

Carmarthenshire Hospitals Diabetes Service Annual Report

January 2010

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Recent developments in the local diabetes services

Key points

- Prosiect Sir Gâr: Workplace cardiovascular health checks for those over the age of 40 began in September 2009, with over 300 checks performed in the first 3 months on employees of Corus Steelworks and Hywel Dda Health Board.
- The Swansea Masters level module in Diabetes takes the form of 5 teaching days at monthly intervals, with an MCQ test, an audit project and a 2,000 word long case at the end. Five courses involving 70 participants have been held so far, including one held in the St David's Education Centre in Carmarthen.
- The Community Diabetes Nurse Specialists, along with the dietitian, continue to deliver the XPERT structured education course for people with type 2 diabetes. From 2006-2009, 18 courses have been completed by 237 participants.
- The multidisciplinary foot clinic at WWGH will help to identify potentially limb threatening foot problems at an early stage, enabling preventive measures to be adopted.
- The Carmarthenshire Chronic Conditions Collaboration is a demonstrator site for chronic disease management in Wales and promises to have a major influence on how these services are delivered in the future.
- The number of clinical contacts made by members of the PPH and WWGH diabetes team in various settings during 2009 was 17,996. Audit of electronic records for the 1,418 patients followed up in the Trust's outpatient clinics show a further improvement in the completeness of the clinical record. Mean duration of diabetes was 22 years for Type 1 patients and 15 years for Type 2 patients. Cardiovascular risk factor mean values in these patients with advanced diabetes were: HbA1c 8.4%, blood pressure 136/72 and cholesterol 4.2, respectively.

New clinical developments

A pilot Diabetic nephropathy clinic has commenced in WWGH

A pilot Specialist Weight Management Clinic, based on the Blaenau Gwent model has commenced in Carmarthenshire, incorporating medical, psychological and dietetic treatment. **Continuous blood glucose monitoring** equipment is now available to investigate those patients with erratic glycaemia, particularly those with difficult hypoglycaemia problems. We have now been using **GLP-1 agonists** for over 12 months. They are particularly useful for those people with type 2 diabetes who require insulin in whom there is a major concern about potential weight gain. Our data on the first 10 patients showed an average reduction in HbA1c by 0.8% whilst achieving average weight reduction of 7.6kg after 6 months' treatment.

Multidisciplinary high risk foot clinic

Amputation in diabetic foot disease, which is related to almost 75% five year mortality, has been reduced significantly in those centres running a high risk multidisciplinary foot clinic. This fortnightly clinic held at WWGH is now into its third year. The aim of this clinic is firstly, to manage the foot problem using a multidisciplinary approach and secondly, to identify and manage any other complications or inadequately controlled risk factors. We have established a referral system from primary and secondary care podiatry. A range of Diabetic foot complications are seen in the clinic, ranging from Charcot neuroarthropathy, osteomyelitis, peripheral vascular disease and related ulceration etc. So far we have achieved significant

success in ulcer healing and reduction of the amputation rate. After the completion of treatment patients are referred back to community podiatry for long term follow up. We are planning a further audit of diabetic foot amputations during 2010.

Vector Diabetes Electronic Patient Record

We now have detailed clinical information on 8,275 people with diabetes. The annual number of patient contact entries by diabetes nurses and doctors in 2009 was 17,996. This enables excellent communication between members of the diabetes team and also with patients, their carers and primary care staff. As the electronic record is used by the whole multidisciplinary diabetes team, we often look at each other's entries and this provides a powerful safeguard against errors that could cause harm. Since the EPR system enables us to aggregate large amounts of data, we can get an accurate assessment of many clinical and laboratory data which reflect upon the quality of the service (see below).

The link to the Telepath system allows automatic transfer of patients' pre-clinic test results to the EPR, making the clinical process more efficient.

Shared Diabetes Electronic Record (SDER)

This pilot project was the result of a partnership with Informing Healthcare (the IT programme for NHS Wales) resulting in the integration of individual patient electronic diabetes records from primary and secondary care into one database by 2007 which could be accessed from both hospitals and 85% of local GP surgeries. The project could not be sustained on a locality basis, but has demonstrated that shared electronic records facilitate clinical management by reducing gaps in the clinical records and also help to avoid duplication of care. There are now plans to adopt an all Wales diabetes database in secondary care and to link this to the established GP systems.

Prosiect Sir Gâr (The Carmarthenshire Project)

. The project's main aims are to achieve reductions in a) mortality and b) morbidity from cardiovascular disease significantly in excess of that which would be expected as a natural trend over a timescale of 10 years in residents of Carmarthenshire aged 35-74 years.

The partners involved in this project are:

- Hywel Dda Health Board
- Swansea School of Medicine
- The National Public Health Service
- Carmarthenshire County Council
- Diabetes Reference Group
- Corus Steelworks, Trostre
- Astra-Zeneca, Sanofi-Aventis, Schering-Plough, Pfizer and Lilly Pharmaceuticals

In the pilot phase of the project which began in Sept 2009 we have conducted cardiovascular health checks on 300 employees of Corus and of the Hywel Dda Health Board aged over 40. Results are summarised in the following table:

QRISK2 >20% (high CV risk)	3.7%
QRISK2 10-20% (intermediate CV risk)	15%
HbA1c>6.5% (probable diabetes)	1.3%
HbA1c 6-6.5% (Impaired glucose regulation)	5.7%
Total Cholesterol:HDL ratio >6	13%
BP>140/90 (either or both)	33%
BMI >30	31%
Waist circumference >94cm (male) or >80cm (female)	70%

As a result, 18% were referred to the dietitian, 24% to primary care for possible pharmacological management and 15% to the intensive lifestyle management course.

Patient participation

Patients continue to be represented at all stages in the design and delivery of diabetes services. The Carmarthenshire Diabetes Patient Reference Group meets regularly before each Diabetes Network meeting to discuss a range of issues relevant to the local diabetes services. Five members of this group also attend the Network meetings where these issues are further discussed.

Structured patient education

The Community Diabetes Nurse Specialists, along with the dietitian, continue to deliver the XPERT structured education course for people with type 2 diabetes funded from charitable sources until NHS funding is forthcoming. From 2006-2009, 18 courses have been completed by 237 participants. The Table below summarises the results:

	Basal	12 months
Patient empowerment score (1-5)	3.8	4.1
Mean HbA1c	7.8	7.0
Mean Weight (kg)	93.3	89.3
BP mmHg	138/79	135/76
Total cholesterol mmol/l	4.4	4.2

Education of healthcare professionals

The following are examples of educational courses designed and/or delivered by our multidisciplinary diabetes team:

- Link Nurse Training: a link nurse from each clinical area within the Trust attends for diabetes training sessions with the diabetes nurses every 3 months
- Diabetes Update for Nurses: a two day course for nurses within the Trust
- Annual Diabetes Update Day for certificate trained diabetes staff: the last one was held in June 2009 and was attended by over 120 diabetes care professionals from Carmarthenshire and the rest of West Wales.
- Podiatry Training Day for Practice Nurses to enable them to examine diabetic feet competently.
- Diabetes Training Days were also organised by the Community Diabetes Nurse Specialists for Care Home and Social Services staff.
- The hospital based diabetes team also delivered Merit I and Merit II courses to local GP's and Practice Nurses to enable them to care for patients who require insulin.
- We are now into our third year for delivering the Swansea Masters level module in Diabetes. Five courses involving 70 participants have been held so far, including one held in the St David's Education Centre in Carmarthen. We are planning further courses at Witybush and Bronglais in 2010.

Diabetes Network

The Hywel Dda Health Board was formed in October 2009 following amalgamation of the former separate Carmarthenshire, Ceredigion and Pembrokeshire acute Trusts and LHB's into a single organisation. To aid the process of integration of local diabetes services the Hywel Dda Diabetes Network was established in 2008. The Network is an inclusive group with representation from all the important local stakeholders in diabetes. These include the hospital based diabetes teams, Community Diabetes Nurses, GP's, health managers, patients and the voluntary sector. It provides the focus for strategic planning of local diabetes services. In addition individual group members, in their capacity as leaders of the various components of the local diabetes services, are also able to implement agreed developments in service delivery.

Carmarthenshire Chronic Conditions Collaboration (C4)

The Carmarthenshire Chronic Conditions Collaboration has by now acquired flagship status from the Welsh Assembly Government. The aim is to coordinate the development of services (including social services) for the management of diabetes, ischaemic heart disease and chronic pulmonary disease, in appropriate settings that minimise the burden on the acute sector. The appointment in 2006 of three Community Specialist Nurses in each of these specialties is already helping to achieve this aim. We have evidence of reduction in acute hospital admissions among these patient groups. This model has also proved a powerful catalyst to breaking down the barriers between primary and secondary care services.

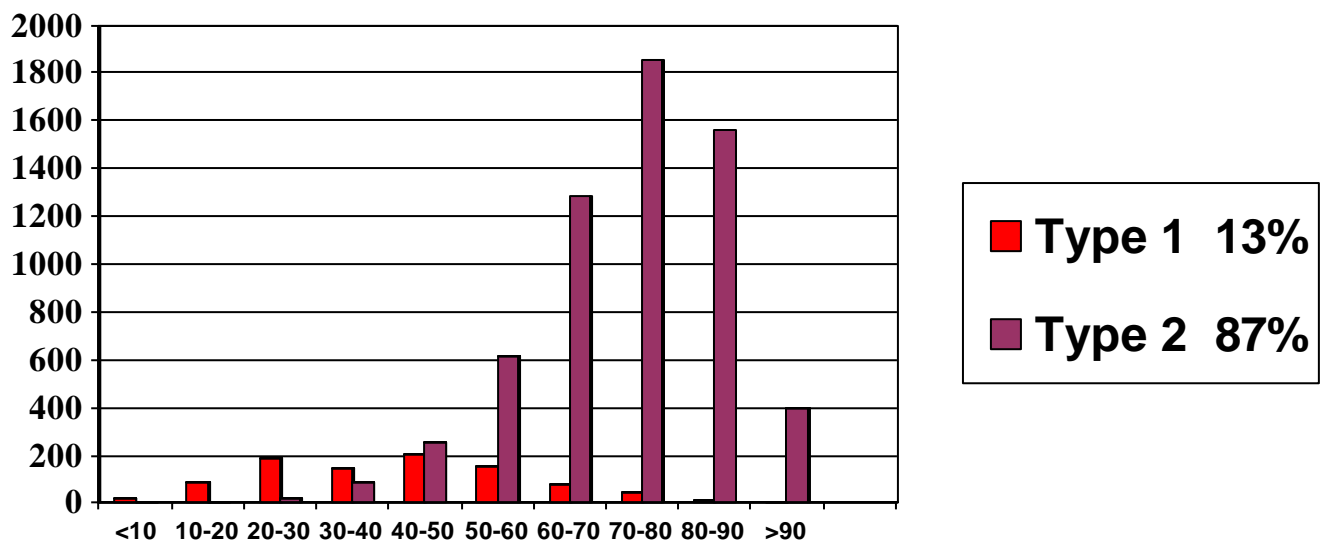
Research and Clinical Trial work

Our Clinical Research Fellow completed a study titled “Microvascular and Macrovascular complications in screening versus symptom diagnosed type 2 diabetes: an observational study”, which was presented at the annual Diabetes UK Conference in Glasgow in March 2009.

We also participated in studies on prandial insulin commencement (LanScape) and basal insulin follow-up (ATLANTUS).

Clinical Audit and Quality Assurance

The Diabeta 3 EPR has been in use at PPH since 2000 and in WWGH since 2002. The diabetes details of inpatients as well as outpatients with are entered onto the system and the number reached 8,275 by the end of 2009. This represents approximately 80% of those recorded on GP diabetes registers in Carmarthenshire and South Ceredigion. The figure below shows their age distribution in decades and their absolute numbers. Type 1 diabetes was present in 13% and type 2 in 87% of patients.



Recorded clinical contacts in 2009

The table below records the number of clinical contacts made by members of the PPH and WWGH diabetes team in various settings during 2009:

	PPH/AVH	WWGH	Total
No of In-patient contacts (no of patients)	2,601 (683)	3,934 (854)	6,535
No Telephone contacts (no of patients)	2,013 (480)	3,461 (605)	5,474
DSN Clinic contacts (no of patients)	1,322 (509)	1,831 (486)	3,153
New Patients – OPD	112 (109)	128 (125)	240
F/U Patients – OPD	883 (658)	1,390 (759)	2,273
Podiatry	131 (88)	105 (76)	236
Dietetics	36 (35)	49 (39)	85
Total No. of Contacts:			<u>17,996</u>

Patients followed up in hospital diabetic clinics

The remainder of the data presented in this report is process and outcome data for patients attending for follow up in the diabetic clinics at Prince Philip Hospital (PPH) and Amman Valley Hospital (combined) from 2000 to 2009 and at West Wales General Hospital (WWGH) from 2001 to 2009. All data was obtained from aggregation of individual electronic patient records except for the 2001 data for WWGH which was obtained from a sample audit of 200 sets of traditional hospital medical records. The data for type 1 and type 2 patients are combined together unless otherwise indicated. The number of patients in each follow up year group was as follows:

Year	PPH	WWGH
2000	730	N/A
2001	788	200
2002	810	571
2003	813	931
2004	876	1,061
2005	815	1094
2006	759	945
2007	739	818
2008	693	768
2009	658	760

Demographics: type 1 vs type 2

The table below contrasts the main findings from type 1 and type 2 patients followed up in the combined hospital diabetic clinics in 2008:

	Type 1	Type 2
Number	472	907
Mean age (y)	39.8	64.7
Diabetes duration (y)	21.6	14.5
% on insulin	100	65
% with BMI>30	19	63
% current smokers	17	14
Mean HbA1c %	8.7	8.3
Mean BP	130/70	140/73
Mean total cholesterol mmol/l	4.4	4.1
% on lipid lowering agents	50	89
% on antiplatelet agents	39	76
% on ACEI or ARB	41	76

Quality of electronic patient record

The percentage of electronic records (type 1 and type 2 combined) from 2009 containing entries for the following clinical and laboratory data during the previous 15 months is recorded in the table below and compared with 2007 and 2008:

Data field	PPH%			WWGH%		
	2007	2008	2009	2007	2008	2009
Year						
Type of diabetes	100	100	100	100	100	100
Duration of diabetes	96	98	99	98	98	98
BMI	91	96	97	94	94	95
Eye examination*	N/A	N/A	N/A	N/A	N/A	N/A
Foot examination*	92	94	95	79	85	92
BP	97	97	98	97	96	98
Smoking	94	96	97	96	96	94
HbA1	97	97	97	97	100	99
Cholesterol	95	94	97	92	97	94
Serum Creatinine	98	97	97	93	95	95
Urine Microalbumin	63	63	71	56	61	57

*It should be noted that retinopathy screening is now carried out by the Diabetic Retinopathy Screening Service for Wales. Many patients also regularly attend the eye clinic for diabetic retinopathy and the community podiatrists for at risk or high risk feet.

Macrovascular complications

The percentage of patients (type 1 and type 2 combined) recorded as having macrovascular complications was as follows:

Complication	PPH %	WWGH %
Ischaemic heart disease	23	18
Cerebrovascular disease	4	4
Peripheral vascular disease	6	6

These figures emphasise the high prevalence of ischaemic heart disease among the diabetic population.

Microvascular complications

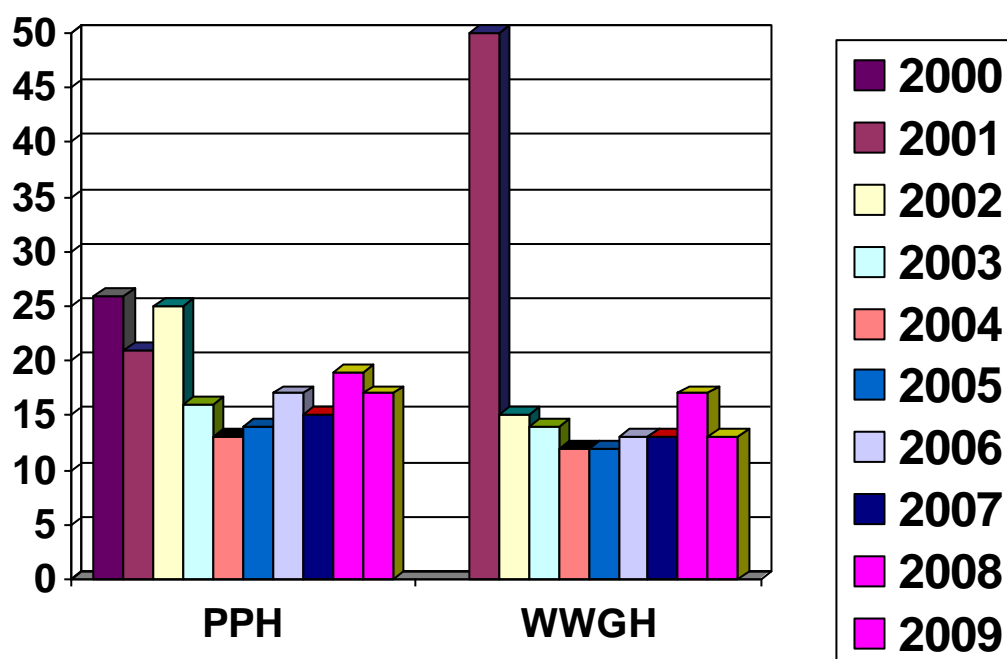
The prevalence and degree of microvascular complications in this hospital clinic population is illustrated in the following table:

Complication	PPH %	WWGH %
Retinopathy	28	17
Microalbuminuria 30-300mg/l	26	26
Macroalbuminuria >300mg/l	8	8
Serum creatinine >150umol/l	9	8
Neuropathy	16	8
At risk foot*	15	16

*This group includes those with ischaemia, neuropathy or foot deformity or a combination of these.

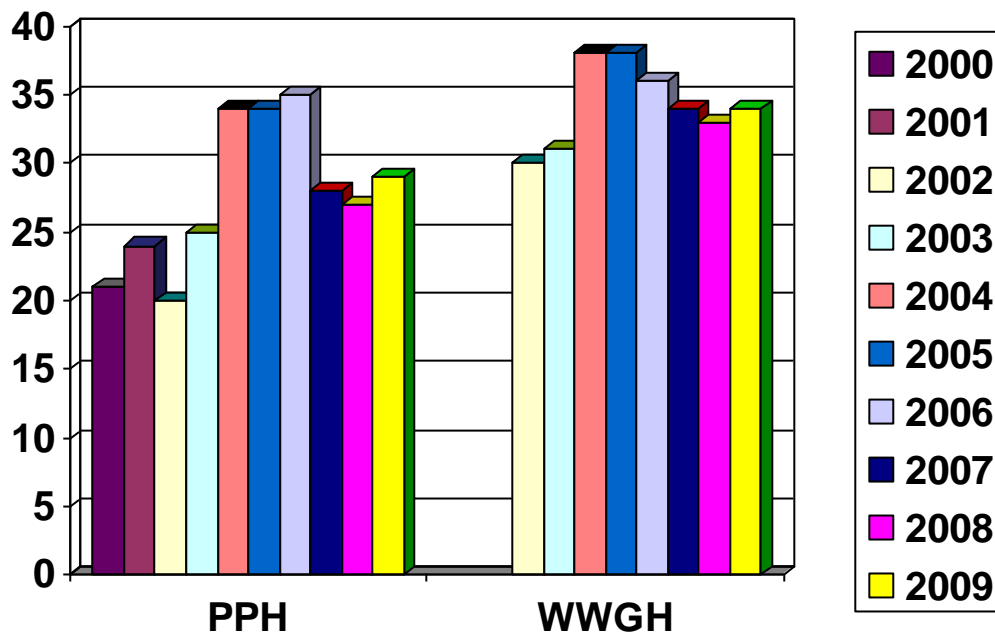
Glycaemic control

The figure below shows the percentage of patients with poor glycaemic control as illustrated by a HbA1 value of >10%. Annual data for PPH is shown over the period 2000-2009 and for WWGH over the period 2001-2009.



The overall percentage of patients (type 1 and type 2 combined) with HbA1 >10% was 15%.

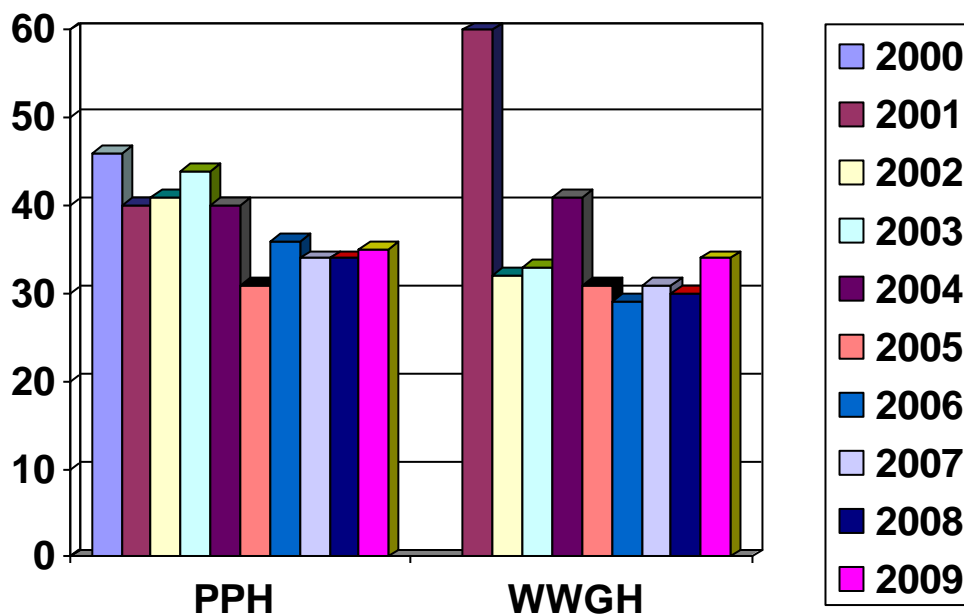
The following figure shows the percentage of patients with good glycaemic control as shown by a HbA1 level of <7.5%



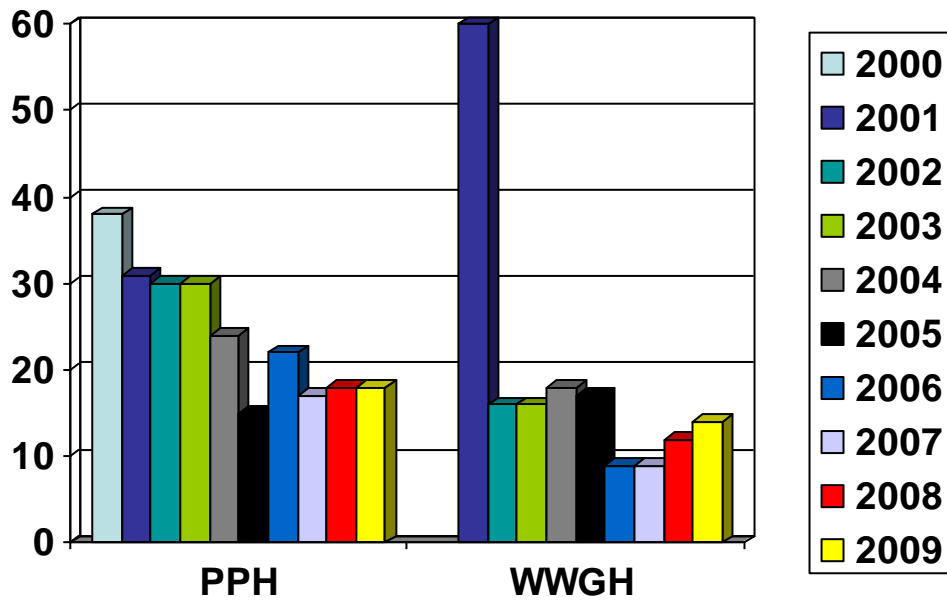
In 2009 the overall percentage of patients (type 1 and type 2 combined) with HbA1 <7.5% was 32%. Note that as the diabetes duration increases year on year in this hospital follow up group (now being 21.6 and 14.5 years for patients with type 1 and type 2 diabetes, respectively) glycaemic control is known to worsen. Mean HbA1c for all follow up patients in 2009 (PPH and WWGH combined) was 8.4%. Mean HbA1 for type 1 patients was 8.7%. Mean HbA1c for type 2 patients was 8.3%.

Blood pressure

The percentage of patients whose systolic blood pressure exceeded 140 mmHg are shown below. In 2009 the overall percentage of patients with a systolic pressure above 140 was 34%.



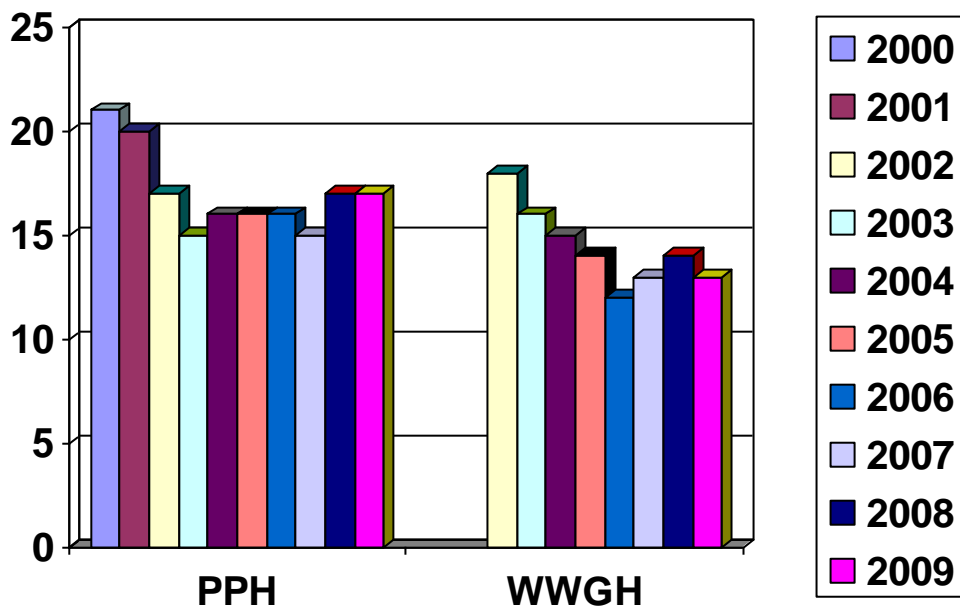
The percentage of patients whose diastolic pressure exceeded 80 mmHg are shown below. The overall percentage of patients with a diastolic pressure >80 was 16%.



The mean blood pressure for all follow up diabetic patients at PPH and WWGH in 2009 was 140/73. Mean blood pressure for people with type 1 diabetes was 130/70. Mean blood pressure for people with type 2 diabetes was 140/73

Smoking

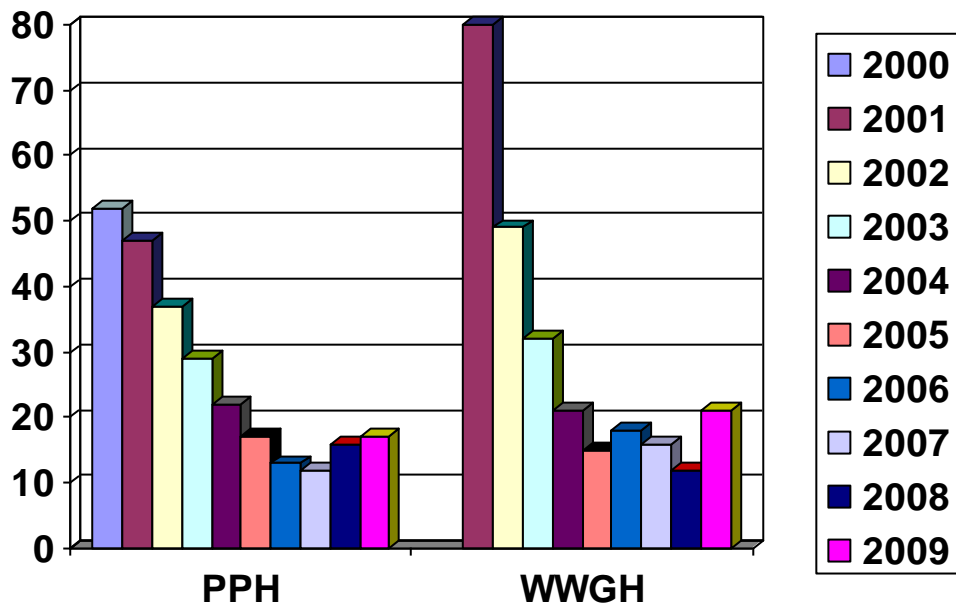
The percentage of patients (PPH+WWGH) who admit to being current smokers was 15%:



The percentage of current smokers who have type 1 diabetes was 17%. The percentage of current smokers who have type 2 diabetes was 14%.

Serum cholesterol

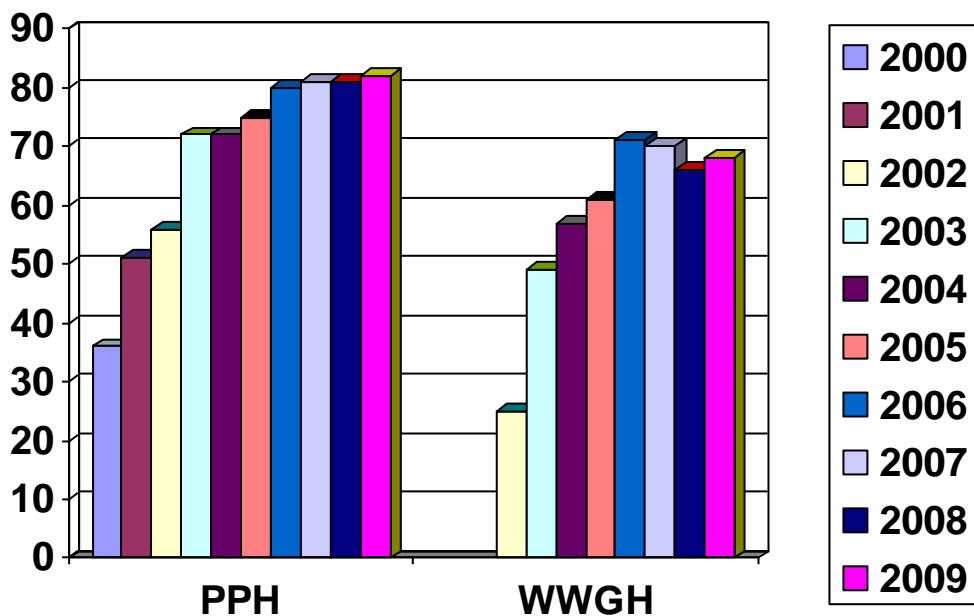
The percentage of patients with a serum total cholesterol level above the level of 5mmol/l is shown below:



Mean serum total cholesterol in 2009 (PPH and WWGH combined) was 4.2 mmol/l.
 For people with type 1 diabetes mean total cholesterol was 4.4 mmol/l.
 For people with type 2 diabetes mean total cholesterol was 4.1 mmol/l.

Cardiovascular prophylaxis: lipid lowering drugs

The percentage of patients taking statins or other lipid lowering agent has increased progressively as shown below:

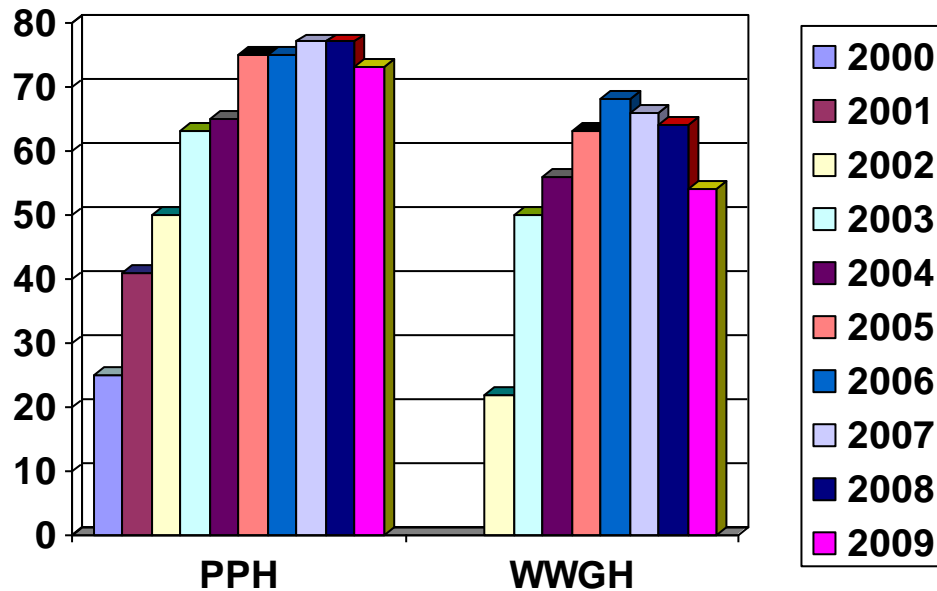


The total percentage of patients taking lipid lowering agents (PPH and WWGH combined) in 2009 was 74%.
 The percentage of type 1 patients taking lipid lowering agents was 50% (including 84% of those aged >40). The percentage of type 2 patients taking lipid lowering agents was 89%.

Cardiovascular prophylaxis: antiplatelet agents

Aspirin or other anti-platelet prophylaxis likewise increased progressively as illustrated below. The overall mean percentage of people with diabetes taking anti-platelet agents in 2009 was 63%.

The percentage of type 1 patients taking aspirin was 33% (including 70% of those aged >40). The percentage of type 2 patients taking aspirin was 76%.

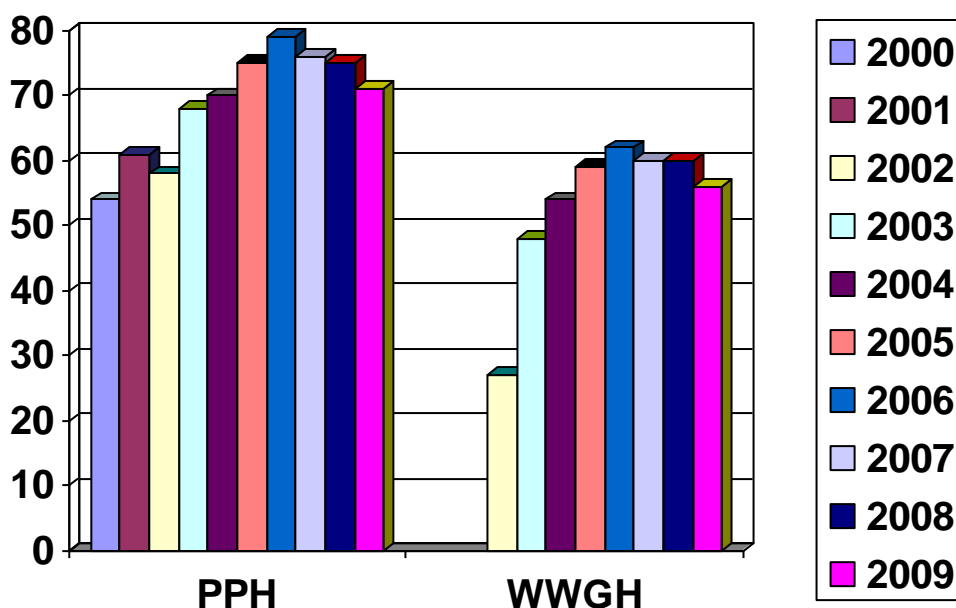


Cardiovascular prophylaxis: ACE inhibitors and angiotensin blockers

The percentage of patients taking either ACE inhibitors or Angiotensin II receptor blockers (ARB's) was as follows:

The total percentage of people with diabetes taking ACEI's or ARB's in 2008 was 63%. The percentage of type 1 patients taking ACEI's or ARB's was 41% (including 67% of those aged >40).

The percentage of type 2 patients taking ACEI's or ARB's was 76%.



Comparison with GP Contract Standards

The Table below presents a comparison of some of the above data (both hospitals combined) with the Quality and Outcomes Framework Standards for the GP Contract. Note that this hospital outpatient population is biased towards those with the most advanced diabetes.

Indicator		Points	Max Threshold	2009 value
DM1	The practice can produce a register of all patients with diabetes mellitus	6	N/A	N/A
DM2	The percentage of patients whose notes record BMI in the previous 15 months	3	90%	96%
DM3	The percentage of patients with diabetes in whom there is a record of smoking status in the previous 15 months except those who have never smoked where smoking status should be recorded once	3	90%	96%
DM4	The percentage of patients with diabetes who smoke and whose notes contain a record that smoking cessation advice has been given in the previous 15 months	5	90%	N/A
DM5	The percentage of patients with diabetes who have a record of HbA1c or equivalent in the past 15 months	3	90%	98%
DM6	The percentage of patients with diabetes in whom the last HbA1c is 7.4% or less in the past 15 months	16	50%	32%
DM7	The percentage of patients with diabetes in whom the last HbA1c is 10% or less in the past 15 months	11	85%	85%
DM8	The percentage of patients with diabetes who have a record of retinal screening in the past 15 months	5	90%	N/A
DM9	The percentage of patients with diabetes with a record of the presence or absence of peripheral pulses in the past 15 months	3	90%	93%
DM10	The percentage of patients with diabetes with a record of neuropathy testing in the past 15 months	3	90%	93%
DM11	The percentage of patients with diabetes who have a record of the blood pressure in the past 15 months	3	90%	98%
DM12	The percentage of patients with diabetes in whom the last blood pressure is 145/85 or less	17	55%	65%
DM13	The percentage of patients with diabetes who have a record of microalbuminuria testing in the past 15 months	3	90%	64%
DM14	The percentage of patients with diabetes who have a record of serum creatinine testing in the past 15 months	3	90%	96%
DM15	The percentage of patients with diabetes with proteinuria or microalbuminuria who are treated with ACE inhibitors or angiotensin receptor blockers	3	70%	82%
DM16	The percentage of patients with diabetes who have a record of total cholesterol in the past 15 months	3	90%	95%
DM17	The percentage of patients with diabetes whose last measured total cholesterol within the past 15 months is 5 mmol/l or less	6	60%	79%
DM18	The percentage of patients with diabetes who have had influenza immunisation in the preceding 1 st September to 31 st March	3	85%	N/A