.00898	0.00010	0.00023	0.00041	0.00002
Amp	0.00756	0.00004	0.00760	0.00406	0.00282	0.00659	0.03835	0.00104	0.00040	0.00096	0.00042
Ang	0.00398	0.00001	0.01048	0.03848	0.01974	0.00949	0.18098	0.00077	0.00046	0.00002	0.00000
Ast	0.00094	0.00005	0.01345	0.00380	0.00319	0.00070	0.00794	0.00058	0.00322	0.00007	0.00000
AF	0.00277	0.00000	0.00261	0.03411	0.01910	0.00773	0.14892	0.00067	0.00011	0.00000	0.00000
CHD	0.00275	0.00000	0.00687	0.03274	0.01633	0.00755	0.17280	0.00050	0.00022	0.00003	0.00000
COP	0.00308	0.00000	0.01723	0.01851	0.01190	0.00278	0.04903	0.00081	0.00194	0.00003	0.00002
Can	0.00237	0.00003	0.00587	0.02376	0.01229	0.00149	0.05906	0.00067	0.00186	0.00001	0.00003
Dem	0.00019	0.00002	0.01621	0.00900	0.03372	0.00109	0.02307	0.00053	0.00764	0.00035	0.00007
DIB	0.00639	0.00016	0.01002	0.01750	0.00758	0.00521	0.14873	0.00061	0.00029	0.00049	0.00010
Epi	0.00134	0.00000	0.00934	0.00058	0.00245	0.01204	0.00410	0.00019	0.00032	0.02032	0.00042
HF	0.00464	0.00000	0.00487	0.02631	0.01559	0.00626	0.12284	0.00068	0.00000	0.00008	0.00001
Lip	0.00286	0.00003	0.01230	0.00349	0.00178	0.01147	0.00955	0.00015	0.00141	0.00004	0.00002
MVD	0.00144	0.00000	0.00526	0.02200	0.01544	0.04032	0.13419	0.00043	0.00000	0.00002	0.00010
Str	0.00129	0.00000	0.00758	0.02525	0.01775	0.05844	0.13366	0.00055	0.00002	0.00011	0.00011

	CLD	CyF	Dep	DDI	HeL	Hem	Hyp	IBD	IBS	LD	MSc
Ano	0.00344	0.00006	0.04261	0.00388	0.00322	0.00421	0.00461	0.00109	0.00583	0.00013	0.00038
Anx	0.00181	0.00002	0.18261	0.00497	0.00435	0.00063	0.00933	0.00070	0.01878	0.00025	0.00013
Bli	0.00086	0.00006	0.00616	0.01660	0.02600	0.00888	0.05498	0.00059	0.00088	0.00668	0.00221
Bro	0.00526	0.00209	0.01021	0.02781	0.01611	0.00215	0.05244	0.00242	0.00298	0.00039	0.00000
AID	0.02225	0.00004	0.00184	0.00051	0.00026	0.00021	0.00044	0.00104	0.00181	0.00042	0.00023
MLD	0.80295	0.00060	0.01693	0.01785	0.00181	0.00200	0.02126	0.00337	0.00061	0.00002	0.00002
SLD	0.79985	0.00005	0.02901	0.00913	0.00077	0.00178	0.02887	0.00198	0.00000	0.00030	0.00008
CLD		0.00023	0.02263	0.01402	0.00139	0.00179	0.02677	0.00283	0.00019	0.00003	0.00009
CyF	0.00439		0.01511	0.00043	0.00240	0.00074	0.00044	0.00007	0.00417	0.00066	0.00023
Dep	0.00285	0.00010		0.00550	0.00425	0.00111	0.00996	0.00078	0.01518	0.00024	0.00035
DDI	0.00447	0.00001	0.01390		0.01812	0.00289	0.09949	0.00468	0.01131	0.00006	0.00003
HeL	0.00032	0.00003	0.00782	0.01318		0.00120	0.03038	0.00056	0.00271	0.00082	0.00002
Hem	0.00249	0.00005	0.01231	0.01263	0.00721		0.08242	0.00079	0.00000	0.00325	0.00289
Hyp	0.00324	0.00000	0.00955	0.03773	0.01584	0.00714		0.00105	0.00111	0.00001	0.00001
IBD	0.00313	0.00000	0.00680	0.01621	0.00268	0.00062	0.00957		0.00918	0.00006	0.00014
IBS	0.00006	0.00007	0.03743	0.01103	0.00363	0.00000	0.00285	0.00258		0.00000	0.00011
LD	0.00006	0.00008	0.00430	0.00044	0.00800	0.00526	0.00012	0.00012	0.00000		0.00031

	CLD	CyF	Dep	DDI	HeL	Hem	Hyp	IBD	IBS	LD	MSc
MSc	0.00034	0.00005	0.01042	0.00032	0.00038	0.00782	0.00036	0.00047	0.00130	0.00052	
PUD	0.00859	0.00020	0.01851	0.03213	0.01049	0.00342	0.05766	0.00187	0.00499	0.00001	0.00013
PrD	0.00155	0.00007	0.00144	0.03073	0.02400	0.00473	0.08383	0.00093	0.00046	0.00000	0.00000
PsE	0.00018	0.00003	0.01031	0.00256	0.00669	0.00009	0.00587	0.00072	0.00615	0.00026	0.00006
PuF	0.00086	0.00082	0.00078	0.01395	0.01038	0.00020	0.03405	0.00136	0.00028	0.00000	0.00029
RhA	0.00239	0.00010	0.01103	0.02602	0.00967	0.00198	0.05970	0.00255	0.00361	0.00000	0.00003
Sch	0.00359	0.00000	0.07025	0.00041	0.00086	0.00166	0.00255	0.00046	0.00009	0.01395	0.00011
CS	0.00018	0.00009	0.01707	0.00661	0.00541	0.00003	0.00726	0.00041	0.01382	0.00009	0.00002
ThD	0.00148	0.00009	0.01607	0.01445	0.00731	0.00152	0.04760	0.00053	0.00454	0.00148	0.00009

Continue

	PUD	PrD	PsE	PuF	RhA	Sch	CS	ThD
Alc	0.01231	0.00083	0.00130	0.00001	0.00057	0.01866	0.00005	0.00022
Amp	0.02274	0.00716	0.00348	0.00171	0.00666	0.00434	0.00014	0.00047
Ang	0.03056	0.02742	0.00310	0.00223	0.01437	0.00079	0.00034	0.01362
Ast	0.00440	0.00106	0.01504	0.00019	0.00212	0.00068	0.00143	0.00225
AF	0.01662	0.02424	0.00361	0.00224	0.01297	0.00004	0.00051	0.01645
CHD	0.02519	0.02405	0.00222	0.00225	0.01282	0.00064	0.00025	0.01278
COP	0.01638	0.01087	0.00875	0.00268	0.00785	0.00134	0.00129	0.00639
Can	0.01084	0.01655	0.00509	0.00103	0.00626	0.00004	0.00115	0.00897
Dem	0.00409	0.00531	0.02368	0.00023	0.00392	0.00061	0.00355	0.00586
DIB	0.01194	0.01029	0.00264	0.00088	0.00686	0.00299	0.00033	0.01329
Epi	0.00177	0.00052	0.00127	0.00000	0.00063	0.00406	0.00003	0.00231

	PUD	PrD	PsE	PuF	RhA	Sch	CS	ThD
HF	0.01851	0.01695	0.00201	0.00327	0.01447	0.00080	0.00002	0.01577
Lip	0.00567	0.00160	0.00178	0.00015	0.00188	0.00179	0.00025	0.00119
MVD	0.01545	0.01801	0.00212	0.00135	0.00929	0.00057	0.00004	0.01035
Str	0.01410	0.01705	0.00179	0.00077	0.01013	0.00169	0.00011	0.01325
Ano	0.00520	0.00160	0.00457	0.00006	0.00257	0.00534	0.00010	0.00249
Anx	0.00658	0.00038	0.01094	0.00003	0.00201	0.00954	0.00324	0.00475
Bli	0.01059	0.00935	0.00487	0.00030	0.00587	0.00179	0.00022	0.00903
Bro	0.02164	0.01398	0.00396	0.01374	0.01741	0.00090	0.00581	0.00867
AID	0.00000	0.00251	0.00063	0.00023	0.00039	0.00719	0.00131	0.00056
MLD	0.01696	0.00495	0.00095	0.00035	0.00489	0.00317	0.00047	0.00392
SLD	0.02984	0.00094	0.00152	0.00025	0.00343	0.00715	0.00005	0.00528
CLD	0.02440	0.00299	0.00127	0.00023	0.00482	0.00468	0.00021	0.00474
CyF	0.01094	0.00251	0.00394	0.00418	0.00379	0.00001	0.00189	0.00565
Dep	0.00662	0.00035	0.00917	0.00003	0.00281	0.01154	0.00247	0.00649
DDI	0.02907	0.01883	0.00575	0.00121	0.01674	0.00017	0.00242	0.01474
HeL	0.00690	0.01070	0.01093	0.00065	0.00452	0.00026	0.00144	0.00543
Hem	0.01352	0.01269	0.00088	0.00007	0.00557	0.00301	0.00005	0.00678
Hyp	0.01978	0.01948	0.00501	0.00112	0.01456	0.00040	0.00101	0.01842
IBD	0.00585	0.00198	0.00561	0.00041	0.00568	0.00067	0.00052	0.00187
IBS	0.00440	0.00028	0.01348	0.00002	0.00226	0.00004	0.00493	0.00452
LD	0.00005	0.00000	0.00409	0.00000	0.00001	0.04103	0.00022	0.01068
MSc	0.00138	0.00003	0.00170	0.00029	0.00024	0.00056	0.00008	0.00103
PUD		0.01377	0.00442	0.00067	0.01069	0.00132	0.00127	0.00641
PrD	0.02033		0.00610	0.00169	0.00488	0.00014	0.00096	0.00043
PsE	0.00178	0.00166		0.00020	0.00348	0.00003	0.00180	0.00192
PuF	0.00700	0.01198	0.00513		0.02119	0.00003	0.00027	0.00798
RhA	0.01504	0.00465	0.01217	0.00285		0.00025	0.00153	0.01430

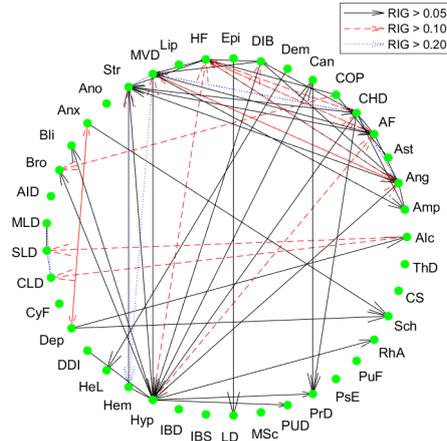|	PUD	PrD	PsE	PuF	RhA	Sch	CS	ThD
Sch	0.00287	0.00020	0.00019	0.00001	0.00039		0.00001	0.00374
CS	0.00314	0.00160	0.01105	0.00006	0.00269	0.00001		0.00394
ThD	0.00569	0.00026	0.00423	0.00068	0.00902	0.00152	0.00141	

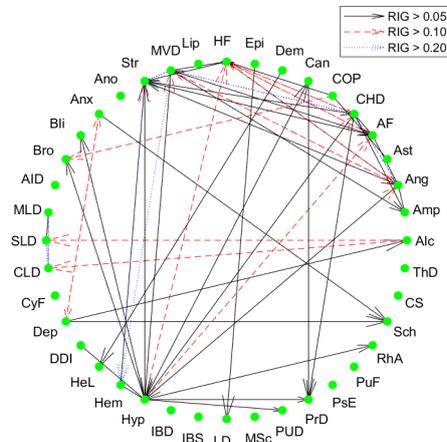Figure 7. RIG correlogram for GCS

Figure 8. RIG correlogram for DIB

Table 60. Relative information gain of one disease (row) given another disease (column) for DIB sample, yellow background highlights RIG off greater than 5%, blue background highlights RIG off greater than 10%, green background highlights RIG off greater than 20%

	Alc	Amp	Ang	Ast	AF	CHD	COP	Can	Dem	Epi	HF	Lip	MVD	Str	Ano	Anx	Bii	Bro	AID	MLD	SLD	CLD	CyF	Dep	DDI	HeL	Hem	Hyp	IBD	IBS	LD	MSc	PUD	PrD	PsE	PuF	RhA	Sch	CS	ThD
Alc																								yellow																
Amp			yellow			yellow							yellow																											
Ang					yellow	green					yellow		blue	yellow														blue												
Ast																																								
AF			yellow				blue				blue		yellow	yellow														blue												
CHD			green		yellow						blue		green	yellow														blue												
COP				yellow																																				
Can																												yellow												
Dem																																								
Epi																																								
HF			blue		blue	blue	yellow						blue	yellow														blue												
Lip																																								
MVD			blue		yellow	green					yellow			green														blue												
Str			yellow		yellow	yellow					yellow		green														yellow	blue												
Ano																																								
Anx																								blue																

117

Bl i

Br o

Al D

M L D

S L D

C L D

C yF

D e p

D DI

H e L

H e m

H y p

IB D

IB S

L D

M S c

P U D

Pr D

	PsE																												
PsE																													
PuF																													
RhA																█													
Sch							█						█																
CS																													
ThD																													

Table 61. Values of RIG of one disease (row) given another disease (column) for GCS sample, yellow background highlights RIG off greater than 5%, blue background highlights RIG off greater than 10%, green background highlights RIG off greater than 20%

	Alc	Amp	Ang	Ast	AF	CHD	COP	Can	Dem	Epi
Alc		0.00067	0.00509	0.00677	0.00241	0.00551	0.01213	0.00162	0.00132	0.00613
Amp	0.02015		0.06680	0.00245	0.00552	0.06584	0.00738	0.00876	0.00129	0.00202
Ang	0.00403	0.00177		0.01614	0.06190	0.75182	0.04790	0.03758	0.02566	0.00109
Ast	0.00257	0.00003	0.00775		0.00349	0.00772	0.03274	0.00192	0.01099	0.00093
AF	0.00230	0.00018	0.07484	0.00879		0.10911	0.03163	0.04216	0.02421	0.00114
CHD	0.00319	0.00127	0.55011	0.01177	0.06603		0.04279	0.03438	0.02068	0.00087
COP	0.00742	0.00015	0.03701	0.05269	0.02022	0.04519		0.02570	0.02296	0.00132
Can	0.00065	0.00012	0.01918	0.00204	0.01780	0.02398	0.01698		0.02044	0.00056
Dem	0.00034	0.00001	0.00845	0.00754	0.00660	0.00931	0.00979	0.01319		0.00141
Epi	0.00962	0.00011	0.00216	0.00386	0.00186	0.00237	0.00340	0.00219	0.00850	
HF	0.00179	0.00100	0.12228	0.02438	0.13229	0.18042	0.06239	0.02970	0.01589	0.00089
Lip	0.00980	0.00039	0.00436	0.00711	0.00096	0.00517	0.00535	0.00241	0.00802	0.00270

	Alc	Amp	Ang	Ast	AF	CHD	COP	Can	Dem	Epi
MVD	0.00301	0.00165	0.14404	0.00415	0.05733	0.27741	0.03349	0.02873	0.01936	0.00401
Str	0.00281	0.00035	0.06340	0.00334	0.06338	0.08563	0.02544	0.03093	0.02987	0.00867
Ano	0.00911	0.00040	0.00704	0.00513	0.00138	0.00532	0.00704	0.00783	0.01277	0.00276
Anx	0.01548	0.00002	0.00273	0.01000	0.00093	0.00261	0.00767	0.00461	0.02616	0.00157
Bli	0.00049	0.00050	0.03216	0.00222	0.02237	0.03997	0.01686	0.01999	0.02624	0.00494
Bro	0.00257	0.00069	0.03103	0.04562	0.02293	0.03362	0.11212	0.03053	0.01652	0.00077
AID	0.01453	0.00006	0.00010	0.00051	0.00397	0.00110	0.00082	0.00139	0.00049	0.00014
MLD	0.04372	0.00038	0.01139	0.00679	0.00600	0.00973	0.01048	0.01696	0.00314	0.00174
SLD	0.18053	0.00083	0.01526	0.00609	0.00798	0.01469	0.01393	0.01123	0.00043	0.00328
CLD	0.10689	0.00066	0.01317	0.00647	0.00757	0.01243	0.01318	0.01536	0.00194	0.00223
CyF	0.00100	0.00006	0.00066	0.00653	0.00000	0.00006	0.00024	0.00367	0.00313	0.00009
Dep	0.02385	0.00008	0.00437	0.01168	0.00090	0.00392	0.00930	0.00480	0.02053	0.00196
DDI	0.00091	0.00011	0.04056	0.00835	0.02974	0.04717	0.02525	0.04907	0.02880	0.00031
HeL	0.00054	0.00006	0.01513	0.00509	0.01211	0.01711	0.01181	0.01846	0.07849	0.00095
Hem	0.00758	0.00080	0.04376	0.00670	0.02950	0.04762	0.01660	0.01346	0.01527	0.02798
Hyp	0.00284	0.00041	0.07235	0.00661	0.04924	0.09442	0.02537	0.04626	0.02801	0.00083
IBD	0.00030	0.00010	0.00282	0.00443	0.00202	0.00247	0.00382	0.00480	0.00583	0.00035

	Alc	Amp	Ang	Ast	AF	CHD	COP	Can	Dem	Epi
IBS	0.00018	0.00001	0.00047	0.00689	0.00009	0.00030	0.00259	0.00374	0.02384	0.00016
LD	0.00239	0.00019	0.00015	0.00113	0.00000	0.00028	0.00030	0.00021	0.00789	0.07643
MSc	0.00023	0.00014	0.00005	0.00001	0.00003	0.00002	0.00027	0.00077	0.00284	0.00267
PUD	0.01135	0.00070	0.03562	0.01067	0.01602	0.04011	0.02470	0.02475	0.01446	0.00104
PrD	0.00113	0.00033	0.04717	0.00378	0.03449	0.05653	0.02420	0.05576	0.02776	0.00045
PsE	0.00048	0.00004	0.00145	0.01470	0.00140	0.00142	0.00531	0.00468	0.03372	0.00030
PuF	0.00010	0.00055	0.02720	0.00481	0.02257	0.03746	0.04233	0.02458	0.00852	0.00000
RhA	0.00074	0.00029	0.02356	0.00725	0.01759	0.02871	0.01666	0.02010	0.01952	0.00052
Sch	0.03749	0.00029	0.00199	0.00362	0.00008	0.00222	0.00439	0.00019	0.00471	0.00519
CS	0.00012	0.00001	0.00099	0.00858	0.00123	0.00100	0.00481	0.00650	0.03105	0.00005
ThD	0.00018	0.00001	0.01407	0.00484	0.01406	0.01804	0.00854	0.01815	0.01838	0.00120

Continue

	HF	Lip	MVD	Str	Ano	Anx	Bli	Bro	AID	MLD
Alc	0.00179	0.00229	0.00449	0.00358	0.00259	0.04205	0.00015	0.00056	0.00030	0.01036
Amp	0.02994	0.00273	0.07362	0.01335	0.00337	0.00127	0.00449	0.00447	0.00004	0.00268
Ang	0.09686	0.00080	0.17007	0.06390	0.00158	0.00586	0.00770	0.00534	0.00000	0.00214
Ast	0.00927	0.00063	0.00235	0.00162	0.00055	0.01032	0.00026	0.00377	0.00000	0.00061
AF	0.12670	0.00021	0.08185	0.07725	0.00037	0.00241	0.00648	0.00447	0.00008	0.00136

	HF	Lip	MVD	Str	Ano	Anx	Bli	Bro	AID	MLD
CHD	0.10457	0.00070	0.23967	0.06316	0.00088	0.00411	0.00701	0.00423	0.00001	0.00133
COP	0.03819	0.00076	0.03055	0.01982	0.00122	0.01273	0.00312	0.01490	0.00001	0.00152
Can	0.01201	0.00023	0.01732	0.01591	0.00090	0.00505	0.00244	0.00268	0.00001	0.00162
Dem	0.00414	0.00049	0.00753	0.00992	0.00095	0.01852	0.00207	0.00094	0.00000	0.00019
Epi	0.00140	0.00099	0.00940	0.01735	0.00123	0.00668	0.00235	0.00026	0.00000	0.00065
HF		0.00045	0.11601	0.06433	0.00171	0.00193	0.00981	0.00607	0.00000	0.00229
Lip	0.00192		0.00244	0.00277	0.00044	0.01029	0.00051	0.00153	0.00005	0.00208
MVD	0.07783	0.00038		0.30420	0.00093	0.00198	0.00805	0.00293	0.00000	0.00035
Str	0.05055	0.00051	0.35634		0.00143	0.00281	0.01034	0.00269	0.00000	0.00051
Ano	0.00604	0.00036	0.00488	0.00642		0.02408	0.00166	0.00109	0.00006	0.00112
Anx	0.00071	0.00088	0.00109	0.00132	0.00252		0.00051	0.00057	0.00000	0.00086
Bli	0.03245	0.00040	0.03966	0.04352	0.00156	0.00459		0.00131	0.00001	0.00052
Bro	0.02795	0.00165	0.02011	0.01578	0.00143	0.00708	0.00182		0.00005	0.00385
AID	0.00015	0.00061	0.00007	0.00027	0.00077	0.00008	0.00014	0.00056		0.01366
MLD	0.00969	0.00204	0.00219	0.00276	0.00135	0.00984	0.00066	0.00353	0.00117	
SLD	0.01245	0.00136	0.00775	0.00432	0.00432	0.01531	0.00069	0.00183	0.00089	0.09689
CLD	0.01215	0.00174	0.00562	0.00432	0.00256	0.01286	0.00068	0.00299	0.00118	0.49801

	HF	Lip	MVD	Str	Ano	Anx	Bli	Bro	AID	MLD
CyF	0.00015	0.00034	0.00002	0.00001	0.00077	0.00294	0.00083	0.02232	0.00004	0.00705
Dep	0.00161	0.00095	0.00259	0.00319	0.00400	0.16363	0.00062	0.00073	0.00001	0.00132
DDI	0.02197	0.00068	0.02739	0.02683	0.00092	0.01125	0.00419	0.00504	0.00001	0.00353
HeL	0.00947	0.00025	0.01398	0.01371	0.00056	0.00716	0.00478	0.00212	0.00000	0.00026
Hem	0.02288	0.00977	0.21962	0.27174	0.00437	0.00622	0.00982	0.00171	0.00002	0.00173
Hyp	0.03890	0.00071	0.06335	0.05387	0.00041	0.00801	0.00527	0.00361	0.00000	0.00159
IBD	0.00196	0.00010	0.00188	0.00202	0.00089	0.00552	0.00052	0.00152	0.00006	0.00231
IBS	0.00000	0.00027	0.00000	0.00002	0.00135	0.04150	0.00022	0.00053	0.00003	0.00012
LD	0.00046	0.00005	0.00019	0.00086	0.00021	0.00400	0.01196	0.00050	0.00005	0.00003
MSc	0.00008	0.00004	0.00151	0.00139	0.00107	0.00360	0.00660	0.00001	0.00005	0.00005
PUD	0.01709	0.00122	0.02125	0.01656	0.00136	0.01649	0.00296	0.00434	0.00000	0.00370
PrD	0.02310	0.00051	0.03658	0.02957	0.00062	0.00139	0.00385	0.00414	0.00007	0.00160
PsE	0.00075	0.00015	0.00117	0.00085	0.00048	0.01103	0.00055	0.00032	0.00000	0.00008
PuF	0.03156	0.00034	0.01948	0.00950	0.00017	0.00072	0.00087	0.02882	0.00005	0.00079
RhA	0.01878	0.00057	0.01798	0.01674	0.00095	0.00707	0.00230	0.00491	0.00001	0.00150
Sch	0.00160	0.00084	0.00169	0.00432	0.00305	0.05206	0.00109	0.00039	0.00029	0.00151
CS	0.00005	0.00013	0.00012	0.00031	0.00006	0.02008	0.00015	0.00288	0.00006	0.00025

	HF	Lip	MVD	Str	Ano	Anx	Bli	Bro	AID	MLD
ThD	0.01291	0.00023	0.01262	0.01380	0.00058	0.01054	0.00224	0.00154	0.00001	0.00076

Continue

	SLD	CLD	CyF	Dep	DDI	HeL	Hem	Hyp	IBD	IBS
Alc	0.04223	0.04083	0.00002	0.07228	0.00109	0.00089	0.00208	0.00898	0.00010	0.00023
Amp	0.00579	0.00756	0.00004	0.00760	0.00406	0.00282	0.00659	0.03835	0.00104	0.00040
Ang	0.00282	0.00398	0.00001	0.01048	0.03848	0.01974	0.00949	0.18098	0.00077	0.00046
Ast	0.00054	0.00094	0.00005	0.01345	0.00380	0.00319	0.00070	0.00794	0.00058	0.00322
AF	0.00179	0.00277	0.00000	0.00261	0.03411	0.01910	0.00773	0.14892	0.00067	0.00011
CHD	0.00199	0.00275	0.00000	0.00687	0.03274	0.01633	0.00755	0.17280	0.00050	0.00022
COP	0.00199	0.00308	0.00000	0.01723	0.01851	0.01190	0.00278	0.04903	0.00081	0.00194
Can	0.00106	0.00237	0.00003	0.00587	0.02376	0.01229	0.00149	0.05906	0.00067	0.00186
Dem	0.00003	0.00019	0.00002	0.01621	0.00900	0.03372	0.00109	0.02307	0.00053	0.00764
Epi	0.00121	0.00134	0.00000	0.00934	0.00058	0.00245	0.01204	0.00410	0.00019	0.00032
HF	0.00291	0.00464	0.00000	0.00487	0.02631	0.01559	0.00626	0.12284	0.00068	0.00000
Lip	0.00136	0.00286	0.00003	0.01230	0.00349	0.00178	0.01147	0.00955	0.00015	0.00141
MVD	0.00122	0.00144	0.00000	0.00526	0.02200	0.01544	0.04032	0.13419	0.00043	0.00000
Str	0.00079	0.00129	0.00000	0.00758	0.02525	0.01775	0.05844	0.13366	0.00055	0.00002
Ano	0.00355	0.00344	0.00006	0.04261	0.00388	0.00322	0.00421	0.00461	0.00109	0.00583

	SLD	CLD	CyF	Dep	DDI	HeL	Hem	Hyp	IBD	IBS
Anx	0.00132	0.00181	0.00002	0.18261	0.00497	0.00435	0.00063	0.00933	0.00070	0.01878
Bli	0.00053	0.00086	0.00006	0.00616	0.01660	0.02600	0.00888	0.05498	0.00059	0.00088
Bro	0.00197	0.00526	0.00209	0.01021	0.02781	0.01611	0.00215	0.05244	0.00242	0.00298
AID	0.01030	0.02225	0.00004	0.00184	0.00051	0.00026	0.00021	0.00044	0.00104	0.00181
MLD	0.09567	0.80295	0.00060	0.01693	0.01785	0.00181	0.00200	0.02126	0.00337	0.00061
SLD		0.79985	0.00005	0.02901	0.00913	0.00077	0.00178	0.02887	0.00198	0.00000
CLD	0.48982		0.00023	0.02263	0.01402	0.00139	0.00179	0.02677	0.00283	0.00019
CyF	0.00061	0.00439		0.01511	0.00043	0.00240	0.00074	0.00044	0.00007	0.00417
Dep	0.00224	0.00285	0.00010		0.00550	0.00425	0.00111	0.00996	0.00078	0.01518
DDI	0.00178	0.00447	0.00001	0.01390		0.01812	0.00289	0.09949	0.00468	0.01131
HeL	0.00011	0.00032	0.00003	0.00782	0.01318		0.00120	0.03038	0.00056	0.00271
Hem	0.00152	0.00249	0.00005	0.01231	0.01263	0.00721		0.08242	0.00079	0.00000
Hyp	0.00214	0.00324	0.00000	0.00955	0.03773	0.01584	0.00714		0.00105	0.00111
IBD	0.00134	0.00313	0.00000	0.00680	0.01621	0.00268	0.00062	0.00957		0.00918
IBS	0.00000	0.00006	0.00007	0.03743	0.01103	0.00363	0.00000	0.00285	0.00258	
LD	0.00041	0.00006	0.00008	0.00430	0.00044	0.00800	0.00526	0.00012	0.00012	0.00000
MSc	0.00019	0.00034	0.00005	0.01042	0.00032	0.00038	0.00782	0.00036	0.00047	0.00130

	SLD	CLD	CyF	Dep	DDI	HeL	Hem	Hyp	IBD	IBS
PUD	0.00644	0.00859	0.00020	0.01851	0.03213	0.01049	0.00342	0.05766	0.00187	0.00499
PrD	0.00030	0.00155	0.00007	0.00144	0.03073	0.02400	0.00473	0.08383	0.00093	0.00046
PsE	0.00013	0.00018	0.00003	0.01031	0.00256	0.00669	0.00009	0.00587	0.00072	0.00615
PuF	0.00056	0.00086	0.00082	0.00078	0.01395	0.01038	0.00020	0.03405	0.00136	0.00028
RhA	0.00104	0.00239	0.00010	0.01103	0.02602	0.00967	0.00198	0.05970	0.00255	0.00361
Sch	0.00336	0.00359	0.00000	0.07025	0.00041	0.00086	0.00166	0.00255	0.00046	0.00009
CS	0.00003	0.00018	0.00009	0.01707	0.00661	0.00541	0.00003	0.00726	0.00041	0.01382
ThD	0.00101	0.00148	0.00009	0.01607	0.01445	0.00731	0.00152	0.04760	0.00053	0.00454

Continue

	LD	MSc	PUD	PrD	PsE	PuF	RhA	Sch	CS	ThD
Alc	0.00041	0.00002	0.01231	0.00083	0.00130	0.00001	0.00057	0.01866	0.00005	0.00022
Amp	0.00096	0.00042	0.02274	0.00716	0.00348	0.00171	0.00666	0.00434	0.00014	0.00047
Ang	0.00002	0.00000	0.03056	0.02742	0.00310	0.00223	0.01437	0.00079	0.00034	0.01362
Ast	0.00007	0.00000	0.00440	0.00106	0.01504	0.00019	0.00212	0.00068	0.00143	0.00225
AF	0.00000	0.00000	0.01662	0.02424	0.00361	0.00224	0.01297	0.00004	0.00051	0.01645
CHD	0.00003	0.00000	0.02519	0.02405	0.00222	0.00225	0.01282	0.00064	0.00025	0.01278
COP	0.00003	0.00002	0.01638	0.01087	0.00875	0.00268	0.00785	0.00134	0.00129	0.00639
Can	0.00001	0.00003	0.01084	0.01655	0.00509	0.00103	0.00626	0.00004	0.00115	0.00897

	LD	MSc	PUD	PrD	PsE	PuF	RhA	Sch	CS	ThD
Dem	0.00035	0.00007	0.00409	0.00531	0.02368	0.00023	0.00392	0.00061	0.00355	0.00586
Epi	0.02032	0.00042	0.00177	0.00052	0.00127	0.00000	0.00063	0.00406	0.00003	0.00231
HF	0.00008	0.00001	0.01851	0.01695	0.00201	0.00327	0.01447	0.00080	0.00002	0.01577
Lip	0.00004	0.00002	0.00567	0.00160	0.00178	0.00015	0.00188	0.00179	0.00025	0.00119
MVD	0.00002	0.00010	0.01545	0.01801	0.00212	0.00135	0.00929	0.00057	0.00004	0.01035
Str	0.00011	0.00011	0.01410	0.01705	0.00179	0.00077	0.01013	0.00169	0.00011	0.01325
Ano	0.00013	0.00038	0.00520	0.00160	0.00457	0.00006	0.00257	0.00534	0.00010	0.00249
Anx	0.00025	0.00013	0.00658	0.00038	0.01094	0.00003	0.00201	0.00954	0.00324	0.00475
Bli	0.00668	0.00221	0.01059	0.00935	0.00487	0.00030	0.00587	0.00179	0.00022	0.00903
Bro	0.00039	0.00000	0.02164	0.01398	0.00396	0.01374	0.01741	0.00090	0.00581	0.00867
AID	0.00042	0.00023	0.00000	0.00251	0.00063	0.00023	0.00039	0.00719	0.00131	0.00056
MLD	0.00002	0.00002	0.01696	0.00495	0.00095	0.00035	0.00489	0.00317	0.00047	0.00392
SLD	0.00030	0.00008	0.02984	0.00094	0.00152	0.00025	0.00343	0.00715	0.00005	0.00528
CLD	0.00003	0.00009	0.02440	0.00299	0.00127	0.00023	0.00482	0.00468	0.00021	0.00474
CyF	0.00066	0.00023	0.01094	0.00251	0.00394	0.00418	0.00379	0.00001	0.00189	0.00565
Dep	0.00024	0.00035	0.00662	0.00035	0.00917	0.00003	0.00281	0.01154	0.00247	0.00649
DDI	0.00006	0.00003	0.02907	0.01883	0.00575	0.00121	0.01674	0.00017	0.00242	0.01474

	LD	MSc	PUD	PrD	PsE	PuF	RhA	Sch	CS	ThD
HeL	0.00082	0.00002	0.00690	0.01070	0.01093	0.00065	0.00452	0.00026	0.00144	0.00543
Hem	0.00325	0.00289	0.01352	0.01269	0.00088	0.00007	0.00557	0.00301	0.00005	0.00678
Hyp	0.00001	0.00001	0.01978	0.01948	0.00501	0.00112	0.01456	0.00040	0.00101	0.01842
IBD	0.00006	0.00014	0.00585	0.00198	0.00561	0.00041	0.00568	0.00067	0.00052	0.00187
IBS	0.00000	0.00011	0.00440	0.00028	0.01348	0.00002	0.00226	0.00004	0.00493	0.00452
LD		0.00031	0.00005	0.00000	0.00409	0.00000	0.00001	0.04103	0.00022	0.01068
MSc	0.00052		0.00138	0.00003	0.00170	0.00029	0.00024	0.00056	0.00008	0.00103
PUD	0.00001	0.00013		0.01377	0.00442	0.00067	0.01069	0.00132	0.00127	0.00641
PrD	0.00000	0.00000	0.02033		0.00610	0.00169	0.00488	0.00014	0.00096	0.00043
PsE	0.00026	0.00006	0.00178	0.00166		0.00020	0.00348	0.00003	0.00180	0.00192
PuF	0.00000	0.00029	0.00700	0.01198	0.00513		0.02119	0.00003	0.00027	0.00798
RhA	0.00000	0.00003	0.01504	0.00465	0.01217	0.00285		0.00025	0.00153	0.01430
Sch	0.01395	0.00011	0.00287	0.00020	0.00019	0.00001	0.00039		0.00001	0.00374
CS	0.00009	0.00002	0.00314	0.00160	0.01105	0.00006	0.00269	0.00001		0.00394
ThD	0.00148	0.00009	0.00569	0.00026	0.00423	0.00068	0.00902	0.00152	0.00141	

Table 62. Frequencies of diseases in general sample, alphabetic order

Disease		# of cases of		Fraction of DIB
Full	Short	Disease	Disease&DIB	
AtrialFibr	AF	7,928	2,011	25.37%
AIDS	AID	74	3	4.05%
Alcohol	Alc	7,881	1,077	13.67%
Amputation	Amp	122	41	33.61%
Angina	Ang	9,545	2,882	30.19%
Anorexia	Ano	1,575	201	12.76%
Anxiety	Anx	32,768	3,266	9.97%
Asthma	Ast	30,600	3,214	10.50%
Blindness	Bli	1,583	366	23.12%
Bronchiectasis	Bro	1,171	238	20.32%
CHD	CHD	14,891	4,144	27.83%
Chronic Liver Disease and Viral Hepatitis	CLD	2,274	550	24.19%
COPD	COP	14,407	2,478	17.20%
Chronic sinusitis	CS	2,888	280	9.70%
Cancer	Can	26,349	3,836	14.56%
Cystic Fibrosis	CyF	76	15	19.74%
Diverticular disease of intestine	DDI	9,760	1,983	20.32%
Dementia	Dem	58,726	6,040	10.29%
Depression	Dep	38,784	4,158	10.72%
Epilepsy	Epi	4,360	500	11.47%
Heart failure	HF	6,628	1,941	29.28%
Hearing loss	HeL	15,271	2,003	13.12%
Hemiplegia	Hem	1,305	358	27.43%
Hypertension	Hyp	39,626	9,527	24.04%
Inflammatory bowel disease	IBD	2,113	243	11.50%
Irritable bowel syndrome	IBS	10,703	859	8.03%

| Disease | | # of cases of | | Fraction of DIB |
Full	Short	Disease	Disease&DIB	
Learning disability	LD	905	127	14.03%
Lipids	Lip	1,300	184	14.15%
Mild Liver Disease	MLD	1,314	291	22.15%
Multiple sclerosis	MSc	485	52	10.72%
Macrovascular	MVD	12,006	3,189	26.56%
Peptic Ulcer Disease	PUD	8,514	1,556	18.28%
Prostate disorders	PrD	5,018	1,071	21.34%
Psoriasis or eczema	PsE	32,287	2,882	8.93%
Pulmonary Fibrosis	PuF	467	94	20.13%
Rheumatoid arthritis & ...	RhA	5,436	966	17.77%
Moderate or Severe Liver Disease	SLD	1,220	359	29.43%
Schizophrenia	Sch	3,238	522	16.12%
Stroke	Str	9,504	2,325	24.46%
Thyroid disorders	ThD	10,186	1,812	17.79%
Whole sample		242,037	15,565	6.43%

Table 63. Frequencies of diseases in general sample, frequency order

| Disease | | # of cases of | | Fraction of DIB |
Full	Short	Disease	Disease&DIB	
Amputation	Amp	122	41	33.61%
Angina	Ang	9,545	2,882	30.19%
Moderate or Severe Liver Disease	SLD	1,220	359	29.43%
Heart failure	HF	6,628	1,941	29.28%
CHD	CHD	14,891	4,144	27.83%
Hemiplegia	Hem	1,305	358	27.43%
Macrovascular	MVD	12,006	3,189	26.56%
AtrialFibr	AF	7,928	2,011	25.37%

Stroke	Str	9,504	2,325	24.46%
Chronic Liver Disease and Viral Hepatitis	CLD	2,274	550	24.19%
Hypertension	Hyp	39,626	9,527	24.04%
Blindness	Bli	1,583	366	23.12%
Mild Liver Disease	MLD	1,314	291	22.15%
Prostate disorders	PrD	5,018	1,071	21.34%
Bronchiectasis	Bro	1,171	238	20.32%
Diverticular disease of intestine	DDI	9,760	1,983	20.32%
Pulmonary Fibrosis	PuF	467	94	20.13%
Cystic Fibrosis	CyF	76	15	19.74%
Peptic Ulcer Disease	PUD	8,514	1,556	18.28%
Thyroid disorders	ThD	10,186	1,812	17.79%
Rheumatoid arthritis & …	RhA	5,436	966	17.77%
COPD	COP	14,407	2,478	17.20%
Schizophrenia	Sch	3,238	522	16.12%
Cancer	Can	26,349	3,836	14.56%
Lipids	Lip	1,300	184	14.15%
Learning disability	LD	905	127	14.03%
Alcohol	Alc	7,881	1,077	13.67%
Hearing loss	HeL	15,271	2,003	13.12%
Anorexia	Ano	1,575	201	12.76%
Inflammatory bowel disease	IBD	2,113	243	11.50%
Epilepsy	Epi	4,360	500	11.47%
Multiple sclerosis	MSc	485	52	10.72%
Depression	Dep	38,784	4,158	10.72%
Asthma	Ast	30,600	3,214	10.50%
Dementia	Dem	58,726	6,040	10.29%
Anxiety	Anx	32,768	3,266	9.97%

Chronic sinusitis	CS	2,888	280	9.70%
Psoriasis or eczema	PsE	32,287	2,882	8.93%
Irritable bowel syndrome	IBS	10,703	859	8.03%
AIDS	AID	74	3	4.05%
Whole sample		242,037	15,565	6.43%

Table 64. The probability of ever observing diabetes in patients with a specific set of diagnosed diseases.

Attributes	Sample size	Ever DIB	% ever DIB
Ast, CHD, HF, Hyp, MVD,	523	261	50%
Ang, Ast, HF, Hyp,	817	399	49%
Ang, Ast, CHD, HF, Hyp,	816	398	49%
Ast, CHD, Hyp, MVD, Str,	509	247	49%
Ang, CHD, Dep, HF, Hyp,	557	268	48%
Ang, Dep, HF, Hyp,	557	268	48%
Ast, CHD, HF, MVD,	597	285	48%
Ast, HF, Hyp, MVD,	606	288	48%
Ast, CHD, HF, Hyp,	987	469	48%
Ang, Ast, HF,	903	429	48%
Ang, Ast, CHD, HF,	900	427	47%
Ang, Anx, Ast, CHD, Hyp,	561	264	47%
Ang, Anx, Ast, Hyp,	561	264	47%
Ast, CHD, COP, HF,	559	263	47%
AF, Ast, CHD, HF,	520	244	47%
Alc, Ang, CHD, Hyp,	555	259	47%
Alc, Ang, Hyp,	555	259	47%
Ang, COP, HF, Hyp,	679	315	46%
Ang, Ast, CHD, Dep, Hyp,	677	314	46%

Ang, CHD, COP, Dep, Hyp,	667	309	46%
Ang, COP, Dep, Hyp,	667	309	46%
Ang, Ast, Dep, Hyp,	678	314	46%
Ang, CHD, COP, HF, Hyp,	678	314	46%
Ang, Ast, CHD, Hyp, Str,	555	257	46%
Ang, Ast, Hyp, Str,	555	257	46%
COP, HF, Hyp, MVD,	559	258	46%
Ang, CHD, HF, Hyp, Str,	619	285	46%
Ang, HF, Hyp, Str,	619	285	46%
Ast, CHD, Dem, HF, Hyp,	502	231	46%
Ast, CHD, Hyp, Str,	686	315	46%
Ang, Ast, CHD, Hyp, MVD,	877	402	46%
Ang, Ast, Hyp, MVD,	877	402	46%
Ang, CHD, HF, Hyp, MVD,	1006	461	46%
Ang, HF, Hyp, MVD,	1006	461	46%
COP, Dep, Hyp, MVD,	550	252	46%
Ast, CHD, HF,	1124	514	46%
Ast, CHD, COP, Hyp, MVD,	532	243	46%
Ang, CHD, Dep, Hyp, Str,	598	273	46%
Ang, Dep, Hyp, Str,	598	273	46%
Ang, Can, HF, Hyp,	672	306	46%
CHD, COP, HF, Hyp,	857	390	46%
Ang, CHD, Can, HF, Hyp,	671	305	45%
CHD, Dep, Hyp, MVD, Str,	548	249	45%
Alc, Hyp, MVD,	515	233	45%
Ast, CHD, Dem, Hyp, MVD,	608	275	45%
CHD, Dep, HF, Hyp,	706	319	45%
Ast, CHD, MVD, Str,	591	267	45%

AF, CHD, HF, Hyp, MVD,	587	265	45%
Anx, CHD, HF, Hyp,	553	249	45%
Ang, Anx, CHD, COP, Hyp,	552	248	45%
Ast, HF, MVD,	706	317	45%
Ang, Anx, COP, Hyp,	553	248	45%
CHD, HF, Hyp, MVD, Str,	623	279	45%
Anx, Dep, HF, Hyp,	565	253	45%
Ast, COP, HF, Hyp,	704	315	45%
Anx, CHD, Dep, Hyp, MVD,	575	257	45%
Ast, CHD, Dem, HF,	562	251	45%
CHD, COP, Dep, Hyp,	824	368	45%
CHD, DDI, HF, Hyp,	585	261	45%
Ang, Anx, CHD, Dem, Dep, Hyp,	583	260	45%
Ang, Anx, Dem, Dep, Hyp,	583	260	45%
Ast, CHD, Hyp, MVD,	1139	507	45%
Ang, CHD, Dem, Dep, Hyp, MVD,	528	235	45%
Ang, Dem, Dep, Hyp, MVD,	528	235	45%
Ast, Can, HF, Hyp,	522	232	44%
Ang, CHD, Dep, MVD, Str,	520	231	44%
Ang, Dep, MVD, Str,	520	231	44%
Ang, Anx, CHD, Hyp, MVD,	689	306	44%
Ang, Anx, Hyp, MVD,	689	306	44%
Ast, Dep, Hyp, MVD,	518	230	44%
Ast, CHD, Dep, Hyp,	848	376	44%
Ang, Ast, Can, Hyp,	688	305	44%
CLD, Hyp, SLD,	526	233	44%
Hyp, SLD,	526	233	44%
CHD, HF, Hyp, Str,	802	355	44%

Ang, Ast, CHD, Can, Hyp,	687	304	44%
Alc, CHD, Hyp,	720	318	44%
Ang, CHD, Dep, Hyp, MVD,	893	394	44%
Ang, Dep, Hyp, MVD,	893	394	44%
Ang, Ast, CHD, Str,	617	272	44%
Anx, Ast, CHD, Hyp,	697	307	44%
Ang, CHD, Dem, HF, Hyp, MVD,	536	236	44%
Ang, Dem, HF, Hyp, MVD,	536	236	44%
Ang, Ast, Str,	618	272	44%
Ang, Ast, COP, Hyp,	887	389	44%
Ast, CHD, COP, Dem, Hyp,	580	254	44%
Ang, Ast, CHD, COP, Hyp,	886	388	44%
Ang, CHD, Dep, HF,	656	287	44%
Anx, CHD, COP, Hyp,	675	295	44%
Ang, Dep, HF,	657	287	44%
AF, COP, HF, Hyp,	575	251	44%
Ast, HF, Str,	511	223	44%
Ang, Anx, HF,	521	227	44%
Ang, HF, Hyp,	1798	783	44%
Ang, CHD, HF, Hyp,	1797	782	44%
Ang, Anx, CHD, HF,	520	226	43%
CHD, Dep, Hyp, Str,	760	330	43%
CHD, COP, Hyp, MVD, Str,	505	219	43%
Ang, Ast, CHD, Dem, MVD,	557	241	43%
Ang, Ast, Dem, MVD,	557	241	43%
Ang, CHD, HF, MVD, Str,	557	241	43%
Ang, HF, MVD, Str,	557	241	43%
Ast, CHD, COP, Hyp,	1085	469	43%

CHD, HF, Hyp, MVD,	1395	603	43%
Ast, CHD, COP, Dep,	544	235	43%
Ast, CHD, Str,	797	344	43%
CHD, COP, Dep, MVD,	526	227	43%
AF, Ang, Ast, CHD, Hyp,	617	266	43%
AF, Ang, Ast, Hyp,	617	266	43%
CHD, COP, Dem, Hyp, MVD,	594	256	43%
CHD, HF, Hyp, PsE,	518	223	43%
AF, Ast, CHD, Hyp,	786	338	43%
AF, HF, Hyp, MVD,	728	313	43%
AF, Ang, CHD, HF, MVD,	521	224	43%
AF, Ang, HF, MVD,	521	224	43%
Ang, Ast, CHD, Dem, Hyp,	970	417	43%
Ang, Anx, Ast, CHD,	689	296	43%
Ang, Ast, Dem, Hyp,	971	417	43%
Ast, CHD, Hyp, PUD,	552	237	43%
Ang, Anx, Ast,	690	296	43%
Anx, CHD, Hyp, Str,	562	241	43%
Ang, CHD, Hyp, MVD, PsE,	705	302	43%
Ang, Hyp, MVD, PsE,	705	302	43%
AF, Ast, Hyp, MVD,	509	218	43%
Anx, Ast, COP, Dep, Hyp,	517	221	43%
CHD, COP, Dem, Dep,	599	256	43%
AF, Ang, CHD, HF, Hyp,	798	341	43%
AF, Ang, HF, Hyp,	798	341	43%
AF, CHD, COP, Hyp,	686	293	43%
Ang, CHD, DDI, Dep, Hyp,	525	224	43%
Ang, DDI, Dep, Hyp,	525	224	43%

Ang, Ast, CHD, DDI, Hyp,	514	219	43%
Ang, Ast, DDI, Hyp,	514	219	43%
Ast, COP, Dem, Dep, Hyp,	522	222	43%
Ast, CHD, Dem, Dep,	602	256	43%
Ast, CHD, Can, Hyp,	856	364	43%
Ang, Ast, CHD, Dep,	821	349	43%
Ang, Can, Hyp, Str,	654	278	43%
Ang, HF, Str,	734	312	43%
Ast, HF, Hyp,	1454	618	43%
Ang, CHD, Can, Hyp, Str,	652	277	42%
Ang, CHD, DDI, HF,	544	231	42%
Ang, DDI, HF,	544	231	42%
Ang, Ast, CHD, MVD,	1032	438	42%
CHD, Dem, Dep, Hyp, MVD,	688	292	42%
Ang, CHD, Dem, HF, Hyp,	926	393	42%
Ang, Dem, HF, Hyp,	926	393	42%
Ang, CHD, HF, Str,	733	311	42%
Ang, Ast, Dep,	823	349	42%
Ang, Ast, MVD,	1033	438	42%
AF, CHD, HF, Hyp,	1065	451	42%
Ang, Anx, CHD, Dep, MVD,	553	234	42%
Ang, Anx, Dep, MVD,	553	234	42%
Ang, CHD, Dem, Dep, Hyp,	1107	468	42%
Ast, COP, Hyp, MVD,	691	292	42%
Ang, Dem, Dep, Hyp,	1108	468	42%
Ang, Ast, Hyp,	1902	803	42%
Ang, Ast, CHD, Hyp,	1900	802	42%
AF, Ang, CHD, COP, Hyp,	543	229	42%

Ang, Anx, CHD, Dep, Hyp,	996	420	42%
Ang, Anx, Dep, Hyp,	996	420	42%
CHD, Hyp, MVD, ThD,	617	260	42%
CHD, HF, ThD,	515	217	42%
COP, HF, Hyp,	1332	561	42%
AF, Ang, COP, Hyp,	544	229	42%
Ast, Dep, HF,	594	250	42%
Ang, Ast, CHD, COP, MVD,	521	219	42%
CHD, Dem, Hyp, MVD, PsE,	602	253	42%
CHD, COP, Hyp, Str,	664	279	42%
AF, Ang, Ast,	681	286	42%
AF, Ang, Ast, CHD,	679	285	42%
Ang, CHD, COP, Hyp, MVD,	872	366	42%
Ang, COP, Hyp, MVD,	872	366	42%
Ang, Ast, COP, MVD,	522	219	42%
Ang, CHD, COP, Hyp, Str,	534	224	42%
Ang, COP, Hyp, Str,	534	224	42%
Ast, CHD, Dem, Hyp,	1228	515	42%
Anx, CHD, Dem, Dep, Hyp,	742	311	42%
Dep, HF, Hyp,	1136	476	42%
AF, Ast, HF, Hyp,	690	289	42%
CHD, Dep, MVD, Str,	674	282	42%
CHD, COP, Hyp, PsE,	538	225	42%
CHD, Dem, HF, Hyp, MVD,	672	281	42%
Ang, CHD, Dep, Str,	723	302	42%
Ang, Dep, Str,	723	302	42%
Anx, Ast, CHD, Dep,	577	241	42%
CHD, DDI, HF,	690	288	42%

CHD, Dep, HF, MVD,	501	209	42%
Anx, HF, Hyp,	899	375	42%
CHD, DDI, Hyp, Str,	585	244	42%
AF, CHD, Dem, HF, Hyp,	530	221	42%
CHD, COP, DDI, Hyp,	588	245	42%
CHD, Can, HF, Hyp,	857	357	42%
Ang, CHD, DDI, Hyp, MVD,	694	289	42%
Ang, DDI, Hyp, MVD,	694	289	42%
Anx, CHD, COP, Dep,	579	241	42%
Ang, CHD, Can, Dep, Hyp,	659	274	42%
Ang, Can, Dep, Hyp,	659	274	42%
AF, Ast, MVD,	592	246	42%
Ast, CHD, Dem, MVD,	732	304	42%
Ang, Ast, CHD, PUD,	530	220	42%
Ang, Ast, PUD,	530	220	42%
HF, Hyp, MVD,	1713	711	42%
Anx, Dem, Dep, Hyp, MVD,	523	217	41%
Ang, Can, HF,	810	336	41%
Ang, Hyp, ThD,	948	393	41%
AF, Ang, CHD, Hyp, MVD,	896	371	41%
AF, Ang, Hyp, MVD,	896	371	41%
Ang, CHD, Hyp, ThD,	947	392	41%
Anx, CHD, Dem, Hyp, MVD,	551	228	41%
CHD, HF, Hyp,	2446	1012	41%
Dem, Dep, HF, Hyp,	631	261	41%
Ast, Can, Hyp, MVD,	537	222	41%
Ang, Anx, CHD, Can, Hyp,	552	228	41%
Ang, Anx, CHD, Str,	528	218	41%

AF, Ast, CHD,	901	372	41%
Ang, CHD, COP, Dem, Hyp,	918	379	41%
Ang, CHD, Can, HF,	807	333	41%
Ang, Dem, Hyp, ThD,	509	210	41%
Ang, Anx, Str,	531	219	41%
Ang, COP, Dem, Hyp,	919	379	41%
CHD, DDI, MVD, Str,	502	207	41%
Ast, COP, Hyp, Str,	553	228	41%
AF, CHD, Dem, Hyp, MVD,	638	263	41%
Ang, CHD, Can, DDI, Hyp,	631	260	41%
CHD, COP, Dem, HF,	527	217	41%
Ang, Anx, Can, Hyp,	554	228	41%
Ang, CHD, Dem, Hyp, ThD,	508	209	41%
Ang, Can, DDI, Hyp,	632	260	41%
CHD, Dep, Hyp, MVD,	1196	492	41%
CHD, COP, HF, MVD,	647	266	41%
Anx, Dem, HF, Hyp,	506	208	41%
Ang, Anx, CHD, Dem, MVD,	516	212	41%
Ang, Anx, Dem, MVD,	516	212	41%
COP, Dem, HF, Hyp,	645	265	41%
Can, HF, Hyp, MVD,	565	232	41%
HF, Hyp, MVD, Str,	872	358	41%
HF, Hyp, ThD,	680	279	41%
Alc, Ang,	707	290	41%
Alc, Ang, CHD,	707	290	41%
CHD, COP, Hyp, MVD,	1151	472	41%
Ang, COP, HF,	834	342	41%
Ast, Hyp, MVD,	1551	636	41%

Ang, CHD, COP, HF,	832	341	41%
Ang, Hyp, PrD,	886	363	41%
HF, MVD, PsE,	503	206	41%
Anx, CHD, Hyp, MVD,	950	389	41%
Ast, Dem, Hyp, MVD,	821	336	41%
AF, CHD, HF, MVD,	760	311	41%
AF, Ast, COP, Hyp,	589	241	41%
CHD, Can, Hyp, MVD, Str,	594	243	41%
Ang, Hyp, MVD, Str,	1303	533	41%
Ang, CHD, Hyp, PrD,	885	362	41%
Ang, Ast, Can,	812	332	41%
Ang, CHD, Hyp, MVD, Str,	1302	532	41%
Anx, COP, Dem, Dep, Hyp,	629	257	41%
Ast, Hyp, MVD, Str,	835	341	41%
Anx, Dep, Hyp, MVD,	877	358	41%
Ast, CHD, COP, MVD,	691	282	41%
CHD, Dem, HF, Str,	522	213	41%
Ang, CHD, Hyp, MVD, PUD,	527	215	41%
Ang, Hyp, MVD, PUD,	527	215	41%
AF, Ang, CHD, Dem, Hyp, MVD,	505	206	41%
AF, Ang, Dem, Hyp, MVD,	505	206	41%
Ang, Ast, CHD, Can,	809	330	41%
HF, Hyp, PrD,	510	208	41%
Ast, Can, HF,	616	251	41%
Ang, Anx, CHD, Dem, Hyp,	896	365	41%
AF, Ast, HF,	793	323	41%
Ast, CHD, Can, MVD,	506	206	41%
Ang, Can, MVD, Str,	538	219	41%

Ast, CHD, PUD,	644	262	41%
Ang, CHD, Can, MVD, Str,	536	218	41%
Ast, CHD, DDI, Hyp,	630	256	41%
CLD, Hyp,	916	372	41%
Ast, Dem, HF, Hyp,	724	294	41%
CHD, Dem, HF, Hyp,	1170	475	41%
CHD, Hyp, MVD, PsE,	966	392	41%
Ang, CHD, Dep, Hyp,	1974	801	41%
Ang, CHD, Dem, HF, MVD,	631	256	41%
Ang, Dem, HF, MVD,	631	256	41%
Ang, Dep, Hyp,	1975	801	41%
Ang, Anx, Dem, Hyp,	900	365	41%
Ast, CHD, Hyp,	2489	1009	41%
Ast, CHD, Dep,	1066	432	41%
Ang, Ast, CHD, COP, Dem,	575	233	41%
COP, Dep, HF,	590	239	41%
CHD, Can, Hyp, Str,	845	342	40%
Ang, Ast, COP, Dem,	576	233	40%
Ang, Ast, CHD, DDI,	581	235	40%
Ang, Ast, DDI,	581	235	40%
AF, CHD, Hyp, MVD,	1229	497	40%
Anx, CHD, HF,	698	282	40%
Ang, CHD, DDI, Str,	552	223	40%
COP, Dem, Hyp, MVD,	812	328	40%
AF, Ang, Can, Hyp,	686	277	40%
Ast, COP, Dep, Hyp,	904	365	40%
AF, Ang, CHD, Can, Hyp,	684	276	40%
Ang, CHD, Dem, Dep, MVD,	652	263	40%

Ang, Dem, Dep, MVD,	652	263	40%
Ang, DDI, Str,	553	223	40%
Ang, CHD, Dem, MVD, PsE,	558	225	40%
Ang, Dem, MVD, PsE,	558	225	40%
Dep, HF, MVD,	630	254	40%
CHD, Dem, Dep, Hyp,	1424	574	40%
Ang, CHD, COP, Dep,	861	347	40%
Dem, Dep, Hyp, MVD,	1028	414	40%
Ang, CHD, HF, MVD,	1284	517	40%
Ang, HF, MVD,	1284	517	40%
Dem, HF, Hyp, MVD,	832	335	40%
CHD, COP, Dem, Hyp,	1155	465	40%
Ang, COP, Dep,	862	347	40%
CHD, Dep, HF,	875	352	40%
Ast, CHD, HeL, Hyp,	506	203	40%
Ang, MVD, ThD,	541	217	40%
CHD, DDI, Dep, Hyp,	644	258	40%
CLD, Hyp, MLD,	507	203	40%
Hyp, MLD,	507	203	40%
Ang, CHD, MVD, ThD,	540	216	40%
Ast, COP, HF,	908	363	40%
Ast, CHD, MVD,	1446	578	40%
Ang, Anx, CHD, COP,	698	279	40%
Anx, CHD, MVD, Str,	503	201	40%
CHD, Hyp, ThD,	1284	513	40%
Ang, COP, Can, Hyp,	686	274	40%
Ast, CHD, Hyp, PsE,	571	228	40%
Ang, Can, Dem, Hyp, MVD,	566	226	40%

CHD, Dep, Hyp, PUD,	556	222	40%
Ang, CHD, COP, Can, Hyp,	684	273	40%
AF, CHD, Hyp, MVD, Str,	629	251	40%
AF, Ang, HF,	935	373	40%
Ang, Dem, Hyp, MVD, Str,	747	298	40%
Ast, CHD, COP, Dem,	722	288	40%
CHD, Dem, Hyp, ThD,	667	266	40%
Ang, Dem, HF,	1091	435	40%
AF, Ang, CHD, HF,	933	372	40%
Ang, Anx, COP,	700	279	40%
Ang, CHD, Dem, HF,	1089	434	40%
HF, Hyp, PUD,	650	259	40%
Anx, Dep, Hyp, Str,	763	304	40%
AF, HF, Hyp, Str,	580	231	40%
Ang, CHD, Can, Dem, Hyp, MVD,	565	225	40%
Ang, CHD, Dem, Hyp, MVD, Str,	746	297	40%
AF, Ast, Can, Hyp,	520	207	40%
Anx, Ast, COP, Hyp,	749	298	40%
CHD, Dep, Hyp, PsE,	616	245	40%
Dem, HF, Hyp, Str,	684	272	40%
CHD, Dep, Str,	938	373	40%
CHD, HF, Str,	1006	400	40%
CHD, HF, HeL, Hyp,	521	207	40%
CHD, COP, HF,	1106	439	40%
HF, Hyp, Str,	1222	485	40%
Ang, CHD, DDI, Dep,	640	254	40%
Ang, DDI, Dep,	640	254	40%
Dem, Dep, Hyp, MVD, Str,	600	238	40%

Ang, Ast, CHD, COP,	1092	433	40%
Ang, Dem, Hyp, MVD,	1541	611	40%
Ang, Ast, COP,	1095	434	40%
Ang, CHD, Dem, Hyp, MVD,	1540	610	40%
Anx, CHD, Hyp, PsE,	553	219	40%
Ast, Hyp, Str,	1240	491	40%
Ang, CHD, Dem, Hyp, PUD,	591	234	40%
CHD, HF, MVD, Str,	788	312	40%
CHD, DDI, Hyp, MVD,	897	355	40%
Ang, Anx, CHD, DDI,	526	208	40%
Ang, Dem, Hyp, PUD,	592	234	40%
Anx, CHD, DDI, Hyp,	539	213	40%
AF, Can, HF, Hyp,	671	265	39%
CHD, Hyp, PsE, Str,	504	199	39%
Ang, Can, Str,	783	309	39%
Ang, CHD, Can, Str,	778	307	39%
Ang, COP, Hyp,	1763	695	39%
Anx, Ast, CHD,	888	350	39%
Ang, CHD, COP, Hyp,	1761	694	39%
CHD, Dem, Dep, Str,	566	223	39%
Ang, Anx, DDI,	528	208	39%
AF, Can, Hyp, MVD,	663	261	39%
Anx, CHD, Dep, Hyp,	1301	512	39%
Ast, Dem, Hyp, Str,	723	284	39%
COP, HF, Str,	527	207	39%
Ang, CHD, Dem, Hyp, PsE,	884	347	39%
AF, CHD, Hyp, PsE,	525	206	39%
AF, CHD, Dem, HF,	635	249	39%

Ast, Dep, MVD,	709	278	39%
Ang, Can, Hyp, MVD,	1054	413	39%
Ang, CHD, Dep, MVD,	1151	451	39%
Ang, Dep, MVD,	1151	451	39%
Ang, Hyp, Str,	1787	700	39%
CHD, Hyp, MVD, Str,	1777	696	39%
Ang, CHD, Hyp, Str,	1785	699	39%
COP, Hyp, ThD,	761	298	39%
Ang, Hyp, MVD,	3020	1182	39%
Ang, CHD, Can, Hyp, MVD,	1053	412	39%
Ang, CHD, Hyp, MVD,	3019	1181	39%
CHD, HF, PUD,	537	210	39%
Ang, CHD, MVD, PsE,	875	342	39%
Ang, MVD, PsE,	875	342	39%
HF, Hyp, PsE,	840	328	39%
AF, Ang, CHD, Dep, Hyp,	502	196	39%
AF, Ang, Dep, Hyp,	502	196	39%
Ang, Ast, CHD, Dem,	1168	456	39%
Ang, HF,	2275	888	39%
Ang, Dem, Hyp, PsE,	889	347	39%
DDI, HF, Hyp,	910	355	39%
Ang, CHD, COP, Dem, MVD,	577	225	39%
Ang, COP, Dem, MVD,	577	225	39%
Ang, Anx, CHD, Dem, Dep,	754	294	39%
Ang, Anx, Dem, Dep,	754	294	39%
Ang, Ast, Dem,	1170	456	39%
Ang, CHD, HF,	2271	885	39%
Anx, Ast, Dem, Dep, Hyp,	716	279	39%

Dep, Hyp, MVD, Str,	1078	420	39%
Ang, Anx, CHD, Hyp,	1585	617	39%
AF, Ang, CHD, Hyp, Str,	635	247	39%
AF, Ang, Hyp, Str,	635	247	39%
Ang, CHD, Dep, PUD,	576	224	39%
Ang, Dep, PUD,	576	224	39%
Ang, Anx, Hyp,	1589	617	39%
CHD, Dem, Hyp, MVD, Str,	951	369	39%
Ang, CHD, Hyp, PUD,	1201	466	39%
CHD, DDI, Dem, Hyp, MVD,	508	197	39%
Ang, Hyp, PUD,	1202	466	39%
Ang, Dem, Hyp, Str,	1032	400	39%
Hem, Hyp, MVD, Str,	622	241	39%
Ang, CHD, Can, Hyp, PsE,	542	210	39%
CHD, COP, MVD, Str,	653	253	39%
Ang, CHD, Dem, Hyp, Str,	1030	399	39%
AF, COP, MVD,	618	239	39%
Ast, DDI, Dep, Hyp,	512	198	39%
CHD, Can, Dep, Hyp,	843	326	39%
AF, COP, HF,	743	287	39%
AF, CHD, Can, MVD,	580	224	39%
Ang, Can, Hyp, PsE,	544	210	39%
Hem, Hyp, Str,	671	259	39%
Alc, COP, Hyp,	583	225	39%
Can, Dep, Hyp, Str,	565	218	39%
Hem, Hyp, MVD,	635	245	39%
Ang, CHD, DDI, Dem, Hyp,	832	321	39%
Ang, CHD, COP, DDI,	573	221	39%

AF, CHD, HF,	1341	517	39%
CHD, HF, PsE,	659	254	39%
CHD, Dem, Hyp, PsE,	1142	440	39%
Ang, COP, DDI,	574	221	39%
COP, HF, MVD,	782	301	38%
Ang, DDI, Dem, Hyp,	834	321	38%
AF, CHD, COP,	860	331	38%
Ast, CHD, DDI,	725	279	38%
Ast, CHD, Can, Dem,	564	217	38%
CHD, Can, DDI, Hyp,	788	303	38%
Ast, CHD, Can,	1051	404	38%
CHD, COP, Can, Hyp,	843	324	38%
Can, DDI, Hyp, MVD,	536	206	38%
AF, CHD, Can, Hyp,	896	344	38%
AF, Anx, CHD, Hyp,	547	210	38%
Ang, CHD, DDI, MVD,	831	319	38%
Ang, DDI, MVD,	831	319	38%
AF, Ang, CHD, COP,	641	246	38%
CHD, COP, Hyp,	2275	873	38%
Dep, Hyp, MVD,	1875	719	38%
Ang, CHD, Can, PUD,	519	199	38%
Ang, Can, PUD,	519	199	38%
Ang, Ast,	2356	903	38%
Ang, Ast, CHD,	2351	901	38%
CHD, PUD, Str,	501	192	38%
COP, Can, Hyp, MVD,	548	210	38%
Anx, CHD, Str,	702	269	38%
CHD, DDI, Str,	702	269	38%

Ast, CHD, COP,	1412	541	38%
AF, Ang, COP,	643	246	38%
Alc, Ast, Hyp,	596	228	38%
CHD, HeL, Hyp, Str,	549	210	38%
COP, Dem, Dep, Hyp,	1051	402	38%
Anx, Ast, Can, Hyp,	536	205	38%
Ang, CHD, COP, Str,	646	247	38%
AF, CHD, Hyp, Str,	832	318	38%
Ast, COP, DDI, Hyp,	573	219	38%
CHD, COP, Dep,	1099	420	38%
AF, HF, MVD,	963	368	38%
Ang, COP, Str,	647	247	38%
AF, Ang, CHD, Dem, MVD,	587	224	38%
AF, Ang, Dem, MVD,	587	224	38%
Ang, CHD, Hyp, RhA,	692	264	38%
CHD, Hyp, MVD, PrD,	561	214	38%
Ang, Can, Dem, Hyp,	1209	461	38%
Ang, Hyp, RhA,	693	264	38%
Ang, CHD, Can, Dem, Hyp,	1205	459	38%
Anx, CHD, Can, Hyp,	709	270	38%
Ang, CHD, Hyp, PsE,	1421	541	38%
Ast, COP, ThD,	570	217	38%
CHD, Dep, Hyp,	2601	990	38%
Ang, Anx, CHD, MVD,	904	344	38%
Anx, CHD, COP,	891	339	38%
AF, Ast, Str,	539	205	38%
AF, Ang, CHD, MVD, Str,	555	211	38%
AF, Ang, MVD, Str,	555	211	38%

CHD, Dep, HeL, Hyp,	534	203	38%
Ang, Anx, MVD,	905	344	38%
Ast, Dem, Hyp, PUD,	542	206	38%
Ast, Can, Dep, Hyp,	642	244	38%
Ang, CHD, Can, HeL, Hyp,	545	207	38%
Alc, Can, Hyp,	569	216	38%
Ang, Ast, PsE,	548	208	38%
Hem, Hyp,	801	304	38%
Ast, HF,	1874	711	38%
Ang, Hyp, PsE,	1426	541	38%
Anx, Dep, HF,	775	294	38%
Can, Dep, Hyp, MVD,	588	223	38%
Anx, Ast, MVD,	559	212	38%
CHD, Can, ThD,	575	218	38%
AF, Ast, COP,	757	287	38%
Ang, Ast, CHD, PsE,	546	207	38%
Ang, Can, HeL, Hyp,	546	207	38%
CHD, COP, DDI,	713	270	38%
CHD, Hyp, MVD, PUD,	650	246	38%
Ast, Dem, HF,	880	333	38%
COP, Hyp, RhA,	587	222	38%
Ang, CHD, COP, HeL,	521	197	38%
CHD, Hyp, Str,	2407	910	38%
Ang, CHD, Can, DDI,	754	285	38%
AF, CHD, Dem, MVD,	802	303	38%
Ang, CHD, MVD, PUD,	654	247	38%
Ang, MVD, PUD,	654	247	38%
CHD, Can, Hyp, PUD,	519	196	38%

Anx, COP, MVD,	633	239	38%
COP, Hyp, MVD,	1613	609	38%
Ang, CHD, Dem, HeL, Hyp,	885	334	38%
Ang, COP, HeL,	522	197	38%
COP, Hyp, MVD, Str,	840	317	38%
Anx, CHD, Dem, Hyp,	1177	444	38%
AF, Dem, HF, Hyp,	859	324	38%
CHD, Dem, Hyp, MVD,	2116	798	38%
Alc, CHD,	976	368	38%
Ang, Can, DDI,	756	285	38%
COP, Can, DDI, Hyp,	512	193	38%
Ang, CHD, DDI, Hyp,	1524	574	38%
Ang, Dem, HeL, Hyp,	887	334	38%
AF, CHD, HeL, Hyp,	510	192	38%
AF, HF, Hyp,	1788	673	38%
AF, Ang, CHD, MVD,	1092	411	38%
AF, Ang, MVD,	1092	411	38%
CHD, Dem, Hyp, Str,	1310	493	38%
AF, CHD, Dep, Hyp,	646	243	38%
Ang, DDI, Hyp,	1526	574	38%
Ast, CHD, Dem,	1532	576	38%
Anx, Dem, Hyp, MVD,	830	312	38%
Can, Dep, HF,	514	193	38%
Ang, CHD, MVD, PrD,	546	205	38%
Ang, MVD, PrD,	546	205	38%
CHD, COP, Dem, MVD,	794	298	38%
CHD, Dem, Hyp, PrD,	613	230	38%
COP, Dep, MVD,	792	297	38%

Anx, COP, Dep, Hyp,	1075	403	37%
CHD, Dem, Dep, MVD,	889	333	37%
CHD, COP, Str,	857	321	37%
Anx, CHD, Dep, MVD,	785	294	37%
AF, CHD, DDI, Hyp,	625	234	37%
Anx, CHD, Dem, MVD,	719	269	37%
Anx, Hyp, MVD, Str,	794	297	37%
Dem, Hyp, MVD, PsE,	888	332	37%
Can, HF, Hyp,	1432	535	37%
CHD, Dem, HF, MVD,	878	328	37%
AF, CHD, Dem, Hyp,	1202	449	37%
Anx, Hyp, MVD,	1451	542	37%
Can, HF, Str,	565	211	37%
CHD, Can, Hyp, PrD,	541	202	37%
CHD, Dem, HeL, Hyp, MVD,	592	221	37%
Ast, Hyp, PrD,	619	231	37%
Ast, Dem, Dep, Hyp,	1230	459	37%
Ast, Hyp, PUD,	1091	407	37%
Hyp, MVD, ThD,	955	356	37%
CHD, Dem, Hyp, PUD,	730	272	37%
AF, Ang, Can,	816	304	37%
CHD, Hyp, PrD,	1122	418	37%
CHD, COP, HeL,	658	245	37%
CHD, Can, HF,	1077	401	37%
AF, Ang, CHD, DDI, Hyp,	505	188	37%
CHD, MVD, ThD,	822	306	37%
Dem, Dep, Hyp, Str,	965	359	37%
CHD, DDI, Dep,	802	298	37%

AF, Ang, CHD, Can,	813	302	37%
Dem, HF, HeL, Hyp,	525	195	37%
AF, Can, Hyp, Str,	617	229	37%
CHD, DDI, Dem, Hyp,	1035	384	37%
AF, Ang, CHD, Dem, Hyp,	930	345	37%
Ang, MVD, Str,	1612	598	37%
CHD, Can, Dem, Hyp, MVD,	763	283	37%
AF, Ang, Dem, Hyp,	933	346	37%
AF, Ang, CHD, Hyp,	1734	643	37%
AF, Ang, DDI, Hyp,	507	188	37%
Ang, CHD, MVD, Str,	1610	597	37%
CHD, Can, HF, MVD,	599	222	37%
AF, Ang, Hyp,	1738	644	37%
Anx, Ast, Str,	502	186	37%
Ang, Anx, CHD, PsE,	540	200	37%
Ast, CHD, HeL,	621	230	37%
COP, MVD, PsE,	532	197	37%
CHD, Can, Dem, Str,	578	214	37%
AF, HF, MVD, Str,	516	191	37%
Hyp, MVD, PrD,	797	295	37%
CHD, Dep, ThD,	562	208	37%
Ang, CHD, COP, PUD,	508	188	37%
Ang, COP, PUD,	508	188	37%
AF, CHD, PUD,	527	195	37%
Ang, Can, Dem, MVD,	695	257	37%
CHD, Dem, HF,	1493	552	37%
Anx, COP, Dem, Hyp,	915	338	37%
AF, Dem, Hyp, MVD,	934	345	37%

Ang, Dem, MVD, Str,	878	324	37%
Ang, Dem, ThD,	626	231	37%
HF, Hyp,	4153	1532	37%
AF, Ast, Dem, Hyp,	694	256	37%
Ang, CHD, Can, Dem, MVD,	694	256	37%
Ang, CHD, Dep, PsE,	629	232	37%
Can, Hyp, MVD, PsE,	526	194	37%
Ang, CHD, HeL, Hyp, MVD,	667	246	37%
Ang, HeL, Hyp, MVD,	667	246	37%
Ast, Dem, MVD,	1063	392	37%
Ang, Anx, PsE,	543	200	37%
Ang, CHD, Dem, MVD, Str,	877	323	37%
Ang, Dep, PsE,	630	232	37%
Ang, CHD, COP, PsE,	554	204	37%
Hyp, Sch,	747	275	37%
CHD, Dep, PUD,	709	261	37%
Ang, CHD, Dem, ThD,	625	230	37%
CHD, Hyp, MVD,	4504	1657	37%
CHD, Dem, Hyp, RhA,	503	185	37%
Ang, COP, PsE,	555	204	37%
CHD, Can, Hyp, PsE,	702	258	37%
Ang, CHD, HeL, Hyp,	1331	489	37%
Ang, CHD, Dem, Hyp,	3248	1193	37%
AF, Ast, Hyp,	1364	501	37%
Ast, Can, MVD,	689	253	37%
Ang, Dem, Hyp,	3257	1195	37%
Ang, HeL, Hyp,	1333	489	37%
CHD, DDI, Dem, MVD,	627	230	37%

CHD, Can, MVD, Str,	747	274	37%
Ast, Can, DDI, Hyp,	518	190	37%
Ang, Can, Hyp,	2285	838	37%
AF, Dep, HF,	559	205	37%
Ast, Dep, Str,	649	238	37%
Ang, ThD,	1200	440	37%
CHD, HF, MVD,	1980	726	37%
AF, Anx, Dep, Hyp,	622	228	37%
DDI, Dep, MVD,	543	199	37%
Ang, CHD, Dem, Dep,	1449	531	37%
Ang, CHD, ThD,	1198	439	37%
Ang, Dem, Dep,	1452	532	37%
CHD, Hyp, PsE,	1927	706	37%
CHD, Dem, MVD, PsE,	789	289	37%
CHD, Can, Dep, MVD,	516	189	37%
CHD, Can, Dem, HF,	557	204	37%
Ang, CHD, Can, Hyp,	2280	835	37%
Ast, COP, Str,	740	271	37%
COP, Dem, HF,	844	309	37%
COP, Dem, Hyp, Str,	694	254	37%
Dem, HF, Hyp,	1924	704	37%
AF, Hyp, MVD,	1789	654	37%
Ast, Dem, MVD, Str,	605	221	37%
Ast, Dem, Hyp, ThD,	501	183	37%
Ast, Can, Str,	564	206	37%
Ang, Dem, PrD,	611	223	36%
Dep, Hyp, PrD,	614	224	36%
CHD, Hyp, PUD,	1511	551	36%

CHD, DDI, PUD,	535	195	36%
COP, Can, Dep, Hyp,	653	238	36%
Anx, CHD, DDI,	675	246	36%
Ang, CHD, HeL, Str,	516	188	36%
Ang, HeL, Str,	516	188	36%
Ang, CHD, COP, MVD,	1120	408	36%
Ang, COP, MVD,	1121	408	36%
CHD, DDI, MVD,	1154	420	36%
Ang, CHD, Dem, PrD,	610	222	36%
AF, CHD, MVD, Str,	775	282	36%
CHD, Dem, Dep, HeL,	525	191	36%
Ast, COP, Can, Hyp,	800	291	36%
AF, COP, Hyp,	1251	455	36%
AF, CHD, MVD,	1617	588	36%
Ast, COP, MVD,	958	348	36%
Ang, PrD,	1116	405	36%
Anx, CHD, Can, Dep,	565	205	36%
CHD, Dem, Dep, PsE,	554	201	36%
AF, CHD, Hyp,	2379	863	36%
CHD, Can, Str,	1056	383	36%
Hyp, PrD, Str,	670	243	36%
Ang, CHD, Can, Dep,	855	310	36%
Ang, Can, Dep,	855	310	36%
Dem, HF, Str,	855	310	36%
CHD, Hyp, IBS,	582	211	36%
Ast, CHD, PsE,	720	261	36%
CHD, DDI, Hyp,	1941	703	36%
Ast, COP, Dem, Hyp,	1238	448	36%

CHD, HeL, Hyp, MVD,	890	322	36%
CHD, Can, HeL, Hyp,	691	250	36%
Ang, CHD, PrD,	1114	403	36%
Ang, Can, PrD,	531	192	36%
Anx, Dem, HF,	686	248	36%
Ang, CHD, Dep, HeL,	559	202	36%
Ang, Dep, HeL,	559	202	36%
COP, Dep, Str,	631	228	36%
AF, Ang, CHD, Str,	739	267	36%
AF, Ang, Str,	739	267	36%
AF, DDI, HF,	526	190	36%
Ang, CHD, COP, Dem,	1166	421	36%
CHD, Dem, HeL, Hyp,	1144	413	36%
CHD, Can, Hyp, MVD,	1471	531	36%
Ast, CHD,	3241	1169	36%
COP, Hyp, Str,	1245	449	36%
AF, Ast, Dep,	513	185	36%
Ang, COP, Dem,	1168	421	36%
Dem, HF, MVD, Str,	591	213	36%
HF, HeL, Hyp,	813	293	36%
Anx, CHD, Hyp,	2137	770	36%
AF, Ast, Can,	655	236	36%
Anx, Dep, Hyp, PUD,	794	286	36%
DDI, Hyp, MVD, Str,	733	264	36%
Ang, CHD, Dem, PUD,	723	260	36%
Anx, CHD, Dem, Dep,	985	354	36%
CHD, Hyp, RhA,	910	327	36%
AF, Ang, CHD, Dep,	593	213	36%

Ang, CHD, Can, PrD,	529	190	36%
Ang, Dem, PUD,	724	260	36%
Ang, Anx, CHD, Dep,	1334	479	36%
Ang, Anx, Dep,	1334	479	36%
COP, DDI, Dem, Hyp,	677	243	36%
Can, Dem, HF, Hyp,	711	255	36%
AF, Ang, Dep,	594	213	36%
Hyp, MVD, PsE,	1481	531	36%
Ang, Dem, Str,	1228	440	36%
Ang, CHD, Hyp,	6676	2392	36%
Dep, Hyp, Str,	1669	598	36%
Anx, Ast, Dem, Hyp,	1058	379	36%
Ang, Hyp,	6687	2395	36%
Ang, Anx, CHD, Can,	704	252	36%
Can, HeL, Hyp, MVD,	528	189	36%
CHD, Can, DDI, Dem,	542	194	36%
Ang, CHD, Dem, Str,	1225	438	36%
CHD, HF,	3372	1205	36%
Ang, Anx, Can,	708	253	36%
AF, COP, Dem, Hyp,	644	230	36%
Can, HF, MVD,	745	266	36%
HF, ThD,	919	328	36%
Ang, Anx, CHD, Dem,	1163	415	36%
AF, Ang, Anx,	502	179	36%
AF, HF, Str,	738	263	36%
Ast, COP, Hyp,	2405	857	36%
Ang, Anx, Dem,	1168	416	36%
CHD, HF, HeL,	657	234	36%

Ang, CHD, Dem, HeL, MVD,	545	194	36%
Ang, Dem, HeL, MVD,	545	194	36%
Dem, Dep, HF,	857	305	36%
CHD, DDI, PsE,	565	201	36%
HF, PrD,	655	233	36%
DDI, Hyp, MVD,	1316	468	36%
DDI, HF,	1139	405	36%
AF, CHD, DDI,	737	262	36%
Ang, CHD, DDI, Dem,	993	353	36%
Anx, COP, Can, Hyp,	543	193	36%
CHD, Can, Dem, Hyp,	1570	558	36%
Ang, Dem, MVD,	1953	694	36%
CHD, Dep, MVD,	1683	598	36%
Dem, HF, MVD,	1115	396	36%
COP, Dep, Hyp,	1943	690	36%
Anx, Dem, Hyp, Str,	752	267	36%
Ang, CHD, Dem, MVD,	1952	693	36%
Ast, Dem, Str,	927	329	35%
Ang, DDI, Dem,	995	353	35%
AF, Can, MVD,	843	299	35%
Ang, Can, MVD,	1337	474	35%
CHD, COP, PsE,	711	252	35%
Ang, CHD, Can, MVD,	1335	473	35%
COP, DDI, Hyp,	1245	441	35%
Ast, MVD, Str,	1110	393	35%
Dem, MVD, ThD,	647	229	35%
AF, Ang, CHD, DDI,	571	202	35%
Ang, Str,	2223	786	35%

Ang, CHD, Str,	2218	784	35%
AF, CHD, Can, Dem,	597	211	35%
AF, CHD, Dem, Str,	566	200	35%
Dem, HeL, Hyp, MVD,	883	312	35%
CHD, COP, PUD,	620	219	35%
CHD, PsE, Str,	637	225	35%
Anx, CHD, HeL,	572	202	35%
AF, CHD, Str,	1012	357	35%
AF, CHD, PsE,	655	231	35%
AF, Ang, DDI,	573	202	35%
Ast, MVD,	2139	754	35%
CHD, Can, DDI,	985	347	35%
CHD, HeL, Hyp,	1726	608	35%
Dem, HeL, Hyp, MVD, Str,	511	180	35%
Anx, CHD, PUD,	619	218	35%
CHD, MVD, PsE,	1344	473	35%
Ang, CHD, COP, Can,	861	303	35%
Can, DDI, MVD,	682	240	35%
Ang, COP, Can,	864	304	35%
AF, Hyp, PrD,	671	236	35%
AF, Anx, CHD,	666	234	35%
HF, MVD, Str,	1187	417	35%
CHD, Dem, MVD, Str,	1183	415	35%
Ast, Hyp, RhA,	687	241	35%
CHD, COP, Can, Dem,	573	201	35%
AF, Can, HF,	848	297	35%
Hyp, PUD, Str,	771	270	35%
HF, PUD,	877	307	35%

CHD, Dem, Hyp,	4380	1533	35%
AF, Dep, MVD,	572	200	35%
Ang, CHD, Dem, PsE,	1114	389	35%
CHD, COP, Dem,	1535	536	35%
CHD, Dem, ThD,	857	299	35%
Anx, HF,	1290	450	35%
Alc, MVD,	797	278	35%
CHD, HeL, Str,	677	236	35%
Anx, CHD, Can, Dem,	551	192	35%
AF, COP, Str,	508	177	35%
Ang, CHD, Dep,	2701	941	35%
Ang, Dep,	2704	942	35%
Dem, HeL, Hyp, Str,	824	287	35%
Alc, Anx, Dep, Hyp,	646	225	35%
COP, Hyp, PrD,	646	225	35%
COP, Can, HF,	626	218	35%
Anx, Hyp, Str,	1241	432	35%
Hyp, MVD, Str, ThD,	520	181	35%
Anx, Dem, Dep, MVD,	724	252	35%
AF, Dem, Hyp, MVD, Str,	621	216	35%
Ang, Dem, PsE,	1119	389	35%
AF, Dem, HF,	1096	381	35%
Ast, Hyp, ThD,	996	346	35%
HF, MVD,	2499	868	35%
CHD, Can, PUD,	671	233	35%
CHD, ThD,	1720	597	35%
DDI, Dem, Hyp, Str,	703	244	35%
CHD, COP, Can, MVD,	559	194	35%

COP, Hyp, PUD,	951	330	35%
AF, COP, Can,	637	221	35%
Ang, CHD, PUD,	1528	530	35%
CHD, Can, Dem, Dep,	643	223	35%
AF, CHD, Dep,	793	275	35%
Ang, PUD,	1529	530	35%
Anx, COP, Hyp,	1616	560	35%
AF, CHD, Can,	1117	387	35%
Hyp, PUD, ThD,	508	176	35%
Alc, Dem, Hyp,	846	293	35%
CHD, DDI, HeL,	587	203	35%
COP, DDI, MVD,	509	176	35%
COP, HF,	1930	667	35%
Ang, CHD, Can, PsE,	680	235	35%
Ang, Can, PsE,	683	236	35%
COP, Can, Hyp, PsE,	501	173	35%
Dem, Hyp, MVD,	3317	1145	35%
Hyp, MVD, PUD,	925	319	34%
CHD, Can, Hyp,	3080	1062	34%
CHD, MVD, Str,	2358	813	34%
AF, MVD, PsE,	528	182	34%
Anx, CHD, PsE,	734	253	34%
Can, DDI, Dep, Hyp,	621	214	34%
Anx, Hyp, PrD,	534	184	34%
Hyp, MVD, PUD, Str,	505	174	34%
HF, Str,	1661	572	34%
Can, Dem, Hyp, MVD, Str,	636	219	34%
AF, Hyp, MVD, Str,	1098	378	34%

Dep, HF,	1624	559	34%
DDI, Hyp, PrD,	643	221	34%
Dep, MVD, PsE,	643	221	34%
Ang, CHD, DDI,	1868	642	34%
Anx, CHD, MVD,	1345	462	34%
DDI, Dem, HF,	565	194	34%
CHD, Dep, PsE,	845	290	34%
AF, Ast, Dem,	880	302	34%
Ang, DDI,	1871	642	34%
CHD, Dem, Dep,	1926	660	34%
AF, Ang, CHD, Dem,	1106	379	34%
Anx, Ast, Dep, Hyp,	1325	454	34%
Ast, COP, Hyp, PsE,	610	209	34%
Can, Dem, Hyp, MVD,	1153	395	34%
AF, Ang, Dem,	1110	380	34%
Can, Hyp, MVD, Str,	1201	411	34%
Alc, Str,	643	220	34%
Ast, Can, Hyp, PsE,	541	185	34%
CHD, MVD, PUD,	889	304	34%
Ang, RhA,	854	292	34%
Dem, Dep, MVD,	1460	499	34%
CHD, COP, MVD,	1648	563	34%
Ang, CHD, RhA,	852	291	34%
CHD, Dem, Str,	1629	556	34%
AF, CHD, HeL,	630	215	34%
AF, Hyp, PUD,	762	260	34%
DDI, Hyp, Str,	1156	394	34%
CHD, HeL, PsE,	596	203	34%

Dem, Dep, Hyp, PUD,	714	243	34%
Ast, Can, Hyp,	2061	701	34%
Ast, DDI, Hyp,	1372	466	34%
AF, Ang, CHD,	2117	719	34%
AF, Ang,	2123	721	34%
DDI, Dem, Hyp, MVD,	745	253	34%
Hyp, MVD, RhA,	642	218	34%
Anx, Dem, Dep, Str,	651	221	34%
Ang, CHD, Dem, HeL,	1147	389	34%
Ast, Str,	1709	579	34%
CHD, Hyp,	9597	3250	34%
AF, Dem, MVD,	1205	408	34%
Ang, Dem, HeL,	1149	389	34%
Ast, Dep, Hyp,	2372	803	34%
CHD, DDI, Dem,	1288	436	34%
Hyp, PrD, PsE,	662	224	34%
AF, CHD, Dem,	1508	510	34%
Ang, CHD, PsE,	1857	628	34%
Ang, CHD, COP,	2340	791	34%
Ang, PsE,	1864	630	34%
Ang, COP,	2344	792	34%
Ast, Dem, HeL, Hyp,	767	259	34%
CHD, Dem, HeL, MVD,	776	262	34%
CHD, Can, Dep,	1132	382	34%
Ang, MVD,	4103	1384	34%
Ang, CHD, MVD,	4101	1383	34%
AF, Can, MVD, Str,	513	173	34%
CHD, Dem, RhA,	614	207	34%

CHD, Dep, HeL,	710	239	34%
COP, Dem, HeL, Hyp,	713	240	34%
Ang, Can, Dem,	1543	519	34%
AF, Can, Dep, Hyp,	506	170	34%
CHD, Dem, PUD,	929	312	34%
Can, Dem, Hyp, ThD,	670	225	34%
AF, Ast,	1754	589	34%
Ast, HeL, Hyp,	1147	385	34%
Ang, CHD, Can, Dem,	1538	516	34%
Dem, Dep, MVD, Str,	835	280	34%
DDI, Hyp, RhA,	669	224	33%
Can, Hyp, MVD,	2261	757	33%
DDI, Dep, Str,	523	175	33%
COP, Dem, Hyp, PsE,	825	276	33%
Dep, Hyp, PUD,	1349	451	33%
AF, Dem, Dep, Hyp,	733	245	33%
CHD, Str,	3166	1058	33%
Hyp, MVD,	7225	2414	33%
Dem, Dep, Hyp, ThD,	728	243	33%
Hyp, Str, ThD,	845	282	33%
HeL, Hyp, MVD,	1334	445	33%
AF, Dem, ThD,	531	177	33%
Alc, Dep, Hyp,	1114	371	33%
Can, Dem, Hyp, Str,	1045	348	33%
COP, Dem, MVD,	1169	389	33%
AF, HF,	2414	803	33%
Hem, MVD, Str,	800	266	33%
HF, RhA,	617	205	33%

CHD, MVD, RhA,	551	183	33%
AF, Anx, Hyp,	1096	364	33%
COP, HeL, Hyp,	1081	359	33%
Dem, Hyp, PsE, Str,	741	246	33%
Dem, Hyp, MVD, Str,	1904	632	33%
AF, Hyp, ThD,	811	269	33%
Dep, Hyp, RhA,	811	269	33%
HeL, Hyp, Str,	1197	397	33%
CLD, Can,	591	196	33%
CHD, COP, Can,	1125	373	33%
Anx, Dep, MVD, Str,	736	244	33%
CHD, MVD, PrD,	736	244	33%
AF, Dem, Hyp, PsE,	664	220	33%
Anx, COP, DDI,	571	189	33%
Ang, CHD, Can, HeL,	701	232	33%
Anx, CHD, Dep,	1817	601	33%
Ang, Anx, CHD,	2159	714	33%
Alc, Anx, Hyp,	844	279	33%
Ang, Can, HeL,	702	232	33%
Can, Dep, MVD,	811	268	33%
MVD, PrD, Str,	566	187	33%
Dem, HF, PsE,	678	224	33%
Ang, Anx,	2165	715	33%
Ang, CHD, HeL, MVD,	842	278	33%
Ang, HeL, MVD,	842	278	33%
Can, Hyp, Str,	1948	643	33%
Hem, Str,	876	289	33%
Ast, COP, DDI,	810	267	33%

COP, Dep, ThD,	531	175	33%
Anx, Dem, Hyp, PUD,	671	221	33%
COP, DDI, Dep,	671	221	33%
Hem, MVD,	820	270	33%
Anx, MVD, PsE,	562	185	33%
AF, Dep, Hyp,	1270	418	33%
Anx, CHD, Can,	939	309	33%
Dem, HF, HeL,	699	230	33%
Anx, DDI, Dem, Dep, Hyp,	535	176	33%
CHD, DDI,	2488	818	33%
Anx, Ast, Hyp, PsE,	569	187	33%
CHD, Dem, PsE,	1528	502	33%
CHD, Can, Dem, MVD,	1014	333	33%
Anx, CHD, Dem,	1581	519	33%
Anx, Hyp, PUD,	1202	394	33%
AF, CHD,	3094	1014	33%
AF, Alc,	516	169	33%
Ast, Dep, Hyp, PsE,	620	203	33%
Ang, CHD, IBS,	584	191	33%
Hyp, MVD, PsE, Str,	771	252	33%
Ast, COP, PUD,	747	244	33%
HeL, Hyp, PUD,	744	243	33%
Ang, IBS,	588	192	33%
HF, PsE,	1226	400	33%
AF, Hyp, PsE,	1128	368	33%
COP, Dem, MVD, Str,	632	206	33%
AF, COP, Dem,	853	278	33%
Can, Dep, Str,	758	247	33%

AF, Hyp, RhA,	547	178	33%
HeL, Hyp, MVD, Str,	750	244	33%
Bli, Hyp,	827	269	33%
Ast, Can, Dem, Hyp,	1070	348	33%
Anx, Ast, Hyp,	2002	651	33%
Can, DDI, Str,	597	194	32%
MVD, ThD,	1348	438	32%
CHD, Dem, MVD,	2966	962	32%
AF, Hyp, Str,	1607	521	32%
CHD, Dem, PrD,	791	256	32%
CHD, Can, PrD,	686	222	32%
CHD, Dep,	3740	1210	32%
AF, DDI, Dem, Hyp,	606	196	32%
Ang, CHD, HeL,	1760	569	32%
Anx, DDI, Dep, Hyp,	885	286	32%
CHD, PrD,	1489	481	32%
AF, MVD,	2424	783	32%
Ang, HeL,	1762	569	32%
Anx, Dem, MVD,	1174	379	32%
Ast, DDI, Dem, Hyp,	728	235	32%
AF, Dem, Hyp, Str,	908	293	32%
CHD, PUD,	2018	651	32%
AF, DDI, Hyp,	1159	373	32%
Hyp, MVD, Str,	3909	1258	32%

Can, Hyp, PUD,	1321	425	32%
COP, Can, Dem, Hyp,	1004	323	32%
AF, COP,	1716	552	32%
Hyp, RhA, Str,	585	188	32%
Ang, Can,	3002	964	32%
COP, Dem, Hyp,	2792	896	32%
Hyp, PsE, Str,	1163	373	32%
DDI, Dem, Dep, Hyp,	951	305	32%
CHD, COP,	3243	1040	32%
Can, MVD, PsE,	708	227	32%
Ast, Dem, Hyp,	3257	1044	32%
Ang, CHD, Can,	2993	959	32%
Ast, Can, ThD,	537	172	32%
Dem, Hyp, PrD,	1480	474	32%
COP, Hyp, PsE,	1365	437	32%
DDI, Dep, Hyp,	1665	533	32%
AF, Can, Hyp,	1972	631	32%
Anx, Hyp, RhA,	657	210	32%
HeL, Hyp, PrD,	670	214	32%
Ast, Can, PUD,	539	172	32%
CHD, Dem, HeL,	1545	493	32%
MVD, PrD,	1075	343	32%
Ang, Dem,	4346	1386	32%
Dem, MVD, PsE,	1245	397	32%
Ang, CHD, Dem,	4334	1382	32%
Anx, Can, Dem, Dep, Hyp,	797	254	32%
Dem, Hyp, PsE, ThD,	509	162	32%
AF, Can, Str,	773	246	32%

Anx, Dem, MVD, Str,	639	203	32%
Anx, Dep, MVD,	1338	425	32%
CHD, Can, Dem, PsE,	573	182	32%
Can, HeL, MVD,	721	229	32%
Alc, Ast, COP,	507	161	32%
Ast, Dem, Hyp, PsE,	948	301	32%
Anx, Can, MVD,	646	205	32%
CHD, HeL, MVD,	1230	390	32%
AF, Dep, Str,	552	175	32%
AF, Dem, MVD, Str,	776	246	32%
DDI, MVD,	1758	557	32%
AF, Dem, HeL, Hyp,	685	217	32%
Dem, Hyp, Str,	3016	955	32%
Dep, MVD, Str,	1605	508	32%
COP, Can, Hyp,	2011	636	32%
DDI, MVD, Str,	946	299	32%
Can, Dem, Hyp, PrD,	687	217	32%
Anx, Can, Str,	583	184	32%
HeL, Hyp, ThD,	726	229	32%
Alc, Hyp,	2210	697	32%
Ast, Dem, PrD,	501	158	32%
Can, Hyp, ThD,	1354	427	32%
COP, MVD, Str,	1237	390	32%
CHD, Can, PsE,	923	291	32%
Anx, Ast, COP, Dem, Dep,	568	179	32%
DDI, Dem, MVD,	952	300	32%
CHD, PsE,	2690	847	31%
COP, Dem, Str,	972	306	31%

CHD, RhA,	1170	368	31%
CHD, Can, MVD,	2052	645	31%
DDI, Dem, HeL, Hyp,	735	231	31%
Ast, CLD,	516	162	31%
AF, Anx, Dep,	838	263	31%
Can, Dem, Hyp, PUD,	660	207	31%
CHD, Can, HeL,	922	289	31%
Anx, Can, Hyp, PsE,	584	183	31%
Can, DDI, Hyp, PsE,	511	160	31%
DDI, Hyp, PUD,	1000	313	31%
Can, Hyp, PrD,	1262	395	31%
Dem, Dep, HeL, Hyp,	1064	333	31%
COP, Dem, ThD,	687	215	31%
Anx, Dep, Hyp, ThD,	719	225	31%
COP, Can, DDI,	732	229	31%
Anx, COP, PUD,	585	183	31%
Can, Dem, HF,	956	299	31%
AF, Can, Dem, Hyp,	992	310	31%
Dem, HF,	2743	857	31%
DDI, Hyp, ThD,	810	253	31%
DDI, Dem, Hyp, PsE,	788	246	31%
Dem, MVD, PrD,	590	184	31%
Dem, Hem,	584	182	31%
HeL, Hyp, RhA,	507	158	31%
Anx, Dem, Hyp, ThD,	626	195	31%
Dep, MVD,	2901	903	31%
COP, Can, MVD,	784	244	31%
Anx, Dem, Dep, HeL, Hyp,	611	190	31%

Dep, HeL, MVD,	518	161	31%
Anx, Can, DDI, Hyp,	544	169	31%
CHD, Can, Dem, HeL,	602	187	31%
Dep, Hyp, ThD,	1336	415	31%
Anx, Dem, Dep, Hyp, PsE,	777	241	31%
Anx, DDI, Dem, Hyp,	848	263	31%
DDI, HeL, Hyp,	1068	331	31%
PrD, Str,	868	269	31%
MVD, Str, ThD,	723	224	31%
DDI, Dem, MVD, Str,	552	171	31%
Can, HF,	2008	622	31%
Anx, Hyp, ThD,	1098	340	31%
Ast, Can, DDI,	730	226	31%
Anx, Dep, Str,	1163	360	31%
Can, Dep, Hyp, PsE,	672	208	31%
Dem, Dep, Str,	1374	425	31%
AF, PUD,	999	309	31%
COP, Can, Str,	624	193	31%
Dem, Dep, Hyp, PsE,	1320	408	31%
Dem, Str, ThD,	631	195	31%
AF, Dem, Hyp,	2564	792	31%
Can, Dep, HeL, Hyp,	531	164	31%
Anx, Can, Dep, Hyp,	1313	405	31%
AF, Anx, Dem, Hyp,	652	201	31%
Dem, Epi, Hyp,	545	168	31%
Hyp, Str,	5969	1837	31%
Can, Dem, Dep, Hyp,	1459	449	31%
Can, HeL, Str,	624	192	31%

Ast, Hyp, IBS,	631	194	31%
Anx, Ast, Dep, PUD,	540	166	31%
HF, HeL,	1136	349	31%
MVD, PUD, Str,	694	213	31%
CHD, Can, Dem,	2102	645	31%
Dem, HeL, MVD,	1239	380	31%
Hyp, PrD,	2826	866	31%
Anx, DDI, Hyp,	1446	443	31%
AF, Can, DDI,	640	196	31%
AF, HeL, Hyp,	1062	325	31%
COP, Hyp,	5856	1792	31%
Can, Hyp, RhA,	889	272	31%
Dem, Hyp, PUD,	1824	558	31%
Dep, PsE, Str,	557	170	31%
DDI, Hyp, PsE,	1246	380	30%
Dem, MVD, PUD,	643	196	30%
MVD, PsE,	2193	668	30%
AF, Anx, Dem, Dep,	509	155	30%
Ast, DDI, Dep,	795	242	30%
AF, Hyp,	5356	1626	30%
Can, Dep, Hyp,	2632	799	30%
Ast, Hyp, PsE,	1690	513	30%
CHD, IBS,	827	251	30%
AF, Dem, PUD,	514	156	30%
Hyp, PsE, ThD,	893	271	30%
CHD, HeL,	2418	733	30%
Anx, CHD,	3049	924	30%
Ast, Hyp,	7208	2182	30%

Anx, Can, Dem, Hyp,	1292	391	30%
Anx, Dem, Dep, Hyp,	2556	773	30%
CHD, MVD,	7040	2129	30%
Dem, HeL, MVD, Str,	698	211	30%
Can, HeL, Hyp, PsE,	513	155	30%
Ang,	9545	2882	30%
Ang, CHD,	9527	2875	30%
COP, MVD,	2486	750	30%
MVD, PUD,	1336	403	30%
COP, Str,	1842	554	30%
Dem, Hyp, PUD, PsE,	562	169	30%
AF, MVD, Str,	1451	436	30%
Anx, Dem, Str,	1059	318	30%
Anx, Dep, HeL, Hyp,	810	243	30%
DDI, Dem, RhA,	517	155	30%
COP, DDI, Dem,	961	288	30%
Dem, Hyp, ThD,	2025	606	30%
Dem, Dep, Hyp,	4693	1403	30%
Anx, Dem, HeL, Hyp,	951	284	30%
AF, PrD,	885	264	30%
Can, Dem, MVD,	1613	481	30%
AF, Dem, Dep,	966	288	30%
Dem, PrD, Str,	510	152	30%
Hyp, PUD,	3926	1169	30%
CHD, Dem,	6212	1848	30%
DDI, Dem, Str,	901	268	30%
Anx, MVD,	2236	665	30%
Can, PsE, Str,	593	176	30%

Anx, MVD, Str,	1167	346	30%
CHD, Can,	4282	1269	30%
Dep, HeL, Hyp,	1480	438	30%
Dem, HeL, Hyp, PsE,	960	284	30%
DDI, Dem, Hyp, PUD,	551	163	30%
AF, Can, Dep,	629	186	30%
PUD, Str,	1087	321	30%
Can, Dem, MVD, Str,	864	255	30%
Dem, HeL, Str,	1129	333	29%
MVD, RhA,	863	254	29%
CLD, SLD,	1220	359	29%
SLD,	1220	359	29%
COP, ThD,	1327	390	29%
Dem, PUD, Str,	569	167	29%
Anx, Dep, Hyp, PsE,	1224	359	29%
AF, Dem, Str,	1139	334	29%
HF,	6628	1941	29%
Hyp, PUD, PsE,	909	266	29%
Anx, Ast, DDI,	663	194	29%
COP, Dem, PrD,	547	160	29%
COP, Can, Dem, Dep,	619	181	29%
AF, DDI, Dem,	764	223	29%
Dem, Dep, Hyp, IBS,	627	183	29%
Anx, HeL, Hyp,	1305	380	29%
Anx, Dem, Hyp, PsE,	1257	366	29%
Can, DDI, Hyp,	2133	621	29%
COP, Can, PUD,	543	158	29%
AF, Can, PsE,	643	187	29%

175

Bro, Hyp,	619	180	29%
Anx, Ast, COP, Dem,	802	233	29%
Str, ThD,	1195	347	29%
Can, DDI, Dem, Hyp,	1127	327	29%
AF, ThD,	1086	315	29%
Hyp, PsE, RhA,	746	216	29%
Can, DDI, Dem, Dep,	571	165	29%
DDI, Dep, PUD,	540	156	29%
Ast, PrD,	942	272	29%
AF, Dep,	1731	499	29%
AF, DDI,	1492	430	29%
DDI, Dem, Hyp,	2767	797	29%
Dem, MVD,	4989	1437	29%
Dep, Str,	2518	725	29%
Hyp, ThD,	4328	1245	29%
HeL, Hyp, PsE,	1319	379	29%
Dep, Hyp, PsE,	2207	634	29%
Dem, Dep, PrD,	568	163	29%
DDI, Str,	1537	441	29%
HeL, MVD,	1945	557	29%
CLD, Dem,	716	205	29%
Dem, MVD, PsE, Str,	671	192	29%
Ast, COP, Dem, Dep,	980	280	29%
IBS, MVD,	574	164	29%
COP, DDI,	1855	529	29%
Anx, Can, Hyp,	2236	637	28%
AF, RhA,	696	198	28%
Ast, Dep, PUD,	851	242	28%

AF, Str,	2132	606	28%
Can, DDI, PUD,	585	166	28%
DDI, Hyp, IBS,	652	185	28%
COP, RhA,	934	265	28%
AF, Anx, Can,	557	158	28%
Anx, Ast, COP, Dep,	1038	294	28%
COP, Dep, PUD,	664	188	28%
Alc, Anx, COP,	531	150	28%
RhA, Str,	765	216	28%
DDI, Hyp,	5477	1546	28%
DDI, Dep, PsE,	720	203	28%
CLD, Dep, SLD,	511	144	28%
Dep, SLD,	511	144	28%
AF, Dem, PsE,	912	257	28%
Anx, Dep, Hyp, IBS,	685	193	28%
Anx, COP, Can, Dem,	529	149	28%
Ast, COP, Can, Dem,	697	196	28%
AF, Anx,	1501	422	28%
AF, Dem, HeL,	926	260	28%
Can, MVD, Str,	1723	483	28%
Ast, Dem, PUD,	871	244	28%
Anx, Dep, Hyp,	4861	1361	28%
Ast, COP, HeL,	836	234	28%
Dem, MVD, Str,	2750	769	28%
Anx, Hyp, PsE,	2042	571	28%
Can, MVD,	3342	934	28%
HeL, MVD, Str,	1045	292	28%
Alc, CLD, SLD,	627	175	28%

Alc, SLD,	627	175	28%
HeL, Str,	1671	466	28%
AF, Can, HeL,	610	170	28%
Can, Hyp, PsE,	2278	634	28%
CHD,	14891	4144	28%
Anx, Ast, PUD,	759	211	28%
Dem, PsE, Str,	1062	295	28%
AF, Can, Dem,	1361	378	28%
Dem, Hyp, RhA,	1361	378	28%
Dem, HeL, Hyp,	3381	939	28%
Epi, Hyp,	1048	291	28%
Anx, COP, Can, Dep,	609	169	28%
Can, Dem, Str,	1469	407	28%
Dep, Hyp,	9621	2665	28%
Anx, Str,	1888	522	28%
Anx, Dem, Hyp, IBS,	631	174	28%
Ast, Dem, RhA,	602	166	28%
MVD, PsE, Str,	1108	305	28%
DDI, RhA,	920	253	28%
AF, PsE,	1586	436	27%
Can, HeL, Hyp,	1935	531	27%
Bro, COP,	554	152	27%
Anx, Dem, Hyp,	4239	1163	27%
Hem,	1305	358	27%
Ast, COP, Dem, HeL,	576	158	27%
Can, Dem, HeL, Hyp,	1245	341	27%
Can, Dem, Hyp, PsE,	1333	365	27%
PUD, PrD,	722	197	27%

AF, Can,	2733	744	27%
Ast, COP, Can,	1353	368	27%
Hyp, RhA,	2680	728	27%
Ast, DDI,	2132	579	27%
Anx, Can, DDI, Dep,	516	140	27%
Dep, Hyp, IBS,	1053	285	27%
DDI, PrD,	946	256	27%
AF, Anx, Dem,	862	233	27%
COP, Dem, PUD,	770	208	27%
COP, PrD,	989	267	27%
DDI, Dem, PrD,	526	142	27%
Anx, Dem, PrD,	530	143	27%
Anx, DDI, HeL,	508	137	27%
Can, Dem, Hyp,	4882	1314	27%
Can, Dep, PUD,	697	187	27%
Anx, DDI, PsE,	645	173	27%
AF, HeL,	1451	389	27%
AF, Dem,	3598	964	27%
Can, Str,	2830	758	27%
Dem, Hyp, PsE,	3967	1061	27%
Dem, HeL, PrD,	693	185	27%
Anx, Dem, Sch,	536	143	27%
Anx, Can, PUD,	627	167	27%
MVD,	12006	3189	27%
Ast, DDI, Dem,	1081	287	27%
Alc, COP, Dep,	675	179	27%
PsE, Str,	1734	459	26%
Anx, Ast, COP,	1523	403	26%

Hyp, IBS, PsE,	681	180	26%
Can, DDI, Dep,	998	263	26%
Can, Hyp,	10644	2804	26%
Ast, COP, Dep,	1849	487	26%
Anx, Can, DDI, Dem,	505	133	26%
Ast, DDI, PsE,	543	143	26%
HeL, Hyp,	5381	1414	26%
Anx, Ast, ThD,	674	177	26%
Dem, Str,	4463	1171	26%
DDI, Dep, HeL,	549	144	26%
PUD, ThD,	835	219	26%
COP, Can, Dep,	1139	298	26%
Alc, CLD,	785	205	26%
Ast, Dep, ThD,	825	215	26%
COP, Can, Dem, PsE,	538	140	26%
Anx, Hyp,	8249	2145	26%
Ast, Can, Dem, Dep,	723	188	26%
Epi, MVD,	550	143	26%
Can, DDI, HeL,	697	181	26%
Anx, Dem, Dep, PUD,	811	210	26%
Can, Dep, ThD,	811	210	26%
Dep, PrD,	1047	271	26%
MVD, Str,	6141	1589	26%
Hyp, PsE,	7461	1926	26%
Ast, Dem, ThD,	938	242	26%
Dem, HeL, RhA,	529	136	26%
Dem, Hyp,	15989	4107	26%
Ast, PUD,	1994	512	26%

Ast, Can, HeL,	713	183	26%
Dem, Hyp, IBS,	1321	339	26%
COP, PUD,	1623	416	26%
Anx, Hyp, IBS,	1054	270	26%
COP, Dem, Dep, HeL,	514	131	25%
Can, Hyp, IBS,	715	182	25%
Anx, COP, HeL,	599	152	25%
AF,	7928	2011	25%
Ast, Bro,	501	127	25%
Anx, Ast, Can, Dep,	727	184	25%
Anx, COP, Dem, Dep,	1261	319	25%
Ast, RhA,	1194	301	25%
Can, Dem, PrD,	1009	254	25%
Anx, DDI, Dem, Dep,	868	218	25%
Bli, Dem,	785	197	25%
Alc, COP,	1181	296	25%
Anx, CLD,	651	163	25%
COP, Dem, Dep, PsE,	711	178	25%
CLD, Dep,	847	212	25%
DDI, Dem, ThD,	660	165	25%
Dem, Dep, RhA,	820	205	25%
DDI, PUD,	1502	375	25%
Anx, Ast, Can, Dem,	621	155	25%
Anx, COP, Can,	970	242	25%
Can, DDI, Dem, PsE,	508	126	25%
Anx, Can, DDI,	848	210	25%
Can, DDI, PsE,	794	196	25%
DDI, Dem, PUD,	790	195	25%

Alc, PUD,	867	214	25%
DDI, Dem, HeL,	1143	282	25%
DDI, Dem, Dep,	1541	380	25%
COP, Can, HeL,	706	174	25%
Anx, PrD,	909	224	25%
DDI, ThD,	1258	310	25%
COP, Dep, HeL,	692	170	25%
Str,	9504	2325	24%
Dem, Dep, Sch,	647	158	24%
Can, PUD, PsE,	562	137	24%
Dem, HeL, PUD,	809	197	24%
Dem, HeL, ThD,	859	209	24%
HeL, RhA,	811	197	24%
Can, PrD,	1939	470	24%
CLD,	2274	550	24%
Hyp, IBD,	629	152	24%
DDI, HeL,	1697	410	24%
Anx, COP, Dem, PsE,	631	152	24%
Ast, COP, Dem,	2412	581	24%
Epi, Str,	602	145	24%
Can, Dem, RhA,	740	178	24%
Anx, DDI, Dep,	1526	367	24%
Hyp,	39626	9527	24%
Anx, Can, ThD,	678	163	24%
Can, Dem, ThD,	1215	292	24%
PrD, PsE,	1120	269	24%
Alc, Can,	1187	285	24%
HeL, PrD,	1055	253	24%

Anx, Dem, PUD,	1202	288	24%
Ast, ThD,	1982	474	24%
Anx, Dep, PUD,	1592	380	24%
Anx, Ast, Dep, HeL,	541	129	24%
Ast, COP, Dep, PsE,	550	131	24%
COP, Can, PsE,	907	216	24%
Dem, Dep, PUD,	1323	314	24%
Anx, DDI, Dem,	1368	324	24%
HeL, PUD,	1263	299	24%
DDI, Dem, PsE,	1269	300	24%
Dem, PrD,	2403	567	24%
Ast, Can, Dep,	1328	313	24%
Dem, PrD, PsE,	679	160	24%
Hyp, IBS,	2428	572	24%
Alc, Ast, Dem,	583	137	23%
Can, PsE, ThD,	541	127	23%
Anx, Dep, RhA,	787	184	23%
COP, Dem, Dep,	2201	514	23%
Can, PUD,	2309	538	23%
COP, Can, Dem,	1744	406	23%
Anx, Dem, RhA,	688	160	23%
DDI, Dep,	2908	676	23%
Can, DDI, Dem,	1733	402	23%
Can, Dem, PUD,	1104	256	23%
Dem, Dep, Epi,	527	122	23%
Alc, Can, Dep,	566	131	23%
HeL, ThD,	1314	304	23%
Bli,	1583	366	23%

Anx, Can, Dem, HeL,	607	140	23%
Can, Dem, Dep, HeL,	686	158	23%
Anx, COP, Dep, PsE,	639	147	23%
Anx, COP, Dem,	1897	434	23%
Anx, Dem, Dep, ThD,	879	201	23%
Ast, Sch,	643	147	23%
PUD, RhA,	680	155	23%
Dep, RhA,	1586	361	23%
DDI, PsE,	2084	473	23%
Anx, DDI,	2459	558	23%
Ast, Dem, Dep, HeL,	675	153	23%
Anx, Ast, Can,	1145	259	23%
Can, DDI,	3397	767	23%
Anx, COP, Dep,	2357	531	23%
Ast, COP,	5131	1155	23%
Alc, HeL,	685	154	22%
Anx, COP, PsE,	997	224	22%
Can, RhA,	1462	328	22%
Dem, Dep, ThD,	1540	345	22%
COP, Dem, HeL,	1373	307	22%
Ast, COP, Dem, PsE,	829	185	22%
COP, HeL,	2090	465	22%
RhA, ThD,	733	163	22%
Anx, PsE, ThD,	645	143	22%
Anx, Can, Dem, Dep, PsE,	510	113	22%
CLD, MLD,	1314	291	22%
MLD,	1314	291	22%
CS, Hyp,	811	179	22%

Dep, PsE, ThD,	739	163	22%
Ast, Can, Dem,	2016	444	22%
COP, Dep, PsE,	1138	250	22%
COP, Can,	3698	812	22%
Anx, PUD, PsE,	584	128	22%
Anx, Ast, Dem, HeL,	576	126	22%
Can, ThD,	2511	549	22%
DDI, Dep, IBS,	528	115	22%
DDI, Dem,	4570	995	22%
Can, Dep, HeL,	961	209	22%
Anx, Can, HeL,	828	180	22%
Dep, PUD,	2761	600	22%
Anx, PUD,	2423	526	22%
Dep, PUD, PsE,	637	138	22%
Alc, Anx, Ast, Dep,	643	139	22%
Anx, Ast, HeL,	802	173	22%
Ast, COP, PsE,	1342	289	22%
DDI, Dem, IBS,	686	147	21%
Ast, Dep, HeL,	977	209	21%
PrD,	5018	1071	21%
Dem, PsE, ThD,	1124	239	21%
Anx, RhA,	1271	269	21%
COP, HeL, PsE,	597	126	21%
Ast, Can, Dem, PsE,	664	140	21%
Alc, Anx, Ast,	784	165	21%
Anx, Dem, ThD,	1331	279	21%
COP, Dep,	4399	921	21%
Dem, Sch,	1085	227	21%

Alc, Ast, Dep,	1010	211	21%
Alc, Anx, Dem, Dep,	781	163	21%
Anx, COP,	3657	760	21%
Bro, Dem,	535	111	21%
Anx, Can, Dem, Dep,	1615	333	21%
Ast, Can,	4313	889	21%
Dem, PUD, PsE,	972	200	21%
Anx, DDI, IBS,	511	105	21%
Dem, PUD,	3431	703	20%
Anx, Dep, Sch,	1085	222	20%
Alc, Sch,	638	130	20%
Anx, Dep, ThD,	1650	336	20%
Bro,	1171	238	20%
DDI,	9760	1983	20%
Dem, RhA,	2418	490	20%
Alc, Dem, Dep,	1265	255	20%
Dem, PsE, RhA,	779	157	20%
Ast, Can, PsE,	1148	231	20%
Can, HeL, PsE,	952	191	20%
Dem, ThD,	4254	851	20%
Anx, Can, Dep, PsE,	790	158	20%
COP, Dem, PsE,	1880	375	20%
Anx, Can, Dem, PsE,	828	165	20%
Alc, Ast,	1680	334	20%
Anx, Dep, HeL, PsE,	575	114	20%
Dep, ThD,	3134	619	20%
Can, Dem, Dep,	2996	591	20%
Can, Dem, Dep, PsE,	873	172	20%

PUD, PsE,	1730	337	19%
PsE, ThD,	2045	398	19%
Alc, Anx, Dem,	1014	197	19%
Can, Dem, HeL, PsE,	696	135	19%
Anx, ThD,	2529	489	19%
Dem, Dep, HeL, PsE,	772	149	19%
PsE, RhA,	1443	278	19%
COP, Dem,	6200	1190	19%
Anx, Ast, Dem, Dep,	2004	382	19%
Anx, COP, IBS,	538	102	19%
Anx, Sch,	1435	272	19%
Can, Dem, HeL,	2291	433	19%
DDI, IBS,	1167	220	19%
Can, HeL,	3620	682	19%
Dep, Sch,	1748	328	19%
COP, Dep, IBS,	578	108	19%
Anx, Dep, Epi,	638	119	19%
Can, Dep, PsE,	1454	270	19%
Ano, Dem,	652	121	19%
COP, PsE,	3260	602	18%
Can, Epi,	684	126	18%
Anx, Can, Dem,	2718	500	18%
PUD,	8514	1556	18%
Anx, Dem, HeL, PsE,	736	134	18%
Anx, Dem, Dep, HeL,	1401	255	18%
COP, Dem, IBS,	637	115	18%
Anx, Can, Dep,	3054	550	18%
Ast, Dem, Dep,	3492	628	18%

Ast, Dem, HeL,	1899	341	18%
Dem, Lip,	502	90	18%
Anx, Can, PsE,	1322	237	18%
ThD,	10186	1812	18%
Ast, HeL,	2925	520	18%
RhA,	5436	966	18%
Anx, HeL, PsE,	952	169	18%
Alc, Dem,	2326	411	18%
Dep, HeL, PsE,	1025	181	18%
Dem, Dep, HeL,	2555	451	18%
Anx, Ast, Dem, Dep, PsE,	723	127	18%
Can, Dep,	6177	1083	18%
Ast, Dem, Dep, IBS,	595	103	17%
Ast, Epi,	860	148	17%
COP,	14407	2478	17%
Dem, IBS, ThD,	513	88	17%
COP, IBS,	1067	183	17%
Alc, Dem, PsE,	574	98	17%
Anx, Ast, Dep, IBS,	697	118	17%
Anx, Ast, Dem,	3104	523	17%
Anx, Dep, HeL,	2029	340	17%
Can, Dem, PsE,	2782	462	17%
Can, Dem,	10587	1735	16%
Anx, Ast, Dem, IBS,	580	95	16%
Anx, Dem, HeL,	2285	371	16%
Sch,	3238	522	16%
Dep, HeL, IBS,	541	87	16%
Ast, Dem, HeL, PsE,	654	105	16%

Dem, Epi,	1602	257	16%
Anx, Can,	5307	849	16%
Can, PsE,	5199	830	16%
Anx, Ast, Dem, PsE,	1123	179	16%
Alc, Dep, PsE,	729	116	16%
Dep, Epi,	1238	196	16%
Dep, HeL,	3875	612	16%
Alc, Anx, Dep,	2287	360	16%
Ast, Dem, Dep, PsE,	1202	189	16%
Dem, Dep, IBS, PsE,	732	115	16%
Dem, HeL, IBS,	793	124	16%
Dem, IBD,	756	118	16%
Anx, Ast, Dep,	4322	669	15%
Anx, Epi,	1034	159	15%
Alc, Anx, PsE,	579	88	15%
Ast, HeL, PsE,	893	135	15%
Anx, HeL,	3368	509	15%
Anx, Dep, IBS, PsE,	763	115	15%
Anx, HeL, IBS,	518	78	15%
Can, IBS, PsE,	513	77	15%
Can, Dep, IBS,	740	111	15%
Ast, Dep, IBS,	1069	160	15%
Alc, Dep,	3951	589	15%
Alc, PsE,	1357	202	15%
Anx, Dem, Dep, PsE,	2303	340	15%
Dem, HeL, PsE,	2547	376	15%
Anx, Ast, IBS,	1011	149	15%
Alc, Anx,	2993	441	15%

Anx, Can, IBS,	715	105	15%
IBS, ThD,	917	134	15%
Can,	26349	3836	15%
Ast, Dep,	8145	1184	15%
Anx, Ast, Dep, PsE,	1257	182	14%
Anx, CS, Dep,	563	81	14%
IBS, PUD,	810	116	14%
Dem, HeL,	9048	1281	14%
Lip,	1300	184	14%
Dem, Dep, PsE,	4071	575	14%
Can, Dem, IBS,	987	139	14%
LD,	905	127	14%
Anx, Dem, Dep,	7853	1102	14%
HeL, PsE,	3624	506	14%
CS, Dem, Dep,	575	80	14%
Ast, Dem, IBS,	1170	162	14%
Anx, Ast,	6800	941	14%
Ano, Anx,	571	79	14%
Anx, Dem, Dep, IBS,	1370	189	14%
Dep, IBD,	574	79	14%
Dep, IBS, PsE,	1189	163	14%
Anx, CS, Dem,	569	78	14%
Dem, Dep,	14756	2022	14%
Ano, Dep,	752	103	14%
Alc,	7881	1077	14%
Ast, CS,	690	93	13%
Ast, Dem,	10760	1448	13%
Anx, Dem, PsE,	3814	513	13%

HeL, IBS,	1171	157	13%
Ast, Dep, PsE,	2209	294	13%
Dem, Dep, IBS,	2104	276	13%
HeL,	15271	2003	13%
Anx, Dem, IBS, PsE,	729	95	13%
Anx, Ast, PsE,	1991	257	13%
Can, IBS,	1824	235	13%
Epi, PsE,	767	98	13%
Ano,	1575	201	13%
CS, Can,	590	75	13%
CS, Dep,	963	121	13%
Anx, Dem,	13395	1681	13%
Anx, CS,	911	114	13%
Anx, Dep, PsE,	4213	525	12%
Ast, Dem, PsE,	3416	422	12%
Ast, IBS,	2256	272	12%
CS, PsE,	756	91	12%
Anx, Dem, IBS,	2075	248	12%
Ast, IBS, PsE,	732	87	12%
Anx, IBS, PsE,	1150	136	12%
Dep, PsE,	8034	944	12%
IBD,	2113	243	12%
Epi,	4360	500	11%
Anx, PsE,	7154	814	11%
Anx, Dep, IBS,	2488	281	11%
Anx, Dep,	18613	2087	11%
Dem, IBS, PsE,	1546	172	11%
Dem, PsE,	13950	1521	11%

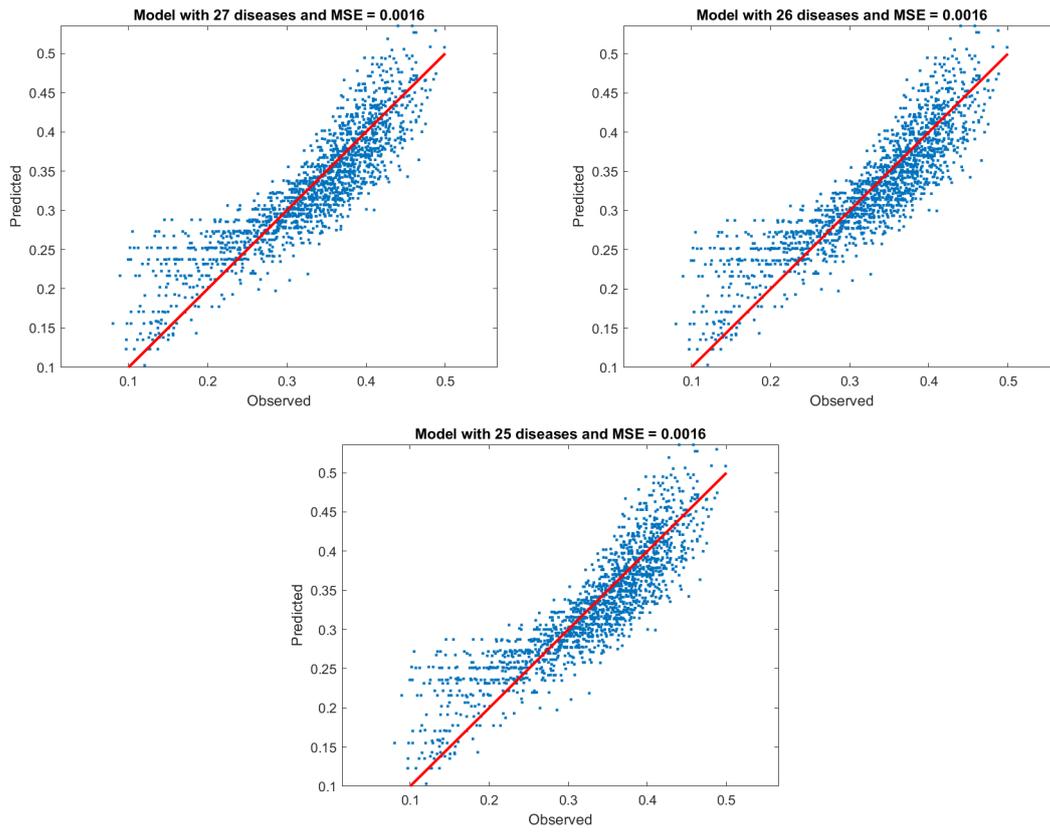|			
CS, Dem,	1492	160	11%
Dep,	38784	4158	11%
Ast,	30600	3214	11%
Dep, IBS,	4118	425	10%
Dem, IBS,	4760	491	10%
Dem,	58726	6040	10%
Ast, PsE,	7302	744	10%
Anx,	32768	3266	10%
Anx, IBS,	3855	378	10%
IBS, PsE,	2735	266	10%
CS,	2888	280	10%
PsE,	32287	2882	9%
IBS,	10703	859	8%
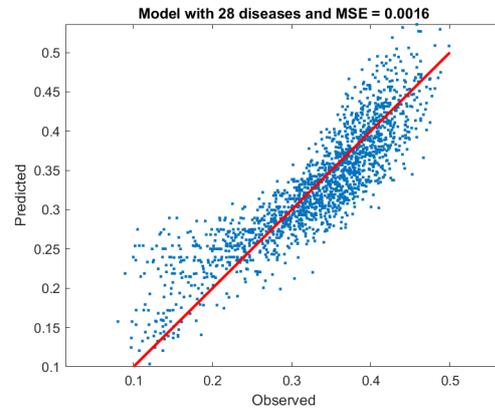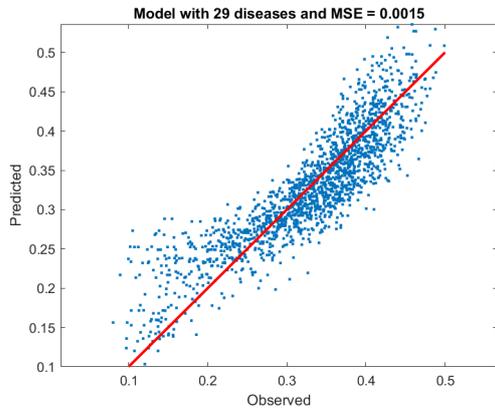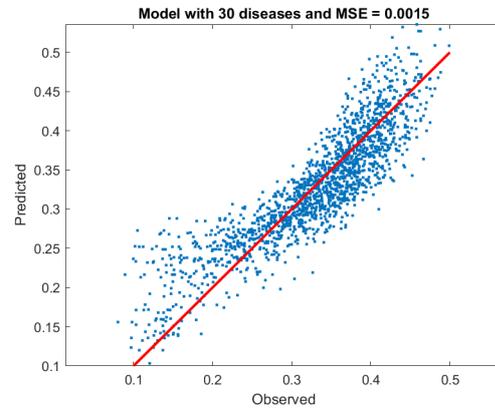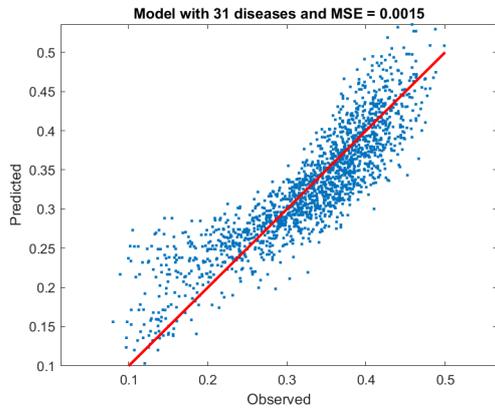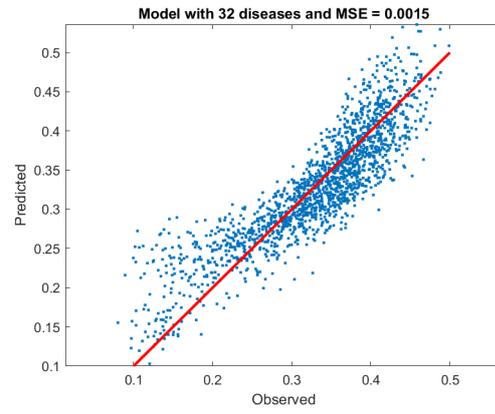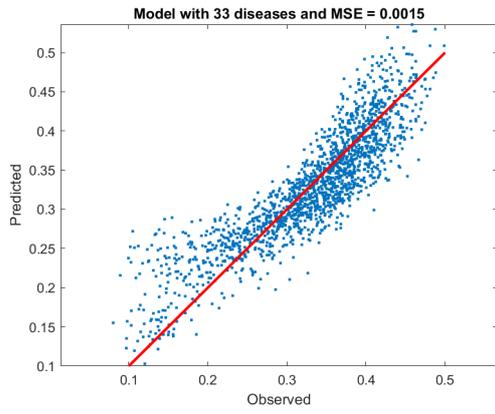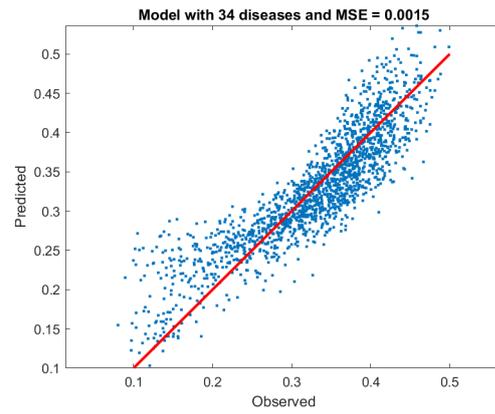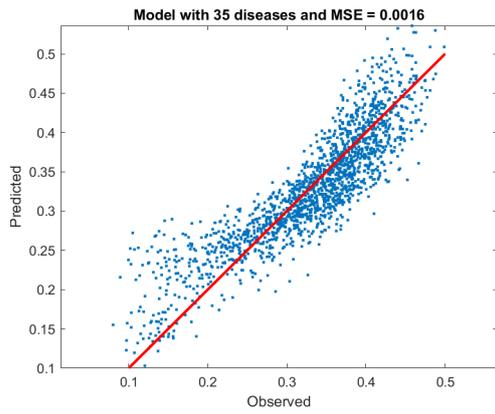
Figure 9. Selection of statistically significant subset of attributes

Table 65. Regression coefficients of risk prediction

Attribute	Coefficient
Intercept	0.235684
CS	-0.112852
IBD	-0.093027
Ano	-0.092388
IBS	-0.080577
Lip	-0.075273
HF	0.074655
Hyp	0.064405
Ang	0.063522
Epi	-0.058088
CHD	0.055461
SLD	0.051150
Hem	0.048175
MVD	0.042147
Ast	0.036258
CLD	0.035527
Str	0.033879
COP	0.033840
AF	0.025808
PrD	0.023633
DDI	0.022304
PsE	-0.019784

Table 66. Consolidated data for one Risk factor influence, DIB is diaetes, D is death, P(DIB) = 0.088072, P(D|DIB) = 0.408154, P(D) = 0.158730, green background means P(D|F&DIB)<P(D|DIB), blue background means P(D|DIB)< P(D|F&DIB)<=0.5, and red background means P(D|F&DIB)>0.5

Factor (F)	P(F)	P(F|DIB)	P(DIB|F)	P(D|F)	P(D|F&DIB)
Alcohol	0.045416	0.093928	0.182147	0.271201	0.406068
Amputation	0.000907	0.003617	0.351064	0.457447	0.575758
Angina	0.068583	0.256247	0.329064	0.565517	0.578272
Asthma	0.168084	0.267646	0.140240	0.210360	0.458640
AtrialFibr	0.046295	0.148838	0.283153	0.550667	0.604566
CHD	0.092657	0.325954	0.309824	0.543911	0.566577
COPD	0.085582	0.203200	0.209113	0.429055	0.555016
Cancer	0.151452	0.282552	0.164308	0.431549	0.584174
Dementia	0.306698	0.428759	0.123123	0.235861	0.460634
Epilepsy	0.022240	0.036497	0.144531	0.290365	0.462462
Heart failure	0.049036	0.176786	0.317520	0.702362	0.734656
Lipids	0.009817	0.013919	0.124877	0.178958	0.354331
Macrovascular	0.065166	0.222161	0.300252	0.646719	0.664036
Str	0.061392	0.188843	0.270912	0.656761	0.668021
Anorexia	0.010377	0.020605	0.174884	0.379535	0.595745
Anxiety	0.166549	0.226765	0.119914	0.163440	0.344611
Blindness	0.010280	0.029154	0.249765	0.582160	0.665414
Bronchiectasis	0.007568	0.020057	0.233418	0.473214	0.540984
AIDS	0.000502	0.000110	0.019231	0.230769	
Mild Liver Disease	0.009913	0.028935	0.257059	0.338851	0.50000
Moderate or Severe Liver Disease	0.009672	0.034744	0.316367	0.470060	0.558360
Chronic Liver Disease and Viral Hepatitis	0.017259	0.052828	0.269575	0.398210	0.535270
Cystic Fibrosis	0.000348	0.001096	0.277778	0.250000	0.500000
Depression	0.197419	0.297567	0.132750	0.192108	0.389319
Diverticular disease of intestine	0.062898	0.154976	0.217004	0.358809	0.473126

Factor (F)	P(F)	P(F|DIB)	P(DIB|F)	P(D|F)	P(D|F&DIB)
Hearing loss	0.079790	0.136892	0.151101	0.304137	0.489992
Hemiplegia	0.013099	0.043512	0.292557	0.614591	0.637280
Hypertension	0.238047	0.699145	0.258668	0.379182	0.454146
Inflammatory bowel disease	0.012452	0.018961	0.134109	0.199225	0.433526
Irritable bowel syndrome	0.050407	0.054691	0.095557	0.116239	0.328657
Learning disability	0.004402	0.007782	0.155702	0.234649	0.380282
Multiple sclerosis	0.002133	0.003617	0.149321	0.276018	0.424242
Peptic Ulcer Disease	0.062743	0.144235	0.202462	0.294154	0.427812
Prostate disorders	0.035136	0.094586	0.237088	0.432967	0.537659
Psoriasis or eczema	0.157920	0.185664	0.103545	0.164425	0.401417
Pulmonary Fibrosis	0.001931	0.004274	0.195000	0.660000	0.717949
Rheumatoid arthritis	0.032877	0.077159	0.206694	0.386083	0.500000
Schizophrenia	0.019151	0.042525	0.195565	0.278226	0.430412
Chronic sinusitis	0.013775	0.017865	0.114226	0.117029	0.306748
Thyroid disorders	0.053206	0.118698	0.196480	0.316038	0.471837

Table 67. Direct estimation of mortality for GS from CPRD

Age band	Female			Male			Difference
	Totally	Dead	Mortality	Totally	Dead	Mortality	
16-20	2567	2	0.00078	2252	9	0.00400	0.00322
20-30	10905	44	0.00403	9028	49	0.00543	0.00139
30-40	11204	85	0.00759	10244	135	0.01318	0.00559
40-50	8400	168	0.02000	9285	251	0.02703	0.00703
50-60	5703	258	0.04524	6063	404	0.06663	0.02139
60-70	4733	502	0.10606	4711	747	0.15857	0.05250
70-80	3131	991	0.31651	2734	1042	0.38113	0.06461
80-90	2197	1568	0.71370	1387	960	0.69214	-0.02156

90-100	642	449	0.69938	254	123	0.48425	-0.21512
100-110	119	11	0.09244	52	1	0.01923	-0.07321
110-120	12	0	0.00000	9	0	0.00000	0.00000

Table 68. Direct estimation of mortality for GS from CPRD (twice corrected)

Age band	Female			Male			Difference
	Totally	Dead	Mortality	Totally	Dead	Mortality	
16-20	2565	3	0.0012	2251	9	0.0040	0.002828632
20-30	10890	44	0.0040	9018	50	0.0055	0.001504063
30-40	11181	85	0.0076	10218	135	0.0132	0.005609797
40-50	8387	168	0.0200	9276	253	0.0273	0.007243687
50-60	5688	260	0.0457	6046	408	0.0675	0.021772366
60-70	4711	504	0.1070	4684	754	0.1610	0.053989872
70-80	2940	993	0.3378	2467	1045	0.4236	0.085836305
80-90	2057	1571	0.7637	1202	968	0.8053	0.041590867
90-100	478	449	0.9393	128	123	0.9609	0.021606956
100-110	13	11	0.8462	1	1	1.0000	0.153846154
110-120	0	0		0	0		

Table 69. Direct estimation of mortality for GS from NLT

Age band	Female			Male		
	Totally	Dead	Mortality	Totally	Dead	Mortality
16-20	2565	5.7136	0.0022	2251	11.1863	0.0050
20-30	10890	39.7263	0.0036	9018	63.8252	0.0071
30-40	11181	93.2995	0.0083	10218	143.9048	0.0141
40-50	8387	162.7230	0.0194	9276	277.2895	0.0299
50-60	5688	266.4771	0.0468	6046	425.0014	0.0703
60-70	4711	529.8396	0.1125	4684	767.7364	0.1639
70-80	2940	939.9380	0.3197	2467	1006.4922	0.4080
80-90	2057	1477.6777	0.7184	1202	932.3744	0.7757

90-100	478	456.2102	0.9544	128	124.6117	0.9735
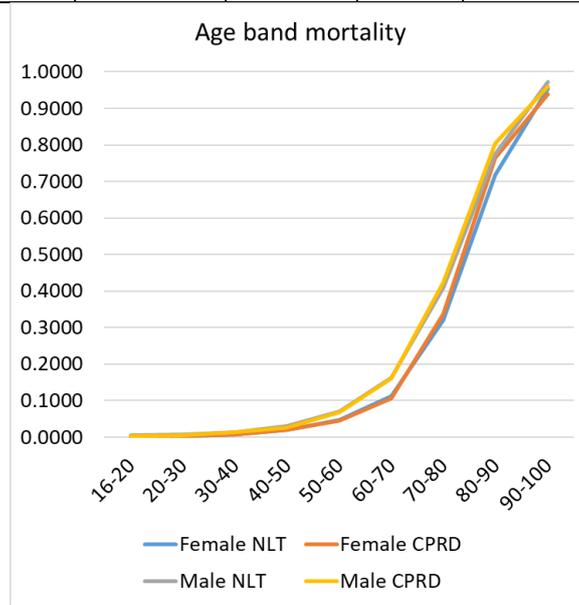
Figure 10. Comparison of NTL and CPRD mortality for age bands
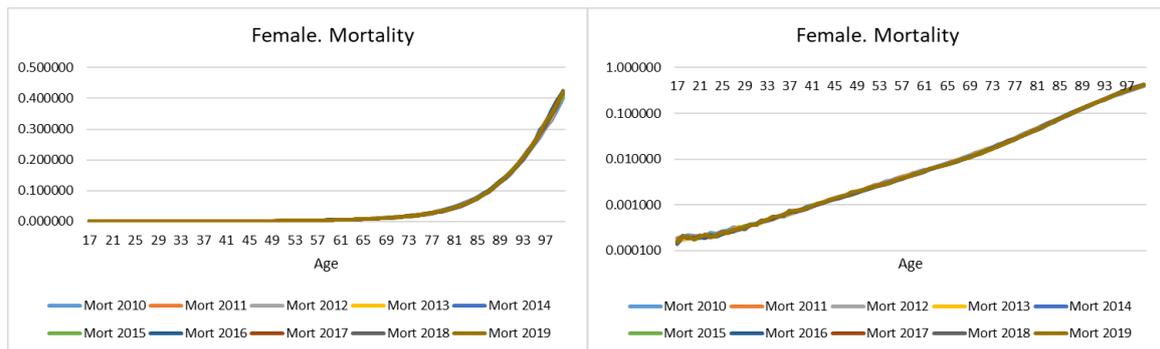
Figure 11. Male mortality in usual (left) and logarithmic (right) scale.

Table 70. Definition of categories for Cox model

Attribute	Category	ID	From	To
BMI	Underweight	Zb1	0	18.5
	Normal	Zb0	18.5	25
	Overweight	Zb2	25	30
	Obese Class 1	Zb3	30	35
	Obese Class 2	Zb4	35	40
	Obese Class 3	Zb5	40	
BP	Low blood pressure	Zp1	SBP<= 90 or DBP<= 60	

	Pre-hypertension	Zp2	SBP>=120 or DBP>=80	
	High BP (Stage 1)	Zp3	SBP>=140 or DBP>=90	
	High BP (Stage 2)	Zp4	SBP>=160 or DBP>=100	
Cholesterol	Normal CL	Zc0	0	
	High CL	Zc1	1	
	Very high CL	Zc2	2	
	Extremely high CL	Zc3	3	
Smoker	Never smoked		2	
	Current smoker		1	
	Ex-smoker		3	
IMD	IMD 1-2	Zmd0	1	2
	IMD 3-4	Zmd1	3	4
	IMD 5-6	Zmd2	5	6
	IMD 7-8	Zmd3	7	8
	IMD 9-10	Zmd4	9	10
HbA1c	Normal	Zh0	0	6
	Pre-diabetes	Zh1	6	6.5
	Diabetes	Zh2	6.5	7.5
	Diabetes high	Zh3	7.5	9.0
	Diabetes very high	Zh4	9.0	

Table 71. Mortality for different attributes of dataset

Attribute	Total data	General sample
All data	25.29	8.87
AF	53.96	45.17
AID	15.00	9.09
Alc	32.04	20.00
Amp	48.57	29.17
Ang	49.97	42.30

Attribute	Total data	General sample
Ano	53.39	27.02
Anx	25.54	11.34
Ast	33.42	13.47
Bli	54.40	42.65
Bro	49.99	40.66
Can	45.47	30.37
CHD	47.40	39.04
CLD	48.02	31.94
COP	45.51	29.98
CS	21.90	8.63
CyF	30.36	10.00
DDI	39.43	27.25
Dem	33.11	15.50
Dep	28.10	12.76
Epi	32.86	18.25
HeL	39.59	21.42
Hem	59.41	47.80
HF	63.93	55.48
Hyp	36.72	27.25
IBD	30.04	14.20
IBS	20.59	8.40
LD	27.05	17.88
Lip	25.34	11.83
MLD	44.28	28.22
MSc	34.23	17.10
MVD	53.53	48.32
PrD	44.87	32.79

Attribute	Total data	General sample
PsE	28.08	10.82
PUD	35.62	20.71
PuF	67.63	51.43
RhA	41.58	27.92
Sch	32.05	19.91
SLD	52.10	37.38
Str	57.97	50.87
ThD	37.36	22.73
D1T	22.34	18.69
D2T	30.60	30.58
Zb1	48.75	15.87
Zb0	28.28	7.95
Zb2	24.58	8.90
Zb3	22.21	9.70
Zb4	20.73	9.88
Zb5	20.94	9.73
Zp1	42.34	10.91
Zp0	21.20	4.84
Zp2	23.28	8.87
Zp3	27.32	13.83
Zp4	34.11	20.19
Zc0	27.39	9.33
Zc1	20.02	7.73
Zc2	22.15	10.30
Zc3	26.57	11.03
Never	22.36	7.50
Current	20.99	7.57

Attribute	Total data	General sample
Ex	32.84	15.09
Zmd0	23.56	8.22
Zmd1	26.00	8.89
Zmd2	25.80	8.92
Zmd3	25.42	9.19
Zmd4	25.69	9.25
Zh0	20.97	6.85
Zh1	31.75	15.26
Zh2	29.75	28.00
Zh3	27.25	20.77
Zh4	26.21	26.00
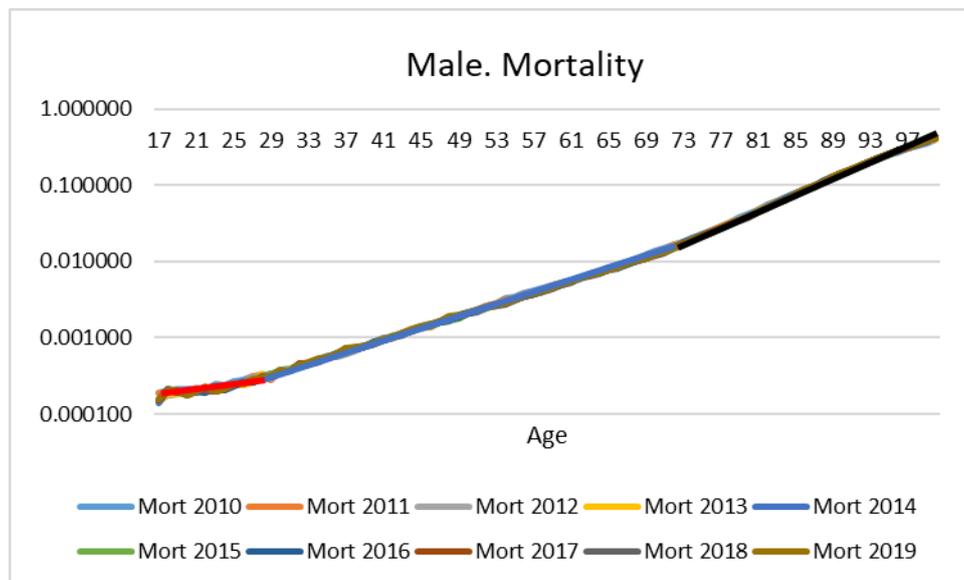
Figure 12. Male mortality in logarithmic coordinated with approximate three linear fragments

Table 72. Sum of squared error for different number of segments

Number of segments	Male		Female	
	Break points	SSE	Break points	SSE
1		38.348		31.794

2	50	5.135	65	5.374
3	34, 63	2.810	26, 69	2.103
4	18, 32, 62	2.254	26, 71, 92	1.390
5	18, 33, 67, 92	1.761	18, 24, 71, 92	1.230
6	18, 31, 52, 72, 92	1.387	18, 24, 29, 71, 92	1.170
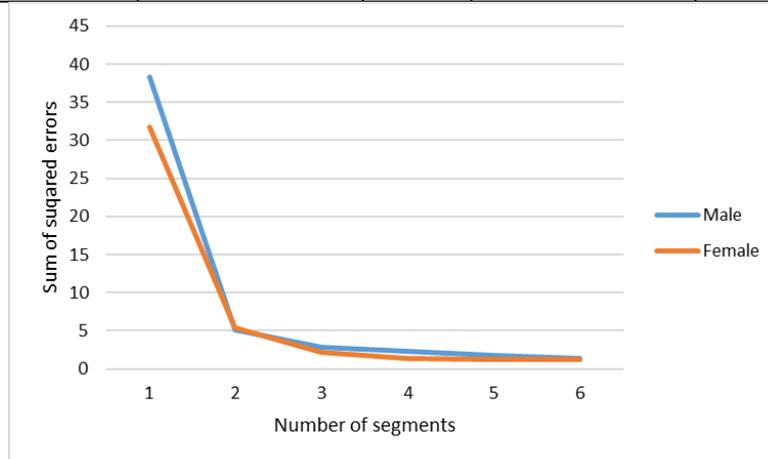
Figure 13. Graphs of SSE vs number of segments
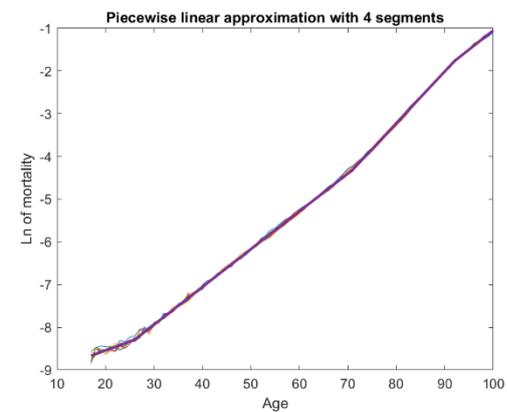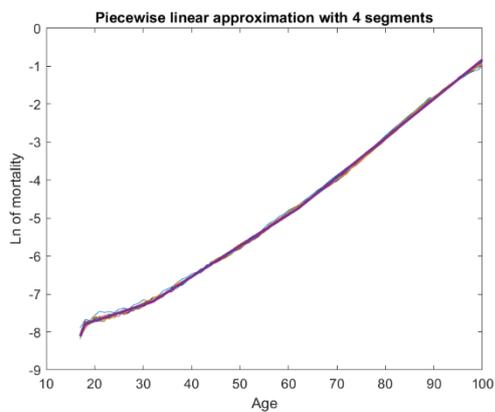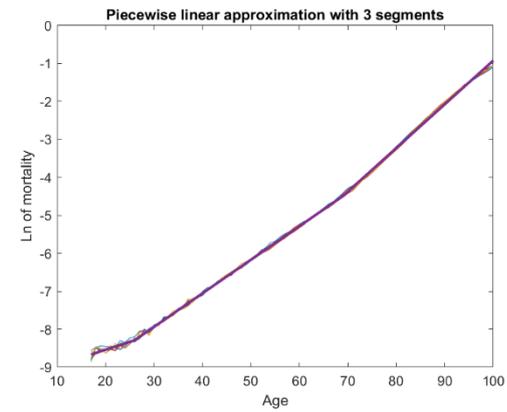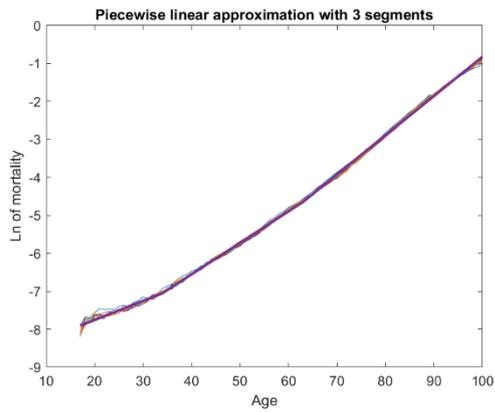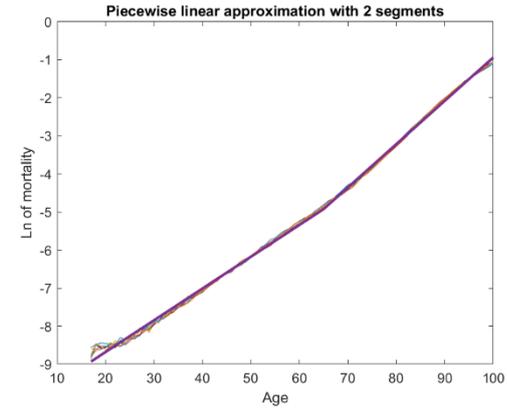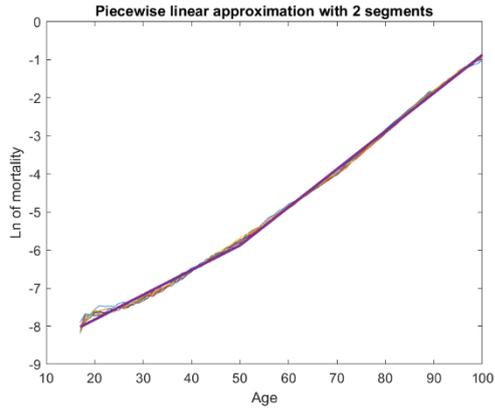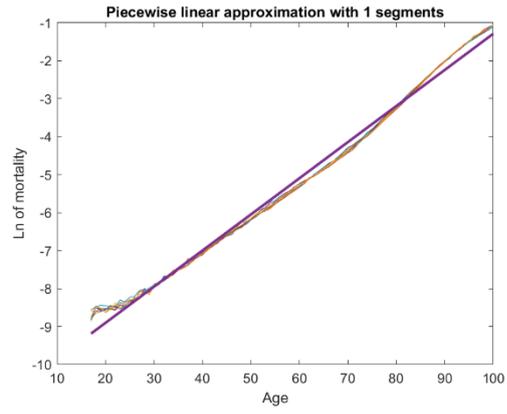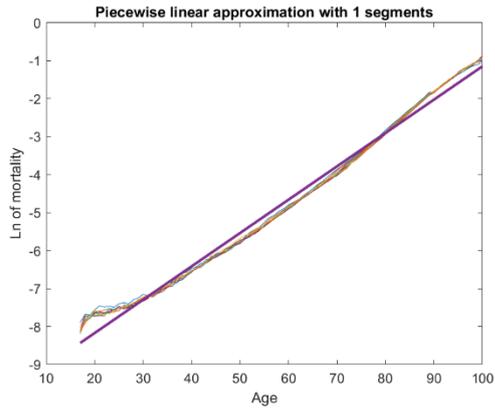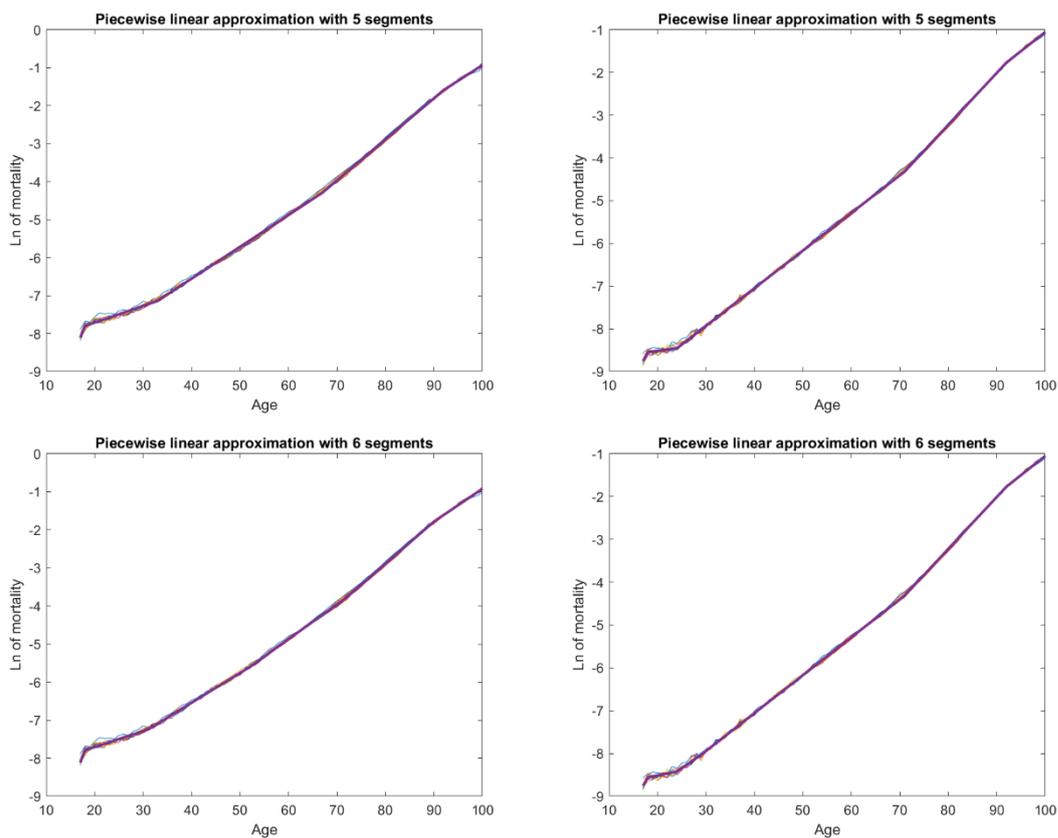
Figure 14. Results of piecewise linear approximation in male (left) and female (right)

Table 73. Final table for age only

Age	Probability of death in 1 year	Life expectance	Age of death
20	0.000351	87.275611	107.275611
25	0.000520	79.861694	104.861694
30	0.000771	72.541896	102.541896
35	0.001142	65.345393	100.345393
40	0.001691	58.308343	98.308343
45	0.002505	51.474472	96.474472
50	0.003709	44.895093	94.895093
55	0.005490	38.628234	93.628234
60	0.008124	32.736519	92.736519
65	0.012014	27.283551	92.283551
70	0.017750	22.328767	92.328767

Age	Probability of death in 1 year	Life expectance	Age of death
75	0.026187	17.921162	92.921162
80	0.038555	14.092766	94.092766
85	0.056593	10.853241	95.853241
90	0.082699	8.187085	98.187085

Table 74. Alternative form of final table for age only model

Age	Probability of death after specified number of years										Life expectance	Age of death
	1	2	3	4	5	6	7	8	9	10		
20	0.0004	0.0007	0.0011	0.0015	0.0019	0.0024	0.0029	0.0034	0.0039	0.0045	87.276	107.276
25	0.0005	0.0011	0.0016	0.0022	0.0029	0.0036	0.0043	0.0050	0.0058	0.0066	79.862	104.862
30	0.0008	0.0016	0.0024	0.0033	0.0043	0.0053	0.0063	0.0074	0.0086	0.0098	72.542	102.542
35	0.0011	0.0023	0.0036	0.0049	0.0063	0.0078	0.0093	0.0109	0.0126	0.0144	65.345	100.345
40	0.0017	0.0035	0.0053	0.0073	0.0094	0.0115	0.0138	0.0162	0.0187	0.0213	58.308	98.308
45	0.0025	0.0051	0.0079	0.0108	0.0138	0.0170	0.0204	0.0239	0.0276	0.0314	51.474	96.474
50	0.0037	0.0076	0.0117	0.0159	0.0204	0.0251	0.0300	0.0352	0.0406	0.0462	44.895	94.895
55	0.0055	0.0112	0.0172	0.0235	0.0301	0.0370	0.0442	0.0517	0.0595	0.0677	38.628	93.628
60	0.0081	0.0166	0.0255	0.0347	0.0443	0.0543	0.0647	0.0756	0.0869	0.0986	32.737	92.737
65	0.0120	0.0245	0.0375	0.0509	0.0649	0.0794	0.0944	0.1099	0.1260	0.1426	27.284	92.284
70	0.0177	0.0361	0.0550	0.0746	0.0947	0.1154	0.1367	0.1585	0.1809	0.2038	22.329	92.329
75	0.0262	0.0530	0.0804	0.1085	0.1370	0.1661	0.1956	0.2256	0.2560	0.2866	17.921	92.921

Age	1	2	3	4	5	6	7	8	9	10	Life expectance	Age of death
80	0.0386	0.0775	0.1168	0.1564	0.1962	0.2360	0.2757	0.3153	0.3547	0.3937	14.093	94.093
85	0.0566	0.1127	0.1682	0.2228	0.2764	0.3289	0.3800	0.4296	0.4775	0.5236	10.853	95.853
90	0.0827	0.1624	0.2388	0.3116	0.3808	0.4462	0.5075	0.5647	0.6178	0.6666	8.187	98.187

Table 75. Alternative form of final table for age only model for $a = \beta$

Age	Probability of death after specified number of years										Life expect-ance	Age of death
	1	2	3	4	5	6	7	8	9	10		
20	0.0004	0.0007	0.0012	0.0016	0.0021	0.0026	0.0032	0.0038	0.0045	0.0052	62.126	82.126
25	0.0005	0.0011	0.0017	0.0024	0.0031	0.0039	0.0047	0.0056	0.0066	0.0077	57.251	82.251
30	0.0008	0.0016	0.0025	0.0035	0.0046	0.0057	0.0070	0.0083	0.0098	0.0114	52.421	82.421
35	0.0012	0.0024	0.0038	0.0052	0.0068	0.0085	0.0103	0.0123	0.0145	0.0168	47.650	82.650
40	0.0017	0.0036	0.0056	0.0077	0.0101	0.0126	0.0153	0.0182	0.0214	0.0248	42.958	82.958
45	0.0025	0.0053	0.0082	0.0114	0.0149	0.0186	0.0226	0.0269	0.0315	0.0365	38.368	83.368
50	0.0038	0.0078	0.0122	0.0169	0.0219	0.0274	0.0332	0.0395	0.0463	0.0536	33.906	83.906
55	0.0056	0.0116	0.0180	0.0249	0.0323	0.0403	0.0489	0.0580	0.0678	0.0783	29.607	84.607
60	0.0082	0.0171	0.0265	0.0367	0.0475	0.0591	0.0715	0.0848	0.0988	0.1138	25.508	85.508
65	0.0122	0.0252	0.0391	0.0539	0.0696	0.0864	0.1041	0.1230	0.1429	0.1640	21.649	86.649
70	0.0180	0.0371	0.0573	0.0788	0.1014	0.1253	0.1504	0.1767	0.2043	0.2331	18.072	88.072
75	0.0265	0.0545	0.0838	0.1145	0.1465	0.1799	0.2145	0.2503	0.2872	0.3251	14.816	89.816
80	0.0391	0.0796	0.1216	0.1648	0.2092	0.2546	0.3007	0.3474	0.3945	0.4415	11.913	91.913
85	0.0574	0.1157	0.1748	0.2342	0.2938	0.3529	0.4114	0.4687	0.5244	0.5782	9.386	94.386
90	0.0838	0.1666	0.2477	0.3266	0.4027	0.4754	0.5440	0.6082	0.6676	0.7217	7.243	97.243

Table 76. Coefficients of complete and reduced models

Variable	Full model			Reduced model		
	Value	SE	p-value	Value	SE	p-value
gender	0.087938	0.023486	0.000181	0.088134	0.023411	0.000167
age	0.083836	0.000658	0	0.083737	0.000651	0

IMD2	0.043011	0.035221	**0.222018**			
IMD3	0.002775	0.034756	**0.936354**			
IMD4	0.104095	0.035298	0.003188	0.153608	0.023593	7.482E-11
IMD5	0.072139	0.037297	**0.053090**			
BMI1	0.461020	0.048598	2.390×10^{-21}	0.461619	0.047120	1.165E-22
BMI2	-0.013504	0.027108	**0.618367**			
BMI3	0.072351	0.037063	**0.050925**			
BMI4	0.147658	0.059646	0.013303	0.203274	0.052443	0.000106
BMI5	0.358180	0.090435	7.475×10^{-5}	0.361664	0.090416	6.334E-05
BP1	0.526074	0.048777	4.044×10^{-27}	0.529749	0.048751	1.665E-27
BP2	-0.177042	0.032110	3.514×10^{-8}	-0.175946	0.032015	3.893E-08
BP3	-0.123911	0.027740	7.936×10^{-6}	-0.121863	0.027708	1.092E-05
BP4	-0.171207	0.044171	0.000106	-0.174113	0.044111	7.908E-05
SmokerEver	0.513624	0.026531	1.703×10^{-83}	0.515987	0.026452	9.710E-85
SmokerCurrent	0.214917	0.035198	1.022×10^{-9}	0.213032	0.034924	1.062E-09
Cl1	-0.138263	0.025657	7.088×10^{-8}	-0.148617	0.023910	5.109E-10
Cl2	-0.048679	0.046417	**0.294300**			
Cl3	-0.308415	0.106057	0.003637	-0.342541	0.099581	0.000582

Table 77. Log of model reduction

# Attributes	Processing time (s)	Removed	p-value
19	2983.594078	IMD3	0.9363
18	2690.372037	BMI2	0.6179
17	2210.839495	Cl2	0.2911
16	1969.083690	IMD2	0.1455
15	1754.456204	IMD5	0.0558
14	1533.106894	BMI3	0.0523

Table 78. Correlation matrix for health simple model

	gender	age	IMD2	IMD3	IMD4	IMD5	BMI1	BMI2	BMI3	BMI4	BMI5	BP1	BP2	BP3	BP4	Smoker	Smoker	Cl1	Cl2	Cl3

	gender	age	IMD2	IMD3	IMD4	IMD5	BMI1	BMI2	BMI3	BMI4	BMI5	BP1				Ever	Current			
gender	1	-0.007	0.002	0.007	0.014	0.012	0.064	0.091	0.025	0.056	0.048	0.013	0.145	0.091	0.018	0.076	0.056	0.014	0.012	0.001
age	-0.007	1	-0.039	-0.059	-0.069	-0.058	-0.022	0.124	0.067	0.017	0.002	0.041	0.255	0.291	0.163	0.044	-0.111	0.123	0.108	0.032
IMD2	0.002	-0.039	1	0.609	0.395	0.235	0.009	0.025	0.041	0.035	0.026	0.008	-0.013	0.000	0.007	0.066	0.091	-0.005	-0.004	0.004
IMD3	0.007	-0.059	0.609	1	0.649	0.386	0.012	0.024	0.043	0.043	0.031	0.009	-0.022	-0.009	0.003	0.075	0.112	-0.012	-0.010	0.004
IMD4	0.014	-0.069	0.395	0.649	1	0.595	0.013	0.020	0.045	0.042	0.029	0.011	-0.021	-0.012	0.002	0.078	0.119	-0.017	-0.008	0.006
IMD5	0.012	-0.058	0.235	0.386	0.595	1	0.006	0.019	0.038	0.038	0.028	0.008	-0.016	-0.011	-0.001	0.067	0.101	-0.011	-0.005	0.002
BMI1	-0.064	-0.022	0.009	0.012	0.013	0.006	1	-0.192	-0.092	-0.050	-0.028	-0.026	-0.060	-0.036	-0.014	-0.005	0.023	-0.058	-0.021	-0.012
BMI2	0.091	0.124	0.025	0.024	0.020	0.019	-0.192	1	0.478	0.262	0.147	-0.070	0.175	0.164	0.067	0.031	-0.053	0.076	0.050	0.007
BMI3	-0.025	-0.067	0.041	0.043	0.045	0.038	-0.092	0.478	1	0.549	0.306	-0.039	0.129	0.131	0.047	0.035	-0.026	0.042	0.019	0.004
BMI4	-0.056	-0.017	0.035	0.043	0.042	0.038	-0.050	0.262	0.549	1	0.559	-0.029	0.084	0.087	0.032	0.018	-0.014	0.005	0.000	-0.003
BMI5	-0.048	-0.002	0.026	0.031	0.029	0.028	-0.028	0.147	0.306	0.559	1	-0.019	0.047	0.054	0.030	0.014	-0.003	-0.006	-0.003	-0.005
BP1	-0.013	-0.041	-0.008	-0.009	-0.011	-0.008	-0.026	-0.070	-0.039	-0.029	-0.019	1	-0.189	-0.091	-0.034	-0.004	0.000	-0.058	-0.026	-0.008

BP2	0.145	0.255	-0.013	-0.022	-0.021	-0.016	-0.060	0.175	0.129	0.084	0.047	0.189	1	0.348	0.129	0.025	0.027	-0.077	0.049	0.024
BP3	0.091	0.291	-0.000	-0.009	-0.012	-0.011	-0.036	0.164	0.131	0.087	0.054	0.091	0.348	1	0.370	0.015	0.025	-0.063	0.049	0.016
BP4	0.018	0.163	0.007	0.003	0.002	0.001	0.014	0.067	0.047	0.032	0.030	0.034	0.129	0.370	1	-0.001	-0.011	0.031	0.042	0.018
Smoker Ever	0.076	0.044	0.066	0.075	0.078	0.067	0.005	0.031	0.035	0.018	0.014	0.004	0.025	0.015	0.001	1	0.645	0.009	0.010	0.005
Smoker Current	0.056	-0.111	0.091	0.112	0.119	0.101	0.023	0.053	0.026	0.014	0.003	0.000	0.027	0.025	0.011	0.645	1	0.003	0.003	0.008
Cl1	0.014	0.123	-0.005	-0.012	-0.017	-0.011	-0.058	0.076	0.042	0.005	0.006	0.058	0.077	0.063	0.031	0.009	0.003	1	0.340	0.124
Cl2	-0.012	0.108	-0.004	-0.010	-0.008	-0.005	-0.021	0.050	0.019	0.000	0.003	0.026	0.049	0.049	0.042	0.010	0.003	0.340	1	0.366
Cl3	0.001	0.032	0.004	0.004	0.006	0.002	-0.012	0.007	0.004	0.003	0.005	0.008	0.024	0.016	0.018	0.005	0.008	0.124	0.366	1

Table 79. Statistics to check mortality for high cholesterol (value 1)

Age band	Value 0			Value 1			Difference
	Totally	Dead	Mortality	Totally	Dead	Mortality	
16-30	18,313	71	0.00388	6,439	33	0.00513	0.00125
30-40	12,545	118	0.00941	8,903	102	0.01146	0.00205
40-50	8,289	197	0.02377	9,396	222	0.02363	-0.00014
50-60	5,390	357	0.06623	6,376	305	0.04784	-0.01840
60-70	4,976	769	0.15454	4,468	480	0.10743	-0.04711
70-80	3,521	1,335	0.37915	2,344	698	0.29778	-0.08137

| 80-120 | 2,815 | 1,955 | 0.69449 | 1,859 | 1,159 | 0.62345 | -0.07104 |
| Total | 55,849 | 4,802 | 0.08598 | 39,785 | 2,999 | 0.07538 | -0.01060 |

Table 80. Statistics to check mortality for very high cholesterol (value 1)

	Value 0			Value 1			
Age band	Totally	Dead	Mortality	Totally	Dead	Mortality	Difference
16-30	24,139	98	0.00406	613	6	0.00979	0.00573
30-40	19,992	200	0.01000	1,456	20	0.01374	0.00373
40-50	16,031	372	0.02321	1,654	47	0.02842	0.00521
50-60	10,311	584	0.05664	1,455	78	0.05361	-0.00303
60-70	8,379	1,151	0.13737	1,065	98	0.09202	-0.04535
70-80	5,339	1,879	0.35194	526	154	0.29278	-0.05916
80-120	4,175	2,822	0.67593	499	292	0.58517	-0.09076
Total	88,366	7,106	0.08042	7,268	695	0.09562	0.01521

Table 81. Statistics to check mortality for extremly high cholesterol (value 1)

	Value 0			Value 1			
Age band	Totally	Dead	Mortality	Totally	Dead	Mortality	Difference
16-30	24,654	103	0.00418	98	1	0.01020	0.00603
30-40	21,150	218	0.01031	298	2	0.00671	-0.00360
40-50	17,507	410	0.02342	178	9	0.05056	0.02714
50-60	11,583	643	0.05551	183	19	0.10383	0.04831
60-70	9,316	1,238	0.13289	128	11	0.08594	-0.04695
70-80	5,802	2,015	0.34729	63	18	0.28571	-0.06158
80-120	4,579	3,068	0.67002	95	46	0.48421	-0.18580
Total	94,591	7,695	0.08135	1,043	106	0.10163	0.02028

Table 82. Statistics to check mortality for high BP (value 1)

	Value 0			Value 1			
Age band	Totally	Dead	Mortality	Totally	Dead	Mortality	Difference
16-30	10,877	55	0.00506	13,875	49	0.00353	-0.00153
30-40	7,877	57	0.00724	13,571	163	0.01201	0.00477

40-50	4,672	111	0.02376	13,013	308	0.02367	-0.00009
50-60	2,037	126	0.06186	9,729	536	0.05509	-0.00676
60-70	1,105	197	0.17828	8,339	1,052	0.12615	-0.05213
70-80	678	369	0.54425	5,187	1,664	0.32080	-0.22345
80-120	748	597	0.79813	3,926	2,517	0.64111	-0.15702
Total	27,994	1,512	0.05401	67,640	6,289	0.09298	0.03897

Table 83. Statistics to check mortality for very high BP (value 1)

	Value 0			Value 1			
Age band	Totally	Dead	Mortality	Totally	Dead	Mortality	Difference
16-30	22,404	88	0.00393	2,348	16	0.00681	0.00289
30-40	18,314	174	0.00950	3,134	46	0.01468	0.00518
40-50	13,654	296	0.02168	4,031	123	0.03051	0.00883
50-60	8,066	435	0.05393	3,700	227	0.06135	0.00742
60-70	5,738	779	0.13576	3,706	470	0.12682	-0.00894
70-80	3,299	1,239	0.37557	2,566	794	0.30943	-0.06614
80-120	2,516	1,862	0.74006	2,158	1,252	0.58017	-0.15990
Total	73,991	4,873	0.06586	21,643	2,928	0.13529	0.06943

Table 84. Statistics to check mortality for extremely high BP (value 1)

	Value 0			Value 1			
Age band	Totally	Dead	Mortality	Totally	Dead	Mortality	Difference
16-30	24,419	102	0.00418	333	2	0.00601	0.00183
30-40	21,101	210	0.00995	347	10	0.02882	0.01887
40-50	17,110	399	0.02332	575	20	0.03478	0.01146
50-60	11,139	606	0.05440	627	56	0.08931	0.03491
60-70	8,796	1,147	0.13040	648	102	0.15741	0.02701
70-80	5,368	1,862	0.34687	497	171	0.34406	-0.00281
80-120	4,011	2,787	0.69484	663	327	0.49321	-0.20163
Total	91,944	7,113	0.07736	3,690	688	0.18645	0.10909

Table 85. Values of coefficients in process of forward feature selection

Step	1	2	3	4	5	6	7	8	9	10	11	12	13	14
age	0.079	0.082	0.081	0.081	0.080	0.081	0.081	0.081	0.082	0.083	0.083	0.083	0.083	0.084
SmokerEver		0.620	0.607	0.616	0.609	0.612	0.605	0.604	0.603	0.541	0.536	0.534	0.519	0.516
BP1			0.660	0.657	0.641	0.534	0.542	0.545	0.522	0.534	0.530	0.534	0.534	0.530
BMI1				0.486	0.477	0.457	0.450	0.457	0.457	0.444	0.439	0.448	0.464	0.462
Cl1					-0.193	-0.187	-0.184	-0.180	-0.176	-0.180	-0.177	-0.175	-0.163	-0.149
BP2						-0.235	-0.235	-0.240	-0.176	-0.171	-0.172	-0.173	-0.176	-0.176
IMD4							0.167	0.163	0.167	0.156	0.157	0.154	0.152	0.154
BMI5								0.512	0.524	0.534	0.536	0.354	0.359	0.362
BP3									-0.152	-0.158	-0.116	-0.118	-0.118	-0.122
SmokerCurrent										0.192	0.202	0.206	0.210	0.213
BP4											-0.179	-0.177	-0.173	-0.174
BMI4												0.194	0.205	0.203
gender_1													0.091	0.088
Cl3														-0.343

Table 86. *P*-values of coefficients in process of forward feature selection

Step	1	2	3	4	5	6	7	8	9	10	11	12	13	14
age	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SmokerEver		1E-157	2E-151	2E-155	8E-152	5E-153	3E-149	1E-148	6E-148	3E-95	2E-93	2E-92	1E-85	1E-84
BP1			9E-46	2E-45	4E-43	4E-28	7E-29	3E-29	8E-27	6E-28	1E-27	5E-28	6E-28	2E-27
BMI1				2E-25	2E-24	1E-22	7E-22	2E-22	2E-22	2E-21	7E-21	1E-21	7E-23	1E-22
Cl1					1E-16	1E-15	4E-15	1E-14	5E-14	2E-14	4E-14	8E-14	5E-12	5E-10
BP2						8E-15	1E-14	2E-15	4E-08	1E-07	8E-08	7E-08	4E-08	4E-08

IMD4						1E-12	3E-12	1E-12	4E-11	3E-11	7E-11	1E-10	7E-11
BMI5							2E-11	5E-12	2E-12	2E-12	9E-05	7E-05	6E-05
BP3								6E-09	1E-09	3E-05	2E-05	2E-05	1E-05
SmokerCurrent									3E-08	7E-09	3E-09	2E-09	1E-09
BP4										5E-05	6E-05	9E-05	8E-05
BMI4											2E-04	9E-05	1E-04
gender_1												1E-04	2E-04
Cl3													6E-04

Table 87. Coefficients of full model with comorbidities

Attribute	Coefficient	Standard error	Z Statistics	p-value
gender	0.28025	0.02718	10.30937	6.39E-25
age	0.08645	0.00105	82.47195	0
IMD2	0.03664	0.03527	1.03867	0.29896
IMD3	0.00467	0.03483	0.13398	0.89342
IMD4	0.14279	0.03538	4.03539	5.45E-05
IMD5	0.06719	0.03764	1.78486	0.07428
BMI1	0.38300	0.04987	7.67931	1.60E-14
BMI2	-0.20060	0.02704	-7.41849	1.18E-13
BMI3	0.01326	0.03726	0.35583	0.72197
BMI4	0.18714	0.06028	3.10466	0.00190
BMI5	0.21331	0.09132	2.33577	0.01950
BP1	0.14613	0.04914	2.97362	0.00294
BP2	-0.20336	0.03247	-6.26214	3.80E-10
BP3	0.00230	0.02760	0.08326	0.93365
BP4	0.16943	0.04410	3.84186	0.00012
SmokerEver	0.01464	0.02712	0.53972	0.58939
SmokerCurrent	0.45010	0.03686	12.21037	2.74E-34
Cl1	0.12995	0.02617	4.96552	6.85E-07

Attribute	Coefficient	Standard error	Z Statistics	p-value
Cl2	0.01534	0.04564	0.33600	0.73687
Cl3	-0.04657	0.10485	-0.44414	0.65694
AF	0.32976	0.03169	10.40454	2.36E-25
AID	0.94751	0.50098	1.89131	0.05858
Alc	0.69413	0.04331	16.02718	8.25E-58
Amp	-0.31091	0.23623	-1.31613	0.18813
Ang	-0.03723	0.05089	-0.73151	0.46447
Ano	0.72481	0.06914	10.48338	1.03E-25
Anx	-0.03431	0.03161	-1.08546	0.27772
Ast	0.12617	0.02887	4.36955	1.25E-05
Bli	0.25016	0.06057	4.12987	3.63E-05
Bro	0.26447	0.06586	4.01560	5.93E-05
Can	0.87184	0.02403	36.27613	3.85E-288
CHD	0.13436	0.04958	2.70983	0.00673
CLD	0.89540	0.16723	5.35443	8.58E-08
COP	0.42412	0.02927	14.48827	1.44E-47
CS	-0.55311	0.10331	-5.35390	8.61E-08
CyF	1.45570	0.57813	2.51795	0.01180
DDI	0.00838	0.03103	0.27022	0.78699
Dem	0.30260	0.02417	12.52184	5.67E-36
Dep	0.19072	0.02921	6.52881	6.63E-11
Epi	0.30863	0.06104	5.05589	4.28E-07
HeL	-0.07032	0.03057	-2.30065	0.02141
Hem	0.49795	0.05556	8.96176	3.20E-19
HF	0.71794	0.03244	22.12980	1.63E-108
Hyp	0.23271	0.02887	8.05938	7.67E-16
IBD	0.10243	0.08377	1.22273	0.22143

Attribute	Coefficient	Standard error	Z Statistics	p-value
IBS	-0.28307	0.05304	-5.33655	9.47E-08
LD	0.11316	0.14031	0.80652	0.41994
Lip	0.07907	0.10364	0.76296	0.44549
MLD	-0.18524	0.14892	-1.24383	0.21356
MSc	0.08647	0.17954	0.48162	0.63008
MVD	0.11105	0.03442	3.22604	0.00126
PrD	-0.16873	0.03980	-4.23981	2.24E-05
PsE	-0.19616	0.02966	-6.61417	3.74E-11
PUD	0.09535	0.03447	2.76602	0.00567
PuF	0.62517	0.12601	4.96128	7.00E-07
RhA	0.05335	0.04028	1.32447	0.18535
Sch	0.61735	0.06032	10.23533	1.38E-24
SLD	0.51441	0.15460	3.32728	0.00088
Str	0.50705	0.03277	15.47334	5.25E-54
ThD	0.07333	0.03505	2.09199	0.03644

Table 88. Comparison of coefficients of full models with and without comorbidities

Attribute	Full model without comorbidities				Full model with comorbidities			
	Coefficient	Standard error	Z Statistics	p-value	Coefficient	Standard error	Z Statistics	p-value
gender	0.285079	0.024052	11.8528	2.08E-32	0.28025	0.02718	10.30937	6.39E-25
age	0.10925	0.00086	127.58838	0	0.08645	0.00105	82.47195	0
IMD2	0.05903	0.03520	1.67691	0.09356	0.03664	0.03527	1.03867	0.29896
IMD3	0.05502	0.03469	1.58573	0.11280	0.00467	0.03483	0.13398	0.89342
IMD4	0.17180	0.03521	4.87951	1.06E-06	0.14279	0.03538	4.03539	5.45E-05

IMD5	0.12778	0.03720	3.43530	0.00059	0.06719	0.03764	1.78486	0.07428
BMI1	0.49071	0.04874	10.06789	7.66E-24	0.38300	0.04987	7.67931	1.60E-14
BMI2	-0.14002	0.02690	-5.20557	1.93E-07	-0.20060	0.02704	-7.41849	1.18E-13
BMI3	0.07998	0.03698	2.16248	0.03058	0.01326	0.03726	0.35583	0.72197
BMI4	0.25318	0.06015	4.20951	2.56E-05	0.18714	0.06028	3.10466	0.00190
BMI5	0.25871	0.09098	2.84360	0.00446	0.21331	0.09132	2.33577	0.01950
BP1	0.26482	0.04887	5.41866	6.00E-08	0.14613	0.04914	2.97362	0.00294
BP2	-0.30769	0.03215	-9.56966	1.07E-21	-0.20336	0.03247	-6.26214	3.80E-10
BP3	-0.04945	0.02742	-1.80355	0.07130	0.00230	0.02760	0.08326	0.93365
BP4	0.14802	0.04399	3.36499	0.00077	0.16943	0.04410	3.84186	0.00012
Smoker Ever	0.20593	0.02638	7.80593	5.91E-15	0.01464	0.02712	0.53972	0.58939

Smoker Current	0.47539	0.03526	13.48071	2.03E-41	0.45010	0.03686	12.21037	2.74E-34
Cl1	-0.10029	0.02533	-3.95984	7.50E-05	0.12995	0.02617	4.96552	6.85E-07
Cl2	0.01227	0.04545	0.26993	0.78722	0.01534	0.04564	0.33600	0.73687
Cl3	0.11863	0.10449	1.13534	0.25623	-0.04657	0.10485	-0.44414	0.65694

Table 89. Coefficients of Male model with preserved all 'industrial' attributes.

Attribute	Coefficient	Standard Error	z Statistics	p-value
age	0.08851	0.00161	55.07414	0
IMD2	-0.05008	0.05183	-0.96627	0.33391
IMD3	0.05499	0.05112	1.07575	0.28204
IMD4	0.12664	0.05139	2.46445	0.01372
IMD5	0.10610	0.05363	1.97816	0.04791
BMI1	0.41549	0.09072	4.57987	4.65E-06
BMI2	-0.19101	0.03824	-4.99452	5.90E-07
BMI3	-0.02804	0.05248	-0.53426	0.59316
BMI4	0.28898	0.08769	3.29543	0.00098
BMI5	0.11899	0.14841	0.80179	0.42267
BP1	0.13962	0.06958	2.00651	0.04480
BP2	-0.18881	0.04607	-4.09841	4.16E-05
BP3	-0.00436	0.03994	-0.10910	0.91312
BP4	0.18634	0.06925	2.69077	0.00713
SmokerEver	0.02034	0.03842	0.52922	0.59665
SmokerCurrent	0.52521	0.04914	10.68849	1.15E-26
Cl1	0.14148	0.03845	3.67929	0.00023
Cl2	0.02482	0.08149	0.30456	0.76070
Cl3	-0.27159	0.20446	-1.32833	0.18407
AtrialFibr	0.28644	0.04572	6.26526	3.72E-10
Alcohol	0.68125	0.05529	12.32087	6.99E-35

Attribute	Coefficient	Standard Error	z Statistics	p-value
Angina	0.17879	0.04105	4.35513	1.33E-05
Anorexia	0.90326	0.10475	8.62299	6.52E-18
Asthma	0.11888	0.04180	2.84412	0.00445
Cancer	1.02646	0.03613	28.40743	1.64E-177
Chronic Liver Disease and Viral Hepatitis	0.88611	0.11029	8.03459	9.39E-16
COPD	0.49082	0.04090	12.00057	3.53E-33
Chronic sinusitis	-0.60979	0.15228	-4.00450	6.21E-05
Cystic Fibrosis	3.50335	0.70954	4.93747	7.91E-07
Dementia	0.24313	0.03464	7.01897	2.24E-12
Depression	0.22640	0.04162	5.43935	5.35E-08
Epilepsy	0.28184	0.08678	3.24782	0.00116
Hemiplegia	0.47837	0.08182	5.84674	5.01E-09
Heart failure	0.81911	0.04702	17.41893	5.93E-68
Hypertension	0.25664	0.04209	6.09768	1.08E-09
Prostate disorders	-0.15615	0.04139	-3.77279	0.00016
Psoriasis or eczema	-0.11593	0.04234	-2.73795	0.00618
Pulmonary Fibrosis	0.53411	0.15978	3.34288	0.00083
Schizophrenia	0.72421	0.08645	8.37761	5.40E-17
Moderate or Severe Liver Disease	0.63470	0.13494	4.70358	2.56E-06
Stroke	0.42745	0.04497	9.50539	1.99E-21

Table 90. Coefficients of Female model with preserved all 'industrial' attributes.

Attribute	Coefficient	Standard Error	z Statistics	p-value
age	0.10010	0.00152	66.04765	0
IMD2	0.08510	0.04844	1.75692	0.07893
IMD3	-0.04431	0.04782	-0.92658	0.35414
IMD4	0.17167	0.04894	3.50752	0.00045
IMD5	0.04491	0.05293	0.84858	0.39612

Attribute	Coefficient	Standard Error	z Statistics	p-value
BMI1	0.36599	0.05947	6.15440	7.54E-10
BMI2	-0.15369	0.03835	-4.00767	6.13E-05
BMI3	0.05076	0.05311	0.95574	0.33921
BMI4	0.11400	0.08354	1.36469	0.17235
BMI5	0.32089	0.11725	2.73691	0.00620
BP1	0.12879	0.07022	1.83419	0.06663
BP2	-0.15384	0.04639	-3.31630	0.00091
BP3	-0.00367	0.03838	-0.09572	0.92374
BP4	0.12587	0.05784	2.17616	0.02954
SmokerEver	0.07459	0.03872	1.92647	0.05405
SmokerCurrent	0.31340	0.05657	5.54038	3.02E-08
Cl1	0.11870	0.03561	3.33347	0.00086
Cl2	-0.00084	0.05565	-0.01506	0.98798
Cl3	0.10715	0.12247	0.87492	0.38162
AtrialFibr	0.35972	0.04437	8.10707	5.19E-16
Alcohol	0.71862	0.07158	10.03912	1.03E-23
Angina	-0.28272	0.07273	-3.88748	0.00010
Anorexia	0.59728	0.09277	6.43845	1.21E-10
Asthma	0.14884	0.03957	3.76137	0.00017
Blindness	0.23596	0.07685	3.07056	0.00214
Bronchiectasis	0.26876	0.09473	2.83720	0.00455
Cancer	0.77561	0.03262	23.78010	5.37E-125
CHD	0.33490	0.06944	4.82313	1.41E-06
Chronic Liver Disease and Viral Hepatitis	0.62271	0.10964	5.67949	1.35E-08
COPD	0.41014	0.04167	9.84166	7.45E-23
Chronic sinusitis	-0.44476	0.13609	-3.26814	0.00108
Dementia	0.35212	0.03337	10.55261	4.94E-26

Attribute	Coefficient	Standard Error	z Statistics	p-value
Depression	0.16418	0.03584	4.58064	4.64E-06
Epilepsy	0.44372	0.07970	5.56723	2.59E-08
Hemiplegia	0.63391	0.07473	8.48307	2.19E-17
Heart failure	0.60084	0.04453	13.49395	1.70E-41
Hypertension	0.24927	0.03998	6.23461	4.53E-10
Irritable bowel syndrome	-0.29112	0.06462	-4.50496	6.64E-06
Multiple sclerosis	0.59459	0.20225	2.93985	0.00328
Macrovascular	0.13974	0.04855	2.87817	0.00400
Psoriasis or eczema	-0.23879	0.04130	-5.78132	7.41E-09
Pulmonary Fibrosis	0.92461	0.20566	4.49586	6.93E-06
Rheumatoid arthritis & ...	0.14875	0.04981	2.98652	0.00282
Schizophrenia	0.53148	0.08304	6.39993	1.55E-10
Moderate or Severe Liver Disease	0.63106	0.15339	4.11396	0.00004
Stroke	0.56494	0.04447	12.70294	5.70E-37

Table 91. Comparison of coefficients for 'industrially used' attributes for male and female models

Attribute	Male		Female	
	Coefficient	p-value	Coefficient	p-value
age	0.08851	0	0.10010	0
IMD2	-0.05008	0.33391	0.08510	0.07893
IMD3	0.05499	0.28204	-0.04431	0.35414
IMD4	0.12664	0.01372	0.17167	0.00045
IMD5	0.10610	0.04791	0.04491	0.39612
BMI1	0.41549	4.65E-06	0.36599	7.54E-10
BMI2	-0.19101	5.90E-07	-0.15369	6.13E-05
BMI3	-0.02804	0.59316	0.05076	0.33921
BMI4	0.28898	0.00098	0.11400	0.17235
BMI5	0.11899	0.42267	0.32089	0.00620

Attribute	Male		Female	
	Coefficient	p-value	Coefficient	p-value
BP1	0.13962	0.04480	0.12879	0.06663
BP2	-0.18881	4.16E-05	-0.15384	0.00091
BP3	-0.00436	0.91312	-0.00367	0.92374
BP4	0.18634	0.00713	0.12587	0.02954
SmokerEver	0.02034	0.59665	0.07459	0.05405
SmokerCurrent	0.52521	1.15E-26	0.31340	3.02E-08
Cl1	0.14148	0.00023	0.11870	0.00086
Cl2	0.02482	0.76070	-0.00084	0.98798
Cl3	-0.27159	0.18407	0.10715	0.38162

Table 92. Comparison of coefficients of used comorbidities

Attribute	Male	Female
AtrialFibr	0.28644	0.35972
Alcohol	0.68125	0.71862
Angina	0.17879	-0.28272
Anorexia	0.90326	0.59728
Asthma	0.11888	0.14884
Blindness		0.23596
Bronchiectasis		0.26876
Cancer	1.02646	0.77561
CHD		0.33490
Chronic Liver Disease and Viral Hepatitis	0.88611	0.62271
COPD	0.49082	0.41014
Chronic sinusitis	-0.60979	-0.44476
Cystic Fibrosis	3.50335	
Dementia	0.24313	0.35212
Depression	0.22640	0.16418

Attribute	Male	Female
Epilepsy	0.28184	0.44372
Hemiplegia	0.47837	0.63391
Heart failure	0.81911	0.60084
Hypertension	0.25664	0.24927
Irritable bowel syndrome		-0.29112
Multiple sclerosis		0.59459
Macrovascular		0.13974
Prostate disorders	-0.15615	
Psoriasis or eczema	-0.11593	-0.23879
Pulmonary Fibrosis	0.53411	0.92461
Rheumatoid arthritis & ...		0.14875
Schizophrenia	0.72421	0.53148
Moderate or Severe Liver Disease	0.63470	0.63106
Stroke	0.42745	0.56494

Table 93. Coefficients and p-values for final female models for general sample, red background highlights p-values off greater than 5%, green background highlights p-values off greater than 1%

Attribute	Coefficient	p-value	Interaction	Coefficient	p-value
age	0.12776	1.67E-270	age_Can	-0.04122	$<10^{-6}$
IMD2	0.70135	0.00694	Can_Hyp	-0.24374	0.00097
IMD3	-0.01952	0.68389	age_HF	-0.02668	$<10^{-6}$
IMD4	0.16484	0.00077	Can_HF	-0.40840	$<10^{-6}$
IMD5	0.00689	0.89718	age_Alc	-0.03183	$<10^{-6}$
BMI1	0.31607	$<10^{-6}$	HF_Str	-0.57301	$<10^{-6}$
BMI2	-0.14204	0.00023	age_Hyp	-0.01644	$<10^{-6}$
BMI3	0.00140	0.97899	age_COP	-0.01643	$<10^{-6}$
BMI4	0.03141	0.71031	age_AF	-0.01788	5.29E-05
BMI5	0.17948	0.12757	CLD_Hyp	0.42395	3.49E-05

Attribute	Coefficient	p-value	Interaction	Coefficient	p-value
BP1	0.15085	0.03501	Cl1_LD	1.73698	$<10^{-6}$
BP2	-0.29380	$<10^{-6}$	Alc_Hyp	-0.46869	0.00284
BP3	-0.00755	0.84387	Ano_Dem	-0.85263	9.87E-06
BP4	0.13903	0.01629	Epi_Hyp	-0.63306	8.55E-05
Smoker Ever	0.05773	0.13833	Can_COP	-0.27647	0.00039
Smoker Current	0.32006	$<10^{-6}$	age_Sch	0.00427	0.00022
Cl1	0.03432	0.36983	Dem_HF	-0.23676	0.00289
Cl2	-0.02293	0.68150	Cl1_CHD	0.23966	4.69E-05
Cl3	0.16327	0.18294	Dep_Hyp	-0.23038	0.00226
AF	1.51027	3.55E-05	age_Dem	0.02004	$<10^{-6}$
Alc	3.17476	$<10^{-6}$	age_IMD2	-0.00836	0.01081
Ano	1.19856	$<10^{-6}$	BP2_Hem	0.62112	$<10^{-6}$
Ast	0.14665	0.00021	Hem_PuF	6.62238	3.85E-06
Bli	0.17823	0.02083	BP2_AF	0.38323	0.00031
Can	4.25109	$<10^{-6}$	COP_MVD	-0.23028	0.00781
COP	1.84393	$<10^{-6}$	AID_MLD	5.68617	$<10^{-6}$
CS	-0.56776	4.26E-05	BMI4_BP1	0.89056	0.00339
Dem	-1.13087	$<10^{-6}$	BMI1_MLD	1.31375	0.00087
Dep	0.29223	4.21E-06	BMI3_CyF	3.45623	0.00081
Epi	0.82575	$<10^{-6}$			
HF	3.36774	$<10^{-6}$			
Hyp	1.65339	$<10^{-6}$			
IBS	-0.31749	$<10^{-6}$			
MVD	0.20837	7.46E-05			
PuF	0.71939	0.00074			
RhA	0.16286	0.00103			

Attribute	Coefficient	p-value	Interaction	Coefficient	p-value
Str	0.72495	<10^{-6}			

Table 94. Coefficients and p-values for final male models for general sample, red background highlights p-values off greater than 5%, green background highlights p-values off greater than 1%

Attribute	Coefficient	p-value	Interaction	Coefficient	p-value
age	0.10269	<10^{-6}	age_Can	-0.03345	<10^{-6}
IMD2	0.67892	0.00497	Can_Str	-0.44563	<10^{-6}
IMD3	0.03849	0.45190	Can_Hyp	-0.29663	0.00012
IMD4	0.14802	0.00424	Can_HF	-0.39103	<10^{-6}
IMD5	0.07894	0.14038	age_Alc	-0.02657	<10^{-6}
BMI1	0.43107	<10^{-6}	Alc_Hyp	-0.54974	<10^{-6}
BMI2	-0.16329	0.00002	Can_PrD	-0.22900	0.00003
BMI3	-0.05956	0.25902	Hyp_Str	-0.41264	0.00003
BMI4	0.36045	0.00004	age_Dem	0.02062	<10^{-6}
BMI5	0.01484	0.92047	age_AF	-0.01162	0.00588
BP1	0.04463	0.52860	Ang_CLD	-0.50407	0.00078
BP2	-0.20120	0.00001	age_Ang	-0.01208	0.00047
BP3	-0.00273	0.94557	HF_Hyp	-0.32009	0.00432
BP4	1.07633	0.00215	Ano_Can	1.42053	<10^{-6}
Smoker Ever	-0.07133	0.09332	Cl1_Bro	0.73302	<10^{-6}
Smoker Current	0.51312	<10^{-6}	Cl3_SLD	2.59503	<10^{-6}
Cl1	0.11656	0.00332	DDI_Dem	0.17995	0.00320
Cl2	0.07719	0.34453	age_IMD2	-0.01021	0.00181
Cl3	-0.55610	0.01571	Hem_Str	-0.65799	0.00156
AF	1.16708	0.00025	Cl1_Epi	0.44724	0.00106
Alc	2.93784	<10^{-6}	Ang_CHD	-4.32846	0.00002

Ang	5.43655	$<10^{-6}$	PuF_SLD	3.90079	$<10^{-6}$
Ano			age_BP4	-0.01324	0.00704
Ast	0.11185	0.00755	Cl2_PuF	2.16510	0.00049
Can	3.90111	$<10^{-6}$	SmokerEver_COP	0.24557	0.00441
CLD	1.04799	$<10^{-6}$	AID_PsE	2.42206	0.00065
COP	0.28694	0.00015	Ano_MLD	2.65382	$<10^{-6}$
CS	-0.40660	0.00676	BP1_PuF	1.54775	0.00071
CyF	3.92658	$<10^{-6}$	Alc_Can	-0.44789	0.00002
Dem	-1.23930	$<10^{-6}$			
Hem	1.09250	$<10^{-6}$			
HF	1.36853	$<10^{-6}$			
Hyp	0.51979	$<10^{-6}$			
Sch	0.67042	$<10^{-6}$			
SLD	0.43793	0.00124			
Str	1.05568	$<10^{-6}$			

Table 95. Models for male and female diabetes patients for industrial attributes only, background colour highlights: red for p-value of greater than 25%; blue for p-value from 5% to 25%; green for p-values between 1% and 5%

Attribute	Female		Male	
	Coefficient	p-value	Coefficient	p-value
age	0.08155	0	0.08248	0
IMD2	0.17615	0.00984	0.15216	0.01145
IMD3	0.02317	0.71492	-0.00120	0.98295
IMD4	0.12676	0.03862	0.02895	0.61888
IMD5	0.08375	0.16849	0.24119	3.67E-05
BMI1	0.58667	3.19E-09	0.56749	5.05E-07
BMI2	-0.09863	0.06998	-0.38367	1.18E-16
BMI3	0.08589	0.15404	0.21190	5.12E-05
BMI4	0.11552	0.13409	0.14029	0.07704

Attribute	Female Coefficient	Female p-value	Male Coefficient	Male p-value
BMI5	0.46924	7.88E-08	0.40175	0.00036
BP1	0.20751	0.00140	0.07789	0.22656
BP2	-0.25319	6.27E-06	-0.42677	3.45E-18
BP3	0.11700	0.01884	0.00986	0.83358
BP4	0.18095	0.01383	0.32313	1.39E-05
SmokerEver	0.16806	0.00032	0.19242	4.58E-06
SmokerCurrent	0.34508	4.85E-07	0.33960	2.76E-10
Cl1	-0.03010	0.57222	-0.01491	0.78862
Cl2	0.30121	0.00634	0.48336	3.51E-05
Cl3	0.13099	0.51020	0.05835	0.77250
HbA1C1	-0.32109	0.00051	-0.14575	0.08863
HbA1C2	-0.06465	0.49471	-0.14384	0.09546
HbA1C3	-0.13152	0.06242	-0.01806	0.77699
HbA1C4	0.45679	6.93E-17	0.45498	4.41E-18
DIBAge	0.00098	0.50606	-0.00311	0.02291

Table 96. Significance of coefficients of male and female diabetes patients models for industrial and statistically significant comorbidity attributes, pink background highlights statistically insignificant industrial attributes

Attribute	Female		Male	
	Coefficient	p-value	Coefficient	p-value
age	0.06929	2.3E-256	0.059184	1.8E-219
IMD2	0.07937	0.24845	0.058877	0.33190
IMD3	-0.02981	0.64224	-0.03478	0.53735
IMD4	0.08244	0.18214	-0.00882	0.88045
IMD5	-0.00708	0.90798	0.139083	0.01809
BMI1	0.47957	1.4E-06	0.407125	0.00040
BMI2	-0.15814	0.00405	-0.41527	5.6E-19
BMI3	-0.01111	0.85566	0.04359	0.41076
BMI4	-0.02895	0.71189	0.049743	0.53558

Attribute	Female		Male	
	Coefficient	p-value	Coefficient	p-value
BMI5	0.54933	4.9E-10	0.416801	0.00025
BP1	0.01399	0.83067	-0.01043	0.87230
BP2	-0.15962	0.00484	-0.25893	1.8E-07
BP3	0.06546	0.19261	0.022256	0.63834
BP4	0.17966	0.01529	0.229009	0.00230
SmokerEver	0.01743	0.71362	0.124579	0.00337
SmokerCurrent	0.43881	3.5E-10	0.36471	4.9E-11
Cl1	0.08004	0.13900	0.058551	0.29434
Cl2	0.13006	0.24270	0.247189	0.03616
Cl3	0.40281	0.04348	-0.26235	0.19640
HbA1C1	-0.20900	0.02501	-0.16252	0.05916
HbA1C2	-0.28233	0.00317	-0.08503	0.32796
HbA1C3	-0.02592	0.71672	-0.03748	0.56108
HbA1C4	0.27127	9.0E-07	0.337772	1.8E-10
DIBAge	0.00411	0.00509	0.001019	0.44239
AF	0.20985	0.00032	0.284189	2.8E-08
Alc	0.42512	8.8E-11	0.407758	6.1E-15
Amp	1.02082	1.9E-12	0.403087	0.00004
Ang			0.318	1.7E-11
Ano	0.64341	1.7E-12	0.829111	3.0E-15
Ast	0.19300	3.2E-05	0.151191	0.00055
Bli	0.31746	3.2E-06	0.355877	9.8E-07
Bro	0.49566	7.5E-05	0.37743	0.00022
Can	0.27784	3.8E-10	0.597766	6.6E-47
CHD	0.43782	2.2E-20		
CLD	0.98840	1.9E-39	0.837628	7.5E-35

Attribute	Female		Male	
	Coefficient	p-value	Coefficient	p-value
COP	0.23363	2.6E-06	0.181944	0.00008
CyF	0.72978	0.00382	0.972953	0.00448
Dem	0.25074	3.0E-09	0.155185	0.00005
Dep			0.204086	1.6E-06
Hem	0.29258	0.00032		
Epi			0.418973	2.3E-07
HF	0.72120	9.6E-49	0.763418	8.3E-58
Hyp	0.60074	1.9E-17	0.524353	1.2E-17
IBS	-0.27419	0.00042	-0.28929	0.00395
LD	1.02947	2.3E-11	0.523177	0.00566
MVD			0.16819	0.00040
MSc	0.85387	0.00338		
PUD	0.16599	0.00323		
PuF	0.67283	0.00023		
Sch			0.370438	0.00041
Str	0.57756	7.9E-32	0.514159	8.2E-29

Table 97. Comparison of coefficients of industrial attributes of female models for industrial attributes only model and model with industrial and comorbidity attributes

Attribute	Industrial only		Industrial and comorbidities	
	Coefficient	p-value	Coefficient	p-value
age	0.08155	0	0.06929	2.3E-256
IMD2	0.17615	0.00984	0.07937	0.24845
IMD3	0.02317	0.71492	-0.02981	0.64224
IMD4	0.12676	0.03862	0.08244	0.18214
IMD5	0.08375	0.16849	-0.00708	0.90798
BMI1	0.58667	3.19E-09	0.47957	1.37E-06

BMI2	-0.09863	0.06998	-0.15814	0.00405
BMI3	0.08589	0.15404	-0.01111	0.85566
BMI4	0.11552	0.13409	-0.02895	0.71189
BMI5	0.46924	7.88E-08	0.54933	4.92E-10
BP1	0.20751	0.00140	0.01399	0.83067
BP2	-0.25319	6.27E-06	-0.15962	0.00484
BP3	0.11700	0.01884	0.06546	0.19261
BP4	0.18095	0.01383	0.17966	0.01529
SmokerEver	0.16806	0.00032	0.01743	0.71362
SmokerCurrent	0.34508	4.85E-07	0.43881	3.54E-10
Cl1	-0.03010	0.57222	0.08004	0.13900
Cl2	0.30121	0.00634	0.13006	0.24270
Cl3	0.13099	0.51020	0.40281	0.04348
HbA1C1	-0.32109	0.00051	-0.20900	0.02501
HbA1C2	-0.06465	0.49471	-0.28233	0.00317
HbA1C3	-0.13152	0.06242	-0.02592	0.71672
HbA1C4	0.45679	6.93E-17	0.27127	9.04E-07
DIBAge	0.00098	0.50606	0.00411	0.00509

Table 98. Comparison of coefficients of industrial attributes of male models for industrial attributes only model and model with industrial and comorbidity attributes

	Industrial only		Industrial and comorbidities	
Attribute	Coefficient	p-value	Coefficient	p-value
age	0.08248	0	0.05918	1.8E-219
IMD2	0.15216	0.01145	0.05888	0.33190
IMD3	-0.00120	0.98295	-0.03478	0.53735
IMD4	0.02895	0.61888	-0.00882	0.88045
IMD5	0.24119	0.00004	0.13908	0.01809
BMI1	0.56749	5.05E-07	0.40712	0.00040

	Industrial only		Industrial and comorbidities	
Attribute	Coefficient	p-value	Coefficient	p-value
BMI2	-0.38367	1.18E-16	-0.41527	5.6E-19
BMI3	0.21190	0.00005	0.04359	0.41076
BMI4	0.14029	0.07704	0.04974	0.53558
BMI5	0.40175	0.00036	0.41680	0.00025
BP1	0.07789	0.22656	-0.01043	0.87230
BP2	-0.42677	3.45E-18	-0.25893	1.8E-07
BP3	0.00986	0.83358	0.02226	0.63834
BP4	0.32313	0.00001	0.22901	0.00230
SmokerEver	0.19242	4.58E-06	0.12458	0.00337
SmokerCurrent	0.33960	2.76E-10	0.36471	4.9E-11
Cl1	-0.01491	0.78862	0.05855	0.29434
Cl2	0.48336	0.00004	0.24719	0.03616
Cl3	0.05835	0.77250	-0.26235	0.19640
HbA1C1	-0.14575	0.08863	-0.16252	0.05916
HbA1C2	-0.14384	0.09546	-0.08503	0.32796
HbA1C3	-0.01806	0.77699	-0.03748	0.56108
HbA1C4	0.45498	4.41E-18	0.33777	1.8E-10
DIBAge	-0.00311	0.02291	0.00102	0.44239

Table 99. Coefficients and p-values for final female models for type 1 diabetes, red background highlights p-values off greater than 5%, green background highlights p-values off greater than 1%

Attribute	Coefficient	p-value	Interaction	Coefficient	p-value
age	0.06944	$<10^{-6}$	age_HbA1C4	-0.01298	0.000660
IMD2	0.10724	0.118608	age_COP	-0.01282	0.000979
IMD3	-0.10750	0.094190	age_BMI1	-0.02579	0.000024
IMD4	0.08929	0.150264	age_Dem	0.01520	0.000002
IMD5	-0.01774	0.773802	DIBAge_Bli	0.01270	0.000003
BMI1	2.23635	$<10^{-6}$	BP4_DIBAge	0.01257	0.005986
BMI2	-0.24860	0.000010	HbA1C1_MVD	0.32284	$<10^{-6}$
BMI3	0.01176	0.847755	BMI2_AF	0.40074	$<10^{-6}$
BMI4	-0.02784	0.722812	IMD3_LD	1.33359	$<10^{-6}$
BMI5	0.50814	$<10^{-6}$	DIBAge_Ano	0.01872	0.000267
BP1	0.01446	0.825492	HbA1C3_Amp	1.00975	$<10^{-6}$
BP2	-0.15505	0.006314	HeL_Sch	0.74692	0.001276
BP3	0.06215	0.216414	Ano_ThD	0.69087	0.000115
BP4	-0.01321	0.897094	BMI2_IBS	-0.30421	0.001156
Smoker Ever	0.02798	0.556793	BMI5_Amp	1.44182	0.000434
Smoker Current	0.38323	$<10^{-6}$	BMI5_PuF	6.50257	$<10^{-6}$
Cl1	0.09483	0.079226	Bli_Bro	2.16659	$<10^{-6}$
Cl2	0.09976	0.371760	AID_DDI	2.98189	0.003032
Cl3	0.34581	0.083577	IBD_SLD	2.09800	$<10^{-6}$
HbA1C1	-0.33087	0.000549	BMI1_MSc	4.35678	$<10^{-6}$
HbA1C2	-0.26860	0.004961	AF_MSc	7.80615	$<10^{-6}$
HbA1C3	-0.08462	0.236137			
HbA1C4	1.18352	0.000005			
DIBAge	0.00091	0.578324			
Alc	0.42139	$<10^{-6}$			
Ast	0.18363	0.000079			

Can	0.30348	$<10^{-6}$			
CHD	0.40133	$<10^{-6}$			
CLD	1.01760	$<10^{-6}$			
COP	1.13847	0.000043			
CyF	0.74685	0.003363			
Dem	-0.76502	0.000792			
Hem	0.48461	$<10^{-6}$			
HF	0.77146	$<10^{-6}$			
Hyp	0.68360	$<10^{-6}$			
PUD	0.15238	0.006653			

Table 100. Coefficients and p-values for final male models for type 1 diabetes, red background highlights p-values off greater than 5%, green background highlights p-values off greater than 1%

Attribute	Coefficient	p-value	Interaction	Coefficient	p-value
age	0.07089	$<10^{-5}$	age_Hyp	-0.01179	0.00163
IMD2	0.52267	0.00037	age_Alc	-0.02149	$<10^{-5}$
IMD3	-0.01470	0.79482	age_Can	-0.01850	$<10^{-5}$
IMD4	-0.00777	0.89447	age_Dem	0.01075	0.00015
IMD5	0.14598	0.01332	age_Sch	-0.02568	0.00046
BMI1	0.05145	0.74837	age_Ano	0.01339	$<10^{-5}$
BMI2	-0.40683	$<10^{-5}$	BMI1_DIBAge	0.02169	0.00777
BMI3	0.06682	0.20731	Can_Hyp	-0.38985	0.00204
BMI4	0.02265	0.77799	BP2_Str	0.52517	$<10^{-5}$
BMI5	0.42070	0.00021	SmokerEver_COP	0.34490	$<10^{-5}$
BP1	0.03563	0.58257	HbA1C2_IBS	-0.31396	0.00497
BP2	-0.37935	$<10^{-5}$	IMD2_Hyp	-0.55239	0.00029
BP3	0.02454	0.60389	HbA1C3_Amp	0.71586	$<10^{-5}$
BP4	0.11298	0.21180	HbA1C1_Epi	0.54305	$<10^{-5}$
Smoker Ever	0.04466	0.32642	HbA1C1_Bli	0.48963	$<10^{-5}$

Attribute	Coefficient	p-value	Interaction	Coefficient	p-value
Smoker Current	0.34139	$<10^{-5}$	IMD2_RhA	0.27611	0.00028
Cl1	0.05791	0.30081	Bro_ThD	0.84480	0.00343
Cl2	0.30130	0.01082	Dem_LD	0.87337	0.00007
Cl3	-0.32106	0.11547	BP4_Str	0.39482	0.00580
HbA1C1	-0.25429	0.00339	Bro_CLD	0.97947	0.00003
HbA1C2	-0.04782	0.58486	BMI1_PuF	2.79485	$<10^{-5}$
HbA1C3	-0.03745	0.56227	MSc_PUD	3.21305	0.00001
HbA1C4	0.33642	$<10^{-5}$	CLD_SLD	0.41431	0.00294
DIBAge	0.00072	0.59441	COP_MSc	5.15084	$<10^{-5}$
AF	0.36747	$<10^{-5}$			
Alc	1.78027	$<10^{-5}$			
Can	2.25095	$<10^{-5}$			
CLD	0.50474	0.00004			
CyF	1.08209	0.00219			
Dem	-0.54375	0.00429			
HF	0.89146	$<10^{-5}$			
Hyp	1.78488	$<10^{-5}$			
MVD	0.33126	$<10^{-5}$			
Sch	1.90317	0.00001			

Table 101. Coefficient of industrial only model for male and female for type 2 diabetes

Attribute	Female		Male	
	Coefficient	p-value	Coefficient	p-value
age	0.09779	0	0.09470	0
IMD2	0.10888	9.69E-09	0.06528	0.00013
IMD3	-0.00014	0.99360	0.04912	0.00272
IMD4	0.04874	0.00618	0.05408	0.00127

Attribute	Female		Male	
	Coefficient	p-value	Coefficient	p-value
IMD5	0.05662	0.00186	0.11158	1.82E-10
BMI1	0.38081	7.36E-39	0.45746	1.15E-29
BMI2	-0.15875	1.06E-24	-0.20231	1.06E-47
BMI3	0.00305	0.85801	0.07319	5.67E-07
BMI4	0.15448	5.13E-12	0.13688	4.18E-10
BMI5	0.37290	8.97E-42	0.38946	5.01E-35
BP1	0.11265	1.61E-07	0.15043	1.65E-14
BP2	-0.34303	2.64E-94	-0.47683	4.40E-236
BP3	-0.03149	0.02492	-0.03180	0.01760
BP4	0.13396	2.02E-09	0.19863	7.31E-17
SmokerEver	0.24858	1.21E-81	0.19827	2.09E-62
SmokerCurrent	0.47030	3.03E-110	0.43729	1.20E-150
Cl1	0.02558	0.09167	0.10305	7.48E-10
Cl2	0.07370	0.01555	0.18754	6.55E-06
Cl3	0.33221	1.24E-08	0.37588	0.00001
HbA1C1	-0.34833	2.48E-70	-0.35038	7.75E-77
HbA1C2	-0.06277	0.00036	-0.11649	2.30E-12
HbA1C3	0.08245	7.33E-07	0.06275	3.87E-05
HbA1C4	0.34805	1.20E-44	0.33346	4.52E-49
DIBAge	0.01843	1.18E-133	0.01720	2.78E-138

Table 102. Significance of coefficients of male and female models for industrial and statistically significant comorbidity attributes, pink background highlights statistically insignificant industrial attributes

Attribute	Female		Male	
	Coefficient	p-value	Coefficient	p-value
age	0.08406	0	0.07130	0
IMD2	0.07077	0.00020	0.04324	0.01140

Attribute	Female		Male	
	Coefficient	p-value	Coefficient	p-value
IMD3	-0.02526	0.15881	0.04042	0.01377
IMD4	0.02851	0.10990	0.01197	0.47661
IMD5	0.02189	0.23034	0.04327	0.01368
BMI1	0.31865	1.42E-27	0.33876	6.83E-17
BMI2	-0.15153	1.60E-22	-0.22797	6.88E-60
BMI3	-0.07058	0.00004	-0.00991	0.49922
BMI4	0.09763	0.00001	0.05576	0.01109
BMI5	0.32018	3.98E-31	0.32680	4.51E-25
BP1	-0.00243	0.91021	0.02676	0.17145
BP2	-0.19025	4.54E-30	-0.26297	3.87E-72
BP3	-0.00802	0.56829	0.01007	0.45364
BP4	0.12426	2.78E-08	0.15292	1.50E-10
SmokerEver	0.11751	6.41E-19	0.07909	5.65E-11
SmokerCurrent	0.45724	3.39E-100	0.41966	9.95E-133
Cl1	0.09758	1.49E-10	0.18018	8.52E-27
Cl2	0.08192	0.00723	0.13569	0.00113
Cl3	0.19207	0.00101	0.21956	0.01004
HbA1C1	-0.26978	1.75E-42	-0.28799	3.59E-52
HbA1C2	-0.04952	0.00495	-0.06913	3.21E-05
HbA1C3	0.07567	5.72E-06	0.05180	0.00069
HbA1C4	0.23299	7.91E-21	0.24306	9.47E-27
DIBAge	0.01770	1.44E-132	0.01736	6.31E-148
AF	0.31086	4.91E-100	0.29371	6.02E-109
Alc	0.32421	9.78E-34	0.37354	1.01E-92
Amp	0.94930	1.08E-28	0.57718	4.09E-30
Ang			0.19791	5.34E-55

Attribute	Female		Male	
	Coefficient	p-value	Coefficient	p-value
Ano	0.49998	6.89E-56	0.72596	5.39E-106
Anx			-0.05528	0.0004157
Ast	0.13235	4.52E-22	0.16814	4.07E-38
Bli	0.17021	1.94E-12	0.11248	0.00001
Bro	0.29767	8.50E-17	0.32975	8.69E-27
Can	0.59821	0	0.81169	0
CHD	0.17074	3.96E-36		
CLD	0.57541	4.31E-40	0.48061	2.14E-14
COP	0.23164	5.62E-58	0.25410	3.59E-82
CS	-0.19858	2.93E-06	-0.19042	4.22E-06
CyF			0.71166	0.00041
DDI	-0.06951	7.32E-07	-0.06713	2.13E-06
Dem	0.24520	3.99E-88	0.17601	1.01E-54
Dep	0.09170	9.23E-13	0.11921	1.15E-17
Epi	0.27346	5.85E-20	0.33235	5.90E-33
HeL	-0.06315	1.98E-05	-0.08144	1.64E-09
Hem	0.34380	3.71E-43	0.35861	2.38E-53
HF	0.78069	0	0.78082	0
Hyp	0.22105	8.76E-29	0.26438	1.38E-49
IBS	-0.24529	6.15E-27	-0.23473	3.68E-15
LD	0.66604	1.74E-24	0.70257	4.04E-26
MLD			0.22628	8.92E-06
MSc	0.60727	8.59E-13	0.58822	5.94E-10
MVD	0.16797	5.46E-28	0.08380	5.61E-10
PrD			-0.04509	0.00027
PsE	-0.13682	4.77E-23	-0.09040	1.19E-12

Attribute	Female		Male	
	Coefficient	p-value	Coefficient	p-value
PUD	0.09351	1.82E-08	0.11520	6.15E-16
PuF	0.64958	3.52E-31	0.68616	3.70E-61
RhA	0.10667	3.68E-10		
Sch	0.45615	1.81E-48	0.44327	8.69E-37
SLD	0.35843	7.37E-12	0.50051	1.90E-18
Str	0.45434	1.35E-202	0.46958	1.50E-251
ThD			0.11142	1.75E-09

Table 103. Comparison of coefficients of industrial attributes of female models for industrial attributes only model and model with industrial and comorbidity attributes

Attribute	Industrial only		Industrial and comorbidities	
	Coefficient	p-value	Coefficient	p-value
age	0.09779	0	0.08406	0
IMD2	0.10888	9.69E-09	0.07077	0.00020
IMD3	-0.00014	0.99360	-0.02526	0.15881
IMD4	0.04874	0.00618	0.02851	0.10990
IMD5	0.05662	0.00186	0.02189	0.23034
BMI1	0.38081	7.36E-39	0.31865	1.42E-27
BMI2	-0.15875	1.06E-24	-0.15153	1.60E-22
BMI3	0.00305	0.85801	-0.07058	0.00004
BMI4	0.15448	5.13E-12	0.09763	0.00001
BMI5	0.37290	8.97E-42	0.32018	3.98E-31
BP1	0.11265	1.61E-07	-0.00243	0.91021
BP2	-0.34303	2.64E-94	-0.19025	4.54E-30
BP3	-0.03149	0.02492	-0.00802	0.56829
BP4	0.13396	2.02E-09	0.12426	2.78E-08
SmokerEver	0.24858	1.21E-81	0.11751	6.41E-19

Attribute	Coefficient	p-value	Coefficient	p-value
SmokerCurrent	0.47030	3.03E-110	0.45724	3.39E-100
Cl1	0.02558	0.09167	0.09758	1.49E-10
Cl2	0.07370	0.01555	0.08192	0.00723
Cl3	0.33221	1.24E-08	0.19207	0.00101
HbA1C1	-0.34833	2.48E-70	-0.26978	1.75E-42
HbA1C2	-0.06277	0.00036	-0.04952	0.00495
HbA1C3	0.08245	7.33E-07	0.07567	5.72E-06
HbA1C4	0.34805	1.20E-44	0.23299	7.91E-21
DIBAge	0.01843	1.18E-133	0.01770	1.44E-132

Table 104. Comparison of coefficients of industrial attributes of male models for industrial attributes only model and model with industrial and comorbidity attributes

Attribute	Industrial only		Industrial and comorbidities	
	Coefficient	p-value	Coefficient	p-value
age	0.09470	0	0.07130	0
IMD2	0.06528	0.00013	0.04324	0.01140
IMD3	0.04912	0.00272	0.04042	0.01377
IMD4	0.05408	0.00127	0.01197	0.47661
IMD5	0.11158	1.82E-10	0.04327	0.01368
BMI1	0.45746	1.15E-29	0.33876	6.83E-17
BMI2	-0.20231	1.06E-47	-0.22797	6.88E-60
BMI3	0.07319	5.67E-07	-0.00991	0.49922
BMI4	0.13688	4.18E-10	0.05576	0.01109
BMI5	0.38946	5.01E-35	0.32680	4.51E-25
BP1	0.15043	1.65E-14	0.02676	0.17145
BP2	-0.47683	4.40E-236	-0.26297	3.87E-72
BP3	-0.03180	0.01760	0.01007	0.45364
BP4	0.19863	7.31E-17	0.15292	1.50E-10
SmokerEver	0.19827	2.09E-62	0.07909	5.65E-11

Attribute	Industrial only		Industrial and comorbidities	
	Coefficient	p-value	Coefficient	p-value
SmokerCurrent	0.43729	1.20E-150	0.41966	9.95E-133
Cl1	0.10305	7.48E-10	0.18018	8.52E-27
Cl2	0.18754	6.55E-06	0.13569	0.00113
Cl3	0.37588	0.00001	0.21956	0.01004
HbA1C1	-0.35038	7.75E-77	-0.28799	3.59E-52
HbA1C2	-0.11649	2.30E-12	-0.06913	3.21E-05
HbA1C3	0.06275	3.87E-05	0.05180	0.00069
HbA1C4	0.33346	4.52E-49	0.24306	9.47E-27
DIBAge	0.01720	2.78E-138	0.01736	6.31E-148

Table 105. Coefficients and p-values for final female models for type 2 diabetes, red background highlights p-values off greater than 5%, green background highlights p-values off greater than 1%

Attribute	Coefficient	p-value	Interaction	Coefficient	p-value
age	0.09916	$<10^{-5}$	age_DIBAge	-0.00041	$<10^{-5}$
IMD2	0.08041	0.00002	age_AF	-0.01315	$<10^{-5}$
IMD3	-0.02648	0.13965	age_HF	-0.02025	$<10^{-5}$
IMD4	0.09480	0.00004	age_MVD	-0.00772	$<10^{-5}$
IMD5	0.00603	0.74137	age_COP	-0.01066	$<10^{-5}$
BMI1	2.00293	$<10^{-5}$	age_Dem	0.01764	$<10^{-5}$
BMI2	-0.81846	$<10^{-5}$	age_BMI2	0.00814	$<10^{-5}$
BMI3	-0.06018	0.00047	age_Alc	-0.01504	$<10^{-5}$
BMI4	0.08913	0.00007	age_Can	-0.03075	$<10^{-5}$
BMI5	0.31096	$<10^{-5}$	age_HbA1C4	-0.01248	$<10^{-5}$
BP1	0.01449	0.50146	age_BP4	-0.00687	0.00128
BP2	-0.25460	$<10^{-5}$	age_BMI1	-0.01969	$<10^{-5}$
BP3	0.00525	0.70898	age_CLD	-0.02066	$<10^{-5}$
BP4	0.65317	0.00008	age_Bli	-0.00794	0.00203

Attribute	Coefficient	p-value	Interaction	Coefficient	p-value
SmokerEver	0.07126	$<10^{-5}$	age_MSc	-0.03522	0.00007
SmokerCurrent	0.40929	$<10^{-5}$	HbA1C1_DIBAge	0.01336	$<10^{-5}$
Cl1	0.08735	$<10^{-5}$	age_Amp	-0.02710	0.00065
Cl2	0.07678	0.01194	DIBAge_Can	-0.00826	$<10^{-5}$
Cl3	0.12333	0.03530	AF_HF	-0.18348	$<10^{-5}$
HbA1C1	-0.43519	$<10^{-5}$	DIBAge_Ano	-0.01416	0.00012
HbA1C2	-0.00621	0.75819	DIBAge_MLD	-0.00983	0.00180
HbA1C3	0.06112	0.00026	Ast_HF	-0.09718	0.00025
HbA1C4	1.12822	$<10^{-5}$	Dem_Hyp	-0.19871	$<10^{-5}$
DIBAge	0.04145	$<10^{-5}$	Dem_PsE	-0.07991	0.00562
AF	1.50728	$<10^{-5}$	Can_HF	-0.37479	$<10^{-5}$
Alc	1.63415	$<10^{-5}$	DDI_Dem	-0.09729	$<10^{-5}$
Amp	2.82381	$<10^{-5}$	Ang_HF	-0.14426	$<10^{-5}$
Ano	0.74196	$<10^{-5}$	Hem_MVD	-0.35017	$<10^{-5}$
Ast	0.17096	$<10^{-5}$	AF_Can	-0.17392	$<10^{-5}$
Bli	0.86512	0.00003	BP2_Str	0.16170	$<10^{-5}$
Bro	0.26800	$<10^{-5}$	SmokerEver_COP	0.15443	$<10^{-5}$
Can	3.20794	$<10^{-5}$	BMI2_HF	0.11709	0.00004
CHD	0.20181	$<10^{-5}$	Cl1_Sch	0.32455	$<10^{-5}$
CLD	2.01512	$<10^{-5}$	BP2_PUD	0.09517	$<10^{-5}$
COP	0.94882	$<10^{-5}$	BMI2_CLD	0.32956	$<10^{-5}$
CS	-0.17884	0.00003	IMD4_HbA1C2	-0.09544	0.00009
Dem	-0.87259	$<10^{-5}$	HbA1C1_HF	0.24252	$<10^{-5}$
Dep	0.08392	$<10^{-5}$	Hyp_Str	-0.13717	0.00302
Epi	0.25457	$<10^{-5}$	Can_RhA	-0.13782	0.00005
HeL	-0.05930	0.00006	Bli_Can	-0.12795	0.00968
Hem	0.71751	$<10^{-5}$	Alc_Hyp	-0.37013	$<10^{-5}$

Attribute	Coefficient	p-value	Interaction	Coefficient	p-value
HF	2.42696	$<10^{-5}$	BMI1_Hyp	-0.25068	0.00065
Hyp	0.33272	$<10^{-5}$	BMI1_HbA1C1	0.29826	0.00001
IBS	-0.25119	$<10^{-5}$	CLD_HF	-0.54732	$<10^{-5}$
LD	0.66946	$<10^{-5}$	BMI1_Str	-0.27536	$<10^{-5}$
MSc	3.02467	$<10^{-5}$	Can_Hem	-0.21962	0.00001
MVD	0.77586	$<10^{-5}$	Ang_Ano	-0.26331	0.00004
PsE	-0.07357	0.00171			
PuF	0.56139	$<10^{-5}$			
RhA	0.16975	$<10^{-5}$			
Sch	0.34143	$<10^{-5}$			
SLD	0.34826	$<10^{-5}$			
Str	0.45685	$<10^{-5}$			

Table 106. Coefficients and p-values for final male models for type 2 diabetes, red background highlights p-values off greater than 5%, green background highlights p-values off greater than 1%

Attribute	Coefficient	p-value	Interaction	Coefficient	p-value
age	0.08940	0	age_DIBAge	-0.00034	$<10^{-5}$
IMD2	0.44808	0.00005	age_COP	-0.00700	$<10^{-5}$
IMD3	0.02511	0.12631	age_HF	-0.00915	$<10^{-5}$
IMD4	0.01761	0.29535	age_AF	-0.00617	0.00002
IMD5	0.03924	0.02564	age_Dem	0.01409	$<10^{-5}$
BMI1	0.55660	$<10^{-5}$	age_Alc	-0.01255	$<10^{-5}$
BMI2	-0.59363	$<10^{-5}$	age_Ang	-0.00617	$<10^{-5}$
BMI3	0.21839	$<10^{-5}$	age_BMI2	0.00450	0.00045
BMI4	0.05680	0.00988	age_IMD2	-0.00548	0.00021
BMI5	0.30043	$<10^{-5}$	age_HbA1C4	-0.01181	$<10^{-5}$
BP1	0.04375	0.02544	age_HbA1C2	0.00425	0.00039
BP2	-0.37701	$<10^{-5}$	age_PrD	0.01233	$<10^{-5}$

Attribute	Coefficient	p-value	Interaction	Coefficient	p-value
BP3	0.02632	0.05045	age_SLD	-0.01809	$<10^{-5}$
BP4	0.51310	0.00051	age_SmokerCurrent	-0.00992	$<10^{-5}$
SmokerEver	0.08597	$<10^{-5}$	age_Can	-0.03746	$<10^{-5}$
SmokerCurrent	1.07952	$<10^{-5}$	age_PuF	-0.01866	0.00023
Cl1	0.17460	$<10^{-5}$	age_Bli	-0.01277	$<10^{-5}$
Cl2	0.11865	0.00447	DIBAge_Hyp	0.00769	0.00037
Cl3	0.23000	0.00707	age_BP4	-0.00548	0.00697
HbA1C1	-0.33031	$<10^{-5}$	HbA1C3_DIBAge	-0.00868	$<10^{-5}$
HbA1C2	-0.38440	0.00002	AF_HF	-0.15531	$<10^{-5}$
HbA1C3	0.10533	$<10^{-5}$	Ast_COP	-0.22266	$<10^{-5}$
HbA1C4	1.05629	$<10^{-5}$	DIBAge_LD	0.02365	0.00380
DIBAge	0.04032	$<10^{-5}$	MVD_Str	-0.09453	0.00050
AF	0.82392	$<10^{-5}$	HF_MVD	-0.18707	$<10^{-5}$
Alc	1.23585	$<10^{-5}$	DIBAge_Ano	-0.01065	0.00558
Amp	0.61138	$<10^{-5}$	Dem_Str	0.10531	0.00001
Ang	0.66455	$<10^{-5}$	BP2_HF	0.18087	$<10^{-5}$
Ano	1.04005	$<10^{-5}$	BMI2_Str	0.08367	0.00132
Ast	0.18105	$<10^{-5}$	SmokerEver_ThD	-0.10304	0.00661
Bli	1.15056	$<10^{-5}$	Hem_Str	-0.50681	$<10^{-5}$
Bro	0.34587	$<10^{-5}$	Dem_HF	-0.16113	$<10^{-5}$
Can	3.72346	0.00000	BMI3_Dem	-0.11983	$<10^{-5}$
CLD	0.92041	$<10^{-5}$	Ang_PUD	-0.15909	$<10^{-5}$
COP	0.73754	$<10^{-5}$	BMI2_Anx	-0.10251	$<10^{-5}$
CS	-0.17679	0.00002	BMI3_Can	-0.11288	$<10^{-5}$
CyF	0.53780	0.00771	BMI3_HbA1C1	-0.13116	0.00023
DDI	-0.06223	0.00001	BP2_Str	0.17722	$<10^{-5}$
Dem	-0.76777	$<10^{-5}$	HbA1C1_HF	0.18488	$<10^{-5}$

Attribute	Coefficient	p-value	Interaction	Coefficient	p-value
Dep	0.10502	$<10^{-5}$	CLD_Str	-0.25158	$<10^{-5}$
Epi	0.65475	$<10^{-5}$	BMI2_Ast	0.10292	0.00010
Hem	1.42103	$<10^{-5}$	Can_Str	-0.33777	$<10^{-5}$
HF	1.48117	$<10^{-5}$	Dem_PUD	-0.11276	0.00006
Hyp	0.18608	$<10^{-5}$	Can_Hem	-0.26830	$<10^{-5}$
IBS	-0.22177	$<10^{-5}$	Epi_Str	-0.22262	0.00005
LD	0.57096	$<10^{-5}$	MVD_Sch	-0.22205	0.00186
MLD	0.16699	0.00127	SmokerCurrent_Str	-0.11071	0.00189
MSc	0.57283	$<10^{-5}$	Alc_Hem	-0.50626	$<10^{-5}$
MVD	0.18099	$<10^{-5}$	SmokerCurrent_RhA	0.21648	0.00015
PrD	-0.96635	$<10^{-5}$	HbA1C1_COP	0.13145	0.00032
PsE	-0.09599	$<10^{-5}$	PuF_Str	-0.29221	0.00265
PUD	0.24995	$<10^{-5}$	Can_Epi	-0.28415	$<10^{-5}$
PuF	1.89052	$<10^{-5}$	Hem_HF	-0.31069	$<10^{-5}$
Sch	0.57651	$<10^{-5}$	CLD_HF	-0.39958	$<10^{-5}$
SLD	1.57151	$<10^{-5}$	BMI1_Can	-0.31949	0.00008
Str	0.47144	$<10^{-5}$	Hem_Hyp	-0.27913	0.00204
ThD	0.18036	$<10^{-5}$	CHD_CLD	-0.15989	0.00021
			Epi_HF	-0.22019	0.00022
			HF_PuF	-0.33129	0.00009
			CLD_Sch	-0.73811	$<10^{-5}$
			Ano_HF	-0.41386	$<10^{-5}$
			BMI1_AF	-0.34319	0.00060
			HbA1C1_PuF	0.44602	0.00126
			Ano_CLD	-0.69231	$<10^{-5}$

Table 107. Coefficients for exponential and homogeneous hazards for different models, Ind means industrial attributes, Com means comorbidities, Inter means interactions

Dataset	Set of attributes	Gender	For exponential model		Constant for homogeneous
			a	b	
GS	Ind, Com & Inter	Female	0.0610	-14.3724	4.0430×10^{-7}
		Male	0.0442	-12.1609	3.8460×10^{-6}
	Ind & Com	Female	0.1206	-12.2448	5.4088×10^{-6}
		Male	0.1110	-10.9461	2.0003×10^{-5}
	Ind	Female	0.1057	-13.1628	1.7439×10^{-6}
		Male	0.1000	-12.0087	5.6162×10^{-6}
	Age only	Female	0.0991	-12.7818	2.5093×10^{-6}
		Male	0.0910	-11.5784	8.4569×10^{-6}
D1T	Ind, Com & Inter	Female	0.0447	-8.9282	1.1645×10^{-4}
		Male	0.0416	-9.0859	9.6917×10^{-5}
	Ind & Com	Female	0.1051	-9.0454	1.4494×10^{-4}
		Male	0.1066	-8.1458	3.8050×10^{-4}
	Ind	Female	0.0773	-9.8549	4.7864×10^{-5}
		Male	0.0833	-9.0543	1.1297×10^{-4}
	Age only	Female	0.0651	-9.4178	7.1421×10^{-5}
		Male	0.0732	-8.8878	1.3056×10^{-4}
D2T	Ind, Com & Inter	Female	0.0783	-11.6993	7.4167×10^{-6}
		Male	0.0657	-10.6501	2.0850×10^{-5}
	Ind & Com	Female	0.1370	-10.4641	3.8644×10^{-5}
		Male	0.1319	-9.2708	1.3342×10^{-4}
	Ind	Female	0.1159	-11.0817	1.6366×10^{-5}
		Male	0.1094	-10.0080	4.8406×10^{-5}
	Age only	Female	0.0978	-10.9340	1.7491×10^{-5}
		Male	0.0921	-10.2064	6.6316×10^{-5}

Table 108. Brier scores for the final models with interactions

Sample	Gender	Main model	Homo model
GS	Female	0.042575	0.042283
GS	Male	0.049874	0.049730
D1T	Female	0.105568	0.105423
D1T	Male	0.106490	0.106383
D2T	Female	0.135858	0.135639
D2T	Male	0.138466	0.138280

Table 109: Uses case based on a sample of actual cases.

Case	Diabetes type	Applicant age	Duration since diagnosis	Latest HbA1c %	Average HbA1c	Latest BMI	Co-morbidity 1	Latest reading / value	Average value	Co-morbidity 2	Latest reading / value	Average value	Co-morbidity 3	Latest reading / value
1	1	27	18	6.7	7.0	28	None							
2	1	30	16	7.1	8.7	32	None							
3	1	33	22	7.8	8.0	24	CKD	Stage 2		Smoking	20			
4	1	36	31	8.5	7.5	29	Retinopathy	Mild		Hyperlipidaemia	6.9	5.8		
5	1	44	30	8.8	7.2	36	Hypertension	133/92		PVD	Mild		neuropathy	Mild
6	2	52	1	7.2	6.8	37	None							
7	2	54	2	7.9	8.4	37	Hypertension	140/90	156/94	Smoking	10			
8	2	55	1	9.1	9.1	41	None							
9	2	57	3	7.5	6.8	38	Hypertension	140/80	155/88	Hyperlipidaemia	6.2	6.7		
10	2	59	5	8.0	8.9	39	neuropathy	Moderate		Retinopathy	Moderate		Smoking	5
11	2	61	12	7.4	7.7	31	Hypert	145/	138	Hyperlipi	7.1	7.9	Retino	Mod

							ension	90	/88	daemia			pathy	erate
12	2	63	8	7.4	8.0	34	Hypertension	160/96	155/94	Hyperlipidaemia	5	5.4		
13	2	65	2	8.8	8.5	35	Hypertension	142/90	160/96	CKD	2		Smoking	22
14	2	68	6	9.2	7.7	30	Hypertension	120/88	158/94	CKD	3			
15	2	71	17	7.2	8.9	27	Hypertension	130/90	136/78	CHD	Moderate			

Notes:

CKD = Chronic Kidney diseases

PVD = Peripheral vascular disease

CHD = Coronary Heart/Artery disease

Table 110: Summary of the results of the underwriting loadings compared to the University of Leicester model

Case	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Average rating	203.6%	246.4%	262.5%	254.2%	NA	108.3%	139.2%	187.5%	137.5%	225.0%	130.0%	97.5%	150.0%	NA	NA
Upper ratings	275.0%	325.0%	300.0%	325.0%	NA	150.0%	200.0%	250.0%	200.0%	250.0%	175.0%	150.0%	250.0%	NA	NA
Lower ratings	125.0%	150.0%	225.0%	200.0%	NA	75.0%	100.0%	125.0%	100.0%	200.0%	75.0%	50.0%	75.0%	NA	NA
Range	150.0%	175.0%	75.0%	125.0%	NA	75.0%	100.0%	125.0%	100.0%	50.0%	100.0%	100.0%	175.0%	NA	NA
# of ratings	7	7	2	6	1	6	6	6	6	3	5	6	3	1	1
# of declines	-	-	5	1	6	-	-	-	-	4	1	-	3	5	5
Average rating (over 10yrs) – output from University of Leicester model															
- Male	200%	201%	263%	246%	508%	-25%	-4%	27%	-13%	31%	3%	-33%	-8%	-27%	-23%
- Female	772%	675%	724%	570%	595%	-26%	-5%	3%	-6%	-8%	13%	-18%	-15%	-24%	3%
Average rating (over 20yrs) – output from University of Leicester model															
- Male	132%	133%	179%	167%	361%	-28%	-11%	14%	-18%	17%	-6%	-35%	-14%	-30%	-27%
- Female	470%	407%	439%	340%	356%	-35%	-20%	14%	-21%	22%	-6%	-29%	-27%	-33%	-14%

Table notes:

- The rating provided by the participants are shown above as an average, upper and lower bounds to give an idea of the range. Also, the number of ratings is given and number of declines. The output from The Model is based on the following:

- We have taken a weighted average of the ratings generated by The Model for each use case. The weighting applied is the q_x to allow for the increase in q_x by age. We have projected q_x in the model over 10 and 20 years to capture the impact of the change in the rating over time. Life assurance tends to be written over a period of years typically from 5 years up to 25 years. To compare the underwriting rates, the following is undertaken:
  - Only taken the results from the homogeneous model.
  - Set IMD to 1; this is the most affluent group so it is a proxy for an insured population.
  - Assumed the date of application is 1/1/2024
  - Calculated the ratings from The Model by selecting attributes from a healthy life (individuals who have not had diabetes diagnosed and have had no pre-existing issues from the list of comorbidities conditions) from the general sample population (in terms of the model, this is the base line) and then comparing this to the attributes in the user cases. However, the smoking attribute is applied to the baseline (healthy life) as assumptions in the UK differentiate mortality by smoking status. This is similar to how underwriting ratings are applied.
    - Attributes selected for a healthy life non-smoker are individuals who have a BMI in the range 20-25; Index of Multiple Deprivation 1 (most affluent group); Systolic/Diastolic Blood pressure in the range 90 to 120 and 60 to 80 respectively; and finally total cholesterol level less than or equal to 5.
    - The attributes for a smoker are the same except current smoker attribute is selected.

London

1-3 Staple Inn Hall · High Holborn · London · WC1V 7QJ

Tel: +44 (0) 20 7632 2100 · Fax: +44 (0) 20 7632 2111

Edinburgh

Space · 1 Lochrin Square · 92-94 Fountainbridge · Edinburgh · EH3 9QA

Tel: +44 (0) 20 7632 2100

Oxford

1st Floor · Park Central · 40/41 Park End Street · Oxford · OX1 1JD
Tel: +44 (0) 1865 268 200 · Fax: +44 (0) 1865 268 211

Beijing

Level 14 · China World Office · No.1 Jianguomenwai Avenue · Chaoyang District · Beijing, China 100004
Tel: + +86 (10) 6535 0248

Hong Kong

1803 Tower One · Lippo Centre · 89 Queensway · Hong Kong
Tel: +11 (0) 852 2147 9418

Singapore

5 Shenton Way · UIC Building · #10-01 · Singapore · 068808
Tel: +65 8778 1784

www.actuaries.org.uk

© 2025 Institute and Faculty of Actuaries