

# Follow up quality with HbA1c among patients with type 2 diabetes consulting in french primary care

Duhot D\*, Vallée J\*, Collignon Portes R\*, Clerc P\*  
**French Society of General Practice**

## Introduction

The type 2 diabetes is dramatically increasing in European country. In USA there is about 6% of the population who has this pathology. In France, 2 to 3% of the population has diabetes mellitus non insulin dependant.

In 1998, the High Committee on Public Health include type 2 diabetes as one of the major priorities and the High Committee experts qualified hospital organisation for diabetes as perfectible and general practitioner care for diabetes as insufficient.

For 1999 several studies about type 2 diabetes were published. Most of them focus on area of practice or kind of treatment (eg survey of diabetics on oral agent alone from Social Security).

As the blood glucose control is very important to prevent microvascular complication, retinopathy and nephropathy, we want to know the quality of the follow up of diabetics with HbA1c in primary care.

For this, we realise a cross sectional analysis of the French Society of General Medicine datawarehouse.

## Methods

The French Society of General Practice create in 1993 the General Medicine Observatory. The GPs of this network collect on going and in real time the data of every patient they see into the clinical chart. They collect every health problem they take care for every patient they see.

To describe this problems, they use the Dictionary of Consultation Result who regroups the 269 most common health problems seen in primary care. They also collect age, sex, address, medical history, prescriptions and references.

The definition of diabetes mellitus non insulin dependant use in 1999 by the group was: fasting glycemia superior or equal to 1,26 g/l (7 mmol/l) or postprandial glycemia superior or equal to 2 g/l (11 mmol/l), measured at least twice.

After extraction and anonymisation of patients, GPs send their data to the SFMG. We store the data in an Oracle database with anonymisation of GP. SFMG makes several quality control and validate the data before exploitation.

In early June 2001, we extract from the database the diabetics seen in 1999 from 39 GPs and ask for every patient the last HbA1c of this year. We must ask directly to the GP the HbA1c result because, at this time, questionnaires who biological results were store were unusable in the Oracle database.

At this time, we were at the beginning of database development and we load only 39 GPs (over 105) into the database.

We analysed HbA1c to know if patients and doctors reach the target of diabetes care.

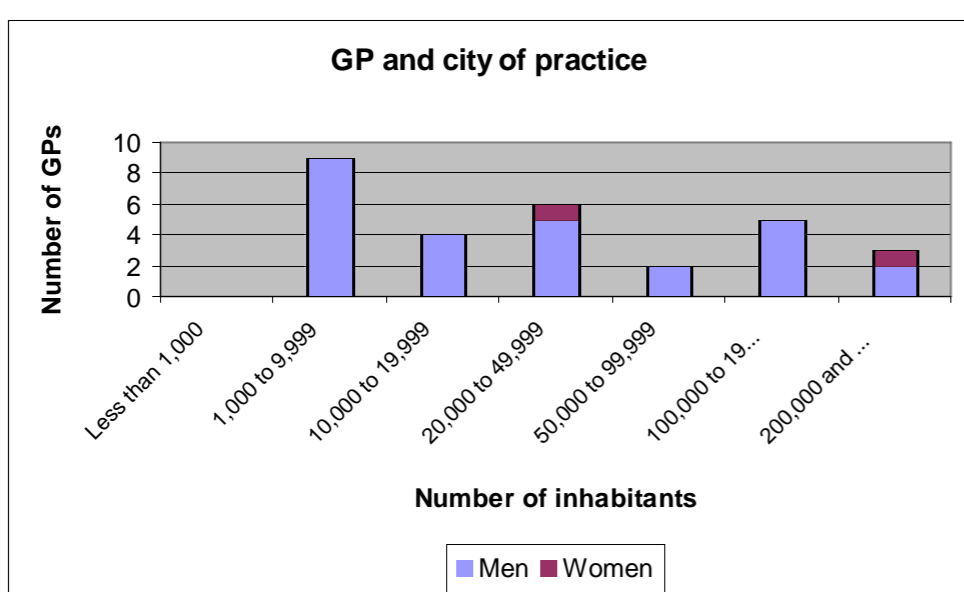
## Result

### General Practitioners

We received data from 29 GPs (over 39) who take care of 958 diabetics. They were 2 women and 27 men. The average age of GPs was 45 years and 4 months. 26 GPs were in sector 1 (standard negotiated tariff), 2 were in sector 2 (free fees) and for one we don't have this information. 10 GPs practised alone and 19 in group.

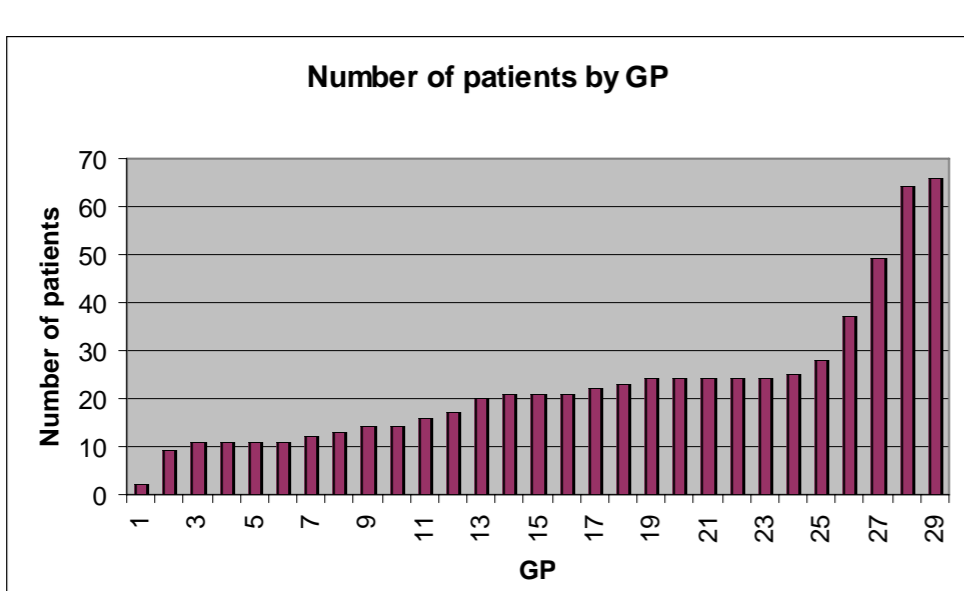
### City of practice

Nine GPs practised in small town on countryside, and 8 were in large towns more than 100,000 people.



Number of habitants	Men	Women
Less than 1,000	0	0
1,000 to 9,999	9	0
10,000 to 19,999	4	0
20,000 to 49,999	5	1
50,000 to 99,999	2	0
100,000 to 199,999	5	0
200,000 and more	2	1

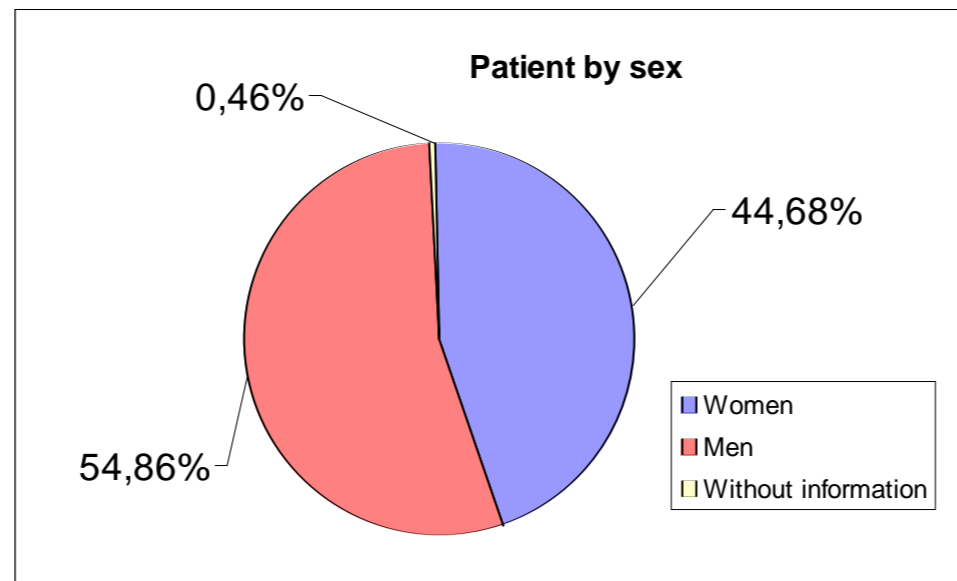
The number of patients by GPs is from 2 for the GP 18 to 66 for the GP 28. The average number of patients by GP is 23.



### Patients

The 29 GPs sent data for 958 patients, 658 of which had at list one HbA1c in 1999. This patients were 294 women (44,68%), 361 men (54,86%) and 3 patients with unknown sex (0,46%).

658 patients	100.00%
294 women	44.68%
361 men	54.86%
3 without information	0.46%



### Average age

The average age of this 658 patients was 64 years and a half.

### Repartition of patients by HbA1c

You can find in the table below the repartition of patient by HbA1c and sex

HbA1c	Number of patients	Women	Men	No sex information
<6.6%	198 ( 30.10%)	93 ( 31.63%)	104 ( 28.82%)	1
>6.5 & <8.1%	240 ( 36.47%)	99 ( 33.67%)	140 ( 38.78%)	1
>8%	220 ( 34.43%)	102 ( 34.70%)	117 ( 31.58%)	1
<b>Total</b>	<b>658 (100.00%)</b>	<b>294 (100.00%)</b>	<b>361 (100.00%)</b>	<b>3</b>

30.10% of the 658 patients (198) had a HbA1c under 6.6%, 36.47% (240) between 6.6 and 8%; and 34.43% (220) upper than 8%.

31.63% of the 294 women (93) had a HbA1c under 6.6%, 33.67% (99) between 6.6 and 8%; and 34.70% (102) upper than 8%.

28.82% of the 361 men (104) had a HbA1c under 6.6%, 37.78% (140) between 6.6 and 8%; and 31.58% (117) upper than 8%.

### Average HbA1c

The average HbA1c was 7,66 %. The smaller HbA1c was 4.2% and the higher was 17.5%

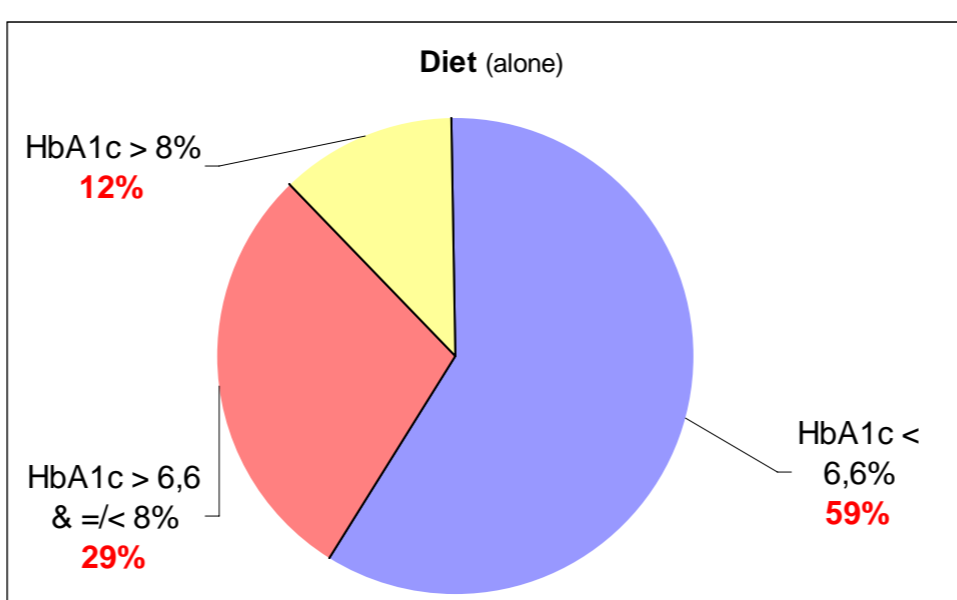
### Repartition of patient by treatment and d'HbA1c

HbA1c	Patients	%	HbA1c	%	HbA1c	%	HbA1c	%
			<6.6 %		>6.5 & <8.1%		>8 %	NA
Diet	41	6.23	24	12.12	12	5.00	5	2.27
OA	472	71.73	158	79.80	177	73.75	137	62.27
OA + insulin	50	7.60	7	3.54	13	5.42	30	13.64
Insulin	79	12.01	5	2.53	31	12.92	43	19.55
Without information	16	2.43	4	2.02	7	2.92	5	2.27
<b>Total</b>	<b>658</b>	<b>100.00</b>	<b>198</b>	<b>100.00</b>	<b>240</b>	<b>100.00</b>	<b>220</b>	<b>100.00</b>

NA = Not Available

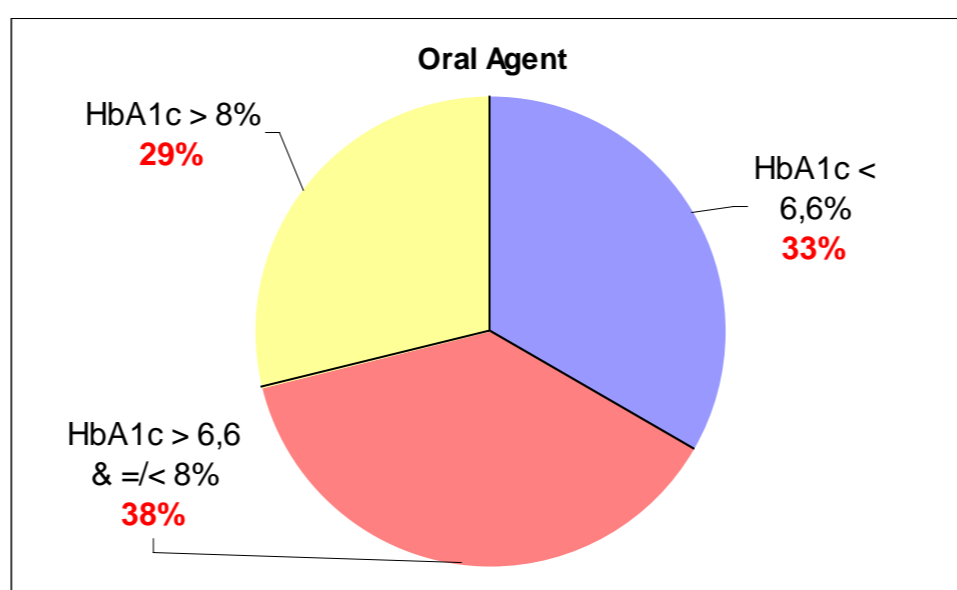
### Patients on diet

41 patients were on diet. 58.54% (24) had an HbA1c under 6.6%; 29.27% (12) between 6.6% and 8%; 12.19 (5) upper than 8%.



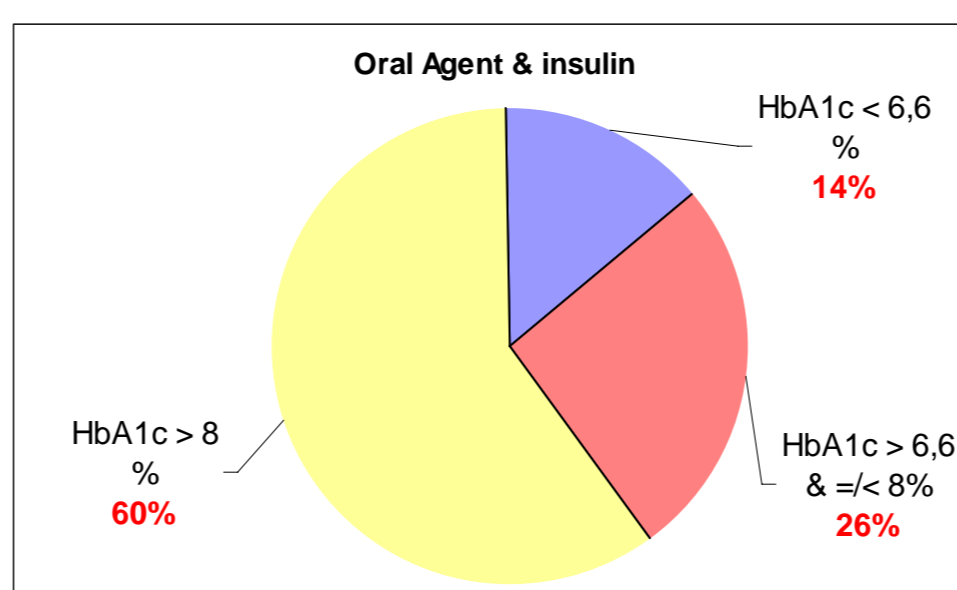
### Patients on Oral Agent

472 patients were on OA. 33.47% (158) had an HbA1c under 6.6%; 37.50% (177) between 6.6% and 8%; 29.03% (137) upper than 8%.



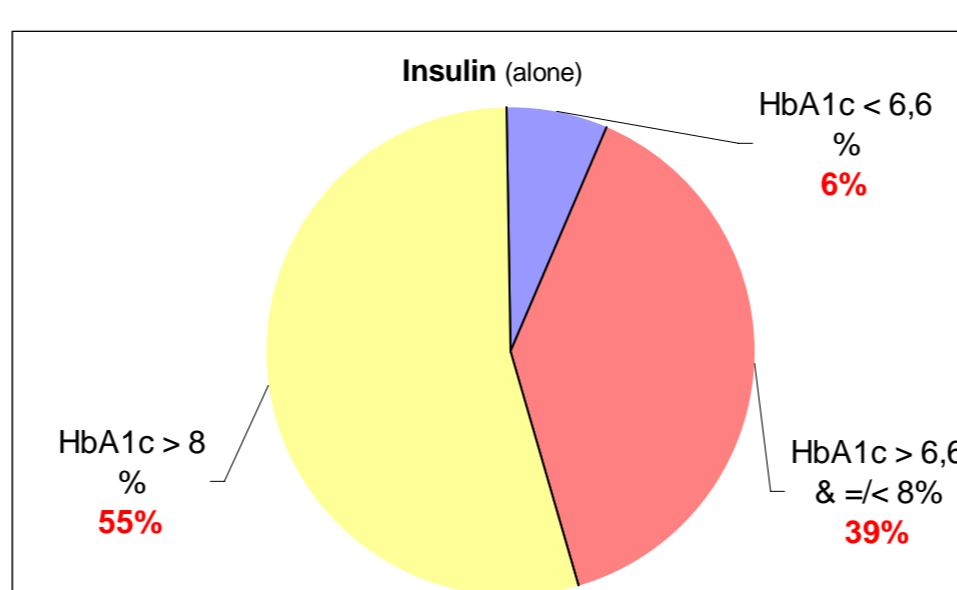
### Patients on OA + Insulin

50 patients were on OA and Insulin. 14% (7) had an HbA1c under 6.6%; 26% (13) between 6.6% and 8%; 60% (30) upper than 8%.



### Patients on Insulin

79 patients were on Insulin (alone). 6.33% (5) had an HbA1c under 6.6%; 39.24% (31) between 6.6% and 8%; 54.43% (43) upper than 8%.



For 32 patients we don't have any information about treatment.

### Duration of diabetes

For 495 (over 658) patients we had the duration of diabetes.

153 (30,91%) had a HbA1c under 6.6%; 174 (35,15%) had a HbA1c between 6.6 and 8%; 168 (33,94%) had a HbA1c upper then 8%.

The average duration of diabetes was 8 years and 5 months.

For patients on insulin (alone) it was 14 years and 9 month.

For patients on Oral Agent and insulin it was 13 years and 9 month.

For patients on OA alone it was 7 years and 6 weeks.

### Repartition of patients by age

Age bracket	Number of patients
10-19	2 patients
20-29	4 patients
30-39	8 patients
40-49	55 patients
50-59	132 patients
60-69	216 patients
70-79	175 patients
80-19	59 patients
90-99	7 patients

Almost 80% of diabetics had between 50 and 79 years.



## Discussion

### Study limitation

10 GP (34.5%) don't sent their data to SFMG. We don't know why, but extra work in vacation time is the most reasonable explication.

With only 29 GPs, we cannot have a real geographical representation

The 29 GPs are not representative of all French GPs and present some differences. We have less women (7% in GMO vs 24% in France) and more group practice (65% in GMO vs 36% in France).

### Patients

The men are 54.86% and women are 44.68%. C Attali and al (Type-2 diabetes treatment: the differences between current practice and guidelines. Rev Prat Med Gen 2000;14 (505): 1347-52) find the same repartition (men 54%) in 1999.

The average age in C Attali study was lower (61.79 years) as our (64.5 years) but P Ricordeau in the diabetes survey of Social Security find the same data (64.4 years).

### HbA1c by year

68.68% of diabetics have at least one HbA1c in 1999. Different studies find different results: C Attali find 61.7%, but Diabest find 78% and P Ricordeau 55% (but during the last 6 months). The National agency for accreditation and evaluation (ANAES) publish the reference "strategy for management of type 2 diabetics" in January 1999. The diffusion and appropriation of new recommendation takes several months or years before changing practice and it is normal that we don't find 100% of diabetics with one HbA1c every 3 or 4 months.

### HbA1c level

30.10% of diabetics have an HbA1c under 6.6% when C Attali find 59.6%.

Diabetes is a long term disease. HbA1c and treatment increase with the duration of diabetes. In our study, 12.01% of diabetics are on insulin and 7.60% on insulin + oral agent. The percentage of diabetics with HbA1c under 6.6% decrease with the treatment: 33.47% for OA, 14% for insulin + OA, and 6,33% for insulin alone. In Attali's study, 2,7% of diabetics are on insulin and 3,3% on insulin + OA.

We don't know if this difference can explain the gap between the percentage of diabetics with HbA1c under 6.6%.

## Conclusion

We must make the same study with all the GPs of the General Medicine Observatory in 1999 and in 2002 to see if diabetics and doctors reach the target and if the diffusion of recommendations change practice in primary care and how many time did it take.

\* SFMG 141, avenue de Verdun  
 92130 issy les Moulineaux

Phone : 00 33 1 41 90 98 20  
 Fax: 00 33 1 41 90 98 21  
 Email: sfmg@sfgm.org  
 Site: www.sfgm.org