

[create view patientdataSL of ("hospID" char,"hospDesc" char,"patientID" int,"rCode" int,"address" char, "birthdate" date,"admission" date,"ICD10" char,"diagnosis" char,"treatments" char) as get using hospitalssl]

where hospitalssl is a table describing the hospitals and the URLs used to get their data:

'CMH'	'Choithram Memorial Hospital'	'http://root:admin@localhost:8078/sleone/patientrecordcmh'
'HS'	'Holy Spirit Hospital'	'http://root:admin@localhost:8078/sleone/patientrecordholyspirit'
'MABESSS'	'St John of God Catholic (Mabesseneh) Hospital'	'http://root:admin@localhost:8078/sleone/patientrecordmabesss'

The first column here corresponds to the contributor id (CID) field in the attached PowerPoint presentation, which calls this table T1 and gives additional details about the example data.

The system is considered a success if answering queries of interest to the government is achieved with minimal data transfer and costs at both the government and the hospitals, using queries derived automatically from the above view definitions. From a technical point of view the interesting thing is the automatic generation of a large set of specific queries from the single very simple view definition above.

In the following notes I have included the –E, -V and –H traces from the server as in the document “The May 2018 version..”. Like it, this document uses small fonts where needed so that lines of output do not wrap around. I expect that readers can zoom in on the image and/or select text into documents for more detailed study.

The queries “of interest to the government” have the following example forms:

(1)

[select * from patientdataSL where "patientID" = 10015]

hospID	hospDesc	patientID	rCode	address	birthdate	admission	ICD10	diagnosis	treatments
CMH	Choithram Memorial Hospital	10015	1783	ZIP Code1783, city, street 15	25/09/1969	10/11/1977	V18.1	Pedal cyclist injured in noncollision transport accident: Passenger injured in nontraffic accident	diet no 2
HS	Holy Spirit Hospital	10015	1322	ZIP Code1322, city, street 15	07/08/1976	12/10/2007	N73.4	Female chronic pelvic peritonitis	diet no 2
MABESSS	St John of God Catholic (Mabesseneh) Hospital	10015	1524	ZIP Code1524, city, street 15	11/04/1955	04/05/2017	G63.6*	Polyneuropathy in other musculoskeletal disorders	diet no 2

GF B18:28 (hospID 2312097#B18:28,hospDesc 2312124#B18:28,patientID 2312154#B18:28,rCode 2312186#B18:28,address 2312214#B18:28,birthdate 2312243#B18:28,admission 2312275#B18:28,ICD10 2312307#B18:28,diagnosis 2312334#B18:28,treatments 2312365#B18:28)
select * from "2312397" where "2312154" = 10015
Transaction 4 (hospID 2312097#B18:28,hospDesc 2312124#B18:28,patientID 2312154#B18:28,rCode 2312186#B18:28,address 2312214#B18:28,birthdate 2312243#B18:28,admission 2312275#B18:28,ICD10 2312307#B18:28,diagnosis 2312334#B18:28,treatments 2312365#B18:28)
B18:7: Selected ROW(hospID 2312097 CHAR,hospDesc 2312124 CHAR,patientID 2312154 INTEGER,rCode 2312186 INTEGER,address 2312214 CHAR,birthdate 2312243 DATE,admission 2312275 DATE,ICD10 2312307 CHAR,diagnosis 2312334 CHAR,treatments 2312365 CHAR)
B18:28: Remote TABLE(2312097 CHAR,2312124 CHAR,2312154 INTEGER,2312186 INTEGER,2312214 CHAR,2312243 DATE,2312275 DATE,2312307 CHAR,2312334 CHAR,2312365 CHAR) RESTView Using HOSPITALSSL match patientID 2312154=10015
B18:28U: Index HOSPITALSSL (hospID 2308049#B18:28U,hospDesc 2309566#B18:28U,patientData 2309566#B18:28U)
http://root:admin@localhost:8078/sleone select 'CMH' as hospID,'Choithram Memorial Hospital' as hospDesc,patientID,rCode,address,birthdate,admission,ICD10,diagnosis,treatments from patientrecordcmh where patientID=10015
--> 1 rows
http://root:admin@localhost:8078/sleone select 'HS' as hospID,'Holy Spirit Hospital' as hospDesc,patientID,rCode,address,birthdate,admission,ICD10,diagnosis,treatments from patientrecordholyspirit where patientID=10015
--> 1 rows
http://root:admin@localhost:8078/sleone select 'MABESSS' as hospID,'St John of God Catholic (Mabesseneh) Hospital' as hospDesc,patientID,rCode,address,birthdate,admission,ICD10,diagnosis,treatments from patientrecordmabesss where patientID=10015
--> 1 rows
B18:28S: Explicit
Row(hospID=CMH,hospDesc=Choithram Memorial Hospital,patientID=10015,rCode=1783,address=ZIP Code1783, city, street 15,birthdate=25/09/1969,admission=10/11/1977,ICD10=V18.1,diagnosis=Pedal cyclist injured in noncollision transport accident: Passenger injured in nontraffic accident,treatments=diet no 2)
Row(hospID=HS,hospDesc=Holy Spirit Hospital,patientID=10015,rCode=1322,address=ZIP Code1322, city, street 15,birthdate=07/08/1976,admission=12/10/2007,ICD10=N73.4,diagnosis=Female chronic pelvic peritonitis,treatments=diet no 2)
Row(hospID=MABESSS,hospDesc=St John of God Catholic (Mabesseneh) Hospital,patientID=10015,rCode=1524,address=ZIP Code1524, city, street 15,birthdate=11/04/1955,admission=04/05/2017,ICD10=G63.6*,diagnosis=Polyneuropathy in other musculoskeletal disorders,treatments=diet no 2)

```

B18:28: Remote TABLE(2312097 CHAR,2312124 CHAR,2312154 INTEGER,2312186 INTEGER,2312214 CHAR,2312243 DATE,2312275 DATE,2312307 CHAR,2312334 CHAR,2312365 CHAR) RESTView Using HOSPITALSSL match patientID 2312154=10015
B18:28U: Index HOSPITALSSL (hospID 2309498#B18:28U,hospDesc 2309556#B18:28U,patientData 2309586#B18:28U)
http://root:admin@localhost:8078/sleone select 'CMH' as hospID,'Choithram Memorial Hospital' as hospDesc,patientID,rCode,address,birthdate,admission,ICD10,diagnosis,treatments from patientrecordcmh where patientID=10015
--> 1 rows
http://root:admin@localhost:8078/sleone select 'HS' as hospID,'Holy Spirit Hospital' as hospDesc,patientID,rCode,address,birthdate,admission,ICD10,diagnosis,treatments from patientrecordholyspirit where patientID=10015
--> 1 rows
http://root:admin@localhost:8078/sleone select 'MABESSS' as hospID,'St John of God Catholic (Mabesseneh) Hospital' as hospDesc,patientID,rCode,address,birthdate,admission,ICD10,diagnosis,treatments from patientrecordmabesss where patientID=10015
--> 1 rows
B18:28S: Explicit
Row(hospID=CMH,hospDesc=Choithram Memorial Hospital,patientID=10015,rCode=1783,address=ZIP Code1783, city, street 15,birthdate=25/09/1969,admission=10/11/1977,ICD10=V18.1,diagnosis=Pedal cyclist injured in noncollision transport accident: Passenger injured in nontraffic accident,treatments=diet no 2)
Row(hospID=HS,hospDesc=Holy Spirit Hospital,patientID=10015,rCode=1322,address=ZIP Code1322, city, street 15,birthdate=07/08/1976,admission=12/10/2007,ICD10=N73.4,diagnosis=Female chronic pelvic peritonitis,treatments=diet no 2)
Row(hospID=MABESSS,hospDesc=St John of God Catholic (Mabesseneh) Hospital,patientID=10015,rCode=1524,address=ZIP Code1524, city, street 15,birthdate=11/04/1955,admission=04/05/2017,ICD10=G63.6*,diagnosis=Polyneuropathy in other musculoskeletal disorders,treatments=diet no 2)

```

Each hospital has received a simple query against the view they supply, for example:

```

select 'CMH' as hospID,'Choithram Memorial Hospital' as hospDesc,patientID as patientID,rCode as rCode,address as
address,birthdate as birthdate,admission as admission,ICD10 as ICD10,diagnosis as diagnosis,treatments as treatments from
patientrecordcmh where patientID=10015

```

```

select 'CMH' as hospID,'Choithram Memorial Hospital' as hospDesc,patientID,rCode,address,birthdate,admission,ICD10,diagnosis,treatments from patientrecordcmh where patientID=10015
select 'HS' as hospID,'Holy Spirit Hospital' as hospDesc,patientID,rCode,address,birthdate,admission,ICD10,diagnosis,treatments from patientrecordholyspirit where patientID=10015
select 'MABESSS' as hospID,'St John of God Catholic (Mabesseneh) Hospital' as hospDesc,patientID,rCode,address,birthdate,admission,ICD10,diagnosis,treatments from patientrecordmabesss where patientID=10015

```

The select * in the global request has caused the hospital ID and description have been inserted from the above “using table” as these columns are in the virtual global table. We will avoid using select * in future, and this will reduce the length of output lines (and the volume of data transmitted).

select count("patientID") from patientdataSL

```
SQL> select count("patientID") from patientdataSL
-----
COUNT
-----
30003
-----
```

```
QS B20:7 (SUM(C_298#B20:44) as COUNT COUNT)
GF B20:44 (C_298#B20:44)
B20:44: Remote ROW(C_298 INTEGER) RESTView Using HOSPITALSSL
B20:44U: Index HOSPITALSSL (hospID 2309498#B20:44U,hospDesc 2309556#B20:44U,patientData 2309586#B20:44U)
http://root:admin@localhost:8078/sleone select COUNT(patientID) as C_298 from patientrecordcmh
--> 1 rows
http://root:admin@localhost:8078/sleone select COUNT(patientID) as C_298 from patientrecordholyspirit
--> 1 rows
http://root:admin@localhost:8078/sleone select COUNT(patientID) as C_298 from patientrecordmabesss
--> 1 rows
B20:44S: Explicit
Row(C_298=10001)
Row(C_298=10001)
Row(C_298=10001)
select count("2312154") from "2312397"
Transaction 19 (SUM(C_298#B20:44) as COUNT COUNT)
B20:7: Eval (SUM(C_298#B20:44) as COUNT COUNT)
QS B20:7 (SUM(C_298#B20:44) as COUNT COUNT)
GF B20:44 (C_298#B20:44)
B20:44: Remote ROW(C_298 INTEGER) RESTView Using HOSPITALSSL
B20:44U: Index HOSPITALSSL (hospID 2309498#B20:44U,hospDesc 2309556#B20:44U,patientData 2309586#B20:44U)
http://root:admin@localhost:8078/sleone select COUNT(patientID) as C_298 from patientrecordcmh
--> 1 rows
http://root:admin@localhost:8078/sleone select COUNT(patientID) as C_298 from patientrecordholyspirit
--> 1 rows
http://root:admin@localhost:8078/sleone select COUNT(patientID) as C_298 from patientrecordmabesss
--> 1 rows
B20:44S: Explicit
Row(C_298=10001)
Row(C_298=10001)
Row(C_298=10001)
select count("2312154") from "2312397"
Transaction 19 (SUM(C_298#B20:44) as COUNT COUNT)
B20:7: Eval (SUM(C_298#B20:44) as COUNT COUNT)
```

Here we see that the aggregation operation has been done on the remote systems, so that each hospital has returned just one row of data, in response to a query of form

select COUNT(patientID) as C_XX from patientrecordXX

```
select COUNT(patientID) as C_184 from patientrecordcmh
select COUNT(patientID) as C_184 from patientrecordholyspirit
select COUNT(patientID) as C_184 from patientrecordmabesss
```

select count(*) from patientdatas1 where icd10='N73.4'

```
SQL> select count(*) from patientdatas1 group by icd10 having icd10='N73.4'
-----
COUNT
-----
3
-----
```

```
QS B22:7 (SUM(C_323#B22:35) as COUNT COUNT)
GF B22:35 (C_323#B22:35)
B22:35: Remote ROW(C_323 INTEGER) RESTView Using HOSPITALSSL match ICD10 2312307=N73.4
B22:35U: Index HOSPITALSSL (hospID 2309498#B22:35U,hospDesc 2309556#B22:35U,patientData 2309586#B22:35U)
http://root:admin@localhost:8078/sleone select COUNT(*) as C_323 from patientrecordcmh where ICD10='N73.4'
--> 1 rows
http://root:admin@localhost:8078/sleone select COUNT(*) as C_323 from patientrecordholyspirit where ICD10='N73.4'
--> 1 rows
http://root:admin@localhost:8078/sleone select COUNT(*) as C_323 from patientrecordmabesss where ICD10='N73.4'
--> 1 rows
B22:35S: Explicit
Row(C_323=0)
Row(C_323=2)
Row(C_323=1)
select count(*) from "2312397" where "2312307"='N73.4'
Transaction 21 (SUM(C_323#B22:35) as COUNT COUNT)
B22:7: Eval (SUM(C_323#B22:35) as COUNT COUNT)
```

```
QS B22:7 (SUM(C_323#B22:35) as COUNT COUNT)
GF B22:35 (C_323#B22:35)
B22:35: Remote ROW(C_323 INTEGER) RESTView Using HOSPITALSSL match ICD10 2312307=N73.4
B22:35U: Index HOSPITALSSL (hospID 2309498#B22:35U,hospDesc 2309556#B22:35U,patientData 2309586#B22:35U)
http://root:admin@localhost:8078/sleone select COUNT(*) as C_323 from patientrecordcmh where ICD10='N73.4'
--> 1 rows
http://root:admin@localhost:8078/sleone select COUNT(*) as C_323 from patientrecordholyspirit where ICD10='N73.4'
--> 1 rows
http://root:admin@localhost:8078/sleone select COUNT(*) as C_323 from patientrecordmabesss where ICD10='N73.4'
--> 1 rows
B22:35S: Explicit
Row(C_323=0)
Row(C_323=2)
Row(C_323=1)
select count(*) from "2312397" where "2312307"='N73.4'
Transaction 21 (SUM(C_323#B22:35) as COUNT COUNT)
B22:7: Eval (SUM(C_323#B22:35) as COUNT COUNT)
```

```
select COUNT(*) as C_209 from patientrecordcmh where ICD10='N73.4'
select COUNT(*) as C_209 from patientrecordholyspirit where ICD10='N73.4'
select COUNT(*) as C_209 from patientrecordmabesss where ICD10='N73.4'
```

Notice that we got 1 row from each remote query.

select "patientID" from patientdataSL where icd10='N73.4'

```
SQL> select "patientID" from patientdataSL where icd10='N73.4'
-----
patientID
-----
10015
15872
13921
-----
```

```
QS B24:7 (patientID 2312154#B24:38)
GF B24:38 (patientID 2312154#B24:38)
select "2312154" from "2312397" where "2312307"='N73.4'
Transaction 23 (patientID 2312154#B24:38)
B24:7: Selected ROW(patientID 2312154 INTEGER)
B24:38: Remote ROW(2312154 INTEGER) RESTView Using HOSPITALSSL match ICD10 2312307=N73.4
B24:38U: Index HOSPITALSSL (hospID 2309498#B24:38U,hospDesc 2309556#B24:38U,patientData 2309586#B24:38U)
http://root:admin@localhost:8078/sleone select patientID from patientrecordcmh where ICD10='N73.4'
--> 0 rows
http://root:admin@localhost:8078/sleone select patientID from patientrecordholyspirit where ICD10='N73.4'
--> 2 rows
http://root:admin@localhost:8078/sleone select patientID from patientrecordmabesss where ICD10='N73.4'
--> 1 rows
B24:38S: Explicit
Row(patientID=10015)
Row(patientID=15872)
Row(patientID=13921)
```

```
select patientID from patientrecordcmh where ICD10='N73.4'
select patientID from patientrecordholyspirit where ICD10='N73.4'
select patientID from patientrecordmabesss where ICD10='N73.4'
```

We see that the query needed to go to all the hospitals, and hospitals reported differing numbers of rows.

(2) [select count(*) as "numPatients", "rCode", count(*)*1.0 / "totalinhabitants" as "percentageOfPopulation" from patientdataSL natural join demographicSL group by "rCode","totalinhabitants" order by "percentageOfPopulation" desc]

This works if the database engine notices the functional dependency of totalinhabitants on rCode. To reduce the quantity of data returned: let us test this by adding the condition rCode<1010:

[select count(*) as "numPatients", "rCode", "numPatients"*100.0/ "totalinhabitants" as "percentageOfPopulation" from patientdataSL natural join demographicSL where "rCode"<1010 group by "rCode","totalinhabitants" order by "percentageOfPopulation" desc]

```
SQL> [select count(*) as "numPatients", "rCode", "numPatients"*100.0/ "totalinhabitants" as
> "percentageOfPopulation" from patientdataSL natural join demographicSL where "rCode"<1010
> group by "rCode","totalinhabitants" order by "percentageOfPopulation" desc]
```

numPatients	rCode	percentageOfPopulation
84	1004	1.0669376349549
74	1007	0.7551790999881
56	1006	0.6665079742918
66	1005	0.6663974151857
68	1008	0.6024630105431
52	1009	0.5451876703711
44	1002	0.5032597506576
54	1003	0.4382761139517
32	1001	0.2832109036197

```
OS el0:7 (Sum(C_175se20:130) as numPatients@493 numPatients@493,rCode 23118se20:130,((Sum(C_175se20:130) as numPatients@493*100.0)/totalinhabitants 971) as percentageOfPopulation percentageOfPopulation@500) groups [GMOUW rCode 921,totalinhabitants 971]
Or el0:130 (C_175se20:130,rCode 23118se20:130)
select count(*) as "numPatients", "23118se", "numPatients"*100.0/ "971" as "percentageOfPopulation" from "23118se" natural join "880" where "23118se"<1010 group by "921","971" order by "percentageOfPopulation" desc
Transaction 10 (COUNT(*) as numPatients@493 numPatients@493,rCode 23118se20:130,((COUNT(*) as numPatients@493*100.0)/totalinhabitants 971) as percentageOfPopulation percentageOfPopulation@500)
el0:0: Ordered MOU(C_300 NUMERIC DESC rCode)
el0:7: Grouping (Sum(C_175se20:130) as numPatients@493 numPatients@493,rCode 23118se20:130,((Sum(C_175se20:130) as numPatients@493*100.0)/totalinhabitants 971) as percentageOfPopulation percentageOfPopulation@500) groups [GMOUW rCode 921,totalinhabitants 971]
el0:11: join to PATIENTDATA primary DEMOGRAPHICSL where (rCode 23118se20:130<1010) and (rCode 921se20:137<1010)
el0:130: rename MOU(C_175se20:130,rCode 23118se20:130) to5view using MO5PITRALS1L where (rCode 23118se20:130<1010)
el0:130u: index MO5PITRALS1L (hospid 230498se20:130u,hospoic 2305se20:130u,patientdata 2305se20:130u)
http://root:admin@localhost:8078/sleone select COUNT(*) as C_175,rCode from patientrecordmh group by rCode having rCode<1010
--> 9 rows
http://root:admin@localhost:8078/sleone select COUNT(*) as C_175,rCode from patientrecordholyspirit group by rCode having rCode<1010
--> 9 rows
http://root:admin@localhost:8078/sleone select COUNT(*) as C_175,rCode from patientrecordmabesss group by rCode having rCode<1010
--> 9 rows
el0:1305: explicit where (rCode 23118se20:130<1010)
27 rows
```

```
select COUNT(*) as C_275,rCode from patientrecordmh group by rCode having rCode<1010
select COUNT(*) as C_275,rCode from patientrecordholyspirit group by rCode having rCode<1010
select COUNT(*) as C_275,rCode from patientrecordmabesss group by rCode having rCode<1010
```

```
(3)[create view patientSummary as
    select "rCode",
    extract(year from "admission")-extract(year from "birthdate") as "age",
    extract(year from "admission") as "adyear",
    icd10,
    count(*) as patients
from patientDataSL
group by "rCode", "age", "adyear", icd10]
```

```
select * from patientsummary where icd10='N73.4'
```

```
SQL> select * from patientsummary where icd10='N73.4'
```

rCode	age	adyear	ICD10	PATIENTS
1059	19	2017	N73.4	1
1322	31	2007	N73.4	1
1555	30	1948	N73.4	1

```

QS B30:17 (rCode 2312186#B30:175,age#B30:175,adyear#B30:175,ICD10 2312307#B30:175,SUM(C_856#B30:175) PATIENTS) groups [GROUP rCode 2312186 2312186,age,adyear,ICD10 2312307 2312307]
GF B30:175 (rCode 2312186#B30:175,(YEAR(admission 2312275#B30:175)-YEAR(birthdate 2312243#B30:175)) age,adyear#B30:175,ICD10 2312307#B30:175,SUM(C_856#B30:175) PATIENTS)
select * from "2312708" where "2312307"='N73.4'
Transaction 27 (rCode 2312186#B30:175,age#B30:175,adyear#B30:175,ICD10 2312307#B30:175,PATIENTS#B30:175)
B28:17: Selected ROW(rCode 2312186 INTEGER,age INTEGER,adyear INTEGER,ICD10 2312307 CHAR,PATIENTS INTEGER)
B28:129: Exported (rCode 2312186#B30:175,age#B30:175,adyear#B30:175,ICD10 2312307#B30:175,SUM(C_856#B30:175) PATIENTS)
B30:17: Grouping (rCode 2312186#B30:175,age#B30:175,adyear#B30:175,ICD10 2312307#B30:175,SUM(C_856#B30:175) PATIENTS) groups [GROUP rCode 2312186 2312186,age,adyear,ICD10 2312307 2312307]
B30:175: Remote ROW(2312186 INTEGER,age INTEGER,adyear INTEGER,2312307 CHAR,PATIENTS INTEGER) RESTView Using HOSPITAL5SL match ICD10 2312307=N73.4
B30:175U: Index HOSPITAL5SL (hospID 2309490#B30:175U,hospDesc 2309556#B30:175U,patientData 2309586#B30:175U)
http://root:admin@localhost:8078/sleone select rCode as rCode,(YEAR(admission)-YEAR(birthdate)) as age,YEAR(admission) as adyear,ICD10 as ICD10,COUNT(*) as C_856 from patientrecordcmh group by rCode,age,adyear,ICD10 having ICD10='N73.4'
--> 0 rows
http://root:admin@localhost:8078/sleone select rCode as rCode,(YEAR(admission)-YEAR(birthdate)) as age,YEAR(admission) as adyear,ICD10 as ICD10,COUNT(*) as C_856 from patientrecordholyspirit group by rCode,age,adyear,ICD10 having ICD10='N73.4'
--> 2 rows
http://root:admin@localhost:8078/sleone select rCode as rCode,(YEAR(admission)-YEAR(birthdate)) as age,YEAR(admission) as adyear,ICD10 as ICD10,COUNT(*) as C_856 from patientrecordmabess group by rCode,age,adyear,ICD10 having ICD10='N73.4'
--> 1 rows
B30:1755: Explicit
Row(rCode=1059,age=19,adyear=2017,ICD10=N73.4,C_856=1)
Row(rCode=1322,age=31,adyear=2007,ICD10=N73.4,C_856=1)
Row(rCode=1555,age=30,adyear=1948,ICD10=N73.4,C_856=1)

select rCode as rCode,(YEAR(admission)-YEAR(birthdate)) as age,YEAR(admission) as adyear,ICD10 as ICD10,COUNT(*) as C_856 from patientrecordcmh group by rCode,age,adyear,ICD10 having ICD10='N73.4'
select rCode as rCode,(YEAR(admission)-YEAR(birthdate)) as age,YEAR(admission) as adyear,ICD10 as ICD10,COUNT(*) as C_856 from patientrecordholyspirit group by rCode,age,adyear,ICD10 having ICD10='N73.4'
select rCode as rCode,(YEAR(admission)-YEAR(birthdate)) as age,YEAR(admission) as adyear,ICD10 as ICD10,COUNT(*) as C_856 from patientrecordmabess group by rCode,age,adyear,ICD10 having ICD10='N73.4'

```


(4) create view patientAnalysis as

```
select * from patientSummary natural join demographicSL;
```

select * from patientanalysis where icd10='N73.4'

```
SQL> select * from patientanalysis where icd10='N73.4'
```

age	adyear	ICD10	PATIENTS	rCode	totalinhabitants	under10	between10_20	between20_30	between30_50	over50
19	2017	N73.4	1	1059	11837	3551	2959	2367	1776	1184
31	2007	N73.4	1	1322	11778	3533	2944	2356	1767	1178
30	1948	N73.4	1	1555	9628	2888	2407	1926	1444	963

```

QS B17:7 (rCode 2312186#B17:175,age#B17:175,adyear#B17:175,ICD10 2312307#B17:175,SUM(C_435#B17:175) PATIENTS) groups [GROUP rCode 2312186 2312186,age,adyear,ICD10 2312307 2312307]
GF B17:175 (rCode 2312186#B17:175,(YEAR(admission 2312275#B17:175)-YEAR(birthdate 2312243#B17:175)) age,adyear#B17:175,ICD10 2312307#B17:175,SUM(C_435#B17:175) PATIENTS)
select * from "2313808" where "2312307"='N73.4'
Transaction 4 (age#B16:0,adyear#B16:0,ICD10 2312307#B17:175,PATIENTS#B16:0,rCode 2312186#B17:175,totalinhabitants 971#B16:42,under10 1008#B16:42,between10_20 1036#B16:42,between20_30 1069#B16:42,between30_50 1102#B16:42,over50 1135#B16:42)
B16:7: Selected ROW(age INTEGER,adyear INTEGER,ICD10 2312307 CHAR,PATIENTS INTEGER,rCode 2312186 INTEGER,totalinhabitants 971 INTEGER,under10 1008 INTEGER,between10_20 1036 INTEGER,between20_30 1069 INTEGER,between30_50 1102 INTEGER,over50 1135 INTEGER)
B16:38: Exported (age#B16:0,adyear#B16:0,ICD10 2312307#B17:175,PATIENTS#B16:0,rCode 2312186#B17:175,totalinhabitants 971#B16:42,under10 1008#B16:42,between10_20 1036#B16:42,between20_30 1069#B16:42,between30_50 1102#B16:42,over50 1135#B16:42)
B16:7: Selected ROW(age INTEGER,adyear INTEGER,ICD10 2312307 CHAR,PATIENTS INTEGER,rCode 2312186 INTEGER,totalinhabitants 971 INTEGER,under10 1008 INTEGER,between10_20 1036 INTEGER,between20_30 1069 INTEGER,between30_50 1102 INTEGER,over50 1135 INTEGER)
B16:13: Join FD ON (rCode 2312186#B17:175=rCode 922#B16:42) primary 2312708 match ICD10 2312307=N73.4 primary 880 match ICD10 2312307=N73.4
B16:24: Exported (rCode 2312186#B17:175,(EXTRACT(admission 2312275#B17:175)-EXTRACT(birthdate 2312243#B17:175)) age,EXTRACT(admission 2312275#B17:175) adyear,ICD10 2312307#B17:175,COUNT(*) PATIENTS) match ICD10 2312307=N73.4
B17:7: Grouping (rCode 2312186#B17:175,age#B17:175,adyear#B17:175,ICD10 2312307#B17:175,SUM(C_435#B17:175) PATIENTS) groups [GROUP rCode 2312186 2312186,age,adyear,ICD10 2312307 2312307] match ICD10 2312307=N73.4
B17:175: Remote ROW(2312186 INTEGER,age INTEGER,adyear INTEGER,2312307 CHAR,PATIENTS INTEGER) RESTView Using HOSPITALSSL match ICD10 2312307=N73.4
B17:175U: Index HOSPITALSSL (hospID 2309490#B17:175U,hospDesc 2309556#B17:175U,patientData 2309586#B17:175U)
http://root:admin@localhost:8078/sleone select rCode as rCode,(YEAR(admission)-YEAR(birthdate)) as age,YEAR(admission) as adyear,ICD10 as ICD10,COUNT(*) as C_435 from patientrecordcmh group by rCode,age,adyear,ICD10,rCode having ICD10='N73.4'
--> 0 rows
http://root:admin@localhost:8078/sleone select rCode as rCode,(YEAR(admission)-YEAR(birthdate)) as age,YEAR(admission) as adyear,ICD10 as ICD10,COUNT(*) as C_435 from patientrecordholyspirit group by rCode,age,adyear,ICD10,rCode having ICD10='N73.4'
--> 2 rows
http://root:admin@localhost:8078/sleone select rCode as rCode,(YEAR(admission)-YEAR(birthdate)) as age,YEAR(admission) as adyear,ICD10 as ICD10,COUNT(*) as C_435 from patientrecordmabess group by rCode,age,adyear,ICD10,rCode having ICD10='N73.4'
--> 1 rows
B17:1755: Explicit
Row(rCode=1059,age=19,adyear=2017,ICD10=N73.4,C_435=1)
Row(rCode=1322,age=31,adyear=2007,ICD10=N73.4,C_435=1)
Row(rCode=1555,age=30,adyear=1948,ICD10=N73.4,C_435=1)
B16:42: Ordered ROW(rCode 2312186 INTEGER ASC FIRST)
B16:42: Index 880 (rCode 922#B16:42,totalinhabitants 971#B16:42,under10 1008#B16:42,between10_20 1036#B16:42,between20_30 1069#B16:42,between30_50 1102#B16:42,over50 1135#B16:42)
select rCode as rCode,(YEAR(admission)-YEAR(birthdate)) as age,YEAR(admission) as adyear,ICD10 as ICD10,COUNT(*) as C_435 from patientrecordcmh group by rCode,age,adyear,ICD10,rCode having ICD10='N73.4'
select rCode as rCode,(YEAR(admission)-YEAR(birthdate)) as age,YEAR(admission) as adyear,ICD10 as ICD10,COUNT(*) as C_435 from patientrecordholyspirit group by rCode,age,adyear,ICD10,rCode having ICD10='N73.4'
select rCode as rCode,(YEAR(admission)-YEAR(birthdate)) as age,YEAR(admission) as adyear,ICD10 as ICD10,COUNT(*) as C_435 from patientrecordmabess group by rCode,age,adyear,ICD10,rCode having ICD10='N73.4'

```


(5) [select "rCode", icd10, "age", patients*100.0/"under10" as percentage from patientAnalysis where ICD10='N17.1' and "age"<10]

```
SQL> [select "rCode", icd10, "age", patients*100.0/"under10" as percentage from patientAnalysis where ICD10='N17.1' and "age"<10]
```

rCode	ICD10	age	PERCENTAGE
2000	N17.1	3	0.0404694455685

```

QS B17:17 (rCode 2312186#B17:175,age#B17:175,adyear#B17:175,ICD10 2312307#B17:175,SUM(C_443#B17:175) PATIENTS) groups [GROUP rCode 2312186 2312186,age,adyear,ICD10 2312307 2312307]
GF B17:175 (rCode 2312186#B17:175,(YEAR(admission 2312275#B17:175)-YEAR(birthdate 2312243#B17:175)) age,adyear#B17:175,ICD10 2312307#B17:175,SUM(C_443#B17:175) PATIENTS)
select "2312186", "2312307", "age", patients*100.0/"1000" as percentage from "2313808" where "2312307"='N17.1' and "age"<10
Transaction 4 (rCode 2312186#B17:175,ICD10 2312307#B17:175,age#B16:0,((PATIENTS#B16:0*100.0)/under10 1000#B16:42) PERCENTAGE)
B16:7: Selected ROW(rCode 2312186 INTEGER,ICD10 2312307 CHAR,age INTEGER,PERCENTAGE INTEGER)
B16:90: Exported (age#B16:0,adyear#B16:0,ICD10 2312307#B17:175,PATIENTS#B16:0,rCode 2312186#B17:175,totalinhabitants 971#B16:42,under10 1000#B16:42,between10_20 1036#B16:42,between20_30 1069#B16:42,between30_50 1102#B16:42,over50 1135#B16:42)
B16:7: Selected ROW(age INTEGER,adyear INTEGER,ICD10 2312307 CHAR,PATIENTS INTEGER,rCode 2312186 INTEGER,totalinhabitants 971 INTEGER,under10 1000 INTEGER,between10_20 1036 INTEGER,between20_30 1069 INTEGER,between30_50 1102 INTEGER,over50 1135 INTEGER)
B16:13: Join FD ON (rCode 2312186#B17:175=rCode 922#B16:42) primary 2312708 match ICD10 2312307#N17.1 primary 800 match ICD10 2312307#N17.1
B16:24: Exported (rCode 2312186#B17:175,(EXTRACT(admission 2312275#B17:175)-EXTRACT(birthdate 2312243#B17:175)) age,EXTRACT(admission 2312275#B17:175) adyear,ICD10 2312307#B17:175,COUNT(*) PATIENTS) match ICD10 2312307#N17.1
B17:7: Grouping (rCode 2312186#B17:175,age#B17:175,adyear#B17:175,ICD10 2312307#B17:175,SUM(C_443#B17:175) PATIENTS) groups [GROUP rCode 2312186 2312186,age,adyear,ICD10 2312307 2312307] where (age#B16:0<10) and (age#B16:0<10) match ICD10 2312307#N17.1
B17:175: Remote ROW(ICD10 2312186 INTEGER,age INTEGER,adyear INTEGER,2312307 CHAR,PATIENTS INTEGER) RESTView Using HOSPITALSSL match ICD10 2312307#N17.1
B17:175U: Index HOSPITALSSL (hospID 2309498#B17:175U,hospDesc 2309556#B17:175U,patientData 2309586#B17:175U)
http://root:admin@localhost:8078/sleone select rCode as rCode,(YEAR(admission)-YEAR(birthdate)) as age,YEAR(admission) as adyear,ICD10 as ICD10,COUNT(*) as C_443 from patientrecordcmh group by rCode,age,adyear,ICD10,rCode having ICD10='N17.1'
--> 1 rows
http://root:admin@localhost:8078/sleone select rCode as rCode,(YEAR(admission)-YEAR(birthdate)) as age,YEAR(admission) as adyear,ICD10 as ICD10,COUNT(*) as C_443 from patientrecordholyspirit group by rCode,age,adyear,ICD10,rCode having ICD10='N17.1'
--> 0 rows
http://root:admin@localhost:8078/sleone select rCode as rCode,(YEAR(admission)-YEAR(birthdate)) as age,YEAR(admission) as adyear,ICD10 as ICD10,COUNT(*) as C_443 from patientrecordmabesss group by rCode,age,adyear,ICD10,rCode having ICD10='N17.1'
--> 1 rows
B17:1755: Explicit
Row(rCode=1004,age=24,adyear=1971,ICD10=N17.1,C_443=1)
Row(rCode=2000,age=3,adyear=1949,ICD10=N17.1,C_443=1)
B16:42: Ordered ROW(rCode 2312186 INTEGER ASC FIRST)
B16:42: Index 800 (rCode 922#B16:42,totalinhabitants 971#B16:42,under10 1000#B16:42,between10_20 1036#B16:42,between20_30 1069#B16:42,between30_50 1102#B16:42,over50 1135#B16:42)

```

```

select rCode as rCode,(YEAR(admission)-YEAR(birthdate)) as age,YEAR(admission) as adyear,ICD10 as ICD10,COUNT(*) as C_443 from patientrecordcmh group by rCode,age,adyear,ICD10,rCode having ICD10='N17.1'
select rCode as rCode,(YEAR(admission)-YEAR(birthdate)) as age,YEAR(admission) as adyear,ICD10 as ICD10,COUNT(*) as C_443 from patientrecordholyspirit group by rCode,age,adyear,ICD10,rCode having ICD10='N17.1'
select rCode as rCode,(YEAR(admission)-YEAR(birthdate)) as age,YEAR(admission) as adyear,ICD10 as ICD10,COUNT(*) as C_443 from patientrecordmabesss group by rCode,age,adyear,ICD10,rCode having ICD10='N17.1'

```

```
(6) [select coalesce(young.icd10,older.icd10) as "icd10", youngPat, oldPat from
(select icd10, sum(patients) as youngPat from patientsummary where "age"<10 and icd10>'Z87' group by icd10) young
full join
(select icd10, sum(patients) as oldPat from patientsummary where "age">50 and icd10>'Z87' group by icd10) older
on young.icd10=older.icd10 order by youngPat desc]
```

Each half of this join exercise retrieves 100, 97,70 records from the hospitals, and groups the results into a table with 56 rows. Also the descending order is honoured but nulls still come first.. It is nice and fast! Still impressive speed if the conditions in yellow are omitted (10001 rows from each hospital, 5534 is the result).

```
SQL> [select coalesce(young.icd10,older.icd10) as "icd10", youngPat, oldPat from
> (select icd10, sum(patients) as youngPat from patientsummary where "age"<10 and icd10>'Z87' group by icd10) young
> full join
> (select icd10, sum(patients) as oldPat from patientsummary where "age">50 and icd10>'Z87' group by icd10) older
> on young.icd10=older.icd10 order by youngPat desc]
-----|-----|-----|
icd10|YOUNGPAT|OLDPAT|
-----|-----|-----|
Z93.5|1|1|
Z93.8|2|2|
Z94.2|2|2|
Z94.3|1|1|
Z94.4|1|1|
Z95.0|3|3|
Z95.2|1|1|
Z95.3|1|1|
Z95.4|1|1|
Z95.5|1|1|
Z95.8|1|1|
Z95.9|1|1|
Z96.-|1|1|
Z96.0|1|1|
Z96.7|1|1|
Z97.2|1|1|
Z97.3|1|1|
Z97.5|1|1|
Z98.2|4|4|
Z98.8|1|1|
Z99.-|1|1|
Z99.0|1|1|
Z99.9|1|1|
Z87.3|3|1|
Z87.2|2|1|
Z88.1|2|2|
Z90.4|2|1|
Z90.5|2|1|
Z94.3|2|2|
Z94.5|2|1|
Z94.9|2|1|
Z95.4|2|1|
Z99.0|2|1|
Z88.3|1|3|
Z88.7|1|1|
Z89.0|1|1|
Z89.1|1|1|
Z89.4|1|1|
Z91.4|1|1|
Z91.5|1|2|
Z92.-|1|1|
Z92.3|1|1|
Z92.8|1|1|
Z93.5|1|1|
Z93.9|1|1|
Z94.1|1|1|
Z94.4|1|1|
Z95.5|1|1|
Z96.0|1|1|
Z96.5|1|1|
Z96.6|1|3|
Z96.8|1|2|
Z96.9|1|1|
Z97.-|1|1|
Z97.4|1|1|
Z99.3|1|1|
-----|-----|-----|
SQL>
```

```

-rd\DATA -e -v -H enter to start up
Pyrrho DBMS (c) 2018 Malcolm Crowe and University of the West of Scotland
6.2 (16 May 2018) www.pyrrhodb.com
Open Source Edition
LOCAL SERVER VERSION
APPEND STORAGE VERSION
PyrrhoDBMS protocol on 127.0.0.1:5433
Database folder (DATA)
HTTP service started on port 8180
HTTPS service started on port 8133
Q5 B20:17 (rCode 2312186#B20:175,age@378#B20:175,adyear@381#B20:175,ICD10 2312307#B20:175,SUM(C_253#B20:175) as PATIENTS@384 PATIENTS@384) groups [GROUP rCode 2312186 2312186,age,adyear,ICD10 2312307 2312307]
GF B20:175 (rCode 2312186#B20:175,(YEAR(admission 2312275#B20:175) as EXTRACT-YEAR(birthdate 2312243#B20:175) as EXTRACT) age@378,adyear@381#B20:175,ICD10 2312307#B20:175,SUM(C_253#B20:175) as PATIENTS@384 PATIENTS@384)
Q5 B22:17 (rCode 2312186#B22:175,age@470#B22:175,adyear@473#B22:175,ICD10 2312307#B22:175,SUM(C_369#B22:175) as PATIENTS@476 PATIENTS@476) groups [GROUP rCode 2312186 2312186,age,adyear,ICD10 2312307 2312307]
GF B22:175 (rCode 2312186#B22:175,(YEAR(admission 2312275#B22:175) as EXTRACT-YEAR(birthdate 2312243#B22:175) as EXTRACT) age@470,adyear@473#B22:175,ICD10 2312307#B22:175,SUM(C_369#B22:175) as PATIENTS@476 PATIENTS@476)
select coalesce("2312307","2312307","2312307","2312307") as "ICD10",youngPat,oldPat from (select "2312307",sum(patients) as youngPat from "2312700" where "age"<10 and "2312307">"Z87" group by "2312307")
Z87" group by "2312307" older on young,"2312307"<older,"2312307" order by youngPat desc
Transaction 4 (COALESCE(ICD10 2312307#B10:189,ICD10 2312307#B10:311) as ICD10@359,SUM(COUNT(*) as PATIENTS@384) as YOUNGPAT@365,SUM(COUNT(*) as PATIENTS@476) as OLDPAT@457)
B18:10: Ordered ROW(YOUNGPAT@365 INTEGER)
B18:17: Selected ROW(ICD10@359 CHAR,YOUNGPAT@365 INTEGER,OLDPAT@457 INTEGER)
B18:174: Join FULL ON (ICD10 2312307#B10:189=ICD10 2312307#B10:311)
B18:189: Ordered ROW(ICD10 2312307 CHAR ASC FIRST)
B18:189: Exported (ICD10 2312307#B10:189,YOUNGPAT@365#B10:189)
B18:130: Grouping (ICD10 2312307#B20:175,SUM(COUNT(*) as PATIENTS@384) as YOUNGPAT@365 YOUNGPAT@365) groups [GROUP ICD10 2312307]
B18:136: Exported (rCode 2312186#B20:175,age@378#B20:175,adyear@381#B20:175,ICD10 2312307#B20:175,SUM(C_253#B20:175) as PATIENTS@384 PATIENTS@384)
B20:17: Grouping (rCode 2312186#B20:175,age@378#B20:175,adyear@381#B20:175,ICD10 2312307#B20:175,SUM(C_253#B20:175) as PATIENTS@384 PATIENTS@384) groups [GROUP rCode 2312186 2312186,age,adyear,ICD10 2312307 2312307] where (age@378#B10:136<10)
B20:175: Remote ROW(2312186 INTEGER,age INTEGER,adyear INTEGER,2312307 CHAR,PATIENTS INTEGER) RESTView using HOSPITALSSL where (ICD10 2312307#B20:175>Z87)
B18:311: Ordered ROW(ICD10 2312307 CHAR ASC FIRST)
B18:311: Exported (ICD10 2312307#B10:311,OLDPAT@457#B10:311)
B18:287: Grouping (ICD10 2312307#B10:189,SUM(COUNT(*) as PATIENTS@476) as OLDPAT@457 OLDPAT@457) groups [GROUP ICD10 2312307]
B18:258: Exported (rCode 2312186#B22:175,age@470#B22:175,adyear@473#B22:175,ICD10 2312307#B22:175,SUM(C_369#B22:175) as PATIENTS@476 PATIENTS@476)
B22:17: Grouping (rCode 2312186#B22:175,age@470#B22:175,adyear@473#B22:175,ICD10 2312307#B22:175,SUM(C_369#B22:175) as PATIENTS@476 PATIENTS@476) groups [GROUP rCode 2312186 2312186,age,adyear,ICD10 2312307 2312307] where (age@470#B10:258<50)
B22:175: Remote ROW(2312186 INTEGER,age INTEGER,adyear INTEGER,2312307 CHAR,PATIENTS INTEGER) RESTView using HOSPITALSSL where (ICD10 2312307#B22:175>Z87)
B20:175U: Index HOSPITALSSL (hospID 2309498#B20:175U,hospDesc 2309556#B20:175U,patientData 2309566#B20:175U)
http://root:admin@localhost:8078/sleone select rCode as rCode,(YEAR(admission)-YEAR(birthdate)) as age,YEAR(admission) as adyear,ICD10 as ICD10,COUNT(*) as C_253 from patientrecordcmh group by rCode,age,adyear,ICD10 having ICD10>'Z87'
--> 100 rows
http://root:admin@localhost:8078/sleone select rCode as rCode,(YEAR(admission)-YEAR(birthdate)) as age,YEAR(admission) as adyear,ICD10 as ICD10,COUNT(*) as C_253 from patientrecordholyspirit group by rCode,age,adyear,ICD10 having ICD10>'Z87'
--> 97 rows
http://root:admin@localhost:8078/sleone select rCode as rCode,(YEAR(admission)-YEAR(birthdate)) as age,YEAR(admission) as adyear,ICD10 as ICD10,COUNT(*) as C_253 from patientrecordmabess group by rCode,age,adyear,ICD10 having ICD10>'Z87'
--> 70 rows
B20:1755: Explicit where (ICD10 2312307#B20:175>Z87)
267 rows
B22:175U: Index HOSPITALSSL (hospID 2309498#B22:175U,hospDesc 2309556#B22:175U,patientData 2309566#B22:175U)
http://root:admin@localhost:8078/sleone select rCode as rCode,(YEAR(admission)-YEAR(birthdate)) as age,YEAR(admission) as adyear,ICD10 as ICD10,COUNT(*) as C_369 from patientrecordcmh group by rCode,age,adyear,ICD10 having ICD10>'Z87'
--> 100 rows
http://root:admin@localhost:8078/sleone select rCode as rCode,(YEAR(admission)-YEAR(birthdate)) as age,YEAR(admission) as adyear,ICD10 as ICD10,COUNT(*) as C_369 from patientrecordholyspirit group by rCode,age,adyear,ICD10 having ICD10>'Z87'
--> 97 rows
http://root:admin@localhost:8078/sleone select rCode as rCode,(YEAR(admission)-YEAR(birthdate)) as age,YEAR(admission) as adyear,ICD10 as ICD10,COUNT(*) as C_369 from patientrecordmabess group by rCode,age,adyear,ICD10 having ICD10>'Z87'
--> 70 rows
B22:1755: Explicit where (ICD10 2312307#B22:175>Z87)
267 rows

```

Magnifying the rows returned section

```

http://root:admin@localhost:8078/
--> 100 rows
http://root:admin@localhost:8078/
--> 97 rows
http://root:admin@localhost:8078/
--> 70 rows
B20:1755: Explicit where (ICD10 2
267 rows
B22:175U: Index HOSPITALSSL (hos
http://root:admin@localhost:8078/
--> 100 rows
http://root:admin@localhost:8078/
--> 97 rows
http://root:admin@localhost:8078/
--> 70 rows
B22:1755: Explicit where (ICD10 2
267 rows

```

```

select rCode as rCode,(YEAR(admission)-YEAR(birthdate)) as age,YEAR(admission) as adyear,ICD10 as ICD10,COUNT(*) as C_253 from patientrecordcmh group by rCode,age,adyear,ICD10 having ICD10>'Z87'
select rCode as rCode,(YEAR(admission)-YEAR(birthdate)) as age,YEAR(admission) as adyear,ICD10 as ICD10,COUNT(*) as C_253 from patientrecordholyspirit group by rCode,age,adyear,ICD10 having ICD10>'Z87'
select rCode as rCode,(YEAR(admission)-YEAR(birthdate)) as age,YEAR(admission) as adyear,ICD10 as ICD10,COUNT(*) as C_253 from patientrecordmabesss group by rCode,age,adyear,ICD10 having ICD10>'Z87'
select rCode as rCode,(YEAR(admission)-YEAR(birthdate)) as age,YEAR(admission) as adyear,ICD10 as ICD10,COUNT(*) as C_369 from patientrecordcmh group by rCode,age,adyear,ICD10 having ICD10>'Z87'
select rCode as rCode,(YEAR(admission)-YEAR(birthdate)) as age,YEAR(admission) as adyear,ICD10 as ICD10,COUNT(*) as C_369 from patientrecordholyspirit group by rCode,age,adyear,ICD10 having ICD10>'Z87'
select rCode as rCode,(YEAR(admission)-YEAR(birthdate)) as age,YEAR(admission) as adyear,ICD10 as ICD10,COUNT(*) as C_369 from patientrecordmabesss group by rCode,age,adyear,ICD10 having ICD10>'Z87'

```

```

-d:\DATA -E -V -H Enter to start up
Pyrrho DBMS (c) 2018 Malcolm Crowe and University of the West of Scotland
6.2 (16 May 2018) www.pyrrhodb.com
Open Source Edition
LOCAL SERVER VERSION
APPEND STORAGE VERSION
PyrrhoDBMS protocol on 127.0.0.1:5433
Database folder \DATA\
HTTP service started on port 8180
HTTPS service started on port 8133
QS B20:7 (rCode 2312186#B20:175,age@378#B20:175,adyear@381#B20:175,ICD10 2312307#B20:175,SUM(C_253#B20:175) as PATIENTS@384 PATIENTS@384) groups [GROUP rCode
2312186 2312186,age,adyear,ICD10 2312307 2312307]
GF B20:175 (rCode 2312186#B20:175,(YEAR(admission 2312275#B20:175) as EXTRACT-YEAR(birthdate 2312243#B20:175) as EXTRACT) age@378,adyear@381#B20:175,ICD10
2312307#B20:175,SUM(C_253#B20:175) as PATIENTS@384 PATIENTS@384)
QS B22:7 (rCode 2312186#B22:175,age@470#B22:175,adyear@473#B22:175,ICD10 2312307#B22:175,SUM(C_369#B22:175) as PATIENTS@476 PATIENTS@476) groups [GROUP rCode
2312186 2312186,age,adyear,ICD10 2312307 2312307]
GF B22:175 (rCode 2312186#B22:175,(YEAR(admission 2312275#B22:175) as EXTRACT-YEAR(birthdate 2312243#B22:175) as EXTRACT) age@470,adyear@473#B22:175,ICD10
2312307#B22:175,SUM(C_369#B22:175) as PATIENTS@476 PATIENTS@476)
select coalesce("2312307"."2312307","2312307"."2312307") as "icd10", youngPat, oldPat from (select "2312307", sum(patients) as youngPat from "2312708" where
"age"<10 and "2312307">'Z87' group by "2312307") young full join (select "2312307", sum(patients) as oldPat from "2312708" where "age">50 and "2312307">'Z87'
group by "2312307") older on young."2312307"=older."2312307" order by youngPat desc
Transaction 4 (COALESCE(ICD10 2312307#B18:189,ICD10 2312307#B18:311) as icd10@359,SUM(COUNT(*) as PATIENTS@384) as YOUNGPAT@365,SUM(COUNT(*) as PATIENTS@476)
as OLDPAT@457)
B18:0: Ordered ROW(YOUNGPAT@365 INTEGER)
B18:7: Selected ROW(icd10@359 CHAR,YOUNGPAT@365 INTEGER,OLDPAT@457 INTEGER)
B18:74: Join FULL ON (ICD10 2312307#B18:189=ICD10 2312307#B18:311)
B18:189: Ordered ROW(ICD10 2312307 CHAR ASC FIRST)
B18:189: Exported (ICD10 2312307#B18:189,YOUNGPAT@365#B18:189)
B18:83: Grouping (ICD10 2312307#B20:175,SUM(COUNT(*) as PATIENTS@384) as YOUNGPAT@365 YOUNGPAT@365) groups [GROUP ICD10 2312307]
B18:136: Exported (rCode 2312186#B20:175,age@378#B20:175,adyear@381#B20:175,ICD10 2312307#B20:175,SUM(C_253#B20:175) as PATIENTS@384 PATIENTS@384)
B20:7: Grouping (rCode 2312186#B20:175,age@378#B20:175,adyear@381#B20:175,ICD10 2312307#B20:175,SUM(C_253#B20:175) as PATIENTS@384 PATIENTS@384)
groups [GROUP rCode 2312186 2312186,age,adyear,ICD10 2312307 2312307] where (age@378#B18:136<10)
B20:175: Remote ROW(2312186 INTEGER,age INTEGER,adyear INTEGER,2312307 CHAR,PATIENTS INTEGER) RESTView Using HOSPITALSSL where (ICD10
2312307#B20:175>Z87)
B18:311: Ordered ROW(ICD10 2312307 CHAR ASC FIRST)
B18:311: Exported (ICD10 2312307#B18:311,OLDPAT@457#B18:311)
B18:207: Grouping (ICD10 2312307#B18:189,SUM(COUNT(*) as PATIENTS@476) as OLDPAT@457 OLDPAT@457) groups [GROUP ICD10 2312307]
B18:258: Exported (rCode 2312186#B22:175,age@470#B22:175,adyear@473#B22:175,ICD10 2312307#B22:175,SUM(C_369#B22:175) as PATIENTS@476 PATIENTS@476)
B22:7: Grouping (rCode 2312186#B22:175,age@470#B22:175,adyear@473#B22:175,ICD10 2312307#B22:175,SUM(C_369#B22:175) as PATIENTS@476 PATIENTS@476)
groups [GROUP rCode 2312186 2312186,age,adyear,ICD10 2312307 2312307] where (age@470#B18:258>50)
B22:175: Remote ROW(2312186 INTEGER,age INTEGER,adyear INTEGER,2312307 CHAR,PATIENTS INTEGER) RESTView Using HOSPITALSSL where (ICD10
2312307#B22:175>Z87)

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B20:175U: Index HOSPITALSSL (hospID 2309498#B20:175U,hospDesc 2309556#B20:175U,patientData 2309586#B20:175U)
http://root:admin@localhost:8078/sleone select rCode as rCode,(YEAR(admission)-YEAR(birthdate)) as age,YEAR(admission) as adyear,ICD10 as ICD10,COUNT(*) as
C_253 from patientrecordcmh group by rCode,age,adyear,ICD10 having ICD10>'Z87'
--> 100 rows
http://root:admin@localhost:8078/sleone select rCode as rCode,(YEAR(admission)-YEAR(birthdate)) as age,YEAR(admission) as adyear,ICD10 as ICD10,COUNT(*) as
C_253 from patientrecordholyspirit group by rCode,age,adyear,ICD10 having ICD10>'Z87'
--> 97 rows
http://root:admin@localhost:8078/sleone select rCode as rCode,(YEAR(admission)-YEAR(birthdate)) as age,YEAR(admission) as adyear,ICD10 as ICD10,COUNT(*) as
C_253 from patientrecordmabesss group by rCode,age,adyear,ICD10 having ICD10>'Z87'
--> 70 rows
B20:175S: Explicit where (ICD10 2312307#B20:175>Z87)
267 rows
B22:175U: Index HOSPITALSSL (hospID 2309498#B22:175U,hospDesc 2309556#B22:175U,patientData 2309586#B22:175U)
http://root:admin@localhost:8078/sleone select rCode as rCode,(YEAR(admission)-YEAR(birthdate)) as age,YEAR(admission) as adyear,ICD10 as ICD10,COUNT(*) as
C_369 from patientrecordcmh group by rCode,age,adyear,ICD10 having ICD10>'Z87'
--> 100 rows
http://root:admin@localhost:8078/sleone select rCode as rCode,(YEAR(admission)-YEAR(birthdate)) as age,YEAR(admission) as adyear,ICD10 as ICD10,COUNT(*) as
C_369 from patientrecordholyspirit group by rCode,age,adyear,ICD10 having ICD10>'Z87'
--> 97 rows
http://root:admin@localhost:8078/sleone select rCode as rCode,(YEAR(admission)-YEAR(birthdate)) as age,YEAR(admission) as adyear,ICD10 as ICD10,COUNT(*) as
C_369 from patientrecordmabesss group by rCode,age,adyear,ICD10 having ICD10>'Z87'
--> 70 rows
B22:175S: Explicit where (ICD10 2312307#B22:175>Z87)
267 rows

```

The queries sent to MySQL were

```

select rCode as rCode,(YEAR(admission)-YEAR(birthdate)) as age,YEAR(admission) as adyear,ICD10 as ICD10,COUNT(*) as C_253 from patientrecordcmh group by rCode,age,adyear,ICD10 having ICD10>'Z87'
select rCode as rCode,(YEAR(admission)-YEAR(birthdate)) as age,YEAR(admission) as adyear,ICD10 as ICD10,COUNT(*) as C_253 from patientrecordholyspirit group by rCode,age,adyear,ICD10 having ICD10>'Z87'
select rCode as rCode,(YEAR(admission)-YEAR(birthdate)) as age,YEAR(admission) as adyear,ICD10 as ICD10,COUNT(*) as C_253 from patientrecordmabesss group by rCode,age,adyear,ICD10 having ICD10>'Z87'
select rCode as rCode,(YEAR(admission)-YEAR(birthdate)) as age,YEAR(admission) as adyear,ICD10 as ICD10,COUNT(*) as C_369 from patientrecordcmh group by rCode,age,adyear,ICD10 having ICD10>'Z87'
select rCode as rCode,(YEAR(admission)-YEAR(birthdate)) as age,YEAR(admission) as adyear,ICD10 as ICD10,COUNT(*) as C_369 from patientrecordholyspirit group by rCode,age,adyear,ICD10 having ICD10>'Z87'
select rCode as rCode,(YEAR(admission)-YEAR(birthdate)) as age,YEAR(admission) as adyear,ICD10 as ICD10,COUNT(*) as C_369 from patientrecordmabesss group by rCode,age,adyear,ICD10 having ICD10>'Z87'

```