Prescribing Information *to support* QIPP

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EXAMPLE

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Foreword

"I am assuming that as you are about to read this Annual Keele QIPP Report you are in some way associated with Optimising Medicines Use (OMU) in our healthcare system? That being so, you, more than many others who work for or in partnership with the NHS, have an amazing opportunity to take part in, and in many cases lead, the transformational changes which will have to be made to enable future health needs to be met within ever tightening resources. You know that the scale of the challenge we face together is unprecedented, that the challenge is common to most developed health systems and that there are no easy answers. But in meeting this challenge we can be confident that getting medicines use right (OMU) is going to be both a major driver and enabler. The NHS Commissioning Board will be setting out the detail of the OMU programme soon and much good work is already underway throughout the NHS, building on the well established medicines management programme.

Good information on current patterns of medicines use and on the outcomes achieved at both patient and population level is going to be critical if we are to succeed. As is a clear understanding of the context and system rules. This report from Keele University is therefore incredibly timely and helpful as it covers both areas. In my view the report is ground breaking as it beginning to explore and describe the potential linkages between patterns of medicines use and some outcomes. These linkages need to be considered locally and hopefully will stimulate debate and further analysis. In my view it will be counterproductive if conclusions are made without proper local scrutiny of the evidence. Feedback to Keele will be welcomed and, over time, will allow the development of a powerful resource to support the OMU programme.

Congratulations to the report's authors and let's get on with it!"

Peter Rowe
Formerly the National QIPP Lead for Medicines Use and Procurement, DoH

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How to Use this Report

This report has been carefully divided into discrete sections that can be read together or as stand alone documents. To navigate between these sections, we have added bookmarks to this pdf file (see the list on the left hand side of the document when viewing on screen). As usual, CTRL +F will help you find specific words or phrases.

In the introduction section of the report, we have provided an overview to contextualise NHS prescribing and medicines optimisation. Additionally, we have identified seven key drugs, *"Ones to watch"* that will impact to varying degrees on the scant NHS resources.

Table 1 lists the patent expiry dates and annual spend in your PCT. This is to provide you with the necessary information for planning where disinvestments can be made. Major drugs with a patent expiry this year include atorvastatin, candesartan, quetiapine and donepezil.

Appropriate outpatient referral to hospital is a key concern for health services and redesign of patient pathways is one of the main priorities for the emerging Clinical Commissioning Groups (CCGs). We have included a section of top-level referral information. The data presented allow for PCT and cluster level comparisons of first and follow-up appointments, outpatient appointments by priority of referral, waiting time to first appointment, appointments by referral source and outpatient by original source.

The report includes a breakdown of key therapeutic topics recognised by the National Prescribing Centre (NPC) as having significant potential for making a contribution to the challenge posed by QIPP. The medicines and products selected have been identified from the NPC document *"Key therapeutic topics- medicines management options for local implementation"* second update, published in July 2011.

We have provided a range of data to support each section, including prescribing, Quality and Outcome (QOF) prevalence, hospital episode statistics (HES) and data on medicines use.

In each of the therapeutic sections, we have highlighted:

- the main issues
- the cost implications
- the main actions (where possible)

Data Descriptions

Our objective is to provide medicines management leads, prescribers and commissioners with as complete a picture of activities as possible, in order for them to consider where investment or disinvestment opportunities exist. In addition to the usual trends and PCT comparisons, this year we have also included data for clusters where possible and appropriate. The suite of data provided includes:

- **Primary Care Prescribing data**
  In order to generate meaningful trends, prescribing data dating back to December 2007 are included. Where appropriate, PCTs and clusters have been compared with each other, but all the caveats around the differing needs and priorities of the local health economies remain when comparing PCT with PCT.

- **Quality and Outcomes Framework (QOF) prevalence**
  QOF measures achievement against a scorecard of indicators, plus a measure of depth of care. It is a useful source for comparison against other datasets and hence its inclusion in this report where applicable.

  The prevalence rates used in this analysis are the simple ratio of the size of the disease registers to the practice list size. When assessing these data, it will be worth considering where your PCT sits in comparison to other PCTs, your cluster, the West Midlands and England. Is your PCT significantly different? If so, what do you think the reasons are for this?

- **Hospital Episode statistics (HES)**
  Hospital Episode Statistics data demonstrate the number of admissions and outpatient appointments to hospital for patients registered with a GP in each PCT. It should be stressed that records are not always complete.

  Please note, for admission data the analysis looks at the *cause* of the admission. The potential for only small numbers of admissions to have been coded should be recognized when assessing the information. For key fields, such as age or ethnicity, an 'unknown' field is included and this has been included in the analysis where shown.

  An emergency hospital admission represents a heightened point of disease. A range of factors may be responsible and these could include the drive in primary care to meet QOF HbA_{1C} targets in diabetic patients resulting in admissions for hypoglycaemia.

  Much of the data included focus on what has been recorded as the primary diagnosis (i.e. the main reason for the admission) and there is the potential for a secondary diagnosis to be as important.

- **Data on Hospital Medicines Use**
  Hospital prescribing data has been accessed via IMS Health Ltd. The data have been provided to IMS electronically via the various Hospital Pharmacy IT systems and are issue data. Important caveats apply to the use of IMS secondary care data. There is potential in some instances for the data to be confounded by such issues as pack size adjustments or brand/generic medicines nomenclature.

  The bar charts provide a valuable opportunity for primary and secondary care to engage in collaborative discussion to mutual advantage. Heads of Medicines Management and Trust Chief Pharmacists can use the charts in this report to get an initial insight into how to align their medicines use with the NPC guidance and its associated evidence base.

  We welcome feedback on the value of the hospital prescribing data, potential areas for improvement, and where there appears to be anomalies in the data set. Trust Chief Pharmacists are encouraged to check this locally and advise Ron Pate in the Department of Medicines Management at Keele University accordingly.

  Please note we have identified anomalies with some of the IMS data for University Hospital Birmingham and this is being investigated further.

We also provide *Clostridium difficile* **and MRSA reported rates (Health Protection Agency- HPA).**

Conclusion

It will be crucial to assess hospital episode statistics (admissions) against primary and secondary care prescribing and prevalence, in order to review health outcomes for your population and where to invest and disinvest in prescribing for health consequences.

QIPP and Medicines Optimisation

Medicines optimisation is the appropriate and safe use of medicines, consistent with evidence, to maximise health outcomes and reduce waste, i.e. deliver optimal medicines use. This report updates the '*Prescribing Information to support QIPP'* published in November 2010. It aims to support existing and emerging commissioners in ensuring that medicines use is optimised.

Management of drug costs are crucial, as is ensuring that clinicians as commissioners have a grip on the implications of prescribing decisions. It could be argued that prescribing medicines to patients is one of the fundamental commissioning activities a clinician performs.

Overview

The current NHS landscape appears to be constantly changing and still remains uncertain as the *Health and Social Care Bill* wends its way through the legal and political processes.

The *Health and Social Care Bill* was introduced into Parliament on 19 January 2011.[1] The Bill is part of the Government's vision to modernise the NHS so that it is built around patients, led by health professionals and focused on delivering world-class healthcare outcomes.

Check http://services.parliament.uk/bills/2010-11/healthandsocialcare.html for a blow-by-blow update on the progress of the bill - as of early January 2012, it is at the report stage in the House of Lords, it still needs to go to third reading and then consideration of amendments before Royal Assent.

Nevertheless, against a background of constrained finances and change, it is patently clear that NHS organisations must deliver safe, effective and high quality care. Several important publications were issued during the winter of 2011, which underline the commitment of the NHS to continued strong performance on finance and service quality.

The *Operating Framework for the NHS in England (2012/13),* published in November 2011, identified that 2012/13 will be a year for improvement and transition.[2] Sir David Nicholson in his introduction affirms that this is the final year of transition to the new commissioning and management system for the NHS. He wants the NHS to 'get it right every time', to 'maintain a grip on performance', to 'meet the quality and productivity challenge' and 'build on the new delivery system'.

The framework challenges organisations to improve services for patients with four key themes:

- Putting patients at the centre of decision making.
- Completion of the last year of transition to the new system – CCGs and support the establishment of Health and Wellbeing boards.
- Increasing the pace of delivery of the quality, innovation, productivity and prevention (QIPP) challenge.
- Maintaining a strong grip on service and financial performance – including that the NHS constitution stating a 'right to treatment within 18 weeks' is met.

The framework includes explicit *finance and business rules* to ensure consistency and transparency across NHS organisations. The rules are designed to enable continued financial stability, with no part of the new system inheriting problems not of their making and going further and faster on QIPP delivery.

Surplus strategy and financial control 2012/13 onwards

- It is a requirement that no PCT or SHA will plan for a deficit in 2012/13.
- PCTs carrying legacy debt into 2012/13 must clear it.
- It is expected that aspirant CCGs will continue to work closely with PCTs and PCT clusters in 2012/13, to ensure that no PCT ends 2012/13 in a deficit position.
- NHS trusts are expected to plan for a surplus.
- PCT originated surpluses will be made available to the relevant local health systems in future years.
- The requirement for all PCTs to set aside 2% of their recurrent funding for non-recurrent expenditure purposes only will continue. It is expected that SHA clusters will hold these funds for this expenditure until appropriate business cases for the expenditure have been approved.

PCT allocations

- The total amount allocated through PCTs recurrent allocations in 2012/13 will grow by at least 2.5 %.
- The 2012/13 shadow allocations for the CCGs, NHS Commissioning Boards and shadow grants for local authorities' new public health responsibilities will be published after PCT allocations.

Running Costs

- The target running cost savings for 2012/13 will be set at the SHA cluster level, but with an assumption that there will be no further savings at the SHA organisation level during 2012/13.
- From 2013/14 the running cost allowance for CCGs is expected to be £25 per head of population per annum.
- **By 2014/15 the overall running costs of the new NHS system are anticipated to be one third lower than running costs in 2010/2011. This makes efficiency savings in prescribing of paramount importance.**

Tariff

- Development in the payment system in 2012/13 is intended to increase the links with quality of care and incentivise delivery of the QIPP challenge.
- In 2012/13 best practice tariffs will be expanded to:
    - Incentivise the shift of procedures being performed from an acute to other less acute settings, for example, more dermatology GPwSI in primary care.
    - Incentivise same-day emergency treatments where clinically appropriate.
    - Increase the payment differential between standard and best practice care for hip fracture and stroke.
    - Promote the use of interventional radiology procedures.

Commissioning for Quality and Innovation (CQUIN) Framework

- CQUIN incentives of up to 2.5% can be earned by providers through standard contracts.
- The two national goals on venous thromboembolism (VTE) risk assessment and responsiveness to personal needs of patients will continue to be in place.
- A third national goal on improving diagnosis of dementia in hospitals will be added.
- A fourth national goal to incentivise use of the NHS Safety Thermometer will be added. The NHS Safety Thermometer is an improvement tool that allows NHS organisations to measure harm in four areas (pressure ulcers, urine infection in patients with catheters, falls and VTE).

Accountability arrangements for section 5 (Planning and Accountability) of the operating framework were outlined in *'The integrated approach to planning and assurance between DH and the NHS for 2012/13'*. [3] It asserts that by the end of 2012, all PCT clusters should have an integrated plan submitted to SHA clusters (first set, 27th January 2012 and final submission 5th April). From each SHA cluster the DH will require:

- Data trajectories for all PCTs for the relevant indicators set out in the Annex to the NHS Operating Framework 2012/13.
- Milestones for each PCT cluster (drawn from their integrated plan), covering transformational change elements of QIPP and reform.
- Milestones for each SHA cluster about the transition of the functions within the SHA to newbodies.
- A short narrative outlining the SHA cluster's assurance process of PCT cluster integrated plans, including the process of signoff of material changes in the plan (including size of financial challenge) and the SHA cluster's assessment of key risks and mitigating action within the region (both geographical and programme based).

In December 2011 an updated *NHS outcomes framework for 2012/13* was published.[4]

The priorities identified for NHS organisations are:

1. Preventing people from dying prematurely e.g. interventions with statins.
2. Enhancing the quality of life for people with long-term conditions e.g. optimising medicines usage in patients with diabetes.
3. Helping people to recover from episodes of ill health or following injury e.g. information about medicines should move seamlessly between care environments.
4. Ensuring that people have a positive experience of care e.g. patients understand fully the risks and benefits of their medicines.
5. Treating and caring for people in a safe environment and protecting from avoidable harm e.g. NSAIDs implicated in hospital admissions related to medicines safety (see section H).

Again in December, the DH published *'Innovation, Health and Wealth, accelerating adoption and diffusion in the NHS'*.[5] This is a report prepared in consultation with industry, academia, clinicians and other stakeholders both in the NHS and beyond. The aim is to create a system for innovation that continually scans for new ideas and then takes them through to widespread use, thereby ramping up the pace and scale of change and innovation.

Hospital Prescribing in England

The NHS Information Centre's (IC) bulletin on hospital prescribing published in October 2011 helpfully compared the use of medicines in hospital with their use in primary care.[6] The report also assessed the impact of medicines positively appraised by the National Institute for Health and Clinical Excellence (NICE).

In its bulletin, the IC reported that NHS spend on medicines in England overall in 2010 was £12.9 billion. Medicines supplied in primary care represented on average 66.9% of the estimated national costs. The costs of medicines rose in 2010 by 4.8% overall, but 7.7% in hospitals. The impact of drugs positively approved by NICE was profound, with the IC highlighting the greatest cost to the health economy associated with atorvastatin (prescribed or issued in all sectors) at circa £313 million. **It is important to note that atorvastatin comes off patent later this year.**

Hospital medicines use

The IC report showed that the total cost of medicines prescribed in hospitals continues to rise at a rate greater than that in primary care. [6] This now stands at 31.7% of the total NHS spend on medicines, which is up from 23.8% in 2005. [7] This rate of growth can impact on primary care both through patients discharged on medicines initiated during their hospital attendance and through medicines prescribed outside of PbR.

With respect to medicines initiated in secondary care and continued in primary care, this QIPP update from Keele contains comparative data for both primary and secondary care medicines use, and provides an opportunity for both sectors to collaborate on delivering change. For medicines which are classed as outside of PbR, analysis of this data is compromised by many products being provided to patients via homecare companies. The next paragraph offers comment as to how this can be addressed.

Medicines provided via Homecare Companies

The use of homecare companies to provide medicines to patients has increased over the years and is now thought to represent over £1bn of NHS spend on medicines. Provision of medicines in this way bypasses the normal processes of data capture. As a result of these issues, the DH commissioned a review of homecare medicines provision. The resulting report "*Homecare Medicines: Towards a Vision for the Future*" was published by the DH in November 2011, and features a wide range of recommendations to improve governance of this activity. [8]

Commissioners and providers should actively engage with implementing the DH report, since it offers an opportunity to improve the design, operation and monitoring of homecare medicines delivery and services. If fully implemented, this will enable easy data capture, which will support prescribing analysis, benchmarking and contracting, all of which are QIPP-positive. Given the scale and escalation in the use of homecare companies, implementing the DH report warrants urgent consideration.

Ones to Watch

This section looks briefly at new medicines that may have an impact on prescribing. There are many new drugs that are brought to market each year; we have focused on three oral anticoagulants (dabigatran, rivaroxaban, apixaban), boceprevir, telaprevir, ivabradine and aclidinium bromide. These drugs could have a major impact on both prescribing cost and volume.

Dabigatran etexilate

Dabigatran etexilate (Pradaxa®▼) is an oral anticoagulant.[9] It has been licensed in the UK since 2008 for the prevention of venous thromboembolism (VTE) in patients undergoing elective hip or knee replacement surgery.

In August 2011, the marketing authorisation for the drug was extended to include the additional indication of prevention of stroke and systemic embolism in adult patients with nonvalvular atrial fibrillation (AF) and one or more of the following risk factors[9,10]: previous stroke, transient ischemic attack, or systemic embolism, left ventricular ejection fraction < 40 %, symptomatic heart failure (≥ New York Heart Association [NYHA] Class 2), age ≥ 75 years, age ≥ 65 years associated with either diabetes mellitus or coronary artery disease or hypertension.

There is the potential for high-cost dabigatran to replace low-cost warfarin.

Dabigatran etexilate has fewer interactions with other medications and food than warfarin and does not require INR monitoring.[9,10] It is considerably more expensive than warfarin. Hypothetically, the increased drug cost may be offset to some extent by avoiding non-drug costs associated with anticoagulant monitoring but the infrastructure of warfarin clinics will still be required for some years for patients who remain on warfarin (for AF and other indications). The cost of a year's treatment with dabigatran etexilate 150 mg or 110 twice daily is currently £920. Cost estimates for a year's treatment with warfarin 7.5 mg daily, including monitoring, range widely depending on local arrangements, e.g. from about £220 to £480.[11]

The Midlands Therapeutics Review and Advisory Committee (MTRAC) have reviewed dabigatran etexilate and concluded that it is suitable for prescribing in primary care as a second-line treatment.[12] **Warfarin should remain the first-line option for anticoagulation in patients with AF at high risk of a stroke.** Commissioners should ensure optimal existing warfarin therapy services including access to INR clinics, use of computerised decision-support software, and access to drugs such as acenocoumarol for patients who are allergic to warfarin.

A NICE single technology appraisal for dabigatran etexilate is currently in progress. At the time of going to press, NICE has received an appeal from NHS Salford on their Final Appraisal Determination (FAD) on dabigatran, which recommends it as an option for the prevention of stroke and systemic embolism in patients with AF, within its licensed indication (see http://guidance.nice.org.uk/TA/Wave21/10/Appeal for further details).

The MHRA has recently reported that there have been a number of cases of serious and fatal haemorrhage in elderly patients with renal impairment who were receiving dabigatran. Renal function should be assessed in all patients before starting dabigatran and at least once a year in patients older than 75 years or those with a suspected decline in renal function. Dabigatran is contraindicated in patients with severe renal impairment (creatinine clearance <30 ml per minute).[13]

Rivaroxaban

Rivaroxaban (Xarelto®▼) is also an oral anticoagulant. It has been available in the UK since 2008 for prevention of VTE in adult patients undergoing elective hip or knee replacement surgery.

In December 2011, the marketing authorisation for the drug was extended to include:

- prevention of stroke and systemic embolism in adult patients with non-valvular AF with one or more risk factors, such as congestive heart failure, hypertension, age ≥ 75 years, diabetes mellitus, prior stroke or transient ischaemic attack.[14]

- treatment of deep vein thrombosis (DVT), and prevention of recurrent DVT and pulmonary embolism (PE) following an acute DVT in adults.[14]

Like dabigatran, rivaroxaban has fewer interactions with other medications and food than warfarin and does not require INR monitoring. [15,16] However, it is considerably more expensive than warfarin. Hypothetically, the increased drug cost of rivaroxaban may be offset to some extent by avoiding non-drug costs associated with anticoagulant monitoring but the infrastructure of warfarin clinics will still be required for patients who remain on warfarin (for AF and other indications). The cost of a year's treatment with rivaroxaban 20 mg daily for AF is currently £766.50. Cost estimates for a year's treatment with warfarin 7.5 mg daily, including monitoring, range widely depending on local arrangements, e.g. from about £220 to £480.[17]

The NICE technology appraisal for the use of rivaroxaban in the prevention of stroke and systemic embolism in patients with AF is expected in May 2012.

A recently published study (ATLAS ACS 2–TIMI 51) found that in patients with acute coronary syndrome (ACS), addition of rivaroxaban (2.5 mg or 5 mg twice daily) to standard antiplatelet therapy significantly reduced the primary composite end point of cardiovascular death, myocardial infarction, and stroke compared with addition of placebo.[18] Rivaroxaban is not currently licensed for the treatment of ACS in the UK but the manufacturer (Bayer) plans to submit an application to the EMA for marketing authorisation for this indication in the near future. A NICE technology appraisal has been proposed for the use of rivaroxaban in ACS.[19]

Apixaban

Apixaban is an oral anticoagulant launched in September 2011 for the prevention of VTE in adult patients who have undergone elective hip or knee replacement surgery.[20]

NICE has recently issued a final appraisal determination on the use of apixaban for the above indication.[21] Apixaban is recommended as an option for the prevention of VTE in adults after elective hip or knee replacement surgery. NICE concluded that apixaban was more effective and cheaper than enoxaparin. **It also concluded that there was insufficient clinical evidence to determine whether or not apixaban was more or less effective than rivaroxaban or dabigatran etexilate.**

Apixaban currently costs £17.15, £34.30 and £102.90 for packs of 10, 20 and 60 tablets respectively. The cost of treatment is estimated to be £41.16 (based on 12 days' treatment) for knee replacement surgery and £116.62 for hip replacement surgery (based on 34 days' treatment).

Although apixaban is not currently licensed for the prevention of stroke in patients with AF, the manufacturer (Bristol-Myers Squibb and Pfizer) has submitted an application to the EMA for marketing authorisation for this indication. Commissioners should consider this when planning for the use of dabigatran and rivaroxaban in patients with AF.

Boceprevir and telaprevir

Boceprevir (Victrelis®▼) and telaprevir (Incivo®▼) have recently been licensed for the treatment of chronic hepatitis C genotype 1 infection, in combination with peginterferon alfa and ribavirin, in adult patients with compensated liver disease who are treatment naïve or have failed previous therapy.[22,23] Both drugs are oral protease inhibitors.

The recommended dose of boceprevir is 800 mg three times a day. The duration of treatment depends on viral load and whether the patient has received treatment previously. The recommended dose of telaprevir is 750 mg every eight hours for 12 weeks. Both drugs should be initiated and monitored by a clinician experienced in the management of chronic hepatitis C. For further information see the summary of product characteristics.[23,24]

The cost of treatment with boceprevir or telaprevir is considerable, particularly as these drugs are used in combination with peginterferon alfa and ribavirin. A 24-week course of boceprevir costs £16,800 and a 12-week course of telaprevir costs £22,398. NICE is currently developing guidance for the use of the two drugs (expected date of issue is June 2012 and May 2012 for telaprevir and boceprevir respectively). Until NICE guidance is available, commissioners and local NHS decision-making bodies should engage with stakeholders to agree a protocol for the use of boceprevir and telaprevir. This includes identifying those patients for whom the drugs may be appropriate and planning for NICE guidance.

Ivabradine for heart failure

Ivabradine has been available in the UK since 2006 for the treatment of chronic stable angina pectoris in patients with coronary artery disease who have normal sinus rhythm.[25]

In December 2011, the EMA's Committee for Medicinal Products for Human Use (CHMP) adopted a positive opinion recommending the approval of a license extension for ivabradine to include the treatment of heart failure NYHA II to IV with systolic dysfunction, in patients with sinus rhythm and whose heart rate is ≥ 75 beats per minute, in combination with standard therapy including beta-blocker therapy or when beta-blocker therapy is contraindicated or not tolerated.[26]

A NICE technology appraisal for the use of ivabradine in heart failure is currently in progress (expected date of issue: December 2012). Commissioners and local decision making bodies on medicines should engage with stakeholders to agree a protocol for its use in heart failure. This includes planning for NICE guidance.

Aclidinium bromide

Aclidinium bromide is a new inhaled long-acting muscarinic antagonist (LAMA) developed for the treatment of chronic obstructive pulmonary disease (COPD). A submission for marketing authorisation was made to the EMA in July 2011.[27]

According to a press release from the manufacturer (Almirall), the regulatory submission includes the results of two phase III studies (a 12-week study and a 24-week study) which both found that in patients with COPD, aclidinium bromide 400 mcg twice daily (the proposed recommended dose) significantly improved morning pre-dose (trough) FEV_1 compared with placebo.[27] These studies have not yet been fully published and therefore cannot be fully evaluated. The efficacy of aclidinium has not yet been compared with other therapies for COPD in phase III trials.

The cost of treatment with aclidinium bromide is not yet known and NICE guidance has not yet been proposed.

Patent Expiries

Table 1: Patent Expiry Dates and Annual Spend in EXAMPLE (annual spend above £300,000 has been highlighted)

Year	Drug	EXPIRY* UK	EXPIRY* UK-SPC	Spend in your PCT (Nov-10 to Oct-11)
2011	Anastrozole	Jun 08	Feb 11	£186,833
	Exemestane	Jul 06	Jul 11	£97,118
	Ibandronic acid	Jul 07	Jun 11	£32,929
	Insulin aspart	Aug 06	Aug 11	£435,792
	Letrozole	Mar 07	Jul 11	£141,497
	Levofloxacin	Jun 06	Jun 11	£1,013
	Olanzapine	Feb 11	Sep 11	£721,161
	Pioglitazone HCl	Jan 06	Jan 11	£822,457
	Ropinirole HCl	May 08	Jul 11	£111,646
	Tiagabine HCl	Jun 06	Jun 11	£2,977
	Valsartan	Feb 11	Nov 11	£162,915
	Zafirlukast	Apr 06	Jan 11	£5,982
2012	Atorvastatin calcium lactate	May 07	May 12	£2,194,279
	Candesartan	Apr 11	Apr 12	£603,724
	Donepezil HCl	Jun 08	Feb 12	£276,730
	Duloxetine HCl	Dec 07	Dec 12	£83,542
	Eprosartan mesylate	Jun 10	Apr 12	£90,895
	Galantamine	Jan 07	Jan 12	£13,081
	Irbesartan	Mar 11	Aug 12	£261,947
	Latanoprost	Sep 09	Jan 12	£366,201
	Mometasone furoate	Sep 01	Feb 12	£4,313
	Montelukast sodium	Oct 11	Aug 12	£386,210
	Naratriptan	Aug 08	Mar 12	£37,860
	Quetiapine fumarate	Mar 07	Mar 12	£711,787
	Rabeprazole	Nov 07	Nov 12	£46,724
	Ramipril + Felodipine	Sep 07	Sep 12	£16,112
	Rivastigmine hydrogen tart	Feb 08	Jul 12	£60,469
	Tolterodine tartrate	Dec 09	Sep 12	£166,362
	Zolmitriptan	Jun 11	Mar 12	£25,365
2013	Irbesartan + hydrochlorothiazide	Mar 11	Oct 13	£116,124
	Raloxifene HCl	Jul 13	Aug 13	£12,668
	Rizatriptan	Jan 12	Feb 13	£41,330
	Salmeterol xinafoate+ Fluticasone propionate	Sep 10	Sep 13	£218,069
	Sildenafil	Jun 11	Jun 13	£249,452
	Telmisartan	Jan 12	Dec 13	£35,373

Year	Drug	EXPIRY* UK	EXPIRY* UK-SPC	Spend in your PCT (Nov-10 to Oct-11)
2014	Almotriptan	Jul 13	Dec 14	£7,604
	Aripiprazole	Oct 09	Oct 14	£334,163
	Escitalopram oxalate	May 09	May 14	£130,057
	Human papilloma virus vaccine	Mar 14		£2,135
	Insulin glargine	Nov 09	Nov 14	£926,346
	Memantine HCl	Apr 09	Apr 14	£6,026
	Moxifloxacin	Jun 09	Jun 14	£1,494
	Paliperidone	Oct 09	Oct 14	£5,253
	Somatropin (synthetic hGH)	Dec 12	Mar 14	£359,961
	Travoprost	Aug 14		£39,511
2015	Celecoxib	Nov 14		£50,228
	Darifenacin	Mar 10	Feb 15	£1,500
	Eletriptan	Oct 11	Dec 15	£630
	Etanercept	Sep 09	Oct 15	£358
	Etoricoxib	Sep 15		£47,708
	Frovatriptan	Jun 12	Dec 15	£9,830
	Nateglinide	Jul 12	Sep 15	£8,414
	Strontium ranelate	Aug 10	Aug 15	£17,037
	Tiotropium	Sep 10	Sep 15	£1,060,870
2016	Agomelatine	Feb 11	Feb 16	£360
	Ciclesonide	Sep 11	Sep 16	£6,058
2017	Bimatoprost	Sep 13	Mar 17	£68,384
	Dutasteride	Sep 14	Jul 17	£48,032
	Ezetimibe	Sep 14	Oct 17	£881,824
	Ivabradine	Sep 12	Sep 17	£12,203
	Melatonin	Apr 12	Apr 17	£136,540
	Olmesartan + hydrochlorothiazide	Feb 12	Feb 17	£4,895
	Olmesartan medoxomil	Feb 12	Feb 17	£38,738
	Olopatadine	May 16	May 17	£2,506
	Prasugrel	Sep 12	Sep 17	£59,406
	Rosuvastatin calcium	Jun 12	Jun 17	£601,299
	Tadalafil	Jan 15	Nov 17	£120,854
	Temisartan + Hydrochlorothiazide	Jan 12	Jan 17	£17,863
	Tramadol HCl	Sep 12	Apr 17	£537,303
2018	Insulin detemir	Sep 14	Nov 18	£265,912
	Pregabalin	May 13	May 18	£820,285
	Solifenacin tartrate	Dec 15	Dec 18	£298,184
	Vardenafil HCl	Oct 18		£34,939

**SOURCE: UKMiCentral*

Year The year in which the patent expires - this will be either the UK patent expiry or the UK SPC expiry if later.

UK The date of the expiry of the original UK patent. The basic patent is rarely the only protection involved and other processes, chemical form or formulation patents may be relevant. These may all extend the effective patent life of a product. The basic expiry date can only be taken as a guide to the earliest possible date for any generic form to appear.

SPC Supplementary Protection Certificate: this is a mechanism to guarantee a certain marketing exclusivity period for medicines throughout the EU, to allow for the extended development period they require. Current patents in the EU are valid for 20 years; an SPC applies from the date of first marketing of a product within the EU, and extends the effective patent life for up to 5 years, to allow up to a maximum of 15 years exclusivity.

Outpatient Data

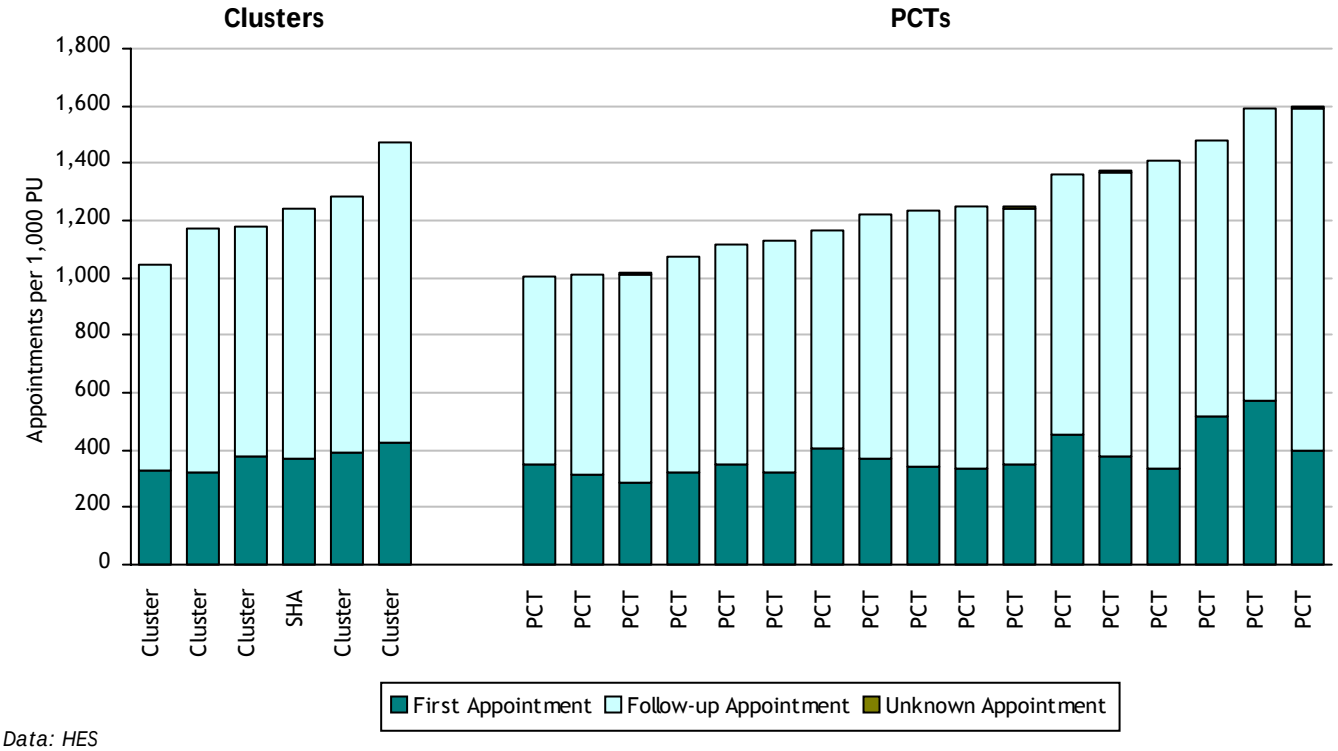
We have analysed outpatient data at both PCT and cluster level to allow for comparison of activity and have provided a number of questions that commissioners may wish to address.

In figure 1 we show all outpatient appointments for 2010/11, allocated to the PCT where the patient is registered at a GP practice, ranked per 1,000 prescribing units (PU). The data also show whether the appointment is a first or follow-up appointment.

Questions you might like to ask as you review the information:

- How does the PCT and cluster compare for total number of outpatient appointments?
- What about first versus follow-up appointments?
- Does your PCT have a greater proportion of first to follow-up appointments? Why might this be?

Fig 1 **West Midlands: Outpatient Appointments per 1,000 PU, by first and subsequent attendances, for the period Apr-10 to Mar-11**

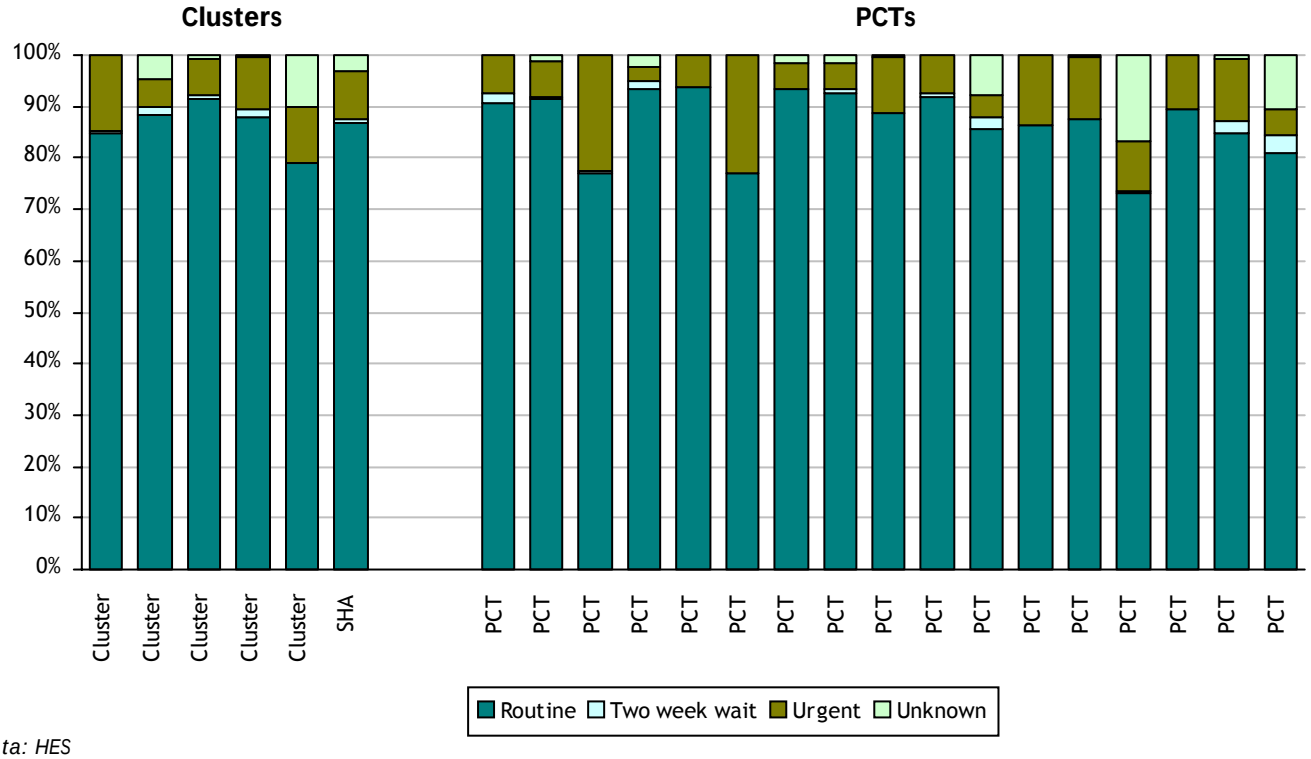


Data: HES

Figure 2 shows all outpatient appointments for 2010/11 by routine, two-week wait, urgent, and unknown.

- Again, questions may be around the differences and similarities between PCTs and clusters.
- Are there demographics, geography or policy issues that may cause differences and similarities between PCTs and clusters? Is it something to do with accuracy of coding?

Fig 2 **West Midlands: Outpatient Appointments, by priority of referral, for the period Apr-10 to Mar-11**



Data: HES

Figure 3 is split into 3 graphs which look at waiting times to the first outpatient appointment for 2010/11. The graphs show two-week wait data, urgent and routine appointments.

Questions you may wish to ask are:

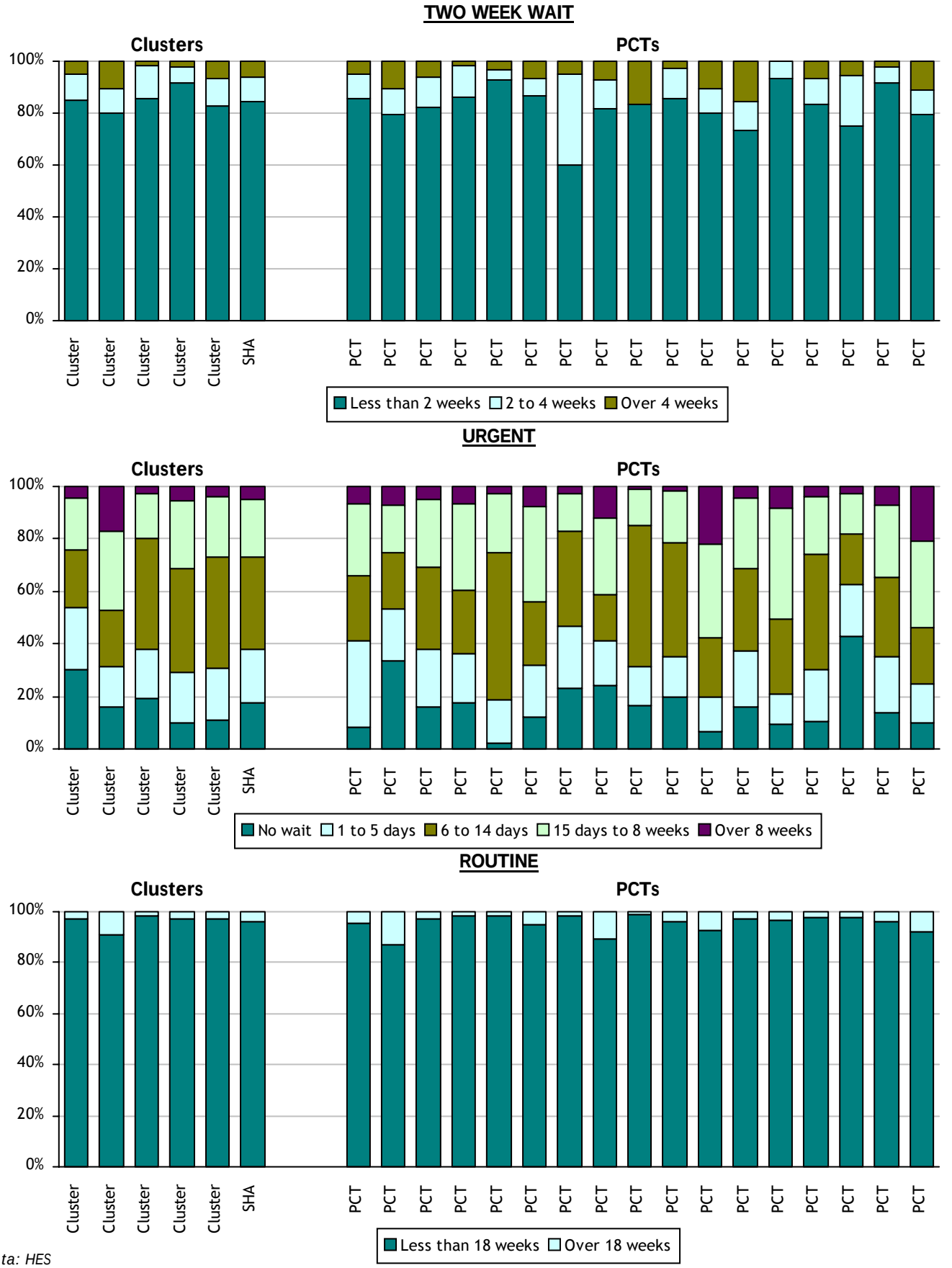
- What proportion of patients in your PCT or cluster are required to wait more than two-weeks for a referral made under 'two-week wait' criteria?
- Why is there such a marked difference in the timescales that patients are seen for appointments designated as urgent?
- What about 18-weeks? Does your PCT seem to have proportionally less patients seen within 18-weeks? Why might this be?

Figure 4 shows outpatient referral by source for 2010/11.

- What are your thoughts about the level of GP referral in comparison to alternative sources?
- What is the proportion of hospital professionals referring in your PCT? Is it greater or less than other PCTs? Why might this be? Are there clear consultant-to-consultant referral criteria?
- What about referrals in from A&E?
- Overall, in comparison to other PCTs/Clusters, what are your thoughts?

Table 2 shows new and follow up appointments, with the associated ratios at PCT and cluster level. We have looked at GP, hospital professional and 'other' referrals.

Fig 3 **West Midlands: Waiting Time to First Outpatient Appointment*, by referral priority, for the period Apr-10 to Mar-11**



Data: HES

** only appointments where a waiting time could be calculated have been included*

Fig 4 **West Midlands: Outpatient Appointments, by referral source*, for the period Apr-10 to Mar-11**

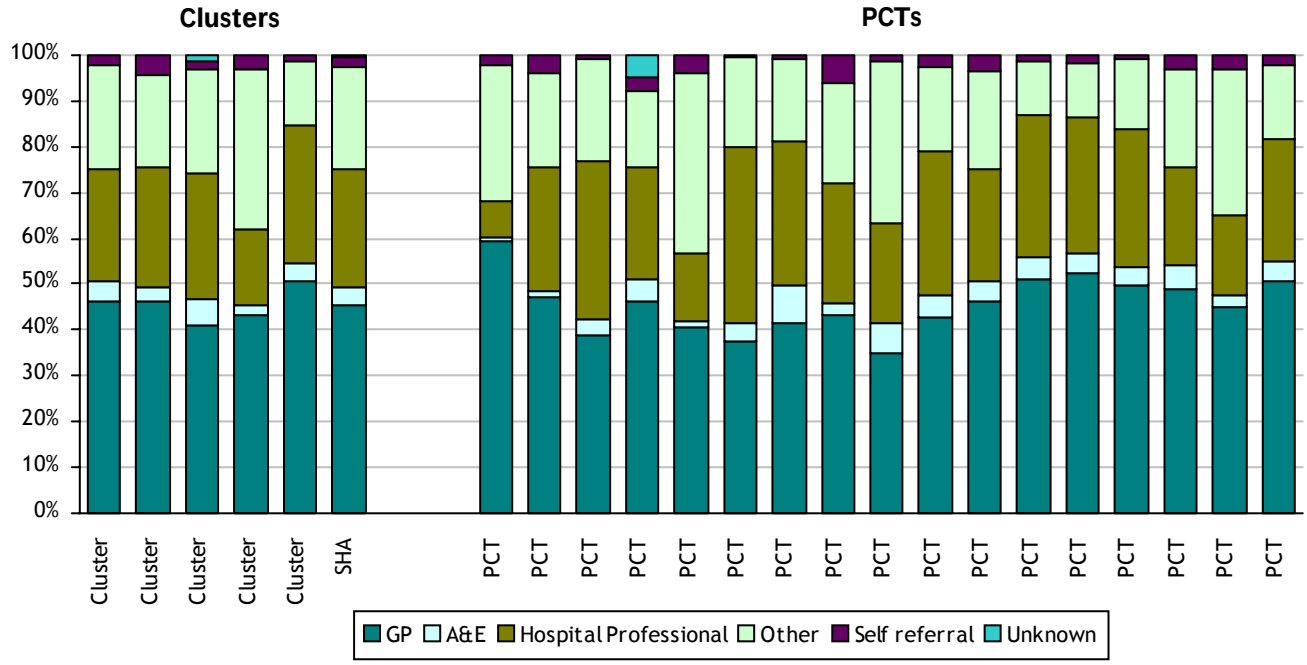


Table 2 **West Midlands: Outpatient Appointments, by referral source*, for the period Apr-10 to Mar-11**

PCT	GP			Hospital Professional			All Other Referrals		
	First	Follow-up	Ratio	First	Follow-up	Ratio	First	Follow-up	Ratio
PCT	76,541	113,816	1:1.5	56,808	112,455	1:2.0	37,162	94,254	1:2.5
PCT	42,942	68,946	1:1.6	33,286	80,702	1:2.4	22,913	50,016	1:2.2
PCT	136,889	295,427	1:2.2	68,688	118,999	1:1.7	67,282	195,758	1:2.9
PCT	59,491	134,404	1:2.3	5,972	20,530	1:3.4	25,814	80,605	1:3.1
Cluster	**315,863**	**612,593**	**1:1.9**	**164,754**	**332,686**	**1:2.0**	**153,171**	**420,633**	**1:2.7**
PCT	57,584	98,002	1:1.7	18,512	62,707	1:3.4	18,785	51,252	1:2.7
PCT	105,881	215,789	1:2.0	42,167	143,265	1:3.4	39,836	137,636	1:3.5
PCT	97,640	146,719	1:1.5	59,207	90,875	1:1.5	39,283	130,363	1:3.3
PCT	120,358	209,536	1:1.7	43,142	129,006	1:3.0	50,910	158,730	1:3.1
Cluster	**381,463**	**670,046**	**1:1.8**	**163,028**	**425,853**	**1:2.6**	**148,814**	**477,981**	**1:3.2**
PCT	62,139	115,919	1:1.9	32,259	103,167	1:3.2	25,408	89,830	1:3.5
PCT	86,334	153,122	1:1.8	31,821	118,306	1:3.7	52,882	245,439	1:4.6
PCT	133,328	175,205	1:1.3	87,724	138,042	1:1.6	37,733	145,584	1:3.9
PCT	68,778	164,804	1:2.4	22,205	101,327	1:4.6	29,810	118,272	1:4.0
Cluster	**350,579**	**609,050**	**1:1.7**	**174,009**	**460,842**	**1:2.6**	**145,833**	**599,125**	**1:4.1**
PCT	69,764	118,863	1:1.7	14,505	54,132	1:3.7	75,828	131,518	1:1.7
PCT	119,640	239,613	1:2.0	35,114	104,696	1:3.0	83,470	217,647	1:2.6
Cluster	**189,404**	**358,476**	**1:1.9**	**49,619**	**158,828**	**1:3.2**	**159,298**	**349,165**	**1:2.2**
PCT	164,638	359,096	1:2.2	74,385	242,536	1:3.3	45,279	167,272	1:3.7
PCT	48,906	101,923	1:2.1	17,322	74,803	1:4.3	16,161	36,684	1:2.3
PCT	72,743	149,816	1:2.1	22,662	103,005	1:4.5	26,248	49,589	1:1.9
Cluster	**286,287**	**610,835**	**1:2.1**	**114,369**	**420,344**	**1:3.7**	**87,688**	**253,545**	**1:2.9**
SHA Totals	**1,523,596**	**2,861,000**	**1:1.9**	**665,779**	**1,798,553**	**1:2.7**	**694,804**	**2,100,449**	**1:3.0**

** where "hospital professional" includes a consultant not based in A+E and specialist nurses from secondary care and "other" includes allied health professionals, dentists, optometrists, orthoptists, prosthetists, national screening programmes and other or unknown.*
Data: HES

References

1. Anon. Department of Health. Health and Social care bill. http://www.dh.gov.uk/en/Publicationsandstatistics/Legislation/Actsandbills/HealthandSocialCareBill2011/index.htm <Accessed 12/2011>
2. Anon. Department of Health. The Operating Framework for the NHS in England 2012/13. 24th November 2011.
3. Anon. Department of Health. The Integrated Approach to Planning and Assurance between DH and the NHS for 2012/13. December 2011.
4. Anon. Department of Health. NHS Outcomes Framework 2012/13. December 2011.
5. Anon. Department of Health. Innovation, Health and Wealth, accelerating adoption and diffusion in the NHS. December 2011.
6. Anon. Hospital Prescribing: England 2010. The Information Centre for health and social care. 18th October 2011. http://www.ic.nhs.uk/webfiles/publications/007_Primary_Care/Prescribing/Hospital%20Prescribing%202010/Hospital_prescribing_bulletin_England_2010.pdf <accessed 12/2011>.
7. Hospital Prescribing England 2005. The Information Centre. 2006 . http://www.ic.nhs.uk/statistics-and-data-collections/primary-care/prescriptions/report-of-hospital-prescribing-2005 <accessed 12/2011>
8. Homecare Medicines: Towards a vision for the future. Department of Health. 2011. http://cmu.dh.gov.uk/files/2011/12/111201-Homecare-Medicines-Towards-a-Vision-for-the-Future2.pdf. <accessed 12/2011>
9. Boehringer Ingelheim Limited. Pradaxa 110 mg hard capsules. Summary of product characteristics. Electronic medicines compendium. 2011. http://www.medicines.org.uk/EMC/medicine/20760/SPC/Pradaxa+110+mg+hard+capsules/#INDICATIONS <accessed 11/2011>
10. Boehringer Ingelheim Limited. Pradaxa 150 mg hard capsules. Summary of product characteristics. Electronic medicines compendium. 2011. http://www.medicines.org.uk/EMC/medicine/24839/SPC/Pradaxa+150+mg+hard+capsules/ <accessed 11/2011>
11. Dabigatran etexilate (Pradaxa) for stroke prevention in patients with atrial fibrillation. Midlands Therapeutics Review and Advisory Committee. 2011. http://195.62.199.219/pctsla/mtrac/Commissioning/D/DabigatranAF.pdf <accessed 11/2011>
12. Dabigatran etexilate (Pradaxa) for stroke prevention in patients with atrial fibrillation. Midlands Therapeutics Review and Advisory Committee. 2011. http://195.62.199.219/pctsla/mtrac/Commissioning/D/DabigatranAF.pdf <accessed 11/2011>
13. Dabigatran (Pradaxa): risk of serious haemorrhage-need for renal function testing. Medicines and Healthcare products Regulatory Agency. 2011. http://www.mhra.gov.uk/Safetyinformation/DrugSafetyUpdate/CON137771 <accessed 1/2012>
14. Bayer plc. Xarelto 20 mg film-coated tablets. Summary of product characteristics. Electronic medicines compendium. 2011. http://www.medicines.org.uk/EMC/medicine/25586/SPC/Xarelto+20mg+film-coated+tablets/#INDICATIONS <accessed 12/2011>
15. Patel MR, Mahaffey KW, Garg J *et al*. Rivaroxaban versus warfarin in nonvalvular atrial fibrillation. *N Engl J Med* 2011;**365**:883-91.
16. Bayer plc. Xarelto 10 mg film-coated tablets. Summary of product characteristics. Electronic medicines compendium. 2011. http://www.medicines.org.uk/EMC/medicine/21265/SPC/Xarelto+10+mg+film-coated+tablets/#PRODUCTINFO <accessed 11/2011>
17. Dabigatran etexilate (Pradaxa) for stroke prevention in patients with atrial fibrillation. Midlands Therapeutics Review and Advisory Committee. 2011. http://195.62.199.219/pctsla/mtrac/Commissioning/D/DabigatranAF.pdf <accessed 11/2011>
18. Mega JL, Braunwald E, Wiviott SD *et al*. Rivaroxaban in Patients with a Recent Acute Coronary Syndrome. *N Engl J Med* 2012; 366:9-19.
19. Rivaroxaban for the treatment of acute coronary syndrome. Proposed Health Technology Appraisal. Draft scope (Pre-referral) . National Institute for Health and Clinical Excellence. 2011. http://www.nice.org.uk/media/6F2/BD/AcuteCoronarySyndromeRivaroxabanDraftScope.pdf <accessed 11/2011>
20. Eliquis 2.5 mg film-coated tablets. Summary of product characteristics. Electronic medicines compendium. 2011. http://www.medicines.org.uk/EMC/medicine/24988/SPC/Eliquis+2.5+mg+film-coated+tablets/#INDICATIONS <accessed 11/2011>
21. Venous thromboembolism - apixaban (hip and knee surgery): final appraisal determination document. National Institute for Health and Clinical Excellence. 2011. http://guidance.nice.org.uk/TA/Wave21/17/FAD/FinalAppraisalDetermination/pdf/English <accessed 11/2011>
22. Victrelis 200 mg hard capsules. Electronic medicines compendium. 2011. http://www.medicines.org.uk/EMC/medicine/24768/SPC/Victrelis+200+mg+hard+capsules/ <accessed 11/2011>
23. Janssen-Cilag Ltd. Incivo 375 mg film coated tablets. Electronic medicines compendium. 2011. http://www.medicines.org.uk/EMC/medicine/25038/SPC/INCIVO+375+mg+film+coated+tablets/#INDICATIONS <accessed 11/2011>
24. Victrelis 200 mg hard capsules. Electronic medicines compendium. 2011. http://www.medicines.org.uk/EMC/medicine/24768/SPC/Victrelis+200+mg+hard+capsules/ <accessed 11/2011>
25. Servier Laboratories Limited. Procoralan. Summary of product characteristics. Electronic medicines compendium. 2011. http://www.medicines.org.uk/EMC/medicine/17188/SPC/Procoralan/#INDICATIONS <accessed 11/2011>
26. Committee for Medicinal Products for Human Use. Summary of opinion (post authorisation) Procoralan. Ivabradine. European Medicines Agency. 2011. http://www.ema.europa.eu/docs/en_GB/document_library/Summary_of_opinion/human/000597/WC500119376.pdf <accessed 12/2011>
27. Almirall. Aclidinium bromide submitted for registration in Europe. Almirall. 2011. http://www.almirall.com/webcorp2/cda/comunicacion_detalle_noticia.jsp?id=1539 <accessed 11/2011>

Prescribing Information *to support* QIPP

Section: A

Newer Hypoglycaemics

January 2012

EXAMPLE

What are the issues?

- Commissioners are under pressure to reduce emergency admissions and outpatient referrals into secondary care which is likely to be achieved through improved management of diabetic patients in primary care.
- The Quality and Outcomes Framework (QOF) allocates points for achieving three levels of glucose control in patients with type 2 diabetes – HbA_{1c} of 7.5% or less, 8% or less, and 9% or less.

Intensive versus conventional blood glucose control

- Poor glucose control cannot be advocated in patients with type 2 diabetes as it is associated with a higher risk of mortality and microvascular complications.[1] However, blood glucose control may not reduce the risk of cardiovascular disease as effectively as blood pressure control or lipid lowering. Management of type 2 diabetes requires individualized multifactorial care.[1]
- Several studies have demonstrated that intensive glycaemic control in type 2 diabetes provides only limited benefits and is associated with an increased risk of adverse events. A recently published Cochrane systematic review of RCTs of intensive glucose lowering regimens versus conventional glycaemic control found that although intensive glucose control may exert some positive benefits on microvascular complications, the therapy did not improve all-cause or cardiovascular mortality.[2] Patients receiving intensive glucose lowering therapy were significantly more likely to experience both mild and severe hypoglycaemia. **Reducing blood glucose levels too much may be harmful. The ACCORD study found that in patients with a high risk of cardiovascular events, intensive glucose lowering treatment (target HbA_{1c} below 6.0%) for type 2 diabetes was associated with a higher risk of death than "standard" therapy (target HbA_{1c} 7.0 to 7.9%).[3]**

Newer hypoglycaemic drugs

- NICE updated guidance on the management of type 2 diabetes to include newer agents in 2009.[4] Saxagliptin▼, linagliptin▼, liraglutide▼ and prolonged release exenatide▼ (once weekly formulation) were not licensed at the time of the NICE review. Specific guidance for liraglutide was issued in October 2010.[5] Guidance for prolonged release exenatide is expected in February 2012.[6]
  NICE recommends:
  - patients should be involved in setting their individualised HbA_{1c} target level, which may be above the general target of 6.5% (48mmol/mol). Avoid pursuing highly intensive management to levels of less than 6.5% (48mmol/mol).
  - metformin is the usual 1st line oral hypoglycaemic for patients with type 2 diabetes.
  - if blood glucose is inadequate on monotherapy (HbA_{1c} ≥ 6.5% [48 mmol/mol], or other higher level agreed with the individual), metformin and a sulfonylurea should be the usual 2nd line therapy.
  - if this combination fails to provide adequate glycaemic control (HbA_{1c} ≥ 7.5% [59 mmol/mol], or other higher level agreed with the individual), the next step is to consider adding NPH (isophane) insulin.
  - newer antidiabetic drugs including the DPP-4 inhibitors (gliptins), thiazolidinediones (pioglitazone) and GLP-1 mimetics (exenatide and liraglutide) may be prescribed in certain circumstances (see Table 1 for further details).

- Pioglitazone▼ should not be used in people with heart failure or a history of heart failure, and heart failure has been reported with the use of pioglitazone in combination with insulin. Pioglitazone should not be started or continued in people at higher risk of fractures.[7] The Medicines and Healthcare products Regulatory Agency (MHRA) has recently issued advice for the use of pioglitazone following a European Medicines Agency (EMA) safety review of pioglitazone which concluded that it is associated with a small increased risk of bladder cancer[8]:
  - Pioglitazone is contraindicated in patients with active bladder cancer or a history of bladder cancer or in those with uninvestigated haematuria.
  - Risk factors for bladder cancer should be assessed before initiating pioglitazone treatment.
  - The balance of benefits and risks of pioglitazone should be carefully considered before initiating treatment in the elderly. If pioglitazone is used in these patients, start on the lowest possible dose and monitor regularly.
  - Review pioglitazone treatment after three to six months of treatment to assess adequacy of response (stop treatment if response is inadequate).

- **There are no robust long-term safety data or long-term outcome data from RCTs for the DPP-4 inhibitors or the GLP-1 mimetics.** The MHRA has previously highlighted risk of severe pancreatitis and renal failure with exenatide.[9] There have also been postmarketing reports of pancreatitis with sitagliptin and vildagliptin.[10] There are also concerns that sitagliptin and exenatide may be associated with pancreatic cancer.[11]

What are the actions?

Remember:
Diabetes management is an area of increased burden to the Local Health Economy due to:

- Increasing prevalence of type 2 diabetes
- Newer and more costly medicines and technologies available that currently do not have robust outcome evidence

In practices:

- Review prescribing to ensure metformin is prescribed first-line
- Ensure prescribing is safe and appropriate bearing in mind recent MHRA guidance
- Restrict the use of newer hypoglycaemic agents to NICE recommendations
- Ensure patients are reviewed regularly and check whether those attending outpatient clinics could be managed in primary care

Commissioners:

- Develop robust and appropriate referral criteria and care pathways for patients with diabetes
- Assess prescribing and activity for patients with diabetes in light of hospital admissions data
    - How do you compare with other PCTs?
    - Do you think practices are identifying all patients with diabetes? Are there patients admitted to hospital that have not been found in primary care?
    - Check the IMS data. Are there any issues around prescribing in secondary care for patients with diabetes?
- Work with colleagues in the local health economy to develop shared diabetes guidance, which will be crucial to contain costs and drive up quality

Cost Implications

This area of prescribing will continue to place considerable cost pressures on commissioners and prescribers.

- Using information from your QOF diabetes registers, we have identified the likely pressures on prescribing costs associated with DPP-4 inhibitors and GLP-1 mimetics.
- We have shown the relative increases in costs and volume (NIC and DDDs) for DPP-4 inhibitors and GLP-1 mimetics for you and other West Midlands PCTs and clusters.
- We have also shown the potential savings from prescribing at a lower cost per DDD, including the Net Ingredient Cost (NIC) per QOF registered diabetic patient and the percentage increase in this area of prescribing – which ranges from 2% to 11% across West Midlands PCTs.
- We have added prescribing trends and comparisons in order to provide context, as well as prevalence data extracted from QMAS for diabetes.
- We have also provided hospital data (IMS and hospital admissions) which we hope that you will find helpful in your discussions with your practices, commissioners and provider trusts.

References:

1. MeReC Bulletin. Improving outcomes in type 2 diabetes. Volume 21. No.5. National Prescribing Centre. 2011. http://www.npc.co.uk/merec/cardio/diabetes2/resources/merec_bulletin_vol21_no5.pdf <accessed 11/2011>
2. Hemmingsen B, Lund SS, Gluud C *et al*. Targeting intensive glycaemic control versus targeting conventional glycaemic control for type 2 diabetes mellitus. *Cochrane Database Syst Rev* 2011;CD008143.
3. Gerstein HC, Miller ME, Genuth S *et al*. Long-term effects of intensive glucose lowering on cardiovascular outcomes. *N Engl J Med* 2011;**364:**818-28.
4. CG87 Type 2 diabetes - newer agents (a partial update of CG66): quick reference guide. National Institute for Health and Clinical Excellence. 2009. http://guidance.nice.org.uk/CG87/QuickRefGuide/pdf/English <accessed 11/2011>
5. Liraglutide for the treatment of type 2 diabetes mellitus. TA203. National Institute for Health and Clinical Excellence. 2010. http://guidance.nice.org.uk/TA203/QuickRefGuide/pdf/English <accessed 11/2011>
6. Diabetes (type 2) - exenatide (prolonged release). National Institute for Health and Clinical Excellence. 2011. http://guidance.nice.org.uk/TA/Wave22/0 <accessed 11/2011>
7. Takeda Uk Ltd. Actos Tablets. Summary of Product Characteristics. Electronic Medicines Compendium. 2011. http://www.medicines.org.uk/EMC/medicine/4236/SPC/Actos+Tablets/#PRODUCTINFO <accessed 11/2011>
8. Pioglitazone: risk of bladder cancer. Drug Safety Update Volume 5, Issue 1. Medicines and Healthcare products Regulatory Agency. 2011. http://www.mhra.gov.uk/Safetyinformation/DrugSafetyUpdate/CON125962 <accessed 11/2011>
9. Exenatide (Byetta): risk of severe pancreatitis and renal failure. Drug Safety Update, Volume 2, Issue 8. Medicines and Healthcare products Regulatory Agency. 2009. http://www.mhra.gov.uk/home/groups/pl-p/documents/publication/con041213.pdf <accessed 11/2011>
10. Other antidiabetic drugs. Endocrine system. Chapter 6. British National Formulary. September 2011. No. 62.
11. Elashoff M, Matveyenko AV, Gier B *et al*. Pancreatitis, pancreatic, and thyroid cancer with glucagon-like peptide-1-based therapies. *Gastroenterology* 2011;**141:**150-6.

Table 1 **Thiazolidinediones versus DPP-4 Inhibitors verus GLP-1s (continued overleaf)**

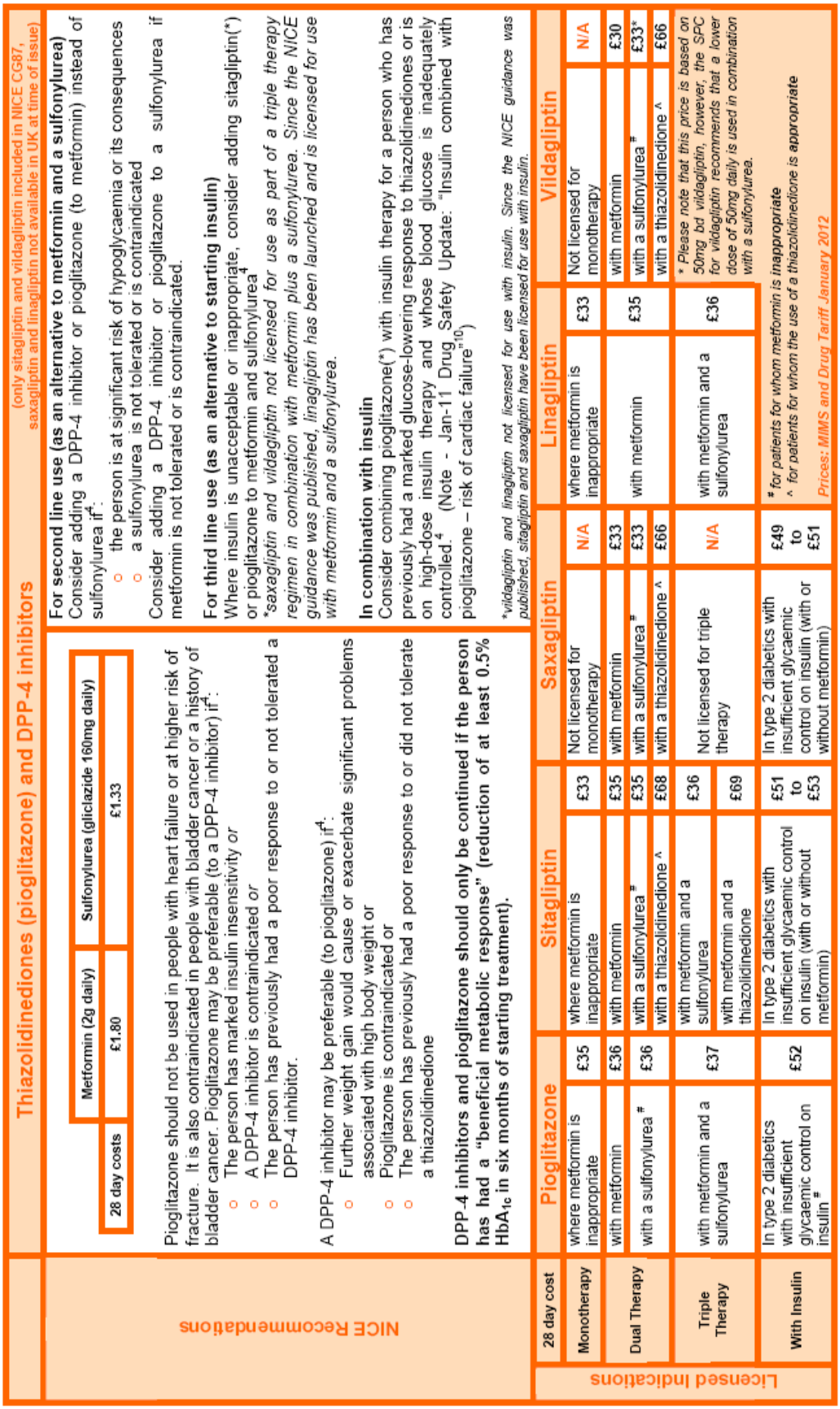
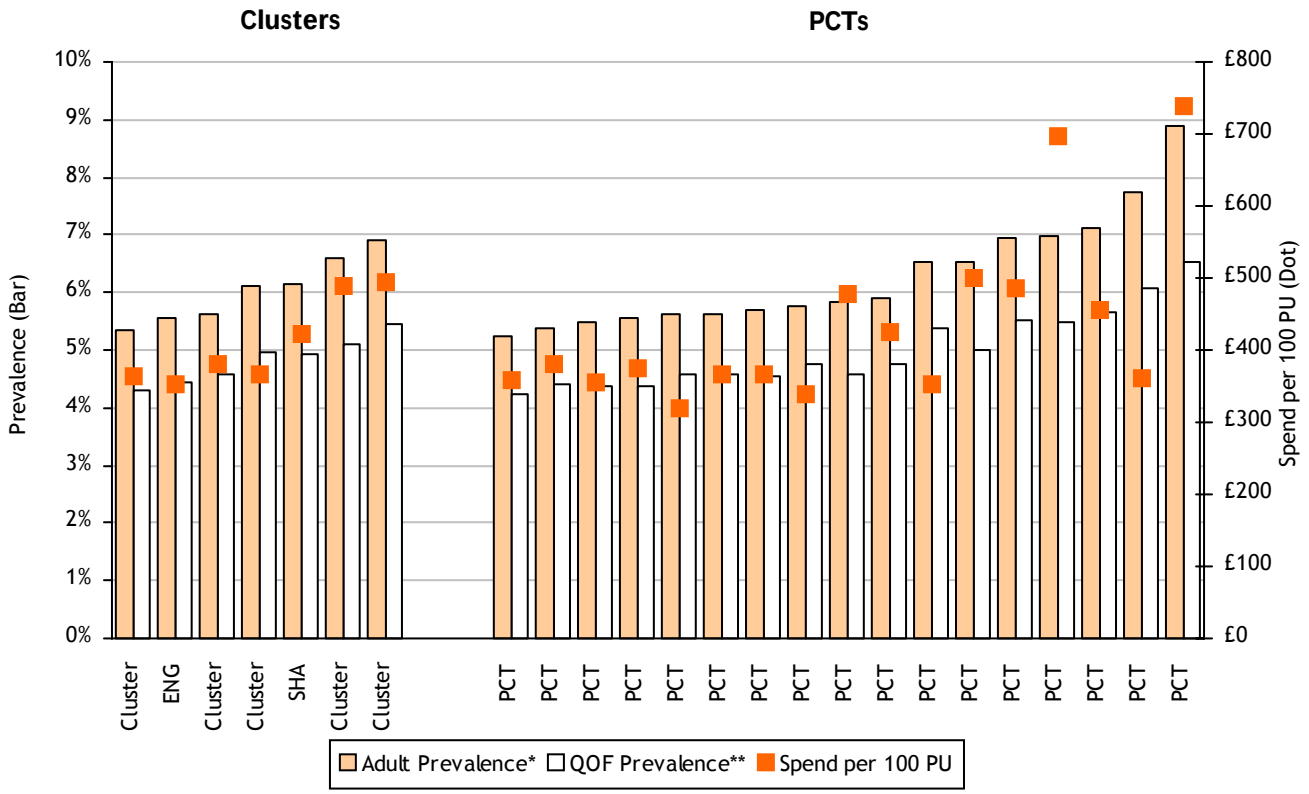


Table 1 **Thiazolidinediones versus DPP-4 Inhibitors verus GLP-1s continued...**

	GLP-1 mimetics ("NICE recommendations" refer to exenatide twice weekly and liraglutide once weekly. Guidance for prolonged-release exenatide is expected in February 2012)				
NICE recommendations	Consider adding **exenatide twice daily** as third line therapy to first line metformin and a second line sulfonylurea when control of blood glucose is inadequate on dual therapy (HbA_{1c} ≤ 7.5% (59 mmol/mol), or other higher level agreed with individual) and the person has:[4] ○ A BMI ≥ 35 kg/m^2 in those of European descent (with appropriate adjustment for other ethnic groups) and specific psychological or medical problems associated with high body weight or ○ A BMI < 35 kg/m^2 and therapy with insulin would have significant occupational implications or weight loss would benefit other significant obesity-related co-morbidities. Consider **liraglutide 1.2 mg daily** in triple therapy regimens (with metformin and a sulfonylurea , or metformin and a thiazolidinedione) when control of blood glucose is inadequate (HbA_{1c} ≤ 7.5% (59 mmol/mol), or other higher level agreed with the individual), and the person has:[5] ○ A BMI ≥ 35 kg/m^2 in those of European descent (with appropriate adjustment for other ethnic groups) and specific psychological or medical problems associated with high body weight or ○ A BMI < 35 kg/m^2 and therapy with insulin would have significant occupational implications or weight loss would benefit other significant obesity-related co-morbidities. **Exenatide twice daily or liraglutide daily in a triple therapy regimens should only be continued if a beneficial metabolic response has been shown (reduction of at least 1.0 % HbA_{1c} and a weight loss of at least 3% of initial body weight at 6 months)**[4,5] Liraglutide 1.2 mg daily may be used as part of a dual therapy regimen (with either metformin or a sulfonylurea) **only if:**[5] ○ treatment with metformin or a sulfonylurea is not tolerated or is contraindicated, **and** ○ thiazolidinediones **and** DPP-4 inhibitors are not tolerated or are contraindicated. **Treatment with liraglutide 1.2 mg daily in a dual therapy regimen should only be continued if a beneficial metabolic response has been shown (reduction of at least 1% HbA_{1c} at 6 months)** Liraglutide 1.8 mg daily is not recommended.[5] ***NOTE: prices for metformin and gliclazide (sulfonylurea) are provided on the previous page***				
Licensed Indications	28 day costs	Exenatide		Liraglutide	
		Twice daily	Prolonged release		
Monotherapy	Not licensed for monotherapy	N/A	N/A	Not licensed for monotherapy	N/A
Dual Therapy	with metformin	£65	£75	with metformin	£75
	with a sulfonylurea	£65	£75	with a sulfonylurea	£75
	with pioglitazone	£98	£108		
Triple Therapy	with metformin and a sulfonylurea	£67	£76	with metformin and a sulfonylurea	£76
	with metformin and pioglitazone	£100	£109	with metformin and pioglitazone	£109

Fig 1 **West Midlands: Diabetes Prevalence and Prescribing of Antidiabetic Drugs (BNF Section 6.1.2) Rates, for the period Apr-10 to Mar-11**



** Adult Prevalence = Number of patients with diabetes over 17 / Number of patients over 17*

*** QOF Prevalence = Number of patients with diabetes over 17 / Number of patients*

Table 2 **Cost Implications for DPP-4 Inhibitors**

QOF Diabetes Register 2010/11	**18,765**
Current annual spend on saxagliptin, sitagliptin, vildagliptin and combinations	**£546,355**

In the diabetes NICE guidance (CG87) there was uncertainty about uptake levels for DPP-4 inhibitors, following discussions with experts, NICE assumed that 6% of people with type-2 diabetes would be prescribed DPP-4 inhibitors Applying this figure to your PCT's diabetic register*, the potential costs for DPP-4 inhibitors have been calculated.

COST OF TREATING WITH DPP-4 INHIBITORS:

6% of diabetic patients	**£476,559 (see NOTE)**

Data: QOF, NICE Guidance CG87 and PPD *Prices: MIMS January 2012*

** PCT register includes type I and type 2 diabetics over 16 years of age*

NOTE: current spend on DPP-4 inhibitors in your PCT is already above NICE estimates, based on your 2010/11 QOF diabetes register

Table 3 **Cost Implications for GLP-1s**

QOF Diabetes Register 2010/11	**18,765**
Estimated number of patients already treated with exenatide**	**298**
Estimated number of patients already treated with liraglutide**	**273**
Estimated percentage of those on the diabetic register already treated with exenatide or liraglutide	**3.04%**
Current annual spend on exenatide and liraglutide	**£469,320**

In the diabetes NICE guidance (CG87) experts suggested that, over time, uptake of exenatide could range from between 5% and 20% of the type-2 diabetic population and have used an initial estimate of 2%. For pragmatic reasons we have also applied these percentages to liraglutide. Applying these figures to your PCT's diabetic register*, we have been able to calculate some potential costs for exenatide or liraglutide.

COST OF TREATING WITH EXENATIDE:

2% of diabetic patients	**£311,594**
5% of diabetic patients	**£778,985**
20% of diabetic patients	**£3,115,941**

OR

COST OF TREATING WITH LIRAGLUTIDE:

2% of diabetic patients	**£358,351**
5% of diabetic patients	**£895,879**
20% of diabetic patients	**£3,583,515**

Data: QOF, NICE Guidance CG87 and PPD *Prices: MIMS January 2012*

** PCT register includes type I and type 2 diabetics over 16 years of age*

*** Estimated from current prescribing data and recommended dose*

The following table is based on data for the last 3 months (Aug-11 to Oct-11). Increases compare this 3 month period with the same period last year.

Table 4 **DPP-4 Inhibitors and GLP1s (within BNF 6.1.2.3): Prescribing and Change in Prescribing by Volume (DDDs) and Spend (NIC)**

PCT	DPP-4 Inhibitors*				GLP1s			
	% Increase in DDDs	Actual NIC Increase**	DDDs per 1,000 PU	NIC per 1,000 PU	% Increase in DDDs	Actual NIC Increase**	DDDs per 1,000 PU	NIC per 1,000 PU
PCT	56%	£68,895	201	£238	9%	£18,097	61	£135
PCT	79%	£35,189	156	£185	83%	£28,801	100	£197
PCT	33%	£10,874	166	£198	22%	£5,418	108	£236
PCT	49%	£13,164	127	£151	19%	£4,002	42	£93
Cluster	56%	£128,122	174	£206	30%	£56,319	74	£157
PCT	37%	£47,197	378	£444	108%	£33,425	142	£227
PCT	50%	£47,438	233	£278	24%	£20,878	68	£155
PCT	44%	£75,568	356	£416	56%	£40,480	88	£181
PCT	28%	£20,047	245	£292	12%	£5,364	43	£90
Cluster	41%	£190,250	307	£362	56%	£100,147	86	£168
PCT	48%	£33,851	240	£284	15%	£11,684	89	£203
PCT	56%	£40,049	275	£321	22%	£42,975	280	£550
PCT	36%	£52,653	359	£423	25%	£31,064	149	£327
PCT	62%	£38,935	195	£231	18%	£19,286	101	£226
Cluster	48%	£165,488	269	£317	21%	£105,009	151	£320
PCT	60%	£52,327	254	£299	5%	£8,043	86	£211
PCT	61%	£85,531	252	£295	37%	£39,858	71	£165
Cluster	60%	£137,859	253	£297	21%	£47,901	77	£182
PCT	81%	£19,158	122	£145	83%	£16,303	61	£120
PCT	34%	£19,443	172	£204	62%	£36,723	130	£253
PCT	58%	£83,298	221	£263	37%	£48,330	81	£177
Cluster	54%	£121,898	190	£226	50%	£101,356	89	£185
SHA Totals	50%	£743,617	239	£282	33%	£410,731	96	£202

Data: PPD

**Includes the combination products with metformin.*
*** Change compared to the same period last year.*

The following table is based on data for the last 3 months (Aug-11 to Oct-11). Savings are then extrapolated from this data to give an annual saving which is based on current data.

It is likely that those PCTs with a lower cost per DDD for these antidiabetic drugs are already in the process of promoting cost-effective prescribing in this area.

Table 5 Other Antidiabetic Drugs (BNF 6.1.2.3): Potential Savings from Prescribing at a Lower Cost per DDD

PCT	NIC per DDD	% change in NIC per DDD*	NIC per QOF diabetic patient	WM Indicator^ (Quarterly)		Potential Annual Saving
				Oct-11	Oct-10	
PCT	£1.31	6%	£21.04	82%	82%	£3,427
PCT	£1.32	3%	£23.06	82%	83%	£12,228
PCT	£1.37	2%	£24.27	82%	80%	£30,704
PCT	£1.33	7%	£17.62	83%	82%	£10,014
Cluster	**£1.33**	**5%**	**£21.44**	**82%**	**82%**	**£56,374**
PCT	£1.23	2%	£27.14	81%	81%	£0
PCT	£1.33	6%	£19.87	84%	85%	£23,928
PCT	£1.28	5%	£25.60	81%	82%	£0
PCT	£1.27	3%	£17.38	85%	84%	£0
Cluster	**£1.27**	**4%**	**£23.50**	**82%**	**82%**	**£23,928**
PCT	£1.41	4%	£13.62	89%	89%	£62,806
PCT	£1.52	5%	£22.75	85%	86%	£184,398
PCT	£1.27	5%	£34.55	76%	76%	£0
PCT	£1.36	3%	£22.98	83%	84%	£51,217
Cluster	**£1.36**	**4%**	**£23.92**	**82%**	**83%**	**£298,422**
PCT	£1.41	4%	£20.29	86%	87%	£90,492
PCT	£1.34	7%	£22.54	83%	84%	£52,668
Cluster	**£1.37**	**6%**	**£21.64**	**84%**	**85%**	**£143,159**
PCT	£1.31	11%	£13.80	89%	88%	£0
PCT	£1.36	9%	£20.61	86%	85%	£44,112
PCT	£1.41	7%	£16.62	87%	89%	£126,240
Cluster	**£1.37**	**8%**	**£17.15**	**87%**	**87%**	**£170,352**
SHA Totals	**£1.33**	**5%**	**£21.72**	**84%**	**84%**	**£692,235**

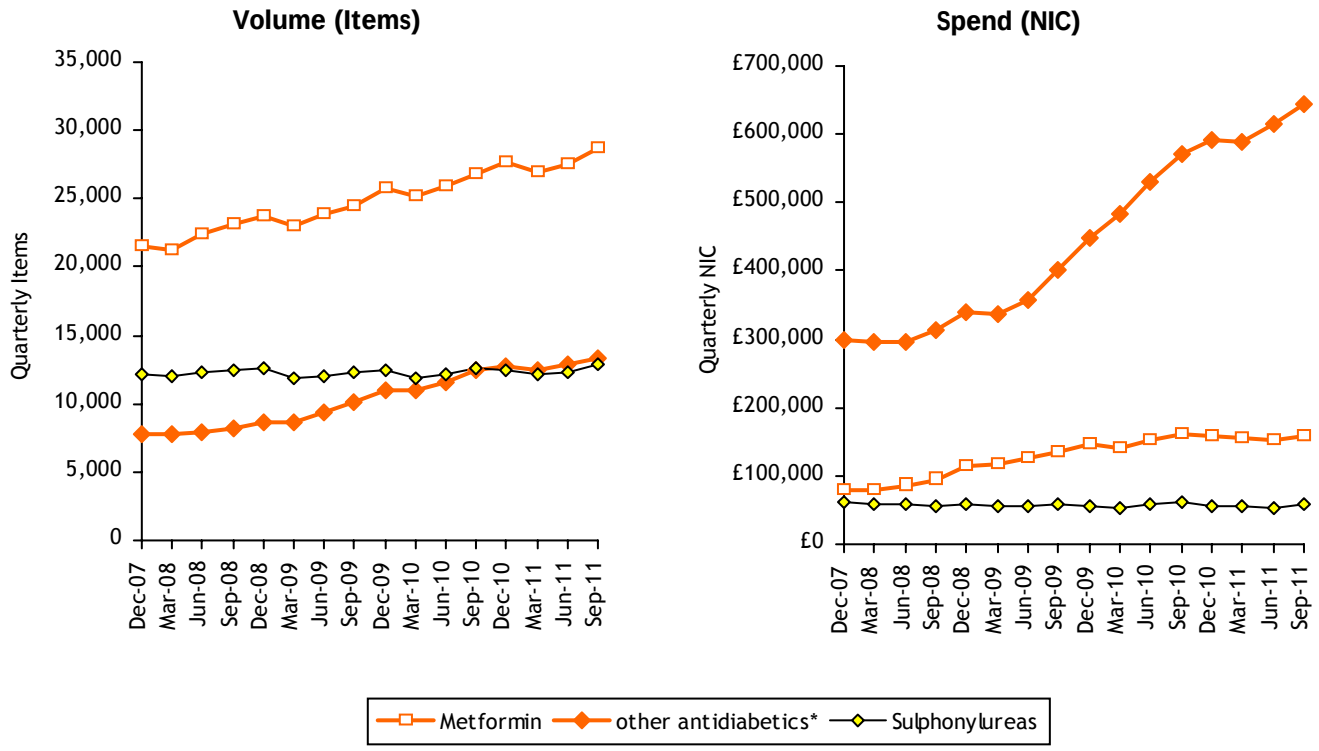
Data: PPD

* *Change compared to the same period last year.*

^ *West Midlands Medicines Management Network Performance Indicator - Increase the proportion of antidiabetic drugs prescribed as metformin or sulphonylureas ≥ 85%*

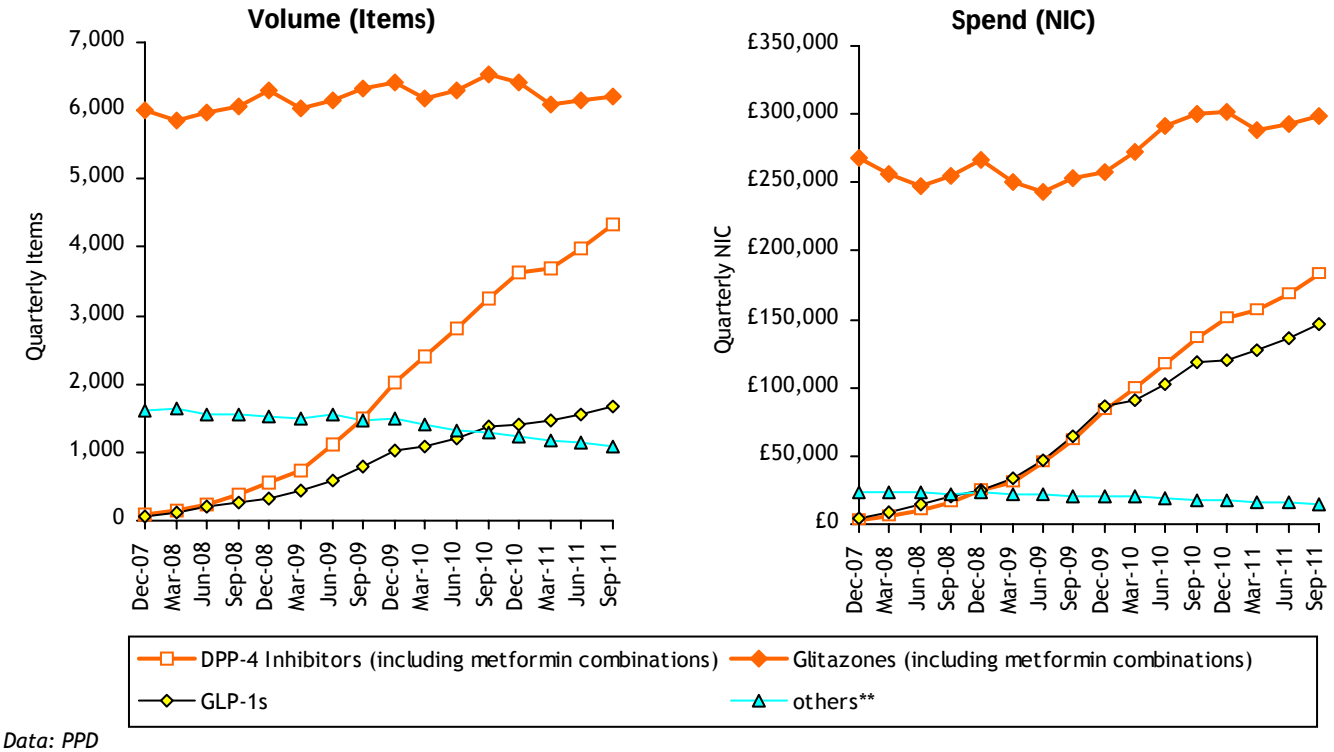
NOTE: We have selected the 25th percentile NIC per DDD value. Therefore savings in this lowest quartile are £0. This does not necessarily mean that prescribing cost cannot be improved in this area in these PCTs.

Fig 2 **Antidiabetic Drugs (BNF 6.1.2): Quarterly Volume (Items) and Spend (NIC) in EXAMPLE**



**other antidiabetics includes BNF 6.1.2.2 excluding metformin and BNF 6.1.2.3*

Fig 3 **Other Antidiabetic Drugs (BNF 6.1.2.3): Quarterly Volume (Items) and Spend (NIC) in EXAMPLE**



Data: PPD

***others include acarbose, repaglinide, nateglinide and guar gum*

NOTE: glitazones trend includes rosiglitazone which has now been withdrawn

Fig 4 **West Midlands: Breakdown of Antidiabetic Drug (BNF 6.1.2) Prescribing by Volume (Items), for the period Aug-11 to Oct-11**

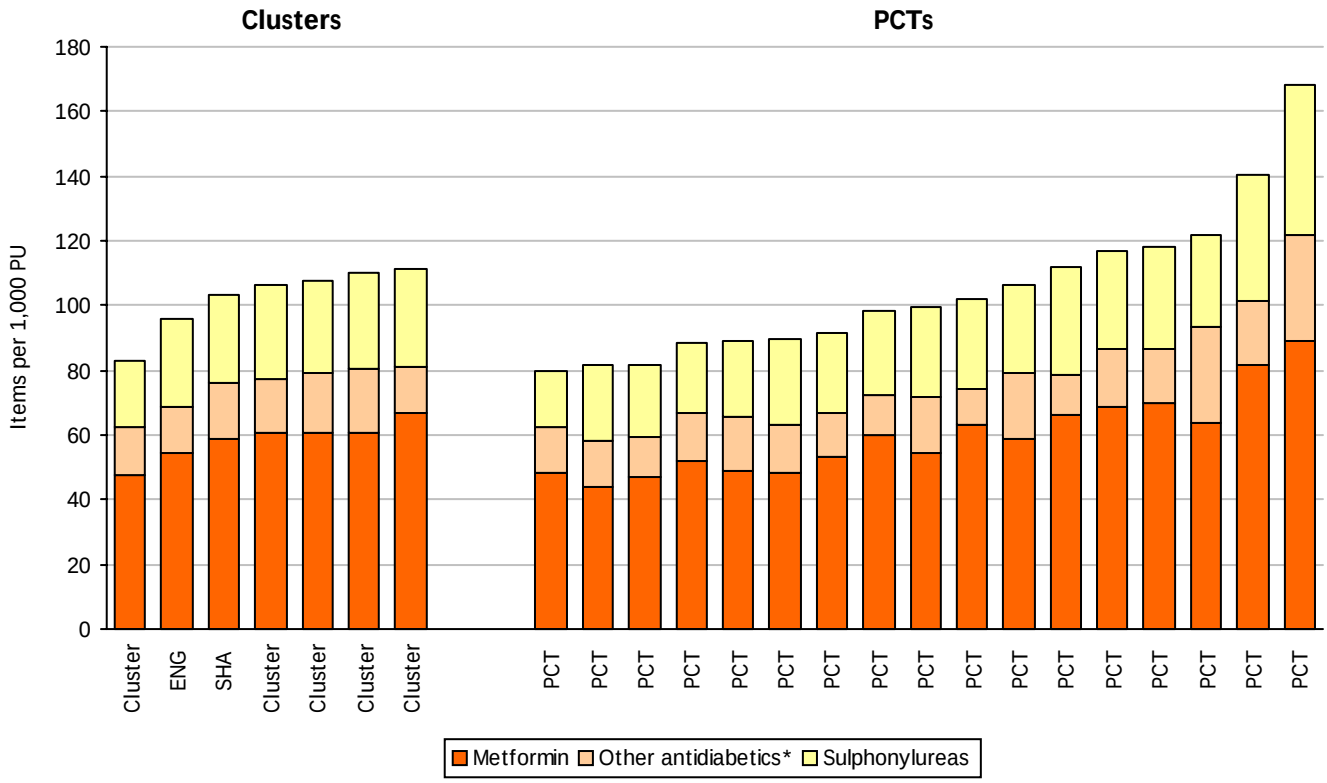
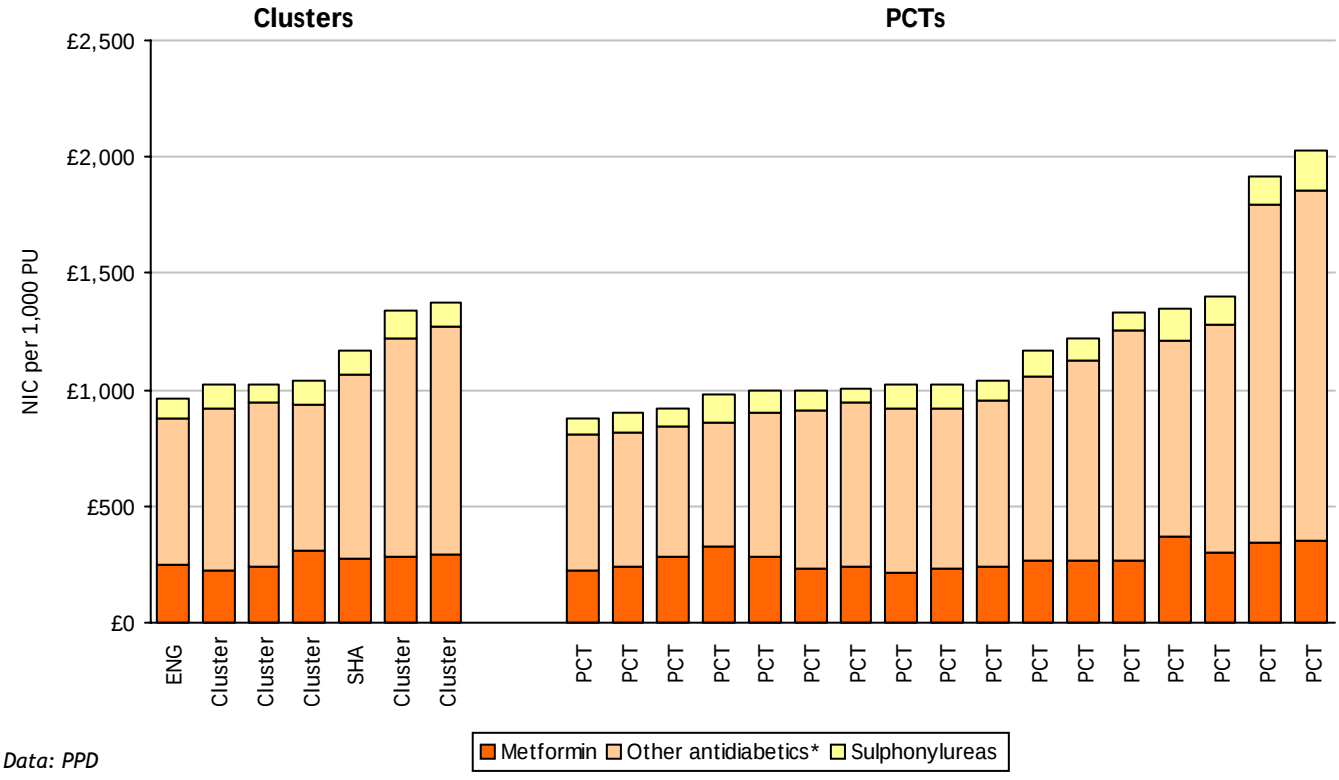


Fig 5 **West Midlands: Breakdown of Antidiabetic Drug (BNF 6.1.2) Prescribing by Spend (NIC), for the period Aug-11 to Oct-11**



Data: PPD

**other antidiabetics includes BNF 6.1.2.2 excluding metformin and BNF 6.1.2.3*

Fig 6 **West Midlands: Breakdown of Other Antidiabetic Drug (BNF 6.1.2.3) Prescribing by Volume (Items), for the period Aug-11 to Oct-11**

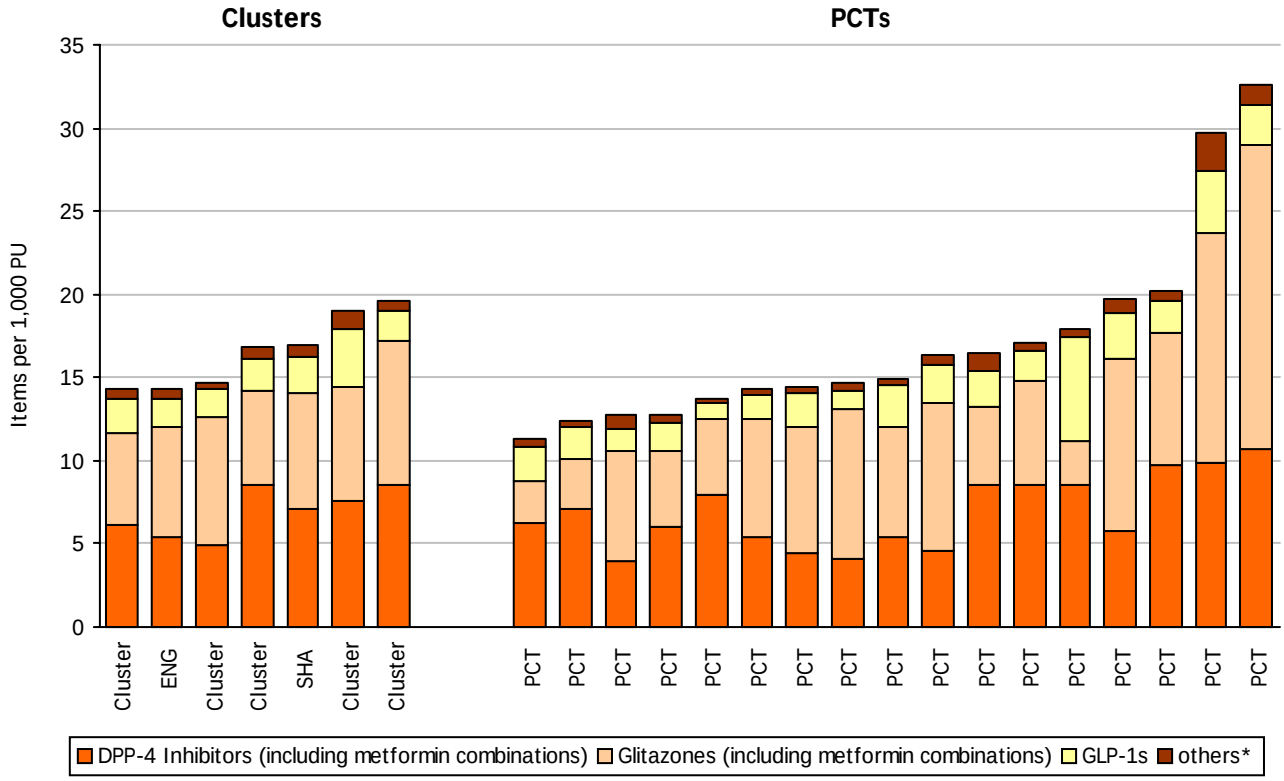
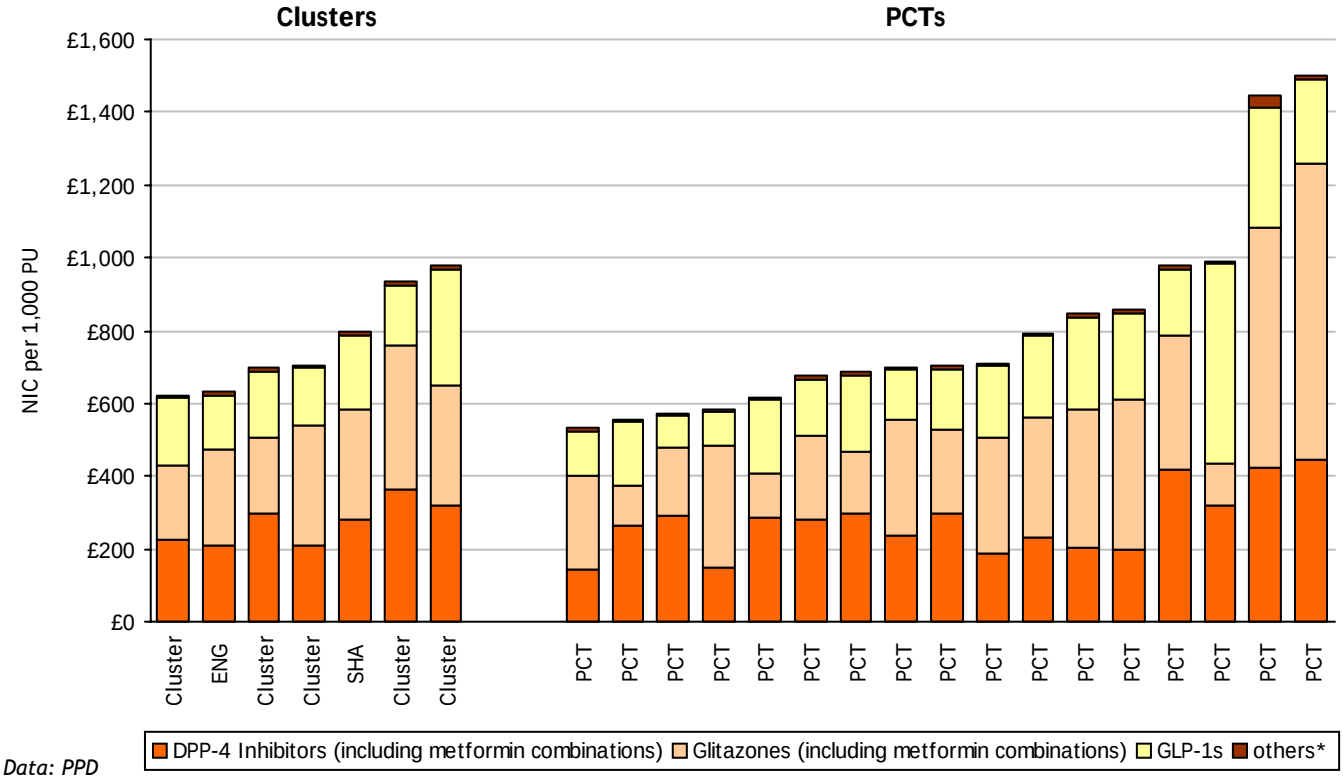


Fig 7 **West Midlands: Breakdown of Other Antidiabetic Drug (BNF 6.1.2.3) Prescribing by Spend (NIC), for the period Aug-11 to Oct-11**

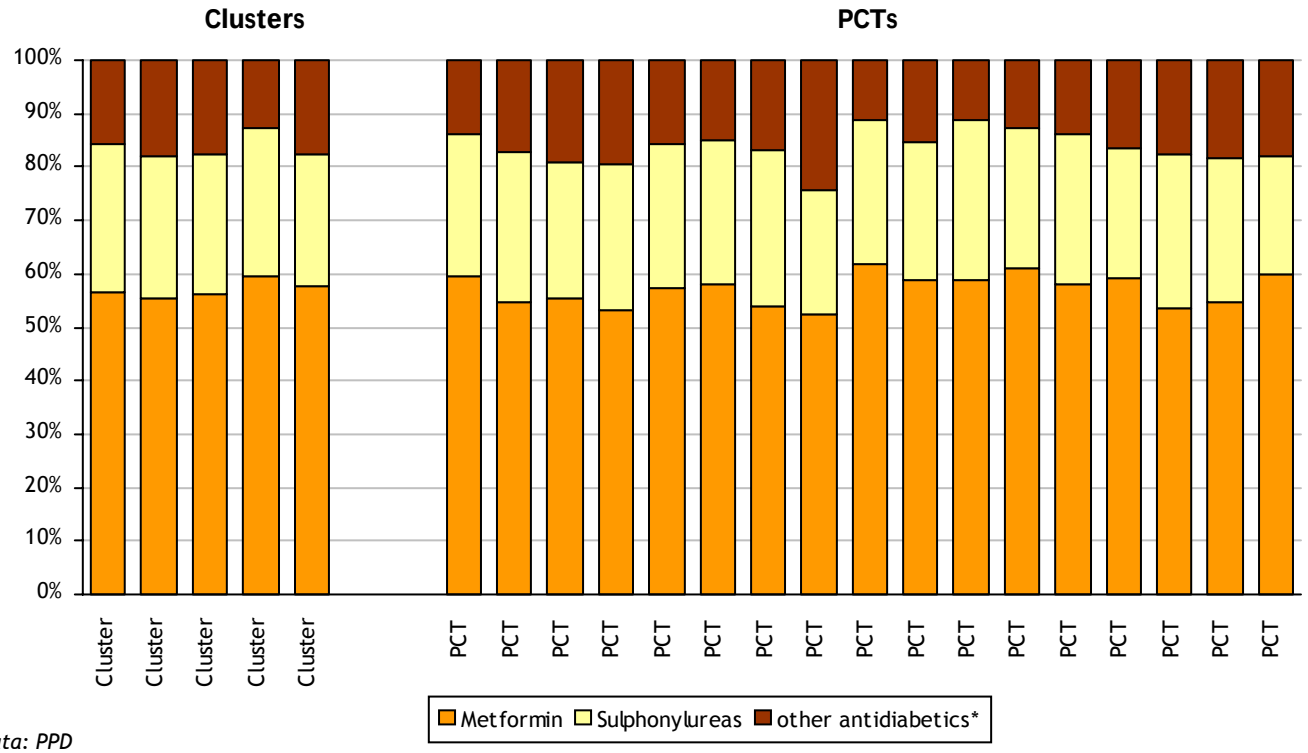


Data: PPD

** others include acarbose, repaglinide, nateglinide and guar gum*

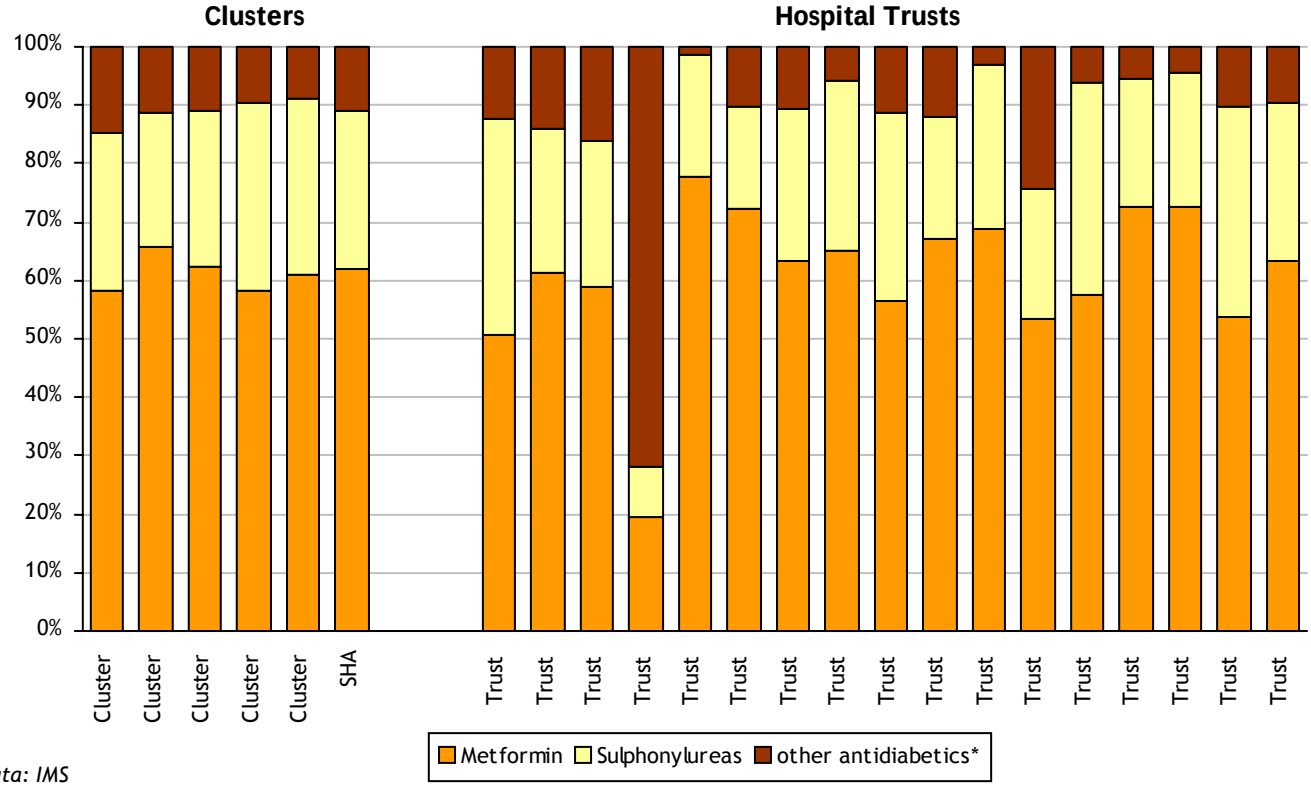
NOTE: glitazone trends may include rosiglitazone which has now been withdrawn

Fig 1 **PRIMARY CARE - West Midlands: Breakdown of Antidiabetic Prescribing (BNF 6.1.2) by Volume (Items), for the period Aug-11 to Oct-11**



Data: PPD

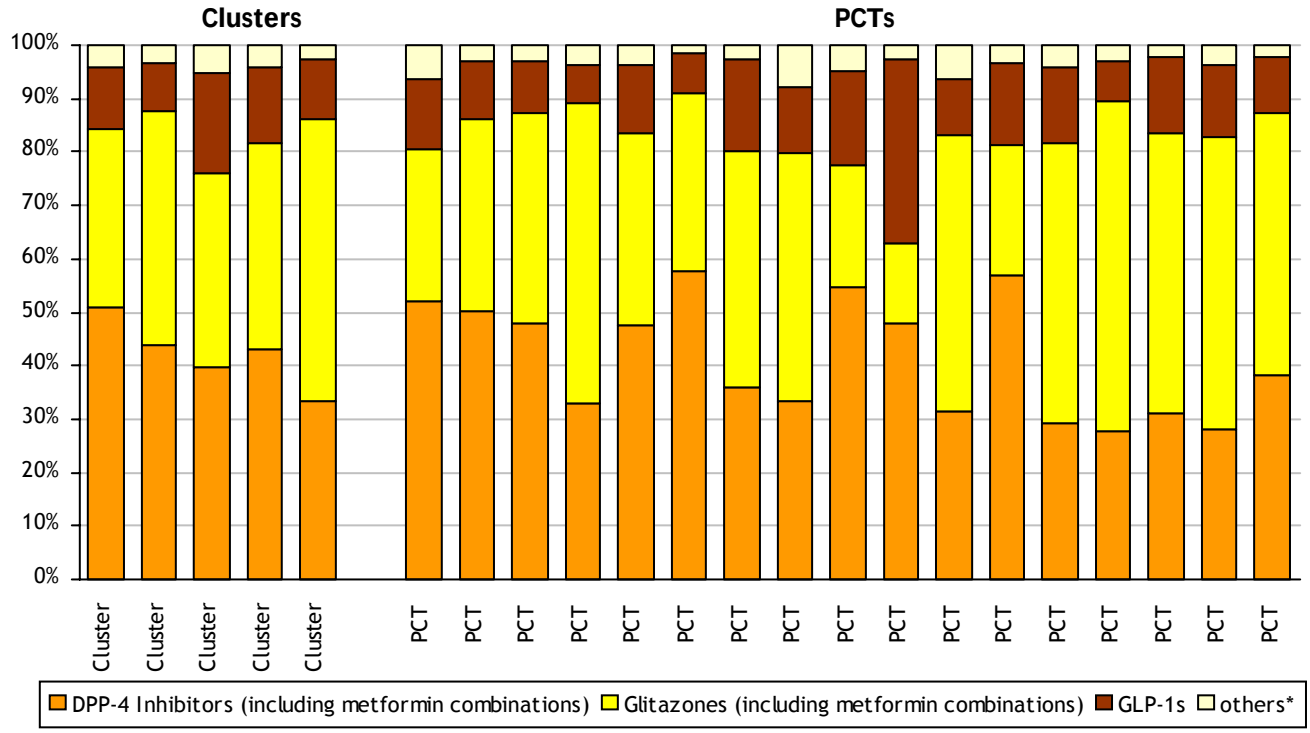
Fig 2 **SECONDARY CARE - West Midlands: Breakdown of Antidiabetic Prescribing (BNF 6.1.2) by Volume (Packs), for the period Aug-11 to Oct-11**



Data: IMS

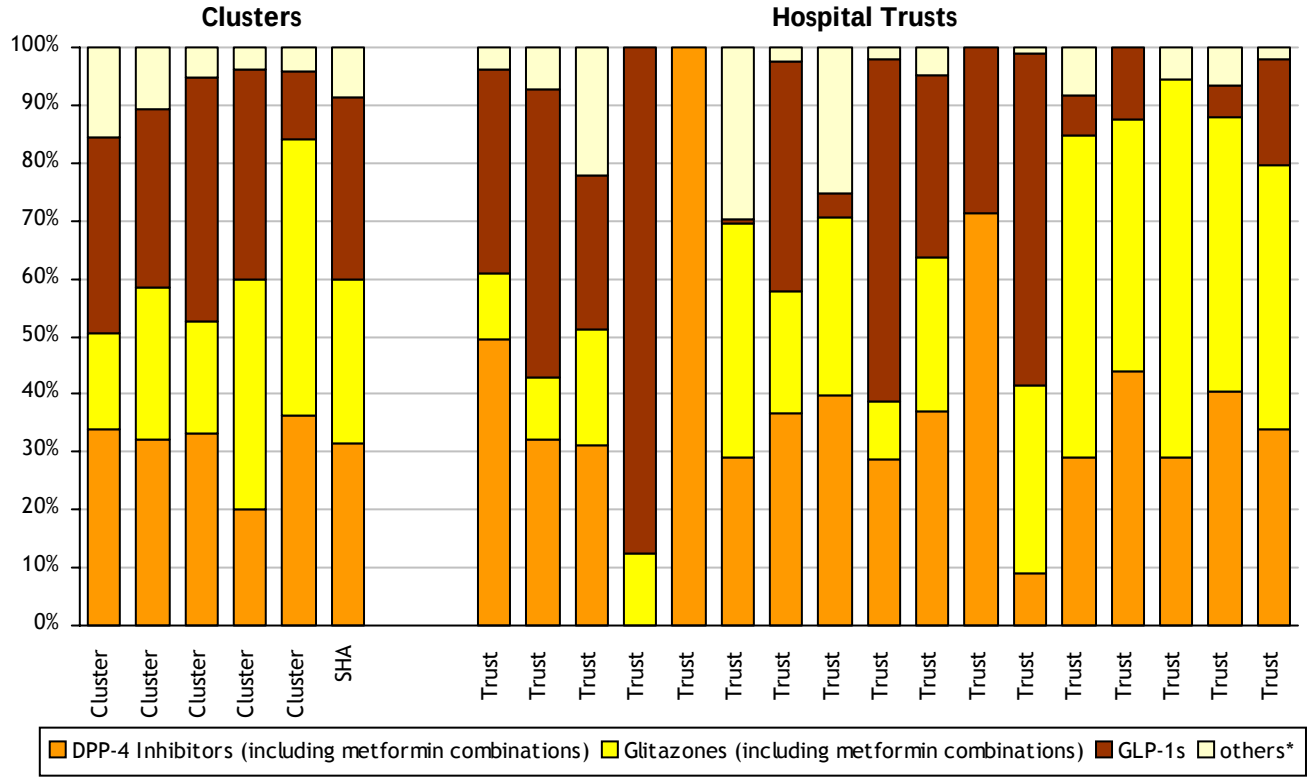
**other antidiabetics includes BNF 6.1.2.2 excluding metformin and BNF 6.1.2.3*

Fig 3 **PRIMARY CARE - West Midlands: Breakdown of Selected Antidiabetic Prescribing (BNF 6.1.2.3) by Volume (Items), for the period Aug-11 to Oct-11**



Data: PPD

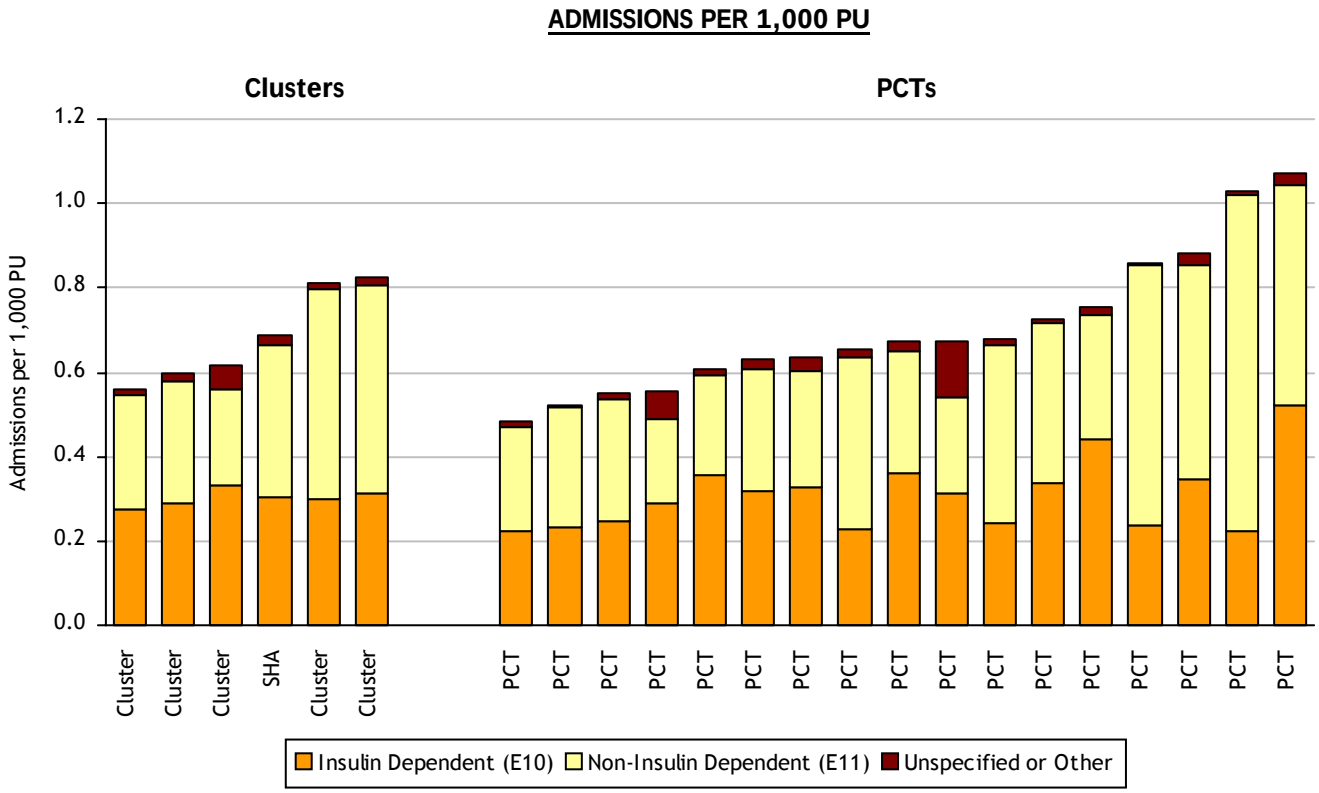
Fig 4 **SECONDARY CARE - West Midlands Hospitals: Breakdown of Selected Antidiabetic Prescribing (BNF 6.1.2.3) by Volume (Packs), for the period Aug-11 to Oct-11**

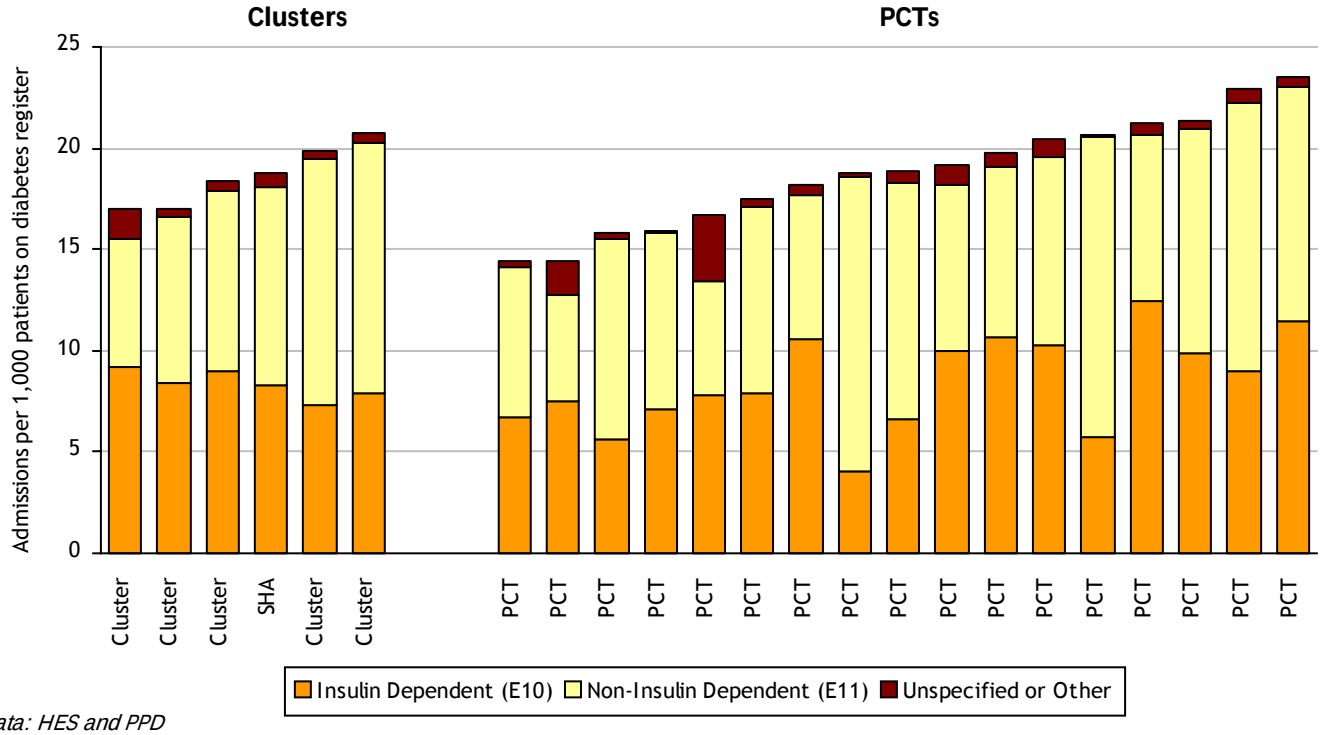


Data: IMS

** others include acarbose, repaglinide, nateglinide and guar gum*

Fig 1 **West Midlands: Emergency Hospital Admissions for Diabetes* in patients aged 17 and over, for the period Apr-10 to Mar-11**

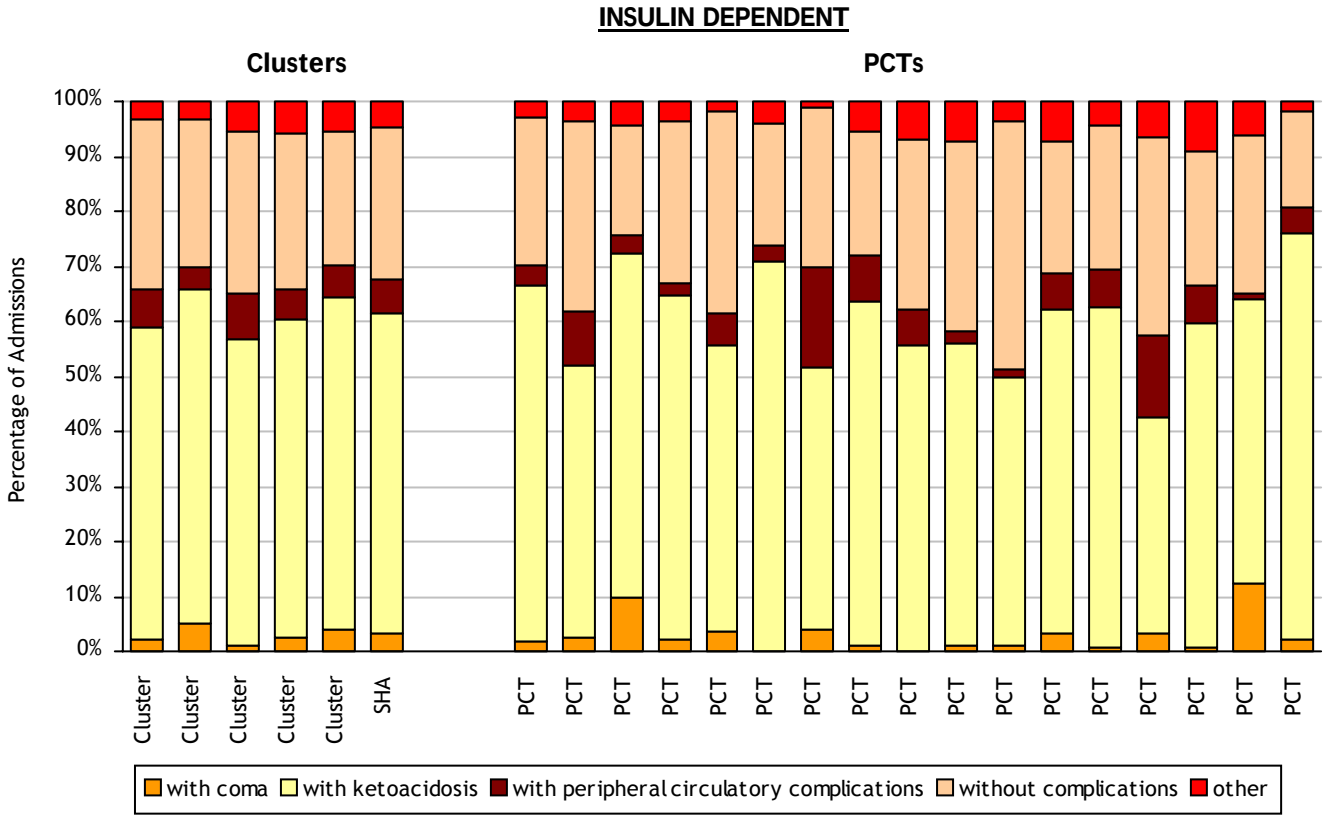


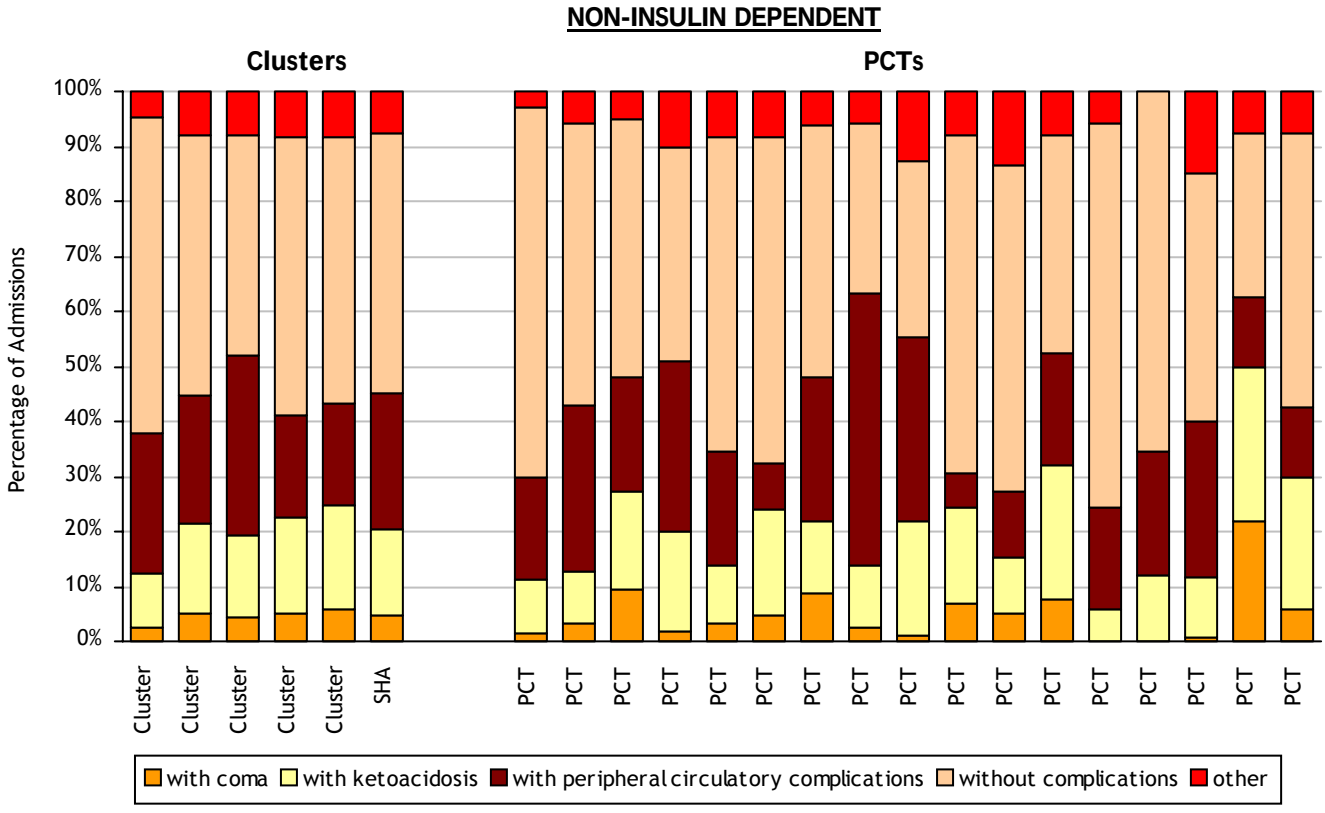


Data: HES and PPD

** where diabetes is the primary diagnosis with ICD-10 codes E10 (insulin-dependent), E11 (non-insulin-dependent), E12 (malnutrition-related), E13 (other specified) and E14 (unspecified)*

Fig 2 **West Midlands: Complications present in Emergency Hospital Admissions for Diabetes* in patients aged 17 and over, for the period Apr-10 to Mar-11**

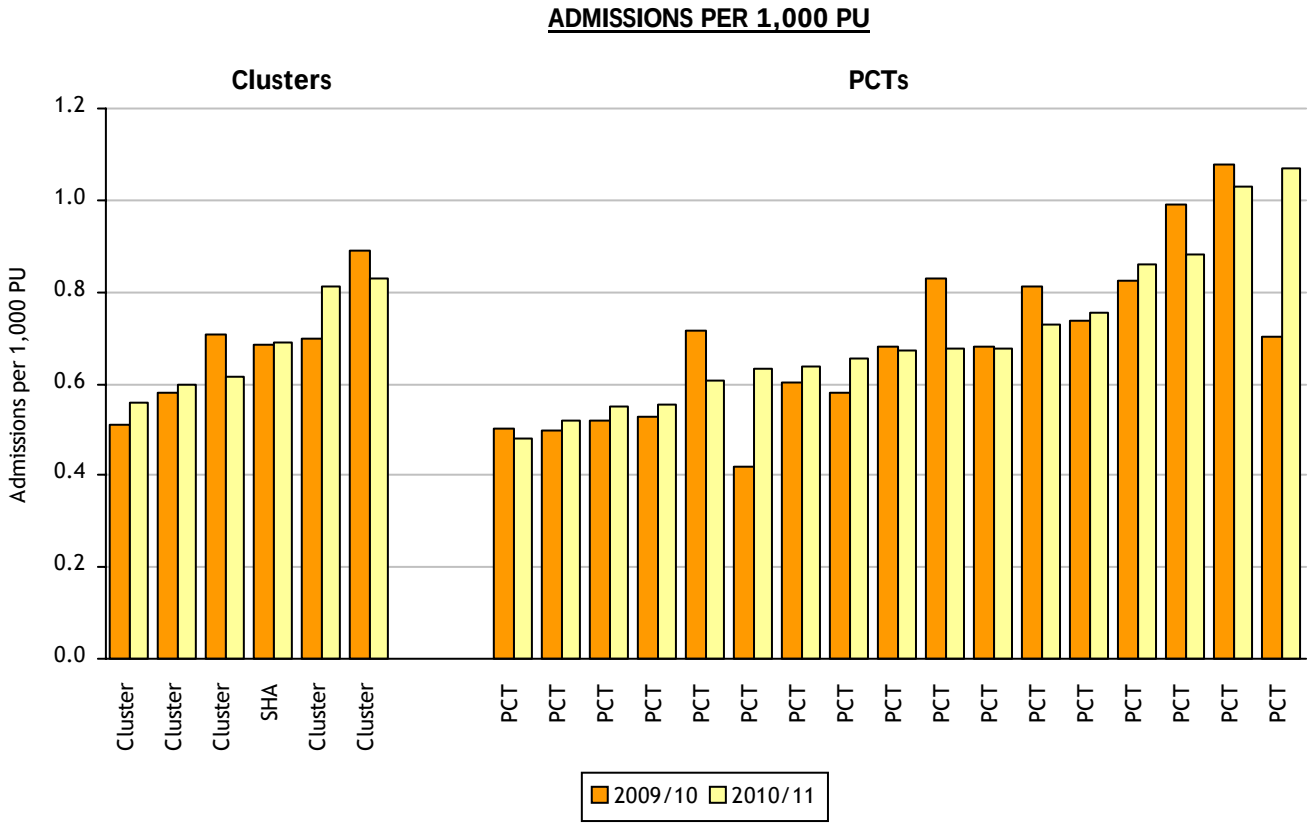


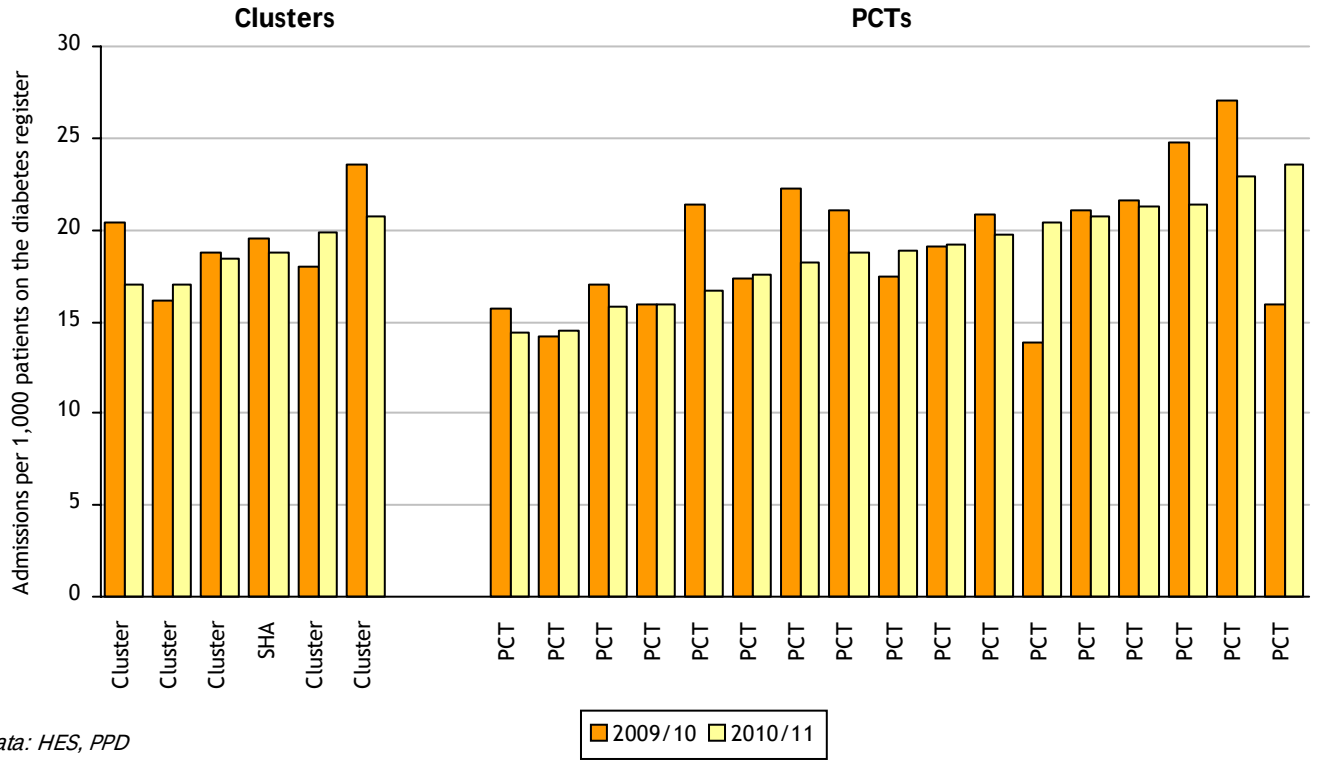


Data: HES, PPD

** where diabetes is the primary diagnosis with ICD-10 codes E10 (insulin-dependent), E11 (non-insulin-dependent), E12 (malnutrition-related), E13 (other specified) and E14 (unspecified)*

Fig 3 **West Midlands: Emergency Hospital Admissions for Diabetes* in patients aged 17 and over, for the period Apr-09 to Mar-11**

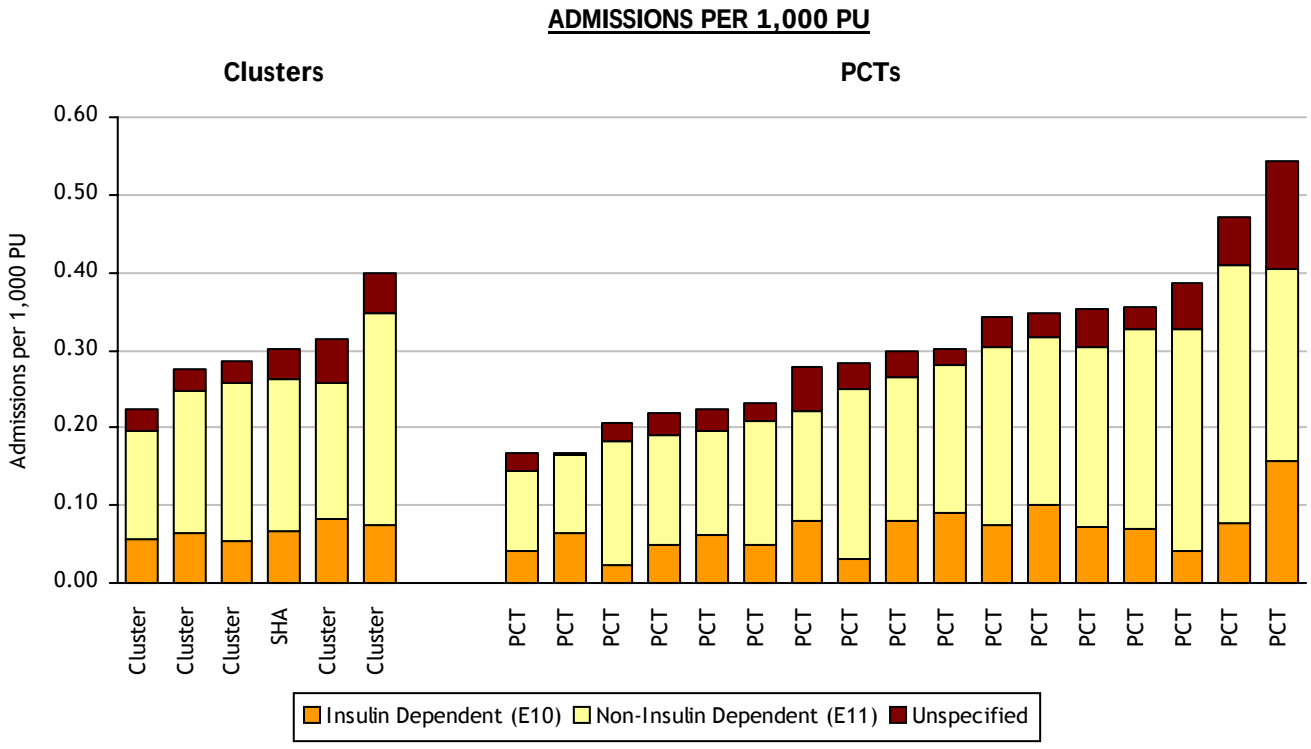


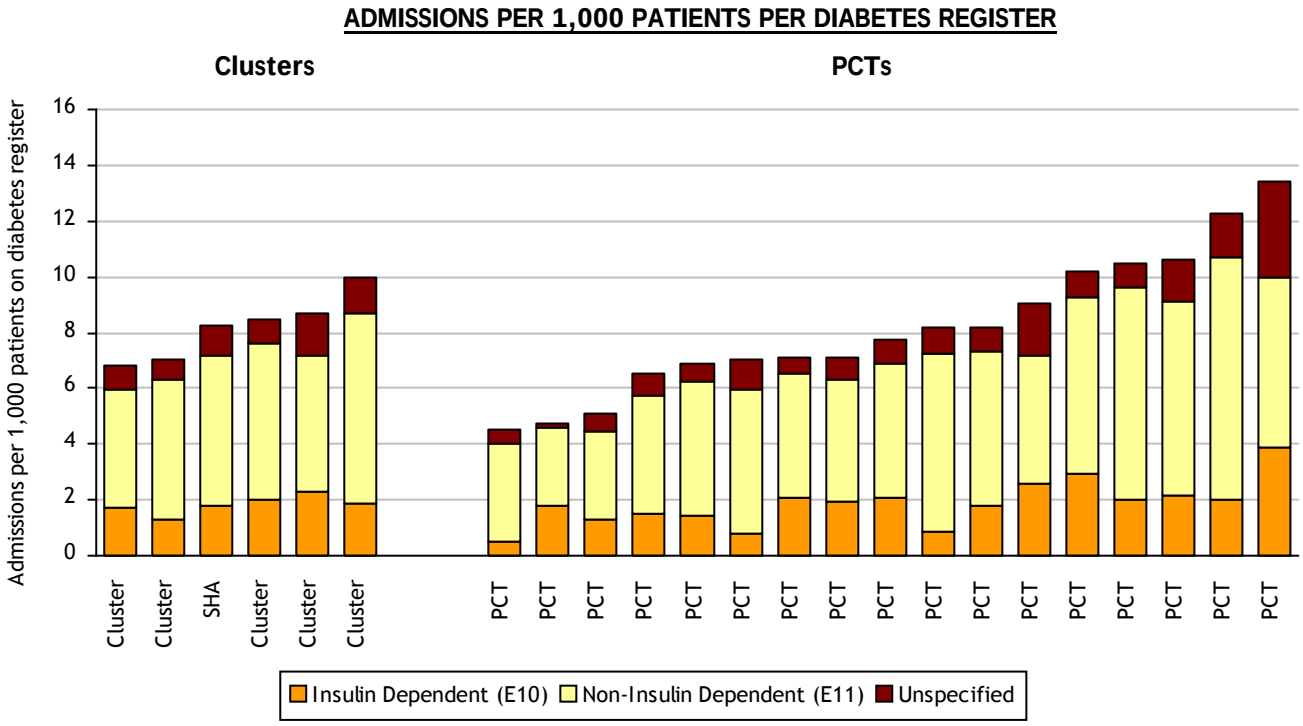


Data: HES, PPD

** where diabetes is the primary diagnosis with ICD-10 codes E10 (insulin-dependent), E11 (non-insulin-dependent), E12 (malnutrition-related), E13 (other specified) and E14 (unspecified)*

Fig 4 **West Midlands: Emergency Hospital Admissions for Hypoglycaemia* in patients aged 17 and over, split by Diabetes Type**, for the period Apr-10 to Mar-11**



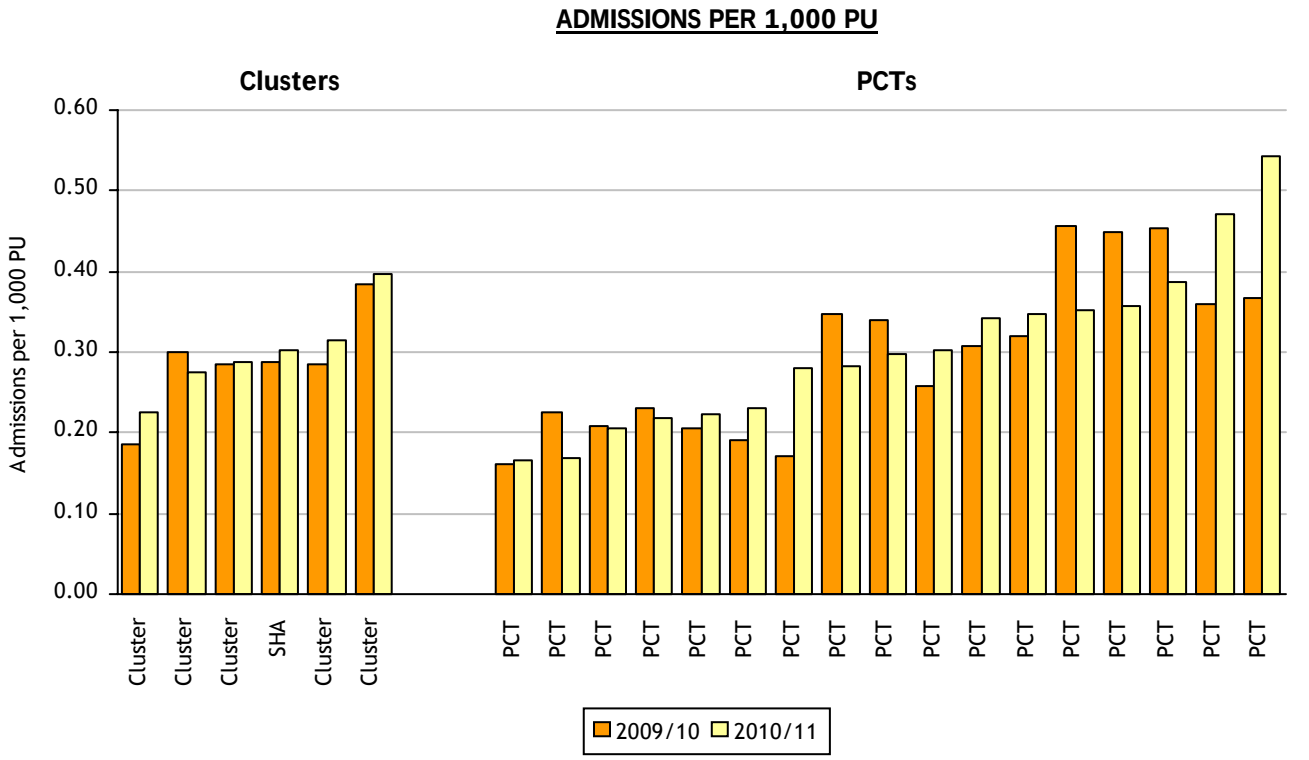


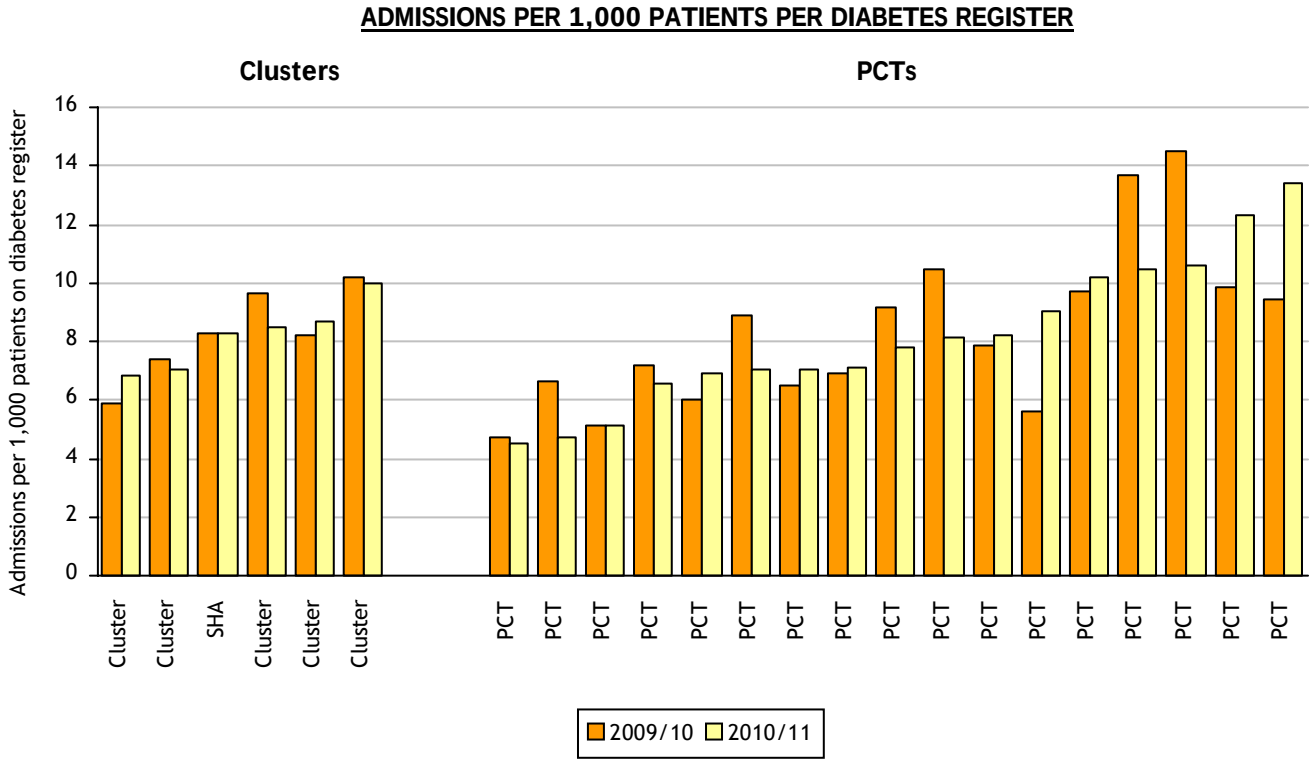
Data: HES, PPD

** where hypoglycaemia is listed at the primary diagnosis with ICD-10 codes E16.0 or E16.2*

*** where an additional ICD-10 diagnosis code E10 (insulin-dependent), E11 (non-insulin-dependent), E12 (malnutrition-related), E13 (other specified) or E14 (unspecified) is included in the first 14 diagnosis codes*

Fig 5 **West Midlands: Emergency Hospital Admissions for Hypoglycaemia* in patients aged 17 and over, for the period Apr-09 to Mar-11**





Data: HES, PPD

** where hypoglycaemia is listed at the primary diagnosis with ICD-10 codes E16.0 or E16.2*

*** where an additional ICD-10 diagnosis code E10 (insulin-dependent), E11 (non-insulin-dependent), E12 (malnutrition-related), E13 (other specified) or E14 (unspecified) is included in the first 14 diagnosis codes*

Fig 6 **West Midlands: Emergency Hospital Admissions for Cardiac Events*, split by Diabetic Status** per 1,000 PU, for the period Apr-10 to Mar-11**

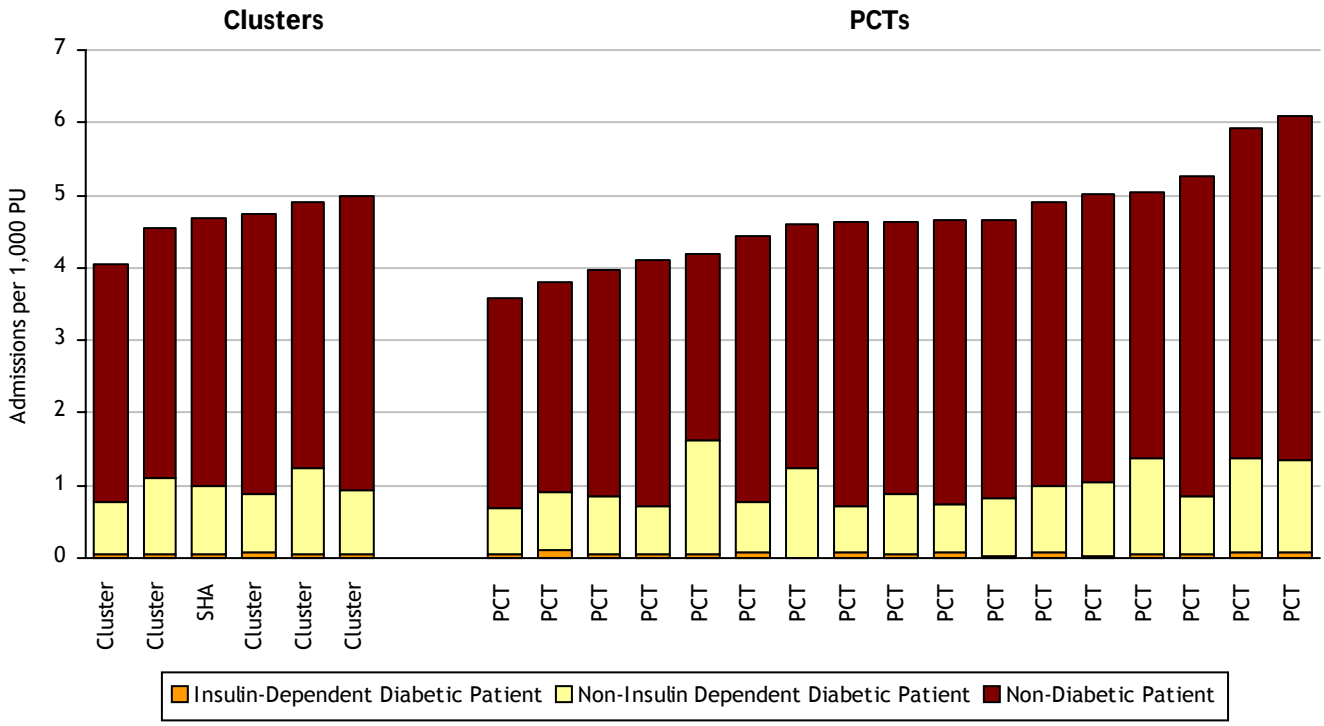
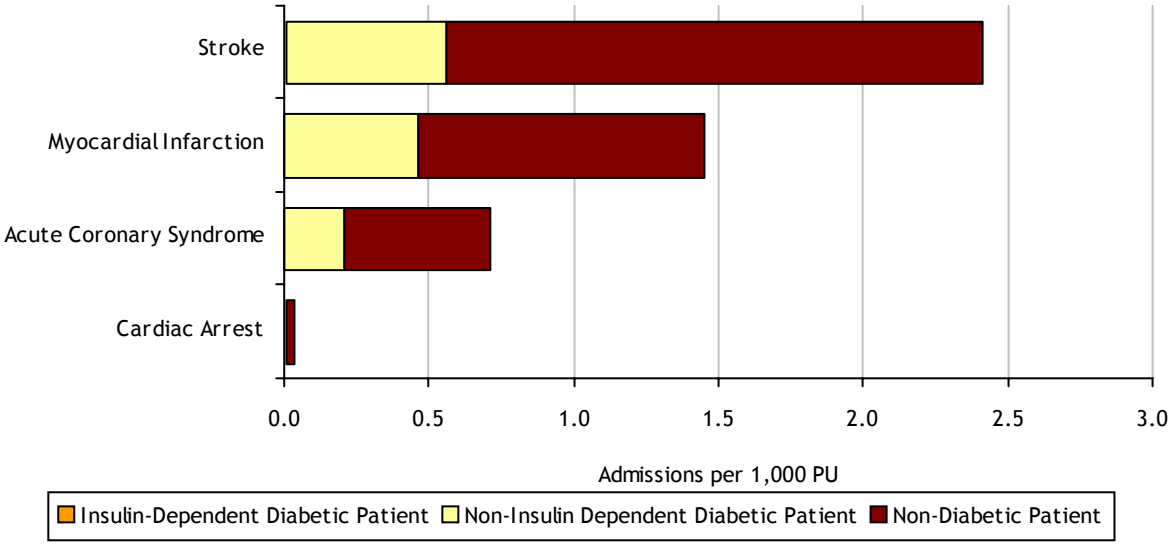


Fig 7 **Emergency Hospital Admissions for Cardiac Events*, split by Diabetic Status** and Event Type per 1,000 PU in EXAMPLE, for the period Apr-10 to Mar-11**



Data: HES and PPD

** where Cardiac Events are classified as ICD-10 codes: ACS I20.0, Cardiac Arrest I46, Stroke I61 to I66 and MI I21 to I23*

*** where an additional ICD-10 diagnosis code of E10 or E11 is included in the first 20 diagnosis codes*

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Prescribing Information *to support* QIPP

Section: B

Low dose antipsychotics

January 2012

EXAMPLE

What are the issues?

There really is only one issue:

- Older people with dementia are at risk of serious life-threatening side-effects when treated with antipsychotics due to increased risk of stroke and increased mortality.[1, 2, 3]
- **It should be assumed all antipsychotics (typical and atypical) carry increased risk in older people with dementia.**[4]
    - Medication for non-cognitive symptoms or behaviour that challenges should only be considered as an option *if there is severe distress or an immediate risk of harm to the person with dementia or others.*[5]
- In June 2011, the Dementia Action Alliance launched a call to action on the use of antipsychotic drugs in people with dementia.[6] The aim is to ensure that "all people with dementia who are receiving antipsychotic drugs should receive a clinical review from their doctor to ensure that their care is compliant with current best practice and guidelines and that alternatives to medication have been considered by 31 March 2012."
    - The new NHS Operating Framework – 2012/13 sets out the planning, performance and financial requirements for NHS organisations and, importantly, the basis on which they will be held to account.[7] **It singles out antipsychotic drugs prescribed for patients with dementia.**
    - **The Operating Framework states that organisations should have initiatives in place to reduce inappropriate prescribing with a view to achieving overall a two-thirds reduction in the use of antipsychotic medicines.**[7]

What are the Actions?

- **PCT Commissioners and Clinical Commissioning Groups (CCGs) should reduce the volume of antipsychotics prescribed for people with dementia.**
    - **This is essential for safer prescribing, improved patient outcomes, and to release efficiency savings and meet the requirements of the NHS Operating Framework.**
- Work with mental health providers to gain assurance that prescribing of antipsychotic medicines by psychiatrists are audited.
- Work with acute and community services to audit antipsychotic prescribing by prescribers in these NHS organisations.
- Check prescribing trends of low-dose antipsychotics. How do they compare to the QOF reported dementia prevalence?
- Audit the use of low-dose antipsychotics in practices:
    - How widely are they used in care homes?
    - Have they been requested at the advice of a healthcare professional (CPN/psychiatrist)? If not, why were they requested?
    - Remember, there is an 'Action for Practice Teams' (APT) "Antipsychotics in dementia" educational outreach packaged from Keele, which has been designed to be used with care homes and practices. Please see http://www.pctsla.org/ for further details.
- Prescribers should regularly review older patients on antipsychotics:
    - Do not put antipsychotics on 'repeat'.
    - Ensure a diary date has been set for the next review.
    - **Check the use of quetiapine liquid in your practices.**
    - **If an antipsychotic is unavoidable**:
        - risperidone▼ is the only antipsychotic **licensed for** short-term (up to 6 weeks) treatment of persistent aggression in *Alzheimer's dementia* unresponsive to non-pharmacological approaches and where there is a risk of harm to the patient or others.[8]

Cost Implications

- Prescribing data are limited to prescriptions dispensed in primary care and do not contain patient information, or any diagnosis or dosage information. Therefore, it is not possible to specify, without access to patient identifiable data, what a drug has been prescribed for. The data we have gathered should give organisations an indication where to focus their attentions.
- In figure 1 we have:
    - Provided details of QOF dementia prevalence by PCT and cluster (dot)
    - Specifically identified both quetiapine and risperidone at low-doses.

      Quetiapine is included despite having no license to treat Behavioural and Psychological Symptoms of Dementia (BPSD). In March 2004, the MHRA issued a recommendation that two atypical antipsychotic drugs, risperidone and olanzapine, should not be used to treat BPSD; some mental health trusts and prescribers chose to use quetiapine as the alternative.[9] *In March 2009, advice from the MHRA was that risperidone was the only antipsychotic with a license to treat BPSD, all-be-it for a short period (6 weeks).*[4]
    - Also shown are other low dose antipsychotics that could be used in dementia (data presented in a stacked bar).

- In table 1 we have:
    - Identified potential savings that could be available to your PCT by prescribing at a lower cost per DDD.
    - We have used data extracted from QMAS in order to show the cost per QOF registered dementia patient.
    - In response to NHS operating framework for 2012/13, we have also demonstrated some potential savings from a two-thirds reduction in spend.

- Figure 2 to 7 show prescribing trends and comparisons in order to provide context.

- We have also provided hospital data which we hope that you will find helpful in your discussions with your provider trusts and commissioners.
    - The admissions for dementia are weighted per 1,000 patients on the QOF dementia register.
    - Where possible we have provided a comparison to the previous year's data.

References

1. Professor Gordon Duff. Chairman Committee on Safety of Medicines. Atypical antipsychotic drugs and stroke. 9th March 2004.
2. CHM and MHRA. Drug Safety Update. Volume 2. Issue 5. December 2008. http://www.mhra.gov.uk/home/groups/pl-p/documents/publication/con033504.pdf <accessed 01/2012>
3. Clinical Knowledge Summaries. Dementia.www.cks.nhs.uk. <Accessed 11/2011>
4. CHM and MHRA. Drug Safety Update. Volume 2. Issue 8. March 2009. http://www.mhra.gov.uk/home/groups/pl-p/documents/publication/con041213.pdf <accessed 01/2012>
5. National Institute for Health and Clinical Excellence. Dementia: Supporting people with dementia and their carers in health and social care. Clinical Guideline 42. November 2006. http://www.nice.org.uk/CG42 <accessed 01/2012>
6. The right prescription: a call to action on the use of antipsychotic drugs for people with dementia. Dementia Action Alliance. 2011. http://www.dementiaaction.org.uk/news/article/6/the_right_prescription_a_call_to_action_on_the_use_of_antipsychotic_drugs_for_people_with_dementia <accessed 01/2012>
7. Anon. The Operating Framework for the NHS in England 2012/13. Department of Health Nov 2011.
8. Summary of Product Characteristics. Risperdal Tablets, liquid and quicklet. Janssen-Cilag Ltd. http://www.medicines.org.uk/EMC/medicine/12818/SPC/Risperdal+Tablets,+Liquid+%26+Quicklet/ <Accessed 11/2011>
9. Atypical antipsychotic drugs and stroke. MHRA. March 2004. http://www.mhra.gov.uk/Safetyinformation/Safetywarningsalertsandrecalls/Safetywarningsandmessagesformedicines/CON1004298 <accessed 01/2012>

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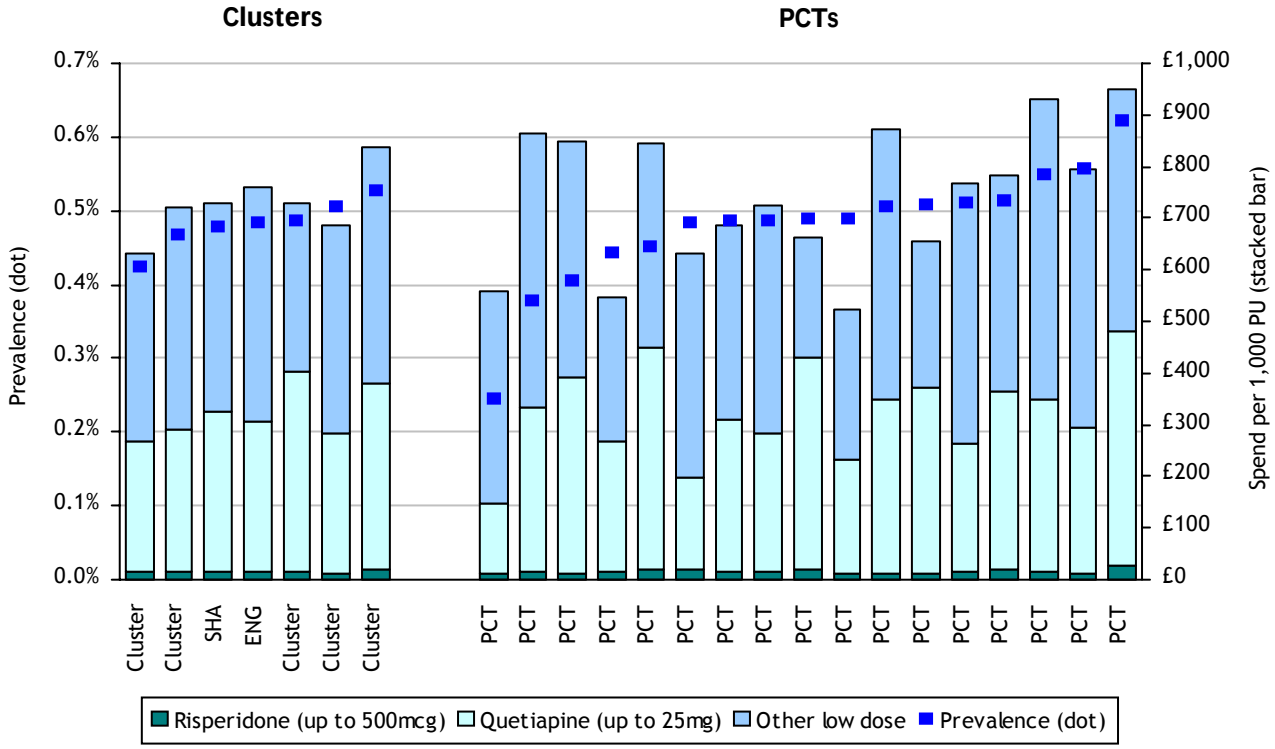
Fig 1 **West Midlands: Dementia Prevalence and Prescribing of Low-Dose Antipsychotics (within BNF 4.2.1) for the period Apr-10 to Mar-11 (RANKED BY PREVALENCE - DOT)**



Data: PPD and QOF

NOTE: low doses included here are up to and including chlorpromazine (25mg), haloperidol (500mcg), olanzapine (5mg), pericyazine (2.5mg), promazine (25mg), quetiapine (25mg), risperidone (500mcg), trifluoperazine (1mg) and zotepine (25mg).
Also note - these low doses may be used for other indications i.e. not just in people with dementia.

ALSO NOTE: the above chart is ranked by prevalence (dot). If you wish to see prescribing spend on low dose antiopsychotics ranked by spend, please refer to figure 7.

The following table is based on data for the last 3 months (Aug-11 to Oct-11). Savings are then extrapolated from this data to give an annual saving which is based on current data.

It is likely that those PCTs with a lower cost per defined daily dose for antipsychotics are already in the process of promoting cost-effective prescribing in this area.

Table 1 Antipsychotic Drugs (BNF 4.2.1): Potential Savings from Prescribing at a Lower Cost per DDD and/or reducing prescribing of antipsychotics by 2/3rds (as per the NHS operating framework 2012/13)

PCT	NIC per DDD	% change in NIC per DDD*	NIC per QOF dementia patient	Potential Annual Saving if...		
				reduce NIC by 2/3**	reduce NIC by 2/3** AND lower NIC per DDD^	lower NIC per DDD^
PCT	£2.84	3%	£236.09	£1,854,056	£1,963,230	£163,761
PCT	£2.88	3%	£192.27	£939,299	£1,007,675	£102,564
PCT	£3.07	14%	£391.82	£672,884	£759,964	£130,620
PCT	£2.67	4%	£231.05	£620,453	£620,453	£0
Cluster	**£2.86**	**4%**	**£238.41**	**£4,086,692**	**£4,351,322**	**£396,944**
PCT	£2.55	2%	£398.92	£1,325,493	£1,325,493	£0
PCT	£2.61	6%	£267.14	£1,538,016	£1,538,016	£0
PCT	£2.74	2%	£333.56	£1,724,749	£1,767,189	£63,661
PCT	£2.82	4%	£201.95	£579,455	£609,678	£45,334
Cluster	**£2.66**	**3%**	**£301.85**	**£5,167,712**	**£5,240,376**	**£108,995**
PCT	£3.02	2%	£444.44	£1,289,456	£1,437,880	£222,637
PCT	£2.64	9%	£345.92	£1,164,130	£1,164,130	£0
PCT	£2.81	7%	£495.80	£1,409,402	£1,478,990	£104,381
PCT	£2.47	5%	£250.52	£1,013,456	£1,013,456	£0
Cluster	**£2.74**	**6%**	**£370.70**	**£4,876,444**	**£5,094,456**	**£327,017**
PCT	£2.94	5%	£359.33	£1,553,282	£1,691,985	£208,055
PCT	£2.82	2%	£189.62	£1,411,768	£1,483,132	£107,046
Cluster	**£2.88**	**3%**	**£251.96**	**£2,965,050**	**£3,175,117**	**£315,101**
PCT	£2.82	-4%	£253.81	£771,575	£812,763	£61,783
PCT	£2.91	2%	£317.37	£1,174,677	£1,270,907	£144,344
PCT	£2.95	5%	£223.73	£1,797,583	£1,967,869	£255,428
Cluster	**£2.91**	**2%**	**£253.37**	**£3,743,836**	**£4,051,539**	**£461,555**
SHA Totals	**£2.79**	**4%**	**£281.77**	**£20,839,734**	**£21,912,809**	**£1,609,612**

Data: PPD

** Change compared to the same period last year.*

*** The new NHS operating framework for 2012/13 recommends that organisations should have initiatives in place to reduce inappropriate prescribing of antipsychotics for patients with dementia, with a view to reducing overall antipsychotic medicine use by 2/3rds. Our figures simply show what a 2/3rds reduction in spend across all antipsychotics would equate to, using the most recent quarter to estimate current annual spend. The actual savings achieved will vary depending on which antipsychotics are reduced in your PCT and the cost per DDD of those antipsychotics.*

Fig 2 **Antipsychotics (BNF 4.2.1): Quarterly Volume (Items) and Spend (NIC) in EXAMPLE**

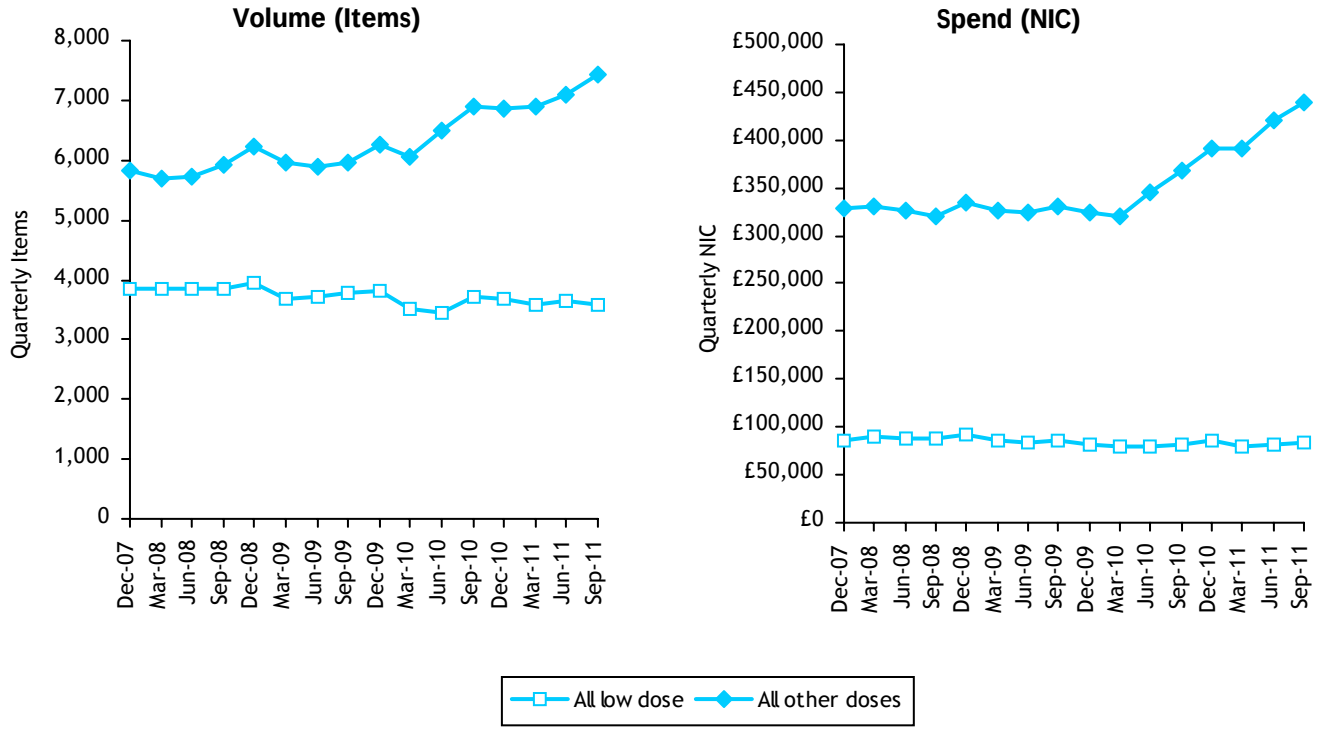
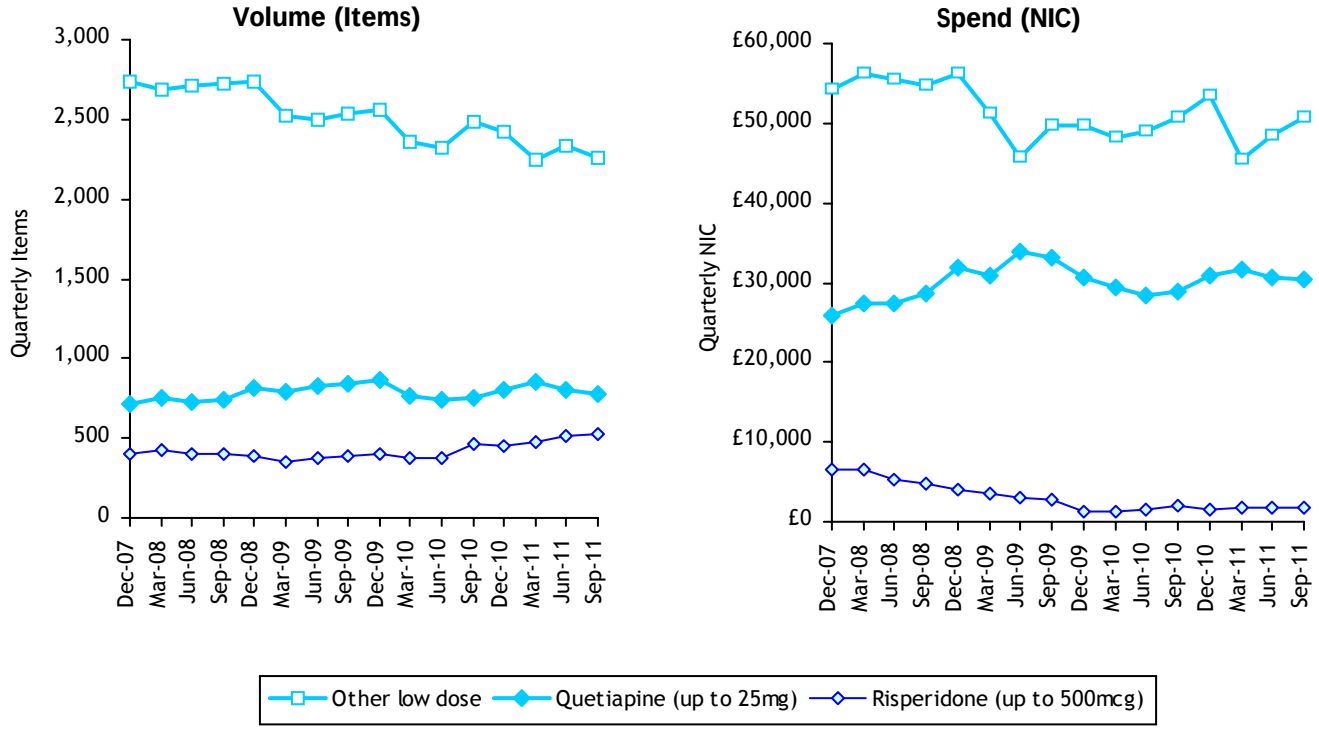


Fig 3 **Low Dose Antipsychotics (BNF 4.2.1): Quarterly Volume (Items) and Spend (NIC) in EXAMPLE**



Data: PPD

NOTE: low doses included here are up to and including chlorpromazine (25mg), haloperidol (500mcg), olanzapine (5mg), pericyazine (2.5mg), promazine (25mg), quetiapine (25mg), risperidone (500mcg), trifluoperazine (1mg) and zotepine (25mg). These low doses may be used for other indications i.e. not just in people with dementia.

Fig 4 **West Midlands PCTs: Breakdown of Antipsychotics (BNF 4.2.1) Prescribing by Volume (Items), for the quarter Aug-11 to Oct-11**

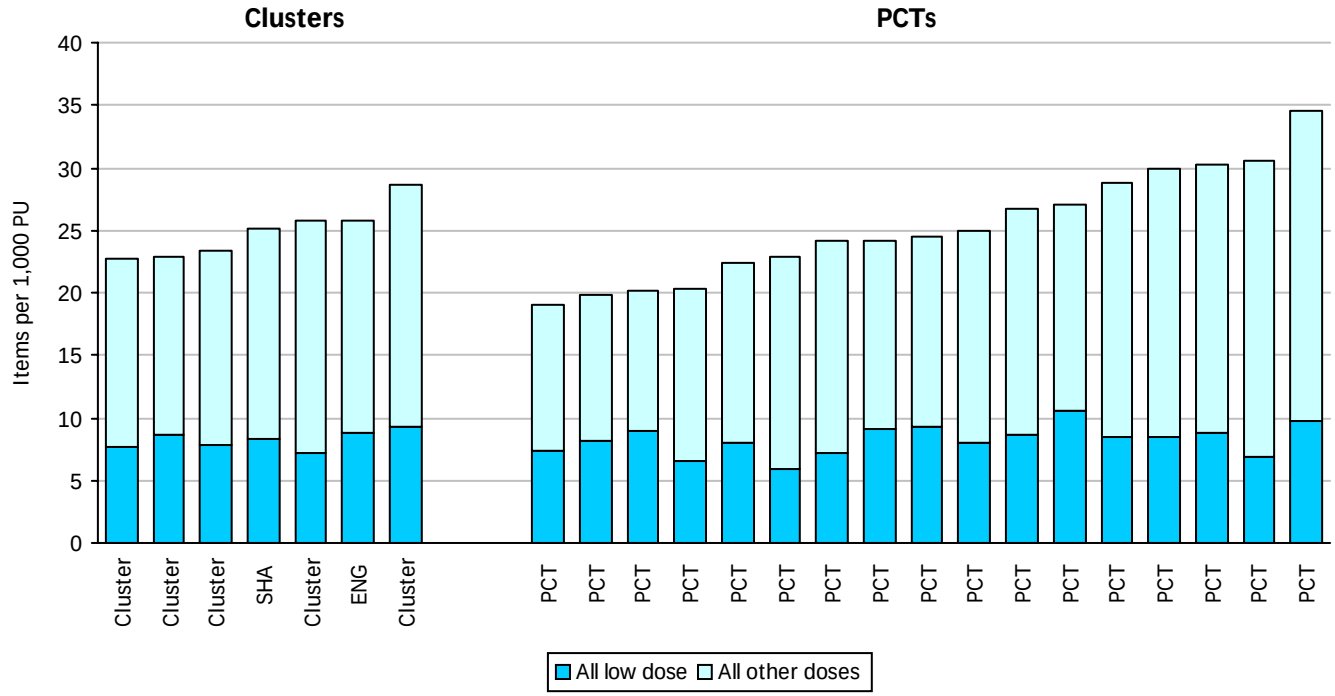
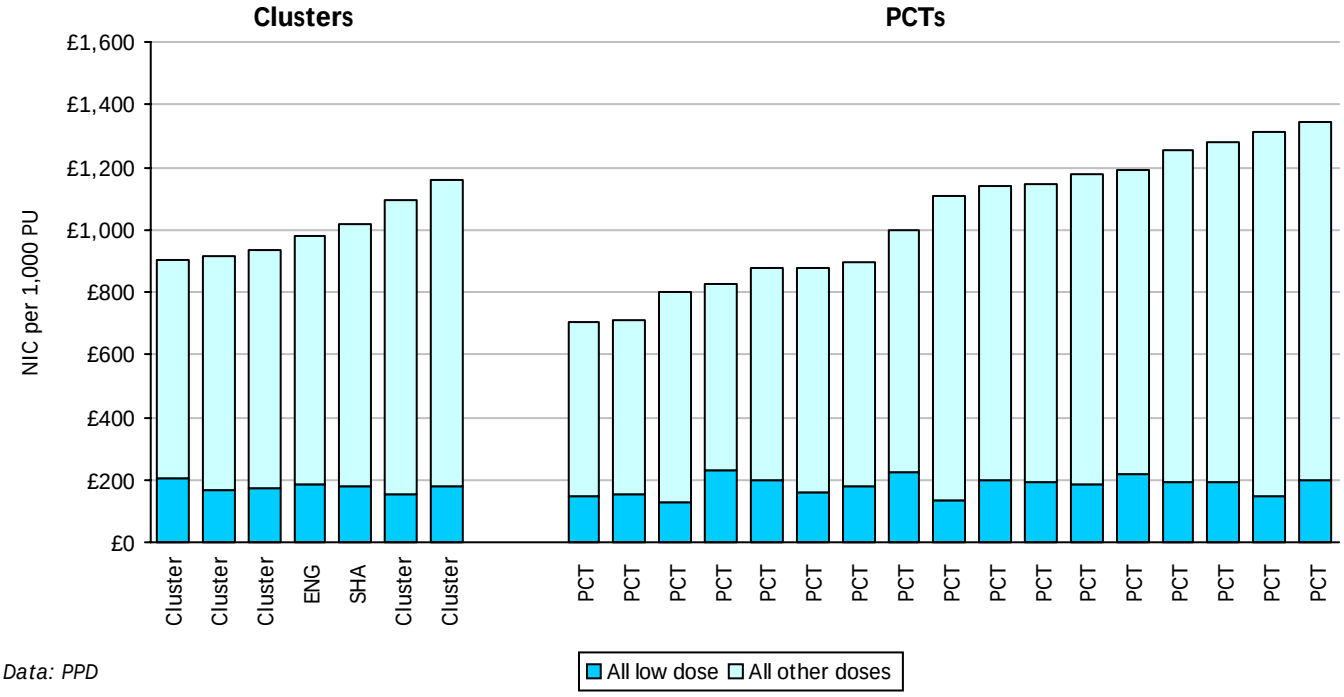


Fig 5 **West Midlands PCTs: Breakdown of Antipsychotics (BNF 4.2.1) Prescribing by Spend (NIC), for the quarter Aug-11 to Oct-11**



Data: PPD

NOTE: low doses included here are up to and including chlorpromazine (25mg), haloperidol (500mcg), olanzapine (5mg), pericyazine (2.5mg), promazine (25mg), quetiapine (25mg), risperidone (500mcg), trifluoperazine (1mg) and zotepine (25mg). These low doses may be used for other indications i.e. not just in people with dementia.

Fig 6 **West Midlands PCTs: Breakdown of Low Dose Antipsychotics (BNF 4.2.1) Prescribing by Volume (Items), for the quarter Aug-11 to Oct-11**

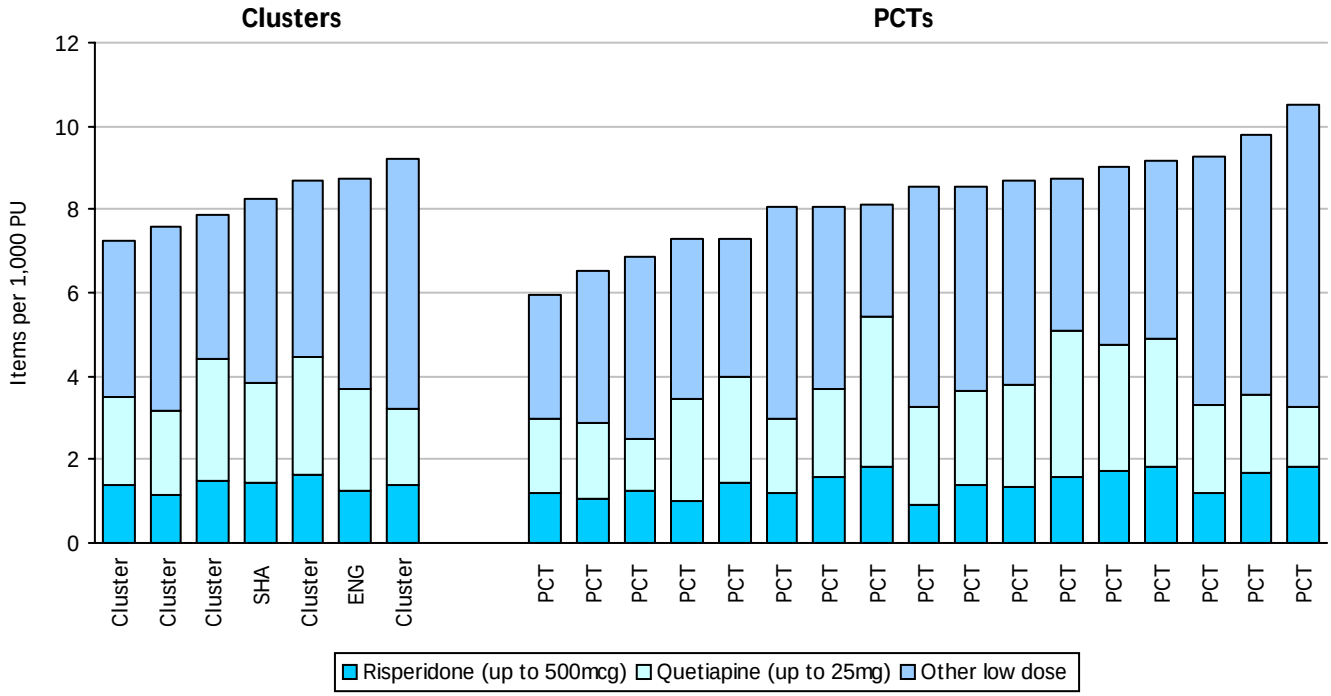
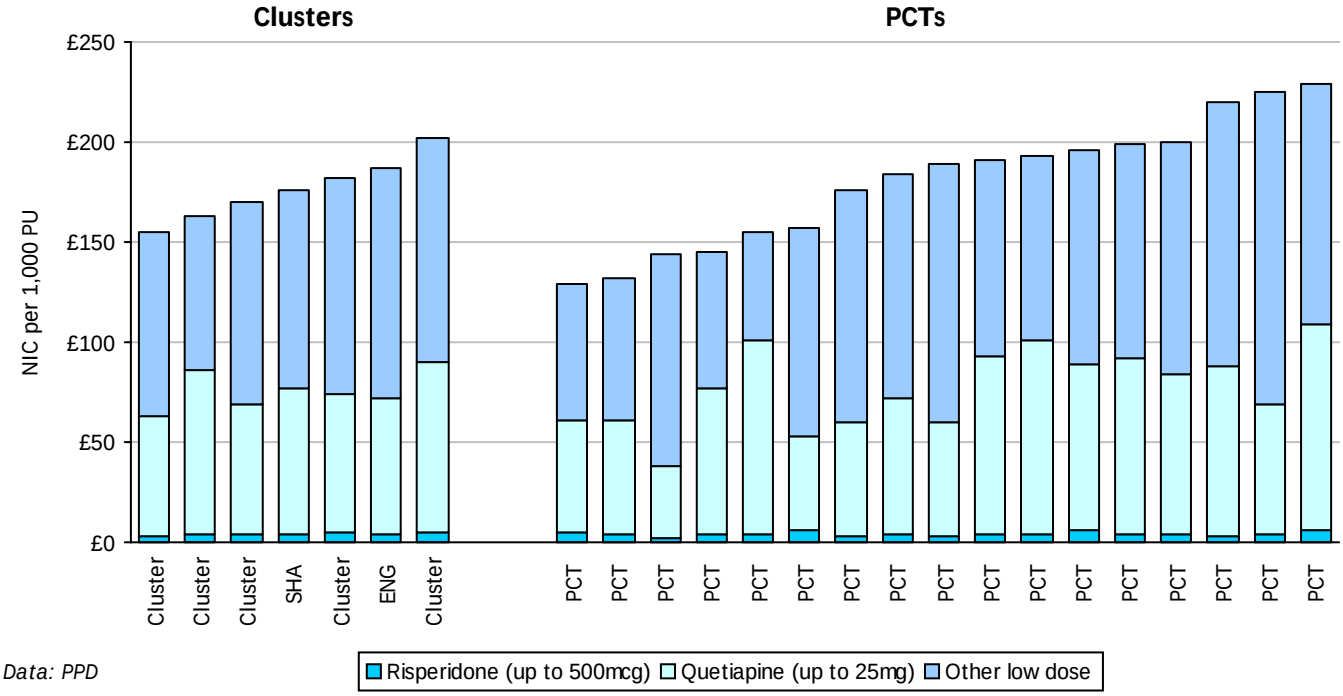


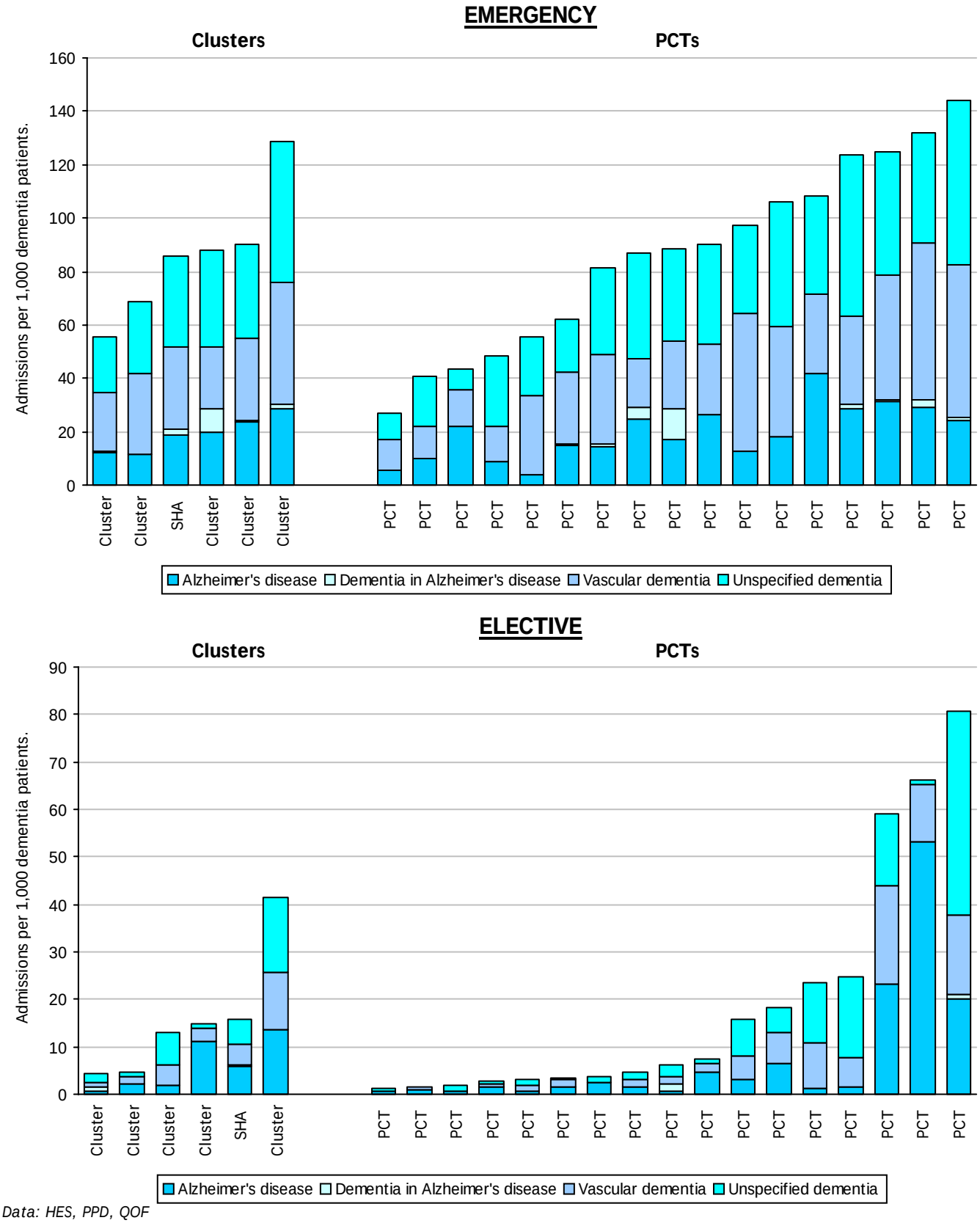
Fig 7 **West Midlands PCTs: Breakdown of Low Dose Antipsychotics (BNF 4.2.1) Prescribing by Spend (NIC), for the quarter Aug-11 to Oct-11**



Data: PPD

NOTE: low doses included here are up to and including chlorpromazine (25mg), haloperidol (500mcg), olanzapine (5mg), pericyazine (2.5mg), promazine (25mg), quetiapine (25mg), risperidone (500mcg), trifluoperazine (1mg) and zotepine (25mg). These low doses may be used for other indications i.e. not just in people with dementia.

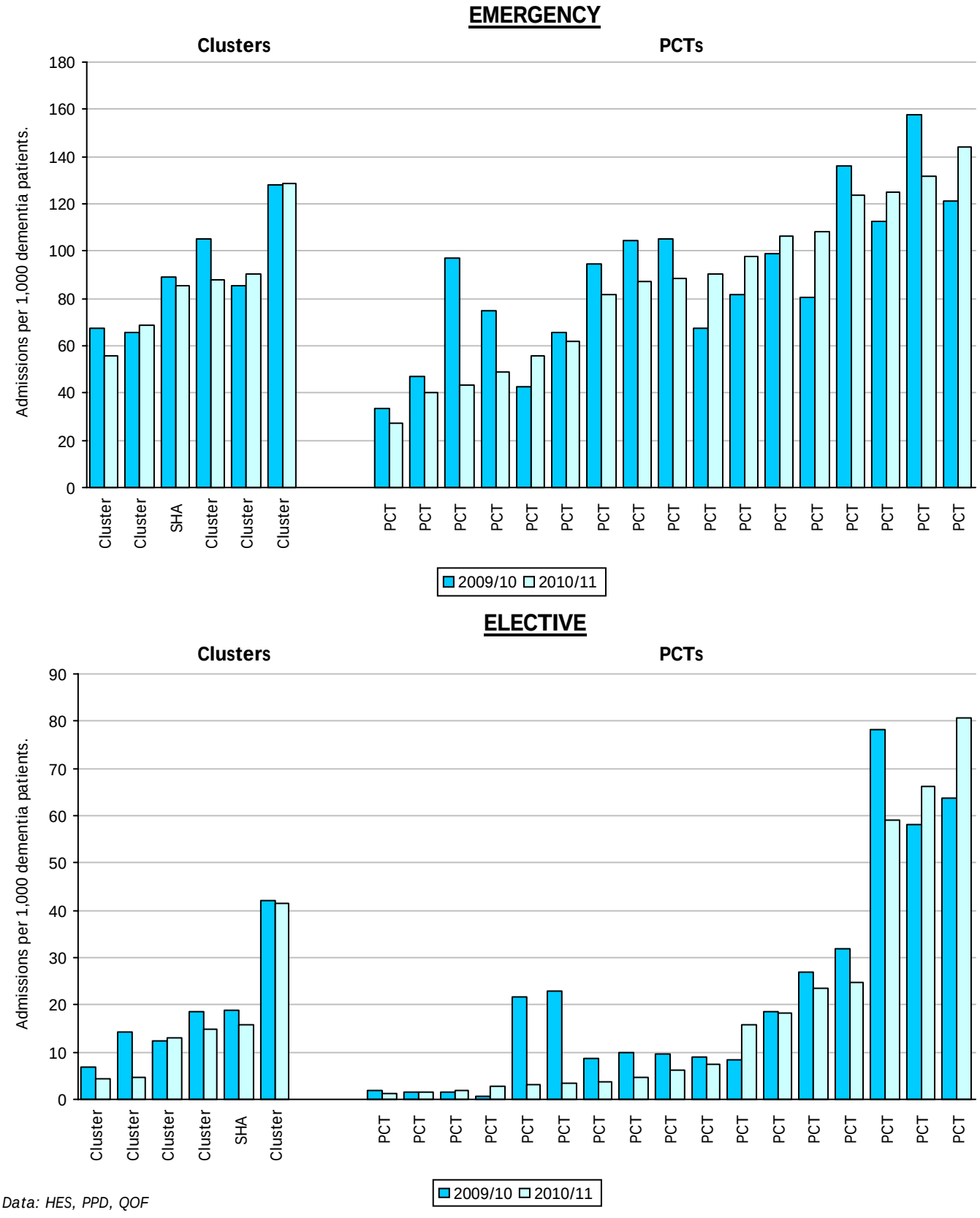
Fig 1 **West Midlands: Hospital Admissions for Dementia* per 1,000 patients on the dementia register, for the period Apr-10 to Mar-11**



Data: HES, PPD, QOF

** where Dementia is classified by ICD-10 codes F00, F01, F03 and G30*
NOTE: HES data includes all admissions to NHS hospital trusts in England including acute hospitals, mental health, primary care trusts and mental health trusts.

Fig 2 **West Midlands: Hospital Admissions for Dementia* per 1,000 patients on the dementia register, for the period Apr-09 to Mar-11**



Data: HES, PPD, QOF

** where Dementia is classified by ICD-10 codes F00, F01, F03 and G30*

NOTE: HES data includes all admissions to NHS hospital trusts in England including acute hospitals, mental health, primary care trusts and mental health trusts.

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Prescribing Information *to support* QIPP

Section: C

Renin-angiotensin System

January 2012

EXAMPLE

What are the issues?

- NICE recommends the use of angiotensin-converting-enzyme (ACE) inhibitors or angiotensin receptor blockers (ARBs, also known as angiotensin II receptor antagonists [A2RAs]) in hypertension, heart failure, diabetes, chronic kidney disease (CKD) and post myocardial infarction (MI) secondary prevention.[1-6]
- In all but one (the recently updated hypertension guideline[3]) of these guidelines, NICE recommends ACE inhibitors as the first-line agents if a renin-angiotensin drug is indicated. ARBs should only be used if patients are intolerant or allergic to ACE inhibitors.
- In the recently updated NICE hypertension guideline, an ACE inhibitor **or** a low cost ARB are recommended if a renin-angiotensin drug is indicated.[3] If an ACE inhibitor is prescribed and is not tolerated (for example, because of cough), offer a low-cost ARB.
    - ACE inhibitors and ARBs were considered by the NICE guideline development group to have equivalent effects on clinical outcomes in hypertension (N.B. this conclusion does not necessarily apply to other conditions such as heart failure or diabetes as these conditions were outside the scope of the NICE review).
    - The NICE guideline development group concluded that over the lifetime of this guideline, the costs of ACE inhibitors and ARBs will probably become similar.
    - NICE recommend that if a renin-angiotensin drug is required for hypertensive black people of African or Caribbean family origin, a low-cost ARB should be considered in preference to an ACE inhibitor (in combination with a calcium channel blocker) as these patients have a higher risk of developing angioedema with ACE inhibitors than non-black patients.
- There is no robust evidence that ARBs are more effective than ACE inhibitors for any indication. For some conditions, there is better evidence for efficacy with ACE inhibitors than ARBs. There is concern that ARBs may be less effective than ACE inhibitors in preventing MI.[7]
- There is no good evidence that ARBs are safer than ACE inhibitors for any indication. Both ACE inhibitors and ARBs are generally well tolerated. In a minority of patients ACE inhibitors may cause a persistent dry cough. ARBs are less likely to cause cough as they do not inhibit the breakdown of bradykinin, and other kinins.
- A wide range of ACE inhibitors are available generically and ACE inhibitors are considerably less expensive than all ARBs, with the exception of generic losartan (see Table 1).
- Losartan and valsartan are currently the only ARBs available in generic form (generic valsartan was launched in November 2011). As shown in Table 1, generic losartan is considerably less expensive than other ARBs including candesartan and generic valsartan. Patents on some other ARBs (including candesartan) are due to expire in the next 12 months.[8]
- Some retrospective observational studies have suggested that ARBs may not be equivalent in heart failure. A recent cohort study found that in patients with heart failure, treatment with candesartan was associated with lower mortality than treatment with losartan.[9] However, observational studies have many limitations and can only prove association, not causation.
- There is no reliable evidence that individual ARBs vary in their effect on important clinical outcomes or safety.
- Some NHS decision-making bodies now recommend losartan as the drug of first choice if an ARB is required for new patients (and considered when reviewing therapy for existing patients) as it is currently considerably less expensive than other ARBs. Losartan is licensed for hypertension, chronic heart failure (when ACE inhibitors are not suitable or contraindicated) and diabetic nephropathy in type 2 diabetes.
- Dual therapy with an ACE inhibitor and an ARB has only a limited place, for example, in a small minority of patients with heart failure who remain symptomatic despite optimal use of a beta-blocker and an ACE inhibitor. Dual therapy in these patients should only be initiated with specialist advice.[4] Careful patient monitoring is required if ACE inhibitors and ARBs are used together as the risk of worsening renal function and hyperkalaemia are increased.
- As shown in figure 3, there is some variation in the proportion of ACE inhibitors to ARBs prescribed between PCTs. This cannot be explained easily on the basis of differences in disease prevalence or incidence of side effects.

What are the Actions?

- Prescribers should use renin-angiotensin system drugs in line with NICE recommendations.

- Remember:
  - Patients should be initiated on one of the lower cost drugs in order to keep prescribing costs down.
  - Before considering any change in medication in this class, a careful medication review is required, applying the relevant evidence based therapeutics to each individual patient.
  - ACE inhibitors and ARBs are contraindicated in pregnancy and not recommended for use by breastfeeding mothers.[10]
  - ARBs are an alternative to ACE inhibitors if a patient experiences a chronic intractable cough. Other causes of cough should be considered before switching to an ARB.
  - There is no reliable evidence that individual ARBs vary in their effect on important clinical outcomes or safety. Generic losartan is currently considerably less expensive than all other ARBs.

- Agree local health economy wide guidelines to ensure cost-effective and evidence-based renin-angiotensin system drugs are initiated in both primary and secondary care.

Cost Implications

- We have identified the savings that could be available to your PCT and cluster over the next year from prescribing at a lower cost per 'defined-daily dose - DDD' (DDDs are used to standardise the comparative usage of drugs).
- We have also identified potential savings that could be achieved in 2012/13 if:
  - generic lisinopril was prescribed for all new patients requiring an RAS drug
  - generic losartan was prescribed for all new patients requiring an ARB
- We have added prescribing trends and comparisons in order to provide context, as well as prevalence data extracted from the Quality Management and Analysis System (QMAS) for hypertension.

We have also provided hospital data (IMS and hospital admissions) which we hope that you will find helpful in your discussions with your practices and provider trusts.

References:

1. MI: secondary prevention. CG48. National Institute for Health and Clinical Excellence. 2007. http://www.nice.org.uk/CG48 <accessed 11/2011>
2. Chronic kidney disease. Early identification and management of chronic kidney disease in adults in primary and secondary care. CG73. National Institute for Health and Clinical Excellence. 2008. http://www.nice.org.uk/nicemedia/live/12069/42117/42117.pdf <accessed 11/2011>
3. Hypertension: clinical management of primary hypertension in adults. CG127. National Institute for Health and Clinical Excellence. 2011. http://www.nice.org.uk/nicemedia/live/13561/56008/56008.pdf <accessed 11/2011>
4. Chronic heart failure.CG108. National Institute for Health and Clinical Excellence. 2010. http://www.nice.org.uk/guidance/CG108 <accessed 8/2011>
5. Type 1 diabetes: diagnosis and management of type 1 diabetes in children, young people and adults. CG15. National Institute for Health and Clinical Excellence. 2004. http://www.nice.org.uk/nicemedia/live/10944/29390/29390.pdf <accessed 11/2011>
6. Type 2 Diabetes - newer agents (partial update of CG66). CG87. National Institute for Health and Clinical Excellence. 2009. http://www.nice.org.uk/guidance/index.jsp?action=byID&o=12165 <accessed 8/2011>
7. Bangalore S, Kumar S, Wetterslev J *et al*. Angiotensin receptor blockers and risk of myocardial infarction: meta-analyses and trial sequential analyses of 147 020 patients from randomised trials. *BMJ* 2011;**342:**d2234.
8. UKMI patents database. 2011. http://www.ukmicentral.nhs.uk/pressupp/pe.htm <accessed 11/2011>
9. Eklind-Cervenka M, Benson L, Dahlstrom U *et al*. Association of candesartan vs losartan with all-cause mortality in patients with heart failure. *JAMA* 2011;**305:**175-82.
10. Drugs affecting the renin-angiotensin system. British National Formulary. 62nd *edn*. 2011; 2.5.5. London: British Medical Association and Royal Pharmaceutical Society of Great Britain. 2011.

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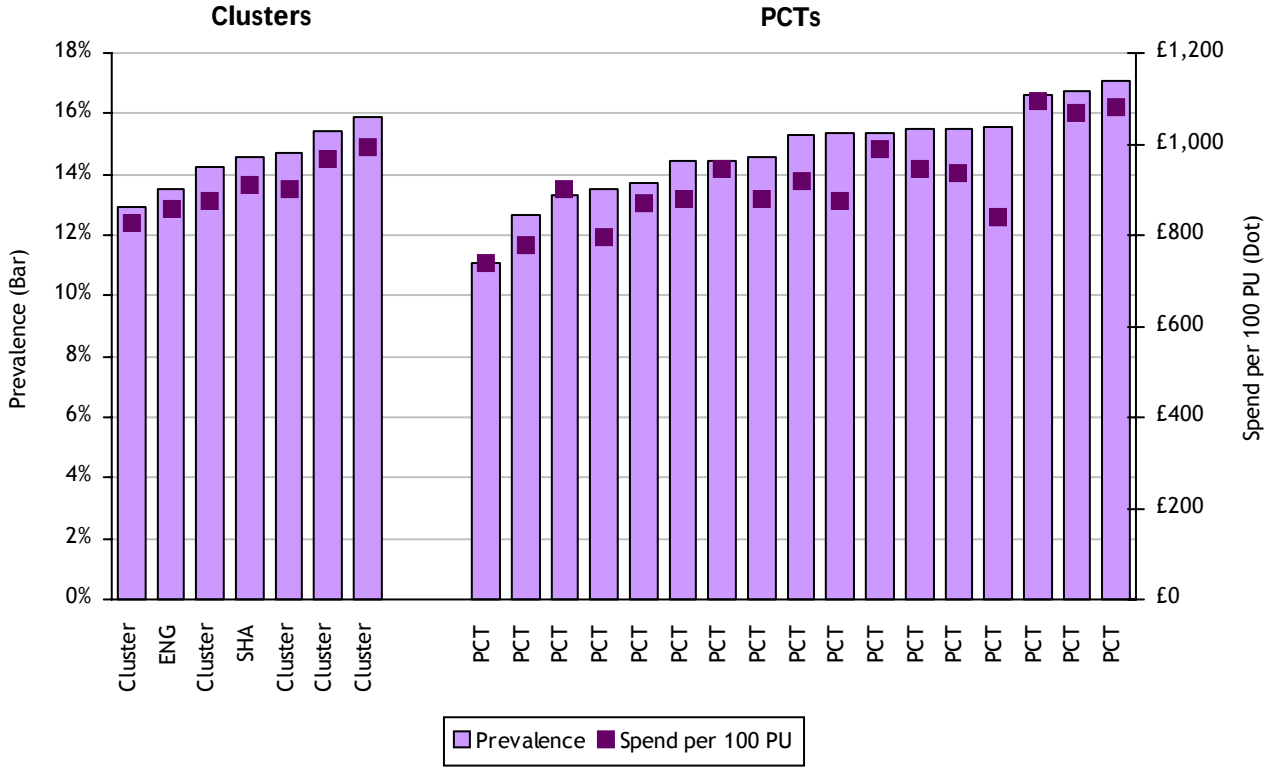
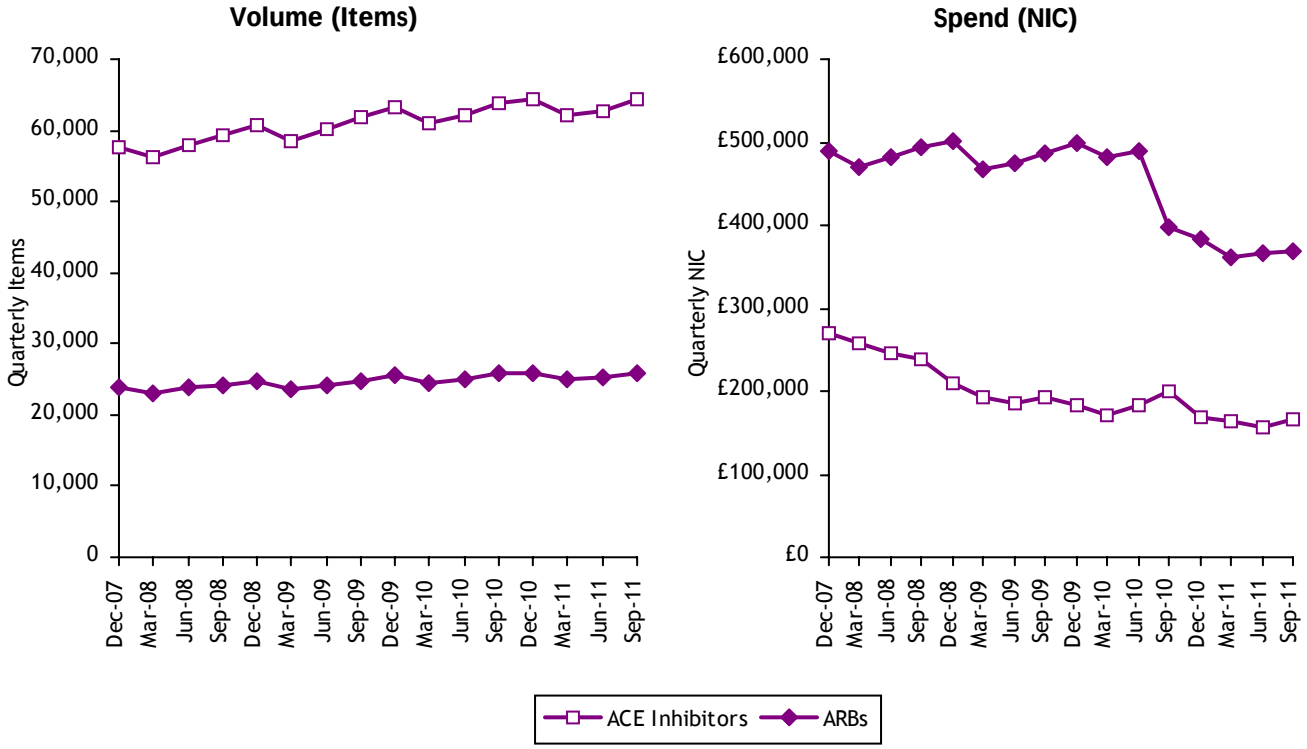
Fig 1 **West Midlands: Hypertension Prevalence and Prescribing (BNF Sections 2.2, 2.4, 2.5 and 2.6.2) Rates for the period Apr-10 to Mar-11**



Data: PPD and QOF

Fig 2 **ACE Inhibitors and ARBs (BNF 2.5.5): Quarterly Volume (Items) and Spend (NIC) in EXAMPLE**



Data: PPD

The exact indication for each drug varies and ACE inhibitors generally have a wider range of indications than ARBs as shown in the table below.

Table 1 Licensed Uses and Cost Comparison of ACE inhibitors and ARBs

	Drug	Indication: Hypertension	Indication: Heart Failure	Indication: Diabetic nephropathy	Indication: MI secondary prevention	Cost per 28 days
ACE Inhibitors	Enalapril	●	●			40mg £2.16; 10mg (DDD) £1.00; 2.5mg £1.07
	Lisinopril	●	●	●	●	20mg £1.14; 10mg (DDD) £1.02; 2.5mg £0.87
	Perindopril	●	●		●	8mg £1.76; 4mg (DDD) £1.61; 2mg £1.50
	Ramipril	●	●	●	●	10mg £1.37; 2.5mg (DDD) £1.16; 1.25mg £1.09
ARBs	Candesartan	●	●			16mg £12.72; 8mg (DDD) £9.89; 2mg £14.32
	Eprosartan	●				600mg £14.31; 600mg (DDD) £14.31; 300mg £7.31
	Irbesartan	●		●		300mg £15.93; 150mg (DDD) £11.84; 75mg £9.69
	Losartan	●	●	●		100mg £1.41; 50mg (DDD) £1.23; 25mg £1.14
	Olmesartan	●				40mg £17.50; 20mg (DDD) £12.95; 10mg £10.95
	Telmisartan	●			●	80mg £17.00; 40mg (DDD) £13.61; 20mg £11.10
	Valsartan	●	●		●	160mg £18.41; 80mg (DDD) £13.97; 40mg £13.96

Prices: MIMS and Drug Tariff January 2012
Licensed Indications: BNF

The following table is based on data for the last 3 months (Aug-11 to Oct-11). Savings are then extrapolated from this data to give an annual saving which is based on current data.

It is likely that those PCTs with a lower cost per DDD for ACE Inhibitors and ARBs are already in the process of promoting cost-effective prescribing in this area.

Table 2 ACE Inhibitors & ARBs (BNF 2.5.5): Potential Savings from Prescribing at a Lower Cost per DDD

PCT	NIC per DDD	% change in NIC per DDD*	WM Indicator^ (Quarterly)		Potential Annual Saving
			Oct-11	Oct-10	
PCT	£0.08	-13%	70.8%	70.3%	£716,892
PCT	£0.09	-13%	67.6%	67.8%	£510,383
PCT	£0.07	-21%	73.3%	73.1%	£0
PCT	£0.05	-26%	71.8%	72.5%	£0
Cluster	**£0.08**	**-16%**	**70.4%**	**70.4%**	**£1,227,275**
PCT	£0.08	-20%	71.6%	71.7%	£253,520
PCT	£0.07	-15%	73.6%	73.2%	£115,020
PCT	£0.08	-15%	70.1%	69.5%	£448,873
PCT	£0.08	-11%	68.7%	69.0%	£190,752
Cluster	**£0.08**	**-16%**	**70.8%**	**71.0%**	**£1,008,164**
PCT	£0.06	-13%	74.9%	75.0%	£0
PCT	£0.07	-10%	73.7%	74.0%	£0
PCT	£0.08	-10%	71.3%	71.3%	£310,914
PCT	£0.08	-11%	73.1%	72.9%	£452,366
Cluster	**£0.07**	**-11%**	**73.1%**	**73.1%**	**£763,280**
PCT	£0.06	-30%	71.3%	71.2%	£0
PCT	£0.07	-19%	71.4%	71.0%	£265,737
Cluster	**£0.07**	**-23%**	**71.1%**	**71.4%**	**£265,737**
PCT	£0.08	-11%	71.2%	70.4%	£333,261
PCT	£0.08	-7%	70.9%	70.8%	£324,595
PCT	£0.07	-14%	72.0%	72.8%	£996
Cluster	**£0.07**	**-11%**	**71.7%**	**71.6%**	**£658,851**
SHA Totals	**£0.07**	**-15%**	**71.4%**	**71.5%**	**£3,923,308**

Data: PPD

** Change compared to the same period last year.*

^ West Midlands Medicines Management Network Performance Indicator - Increase the use of ACE inhibitors relative to angiotensin-2 blockers ≥ 75%

NOTE: We have selected the 25th percentile NIC per DDD value, which raises the benchmark compared to previous reports which benchmarked on the lowest NIC per DDD value. Therefore savings in this lowest quartile are now £0. This does not necessarily mean that prescribing cost cannot be improved in this area.

Table 3 Savings that could be achieved for new patients requiring as RAS drug in 2012/13

PCT	Percentage of new ACE or ARB DDDs substituted with lisinopril			Percentage of new ARB DDDs substituted with generic losartan		
	25%	50%	75%	25%	50%	75%
PCT	N/A^	N/A^	N/A^	£572	£1,144	£1,716
PCT	£100,270	£200,541	£300,811	£14,957	£29,913	£44,870
PCT	£7,264	£14,528	£21,791	£3,162	£6,323	£9,485
PCT	£181,165	£362,329	£543,494	£28,849	£57,697	£86,546
Cluster	**£288,699**	**£577,398**	**£866,096**	**£47,539**	**£95,077**	**£142,616**
PCT	£33,155	£66,310	£99,464	£9,303	£18,607	£27,910
PCT	£44,031	£88,061	£132,092	£5,104	£10,208	£15,311
PCT	£110,617	£221,235	£331,852	£17,053	£34,106	£51,159
PCT	£57,060	£114,120	£171,180	£8,426	£16,853	£25,279
Cluster	**£244,863**	**£489,726**	**£734,589**	**£39,887**	**£79,773**	**£119,660**
PCT	£3,930	£7,861	£11,791	£5,437	£10,874	£16,310
PCT	£12,246	£24,493	£36,739	£4,718	£9,436	£14,154
PCT	£100,739	£201,479	£302,218	£17,139	£34,278	£51,417
PCT	£79,768	£159,537	£239,305	£14,095	£28,190	£42,284
Cluster	**£196,684**	**£393,369**	**£590,053**	**£41,389**	**£82,777**	**£124,166**
PCT	£12,725	£25,450	£38,176	£6,271	£12,542	£18,814
PCT	£85,522	£171,044	£256,565	£17,765	£35,530	£53,295
Cluster	**£98,247**	**£196,494**	**£294,741**	**£24,036**	**£48,073**	**£72,109**
PCT	£83,712	£167,425	£251,137	£12,123	£24,247	£36,370
PCT	£101,973	£203,947	£305,920	£20,303	£40,607	£60,910
PCT	£38,642	£77,284	£115,926	£16,034	£32,067	£48,101
Cluster	**£224,328**	**£448,656**	**£672,984**	**£48,461**	**£96,921**	**£145,382**
Total	**£1,052,821**	**£2,105,642**	**£3,158,463**	**£201,311**	**£402,622**	**£603,933**

Data: PPD

^ We have been unable to identify new patients in PCTs where potential savings are marked "N/A", owing to a decreasing volume trend for ACE Inhibitors and/or ARBs in these PCTs. This does not mean that savings cannot be made in these PCTs, merely that it is difficult to identify potential savings in these PCTs using historical prescribing data alone.

Fig 3 **West Midlands: Breakdown of ACE Inhibitor and ARB Prescribing (BNF 2.5.5) by Volume (Items), for the period Aug-11 to Oct-11**

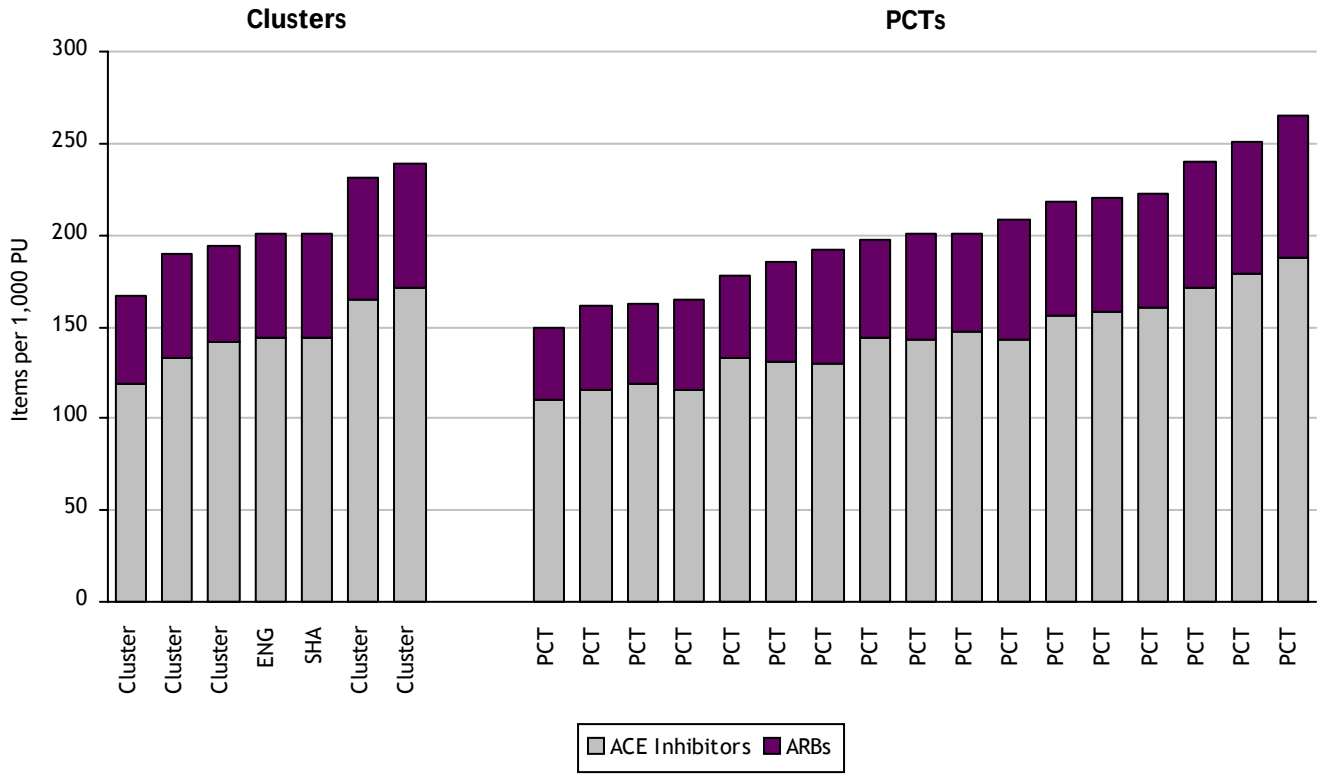
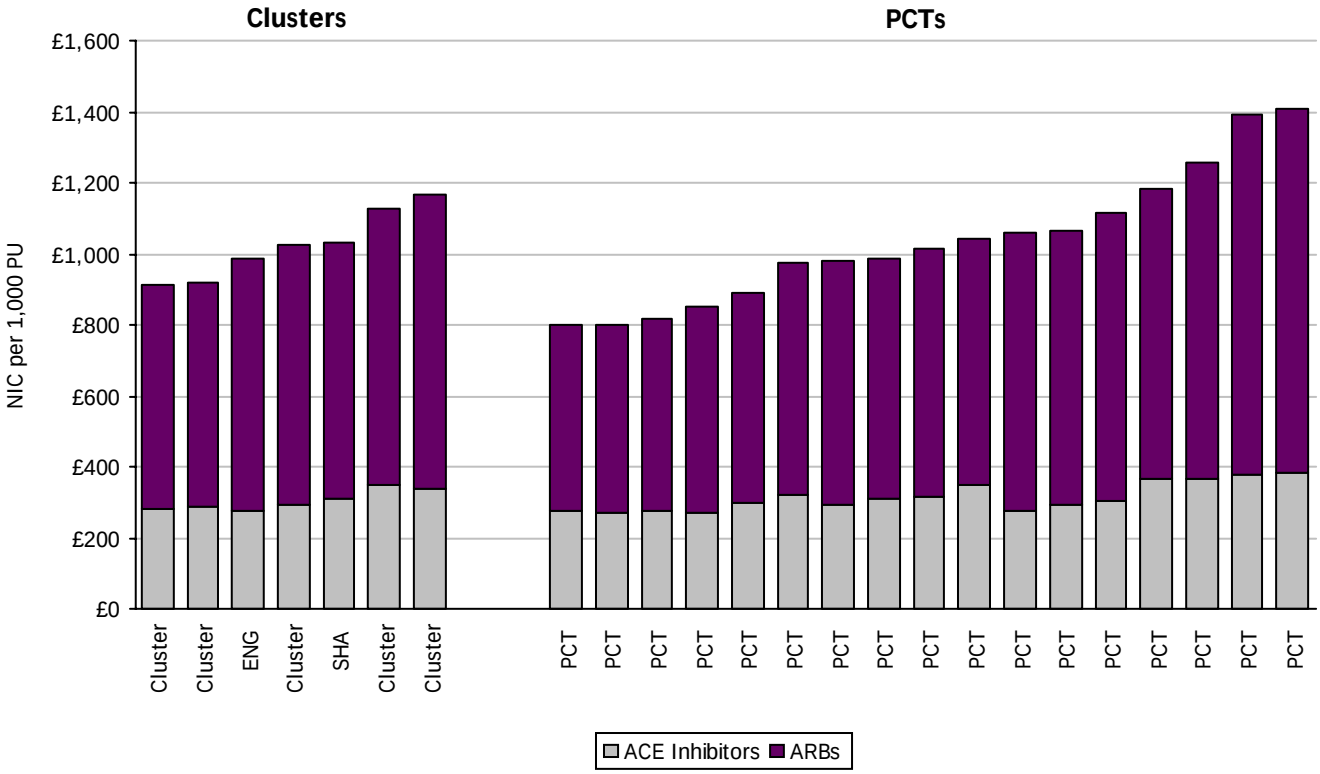


Fig 4 **West Midlands: Breakdown of ACE Inhibitor and ARB Prescribing (BNF 2.5.5) by Spend (NIC), for the period Aug-11 to Oct-11**



Data: PPD

Fig 5 ACE Inhibitors (BNF 2.5.5.1): Quarterly Volume (Items) and Spend (NIC) in EXAMPLE

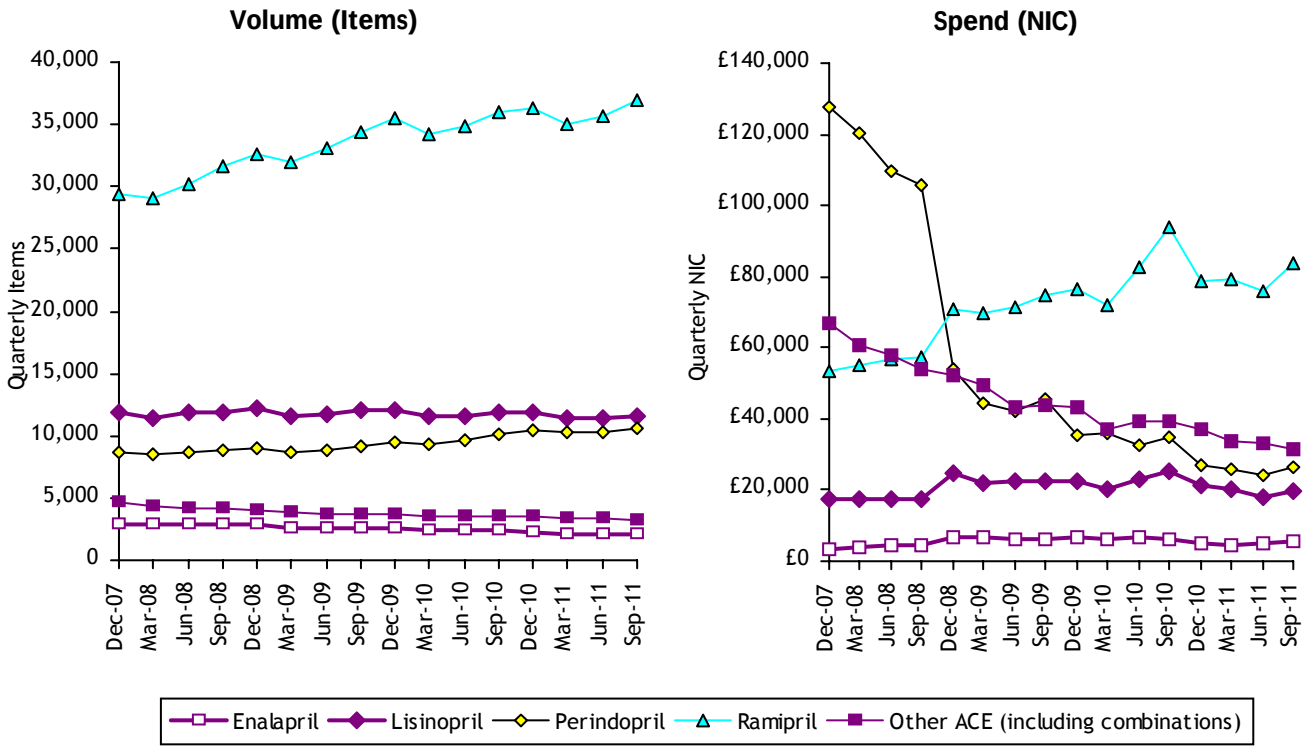
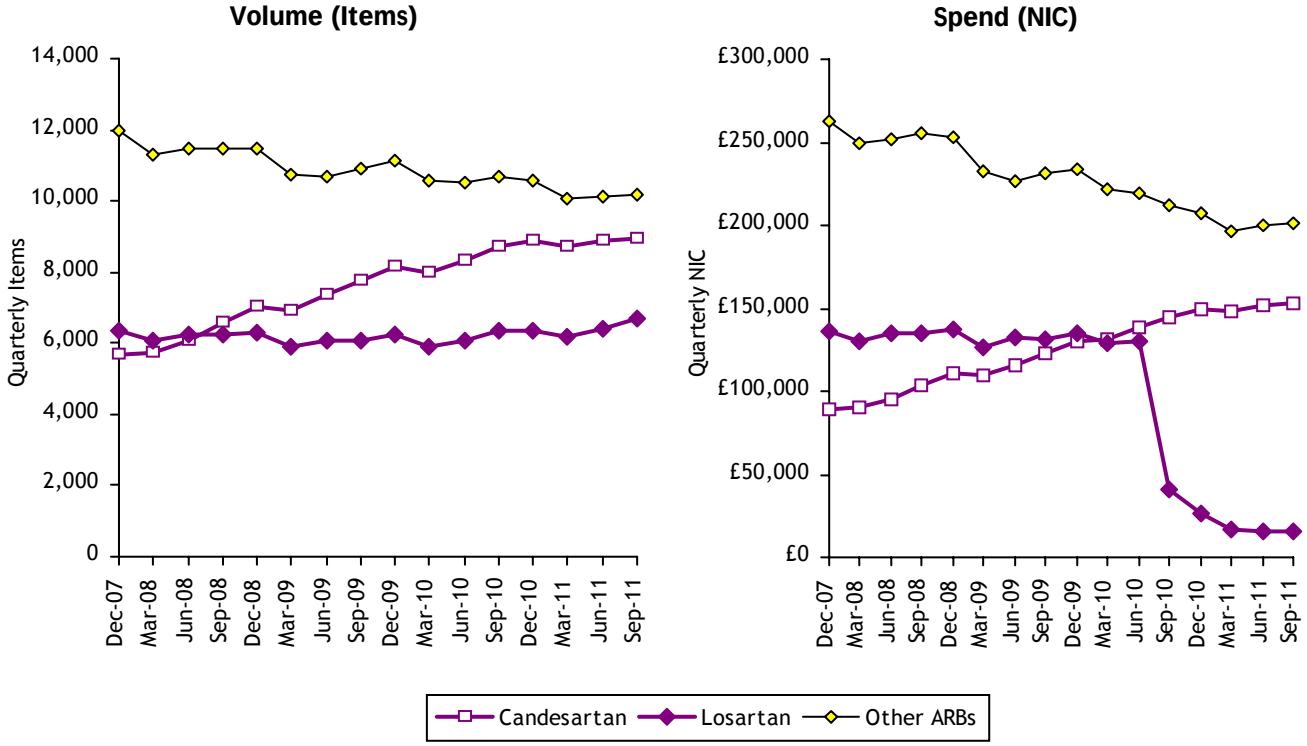


Fig 6 ARBs (BNF 2.5.5.2): Quarterly Volume (Items) and Spend (NIC) in EXAMPLE



Data: PPD

Fig 7 **West Midlands: Breakdown of ACE Inhibitor Prescribing (BNF 2.5.5.1) by Volume (Items), for the period Aug-11 to Oct-11**

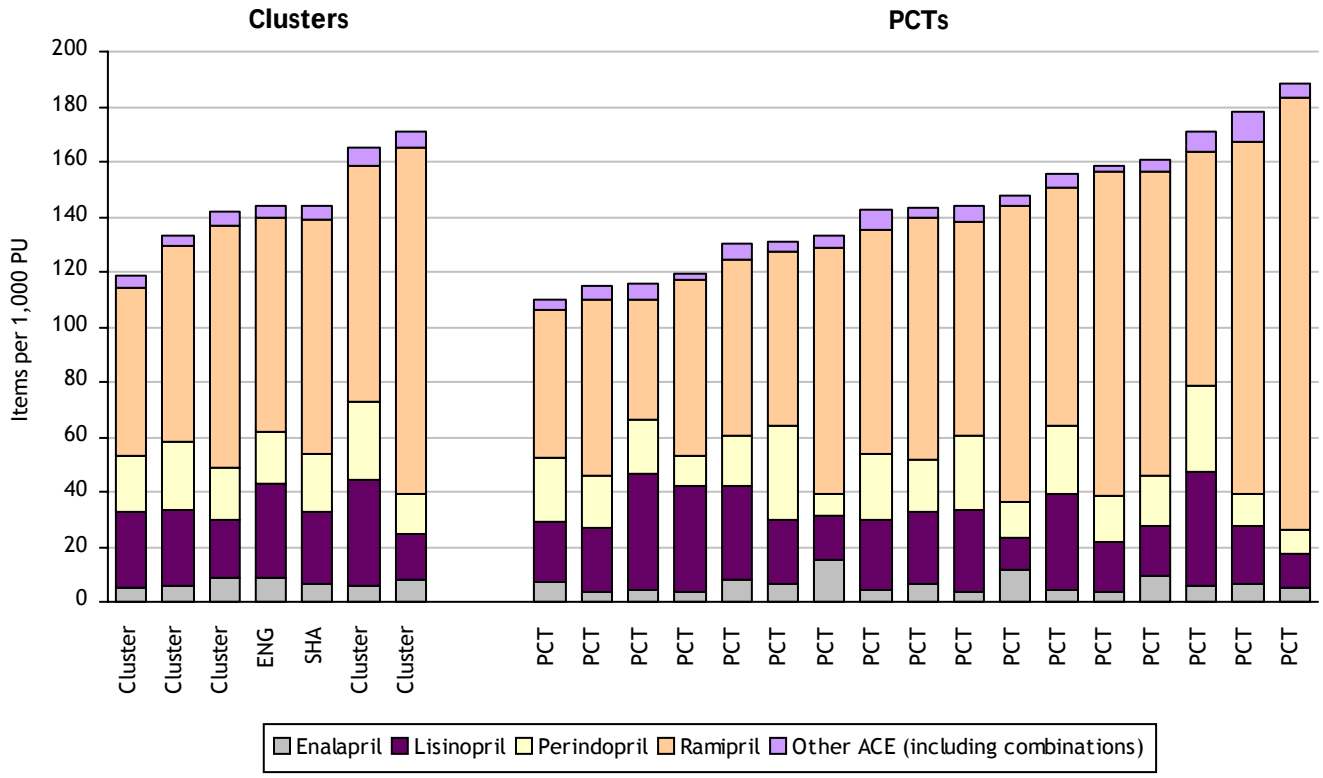
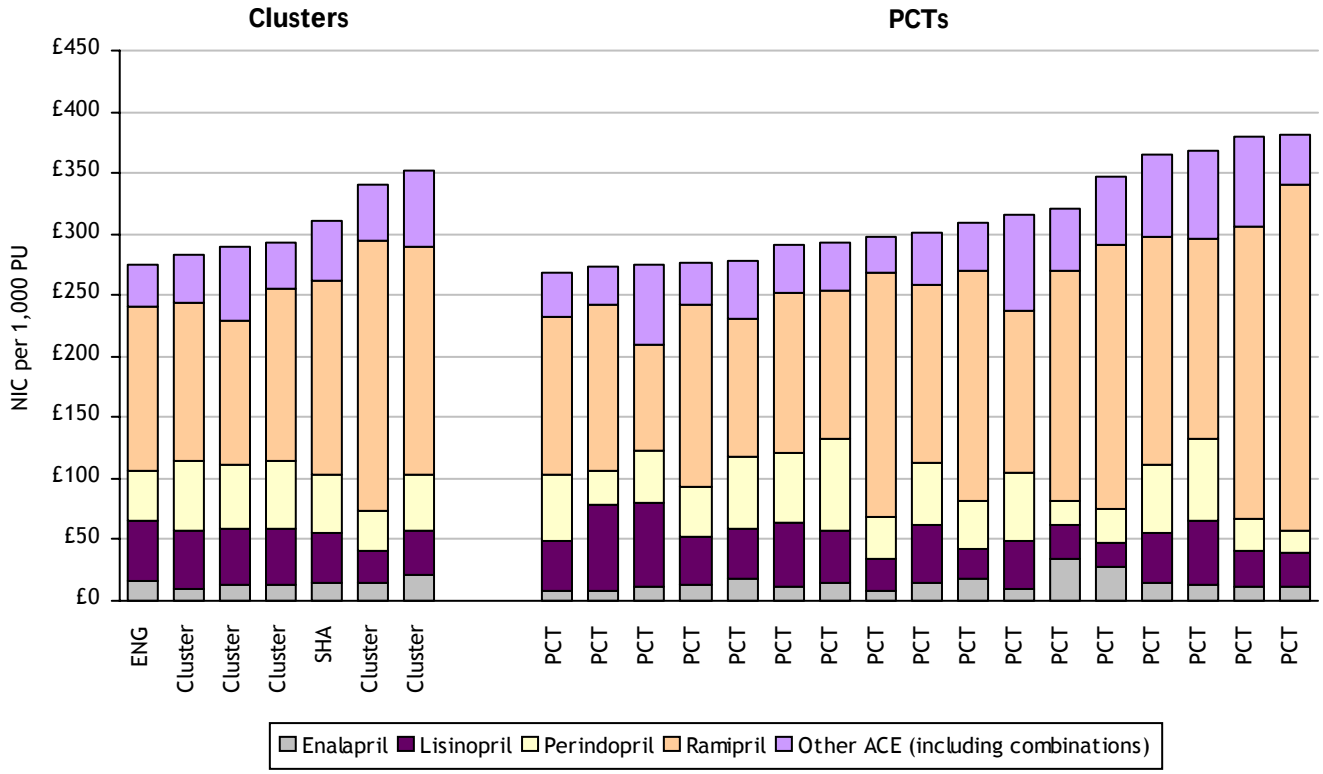


Fig 8 **West Midlands: Breakdown of ACE Inhibitor Prescribing (BNF 2.5.5.1) by Spend (NIC), for the period Aug-11 to Oct-11**



Data: PPD

Fig 9 **West Midlands: Breakdown of ARB Prescribing (BNF 2.5.5.2) by Volume (Items), for the period Aug-11 to Oct-11**

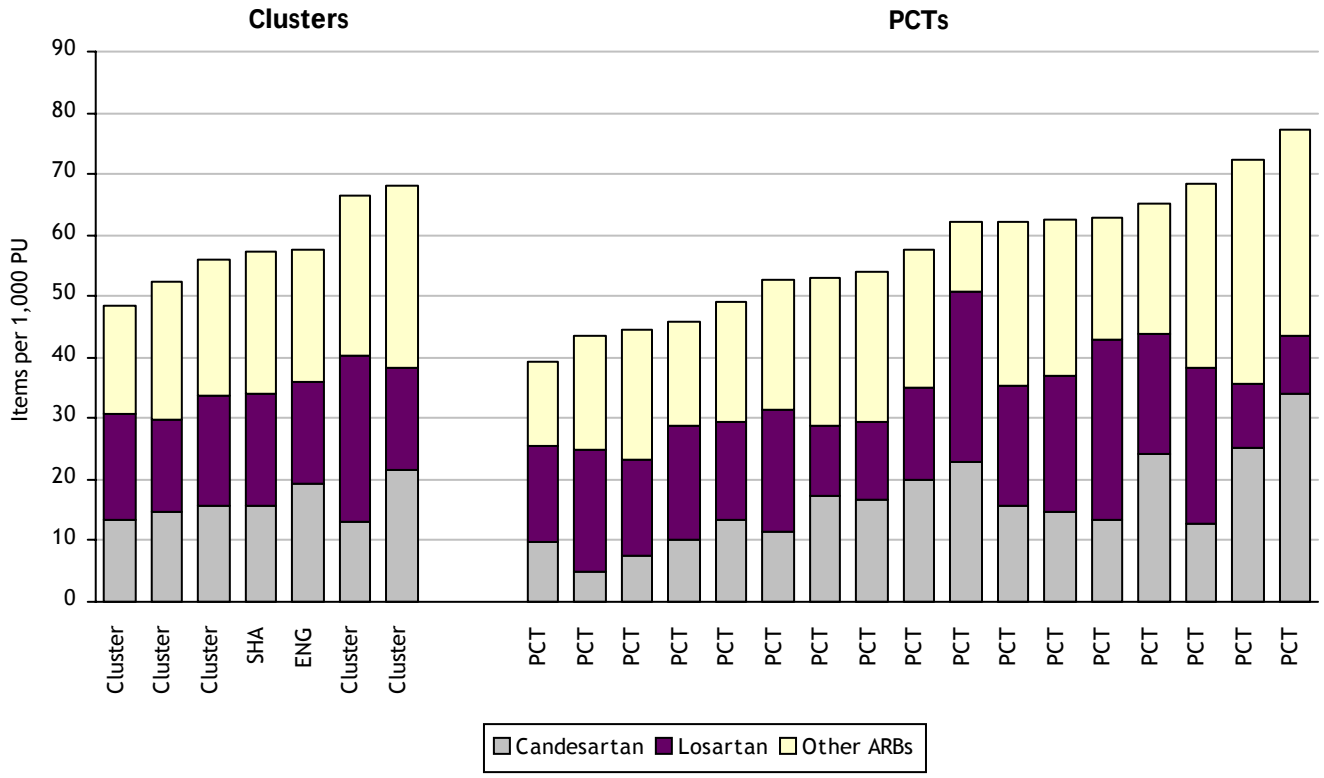
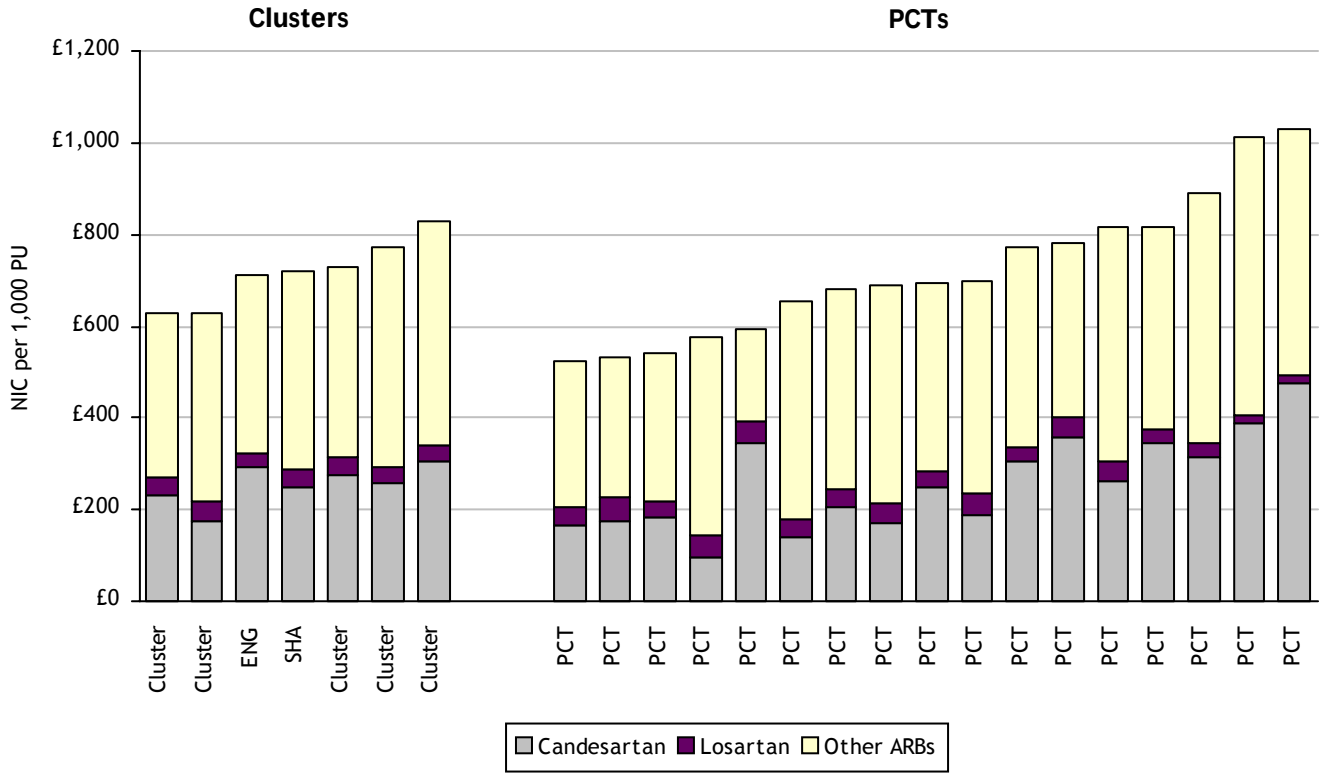
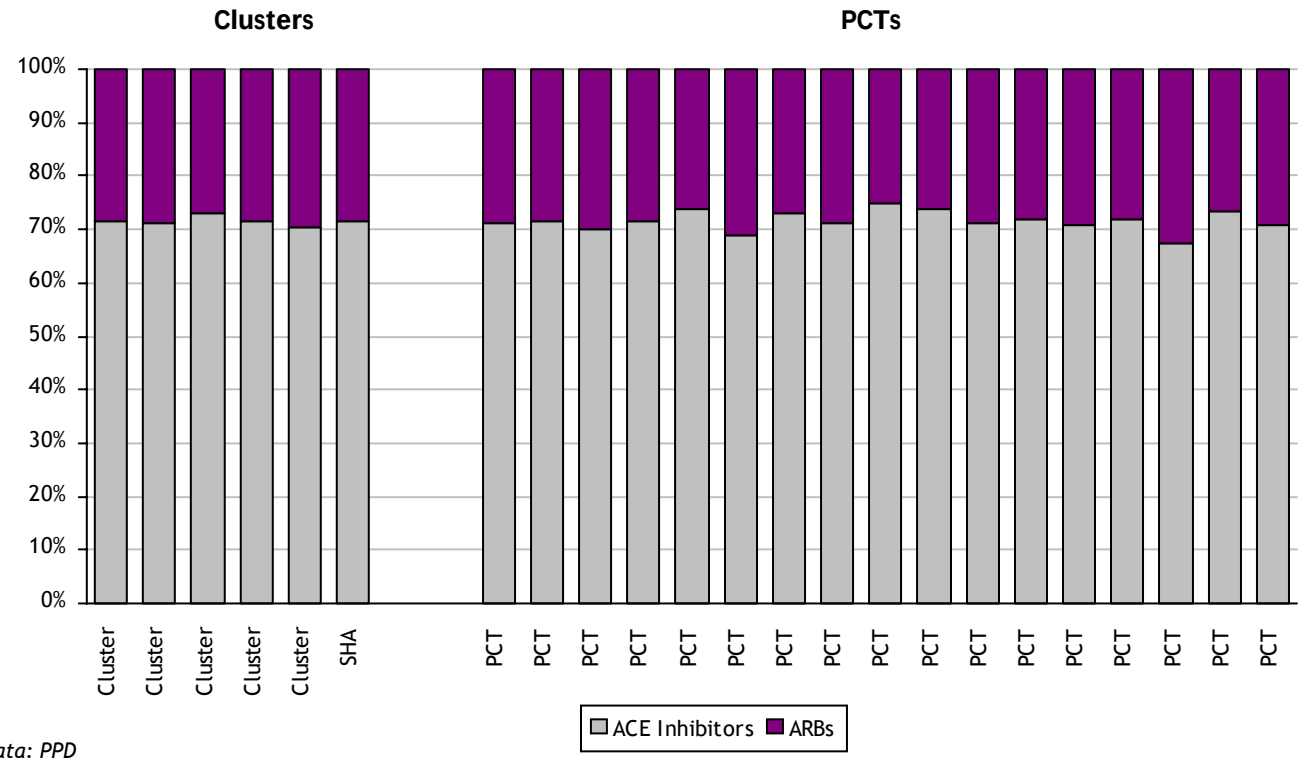


Fig 10 **West Midlands: Breakdown of ARB Prescribing (BNF 2.5.5.2) by Spend (NIC), for the period Aug-11 to Oct-11**



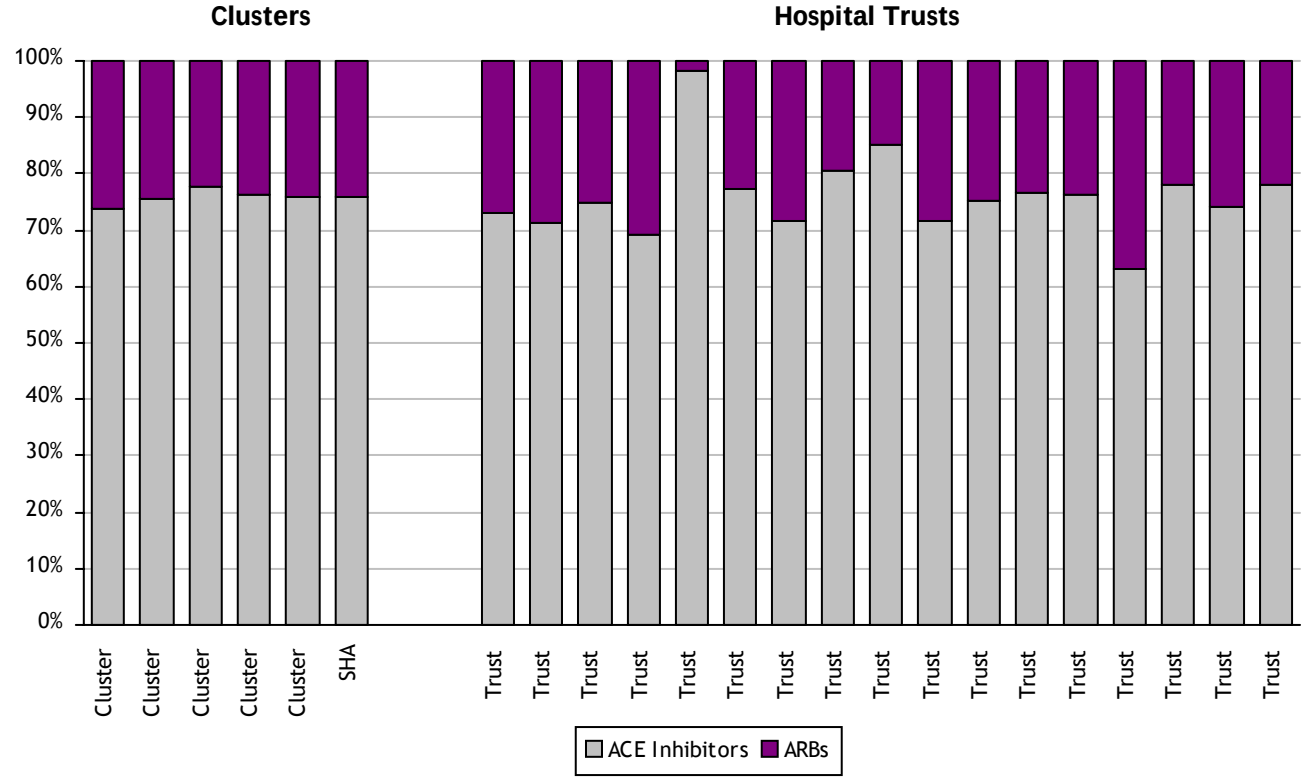
Data: PPD

Fig 1 **PRIMARY CARE - West Midlands: Breakdown of ACE Inhibitor and ARB Prescribing (BNF 2.5.5) by Volume (Items), for the period Aug-11 to Oct-11**



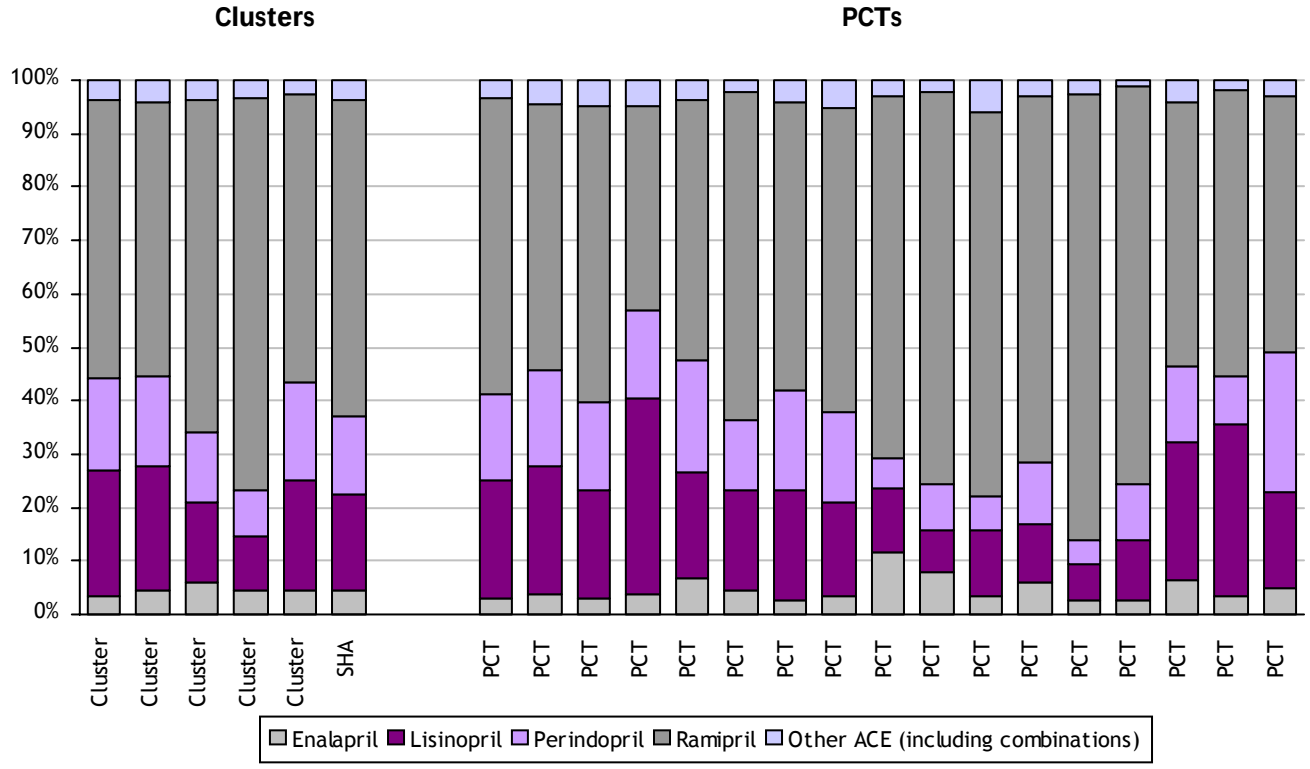
Data: PPD

Fig 2 **SECONDARY CARE - West Midlands: Breakdown of ACE Inhibitor and ARB Prescribing (BNF 2.5.5) by Volume (Packs), for the period Aug-11 to Oct-11**



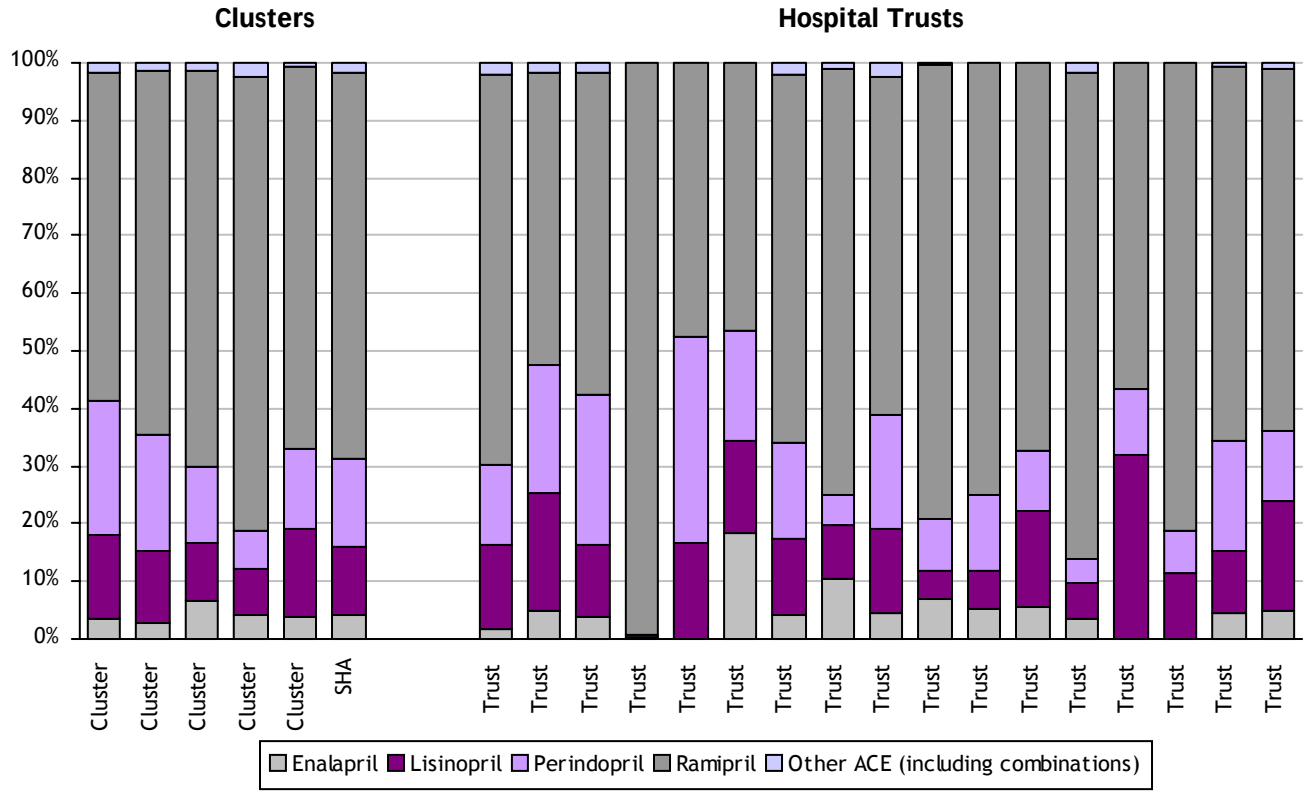
Data: IMS

Fig 3 **PRIMARY CARE - West Midlands: Breakdown of ACE Inhibitor Prescribing (BNF 2.5.5.1) by Volume (Items), for the period Aug-11 to Oct-11**



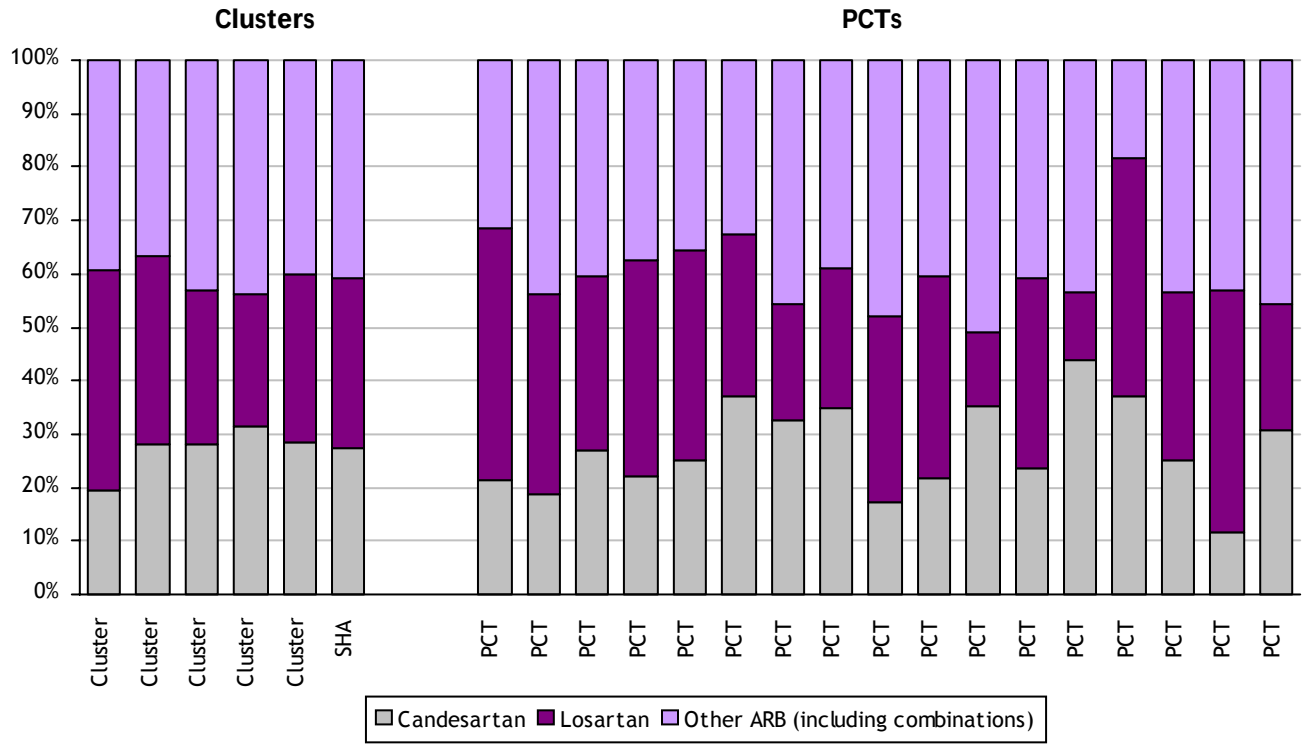
Data: PPD

Fig 4 **SECONDARY CARE - West Midlands: Breakdown of ACE Inhibitor Prescribing (BNF 2.5.5.1) by Volume (Packs), for the period Aug-11 to Oct-11**



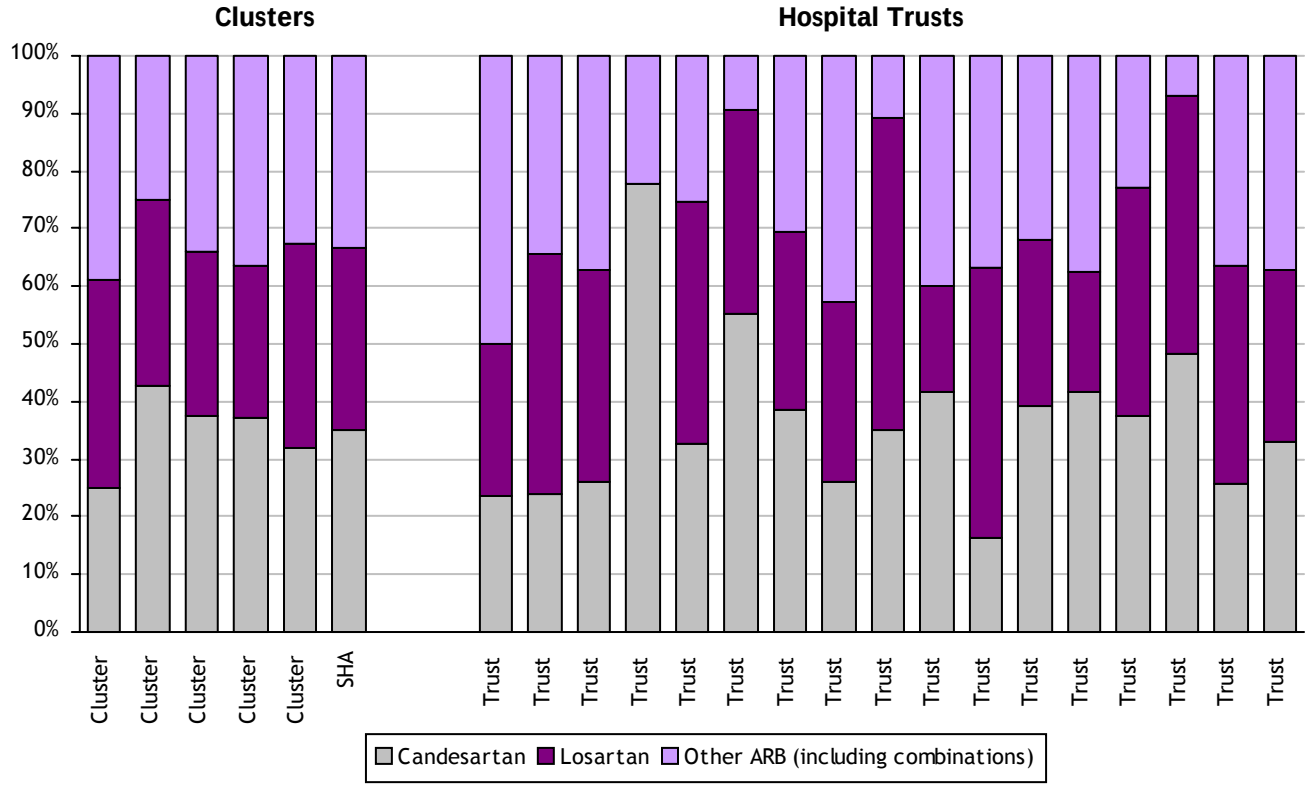
Data: IMS

Fig 5 **PRIMARY CARE - West Midlands: Breakdown of ARB Prescribing (BNF 2.5.5.2) by Volume (Items), for the period Aug-11 to Oct-11**



Data: PPD

Fig 6 **SECONDARY CARE - West Midlands: Breakdown of ARB Prescribing (BNF 2.5.5.2) by Volume (Packs), for the period Aug-11 to Oct-11**



Data: IMS

Table 1 **West Midlands: Hospital Admissions attributed to ACE Inhibitors, for the period Apr-10 to Mar-11**

Between Apr-10 and Mar-11 there were 2,043,532 hospital episodes in the West Midlands, of which 6.9% have a cause attributed to them. ICD-10 code Y52.4 is used to record a cause of an adverse effect of an ACE Inhibitor and a total of 426 admissions have been coded in this way. Where there are more than five episodes causing a primary diagnosis details have been included in the table below:

Primary Diagnosis	Number of admissions attributed to ACE Inhibitors	% of admissions attributed to ACE Inhibitors*
Hypotension (I95)	61	14.3%
Other disorders of fluid, electrolyte and acid-base balance (E87)	61	14.3%
Adverse effects, not elsewhere classified (T78)	30	7.0%
Acute renal failure (N17)	30	7.0%
Other disorders of urinary system (N39)	15	3.5%
Pneumonia, organism specified (J18)	13	3.1%
Other complications of surgical and medical care, not elsewhere classified (T88)	11	2.6%
Subsequent myocardial infarction (I22)	11	2.6%
Other disorders of pancreatic internal secretion (E16)	10	2.3%
Hypertensive renal disease (I12)	10	2.3%
Diseases of tongue (K14)	10	2.3%
Cough (R05)	8	1.9%
Syncope and collapse (R55)	8	1.9%
Heart Failure (I50)	7	1.6%
Pain in throat and chest (R07)	6	1.4%
Atrial fibrillation and flutter (I48)	6	1.4%

Data: HES

** Percentage based on all admissions with a cause attributed*

Prescribing Information *to support* QIPP

Section: D

Statins & Ezetimibe

January 2012

EXAMPLE

Statins – primary and secondary prevention of cardiovascular disease.

What are the issues?

- In people without diabetes or Acute Coronary Syndrome (ACS) who require a statin, treatment for the *primary and secondary prevention* of cardiovascular disease (CVD) should be initiated with simvastatin 40 mg daily.[1]
- If there are potential drug interactions or simvastatin 40 mg is contraindicated, a lower dose *(of simvastatin)* or alternative preparation, such as pravastatin, may be chosen.[1]
- The UK patent protection for atorvastatin lapses in May 2012.[2] The initial generic price of atorvastatin and the pace at which it will fall remain unknown, but are likely to be clearer by the October 2012 Drug Tariff update. The NPC suggests there will be savings to be made in the meantime.[2]
- Commissioners, Clinical Commissioning Groups and Medicines Management teams will be prioritising their activities and will have to seriously review atorvastatin prescribing in light of the likely windfall savings that the loss of patent will generate.

Primary prevention:

- There are no targets for total or LDL cholesterol in primary prevention – simvastatin 40 mg remains first-line choice.[1]
- **Key message for prescribers** – do not offer higher intensity statin therapy or a combination of a statin and other lipid-modifying treatment (including fish oil supplements), for the primary prevention of CVD.[2]

Secondary prevention (without ACS)

- NICE lipid guidance sets no lipid targets that patients are expected to achieve for secondary prevention of CVD.
- Consider increasing the dose of simvastatin from 40 mg daily to 80 mg daily **only** in patients with total cholesterol greater than 4 mmol/L **and** LDL-cholesterol greater than 2 mmol/L. If either is below that level, then increasing the dose is not recommended.[1]
    - These are lipid levels which should prompt prescribers to consider increasing the dose. Note, these are **not** targets patients are expected to achieve.
- The decision to offer a higher intensity statin should not be automatic, but should take into account the patient's informed preference, including the benefits and risks of treatment.
- In May 2010, the MHRA highlighted the increased risk of myopathy associated with high-dose (80 mg) simvastatin. MHRA guidance is that the 80 mg dose should be considered only in patients with severe hypercholesterolaemia and high risk of cardiovascular complications who have not achieved their treatment goals on lower doses, when the benefits are expected to outweigh the potential risks.[3]
- **SEARCH:** The SEARCH study has now been published in full. It found no significant reduction in major vascular events among people randomised to simvastatin 80 mg versus 20 mg daily for secondary prevention.[4] The higher dose was associated with an increased risk of muscle side effects, but myopathy was uncommon and rhabdomyolysis was rare.

Statin therapy in people with ACS [1]

- NICE recommends that people with ACS should be offered treatment with a higher intensity statin.
- NICE found that atorvastatin 80 mg and simvastatin 80 mg are both cost effective daily doses in ACS, if more intensive statin treatment is chosen. In practice the choice is usually atorvastatin 80 mg.
- NICE does not recommend target lipid levels in people with ACS.

BUT, unhelpfully

- NICE does not give guidance about how long people with ACS should take a higher-intensity statin, that is, at what point after their ACS event they should be treated in the same way as other patients who are taking statins for secondary prevention.

Statin therapy in people with…..

- **Type 2 diabetes** NICE recommends simvastatin 40 mg daily as the usual choice and dose of statin, with an increase to 80 mg daily if the total cholesterol is more than 4 mmol/L and the LDL-cholesterol is more than 2 mmol/L on treatment.[5]
- **Type 2 diabetes plus CVD, or newly diagnosed CVD or an increased albumin excretion**
  - Consider intensifying lipid lowering treatment to achieve total cholesterol of less than 4 mmol/L or an LDL-cholesterol of less than 2 mmol/L.[5]
- N.B. take into account the patient's informed preference, including the benefits and risks of treatment.

Management of familial hypercholesterolaemia (FH)

- NICE guidance advises using the maximum licensed or tolerated dose of statins, plus ezetimibe if necessary, to try to achieve at least a 50% reduction in LDL-cholesterol from baseline.[6]
- But if a patient cannot tolerate or does not wish to take such intensive treatment, cohort studies show that the prognosis for patients with FH improved substantially when standard doses of 'less intensive' statins were introduced, to the point when their risk of cardiovascular events was reduced to that of the general population.[6]

What are the actions?

- Continue to review and where appropriate revise the prescribing of high-cost statins to ensure NICE guidance is followed.
- Where high-intensity statins are considered by prescribers, ensure the patient has informed preference:
  - Consider co-morbidities
  - Drug interactions
  - Side effects
  - An assessment of the risks and benefits with the patient
- Continue to follow MHRA advice on simvastatin 80 mg[3]
  - Considered only in patients with severe hypercholesterolaemia and high risk of cardiovascular complications who have not achieved their treatment goals on lower doses, when the benefits are expected to outweigh the potential risks
  - Prescribers treating patients who are taking simvastatin 80 mg or who are being considered for an up-titration to that dose may need to review their treatment during their next visit, to take into account the new evidence.
  - Patients who are currently taking simvastatin 80 mg should not stop taking their medicine. However, they should be advised to contact their doctor immediately if they experience unexplained muscle pain, tenderness, or weakness

Ezetimibe

What are the issues?

There is no evidence to support the use of ezetimibe for primary and secondary prevention of cardiovascular disease.[2]

Prescribing of ezetimibe has continued to increase and has exceeded that initially estimated in NICE guidance on the use of ezetimibe for the treatment of primary (heterozygous-familial and non-familial) hypercholesterolaemia.[7] Data has shown that uptake amongst SHAs have ranged from 1% to as much as 48% over that predicted by NICE and variation at PCT level even greater. As such there may have been over implementation of NICE guidance by prescribers.

NICE recommends that:[7]

- Ezetimibe monotherapy is an option for adults who have contraindications to initial statin therapy or who are intolerant to statin therapy.
- Ezetimibe in combination with a statin is an option for adults when serum total or LDL cholesterol is not appropriately controlled either after appropriate dose titration of initial statin therapy or because dose titration is limited by intolerance to statin therapy and consideration is being given to changing to an alternative statin.
- When the decision has been made to treat with ezetimibe and a statin, ezetimibe should be prescribed on the basis of the lowest acquisition cost.

What are the actions?

- **Commissioners and prescribers should be aware that ezetimibe is not specifically licensed for primary or secondary prevention of CVD.**[8]
- Audit use of ezetimibe (as monotherapy and in combination with statins) against NICE and any local guidelines/ policies.
- Prescribers should review and where appropriate, revise prescribing of ezetimibe to ensure it is in line with NICE guidance.
- If prescribing of ezetimibe is being considered, take account of the following points:-
    - **As stated in its own Summary of Product Characteristics a beneficial effect of ezetimibe on cardiovascular morbidity and mortality has not yet been demonstrated.**[8]
    - Reducing cardiovascular risk should be the priority not just lowering LDL or total cholesterol levels.[9]
    - In conjunction with local cardiac networks/secondary care colleagues guidelines should be developed that clearly define the role/place of ezetimibe.

Statins and Ezetimibe

Cost Implications

We have:

- Provided details of QOF Coronary Heart Disease (CHD) prevalence (bar) and prescribing (dot) by PCT and cluster.
- Modelled potential savings associated from a reduction in price of atorvastatin.
- Highlighted the costs associated with lipid lowering drugs.
- Analysed the potential savings from initiating new patients on simvastatin 40mg.
- Assessed the savings that PCTs and clusters could make if prescribing selected lipid lowering drugs at a lower cost per DDD.
- Provided details of prescribing trends and comparisons.
- In addition, we have provided hospital data which we hope that you will find helpful in your discussions with your provider trusts and commissioners:
    - Primary care versus secondary care prescribing data.
    - Emergency hospital admissions for cardiac events (weighted per 1,000 prescribing units). Where possible we have provided a comparison to the previous year's data.

References

1. National Institute for Health and Clinical Excellence. Lipid modification. NICE Clinical Guideline number 67. May 2008 (Reissued March 2010). http://guidance.nice.org.uk/CG67 <accessed 01/2012>
2. National Prescribing Centre (NPC). Key therapeutic topics – medicines management options for local implementation. Second update. July 2011, version 3. http://www.npc.nhs.uk/qipp/key_therapeutics_topics.php <accessed 01/2012>
3. MHRA Drug Safety Update. Volume 3 Issue 10. May 2010 http://www.mhra.gov.uk/home/groups/pl-p/documents/publication/con081866.pdf <accessed 01/2012>
4. Study of the Effectiveness of Additional Reductions in Cholesterol and Homocysteine (SEARCH) Collaborative Group. Intensive lowering of LDL cholesterol with 80 mg versus 20 mg simvastatin daily in 12 064 survivors of myocardial infarction: a double-blind randomised trial. *The Lancet* 2010; 376: 1658 – 1669
5. National Institute for Health and Clinical Excellence Type 2 Diabetes - newer agents (partial update of CG66) http://www.nice.org.uk/cg87 <accessed 01/2012>
6. National Institute for Health and Clinical Excellence. Identification and management of familial hypercholesterolaemia. Aug 2008. http://www.nice.org.uk/CG71 <accessed 01/2012>
7. National Institute for Health and Clinical Excellence. Ezetimibe for the treatment of primary (heterozygous-familial and nonfamilial) hypercholesterolaemia. Technology Appraisal guidance 132. November 2007. http://guidance.nice.org.uk/TA132 <accessed 12/2011>
8. Summary of Product Characteristics. Ezetimibe (Ezetrol® 10mg tablets). MSD-SP Ltd http://www.medicines.org.uk/EMC/medicine/12091/SPC/Ezetrol+10mg+Tablets/ <accessed 11/2011>
9. Ezetimibe – an update. Drug and Therapeutics Bulletin. 2009; 47: 91-95

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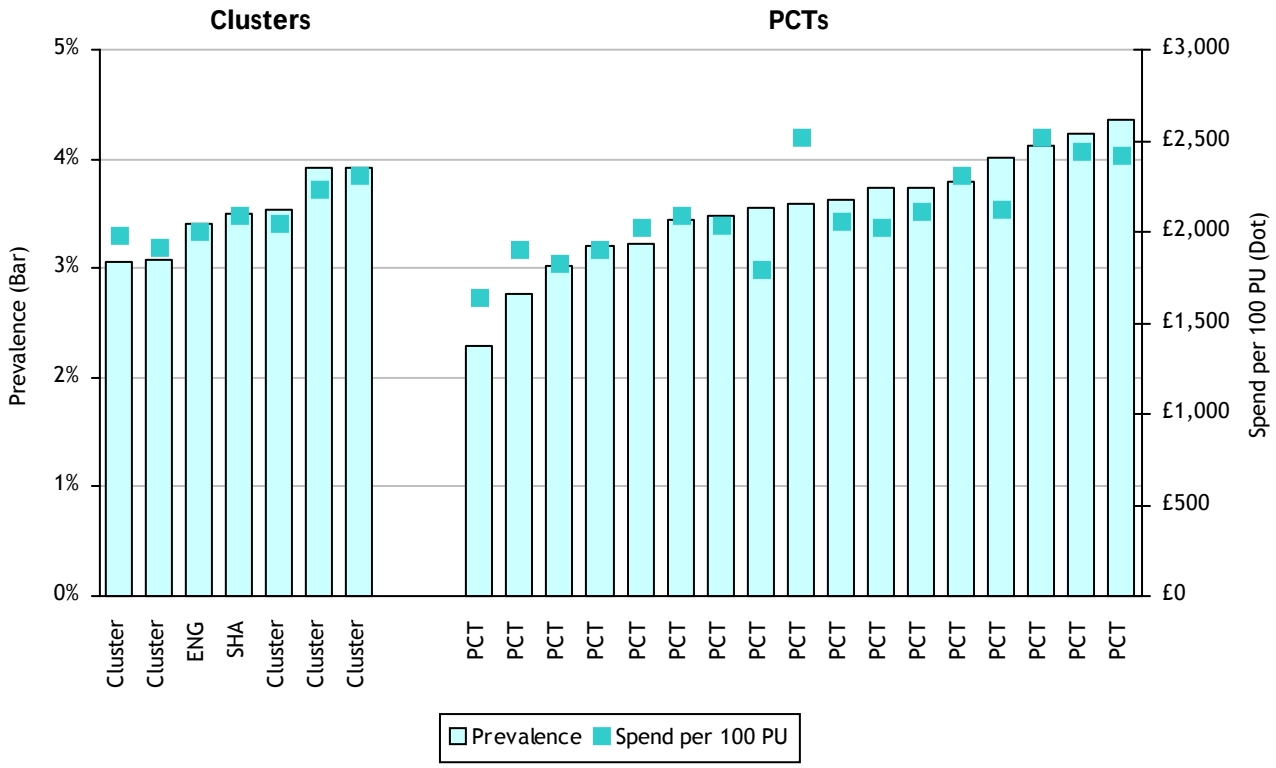
Fig 1 **West Midlands: CHD Prevalence and Prescribing (BNF Chapter 2) Rates for the period Apr-10 to Mar-11**



Data: PPD and QOF

Table 1 **Potential savings from a reduction in the price of atorvastatin 40mg**

Treatment		Annual Cost of Treating 100 Patients
First Line: Simvastatin 40mg	Jan-12 price	**£1,616**
Second Line Option: Atorvastatin 40mg	Jan-12 price	**£32,120**
	Potential Category M price* (70% reduction in price)	**£9,636**
	Potential Category M price** (84% reduction in price)	**£5,139**
	90% reduction in price#	**£3,212**
	95% reduction in price^	**£1,606**

** based on a percentage change in price similar to clopidogrel on movement to Category M in Apr-10*
*** based on a percentage change in price similar to simvastatin on movement to Category M in Apr-05*
 # based on percentage change in price of clopidogrel 1 year after removal from Category C in Nov-09
^ based on percentage change in price of simvastatin between Jul-03 and Nov-10
Prices: MIMS and Drug Tariff January 2012

Table 2 Cost Comparison of Statins

Treatment		Annual Cost of Treating 100 Patients
First Line	Simvastatin 40mg	**£1,616**
Second Line	Simvastatin 80mg	**£2,425**
	Rosuvastatin 10mg	**£23,503**
	Atorvastatin 40mg	**£32,120**
	Simvastatin 40mg Plus Ezetimibe 10mg (prescribed separately)	**£37,530**
	Atorvastatin 80mg	**£36,774**
	Simvastatin 40mg Plus Ezetimibe 10mg (Inegy®)	**£50,813**

Prices: MIMS and Drug Tariff January 2012

Table 3 Cost Comparison of Simvastatin and Ezetimibe

Treatment	Cost per 28 days		No. of people treated for £100 per month
	Component	Total	
10mg ezetimibe (Ezetrol®)	£26.31	£27.32	3.7
20mg simvastatin	£1.01		
10mg ezetimibe and 20mg simvastatin (Inegy®)	*£33.42*		*3.0*
10mg ezetimibe (Ezetrol®)	£26.31	£27.55	3.6
40mg simvastatin	£1.24		
10mg ezetimibe and 40mg simvastatin (Inegy®)	*£38.98*		*2.6*
10mg ezetimibe (Ezetrol®)	£26.31	£28.17	3.5
80mg simvastatin	£1.86		
10mg ezetimibe and 80mg simvastatin (Inegy®)	*£41.21*		*2.4*

Prices: MIMS and Drug Tariff January 2012

Table 4 Potential savings from initiating new patients on simvastatin 40mg in your PCT

Savings based on a percentage of new patients not following current prescribing trends

	Percentage of new statins DDDs prescribed as simvastatin 40mg		
Annual Savings	**25%**	**50%**	**90%**
2012/13	£56,179	£112,359	£202,246
2013/14	£101,369	£202,738	£364,929
2014/15	£146,559	£293,118	£527,612
Total	**£304,107**	**£608,215**	**£1,094,787**

Data: PPD

The following table is based on data for the last 3 months (Aug-11 to Oct-11). Savings are then extrapolated from this data to give an annual saving which is based on current data.

It is likely that those PCTs with a lower cost per DDD for statins and ezetimibe are already in the process of promoting cost-effective prescribing in this area.

Table 5 Statins and Ezetimibe (within BNF 2.12): Potential Savings from Prescribing at a Lower Cost per DDD

PCT	NIC per DDD	% change in NIC per DDD*	% ezetimibe and combn (by items)	WM Indicator^ (Quarterly)		Potential Annual Saving
				Oct-11	Oct-10	
PCT	£0.26	-3%	6.7%	60.3%	60.6%	£1,211,344
PCT	£0.18	-6%	5.0%	74.6%	74.3%	£0
PCT	£0.19	-5%	4.9%	68.5%	67.6%	£192,958
PCT	£0.16	-9%	3.3%	77.2%	76.4%	£0
Cluster	**£0.21**	**-5%**	**5.2%**	**68.2%**	**67.8%**	**£1,404,302**
PCT	£0.19	-7%	3.9%	75.0%	73.9%	£57,882
PCT	£0.18	-7%	4.1%	72.4%	71.4%	£0
PCT	£0.16	-5%	3.8%	80.5%	81.3%	£0
PCT	£0.21	-13%	4.7%	72.2%	68.5%	£489,267
Cluster	**£0.19**	**-9%**	**4.2%**	**74.8%**	**73.3%**	**£547,149**
PCT	£0.20	-2%	5.1%	75.0%	75.2%	£129,058
PCT	£0.23	-6%	4.7%	70.9%	70.5%	£696,577
PCT	£0.24	-4%	7.3%	69.0%	69.4%	£1,023,004
PCT	£0.19	-1%	4.8%	76.0%	76.7%	£0
Cluster	**£0.22**	**-4%**	**5.6%**	**72.3%**	**72.5%**	**£1,848,639**
PCT	£0.20	-10%	5.2%	77.0%	75.8%	£140,861
PCT	£0.21	-8%	5.7%	71.3%	70.1%	£621,544
Cluster	**£0.21**	**-9%**	**5.5%**	**73.4%**	**72.3%**	**£762,404**
PCT	£0.20	-5%	3.9%	72.0%	72.0%	£444,986
PCT	£0.21	-7%	5.1%	70.8%	69.4%	£234,397
PCT	£0.22	-3%	5.5%	70.9%	71.4%	£537,506
Cluster	**£0.21**	**-5%**	**4.6%**	**71.4%**	**71.4%**	**£1,216,889**
SHA Totals	**£0.20**	**-6%**	**5.0%**	**72.0%**	**71.5%**	**£5,779,383**

Data: PPD

** Change compared to the same period last year.*

^ West Midlands Medicines Management Network Performance Indicator - Increase the proportion of statins (including ezetimibe and combinations) prescribed as generic simvastatin/pravastatin ≥ 75%

NOTE: We have selected the 25th percentile NIC per DDD value as the benchmark. Therefore, savings in this lowest quartile are £0. This does not necessarily mean that prescribing cost cannot be improved in this area.

Fig 2 **Statins and Ezetimibe (within BNF 2.12): Quarterly Volume (Items) and Spend (NIC) in EXAMPLE**

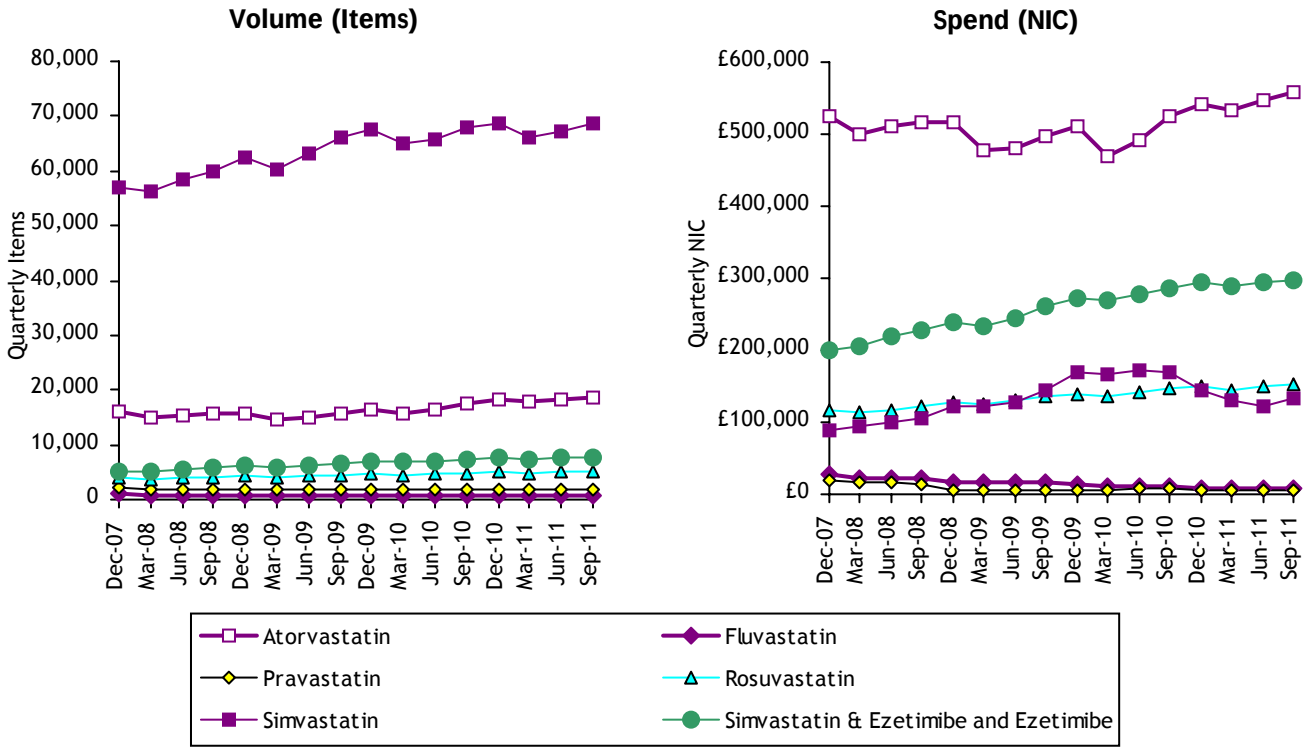
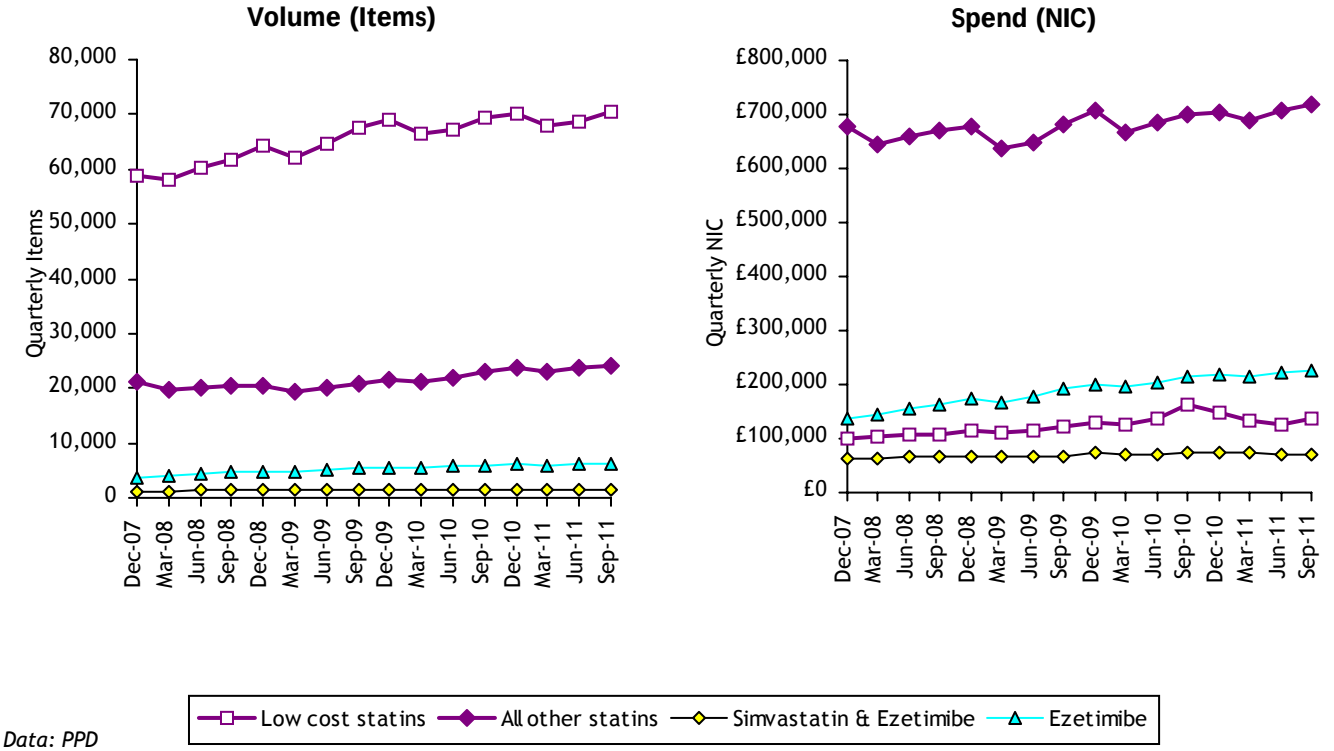


Fig 3 **Statins* and Ezetimibe (within BNF 2.12): Quarterly Volume (Items) and Spend (NIC) in EXAMPLE**



Data: PPD

** low cost statins are generic simvastatin and generic pravastatin*

Fig 4 **West Midlands: Breakdown of Statin and Ezetimibe Prescribing (within BNF 2.12) by Volume (Items), for the period Aug-11 to Oct-11**

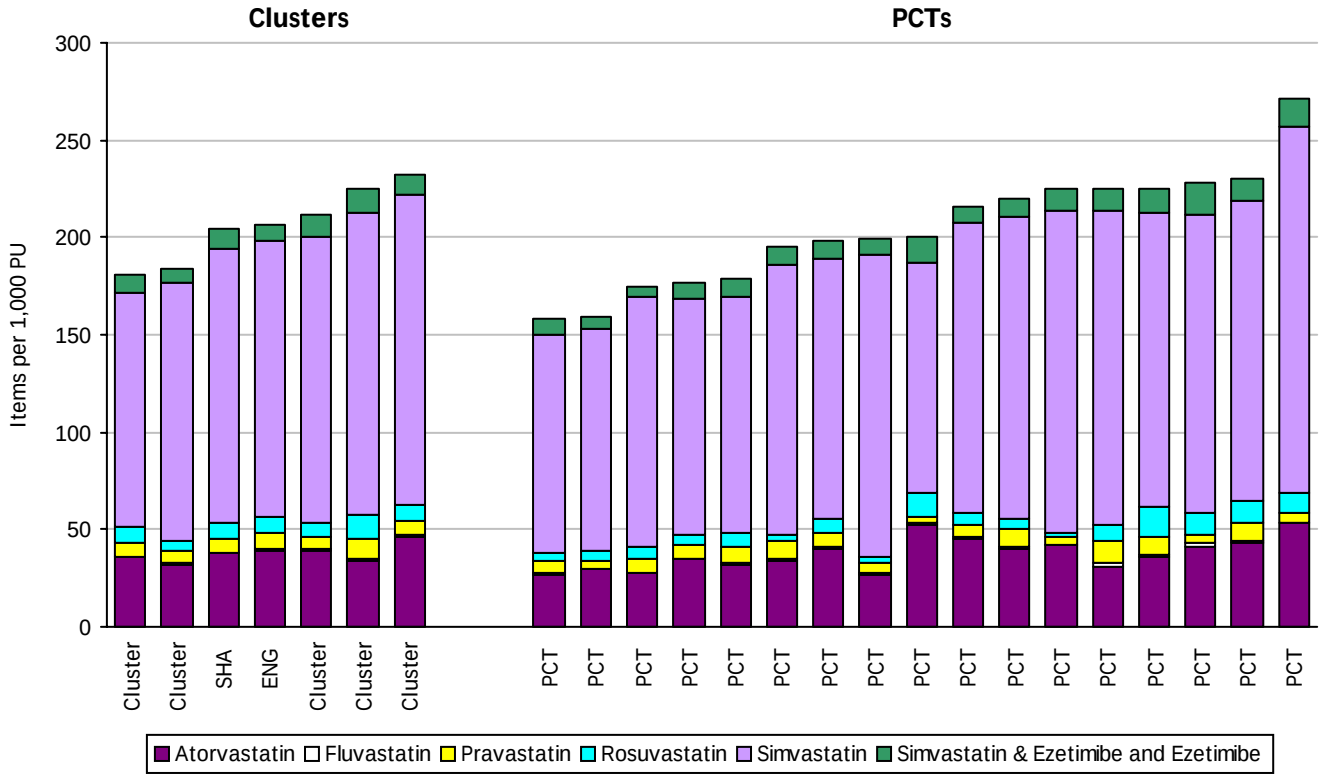
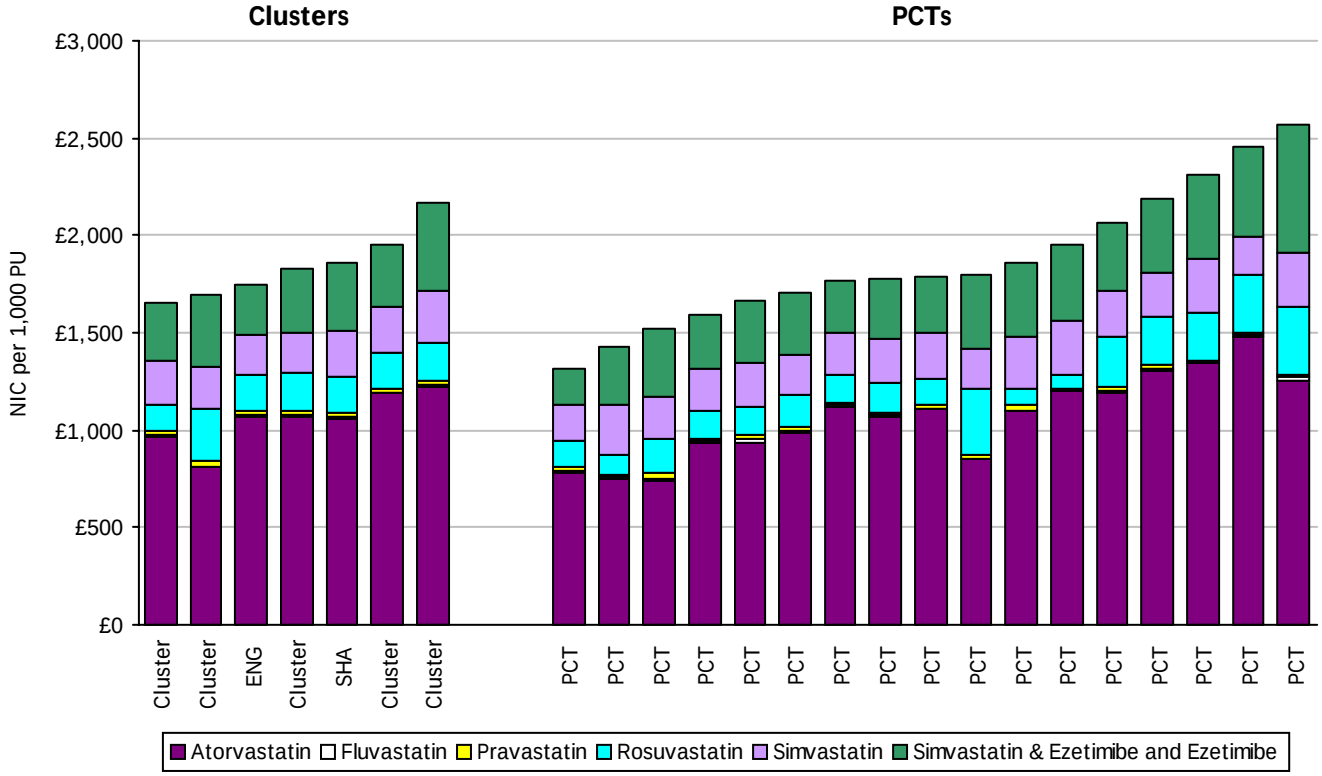


Fig 5 **West Midlands: Breakdown of Statin and Ezetimibe Prescribing (within BNF 2.12) by Spend (NIC), for the period Aug-11 to Oct-11**



Data: PPD

Fig 6 **West Midlands: Breakdown of Low Cost Statin* and Ezetimibe Prescribing (within BNF 2.12) by Volume (Items), for the period Aug-11 to Oct-11**

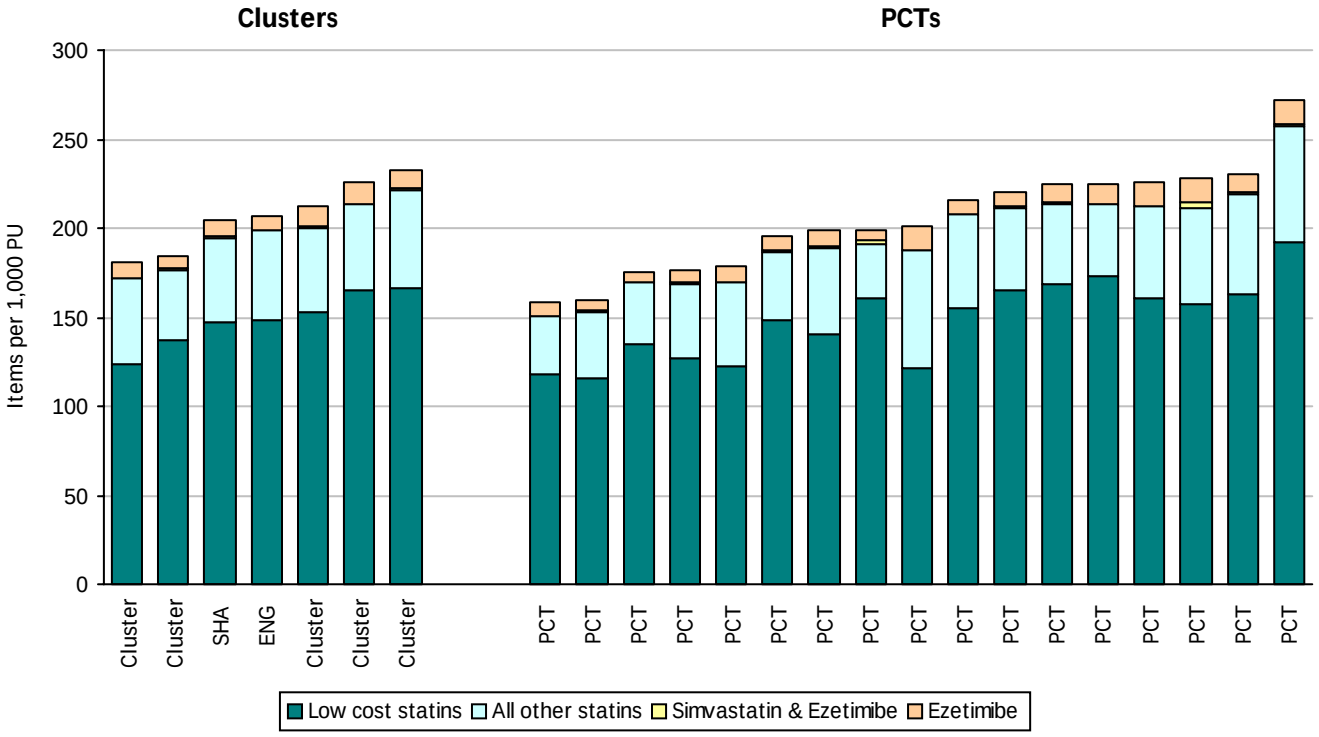
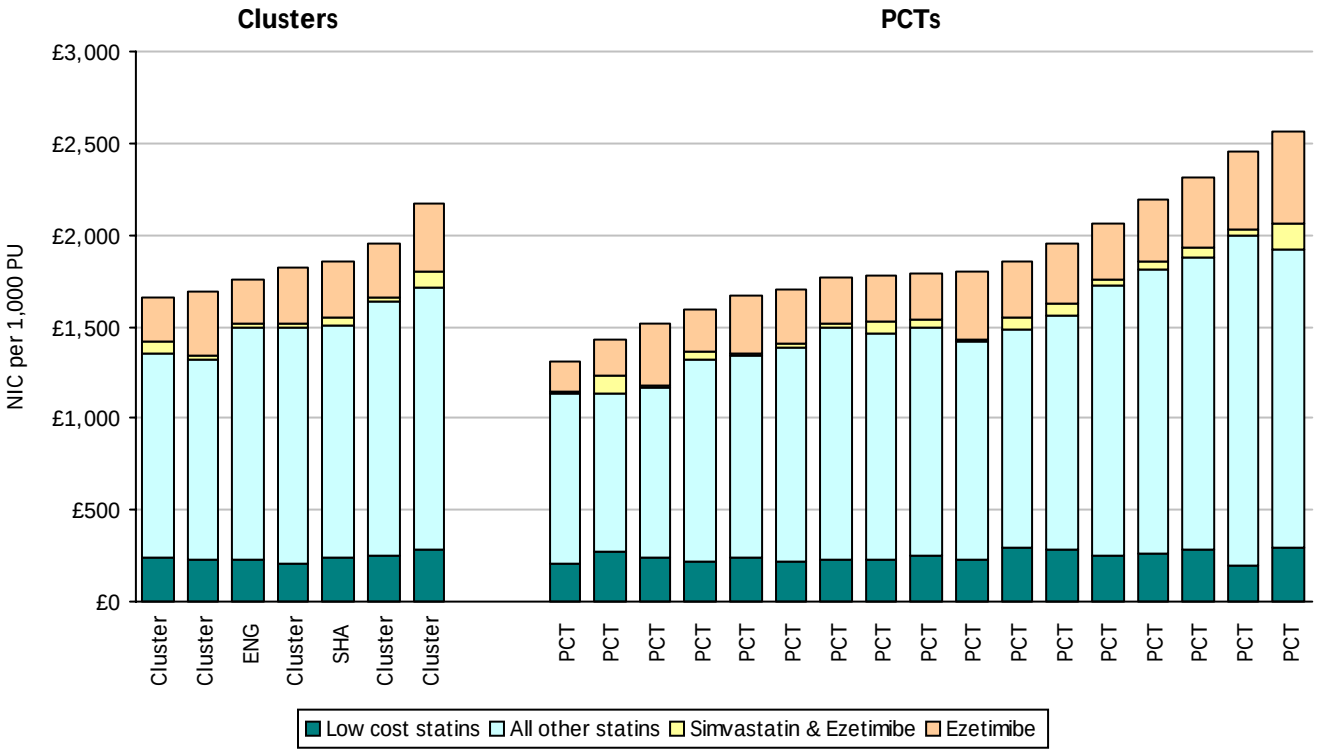


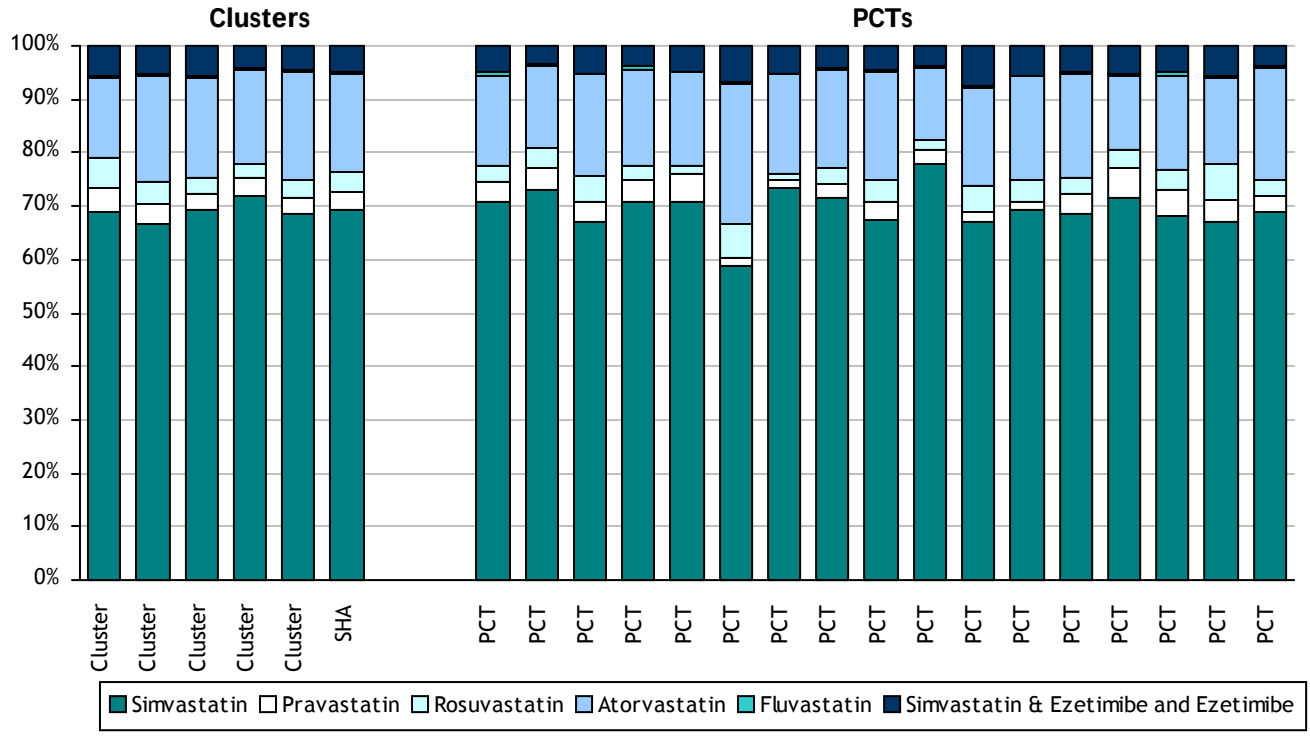
Fig 7 **West Midlands: Breakdown of Low Cost Statin* and Ezetimibe Prescribing (within BNF 2.12) by Spend (NIC), for the period Aug-11 to Oct-11**



Data: PPD

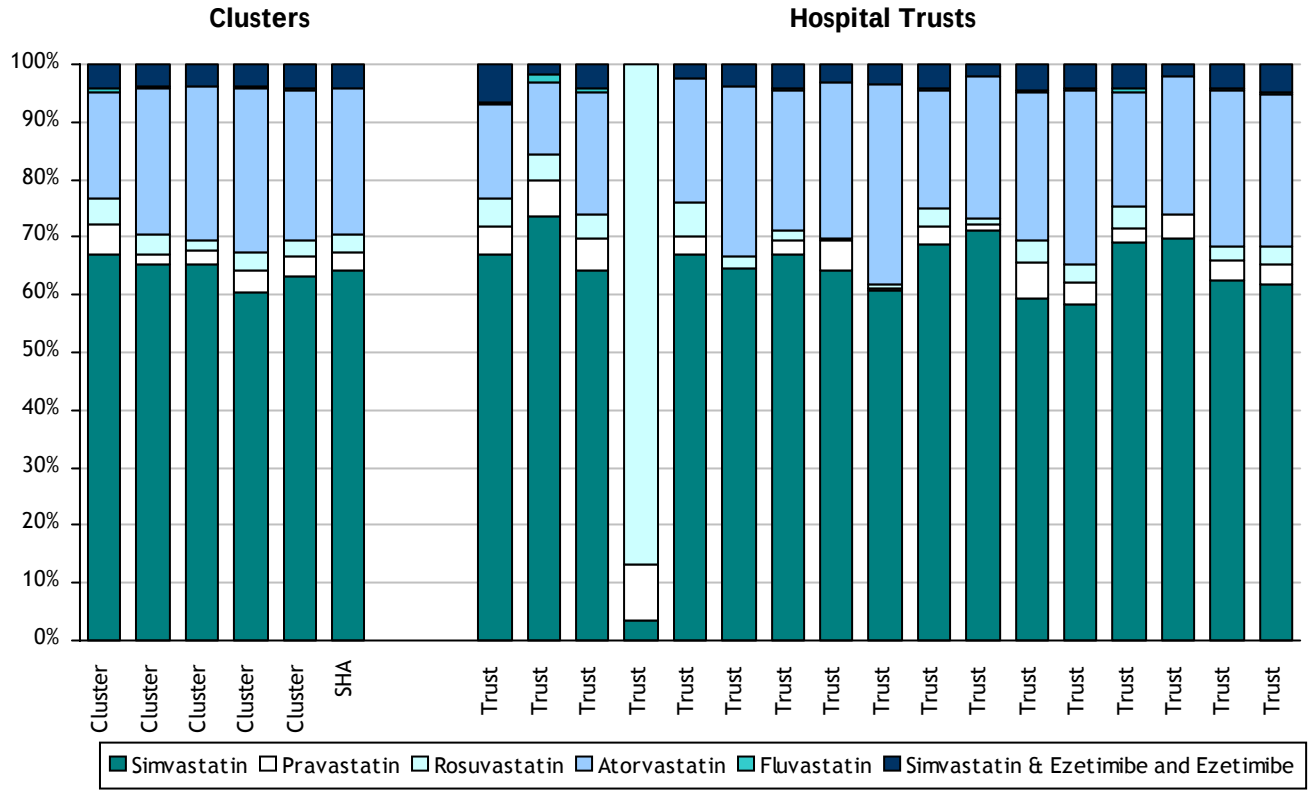
** low cost statins are generic simvastatin and generic pravastatin*

Fig 1 **PRIMARY CARE - West Midlands: Breakdown of Statin and Ezetimibe Prescribing (within BNF 2.12) by Volume (Items), for the period Aug-11 to Oct-11**



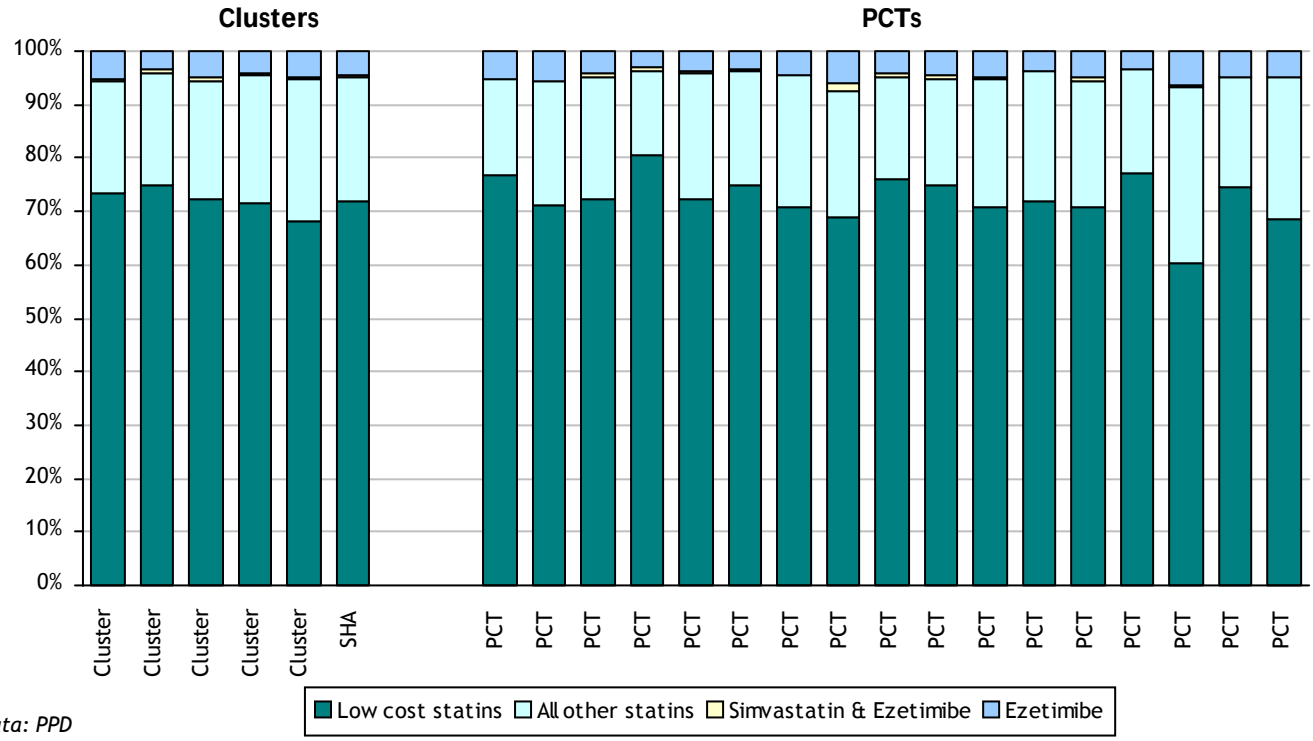
Data: PPD

Fig 2 **SECONDARY CARE - West Midlands: Breakdown of Statin and Ezetimibe Prescribing (within BNF 2.12) by Volume (Packs), for the period Aug-11 to Oct-11**



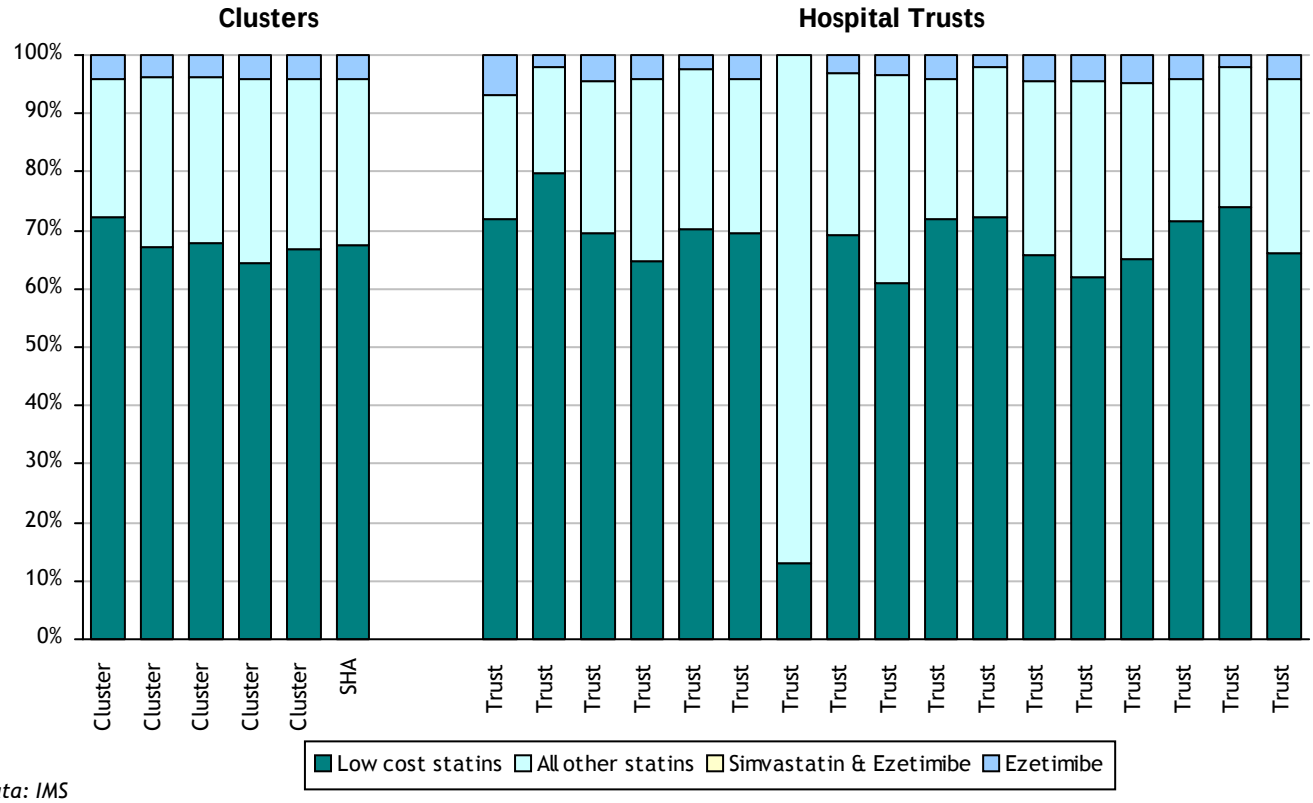
Data: IMS

Fig 3 **PRIMARY CARE - West Midlands: Breakdown of Low Cost Statin* Prescribing (within BNF 2.12) by Volume (Items), for the period Aug-11 to Oct-11**



Data: PPD

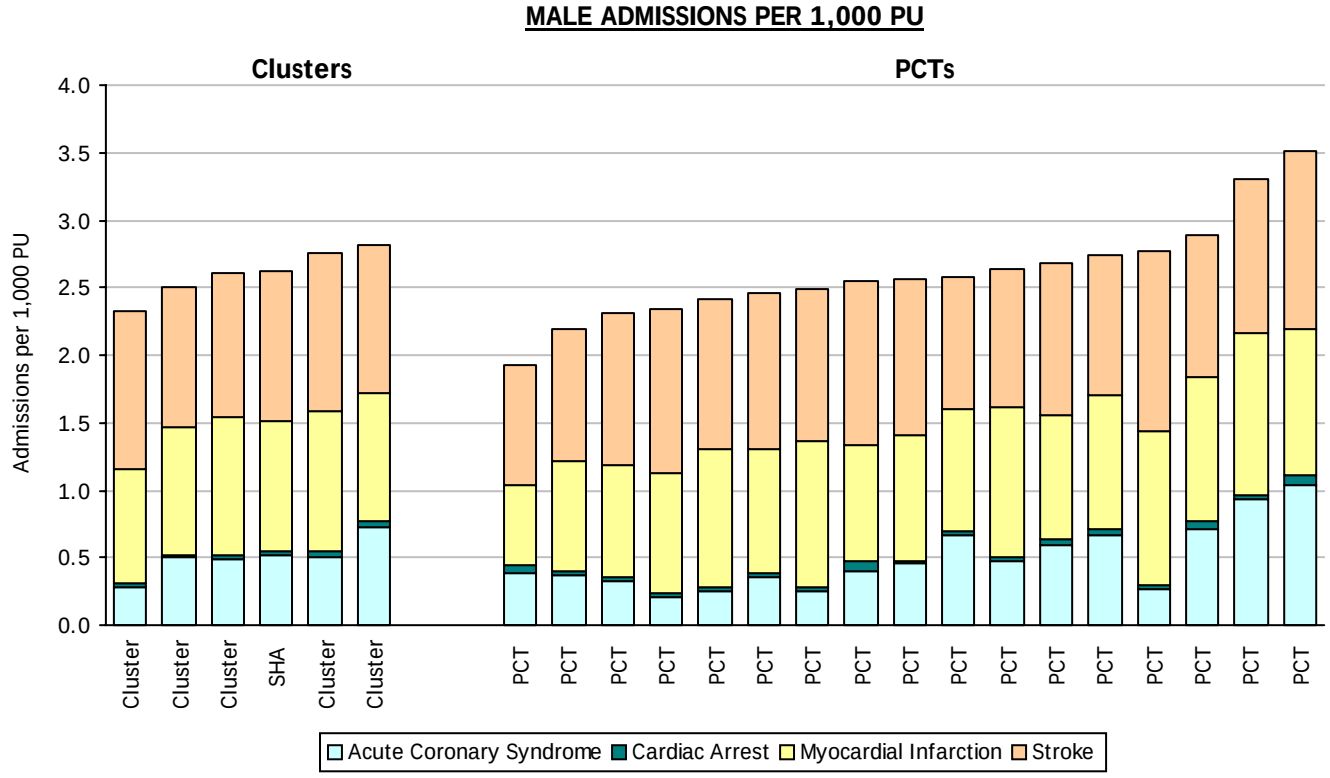
Fig 4 **SECONDARY CARE - West Midlands: Breakdown of Low Cost Statin* Prescribing (within BNF 2.12) by Volume (Packs), for the period Aug-11 to Oct-11**

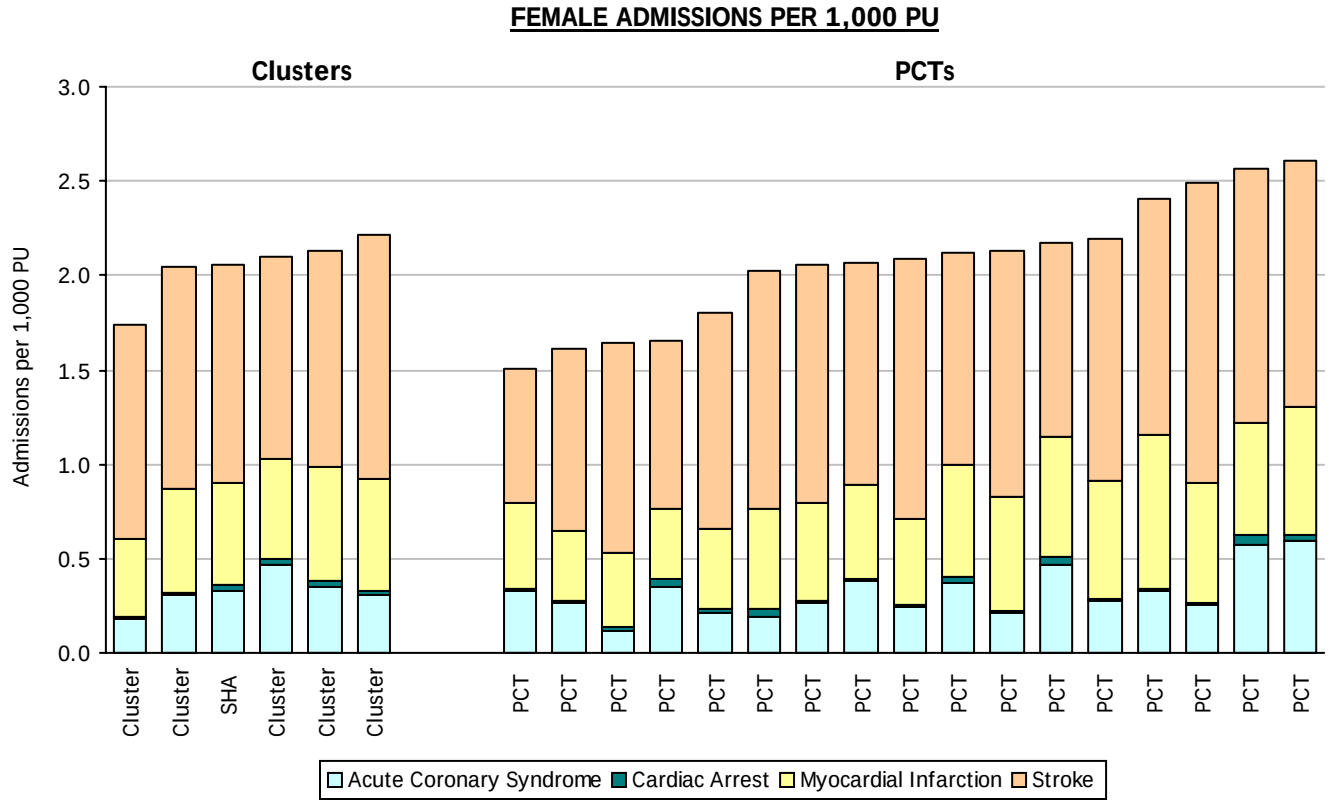


Data: IMS

**low cost statins are generic simvastatin and generic pravastatin*

Fig 1 **West Midlands: Emergency Hospital Admissions for Cardiac Events*, for the period Apr-10 to Mar-11**

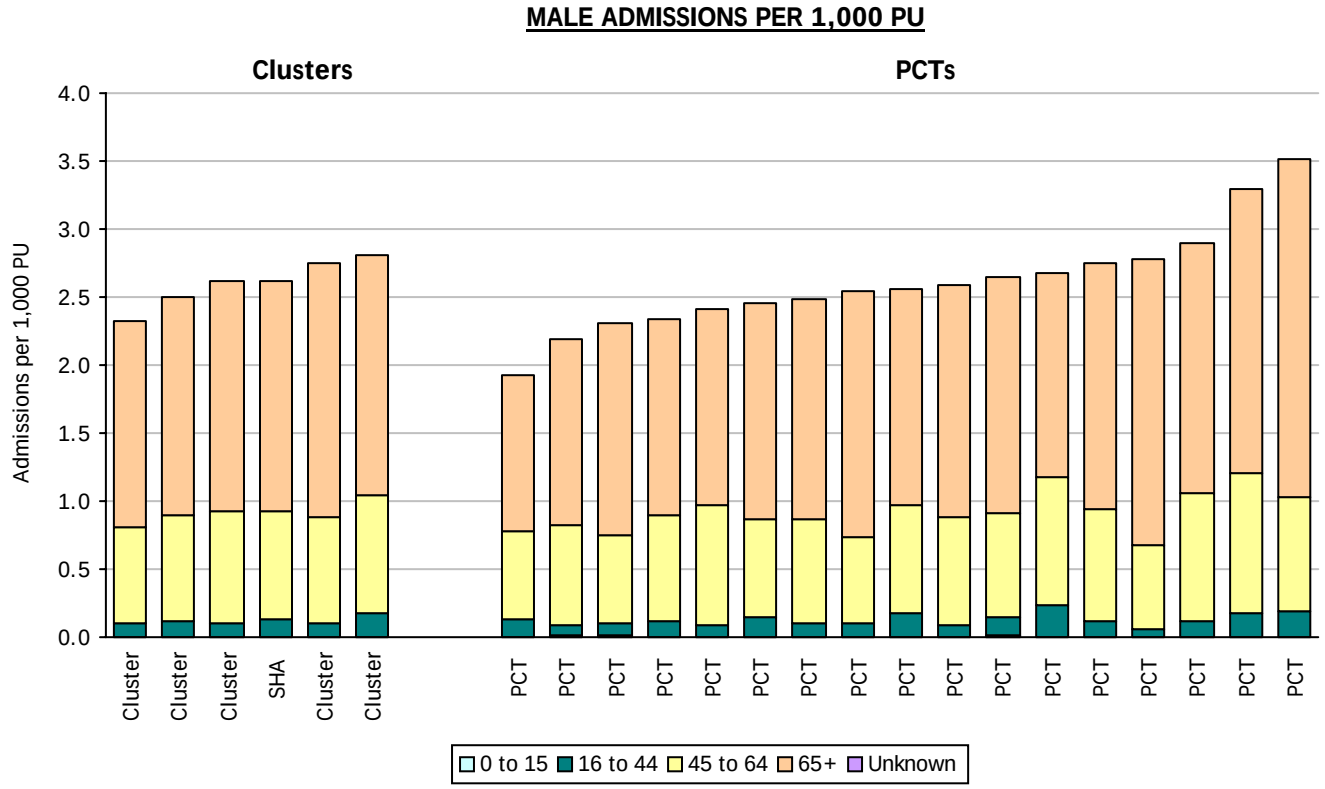


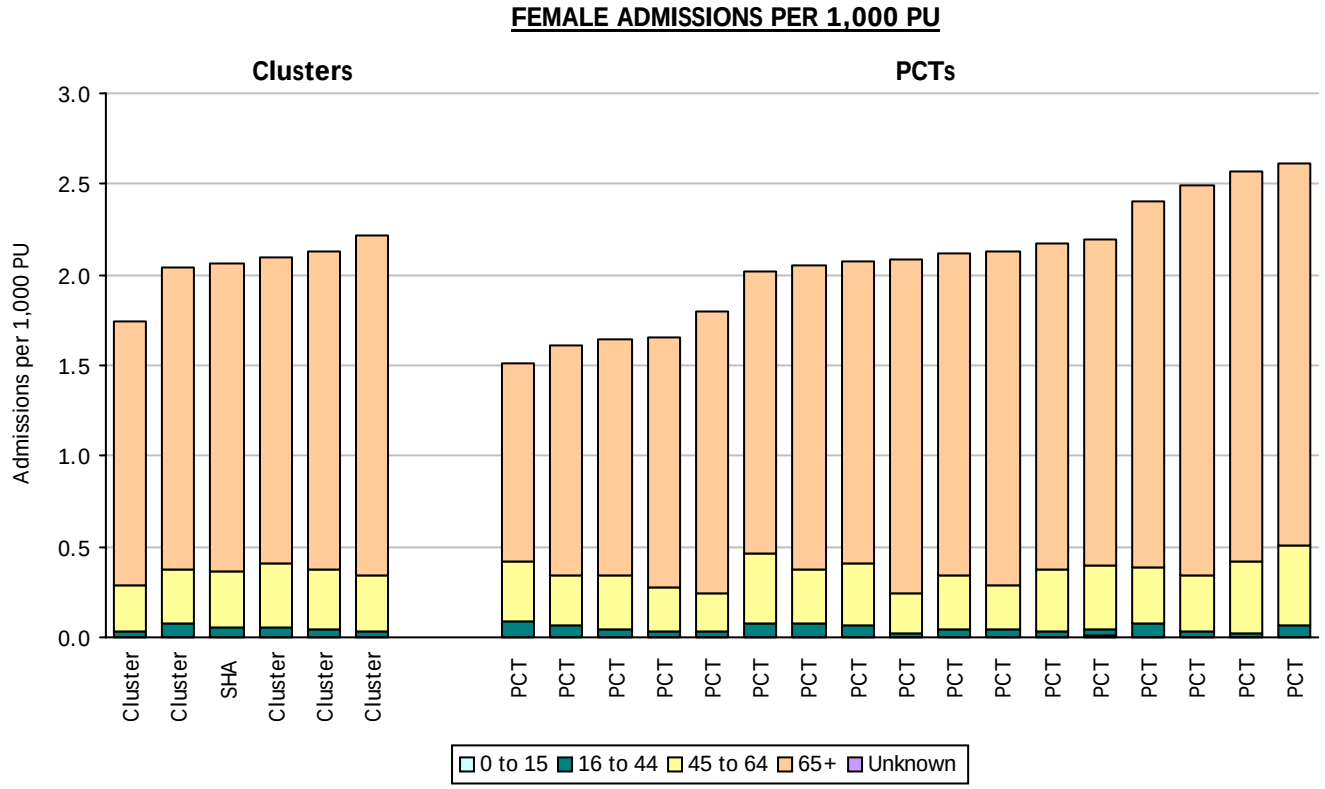


Data: HES and PPD

** where Cardiac Events are classified as ICD-10 codes: ACS I20.0, Cardiac Arrest I46, Stroke I61 to I66 and MI I21 to I23*

Fig 2 **West Midlands: Emergency Hospital Admissions for Cardiac Events*, by age-group, for the period Apr-10 to Mar-11**

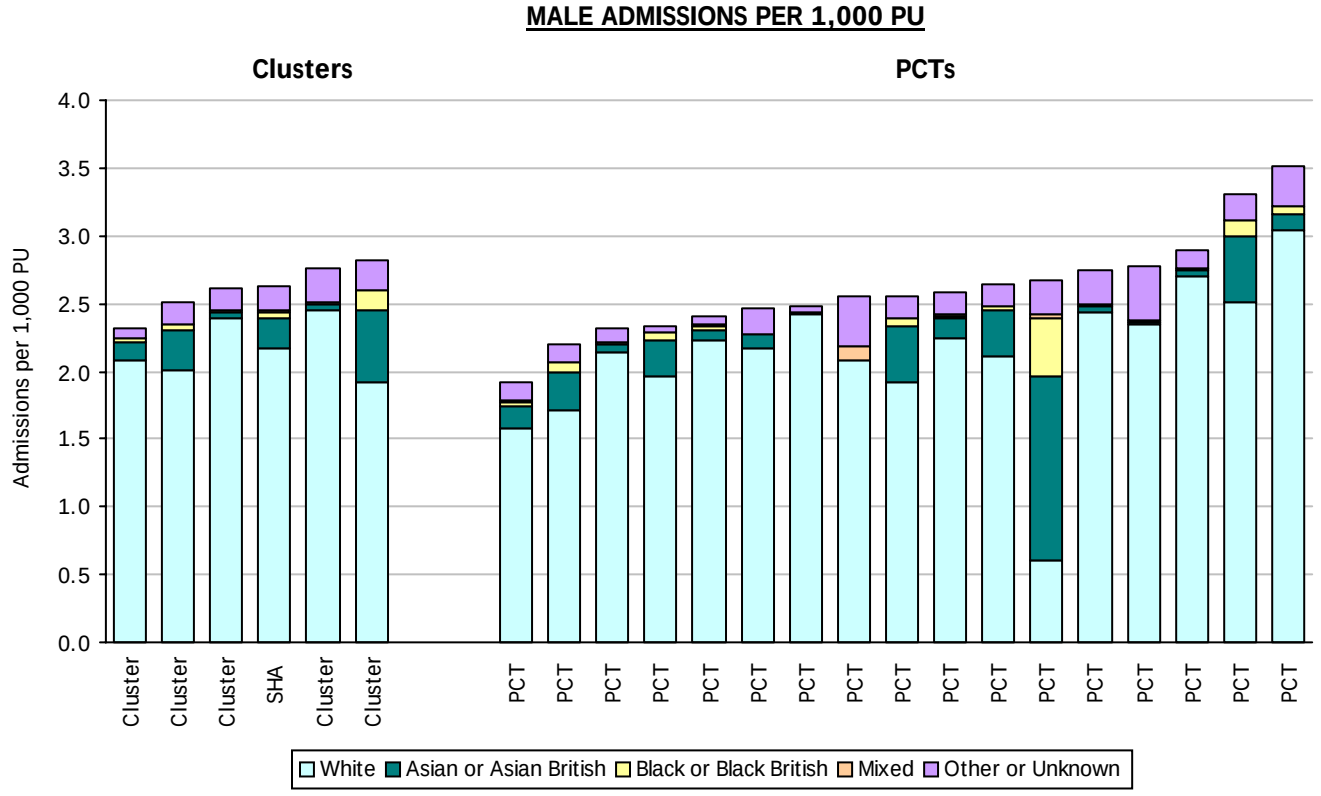


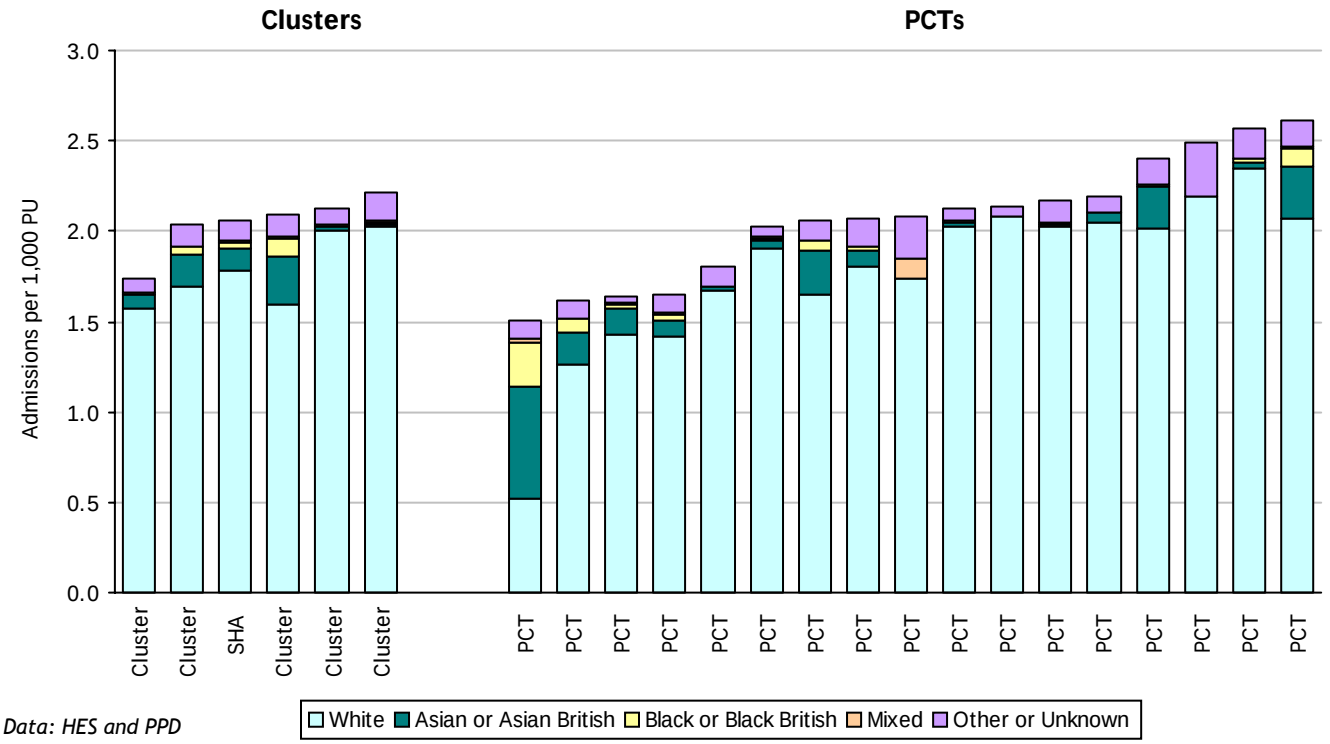


Data: HES and PPD

** where Cardiac Events are classified as ICD-10 codes: ACS I20.0, Cardiac Arrest I46, Stroke I61 to I66 and MI I21 to I23*

Fig 3 **West Midlands: Emergency Hospital Admissions for Cardiac Events*, by ethnic group, for the period Apr-10 to Mar-11**

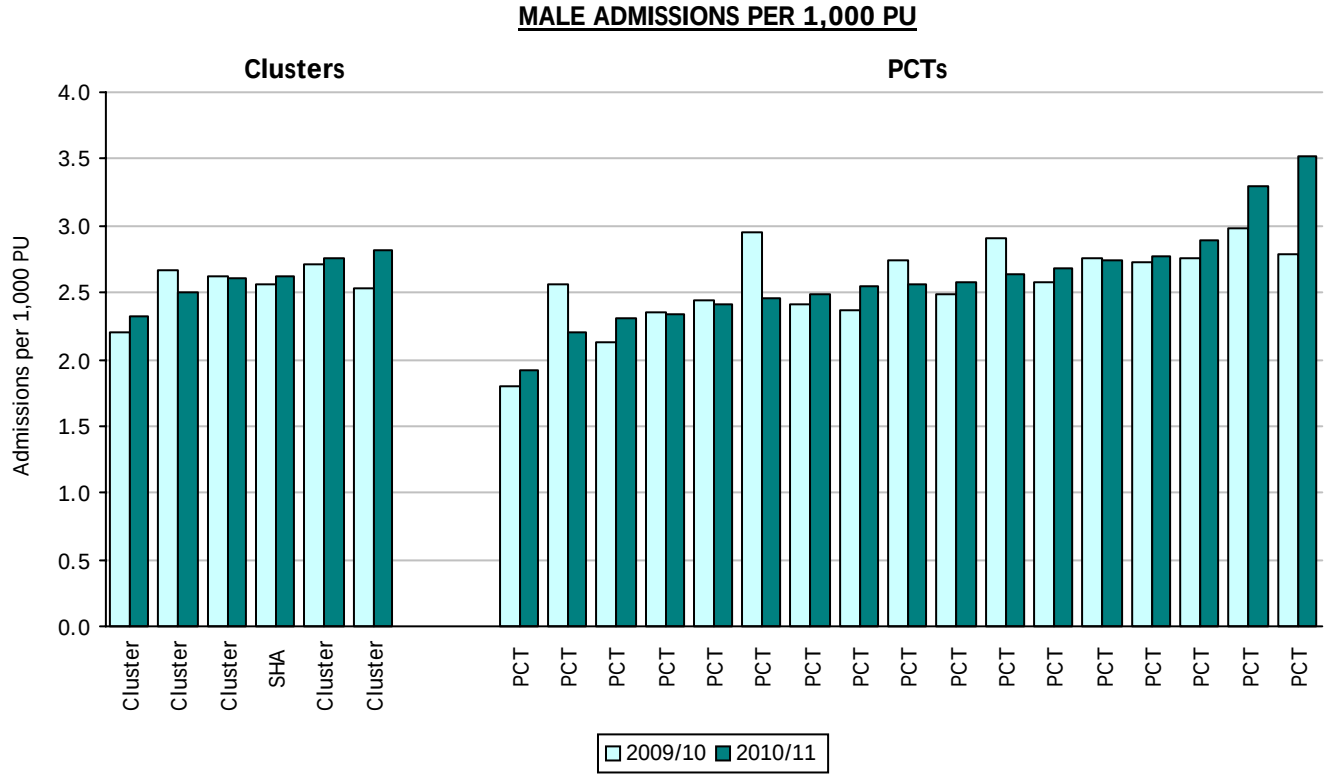


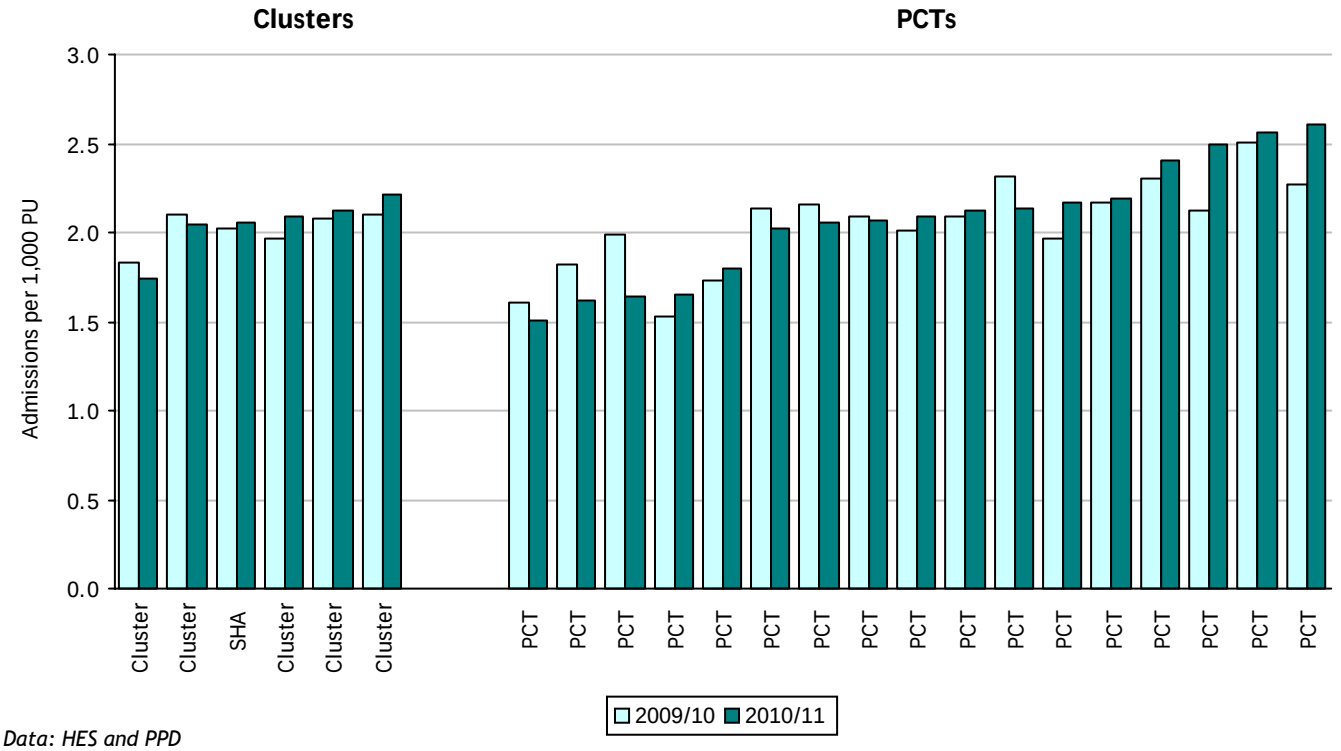


Data: HES and PPD

** where Cardiac Events are classified as ICD-10 codes: ACS I20.0, Cardiac Arrest I46, Stroke I61 to I66 and MI I21 to I23*

Fig 4 **West Midlands: Emergency Hospital Admissions for Cardiac Events*, for the period Apr-09 to Mar-11**





Data: HES and PPD

** where Cardiac Events are classified as ICD-10 codes: ACS I20.0, Cardiac Arrest I46, Stroke I61 to I66 and MI I21 to I23*

Prescribing Information *to support* QIPP

Section: E

Inhaled Corticosteroids

January 2012

EXAMPLE

What are the issues?

- Inhaled corticosteroid (ICS) preparations continue to be a very high-cost area of prescribing, with long-acting beta$_2$-agonist (LABA)/ICS **combination** devices accounting for the greatest proportion of both spend and volume.

- Seretide® (fluticasone/salmeterol) is by far the most commonly prescribed brand of combination inhaler. Available as both dry powder (Accuhaler®) and aerosol (Evohaler®) formulations, it is the **highest strength** devices (i.e. 250 Evohaler® and 500 Accuhaler®) that are the most commonly prescribed doses within both of these ranges in the West Midlands. Given that the ICS component of this combination (fluticasone) provides equal clinical activity to beclometasone **at half the dose,**[1] prescribers should be aware that both of these devices provide a very high dose of steroid (equivalent to 2000 micrograms/day beclometasone) at the recommended dose (two puffs twice daily for the 250 Evohaler® device and one puff twice daily for the 500 Accuhaler® device).

- Prolonged use of high-dose ICS has been associated with adrenal suppression/crisis, growth retardation in children, decrease in bone mineral density, cataract and glaucoma.[2] Psychomotor hyperactivity, sleep disorders, anxiety, depression and aggression have also been associated with ICS use, and a 2011 study has provided evidence of a dose-related increased risk in both diabetes onset and progression.[2] In the management of COPD, ICS use has been associated with an increased risk of non-fatal pneumonia.[3]

- In relation to the management of asthma, national guidance jointly published by the British Thoracic Society/Scottish Intercollegiate Guidelines Network (BTS/SIGN) advocates a '**step-down**' approach, titrating to the lowest dose at which effective control is maintained.[1] The guideline states that this is not routinely implemented, leaving some patients with asthma over-treated. **It is this message, around the regular review and step-down of ICS use where clinically appropriate in patients with asthma, that remains the key focus of the latest NPC QIPP update.**[2]

What are the actions?

In relation to ICS use in *asthma*:

- **Continue to encourage the regular review of patients with asthma and raise prescribers' awareness about trialing a step-down in a patient's ICS dose where good control has been achieved**. BTS/SIGN suggest trialing a 25-50% step-down in ICS dose every three months in patients who are well-controlled.[1] Evidence is relatively limited to guide step-down strategies, however a 2003 RCT found no effect on exacerbation rates or GP and hospital visits for patients in whom ICS use was stepped down.[4]

- **Encourage prescribers to follow the BTS/SIGN step-wise approach to asthma and not to 'skip' steps**. In relation to this last point, a Cochrane review found that there are no advantages to introducing ICS/LABA combination therapy (as per step 3 of the BTS/SIGN management plan) as first-line preventer treatment **before** carrying out a prior trial of ICS alone (i.e. step 2) in steroid-naïve patients with persistent asthma.[5,6]

- **Consider a '*targeted*' audit/review of patients with asthma who receive highest ICS doses** to assess whether a trial of a lower dose would be appropriate.

…continued overleaf

What are the actions?

...continued from previous page

In relation to ICS use in *COPD*:

- **At review, assess whether a patient's treatment is in line with 2010 NICE guidance on COPD**,[3] which contained significant changes to the recommended pharmacological management of COPD. Where there is a particular concern over the risk of pneumonia, consideration could be given to a trial of tiotropium, which may be an alternative option in patients receiving LABA/ICS (please refer to NICE guidance[3] for details of the treatment algorithm recommended by NICE).

- **For COPD, we recommend giving preference to licensed inhalers.** The only ICS-containing products that are licensed for COPD are the Seretide 500 Accuhaler®, and Symbicort 200/6 and 400/12 Turbohaler® devices. The Seretide 500 Accuhaler® is more cost-effective than the Seretide 250 Evohaler® at an equivalent dose. Therefore, for patients with COPD, use of the licensed 500 Accuhaler® is preferable to the 250 Evohaler®, where the dry powder Accuhaler® formulation can be tolerated. Estimated savings for making this switch are shown in the data accompanying this section.

For all patients:

- **Regularly check the patient's inhaler technique**. Asthma UK has produced animations demonstrating correct inhaler technique, which may be useful for both patients and healthcare professionals (available at www.asthma.org.uk/health_professionals/interactive_inhaler_demo/).

Medicines Management Teams/commissioners may wish to consider the above actions when developing strategies and care pathways for the management of long-term conditions. The DH published an outcomes strategy for asthma and COPD in Jul-11, which focuses on the provision of a more personalised, proactive approach to managing these conditions, advocating the regular review of patients.[7] A recent report has shown that avoidable hospital admissions for asthma complications and COPD continue to remain higher in the UK than the OECD* average.[8] A patient checklist (developed by Shropshire PCT) reminds patients to:

- Get the flu/pneumovax jab
- Avoid obvious sources of infection, e.g. children with viral illnesses
- Use inhalers regularly
- Have a self-management plan for exacerbations

In relation to this last point, personalised self-management plans, which should include guidance on managing exacerbations, have been shown to be effective in improving health outcomes in patients with asthma, and their use is advocated in both national guidance on asthma and COPD.[1,3]

Cost implications

- Overleaf we provide data for respiratory drugs prescribed within primary care. All data should be viewed in the context of local COPD/asthma prevalence rates, which are also presented.
- Savings have been calculated that could be achieved for some organisations when prescribing at a lower cost per DDD.
- Prescribing data for the most commonly prescribed combination inhalers are provided, broken-down by dose. As higher strength formulations typically attract higher acquisition costs, we have illustrated potential cost-savings associated with stepping down within brands. We have also provided an updated cost comparison chart for single component ICS inhalers.
- Primary and secondary care prescribing data are shown to allow comparisons within a health economy. Emergency hospital admissions data for asthma and COPD are provided, comparing this year's and last year's data. Charts on repeat emergency admissions are also presented.

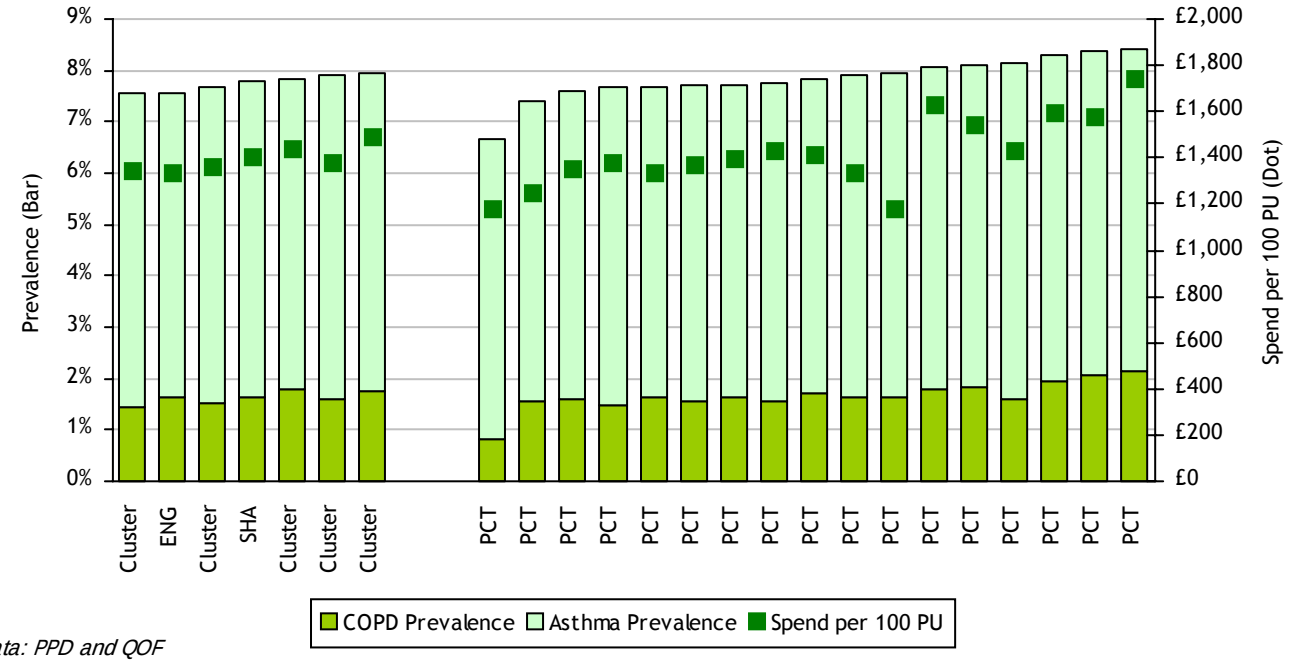
- **On the Horizon**: We have provided modeling on the potential impact of **Flutiform®**, a new fluticasone/formoterol combination pressurised metered dose inhaler for asthma, which is currently undergoing review by the EMA. If approved, Flutiform® is expected to be marketed in three different doses, and based on the advanced budgetary notification from Napp Pharmaceuticals,[9] there are savings associated with Flutiform® at the two highest strengths compared with related Seretide Evohalers®. Of note, Flutiform® 125/5 mcg is expected to be priced only marginally lower that Fostair®, and as such, anticipated cost savings associated with this switch are likely to be minimal. We hope that medicines management teams and commissioners will find this information useful in discussions around this new treatment option.

*Organisation for Economic Co-operation and Development

References:

1. British Guideline on the Management of Asthma. British Thoracic Society/Scottish Intercollegiate Guidelines Network. 2011. http://www.sign.ac.uk/pdf/sign101.pdf <accessed 11/2011>
2. Key therapeutic topics- Medicines management options for local implementation. Second update. July 2011. National Prescribing Centre. 2011. http://www.npc.nhs.uk/qipp/resources/qipp_key_therapeutic_topics_july11_version3.1.v2.pdf <accessed 11/2011>
3. Chronic obstructive pulmonary disease (updated). Clinical guideline CG101: June. National Institute for Health and Clinical Excellence. 2010. http://guidance.nice.org.uk/CG101 <accessed 12/2011>
4. Hawkins G, McMahon AD, Twaddle S et al. Stepping down inhaled corticosteroids in asthma: randomised controlled trial. *BMJ*. 2003;326:1115-8.
5. Cochrane review does not support ICS plus LABA in steroid naïve patients with persistent asthma. National Prescribing Centre. 2010. http://www.npc.co.uk/rapidreview/?p=925 <accessed 12/2011>
6. Ni Chroinin M, et al. Addition of inhaled long-acting beta2-agonists to inhaled steroids as first line therapy for persistent asthma in steroid-naïve adults and children. Cochrane Database of Systematic Reviews 2009, Issue 4. Art. No.: CD005307. DOI:10.1002/14651858.CD005307.pub2
7. An outcomes strategy for people with chronic obstructive pulmonary disease (COPD) and asthma in England. July 2011. Department of Health. http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_127974 <accessed 12/2011>
8. Health at a Glance 2011: OECD Indicators. Key Findings: United Kingdom. November 2011. Organisation for Economic Co-operation and Development (OECD). http://www.oecd.org/dataoecd/12/59/49084307.pdf <accessed 12/2011>
9. Napp Pharmaceuticals. Advanced budgetary notification (Flutiform). 12-5-2011. Personal Communication

Fig 1 **West Midlands: Asthma and COPD Prevalence and Prescribing (BNF Chapter 3) Rates for the period Apr-10 to Mar-11**



Data: PPD and QOF

The following table is based on data for the last 3 months (Aug-11 to Oct-11). Savings are then extrapolated from this data to give an annual saving which is based on current data.

It is likely that those PCTs with a lower cost per DDD for these drugs are already in the process of promoting cost-effective prescribing in this area.

Table 1 Inhaled Corticosteroids (BNF 3.2): Potential Savings from Prescribing at a Lower Cost per DDD

PCT	NIC per DDD	% change in NIC per DDD*	Potential Annual Saving
PCT	£1.06	1%	£643,553
PCT	£1.04	2%	£304,239
PCT	£0.91	3%	£0
PCT	£0.96	2%	£0
Cluster	**£1.02**	**1%**	**£947,793**
PCT	£0.88	0%	£0
PCT	£1.00	3%	£168,272
PCT	£1.02	2%	£298,061
PCT	£1.11	2%	£397,047
Cluster	**£1.00**	**2%**	**£863,380**
PCT	£1.02	2%	£203,610
PCT	£0.98	4%	£64,140
PCT	£1.00	1%	£165,608
PCT	£1.00	2%	£139,313
Cluster	**£1.00**	**2%**	**£572,671**
PCT	£0.89	5%	£0
PCT	£1.04	1%	£496,299
Cluster	**£0.98**	**2%**	**£496,299**
PCT	£1.03	1%	£190,721
PCT	£1.01	2%	£188,670
PCT	£0.95	2%	£0
Cluster	**£0.98**	**2%**	**£379,391**
SHA Totals	**£1.00**	**2%**	**£10,940,405**

Data: PPD

** Change compared to the same period last year.*

NOTE: There is no West Midlands Management Network Performance Indicator for this area.

We have selected the 25th percentile NIC per DDD value. Therefore savings in this lowest quartile are £0. This does not necessarily mean that prescribing cost cannot be improved in this area in these PCTs.

Fig 2 **Inhaled Corticosteroids (BNF 3.2): Quarterly Volume (Items) and Spend (NIC) in EXAMPLE**

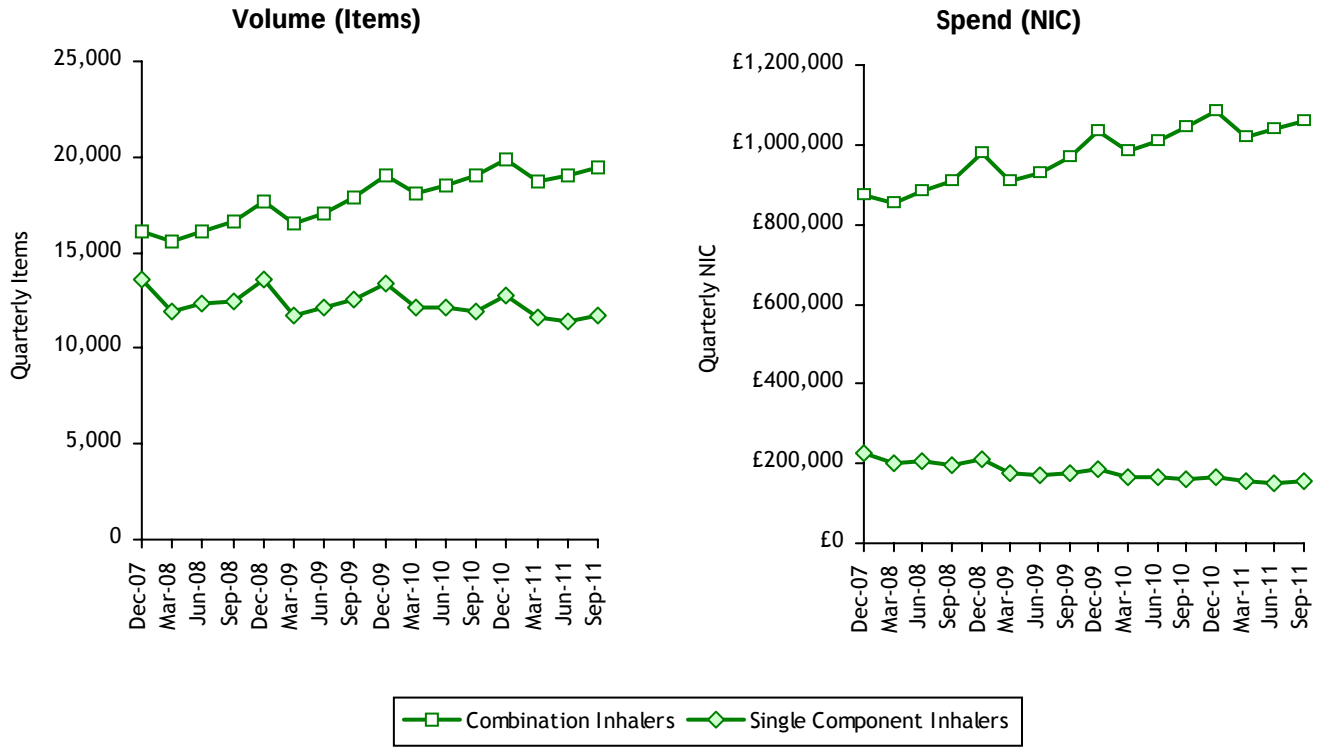
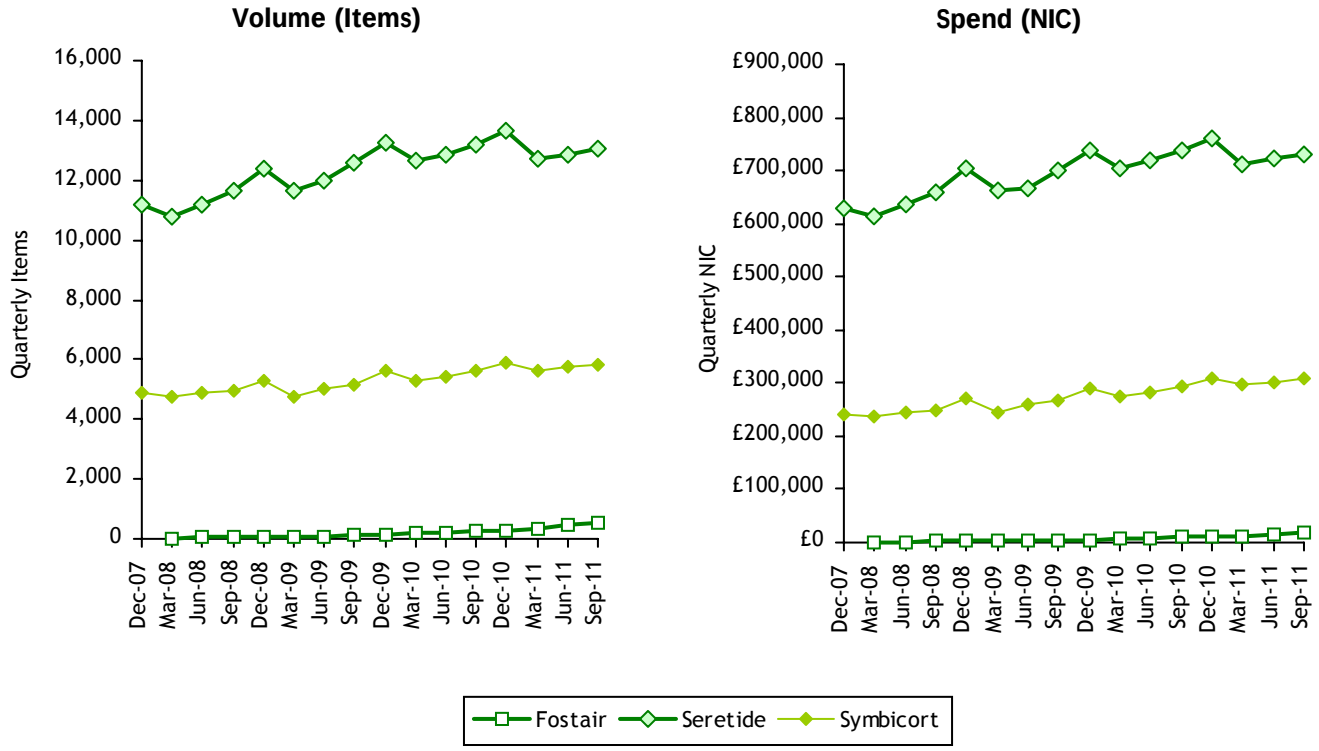


Fig 3 **Combination Inhaled Corticosteroids (BNF 3.2): Quarterly Volume (Items) and Spend (NIC) in EXAMPLE**



Data: PPD

Fig 4 **West Midlands: Breakdown of Combination Inhaled Corticosteroids (BNF 3.2) Prescribing by Volume (Items), for the period Aug-11 to Oct-11**

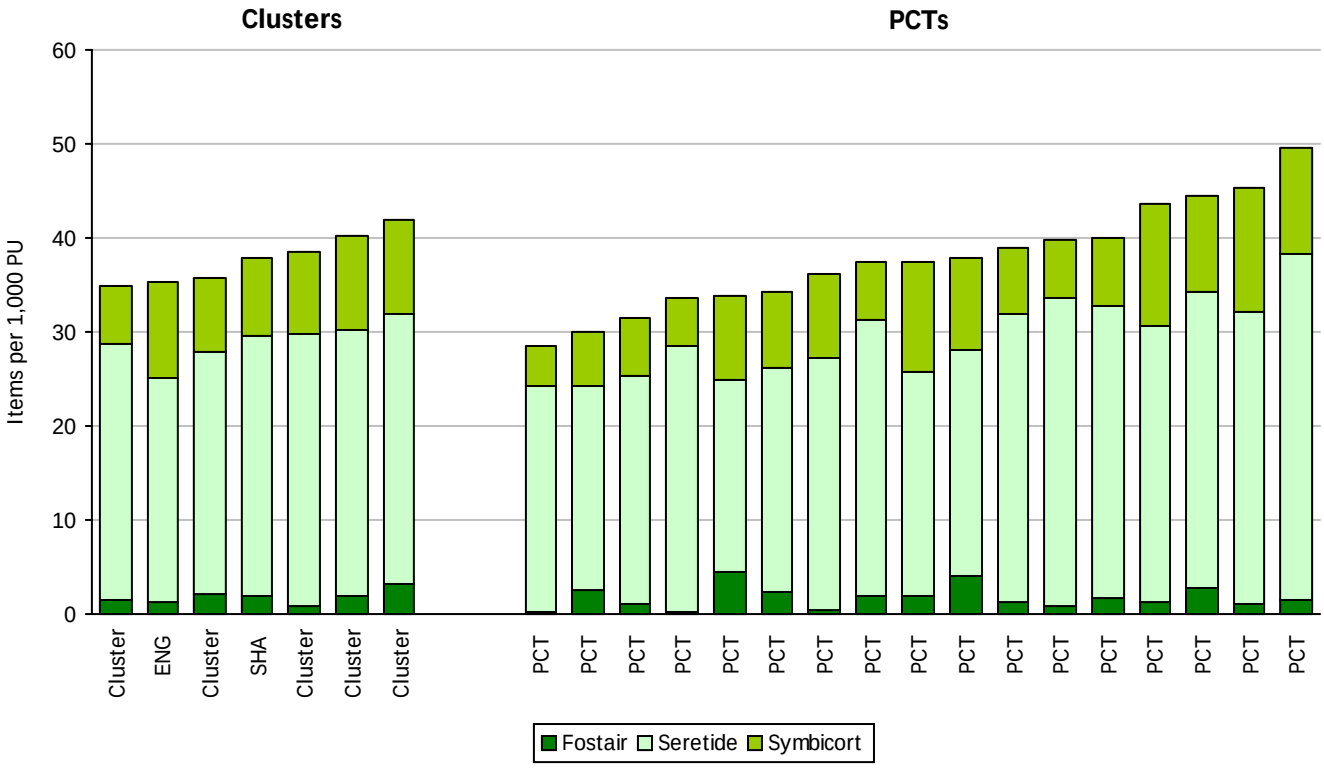
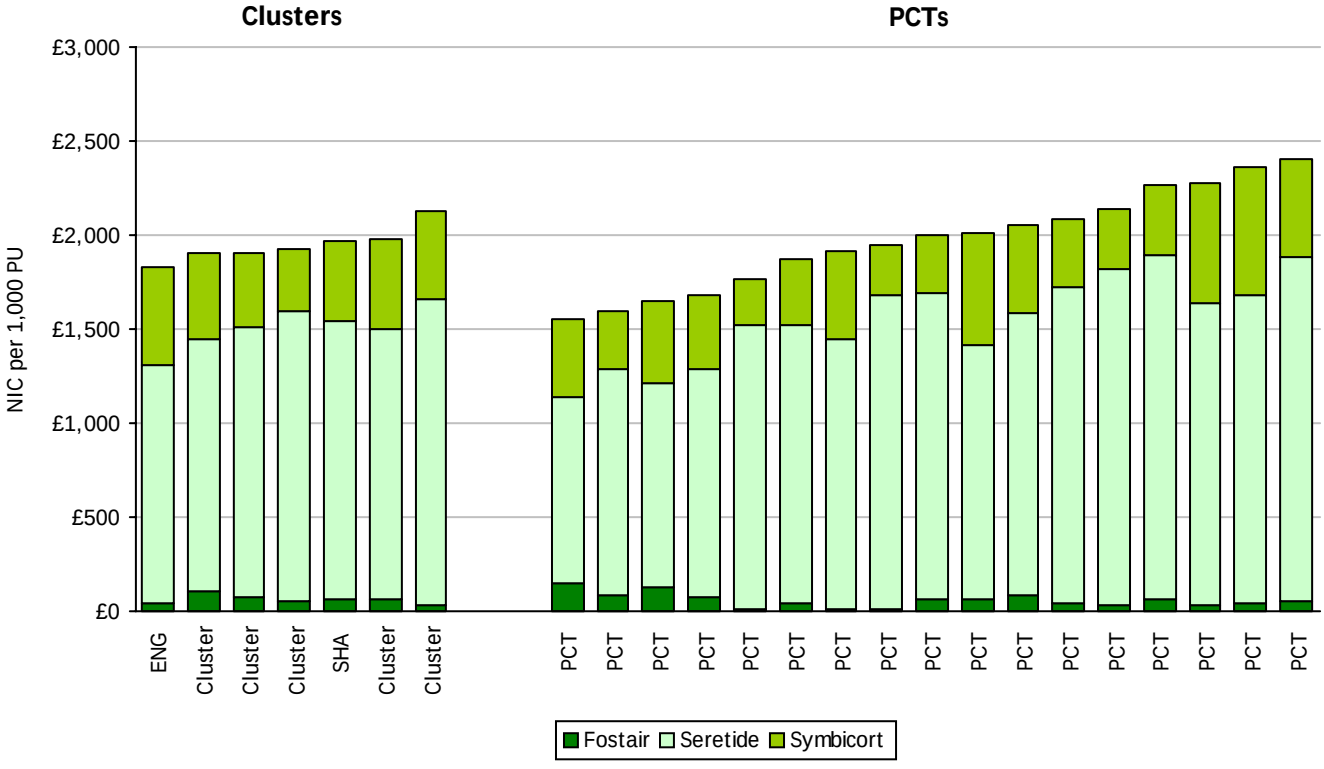
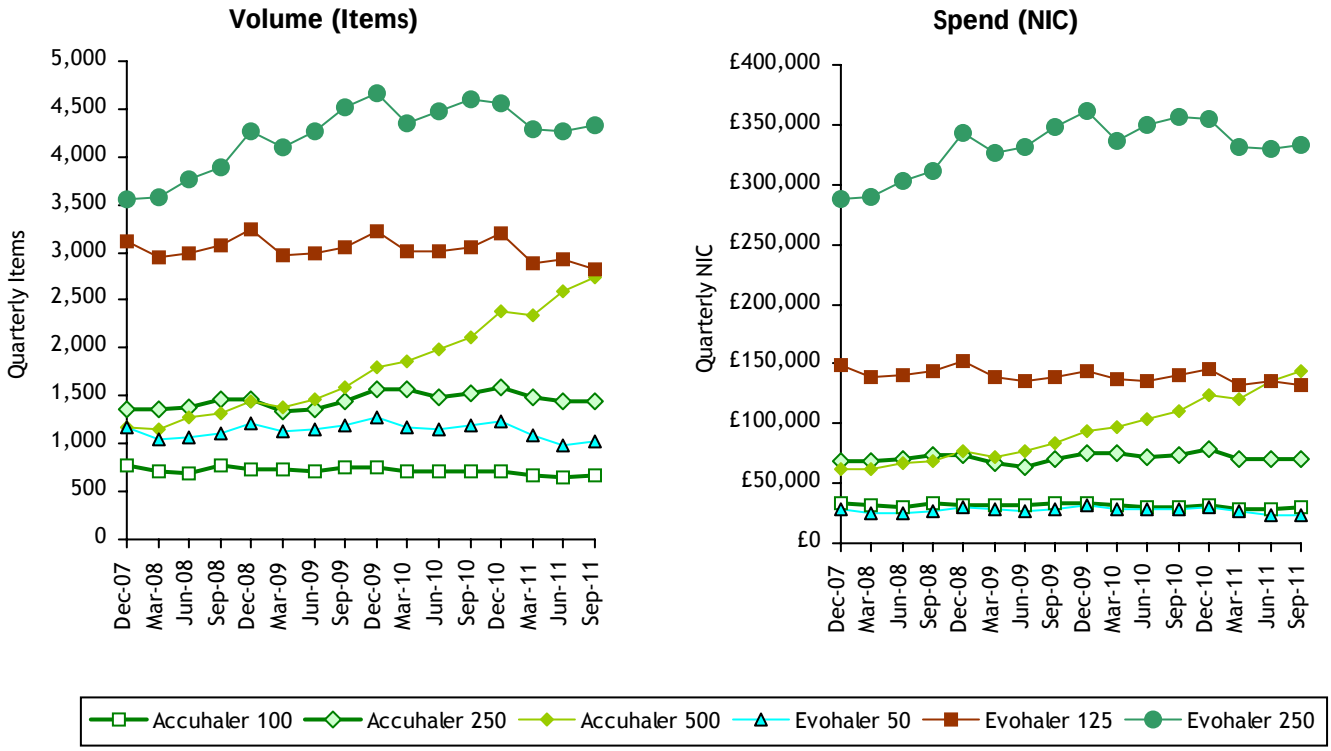


Fig 5 **West Midlands: Breakdown of Combination Inhaled Corticosteroids (BNF 3.2) Prescribing by Spend (NIC), for the period Aug-11 to Oct-11**



Data: PPD

Fig 6 Seretide Inhalers by Strength (BNF 3.2): Quarterly Volume (Items) and Spend (NIC) in EXAMPLE



Data: PPD

Fig 7 **West Midlands: Breakdown of Seretide Inhalers by Strength (BNF 3.2) Prescribing by Volume (Items), for the period Aug-11 to Oct-11**

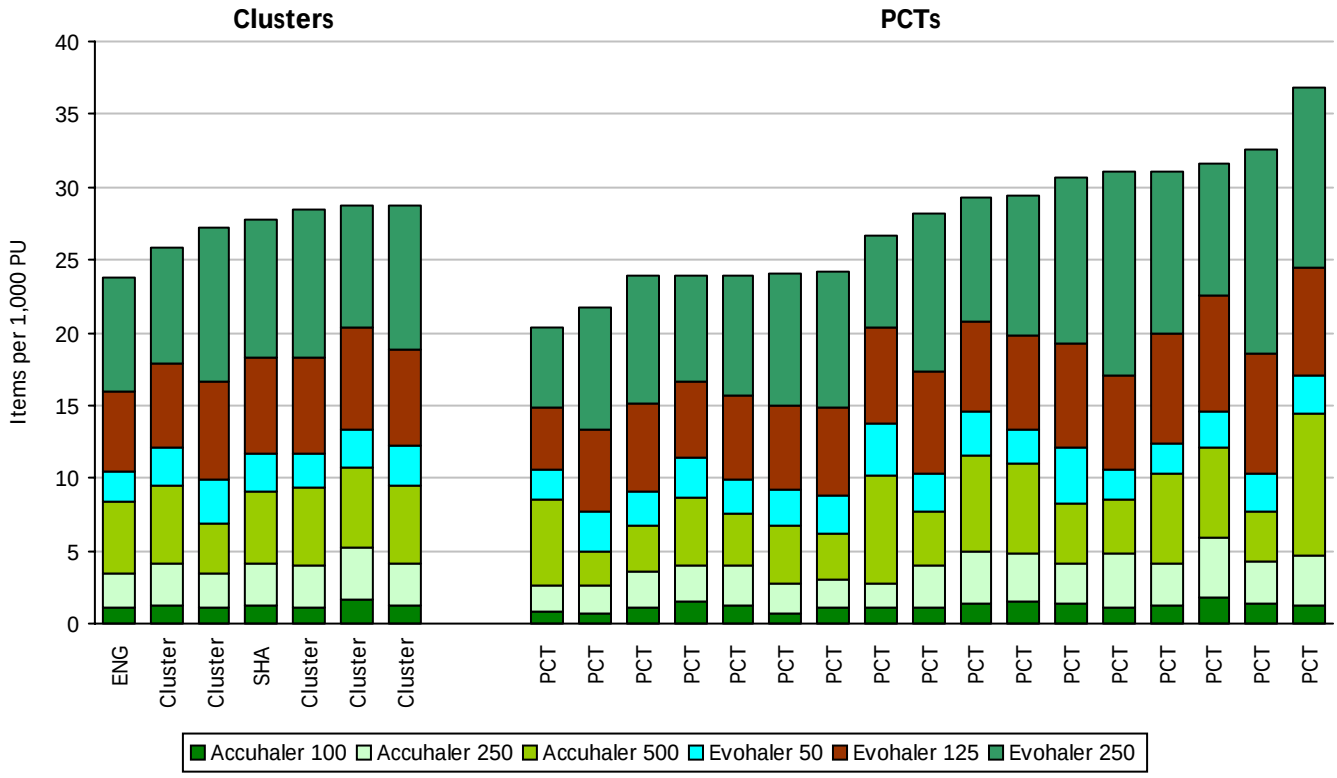
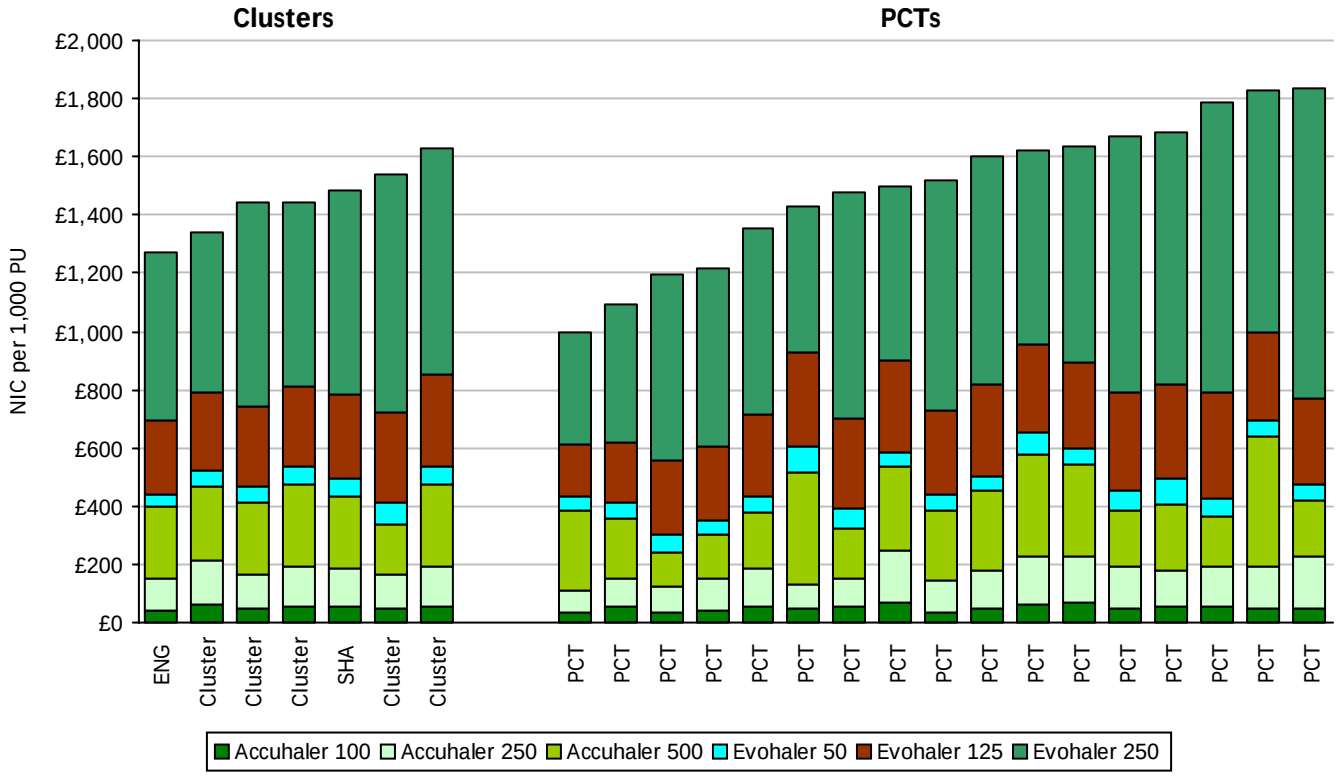


Fig 8 **West Midlands: Breakdown of Seretide Inhalers by Strength (BNF 3.2) Prescribing by Spend (NIC), for the period Aug-11 to Oct-11**



Data: PPD

Fig 9 **West Midlands: Breakdown of Symbicort Inhalers by Strength (BNF 3.2) Prescribing by Volume (Items), for the period Aug-11 to Oct-11**

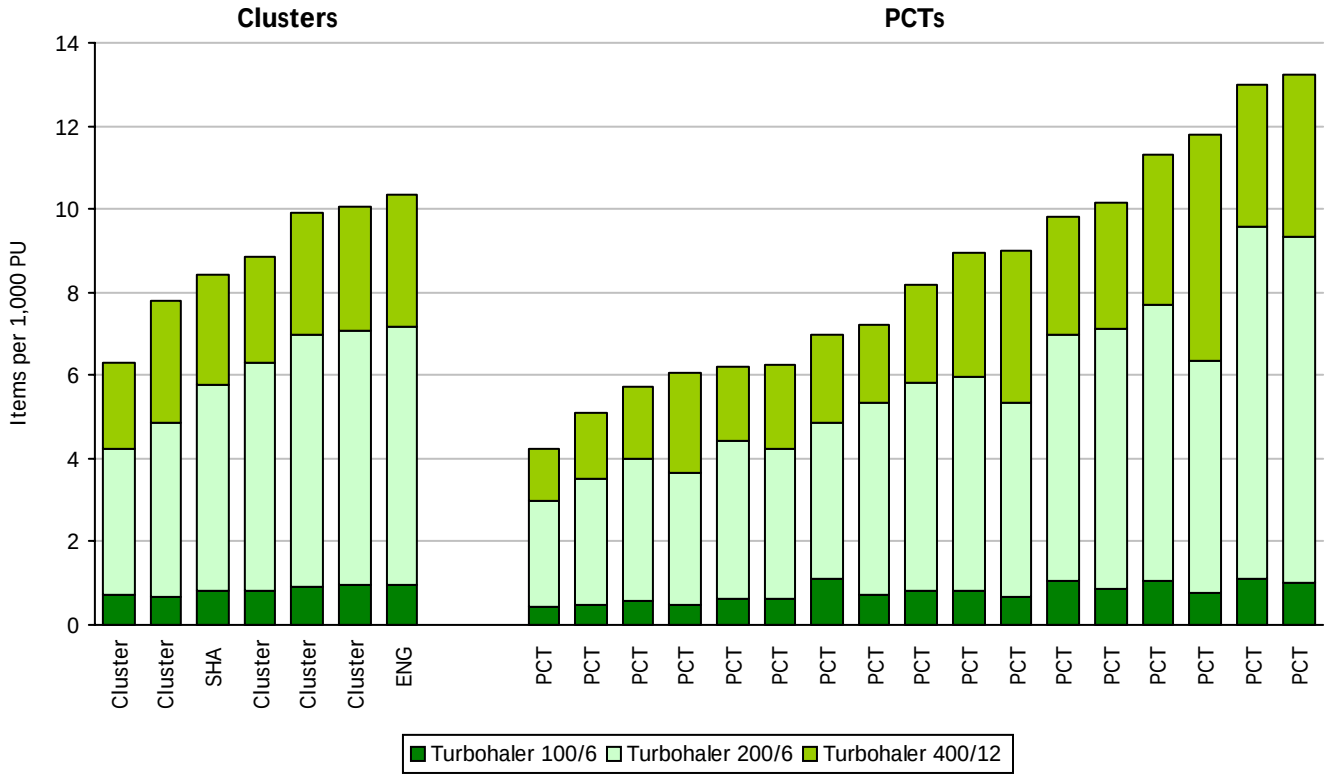
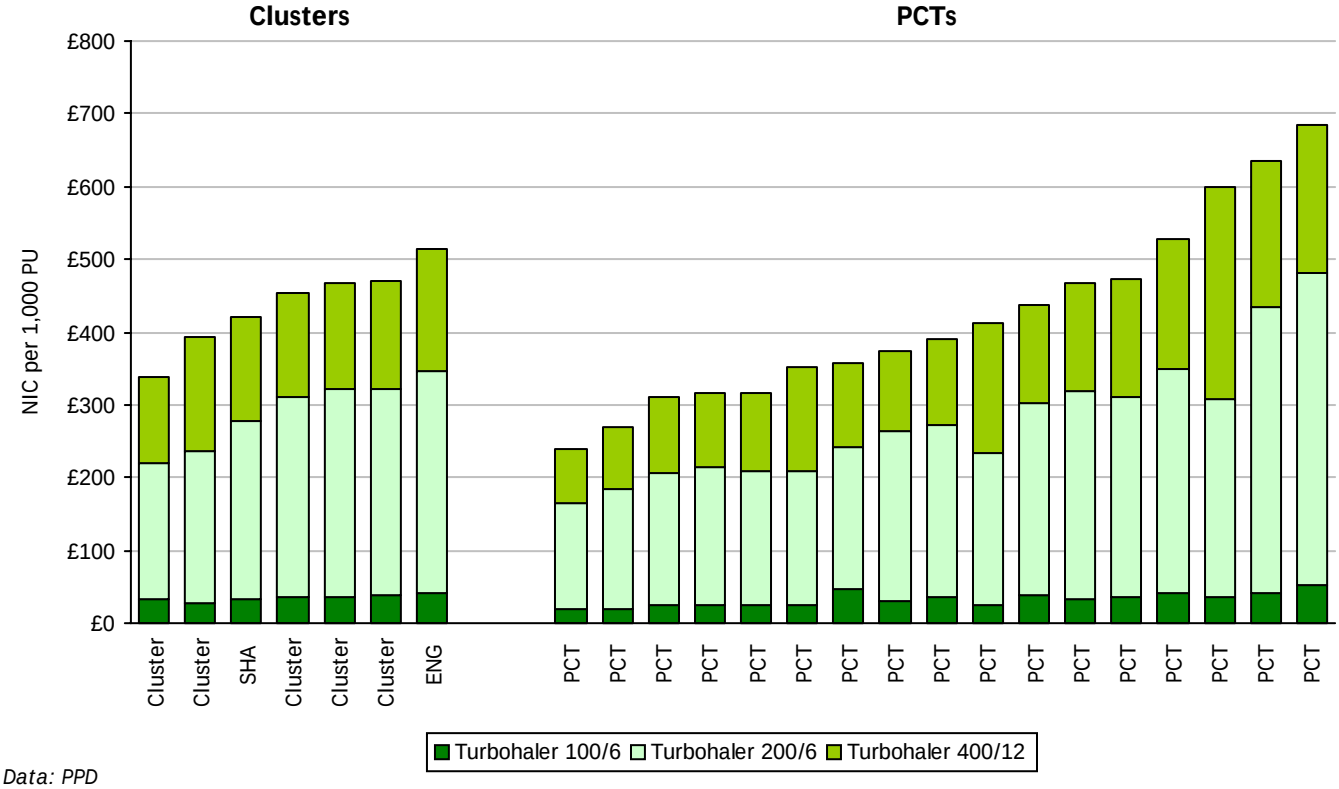


Fig 10 **West Midlands: Breakdown of Symbicort Inhalers by Strength (BNF 3.2) Prescribing by Spend (NIC), for the period Aug-11 to Oct-11**



Data: PPD

Cost Savings with ICS Inhalers

The following tables consider potential cost savings associated with:

- Stepping down within Seretide range, the most commonly prescribed inhaler
- Seretide Evohaler 250 to Seretide Accuhaler 500 switch
- Switching from Seretide Evohalers to Flutiform, a new ICS/LABA inhaler that, if approved, is likely to be launched in 2012.

A cost comparison chart is also provided for single component inhalers based on 400mcg per day beclometasone equivalent.

Table 2 Potential Annual Savings from stepping-down Combination Inhaler doses

To help illustrate potential savings that can be made through the regular review and dose-reduction in patients with well-controlled asthma, we have calculated savings when stepping-down within Seretide and Symbicort brands. For example, using your PCT's spending on Seretide 500 Accuhalers, we have calculated savings based on stepping-down 10%, 25% and 50% of Seretide 500 Accuhalers to Seretide 250 Accuhalers. We have performed similar calculations based on stepping-down other available doses.

Step-down patients		Percentage of inhalers stepped-down		
from	to	10%	25%	50%
Seretide Accuhaler 500	Seretide Accuhaler 250	£8,222	£20,554	£41,108
Seretide Accuhaler 250	Seretide Accuhaler 100	£3,054	£7,635	£15,270
Seretide Evohaler 250	Seretide Evohaler 125	£54,698	£136,745	£273,491
Seretide Evohaler 125	Seretide Evohaler 50	£25,697	£64,243	£128,486
Symbicort Turbohaler 200/6	Symbicort Turbohaler 100/6	£10,126	£25,315	£50,630
Potential Annual Saving		**£101,797**	**£254,493**	**£508,986**

Data: PPD

NOTE: Savings based on the number of inhalers prescribed in your PCT for the period Aug-11 to Oct-11

Table 3 Potential Annual Savings from switching Seretide Evohaler 250 to Seretide Accuhaler 500

This table relates to the potential cost-saving that can be achieved when switching Seretide 250 Evohaler devices in patients who are using 2 puffs, twice daily to an *equivalent* dose of Seretide 500 Accuhaler (i.e. 1 puff, twice daily). We use the total number of Evohaler 250 devices prescribed in your PCT and calculate the savings based on switching 10%, 25% and 50% of these inhalers to 500 Accuhalers.

Number of Evohaler 250 inhalers (Aug-11 to Oct-11)	Percentage of inhalers switched to Accuhaler 500		
	10%	25%	50%
5586	£41,470	£103,676	£207,352

Data: PPD

NOTE: Savings based on the number of Evohaler 250 inhalers prescribed in your PCT for the period Aug-11 to Oct-11

Table 4 Potential Annual Savings from switching to Flutiform

This table helps to illustrate the potential savings that could be made through switching Seretide Evohalers to the new Flutiform formulation. We have calculated savings for switching all Seretide Evohaler strengths, and have noted that whilst there are **additional costs** associated with the a switch of the lowest strength of Seretide®, savings can be seen at higher strengths and these are shown below:

Switch patients		Percentage of inhalers switched		
from	to	10%	25%	50%
Seretide Evohaler 250	Flutiform 250/10	£26,589	£66,473	£132,947
Seretide Evohaler 125	Flutiform 125/5	£8,677	£21,691	£43,383
Seretide Evohaler 50	Flutiform 50/5	Additional acquisition cost associated with this switch		
Potential Annual Saving		**£35,266**	**£88,165**	**£176,330**

Data: PPD

Prices: based on MIMS January 2012 and anticipated Flutiform prices.

NOTE: Therapeutic equivalence not implied. Savings based on number of inhalers prescribed during Aug-11 to Oct-11

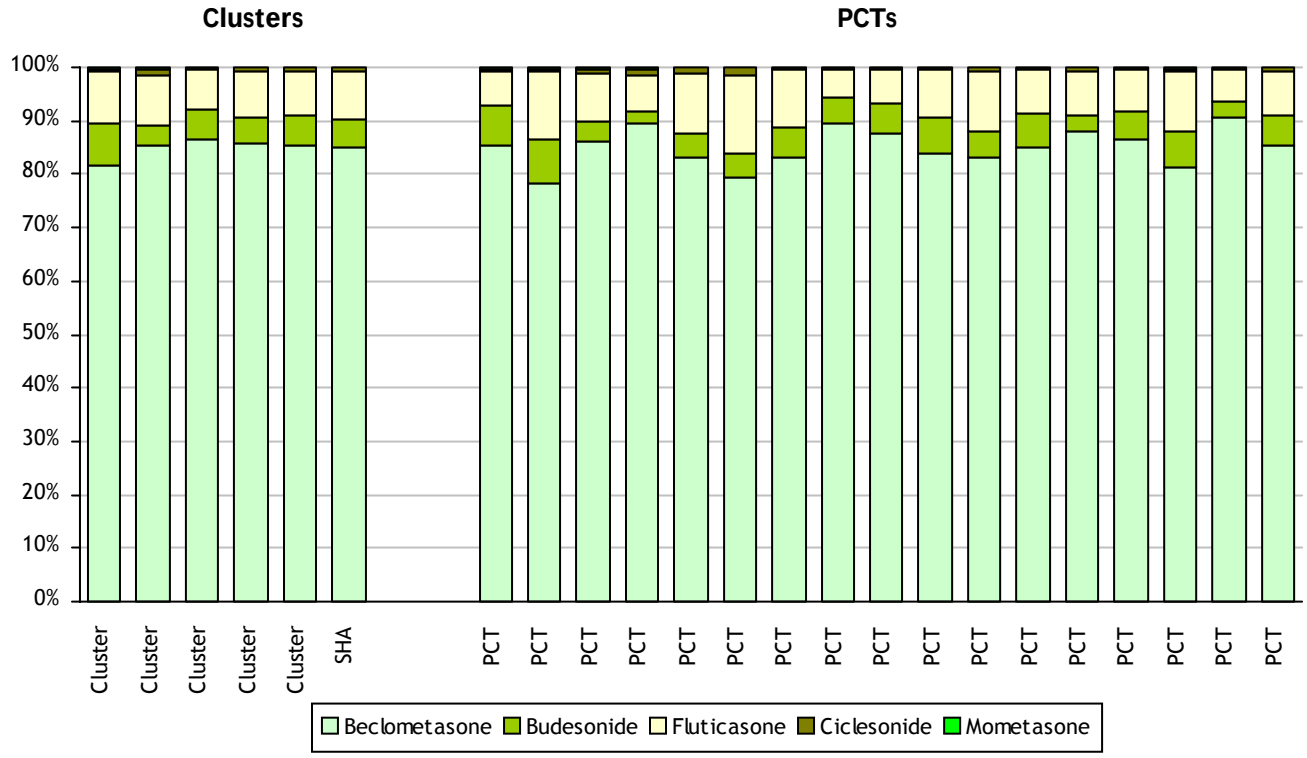
Table 5 Single-component ICS Inhalers: Cost comparison based on 400 mcg/day beclometasone equivalent

Brand and Formulation	Active Ingredient	Puffs per Day	Cost per 28 days	No. of people treated for £100 a month
Easyhaler Beclometasone (200mcg)	Beclometasone dipropionate	2	£4.18	23.9
Clenil Modulite (200mcg)	Beclometasone dipropionate	2	£4.53	22.1
Qvar Easi-Breathe (100mcg)	Beclometasone dipropionate	2	£4.75	21.1
Qvar (100mcg)	Beclometasone dipropionate	2	£4.82	20.8
Qvar Autohaler (100mcg)	Beclometasone dipropionate	2	£4.82	20.8
Easyhaler Budesonide (200mcg)	Budesonide	2	£4.96	20.2
Flixotide Evohaler (50mcg)	Fluticasone propionate	4	£5.08	19.7
Asmabec Clickhaler (100mcg)	Beclometasone dipropionate	4	£5.49	18.2
Pulvinal Beclometasone (200mcg)	Beclometasone dipropionate	2	£5.54	18.1
Pulmicort Turbohaler (200mcg)	Budesonide	2	£6.63	15.1
Budelin Novolizer (200mcg)	Budesonide	2	£8.32	12.0
Flixotide Accuhaler (100mcg)	Fluticasone propionate	2	£8.33	12.0
Alvesco (160mcg)	Ciclesonide	1	£9.01	11.1
Becodisks (200mcg)	Beclometasone dipropionate	2	£10.05	9.9
Asmanex Twisthaler (200mcg)	Mometasone furoate	1	£10.99	9.1

Prices: MIMS and Drug Tariff January 2012

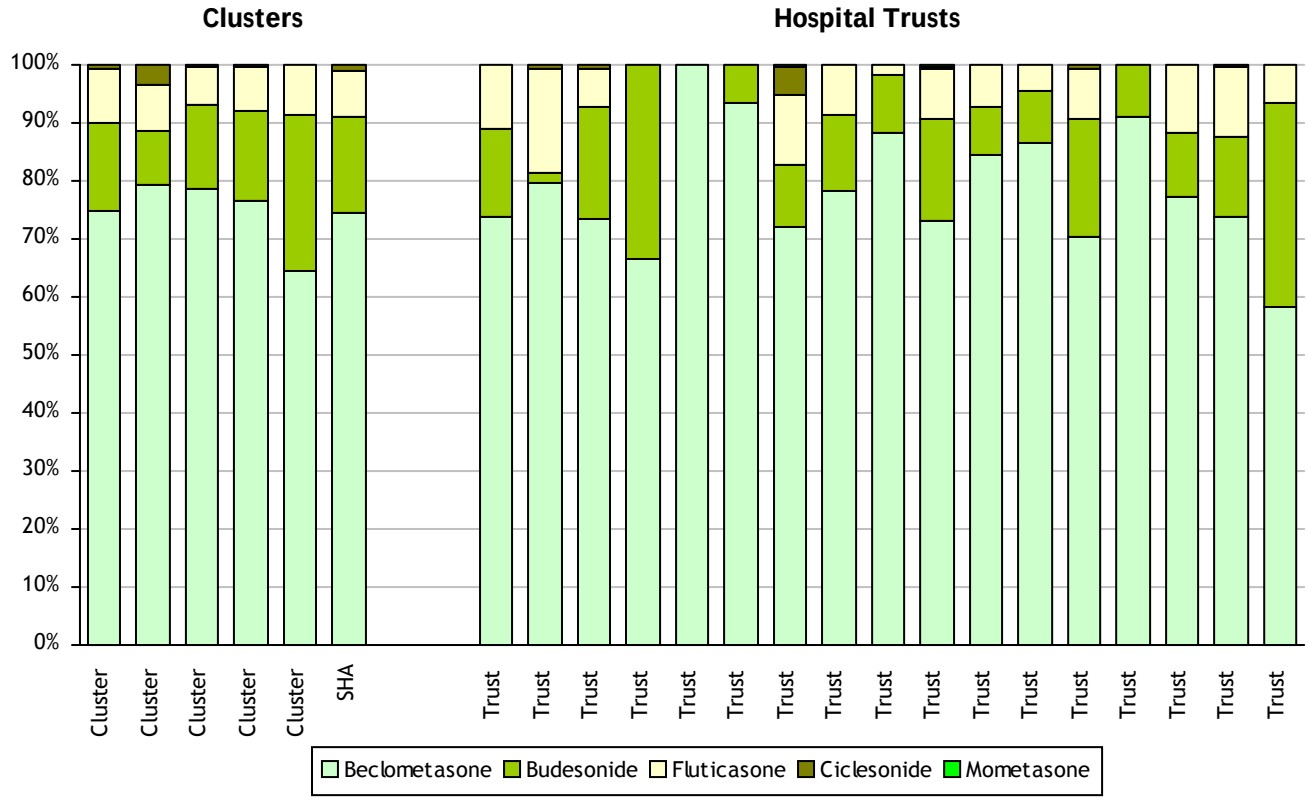
For the purposes of this cost chart, brands containing fluticasone, mometasone and ciclesonide, and all Qvar brands, are considered to be equivalent to beclometasone at half the dose. Alvesco (ciclesonide) has been costed at 160 micrograms / day.

Fig 1 **PRIMARY CARE - West Midlands: Breakdown of Inhaled Corticosteroid Prescribing (BNF 3.2) by Volume (Items), for the period Aug-11 to Oct-11**



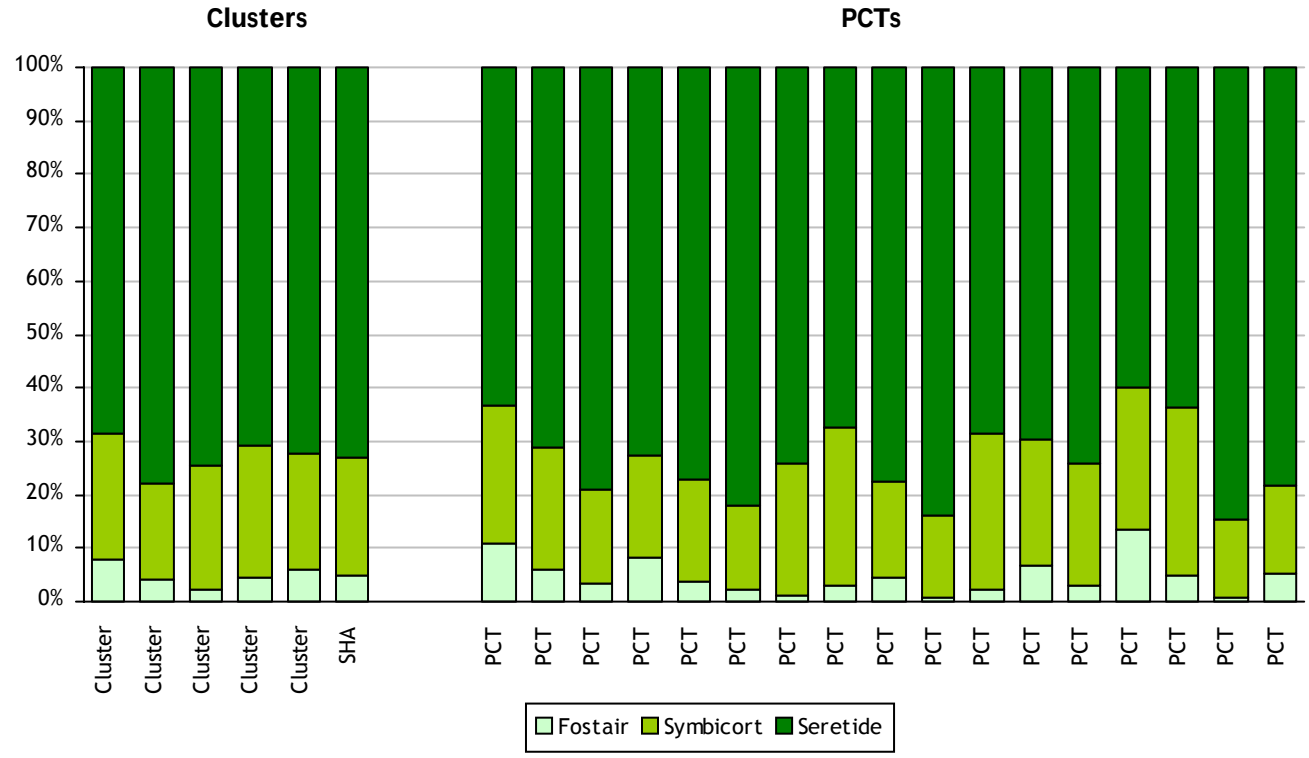
Data: PPD

Fig 2 **SECONDARY CARE - West Midlands: Breakdown of Inhaled Corticosteroid Prescribing (BNF 3.2) by Volume (Packs), for the period Aug-11 to Oct-11**



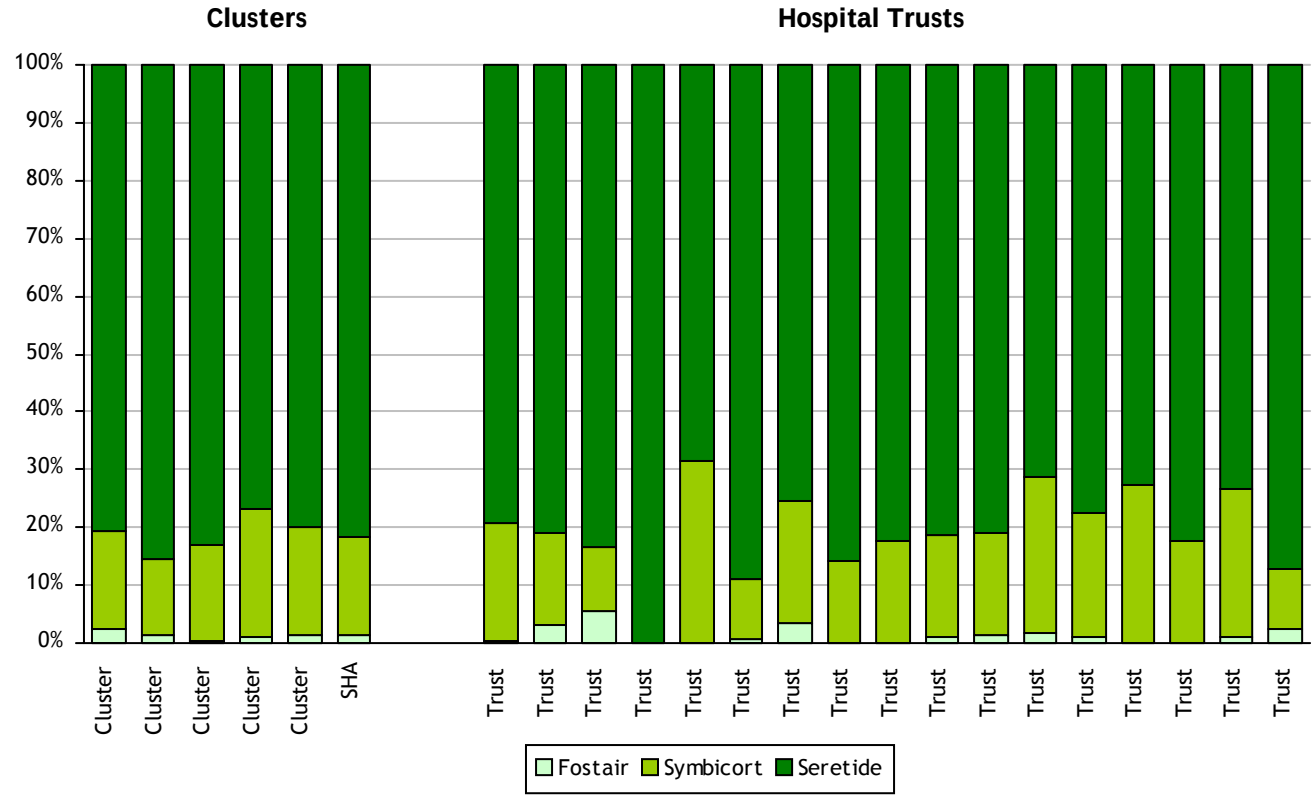
Data: IMS

Fig 3 **PRIMARY CARE - West Midlands: Breakdown of Combination Inhaler Prescribing (within BNF 3.2) by Volume (Items), for the period Aug-11 to Oct-11**



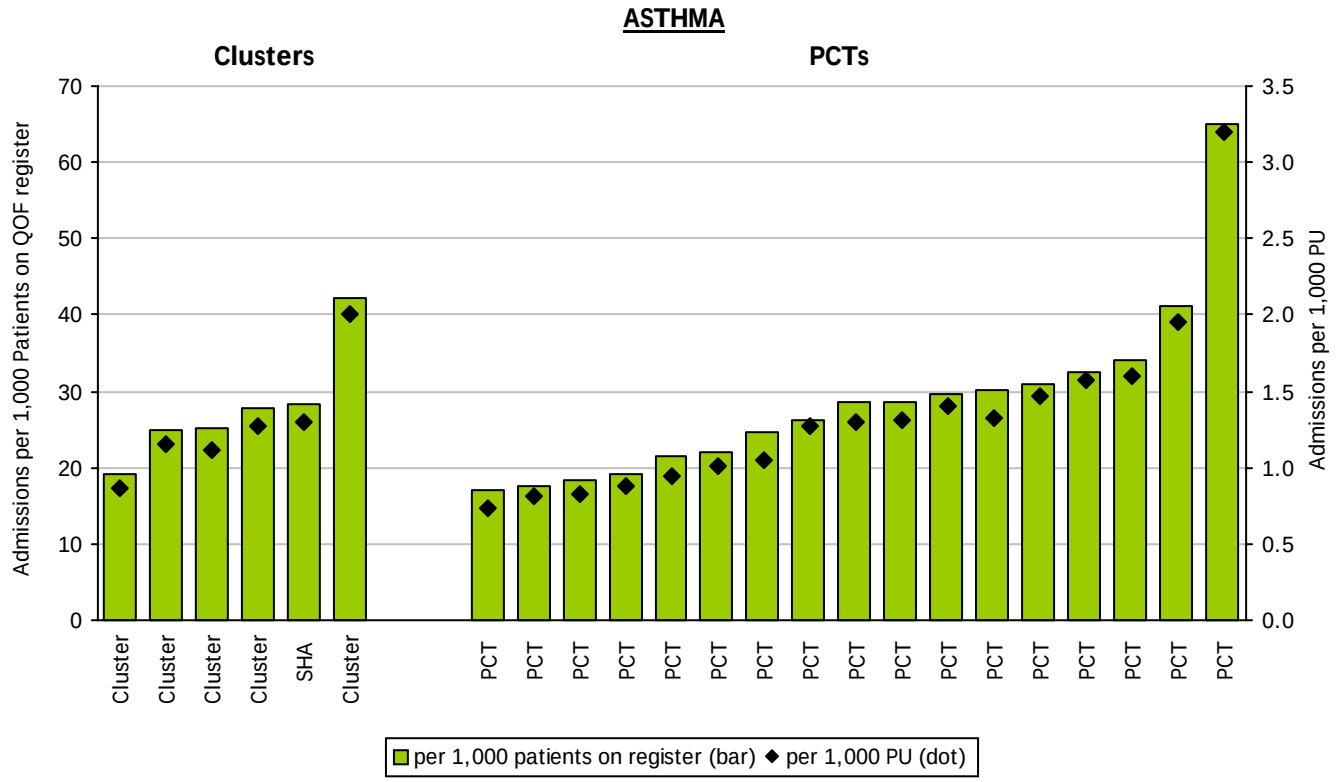
Data: PPD

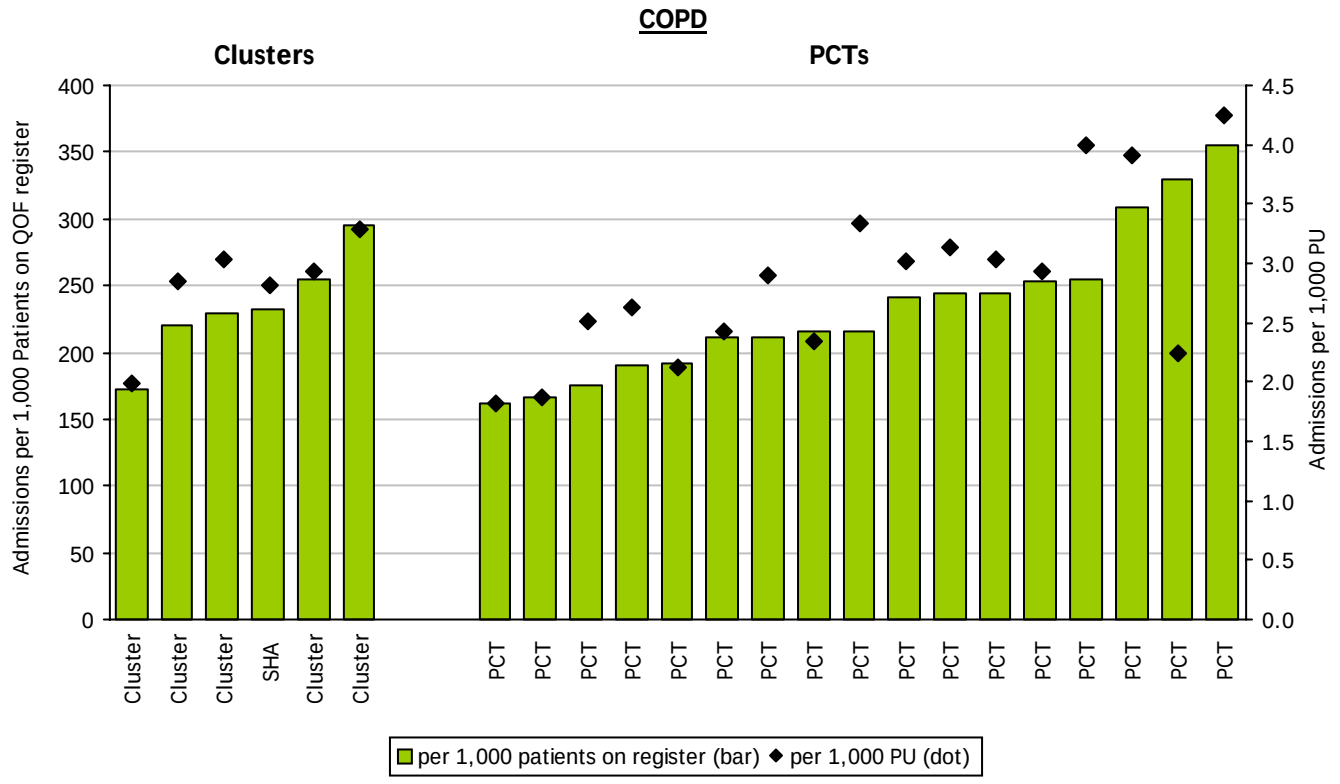
Fig 4 **SECONDARY CARE - West Midlands: Breakdown of Combination Inhaler Prescribing (within BNF 3.2) by Volume (Packs), for the period Aug-11 to Oct-11**



Data: IMS

Fig 1 **West Midlands: Emergency Hospital Admissions for Asthma* and COPD**, for the period Apr-10 to Mar-11**

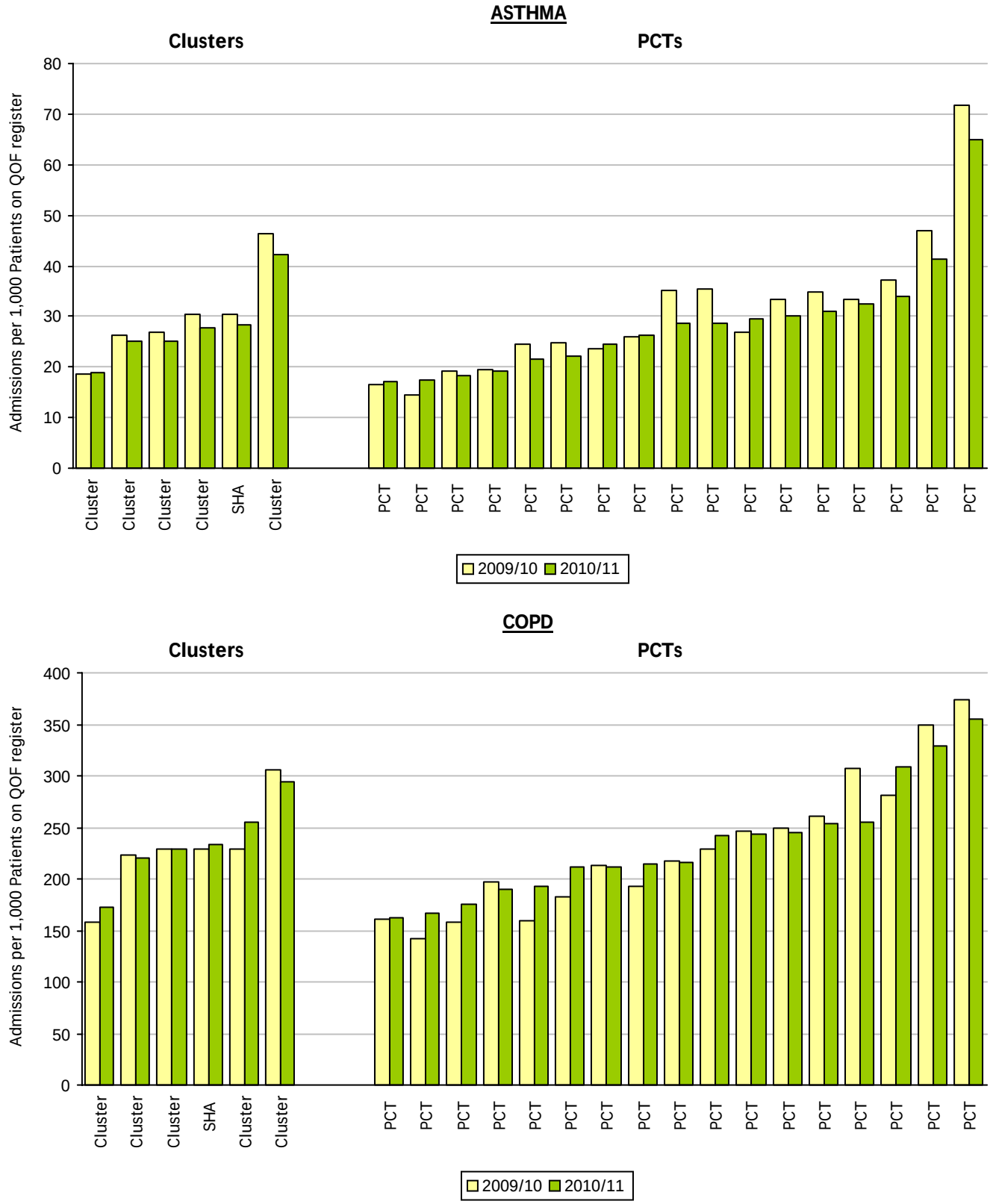




Data: HES, PPD and QOF

** Asthma is classified as ICD-10 codes J45 and J46*
*** COPD is classifed as ICD-10 codes J41 to J44 and J47*

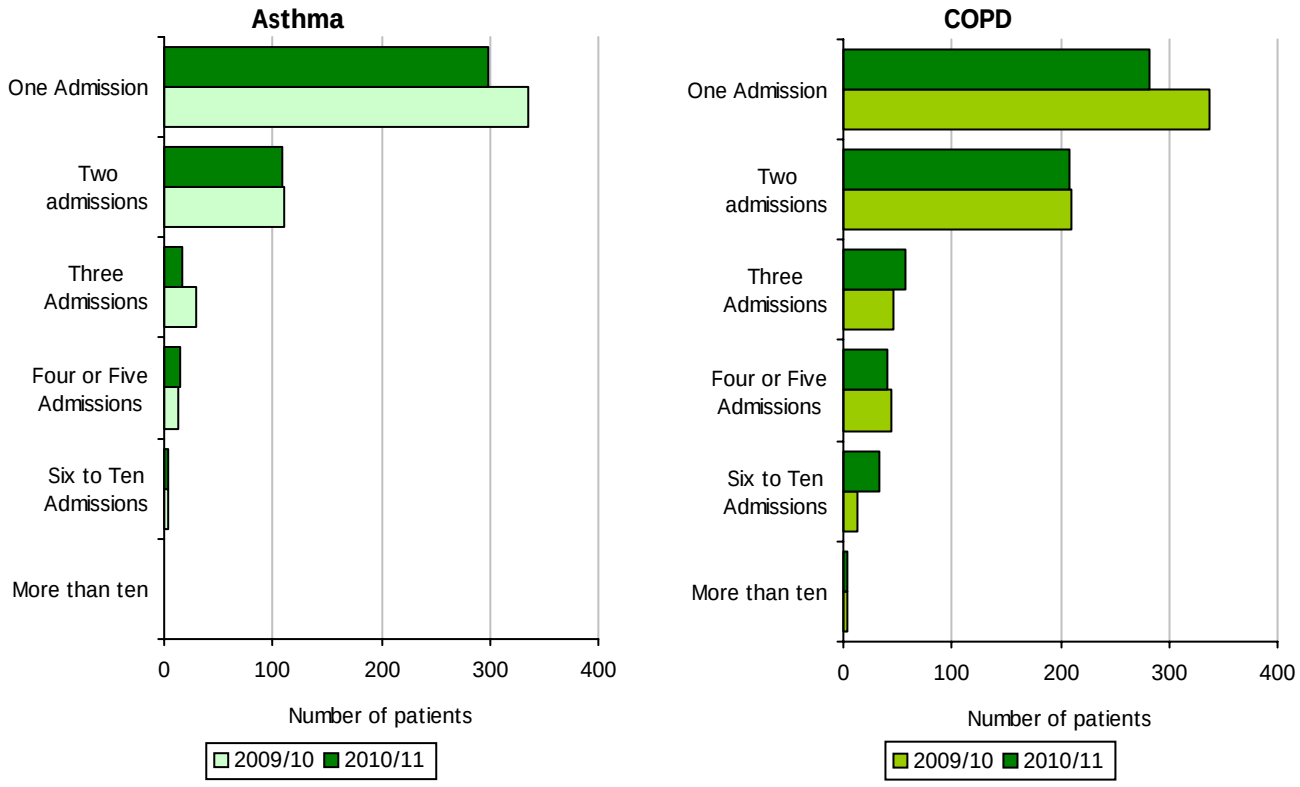
Fig 2 **West Midlands: Emergency Hospital Admissions for Asthma* and COPD** per 1,000 patients on the QOF register, for the period Apr-09 to Mar-11**



Data: HES, PPD and QOF

** Asthma is classified as ICD-10 codes J45 and J46*
*** COPD is classifed as ICD-10 codes J41 to J44 and J47*

Fig 3 **Repeat Emergency Hospital Admissions for Asthma* and COPD** in EXAMPLE, for the period Apr-09 to Mar-11**



Data: HES, PPD and QOF

** Asthma is classified as ICD-10 codes J45 and J46*
*** COPD is classifed as ICD-10 codes J41 to J44 and J47*

Prescribing Information *to support* QIPP

Section: F

Antibiotics

January 2012

EXAMPLE

What are the issues?

- In relation to antibiotic prescribing, the key areas of focus remain the prudent use of antibiotics to minimize the development of antibiotic resistance and the prevention and control of meticillin-resistant *Staphylococcus aureus* (MRSA) and *Clostridium difficile* associated-disease.

- Specifically within primary care, the **restriction of broad spectrum antibiotics**, such as quinolones and cephalosporins, continues to be a priority. The NPC advises that these antibiotics should be reserved to treat resistant disease and should generally be used only when standard and less expensive antibiotics are ineffective.[1] Based on the Health Protection Agency (HPA) guidance for primary care, the quinolone ciprofloxacin is recommended as first-line treatment only for acute pyelonephritis and acute prostatitis.[2] The restriction of both quinolones and cephalosporins is also vital, given the association of these antibiotic classes with an increased risk of *C. difficile* infection.[3]

What are the actions?

- Local organisations should review and, where appropriate, revise current prescribing practice to ensure prescribing is in line with HPA advice. Guidance for primary care is available at http://www.hpa.org.uk/Topics/InfectiousDiseases/InfectionsAZ/PrimaryCareGuidance/.

- Organisations should continue to benchmark and review antibiotic prescribing. To help promote the prudent prescribing of all antibiotics the NPC suggest that rates of total antibiotic prescribing are reviewed, as well as rates of quinolone and cephalosporin prescribing.[1]

Cost Implications

- In line with the above recommendations from the NPC, we provide the West Midlands Medicines Management Network Performance Indicators for both antibiotic prescribing and quinolone/cephalosporin prescribing, comparing last year's and this year's data.

- We also show hospital prescribing data which may be helpful in your discussions with providers, commissioners and practices.

- *C. difficile* and MRSA infection data are presented for the previous two years, as are hospital admissions relating to enterocolitis due to *C. difficile*.

References:

1. Key therapeutic topics- Medicines management options for local implementation. Second update. July 2011. National Prescribing Centre. 2011. http://www.npc.nhs.uk/qipp/resources/qipp_document_version3.0_july11_final.pdf <accessed 11/2011>
2. Management of Infection Guidance for Primary Care. (Last update October 2011). Health Protection Agency. http://www.hpa.org.uk/webc/HPAwebFile/HPAweb_C/1194947333801 <accessed 11/2011>
3. *Clostridium difficile* infection: How to deal with the problem. Health Protection Agency/Department of Health. 2008. http://www.hpa.org.uk/webc/HPAwebFile/HPAweb_C/1232006607827 <accessed 11/2011>

Table 1 **West Midlands: Medicines Management Performance Indicators for Antibacterials (BNF 5.1)**

PCT	WM Indicator^ All Antibiotics (Annual)		WM Indicator* Cephalosporins and Quinolones (Quarterly)	
	Oct-11	Oct-10	Oct-11	Oct-10
PCT	1.26	1.21	3.3%	3.8%
PCT	1.20	1.17	6.9%	7.9%
PCT	1.19	1.20	5.5%	6.7%
PCT	1.16	1.10	2.2%	2.2%
Cluster	**1.22**	**1.18**	**4.3%**	**5.0%**
PCT	1.15	1.20	5.2%	8.2%
PCT	1.21	1.17	7.2%	9.6%
PCT	1.30	1.24	8.6%	11.8%
PCT	1.25	1.19	7.0%	11.5%
Cluster	**1.23**	**1.20**	**7.2%**	**10.3%**
PCT	1.25	1.18	4.2%	5.5%
PCT	1.22	1.13	2.9%	3.3%
PCT	1.19	1.19	3.6%	3.8%
PCT	1.27	1.21	4.6%	5.2%
Cluster	**1.23**	**1.18**	**3.9%**	**4.5%**
PCT	1.28	1.28	3.6%	4.3%
PCT	1.25	1.19	5.4%	5.8%
Cluster	**1.26**	**1.22**	**4.7%**	**5.2%**
PCT	1.34	1.29	3.7%	4.0%
PCT	1.44	1.34	3.6%	3.0%
PCT	1.28	1.23	8.9%	12.1%
Cluster	**1.33**	**1.27**	**6.5%**	**8.1%**
SHA Totals	**1.25**	**1.21**	**5.4%**	**6.8%**

Data: PPD

West Midlands Medicines Management Network Performance Indicators are:

^Antibiotics: Reduce the Annual Antibacterial Drug Prescribing Rate - Aspiration ≤ 1.21 items per sub-therapeutic STARPU. North Staffs Urgent Care is accounted for in this data - split 60% Stoke, 40% N Staffs

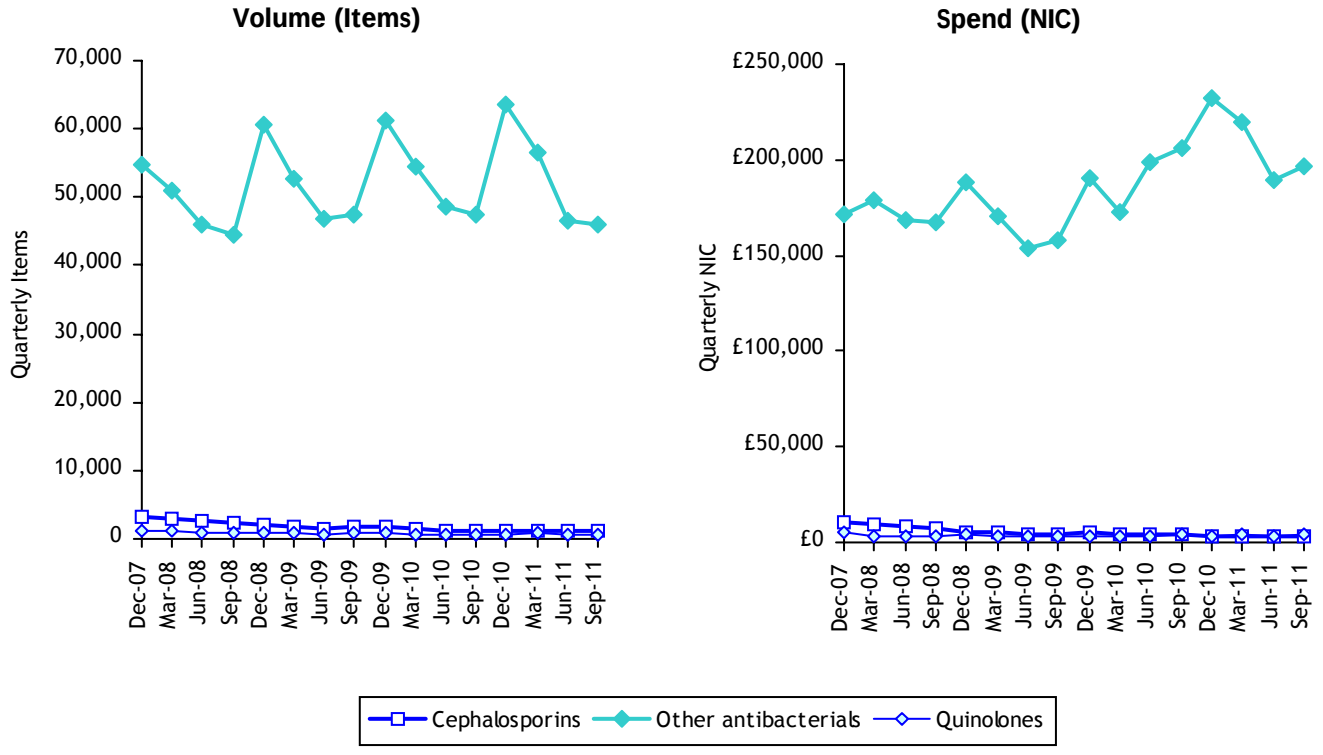
** Cephalosporins and Quinolones: Reduce Percentage of Selected Antibiotics Prescribed as Cephalosporins or Quinolones - Aspiration ≤ 5%*

Table 2 Cost Comparison of Cephalosporins and Quinolones

Category	Drug	Typical Daily Dose	Cost per 5 day course	No of courses for £100
Cephalosporins	Cefalexin capsules	500mg BD	£1.24	81
	Cefalexin tablets	500mg BD	£1.39	72
	Cefadroxil	500mg BD	£2.05	49
	Cefradine	500mg BD	£2.58	39
	Cefaclor	250mg TDS	£4.04	25
	Cefaclor MR	375mg BD	£6.50	15
	Cefixime	200mg BD	£9.45	11
	Cefpodoxime	100mg BD	£9.78	10
	Cefuroxime	250mg BD	£10.03	10
Quinolones	Ciprofloxacin	250mg BD	£0.92	109
	Ciprofloxacin	500mg BD	£1.02	98
	Norfloxacin	800mg	£7.84	13
	Moxifloxacin	400mg	£12.43	8
	Levofloxacin	500mg	£12.93	8
	Ofloxacin	800mg	£21.34	5

Prices: MIMS and Drug Tariff January 2012

Fig 1 Antibacterial Drugs (BNF 5.1): Quarterly Volume (Items) and Spend (NIC) in EXAMPLE



Data: PPD

Fig 2 **West Midlands: Breakdown of Antibacterial Drug (BNF 5.1) Prescribing by Volume (Items), for the period Nov-10 to Oct-11**

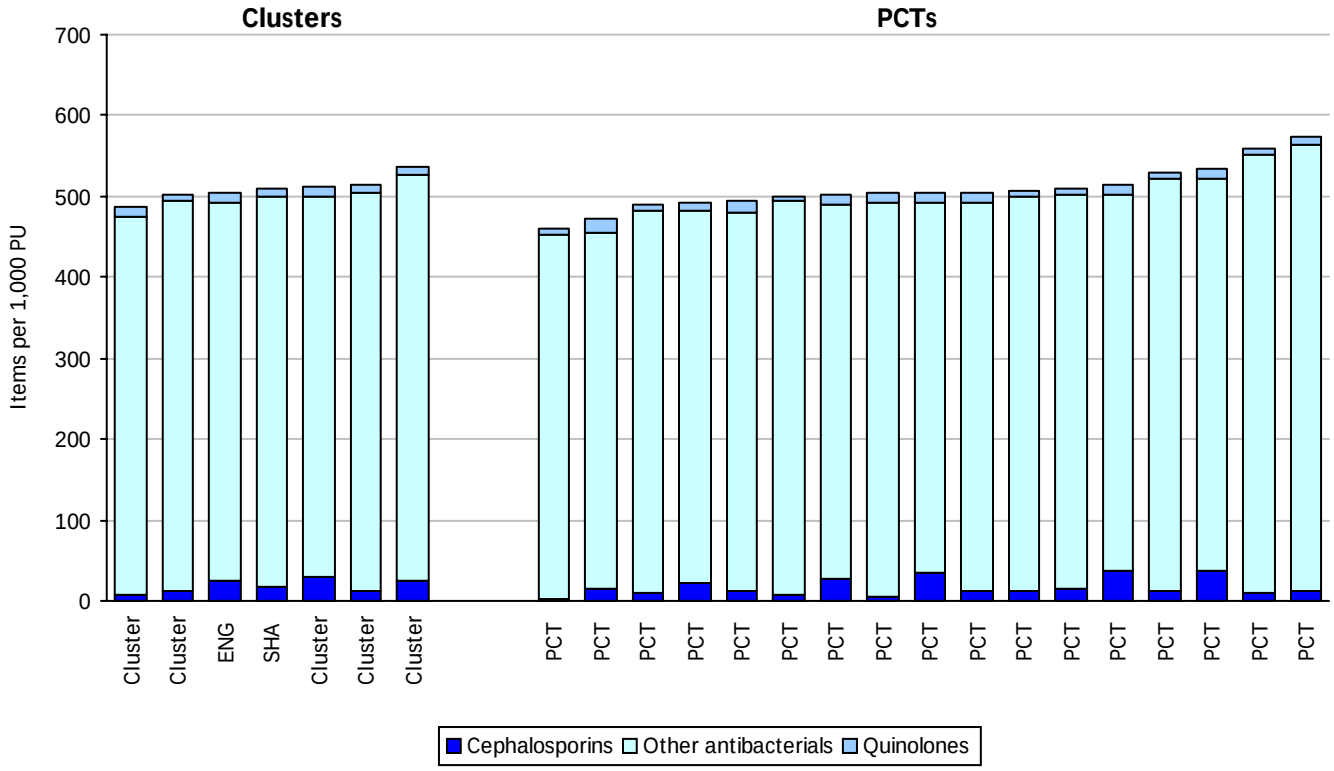
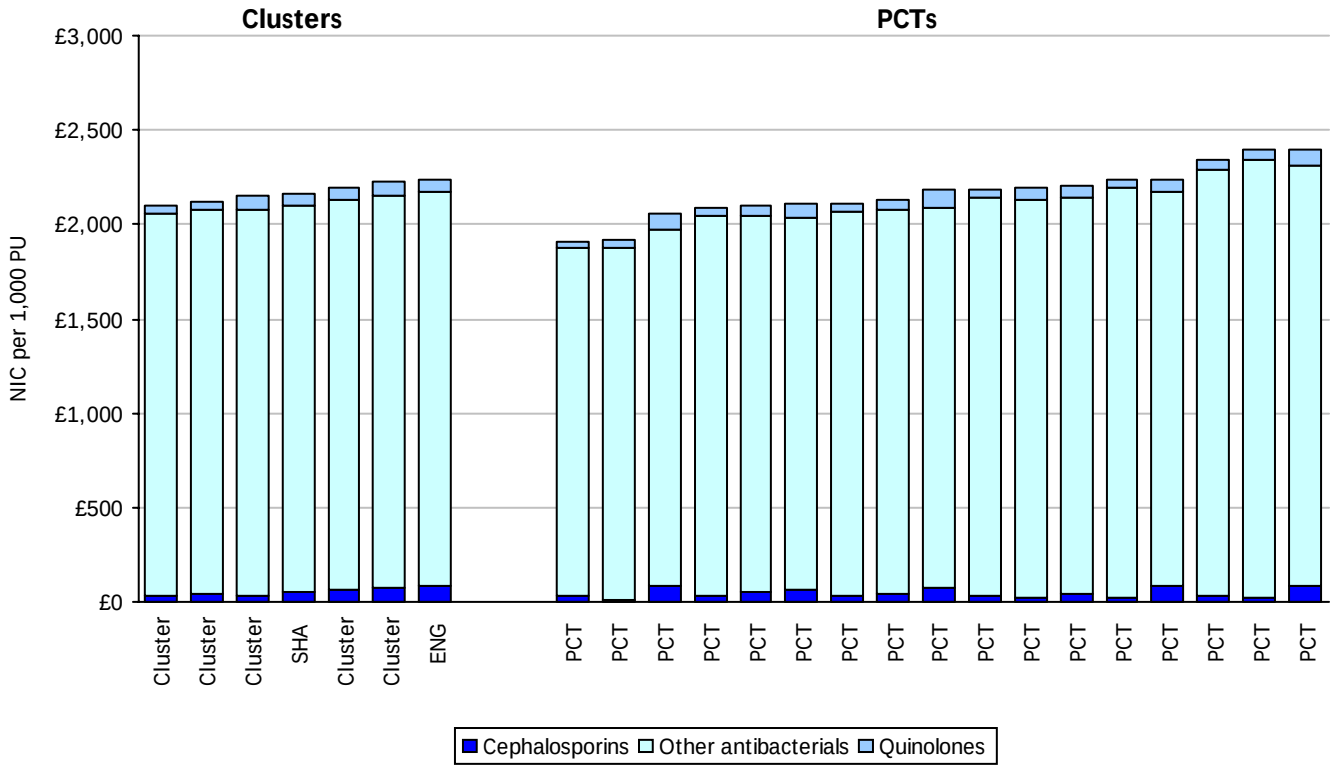
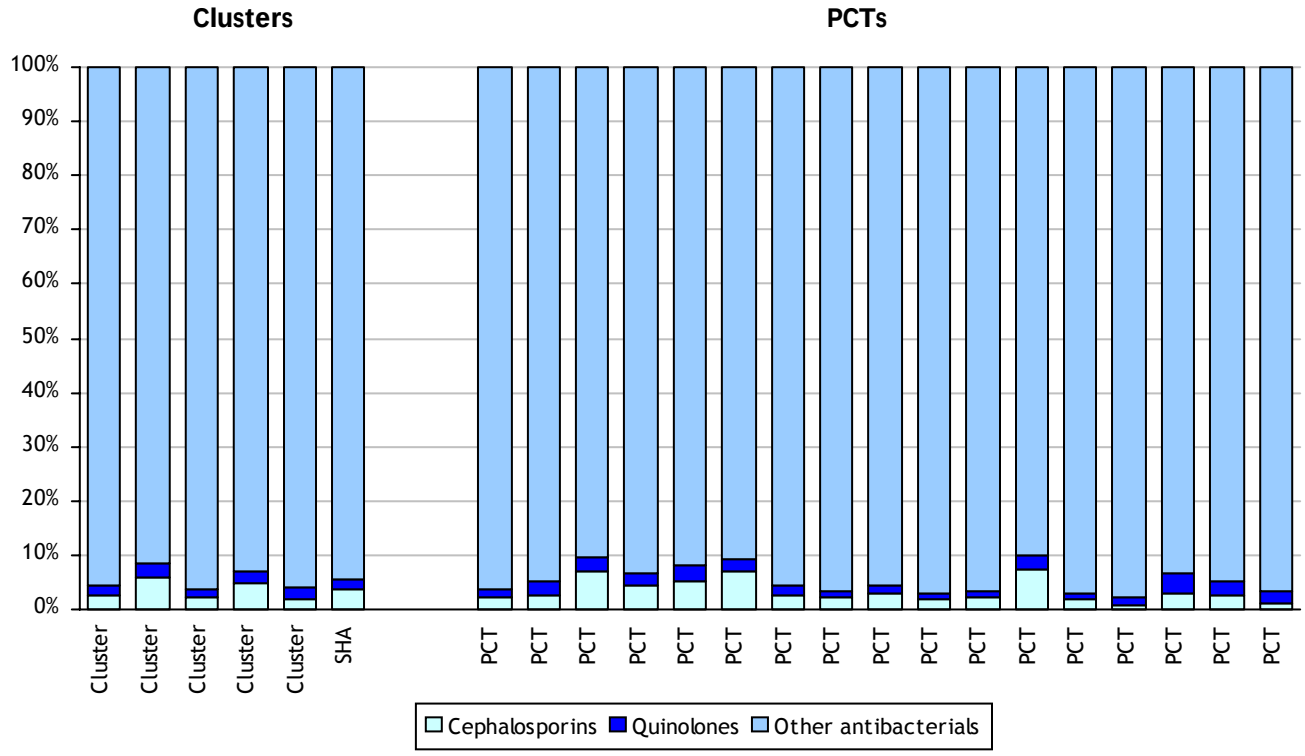


Fig 3 **West Midlands: Breakdown of Antibacterial Drug (BNF 5.1) Prescribing by Spend (NIC), for the period Nov-10 to Oct-11**



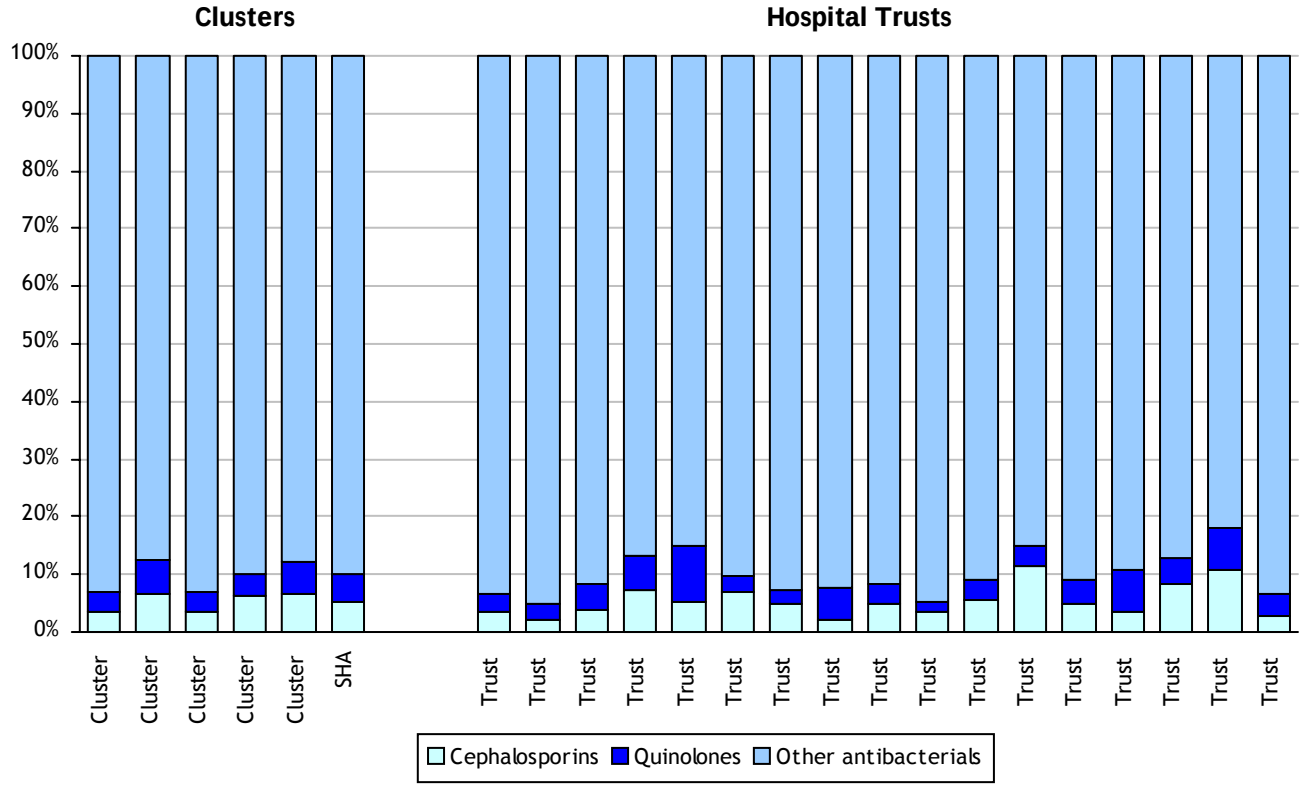
Data: PPD

Fig 1 **PRIMARY CARE - West Midlands: Breakdown of Antibacterial Drugs Prescribing (BNF 5.1) by Volume (Items), for the period Nov-10 to Oct-11**



Data: PPD

Fig 2 **SECONDARY CARE - West Midlands: Breakdown of Antibacterial Drugs Prescribing (BNF 5.1) by Volume (Packs), for the period Nov-10 to Oct-11**



Data: IMS

C.DIFFICILE & MRSA DATA

Fig 1 *Clostridium difficile:* **Rolling Quarters, number of infections in patients in EXAMPLE**

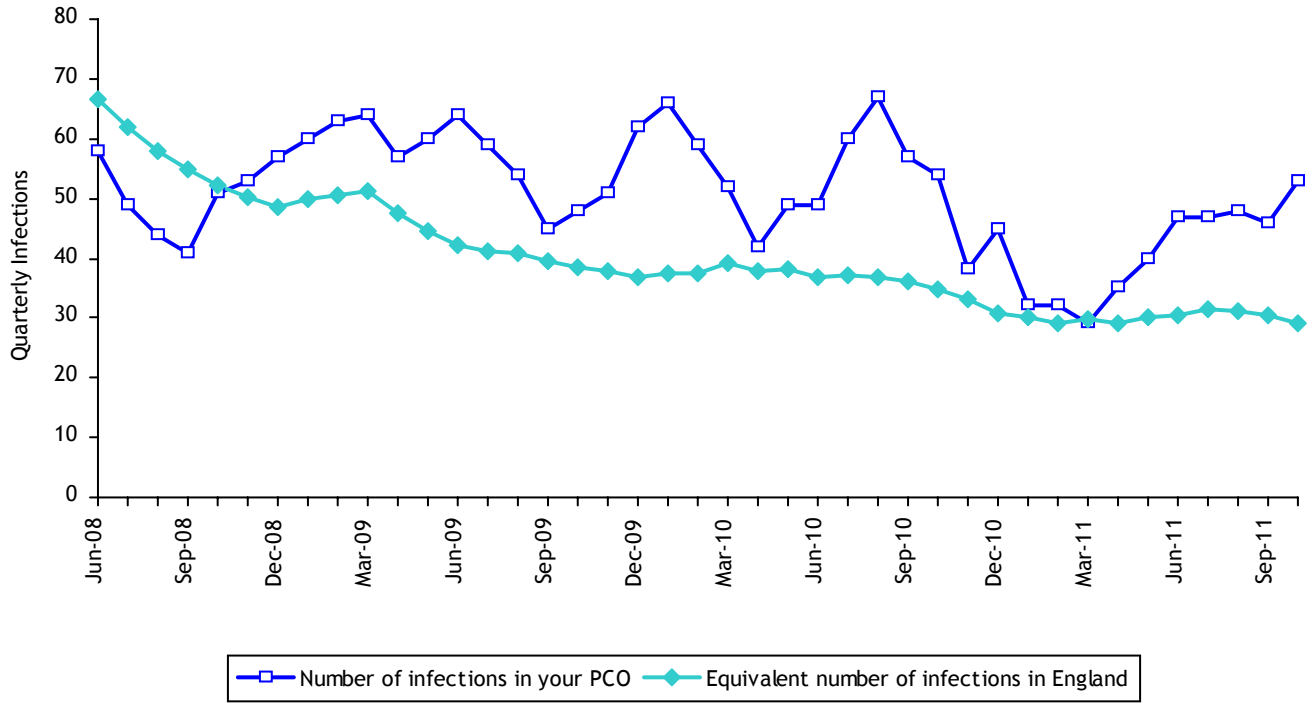
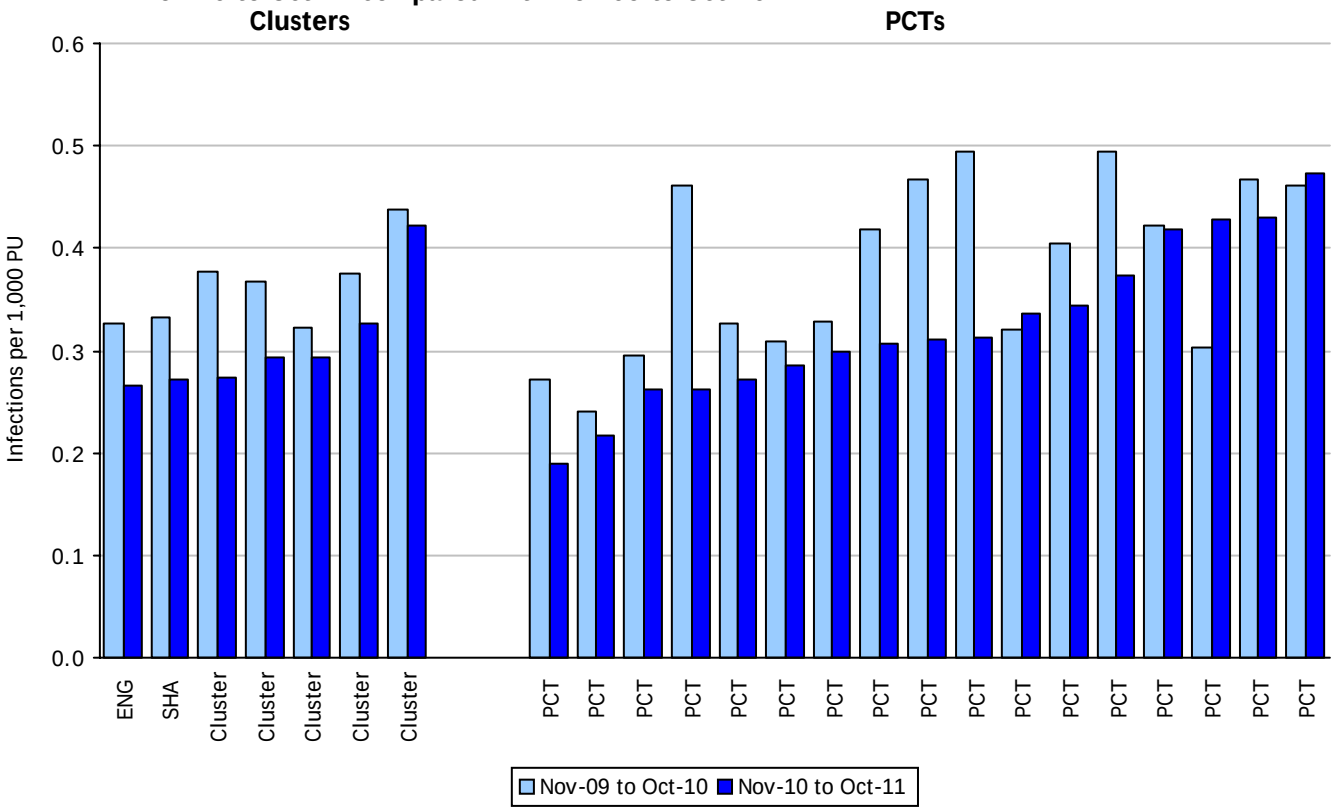


Fig 2 **West Midlands:** *Clostridium difficile* **infections in Primary Care Organisations, for the period Nov-10 to Oct-11 compared with Nov-09 to Oct-10**



Data: HPA

Fig 3 **MRSA: Rolling Quarters, number of infections in patients in EXAMPLE**

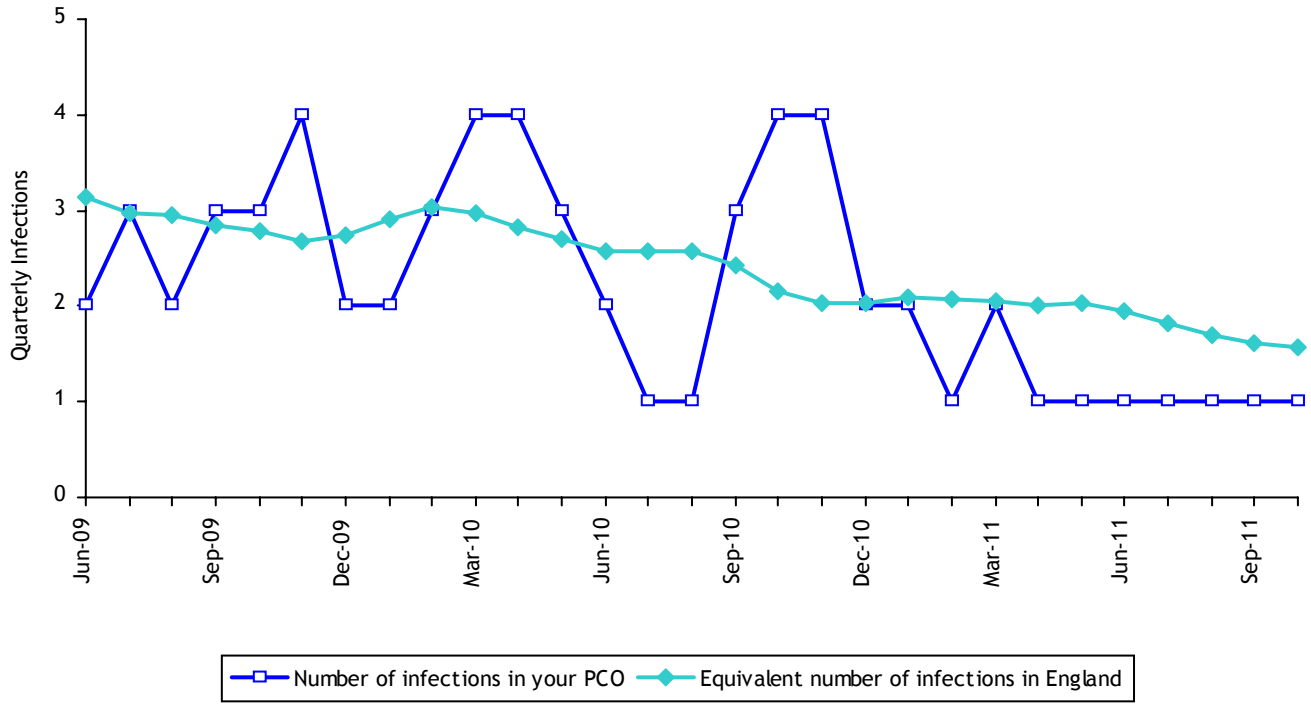
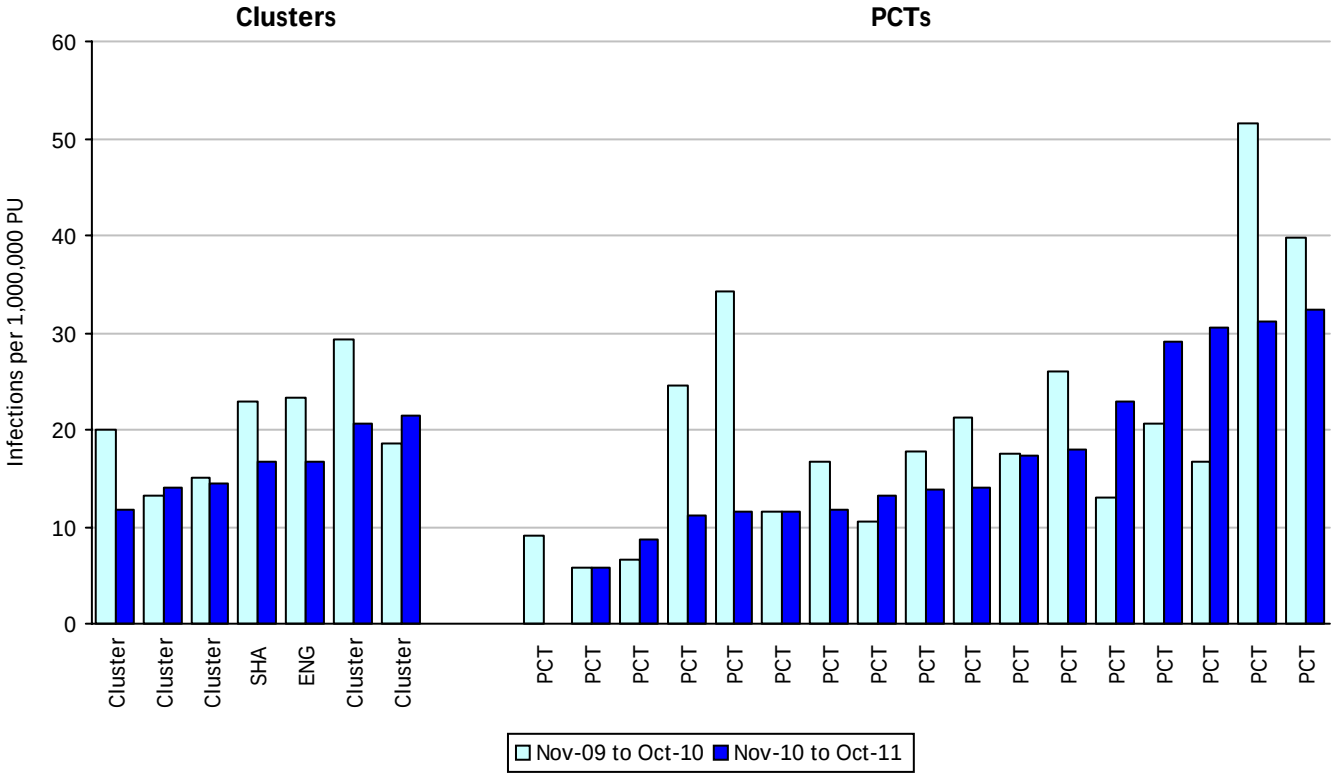


Fig 4 **West Midlands: MRSA infections in Primary Care Organisations, for the period Nov-10 to Oct-11 compared with Nov-09 to Oct-10**



Data: HPA

Fig 1 **West Midlands: Hospital Admissions for Enterocolitis due to *Clostridium difficile* (ICD-10 A04.7) as the Primary Diagnosis, by age group, for the period Apr-10 to Mar-11**

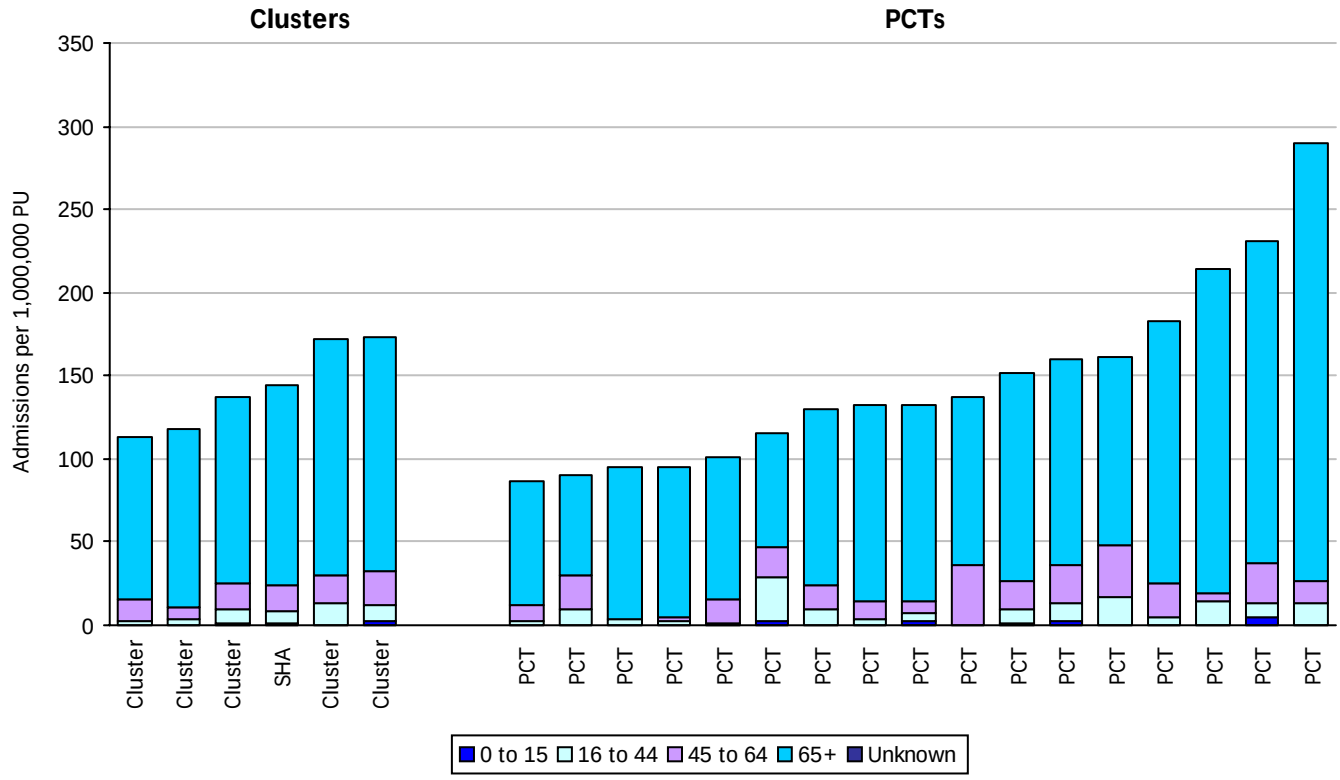
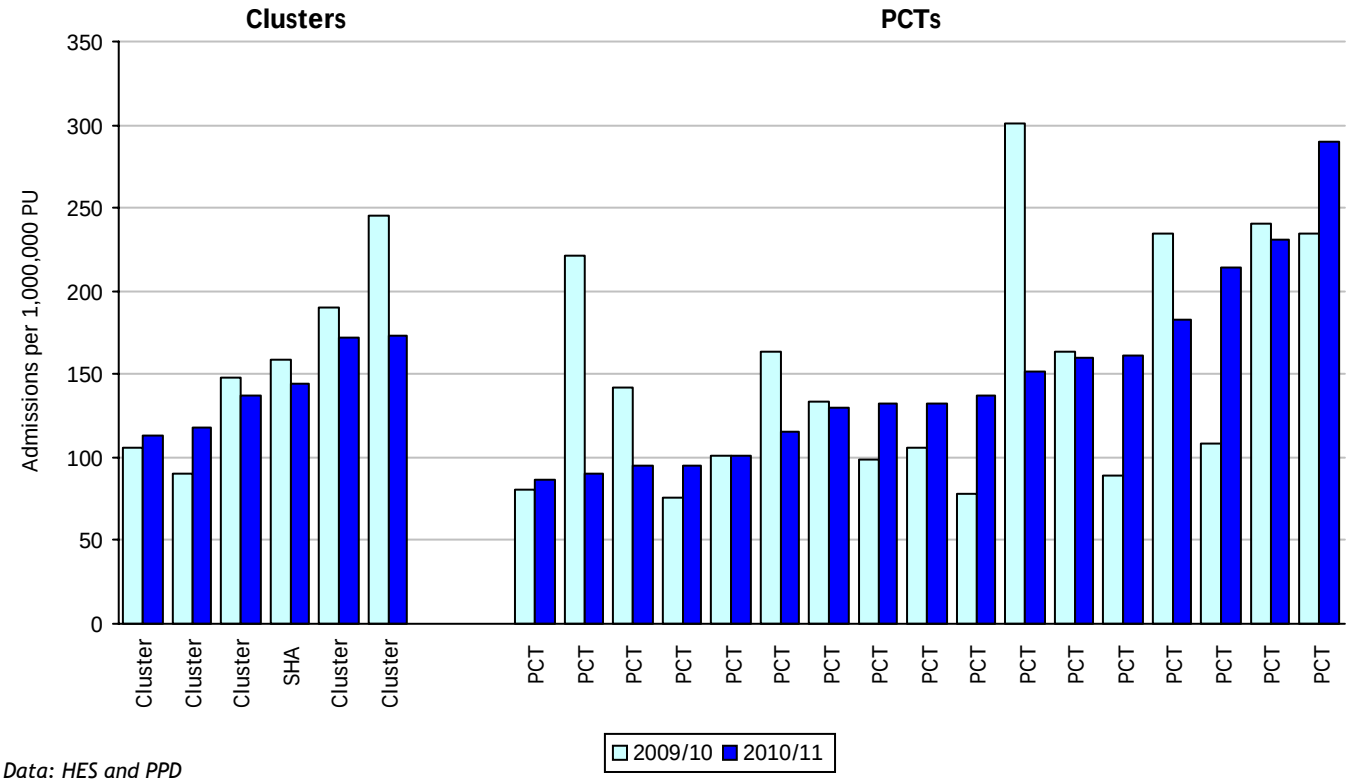


Fig 2 **West Midlands: Hospital Admissions for Enterocolitis due to *Clostridium difficile* (ICD-10 A04.7) as the Primary Diagnosis, for the period Apr-09 to Mar-11**



Data: HES and PPD

Fig 3 **West Midlands: Hospital Admissions including Enterocolitis due to *Clostridium difficile* (ICD-10 A04.7) as an additional diagnosis, by age group, for the period Apr-10 to Mar-11**

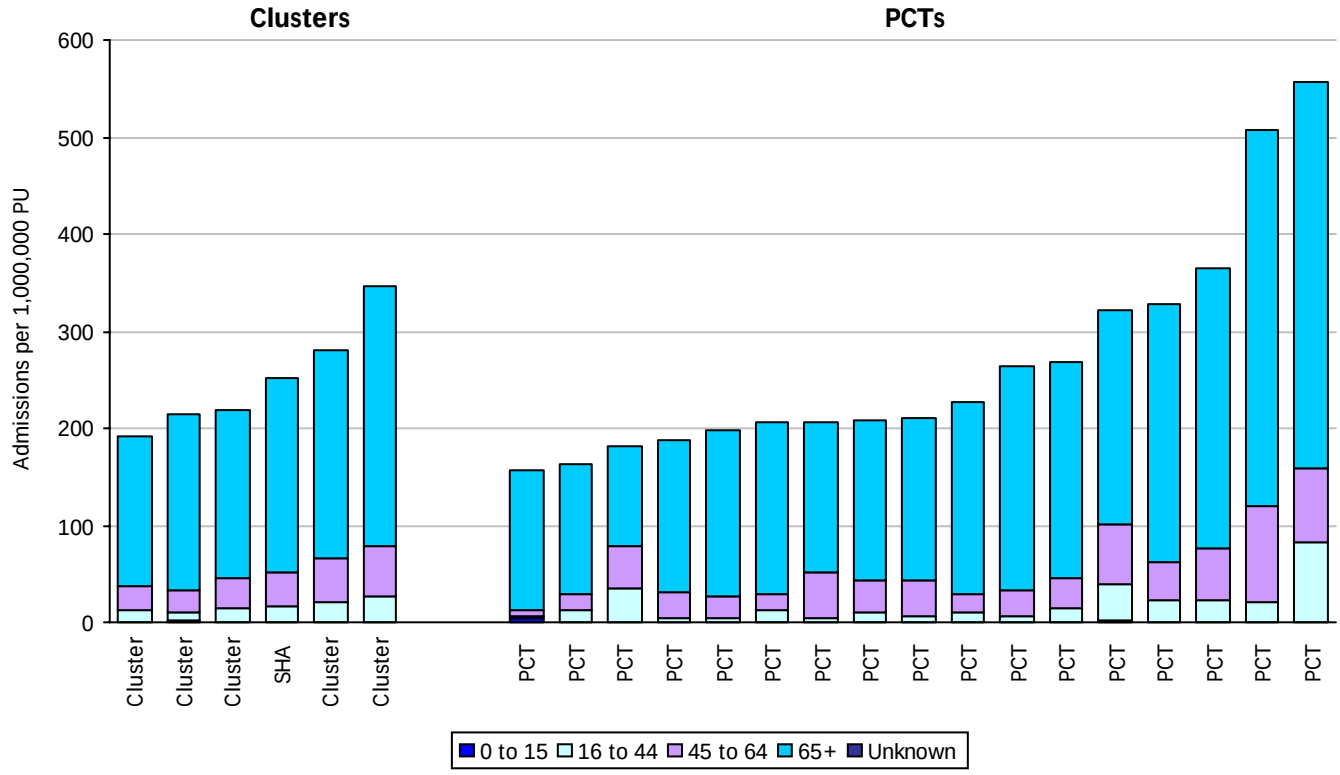
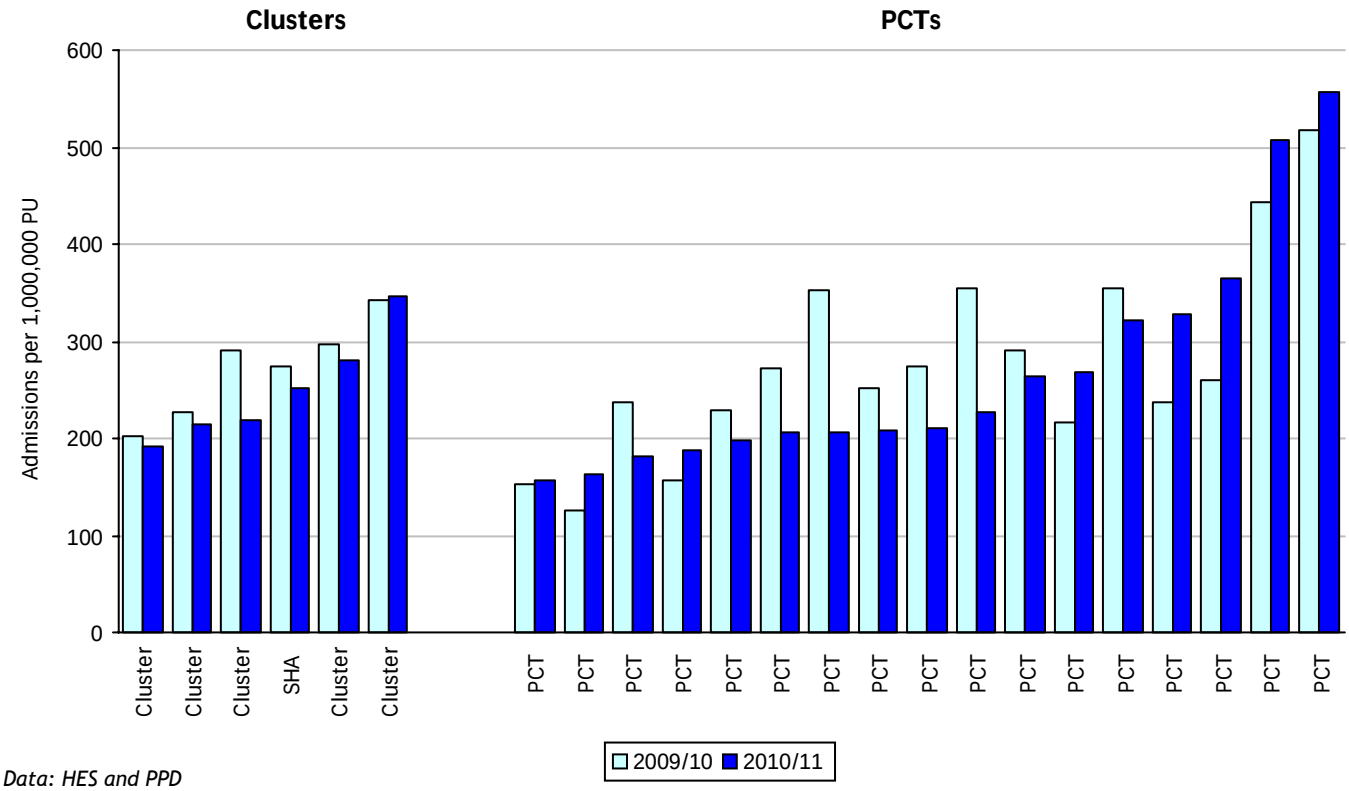


Fig 4 **West Midlands: Hospital Admissions including Enterocolitis due to *Clostridium difficile* (ICD-10 A04.7) as an additional diagnosis, for the period Apr-09 to Mar-11**



Data: HES and PPD

Prescribing Information *to support* QIPP

Section: G

Long-acting Insulin Analogues

January 2012

EXAMPLE

What are the issues?

- **Commissioners and GPs are under increasing pressure to reduce reliance on secondary care and to encourage, where possible, care closer to the patient's home**.
- As shown in Table 1, long-acting insulin analogues (insulin detemir and insulin glargine) are considerably more expensive than human NPH insulin (isophane insulin).
- A recently published UK study found that if it was assumed that all patients using insulin analogues between 2000 and 2009 could have received human insulin instead, the NHS would have saved £625 million. If an assumption was made that 50% of patients could have received human insulin instead, the NHS would have saved £312 million.[1]
- The authors of a meta-analysis conducted by the Canadian Agency for Drugs and Technologies in Health (CADTH) concluded that rapid- and long-acting insulin analogues offer little benefit over older conventional insulins in terms of glycaemic control or reduced hypoglycaemia for the management of patients with type 1 or type 2 diabetes or gestational diabetes.[2]
- NICE guidance on the management of type 2 diabetes recommends that if insulin therapy is considered necessary, the benefits and risks of insulin therapy should be discussed with the individual and insulin therapy started with a structured programme if the person agrees. Human NPH insulin, used at bedtime or twice-daily according to need, is the preferred first-choice insulin.[3] **Long-acting insulin analogues such as insulin glargine or insulin detemir are not recommended by NICE for routine first-line use** as for most people with type 2 diabetes, the extra cost of insulin analogues does not correspond to an equivalent extra benefit. Long-acting insulins analogues may be considered as an alternative to human NPH insulin for patients:
    - who require assistance to inject insulin and use of a long-acting insulin analogue would reduce the frequency of injections from twice- to once-daily *or*
    - whose lifestyle is significantly restricted by recurrent symptomatic hypoglycaemia *or*
    - who would otherwise need twice-daily basal insulin injections in combination with oral glucose lowering drugs *or*
    - who cannot use the device needed to inject human NPH insulin.
- For type 1 diabetes, NICE recommends that adults should have access to the types of insulin they find allow them optimal well-being. They recommend that children and young people with type 1 diabetes are offered the most appropriate insulin preparations (rapid-acting insulin analogues, short-acting insulins, intermediate-acting insulins, long-acting insulin analogues or biphasic insulins) according to their individual needs.[4]
- **In the West Midlands, prescribing of insulin detemir and insulin glargine is extensive and varies significantly from practice to practice. This suggests that they may not always be prescribed in line with NICE guidance. Prescribing data for the West Midlands show that 185,823 items of insulin glargine and 60,429 items of insulin detemir were prescribed and dispensed in the 12 months up to October 2011 (at a cost of £15m). This represents a 5.8% increase in items and a 5% increase in cost compared with the previous 12 months.**
- **The National Patient Safety Agency (NPSA) has issued guidance on administering insulin with the aim of reducing the number of "wrong dose" incidents involving insulin. The "Rapid Response Report" was issued as a result of 3,881 patient safety incidents reported between 2004 and 2009.[5] The agency has advised that all adult patients in England and Wales on insulin therapy should be given an "insulin passport" to help improve accurate identification of their current insulin products.[6] The passport will contain information on the type of diabetes the patient has, the patient's usual "hypo" treatment, and the patient's insulin details.**
- There has been concern about a possible association between insulin glargine and cancer. The European Medicines Agency reviewed the available data in 2009 and determined that the available evidence is inconclusive and did not allow a relationship between insulin glargine and cancer to be confirmed or excluded.[7] Insulin glargine should continue to be prescribed within its licensed indications and NICE guidelines.

What are the actions?

For the health economy:

- Review and where appropriate revise prescribing of insulins to ensure that they are being used in line with NICE guidance.
  - The first-line insulin for the majority of patients with type 2 diabetes requiring insulin treatment is human NPH insulin.
  - Long-acting insulin analogues should not routinely be used first-line.
- Healthcare professionals involved in the treatment of patients with diabetes should work together to establish clear policies and procedures to ensure that insulins are used safely and in line with NPSA and NICE recommendations.

For primary care commissioners:

- Initiation of insulin in primary care could be an advantage to patients. However commissioners may wish to:
  - Check the level of 'services' currently being delivered by primary care for people with diabetes
    - Do practices have access to Diabetic Specialist Nurses and teams? What is the impact on prescribing?
    - Are practices currently offering insulin initiation 'in-house'?
    - If practices were to offer insulin initiation, what extra support would be required?
    - Are there GPs with specialist interest in diabetes active in the health economy? What is the impact of their activity on prescribing? How could their skills be best used to develop services in primary care?

Cost Implications

- We have demonstrated the potential savings by PCT and cluster from prescribing at a lower cost per DDD for insulin and have included a cost comparison chart that you might find useful.
- West Midlands Performance Indicators are also presented, comparing last year's and this year's data
- We have added prescribing trends and comparisons in order to provide context.
- Hospital prescribing data are included.
- We have also provided hospital admissions data for hypoglycaemia and emergency hospital admissions for poisoning by insulin or oral hypoglycaemic drug, which we are sure you will find interesting and helpful in your discussions with your practices, commissioners and provider trusts.

References:

1. Holden SE, Poole CD, Morgan CL *et al*. Evaluation of the incremental cost to the National Health Service of prescribing analogue insulin. BMJ Open 2011;1:e000258 doi:10.1136/bmjopen-2011-000258
2. Singh SR, Ahmad F, Lal A *et al*. Efficacy and safety of insulin analogues for the management of diabetes mellitus: a meta-analysis. *Canadian Medical Association Journal* 2009;**180:**385-97.
3. CG87 Type 2 diabetes - newer agents (a partial update of CG66): quick reference guide. National Institute for Health and Clinical Excellence. 2009. http://guidance.nice.org.uk/CG87/QuickRefGuide/pdf/English <accessed 11/2011>
4. Type 1 diabetes: diagnosis and management of type 1 diabetes in children, young people and adults. CG15. National Institute for Health and Clinical Excellence. 2004. http://guidance.nice.org.uk/CG15 <accessed 11/2011>
5. New insulin safety guidance issued to reduce wrong dosages. National Patient Safety Agency (NPSA). 2010. http://www.npsa.nhs.uk/corporate/news/the-national-patient-safety-agency-npsa-has-today-issued-guidance-for-all-nhs-organisations-across-england-and-wales-aimed-at-re/ <accessed 11/2011>
6. The adult patient's passport to safer use of insulin. National Patient Safety Agency (NPSA). 2011. http://www.nrls.npsa.nhs.uk/resources/type/alerts/?entryid45=130397 <accessed 11/2011>
7. Insulin glargine: studies of possible cancer link. Drug Safety Update. Volume 3, Issue 2. Medicines and Healthcare products Regulatory Agency (MHRA). 2009. http://www.mhra.gov.uk/Safetyinformation/DrugSafetyUpdate/CON087909 <accessed 11/2011>

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Table 1 Cost Comparison of Selected Insulins (assuming 40 units per day)

Onset	Drug and Brand	Cost per 28 days	No. of people treated for £100 per month
Very rapid	Insulin Aspart - NovoRapid	£18.23	5.5
	Insulin Lispro - Humalog	£18.60	5.4
Short	Soluble Human Insulin - Actrapid	£8.38	11.9
	Soluble Human Insulin - Insuman Rapid *	£13.07	7.7
Intermediate	Insulin (isophane, NPH) - Insulatard	£8.38	11.9
	Insulin (isophane, NPH) - Insuman Basal	£12.57	8.0
	Insulin (biphasic, isophane) - Humulin M3 *	£14.25	7.0
	Insulin (isophane, NPH) - Humulin I	£17.56	5.7
	Insulin (biphasic, aspart) - NovoMix 30 Penfill *	£21.53	4.6
	Insulin (biphasic, lispro) - Humalog Mix25 #	£23.13	4.3
Long	Insulin Glargine – Lantus *	£30.99	3.2
	Protamine Zinc Insulin - Hypurin Bovine Protamine Zinc	£31.05	3.2
	Insulin Zinc Suspension - Hypurin Bovine Lente	£31.05	3.2
	Insulin Detemir – Levemir *	£31.36	3.2

Prices: MIMS January 2012
*Prices are for vials unless otherwise stated, * = cartridges and # = KwikPen*

The following table is based on data for the last 3 months (Aug-11 to Oct-11). Savings are then extrapolated from this data to give an annual saving which is based on current data.

It is likely that those PCTs with a lower cost per DDD for insulins are already in the process of promoting cost-effective prescribing in this area.

Table 2 Insulins (BNF 6.1.1): Potential Savings from Prescribing at a Lower Cost per DDD

PCT	NIC per DDD	% change in NIC per DDD*	WM Indicator^ (Quarterly)		Potential Annual Saving
			Oct-11	Oct-10	
PCT	£0.86	2%	81.8%	81.8%	£65,790
PCT	£0.89	3%	93.5%	94.4%	£75,281
PCT	£0.88	2%	91.5%	95.2%	£35,557
PCT	£0.88	1%	92.2%	93.6%	£38,108
Cluster	**£0.87**	**2%**	**87.0%**	**87.8%**	**£214,737**
PCT	£0.85	3%	91.4%	92.3%	£0
PCT	£0.85	2%	94.1%	94.4%	£17,644
PCT	£0.87	3%	93.7%	95.3%	£66,670
PCT	£0.86	2%	95.2%	95.4%	£18,743
Cluster	**£0.86**	**3%**	**93.4%**	**94.3%**	**£103,057**
PCT	£0.84	3%	95.7%	97.3%	£0
PCT	£0.78	4%	82.0%	88.3%	£0
PCT	£0.91	3%	97.8%	97.9%	£168,313
PCT	£0.86	3%	94.6%	95.7%	£36,188
Cluster	**£0.85**	**3%**	**94.3%**	**95.9%**	**£204,501**
PCT	£0.88	3%	96.3%	95.7%	£64,907
PCT	£0.87	3%	90.6%	90.2%	£86,693
Cluster	**£0.87**	**3%**	**92.6%**	**92.2%**	**£151,600**
PCT	£0.85	2%	83.0%	82.4%	£0
PCT	£0.83	3%	83.5%	81.1%	£0
PCT	£0.86	2%	92.4%	93.5%	£60,785
Cluster	**£0.85**	**2%**	**88.7%**	**88.5%**	**£60,785**
SHA Totals	**£0.86**	**3%**	**91.0%**	**91.6%**	**£734,679**

Data: PPD

** Change compared to the same period last year.*

^ West Midlands Medicines Management Network Performance and QIPP Indicator – Percentage of long/intermediate insulins prescribed as detemir or glargine (excludes biphasics) – Aspiration < 93%

NOTE: We have selected the 25th percentile NIC per DDD value. Therefore savings in this lowest quartile are £0. This does not necessarily mean that prescribing cost cannot be improved in this area in these PCTs.

Fig 1 **Insulins (BNF 6.1.1): Quarterly Volume (Items) and Spend (NIC) in EXAMPLE**

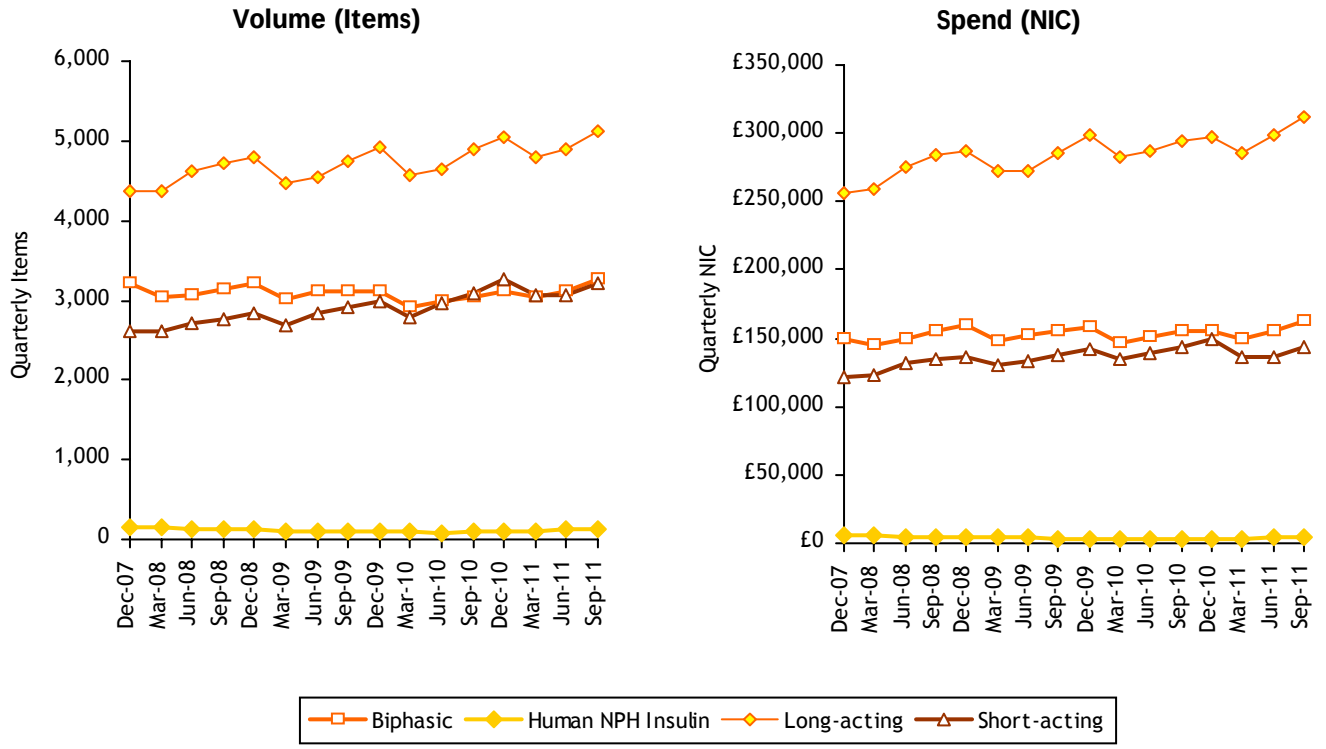
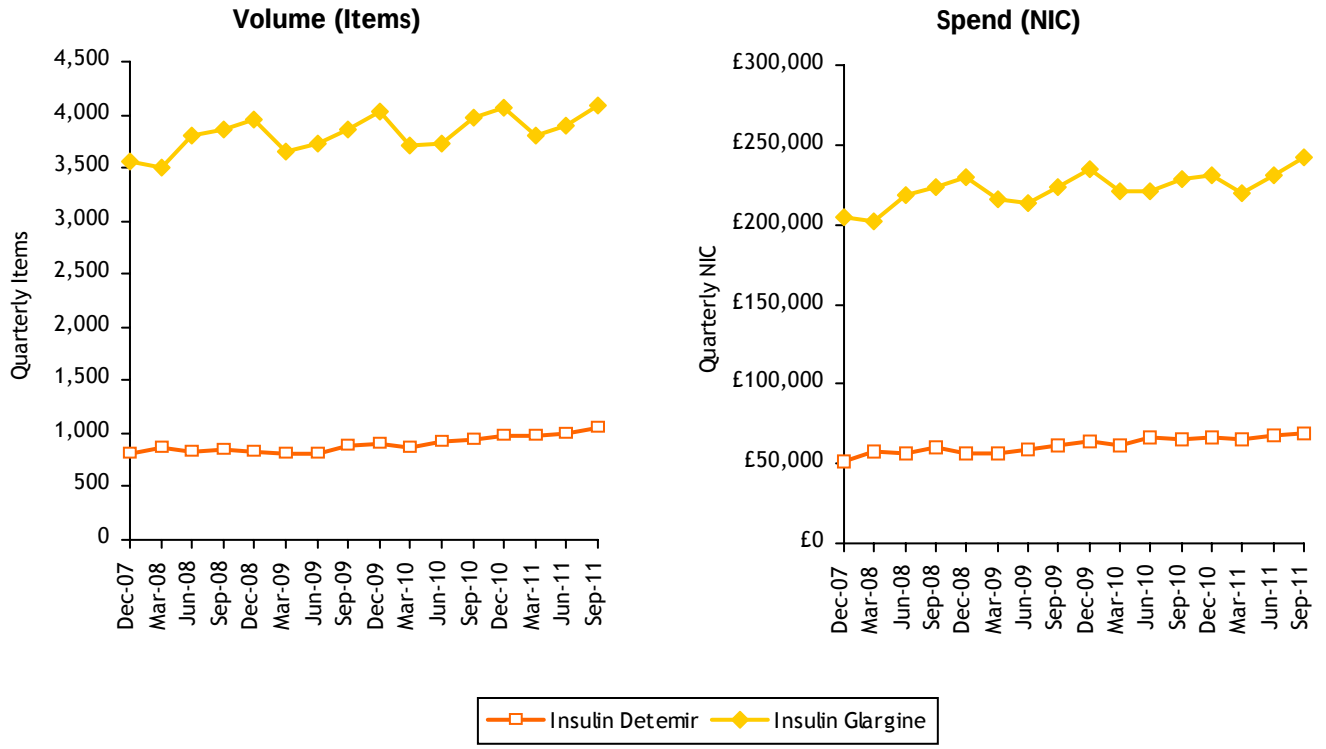


Fig 2 **Long-acting Insulins (BNF 6.1.1.2): Quarterly Volume (Items) and Spend (NIC) in EXAMPLE**



Data: PPD

Fig 3 **West Midlands: Breakdown of Insulin Prescribing (BNF 6.1.1) by Volume (Items), for the period Aug-11 to Oct-11**

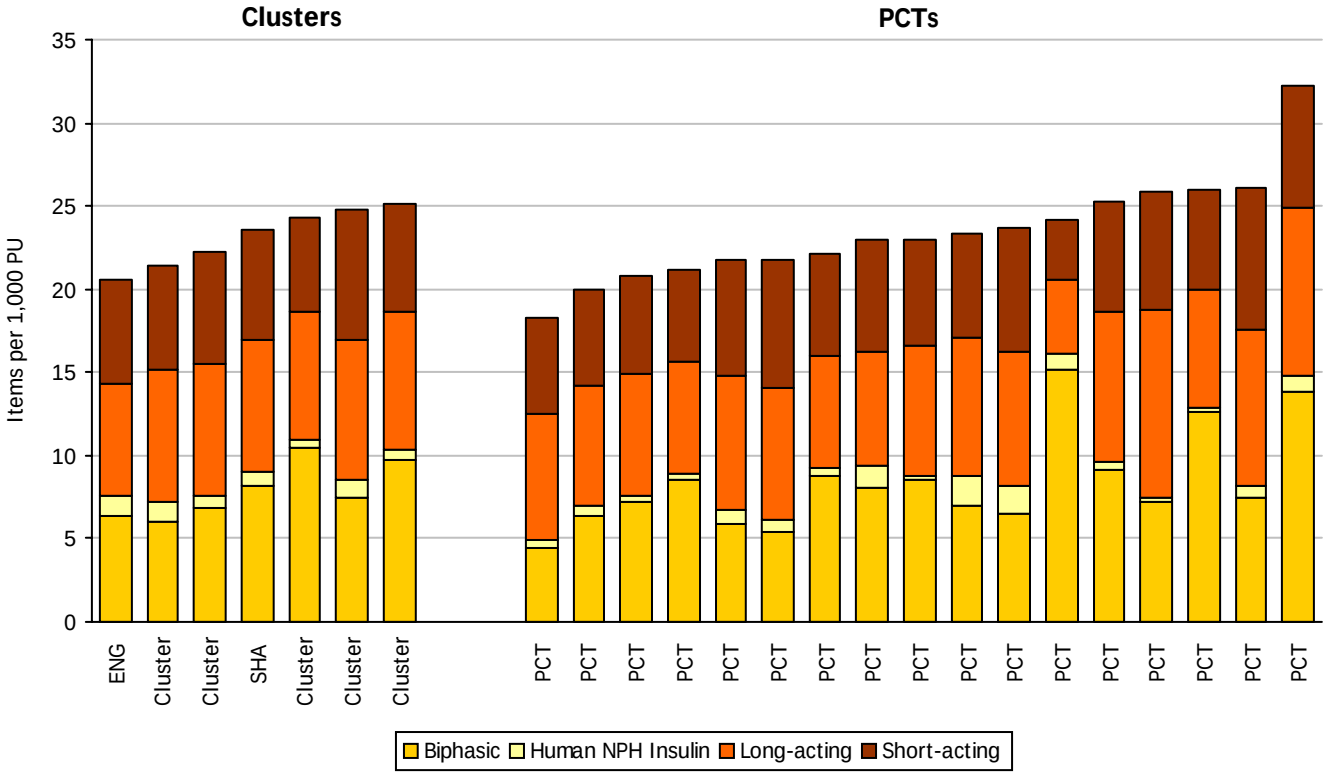
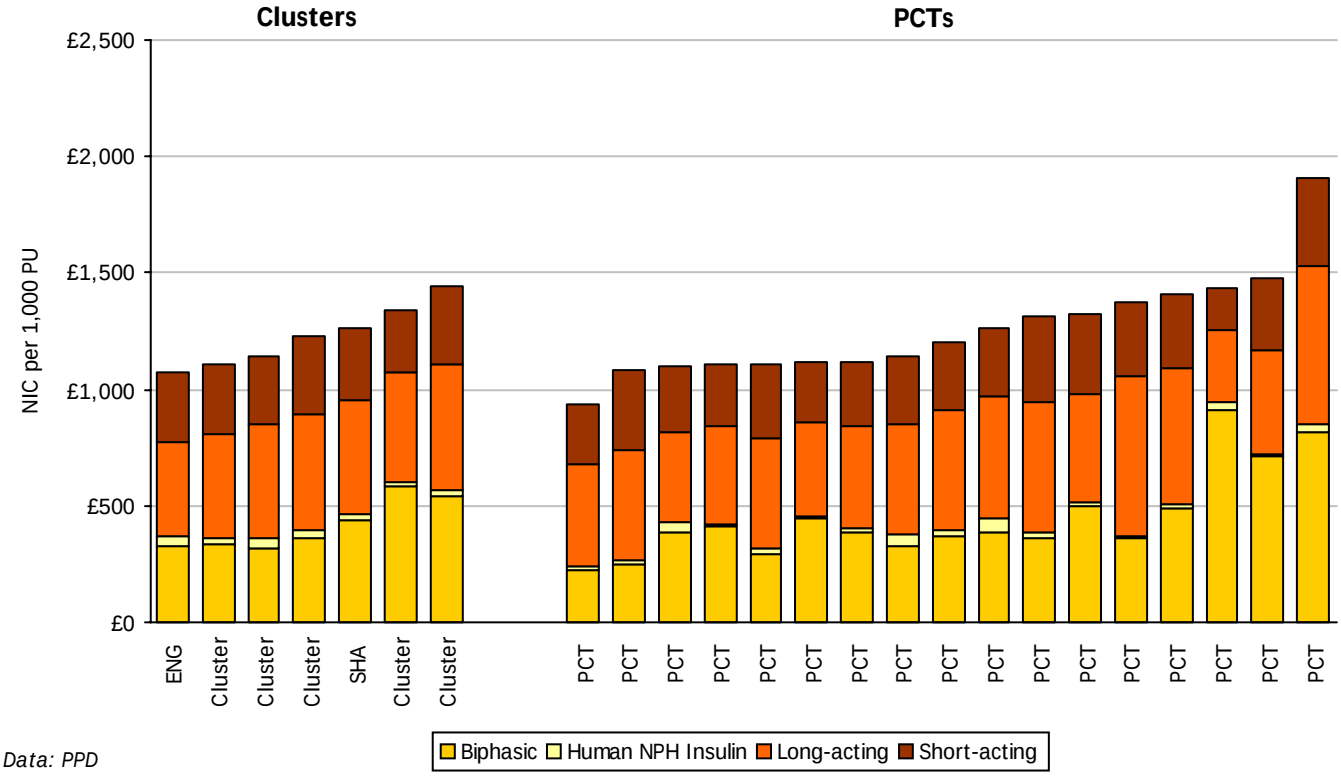


Fig 4 **West Midlands: Breakdown of Insulin Prescribing (BNF 6.1.1) by Spend (NIC), for the period Aug-11 to Oct-11**



Data: PPD

Fig 5 **West Midlands: Breakdown of Long-acting Insulin Analogue Prescribing (BNF 6.1.1.2) by Volume (Items), for the period Aug-11 to Oct-11**

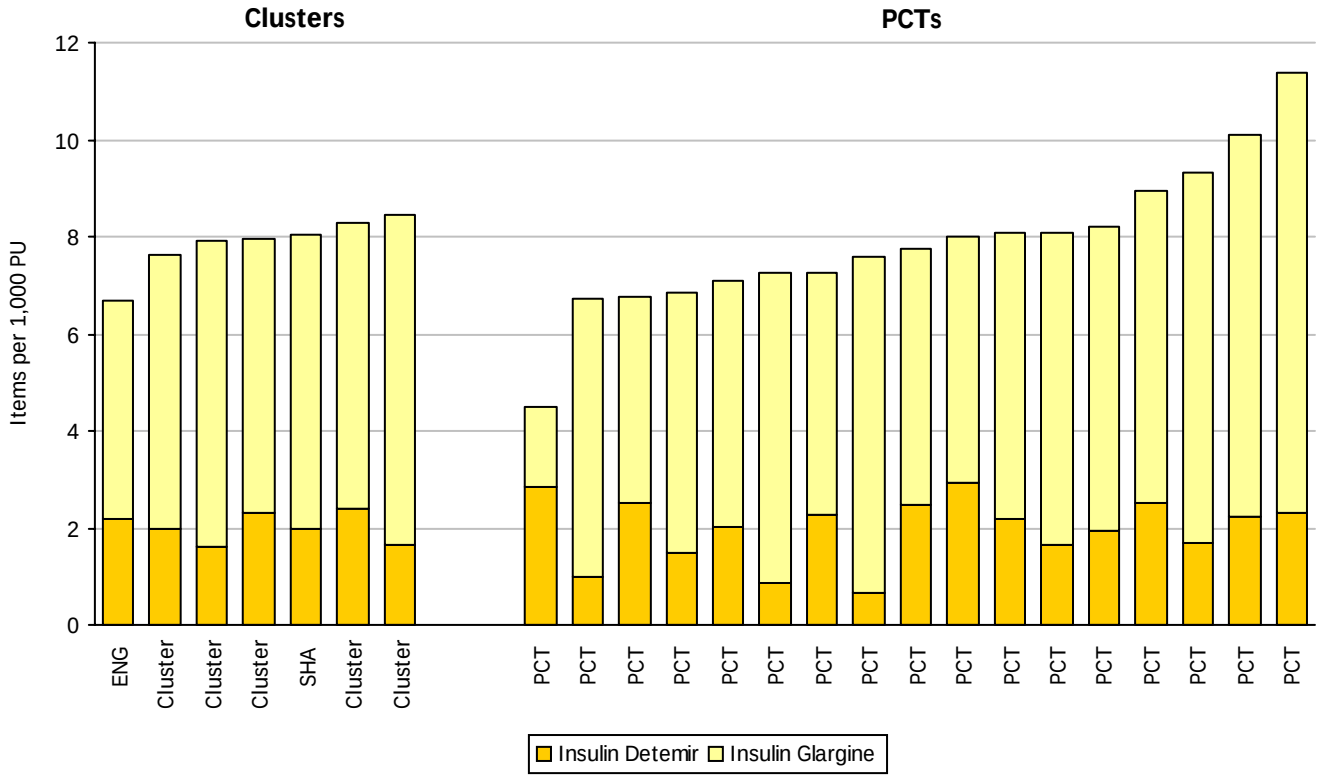
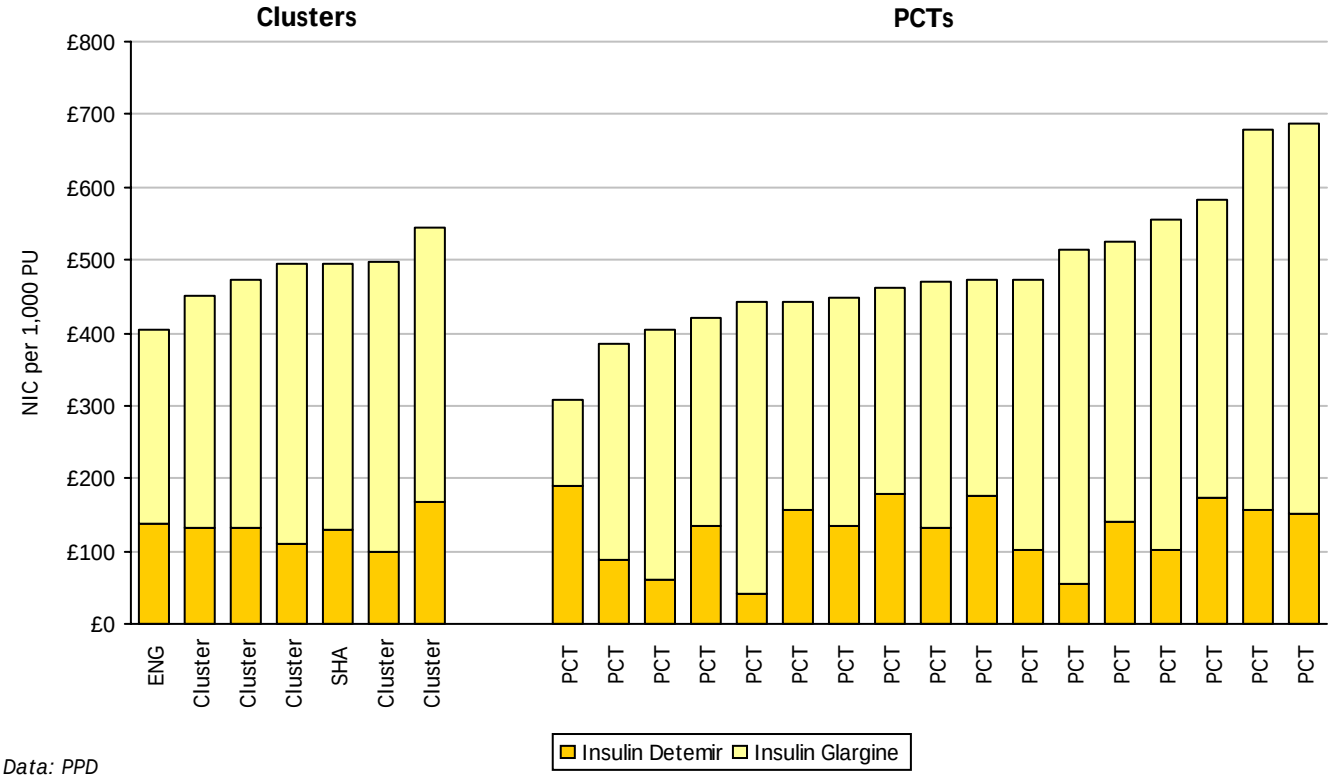
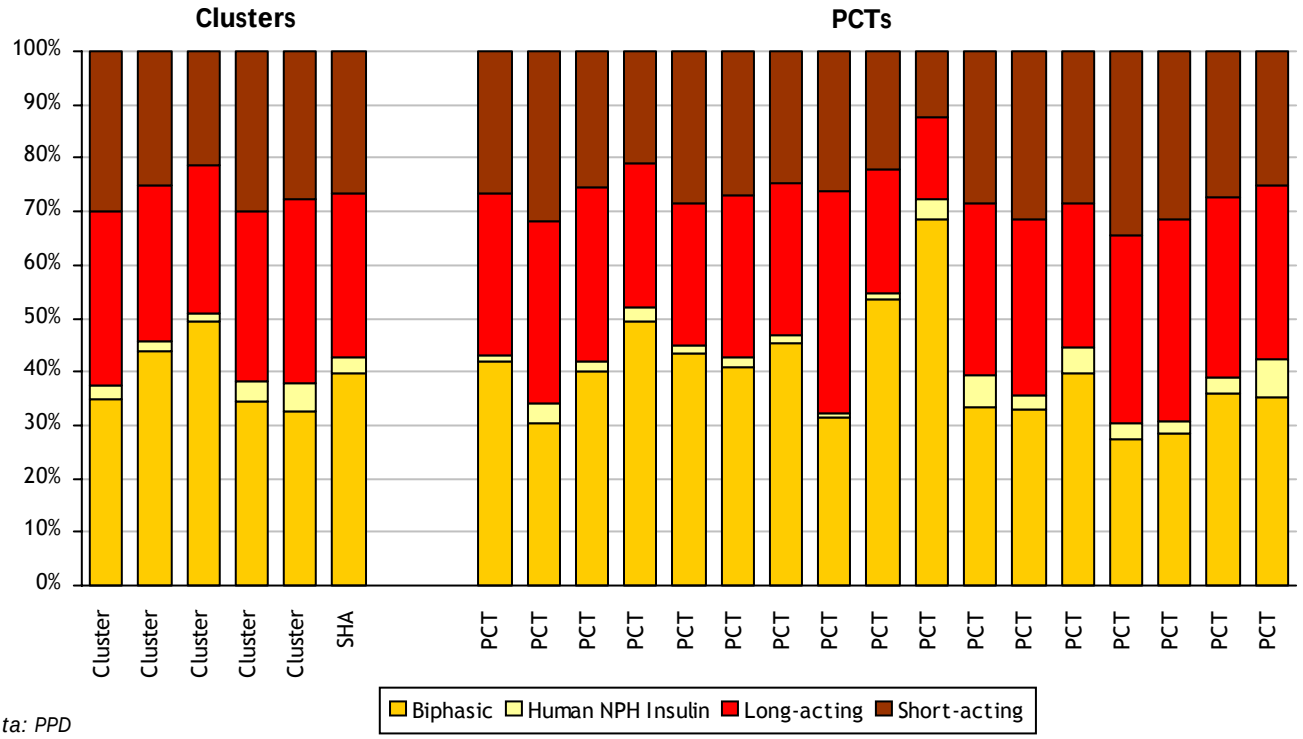


Fig 6 **West Midlands: Breakdown of Long-acting Insulin Analogue Prescribing (BNF 6.1.1.2) by Spend (NIC), for the period Aug-11 to Oct-11**



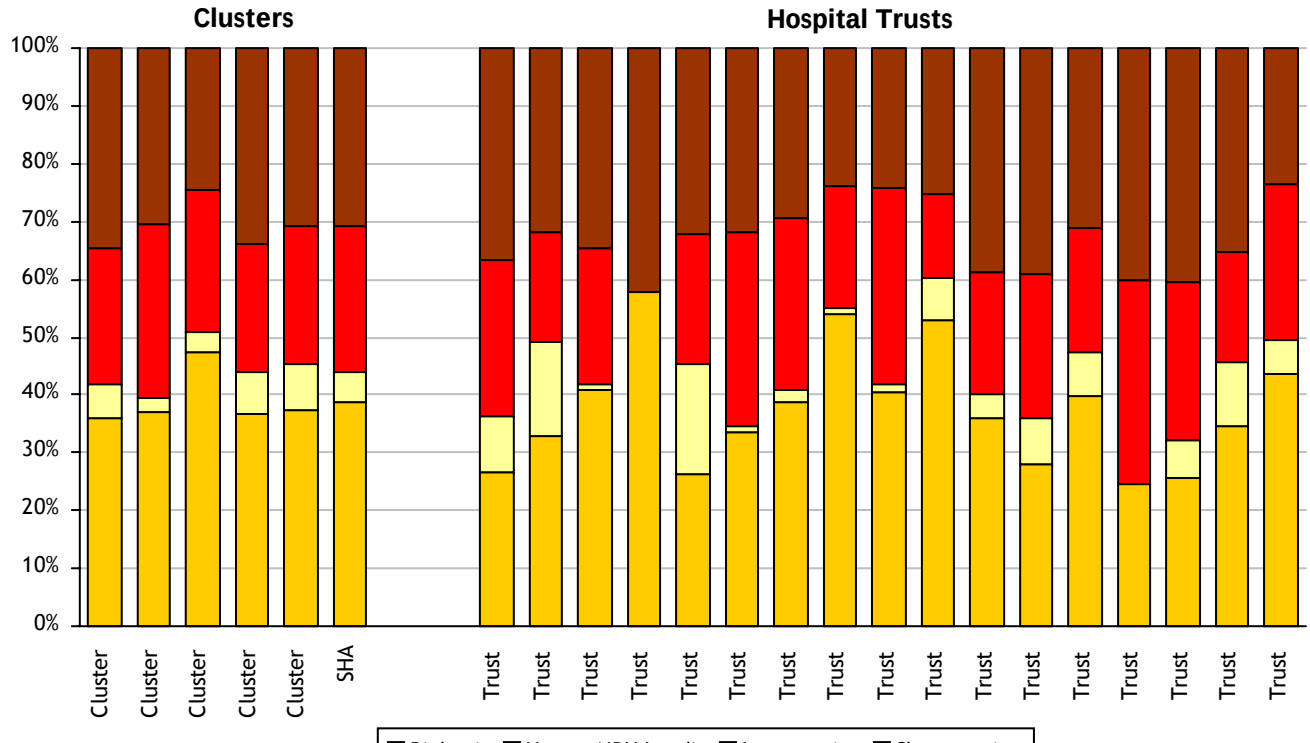
Data: PPD

Fig 1 **PRIMARY CARE - West Midlands: Breakdown of Insulin Prescribing (BNF 6.1.1) by Volume (Injections), for the period Aug-11 to Oct-11**



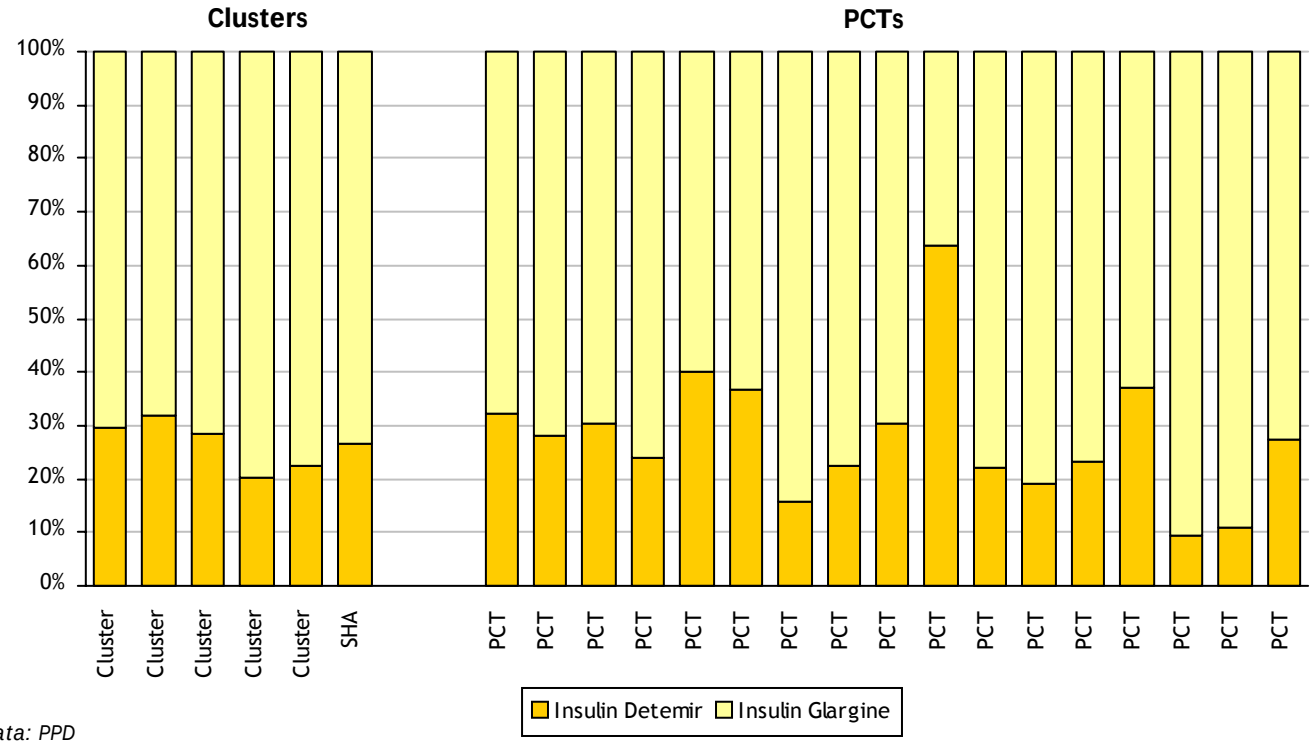
Data: PPD

Fig 2 **SECONDARY CARE - West Midlands: Breakdown of Insulin Prescribing (BNF 6.1.1) by Volume (IUnits), for the period Aug-11 to Oct-11**



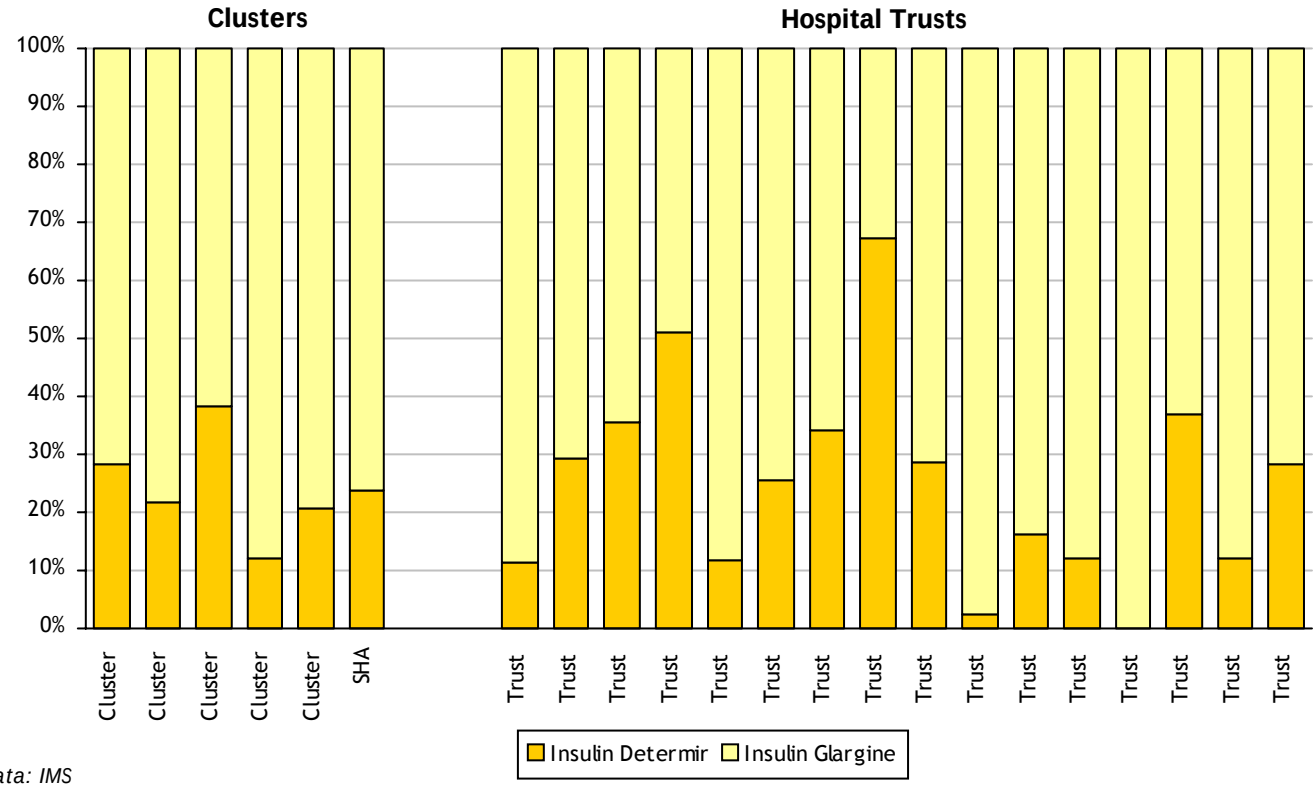
Data: IMS
NOTE: IUnits are equivalent to pens or cartridges

Fig 3 **PRIMARY CARE - West Midlands: Breakdown of Long-acting Insulin Analogue Prescribing (within BNF 6.1.1) by Volume (Injections), for the period Aug-11 to Oct-11**



Data: PPD

Fig 4 **SECONDARY CARE - West Midlands: Breakdown of Long-acting Insulin Analogue Prescribing (within BNF 6.1.1) by Volume (IUnits), for the period Aug-11 to Oct-11**



Data: IMS
NOTE: IUnits are equivalent to pens or cartridges

Fig 1 **West Midlands: Emergency Hospital Admissions for Hypoglycaemia* in Insulin-Dependent Diabetics**, for the period Apr-10 to Mar-11**

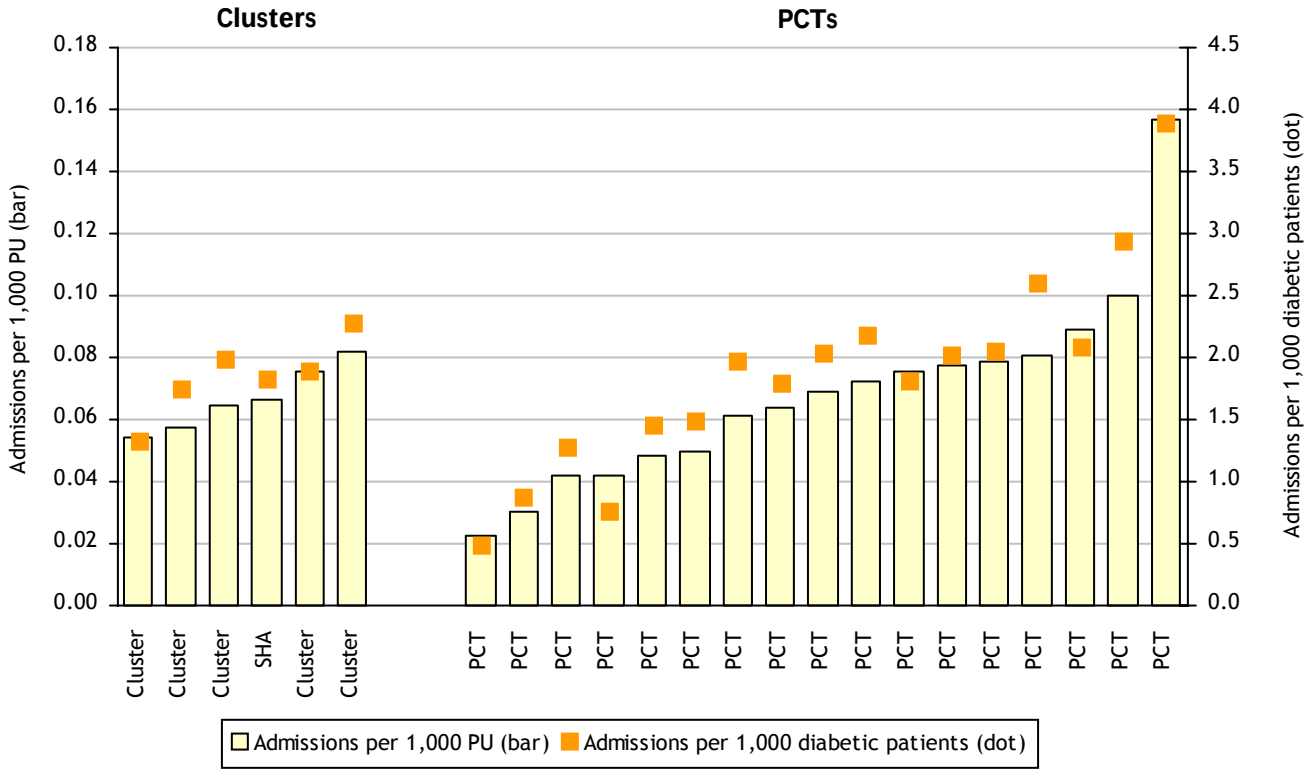
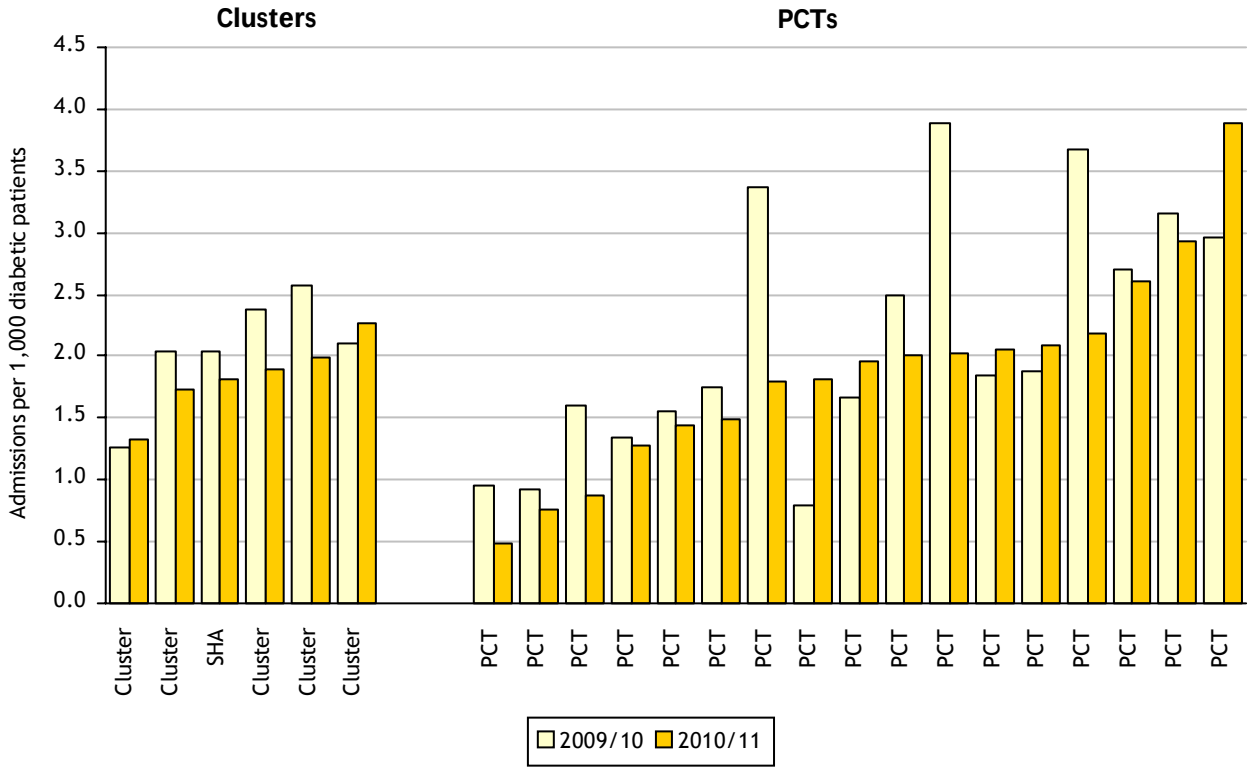


Fig 2 **West Midlands: Emergency Hospital Admissions for Hypoglycaemia* in Insulin-Dependent Diabetics** per 1,000 diabetic patients, for the period Apr-09 to Mar-11**

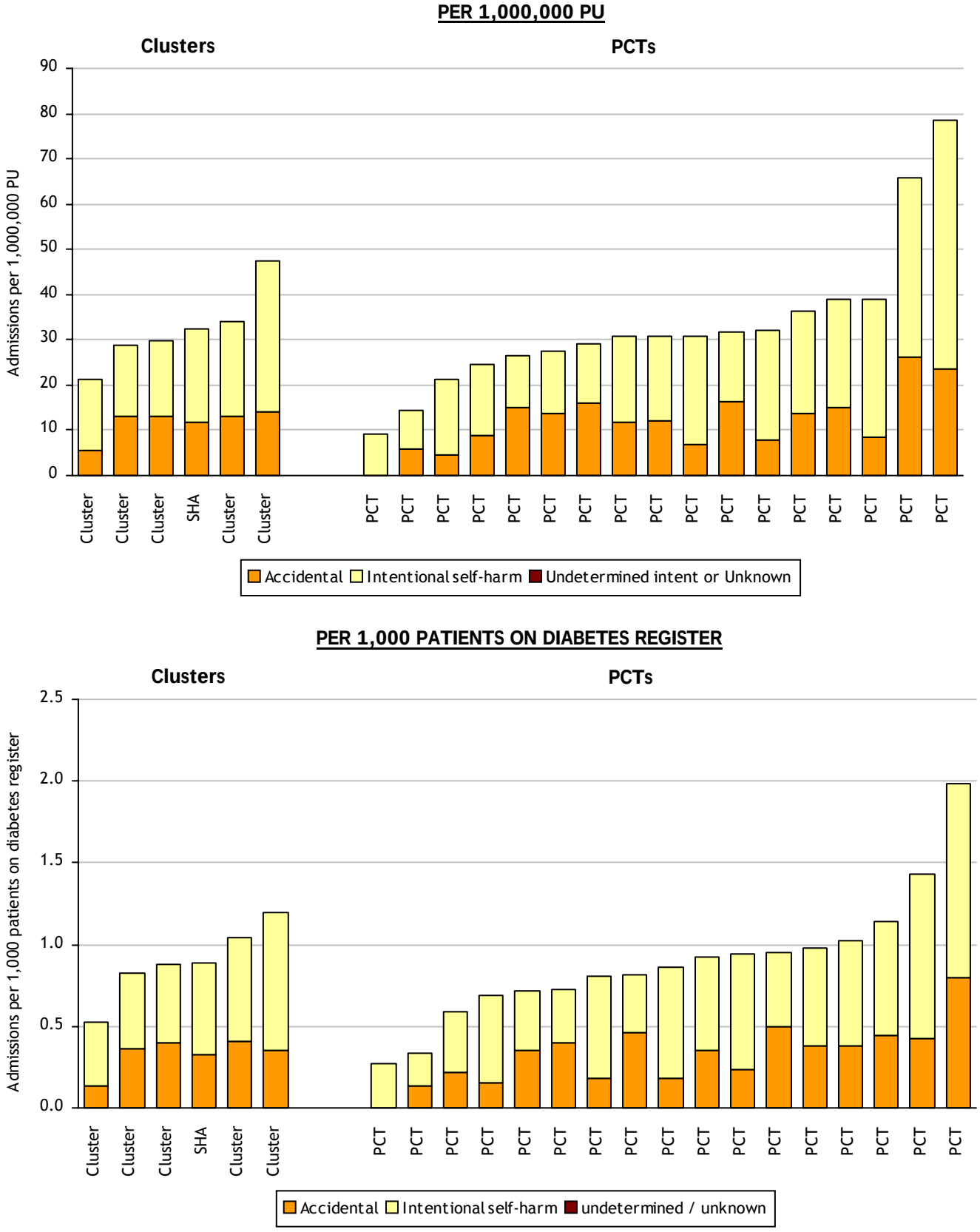


Data: HES, PPD, QOF

** where hypoglycaemia is listed at the primary diagnosis with ICD-10 codes E16.0 or E16.2*

*** where an additional ICD-10 diagnosis code of E10 (insulin-dependent diabetes) is included in the first 14 diagnosis codes*

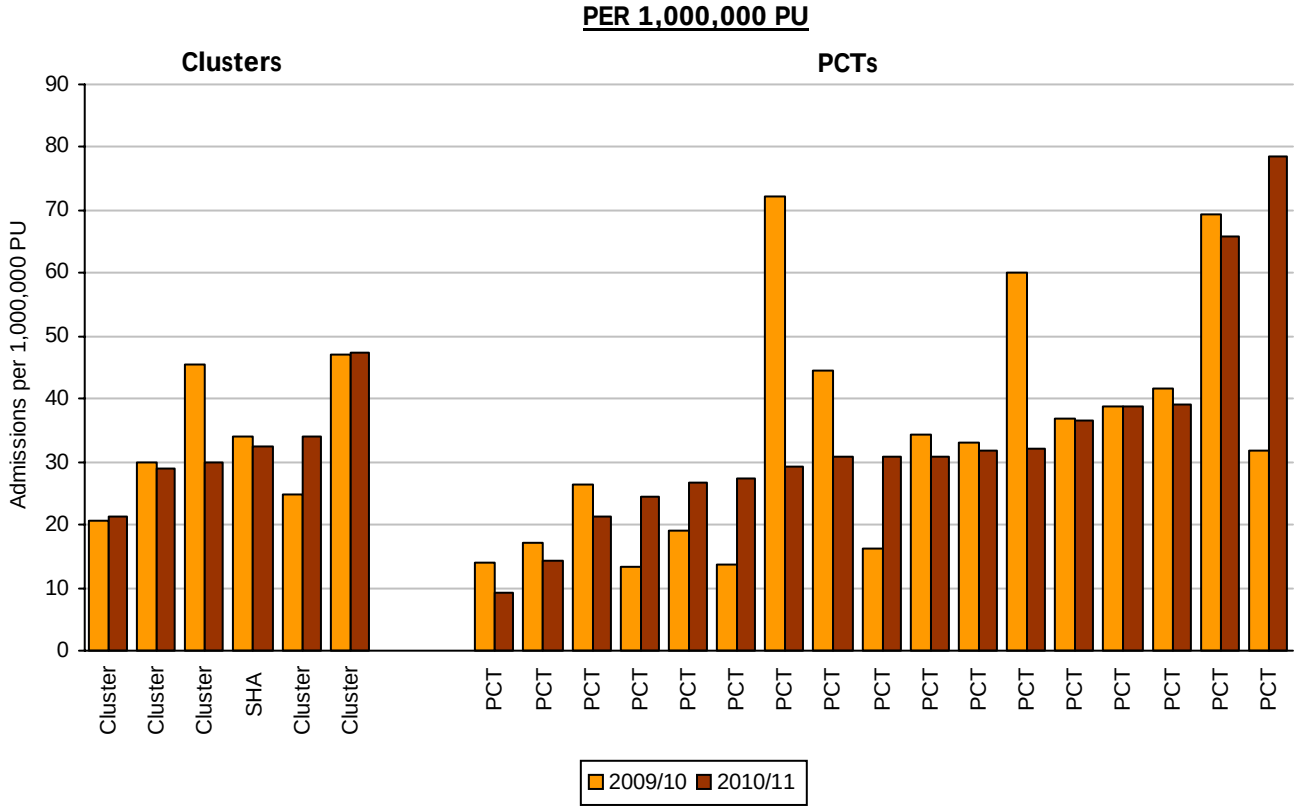
Fig 3 **West Midlands: Emergency Hospital Admissions for Poisoning by Insulin or Oral Hypoglycaemic Drugs*, for the period Apr-10 to Mar-11**

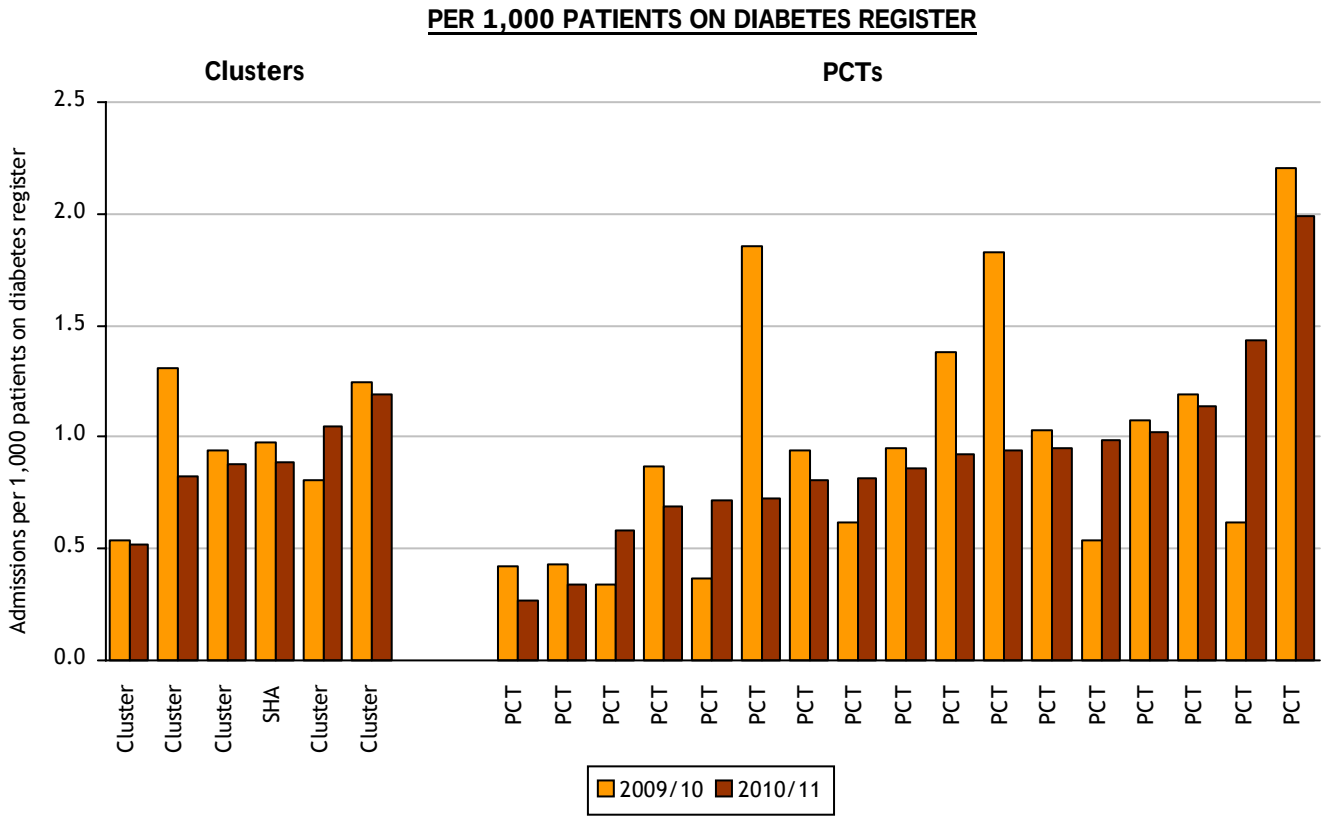


Data: HES, PPD, QOF

** where poisoning by insulin or oral hypoglycaemic drugs is listed at the primary diagnosis with ICD-10 code T38.3*

Fig 4 **West Midlands: Emergency Hospital Admissions for Poisoning by Insulin or Oral Hypoglycaemic Drugs*, for the period Apr-09 to Mar-11**





Data: HES, PPD, QOF

** where poisoning by insulin or oral hypoglycaemic drugs is listed at the primary diagnosis with ICD-10 code T38.3*

Prescribing Information to support QIPP

Section: H

NSAIDs

January 2012

EXAMPLE

What are the issues?

<u>Patient safety</u> continues to be the overriding issue where the prescribing of NSAIDs is concerned.

- NSAIDs are implicated in Hospital Admissions Related to Medicines Safety (HARMS) with gastro-intestinal (GI) bleeds the most common adverse drug event.[1]
- Older patients are at higher risk of both gastro-intestinal and cardiovascular (CV) morbidity and mortality.[2]
- Co-prescribing NSAIDs with angiotensin converting enzyme inhibitors (ACE inhibitors) may pose particular risks to renal function; this combination should be especially carefully considered and, if continued, regularly monitored.[3]
- SSRIs and NSAIDs/COX-2 inhibitors, when taken at the same time, can increase the risk of an upper-GI haemorrhage (could be as much as six-fold).[4]
- NSAIDs/COX-2 inhibitors and corticosteroids in combination will also increase the risk of GI adverse events.[5]
- There is a greater risk of complications if anticoagulants are taken at the same time as NSAIDs/COX-2 inhibitors.[2]

Recent evidence further underlines the safety issues associated with NSAIDs:

- A network meta-analysis (a network meta-analysis is a technique that compares treatments using indirect statistical inference rather than direct comparison) found that of seven NSAIDs evaluated (naproxen, ibuprofen, diclofenac, celecoxib, etoricoxib, rofecoxib and lumiracoxib) naproxen was the least harmful in terms of CV-related outcomes.[6] With the exception of naproxen, all NSAIDs evaluated, showed a greater risk of death due to CV causes than placebo.
- The incidence of atrial fibrillation or flutter was found to be higher by 17% for any users of non-selective NSAIDs compared with non-users, and by 27% for any users of COX-2 inhibitors compared with non-users.[7] This was a population-based case-control study to determine whether and to what extent use of NSAIDs increased the risk of atrial fibrillation or flutter.
- A more recent cohort study found that even short-term NSAID use can increase CV risk in patients with prior myocardial infarction,[8] reinforcing MHRA advice that NSAIDs should be used at the lowest dose and for the shortest duration.[9] In brief, the highest risk of a CV event was associated with diclofenac, and the lowest risk was associated with naproxen. Notably, the authors of this study claim that ibuprofen was associated with a lower risk than COX-2 inhibitors.

What are the actions?

Commissioners and PCT/GP Clinical Commissioning Groups should:

- Ensure that there are systems in place to check that the appropriateness of NSAID prescribing is reviewed widely and on a routine basis, especially in people who are at higher risk of both GI and CV morbidity and mortality (e.g. older patients).

Prescribers and practices should:

- Regularly review the appropriateness of NSAID/COX-2 inhibitor prescribing. Could the NSAID/COX-2 inhibitor be discontinued? Are there any alternative treatments that could be tried?
    - **Check whether a full trial of regular paracetamol had been prescribed previously.**
    - Check – is the patient already taking OTC ibuprofen or aspirin?
- Identify all patients prescribed more than one NSAID/COX-2 inhibitor. Review treatment. Only prescribe one NSAID/COX-2 inhibitor at a time.

Continued overleaf…

- Identify all patients prescribed ACE inhibitors, ARBs, aliskiren or diuretics in combination with NSAIDs/COX-2 inhibitors. Review treatment. Could the NSAID/COX-2 inhibitor be discontinued? Are there any alternative treatments that could be tried?
- Identify all patients prescribed NSAIDS/COX-2 inhibitors who may have heart failure.
- Identify all patients prescribed an SSRI antidepressant and an NSAID/COX-2 inhibitor. Review treatment.
- Identify all patients prescribed oral corticosteroids and an NSAID/COX-2 inhibitor. Review treatment.
- If initiating an NSAID is obligatory, prescribe ibuprofen (1,200 mg per day or less) as first-line and naproxen (1,000 mg per day) as second-line NSAIDs.
- Review patients currently prescribed NSAID/COX-2 inhibitor. If continued use is necessary, consider changing to ibuprofen (1,200 mg per day or less) or naproxen (1,000 mg per day).
- Review and, where appropriate, revise prescribing of etoricoxib to ensure it is in line with MHRA and NICE guidance.[10, 11]
    - Uncontrolled hypertensives (blood pressure persistently above 140/90 mmHg) should not be prescribed etoricoxib.
    - Blood pressure should be monitored for two weeks after treatment is initiated and regularly thereafter.
- Review the hospital admissions data provided in this pack with providers, clinicians and commissioners. This provides valuable information to focus key patient safety activity and help aid risk stratification.

Cost Implications

Although there are savings to be made on the cost-effective choice of NSAID prescribed, safety should be seen as the focus for this area of prescribing. It will then follow that safer NSAID prescribing will lead to less complications for patients and ultimately reduced costs to the whole health economy from reduced hospital admissions, attendances at A&E and GP appointments.

- We have modelled the savings you might expect if ibuprofen or naproxen is chosen over other NSAIDs along with a cost comparison chart you might find helpful.
- We have demonstrated the potential savings by PCT from prescribing at a lower cost per DDD.
- We have added in prescribing trends and comparisons in order to provide context.
- In addition, we have provided hospital data which we hope that you will find helpful in your discussions with your provider trusts and commissioners:
    - Primary care versus secondary care prescribing data.
    - Hospital admissions data for GI ulcers, perforations and bleeds, (weighted per 1,000 prescribing units) including where there has been an identifiable link to NSAID use. We also show renal failure and heart failure admissions. Where possible we have provided a comparison to the previous years data.

References

1. Pirmohamed M, James S, Meakin S *et al*. Adverse drug reactions as cause of admission to hospital: prospective analysis of 18 820 patients. *BMJ* 2004;329:15-9.
2. British National Formulary 62. Sep 2011.
3. MHRA and CHM. Drug Safety Update. Volume 2 Issue 10. May 2009 http://www.mhra.gov.uk/home/groups/pl-p/documents/publication/con046452.pdf <accessed 01/2012>
4. Loke YK, Trivedi AN, Singh S, Meta-analysis: gastrointestinal bleeding due to interaction between selective serotonin reuptake inhibitors and non-steroidal anti-inflamatory drus. Aliment Pharmacol Ther. 2008; 27: 31 – 40
5. British National Formulary. Number 59. September 2011.
6. Trelle S, Reichenbach S, Wandel S *et al*. Cardiovascular safety of non-steroidal anti-inflammatory drugs: network meta-analysis. *BMJ* 2011;342:c7086.
7. Schmidt M, Christiansen CF, Mehnert F *et al*. Non-steroidal anti-inflammatory drug use and risk of atrial fibrillation or flutter: population based case-control study. *BMJ* 2011;343:d3450.
8. Olsen AMS, Fosbol EL, Lindhardsen J *et al*. Duration of Treatment with Nonsteroidal Anti-Inflammatory Drugs and Impact on Risk of Death and Recurrent Myocardial Infarction in Patients with Prior Myocardial Infarction A Nationwide Cohort Study. *Circulation* 2011;123:2226-35.
9. Non-steroidal anti-inflammatory drugs (NSAIDs) and risk of heart problems. Safety warnings and messages for medicines. 28 September. Medicines and Healthcare products Regulatory Agency. 2011. http://www.mhra.gov.uk/Safetyinformation/Safetywarningsalertsandrecalls/Safetywarningsandmessagesformedicines/CON129228 <accessed 12/2011>
10. Non-steroidal anti-inflammatory drugs (NSAIDs) and risk of heart problems. Safety warnings and messages for medicines. 28 September. Medicines and Healthcare products Regulatory Agency. 2011. http://www.mhra.gov.uk/Safetyinformation/Safetywarningsalertsandrecalls/Safetywarningsandmessagesformedicines/CON129228 <accessed 12/2011>
11. The care and management of osteoarthritis in adults. Clinical Guideline 59. National Institute for Health and Clinical Excellence. 2011. http://guidance.nice.org.uk/CG59 <accessed 12/2011>

Table 1 Potential Savings from Prescribing Ibuprofen or Naproxen instead of Other NSAIDs

Ibuprofen and Naproxen DDDs (Aug-11 to Oct-11)	486,101
Ibuprofen and Naproxen NIC (Aug-11 to Oct-11)	£44,046
Ibuprofen and Naproxen NIC per DDD	£0.09
Other NSAID DDDs (Aug-11 to Oct-11)	329,187
Other NSAID NIC (Aug-11 to Oct-11)	£73,311
Other NSAIDs NIC per DDD	£0.22
Potential Annual Saving from Prescribing Ibuprofen or Naproxen instead of other NSAIDS:	
25% of DDDs:	**£43,484**
50% of DDDs:	**£86,967**
90% of DDDs:	**£156,541**

Data: PPD

Table 2 Cost Comparison of NSAIDs

Drug	Brand	Daily Dose	Cost per 28 days	No. of people treated for £100 a month
diclofenac sodium	generic 50mg tablets	150 mg	£1.46	68.5
ibuprofen	generic 400mg tablets	1200 mg	£1.94	51.5
naproxen	generic 500mg tablets	1000 mg	£4.96	20.2
diclofenac sodium	Voltarol Retard® 100mg tablets	100 mg	£9.47	10.6
etoricoxib	Arcoxia® 30mg tablets	30 mg	£13.99	7.1
diclofenac potassium	Voltarol Rapid® 50mg tablets	150 mg	£18.54	5.4
etoricoxib	Arcoxia® 60mg tablets	60 mg	£20.11	5.0
celecoxib	Celebrex® 100mg tablets	200 mg	£20.11	5.0

Prices: MIMS and Drug Tariff January 2012

The following table is based on data for the last 3 months (Aug-11 to Oct-11). Savings are then extrapolated from this data to give an annual saving which is based on current data.

It is likely that those PCTs with a lower cost per DDD for these drugs are already in the process of promoting cost-effective prescribing in this area.

Table 3 Non-Steroidal Anti-Inflammatory Drugs (BNF 10.1.1): Potential Savings from Prescribing at a Lower Cost per DDD

PCT	NIC per DDD	% change in NIC per DDD*	WM Indicator^ % ibuprofen/naproxen (Quarterly)		WM Indicator** NSAID ADQs per PU (Quarterly)		Potential Annual Saving
			Oct-11	Oct-10	Oct-11	Oct-10	
PCT	£0.12	-9%	65.9%	59.9%	0.885	0.913	£0
PCT	£0.15	-9%	59.1%	54.1%	1.089	1.132	£89,028
PCT	£0.13	-12%	72.0%	67.3%	1.086	1.152	£4,391
PCT	£0.12	-12%	67.7%	57.0%	0.758	0.779	£0
Cluster	**£0.13**	**-10%**	**65.1%**	**58.9%**	**0.942**	**0.977**	**£93,418**
PCT	£0.15	-14%	66.0%	58.0%	0.827	0.922	£28,499
PCT	£0.13	-11%	65.4%	60.8%	0.837	0.863	£0
PCT	£0.14	-7%	64.7%	58.7%	1.072	1.108	£62,784
PCT	£0.13	-7%	71.8%	67.6%	0.882	0.930	£0
Cluster	**£0.14**	**-9%**	**66.3%**	**60.6%**	**0.923**	**0.969**	**£91,283**
PCT	£0.13	-8%	64.9%	62.3%	0.951	0.994	£1,098
PCT	£0.14	-10%	70.7%	65.1%	0.978	1.002	£20,781
PCT	£0.14	-9%	63.4%	47.9%	1.026	1.063	£46,232
PCT	£0.15	-9%	66.3%	60.1%	0.934	0.994	£63,473
Cluster	**£0.14**	**-9%**	**66.1%**	**58.2%**	**0.972**	**1.014**	**£131,583**
PCT	£0.13	-11%	68.7%	60.1%	1.174	1.240	£0
PCT	£0.13	-11%	59.3%	48.5%	1.221	1.256	£31,759
Cluster	**£0.13**	**-11%**	**62.8%**	**52.9%**	**1.205**	**1.250**	**£31,759**
PCT	£0.16	-13%	64.3%	56.7%	0.994	1.087	£65,911
PCT	£0.16	-14%	61.8%	56.6%	1.031	1.075	£76,896
PCT	£0.14	-9%	59.7%	55.1%	0.959	1.016	£84,341
Cluster	**£0.15**	**-11%**	**61.2%**	**55.8%**	**0.983**	**1.044**	**£227,148**
SHA Totals	**£0.14**	**-10%**	**64.4%**	**57.5%**	**0.993**	**1.039**	**£575,192**

Data: PPD

** Change compared to the same period last year.*

West Midlands Medicines Management Network Performance Indicators are:

^ *% ibuprofen/naproxen - Increase the percentage of NSAIDs prescribed as naproxen or ibuprofen - Aspiration ≥ 65%*

** *NSAID ADQs per STARPU - Reduce the NSAID prescribing rate - Aspiration ≤ 0.939 ADQs per sub-therapeutic STARPU (Data for Coventry and Warwickshire Partnership Trust and Coventry Community Health Services has not been removed from this data)*

NOTE: We have selected the 25th percentile NIC per DDD value. Therefore savings in this lowest quartile are £0. This does not necessarily mean that prescribing cost cannot be improved in this area in these PCTs.

Fig 1 **Non-Steroidal Anti-inflammatory Drugs (BNF 10.1.1): Quarterly Volume (Items) and Spend (NIC) in EXAMPLE**

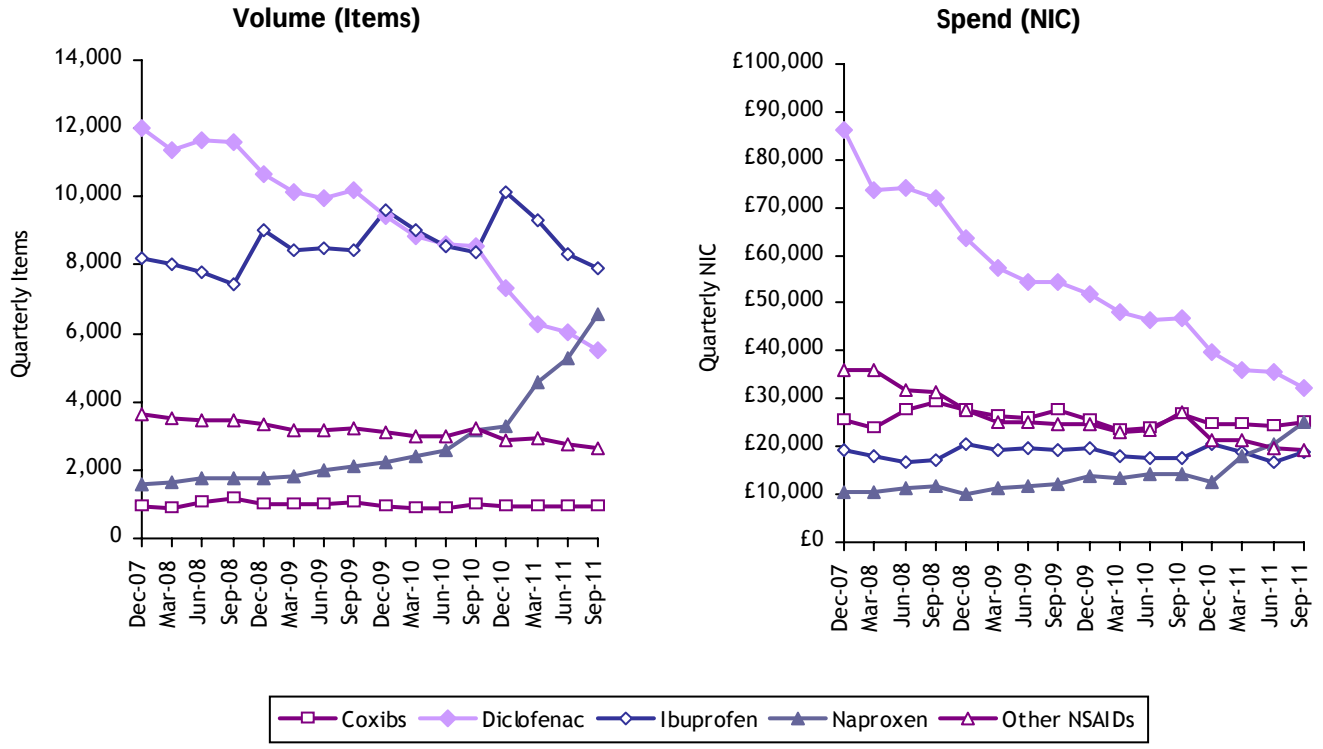
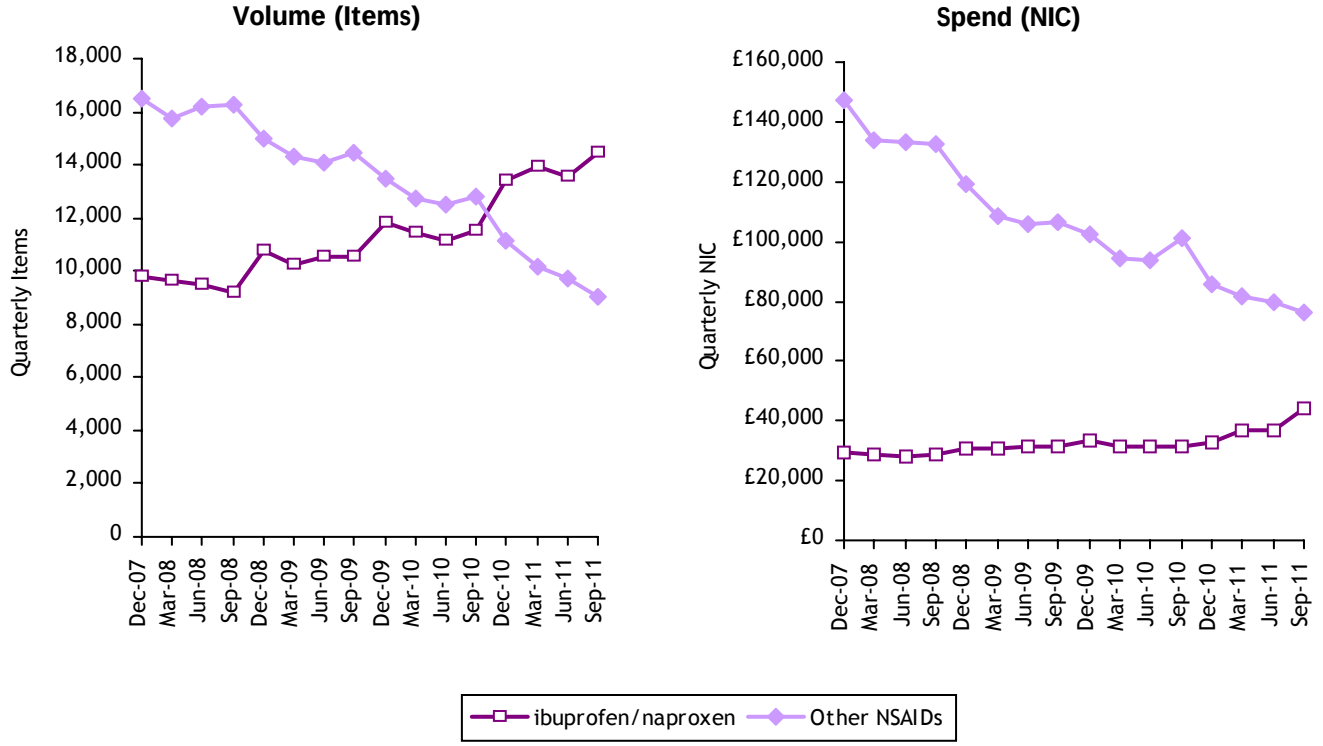


Fig 2 **Low-Cost Non-Steroidal Anti-inflammatory Drugs (BNF 10.1.1): Quarterly Volume (Items) and Spend (NIC) in EXAMPLE**



Data: PPD

Fig 3 **West Midlands: Breakdown of Non-Steroidal Anti-inflammatory Drug Prescribing (BNF 10.1.1) by Volume (Items), for the period Aug-11 to Oct-11**

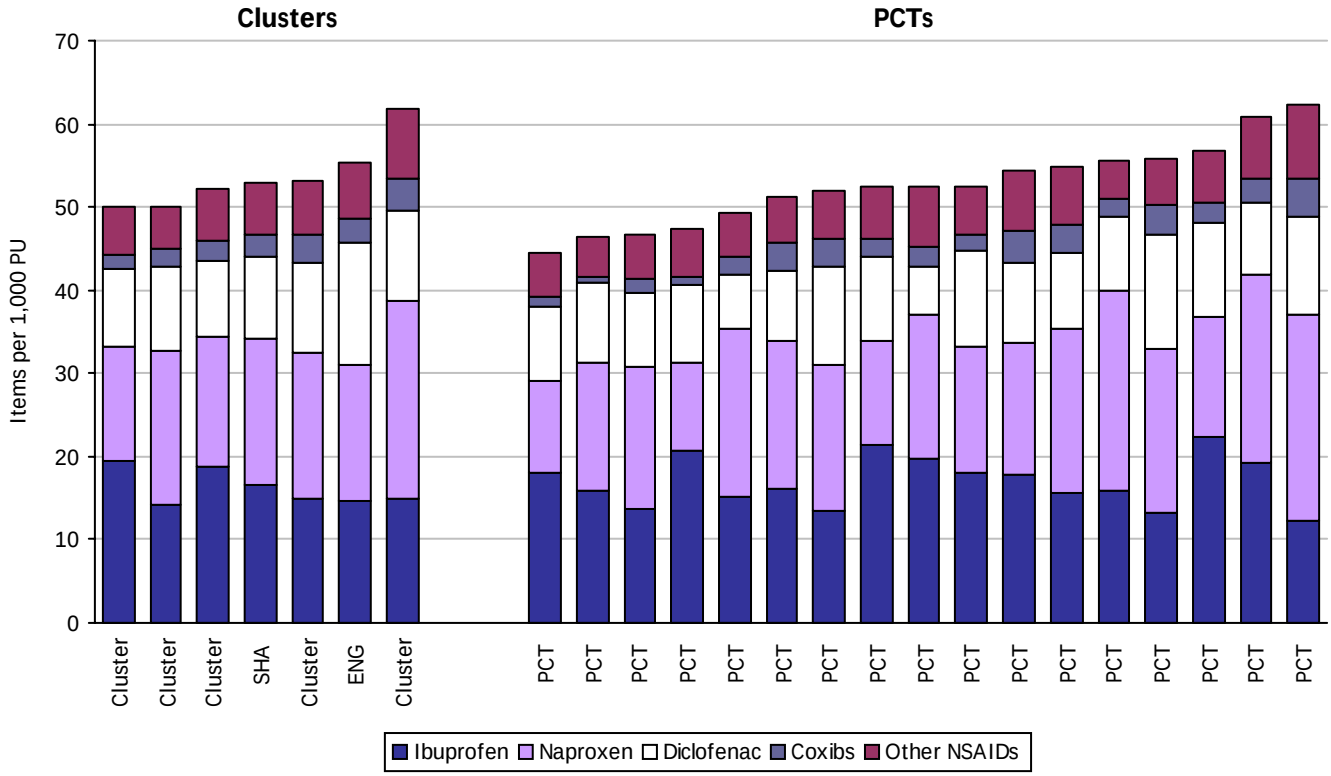
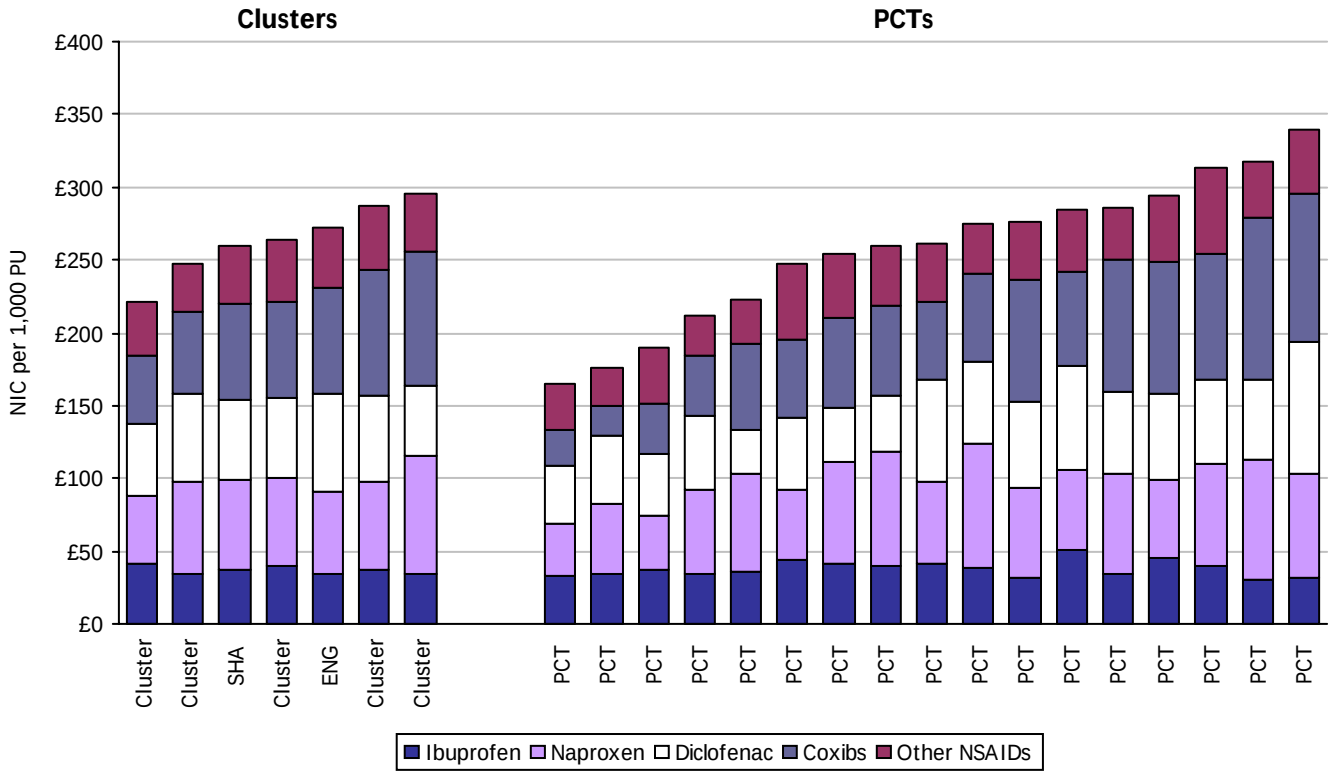
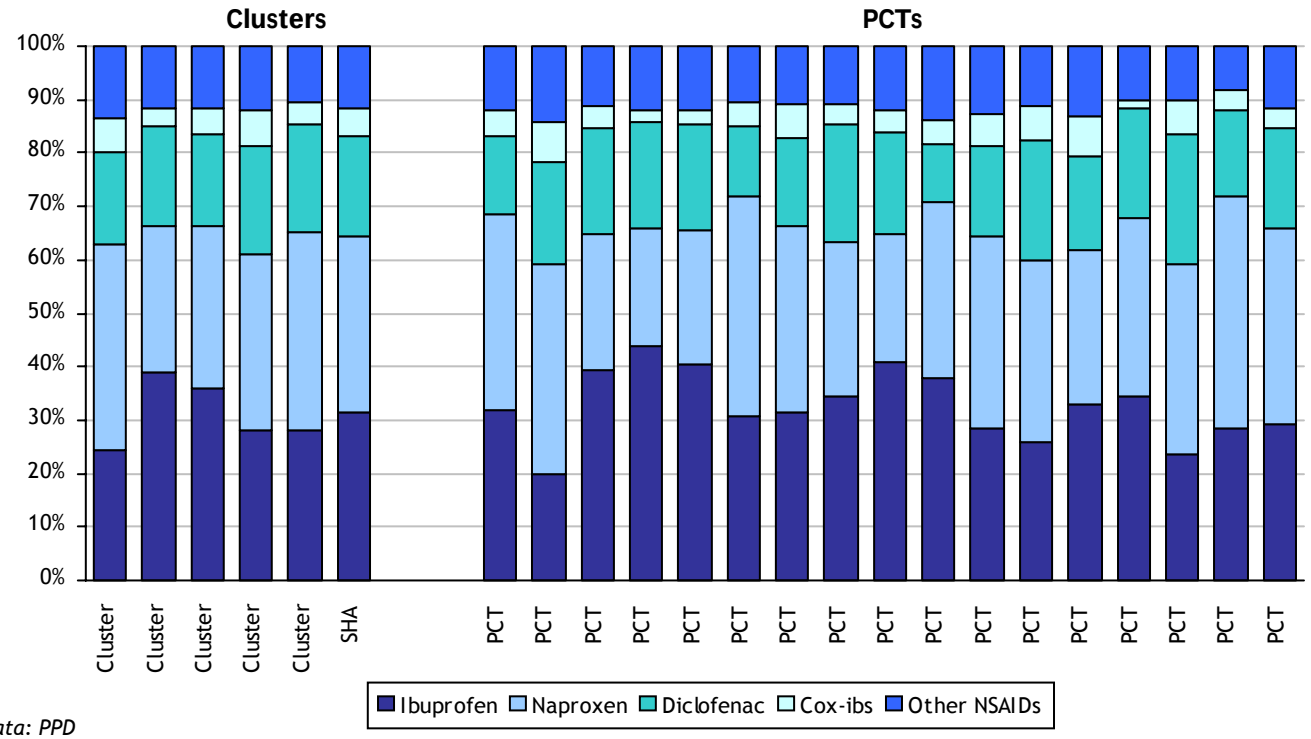


Fig 4 **West Midlands: Breakdown of Non-Steroidal Anti-inflammatory Drug Prescribing (BNF 10.1.1) by Spend (NIC), for the period Aug-11 to Oct-11**



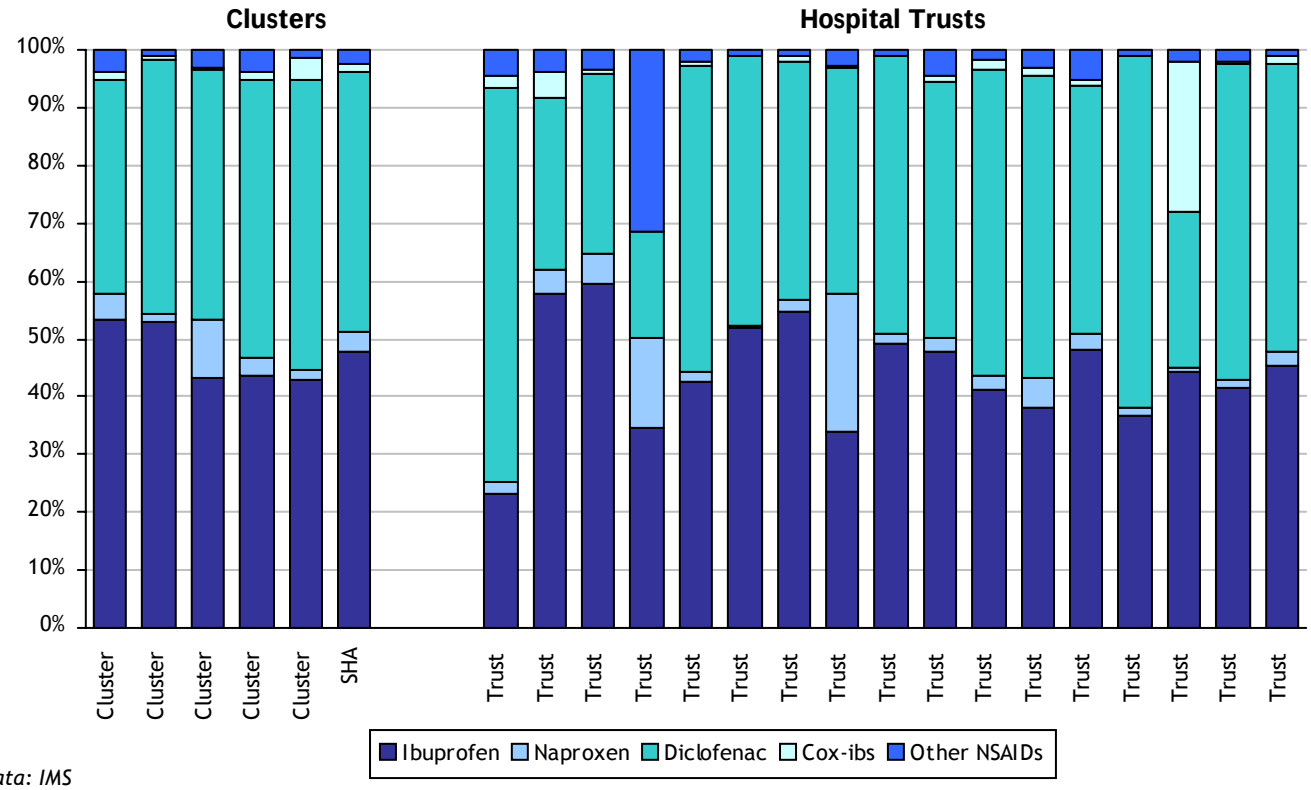
Data: PPD

Fig 1 **PRIMARY CARE - West Midlands: Breakdown of NSAID Prescribing (BNF 10.1.1) by Volume (Items), for the period Aug-11 to Oct-11**



Data: PPD

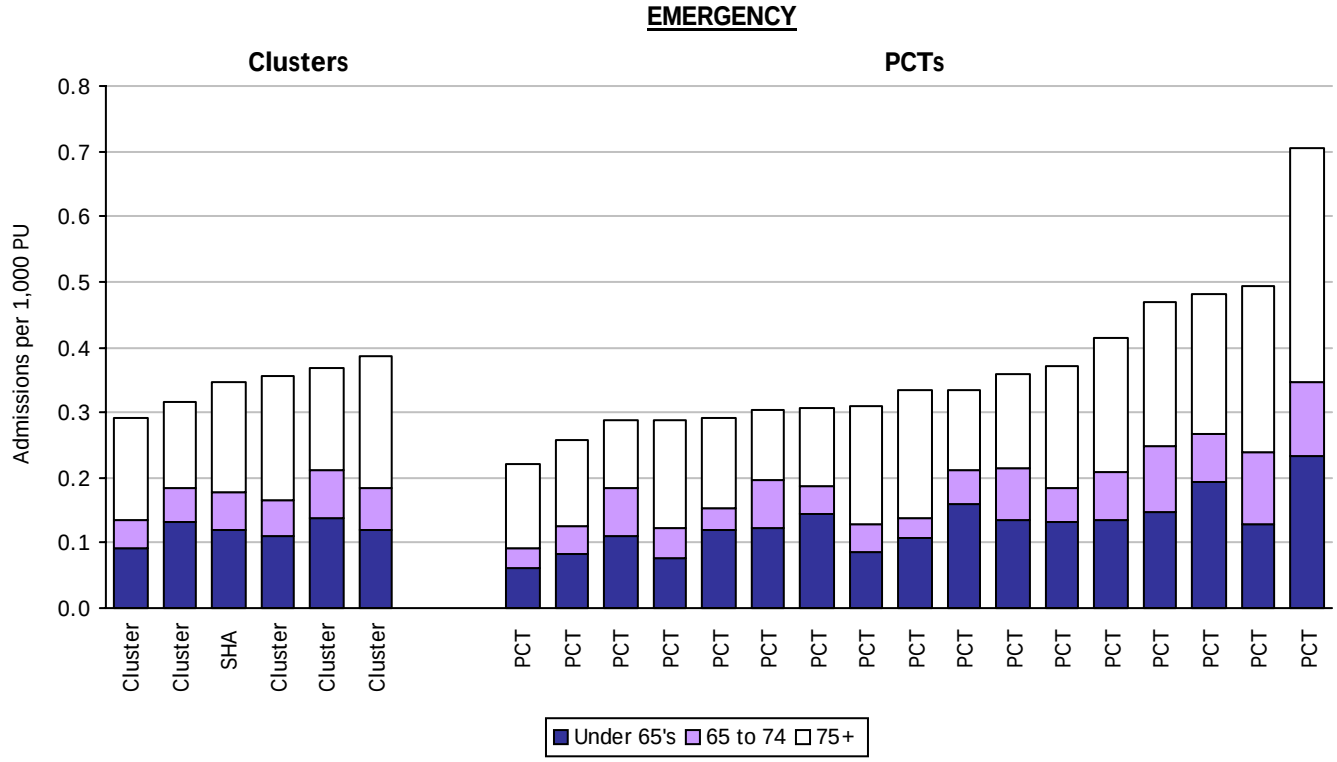
Fig 2 **SECONDARY CARE - West Midlands: Breakdown of NSAID* Prescribing (BNF 10.1.1) by Volume (Packs), for the period Aug-11 to Oct-11**

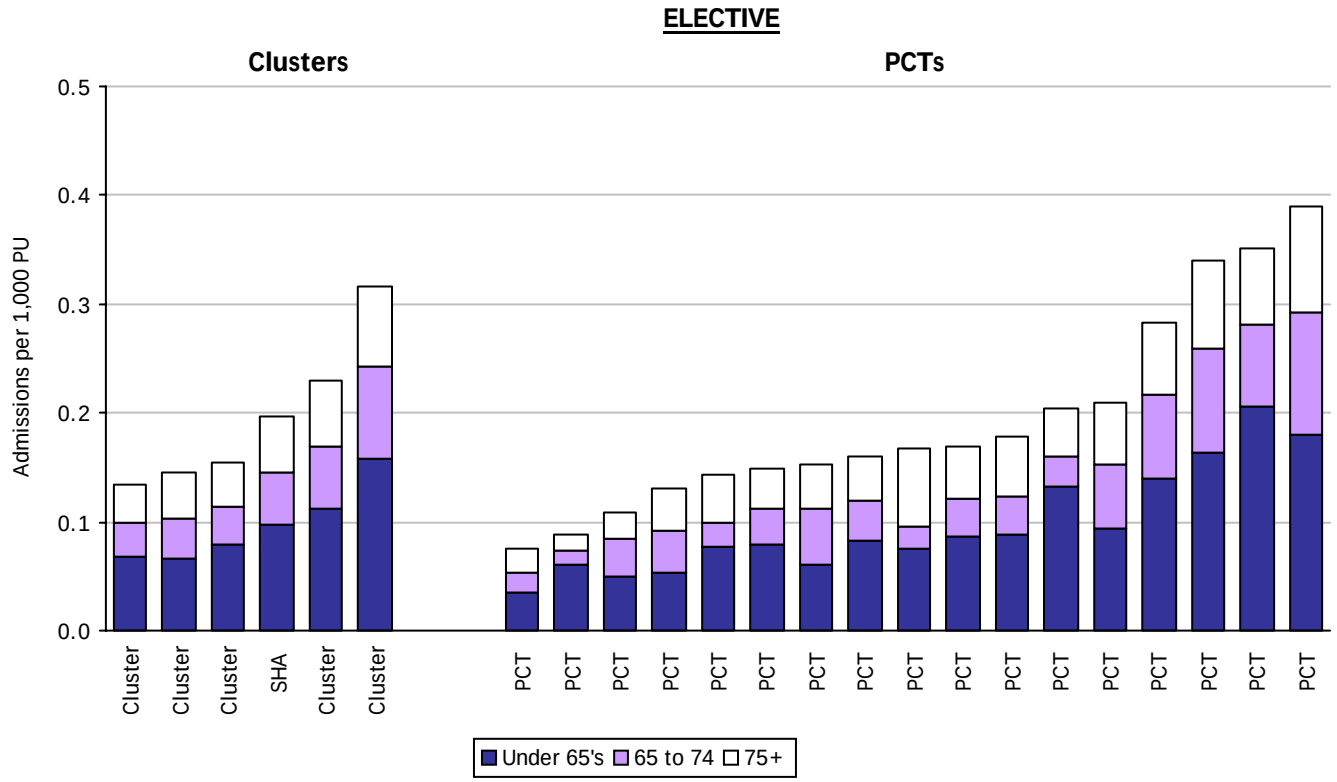


Data: IMS

** excludes injections*

Fig 1 **West Midlands: Hospital Admissions for GI ulcers, perforations and bleeds* per 1,000 PU,for the period Apr-10 to Mar-11**





Data: HES and PPD

**where GI ulcers, perforations and bleeds are classified as ICD-10 codes K25 (gastric ulcer), K26 (duodenal ulcer), K27 (peptic ulcer, site unspecified) and K28 (gastrojejunal ulcer)*

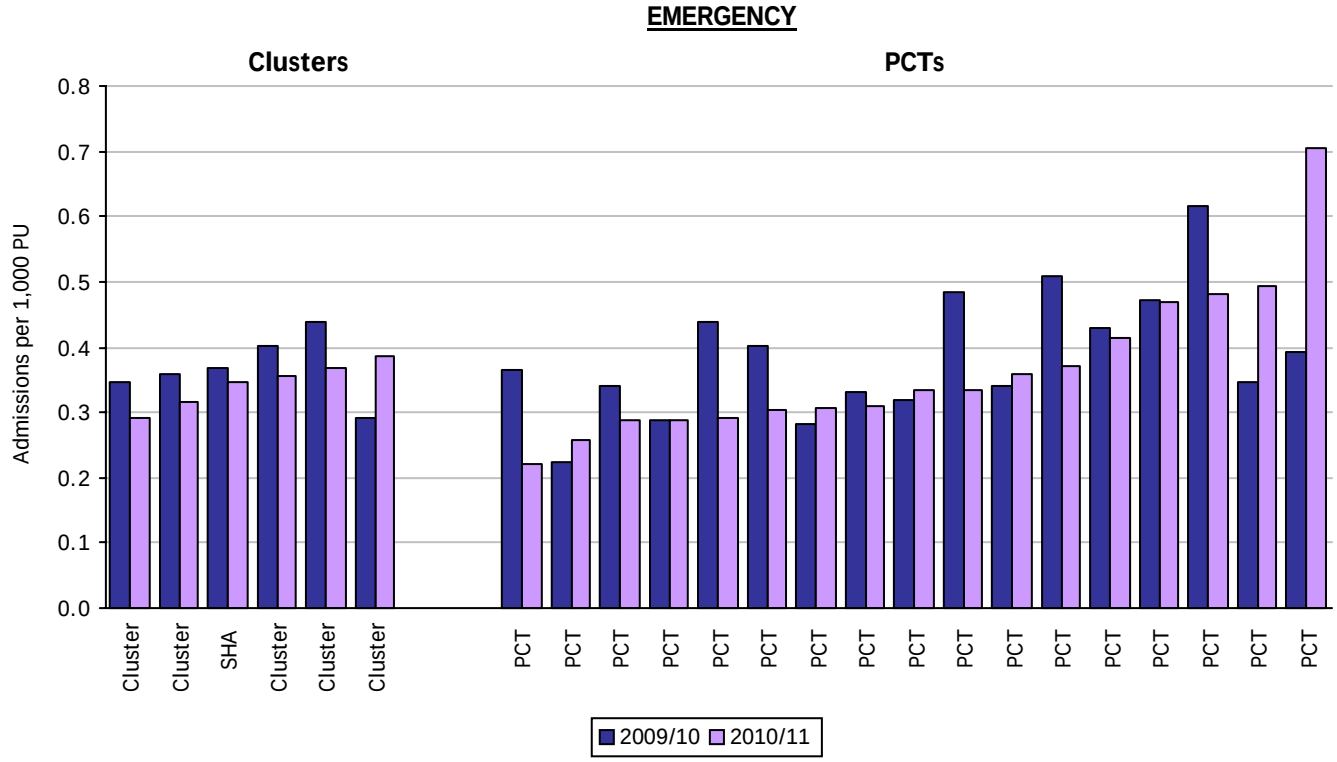
Table 1 **West Midlands: Cause of Hospital Admissions for GI ulcers, perforations and bleeds* for the period Apr-10 to Mar-11**

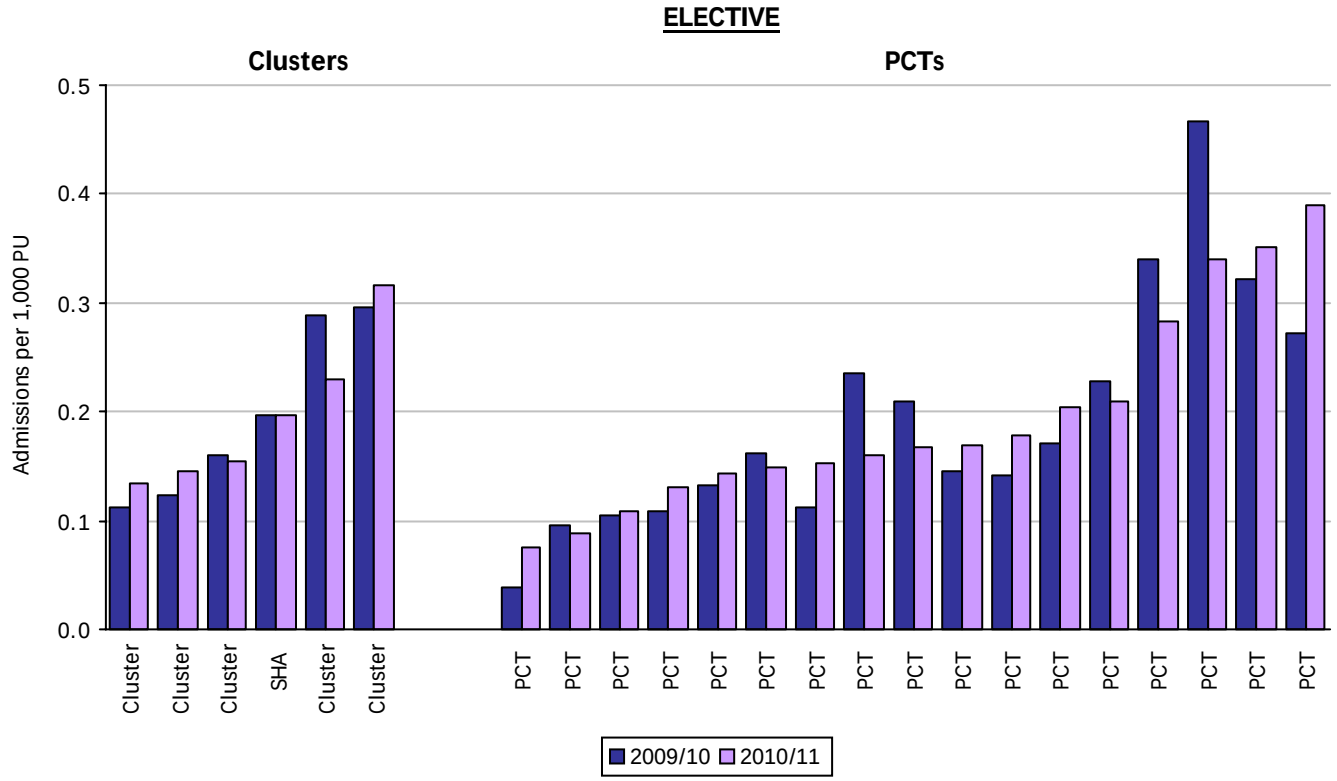
PCT	Emergency Admissions		Elective Admissions	
	% with cause listed	% NSAID-related*	% with cause listed	% NSAID-related*
PCT	5.8%	33%	1.3%	0%
PCT	2.6%	25%	0.0%	0%
PCT	4.4%	11%	4.7%	0%
PCT	5.7%	0%	0.0%	0%
Cluster	**4.6%**	**20%**	**2.2%**	**0%**
PCT	10.4%	0%	0.0%	0%
PCT	6.5%	0%	2.8%	0%
PCT	7.8%	30%	0.0%	0%
PCT	9.0%	16%	0.8%	100%
Cluster	**8.2%**	**13%**	**1.1%**	**33%**
PCT	1.2%	0%	0.0%	0%
PCT	8.9%	27%	2.4%	0%
PCT	13.4%	24%	1.3%	50%
PCT	9.2%	10%	0.8%	0%
Cluster	**8.2%**	**21%**	**1.4%**	**14%**
PCT	4.4%	17%	0.0%	0%
PCT	4.6%	0%	0.0%	0%
Cluster	**4.6%**	**6%**	**0.0%**	**0%**
PCT	12.2%	31%	2.9%	0%
PCT	5.1%	29%	6.1%	67%
PCT	5.0%	14%	0.0%	0%
Cluster	**8.5%**	**28%**	**2.9%**	**20%**
SHA Totals	**6.9%**	**19%**	**1.6%**	**16%**

Data: HES and PPD

** Percentage based only on admissions for ICD-10 codes K25 (gastric ulcer), K26 (duodenal ulcer), K27 (peptic ulcer, site unspecified) and K28 (gastrojejunal ulcer) with a cause code listed, NSAID-related cause classified as ICD-10 code Y45.2 or Y45.3*

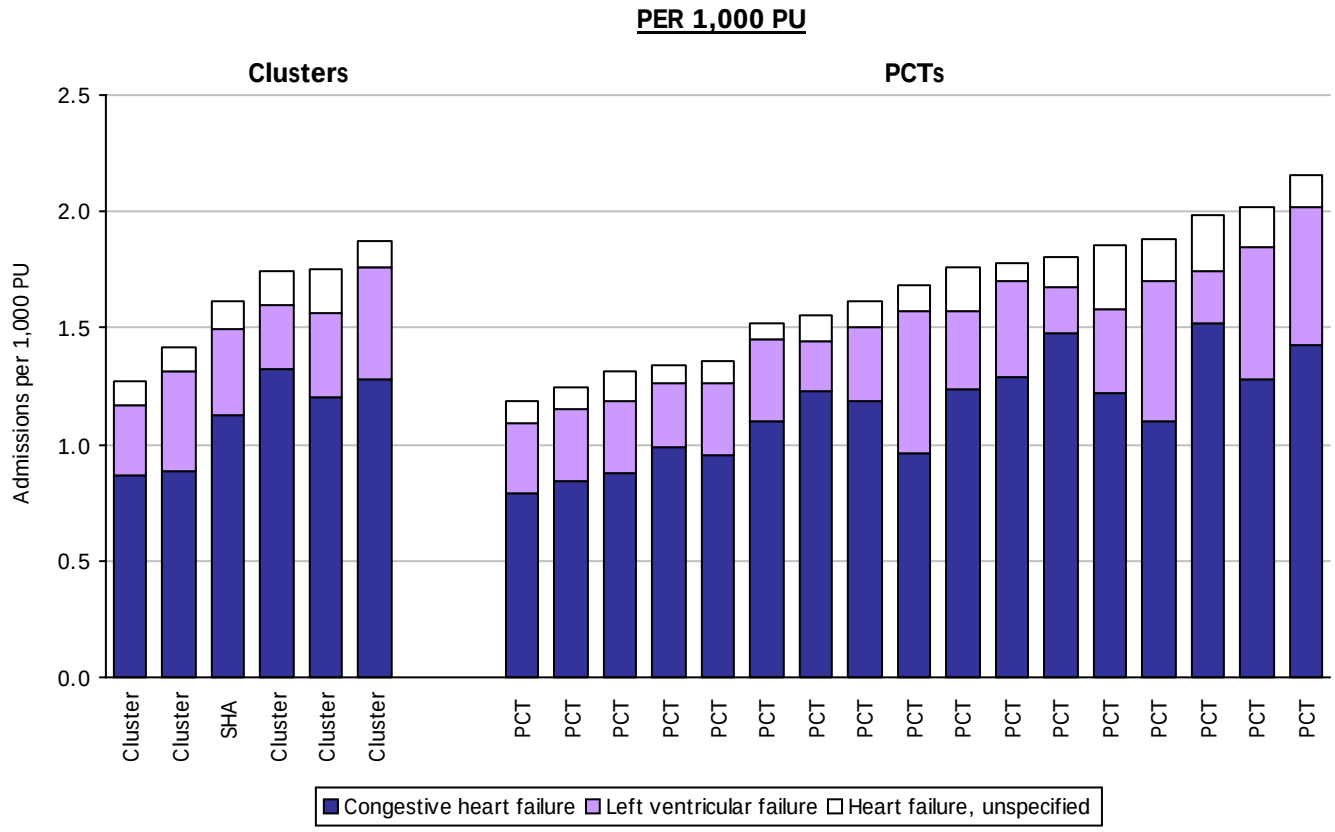
Fig 2 **West Midlands: Hospital Admissions for GI ulcers, perforations and bleeds* per 1,000 PU,for the period Apr-09 to Mar-11**

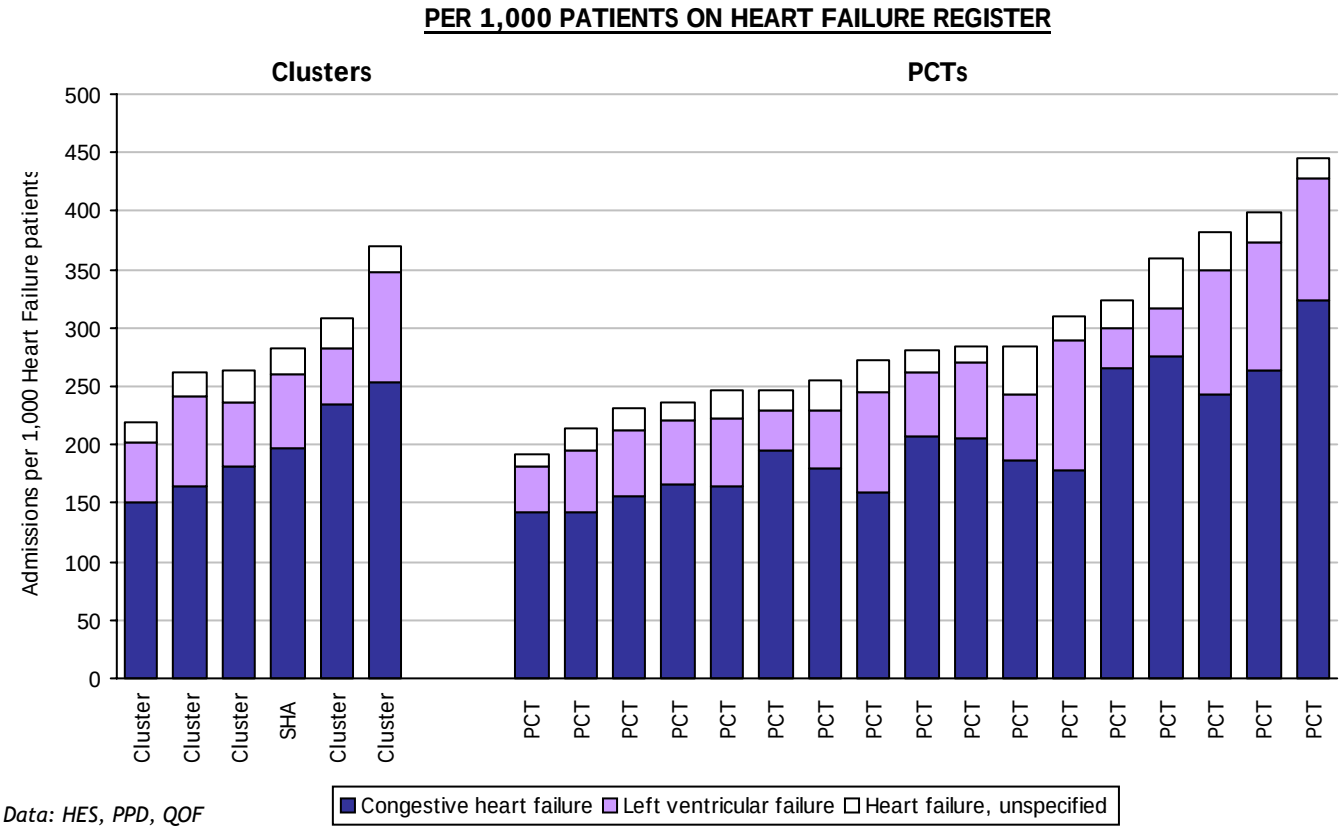




Data: HES and PPD
**where GI ulcers, perforations and bleeds are classified as ICD-10 codes K25 (gastric ulcer), K26 (duodenal ulcer), K27 (peptic ulcer, site unspecified) and K28 (gastrojejunal ulcer)*

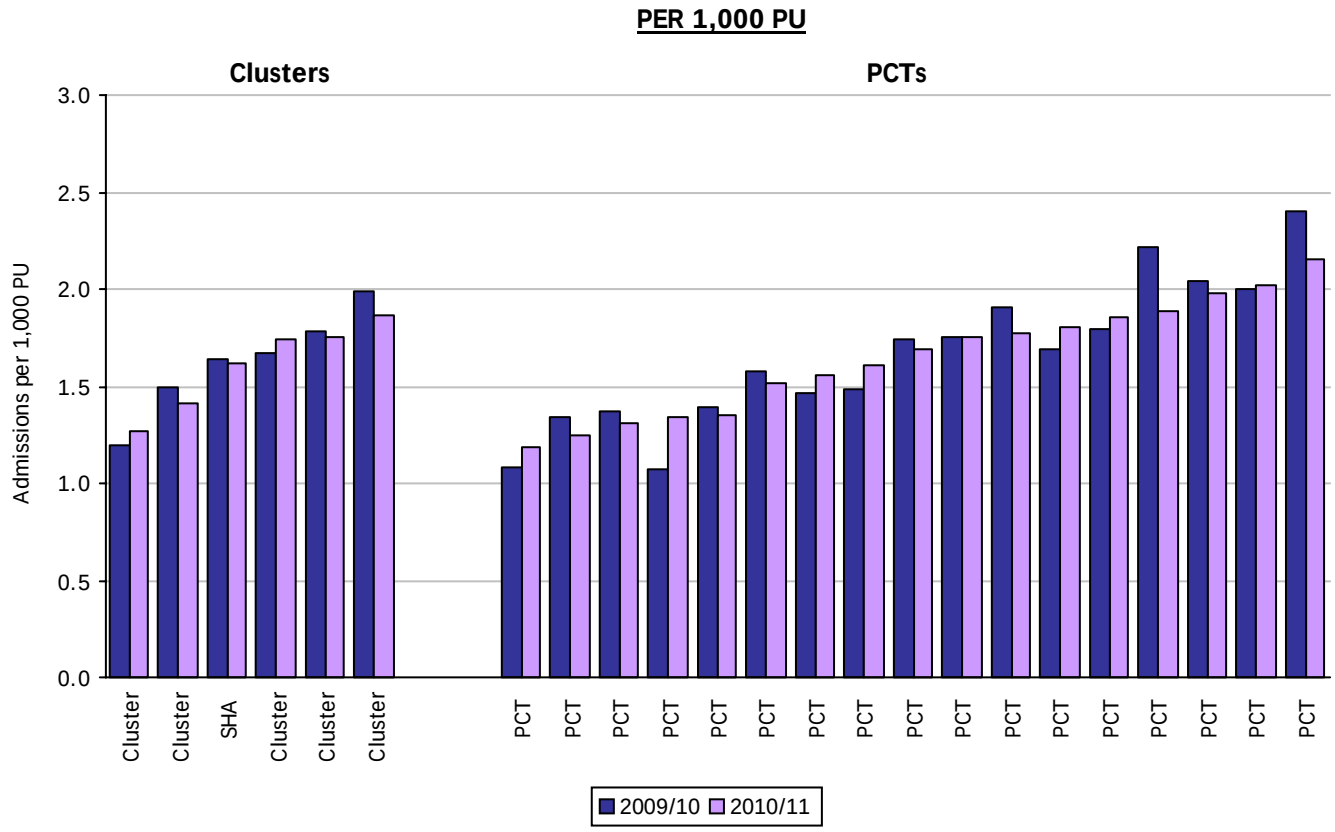
Fig 3 **West Midlands: Emergency Hospital Admissions for Heart Failure (ICD-10 I50), for the period Apr-10 to Mar-11**

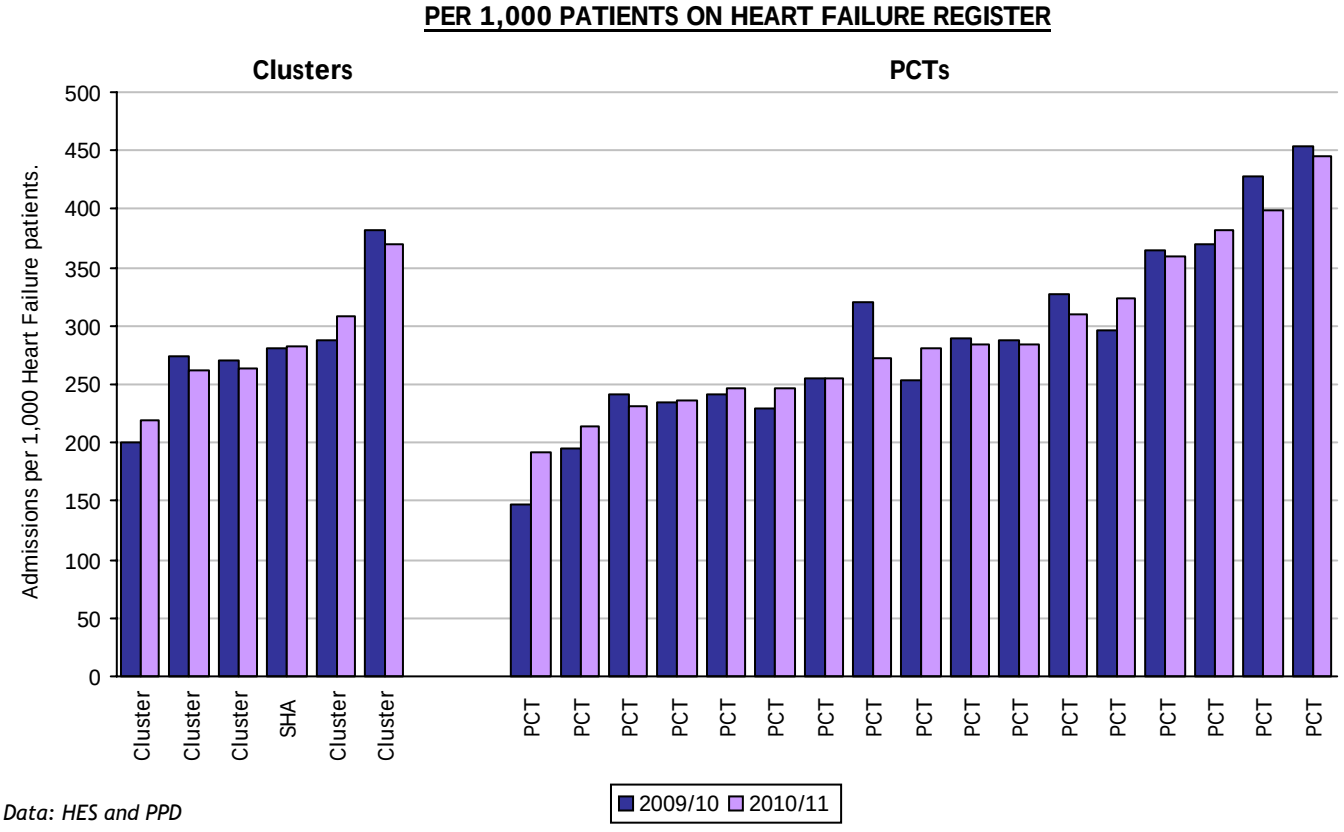




Data: HES, PPD, QOF

Fig 4 **West Midlands: Emergency Hospital Admissions for Heart Failure (IC10-I50), for the period Apr-09 to Mar-11**





Data: HES and PPD

Fig 5 **West Midlands: Emergency Hospital Admissions for Acute Renal Failure* per 1,000 PU, for the period Apr-10 to Mar-11**

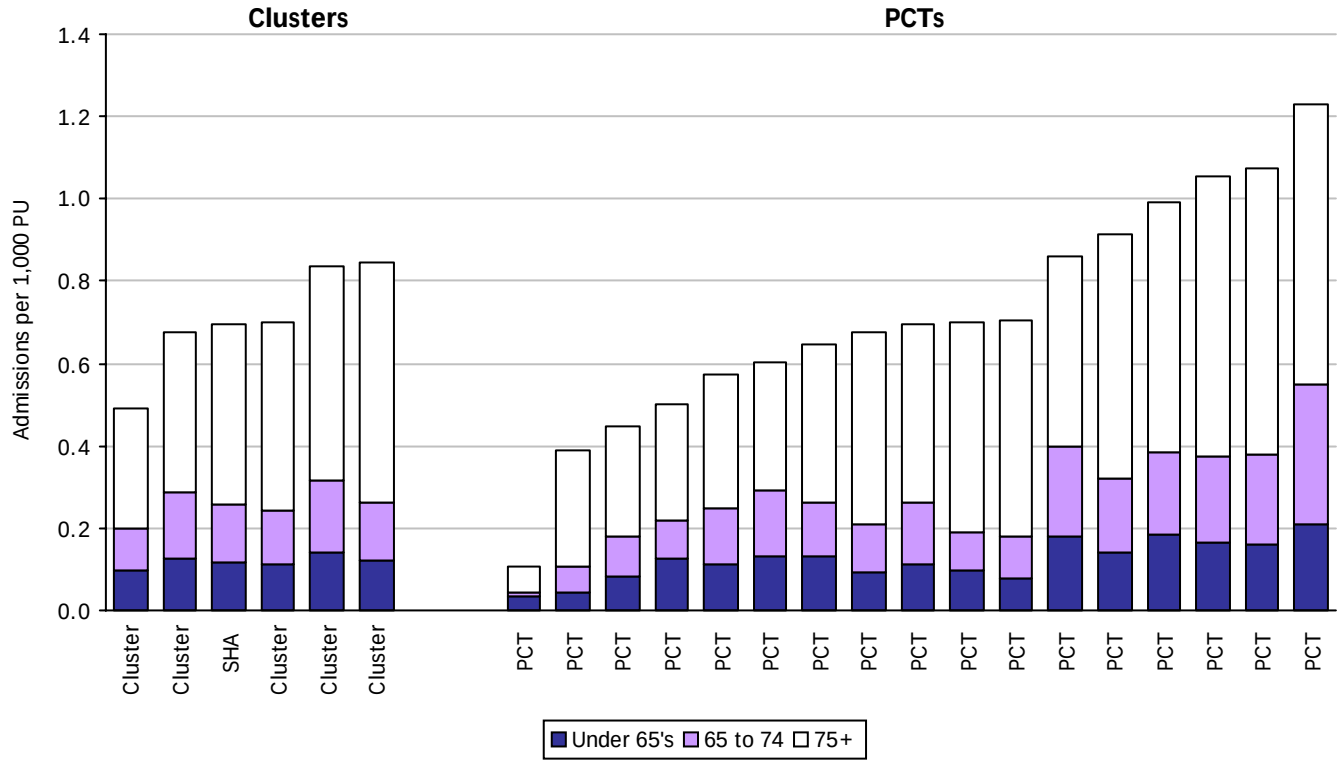
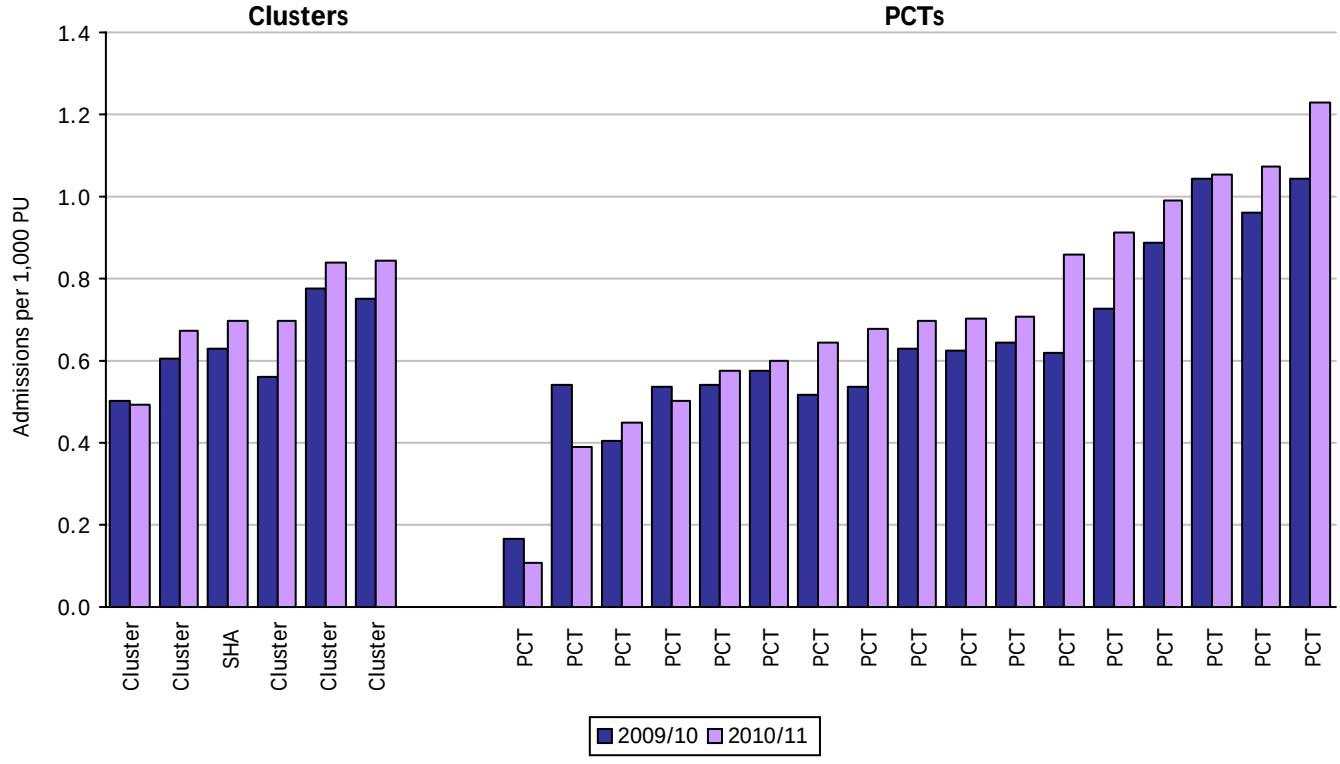


Fig 6 **West Midlands: Emergency Hospital Admissions for Acute Renal Failure* per 1,000 PU, for the period Apr-09 to Mar-11**



Data: HES and PPD
** where ARF is classified as ICD-10 N17*

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Prescribing Information to support QIPP

Section: I

Self-monitoring of Blood Glucose

in type 2 diabetes mellitus

January 2012

EXAMPLE

What are the issues?

NICE recommends self-monitoring of plasma glucose (SMBG) should be offered to a person newly diagnosed with type 2 diabetes only as an integral part of their self-management education.[1] The purpose of self-monitoring should be discussed with the patient and agreement made on how it should be interpreted and acted upon. The continued benefit of self-monitoring should be assessed in a structured way each year.[1] Self-monitoring of blood glucose should be made available:

- to patients using insulin
- to those on oral glucose-lowering medications to provide information on hypoglycaemia
- to assess changes in glucose control resulting from medications, lifestyle changes or illness
- to ensure safety during activities, including driving.

NHS Diabetes have published a report making recommendations regarding the place of SMBG in the management of non-insulin-treated type 2 diabetes.[2] The report recommends:

- SMBG with appropriate structured education should be available to people receiving sulfonylurea treatment to identify hypoglycaemic episodes.
- SMBG should only be provided routinely to people with type 2 diabetes not treated with insulin or sulfonylureas where there is an agreed purpose.
- SMBG should only be used within a care package, with structured education including clear instructions as to the place of monitoring plus how results can be used to reinforce lifestyle change, adjust therapy or alert healthcare professionals. This should include regular review to support those who find it useful while **discouraging those who gain no clinical benefit from continuing to test**.
- Patients with non-insulin treated diabetes who are motivated by SMBG activity and use the information to maximise the effect of lifestyle and medication should be encouraged to continue to monitor.
- Staff training in the use of SMBG to support changes in lifestyle and self-adjustment of medications is required.

What are the actions?

- In type 2 diabetics not treated with insulin or sulfonylureas, only provide SMBG routinely where there is an agreed purpose or goal.
- Patients using blood glucose test strips should be regularly assessed (at least annually). Assessment should include
  - Self-monitoring skills
  - The quality and frequency of testing
  - The use made of the results obtained
  - The impact on quality of life
  - The continued benefit
  - The equipment used
- Audit prescribing of SMBG to ensure that it is being used appropriately in line with NICE and NHS diabetes recommendations. **Stop SMBG in patients with non-insulin-treated diabetes who are not deriving any benefit from testing.**

Cost Implications

- Using QOF prevalence data, we have assessed the savings that could be achieved by reducing the number of test strips per patient for your PCT or cluster. There are still some significant savings that could be made in this area.
- We have added prescribing trends and comparisons in order to provide context. West Midlands Medicines Management Network Performance Indicators for SMBG are also presented.

References:

1. CG87 Type 2 diabetes-newer agents (a partial update of CG66): quick reference guide. National Institute for Health and Clinical Excellence. 2009. http://www.nice.org.uk/nicemedia/live/12165/44322/44322.pdf <accessed 01/2012>
2. Self monitoring of blood glucose in non-insulin-treated Type 2 diabetes: A report prepared by an NHS Diabetes Working Group. NHS Diabetes. 2010. http://www.diabetes.nhs.uk/ <accessed 01/2012>

Fig 1 **Glucose Monitoring (BNF 6.1.6): Quarterly Volume (Items) and Spend (NIC) in EXAMPLE**

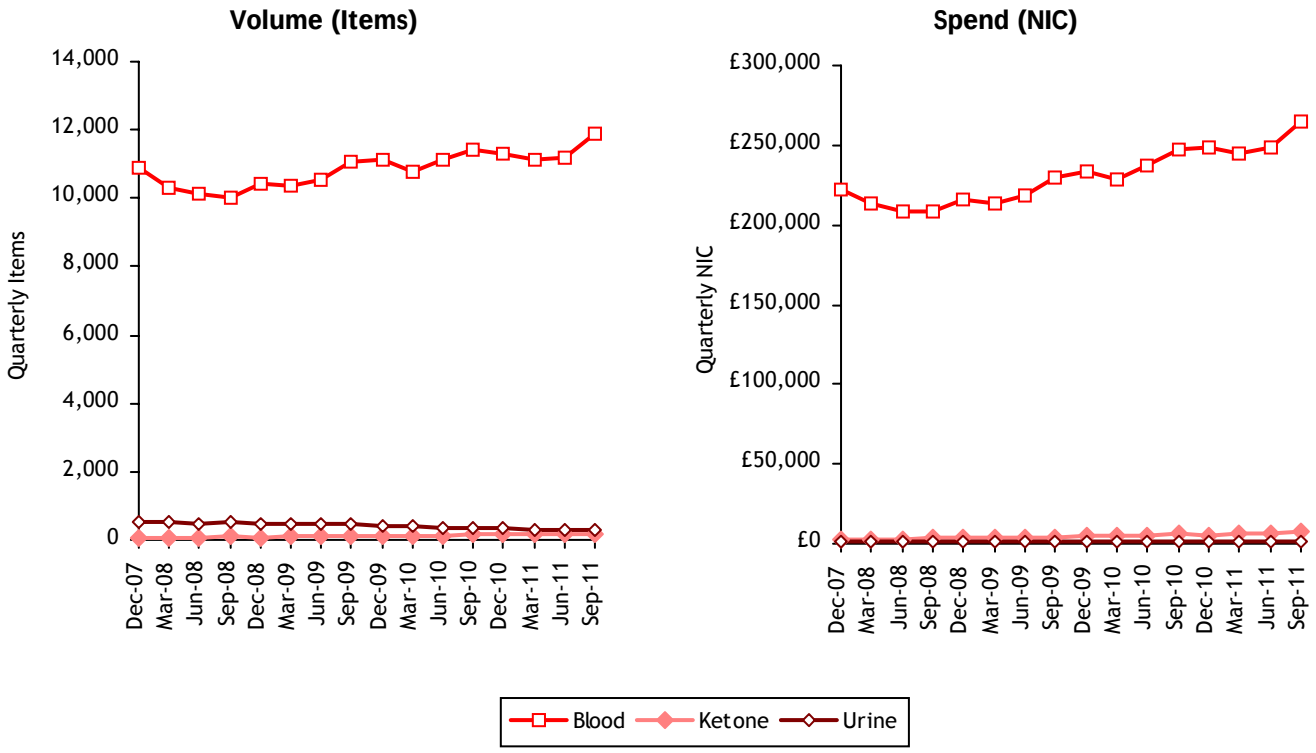
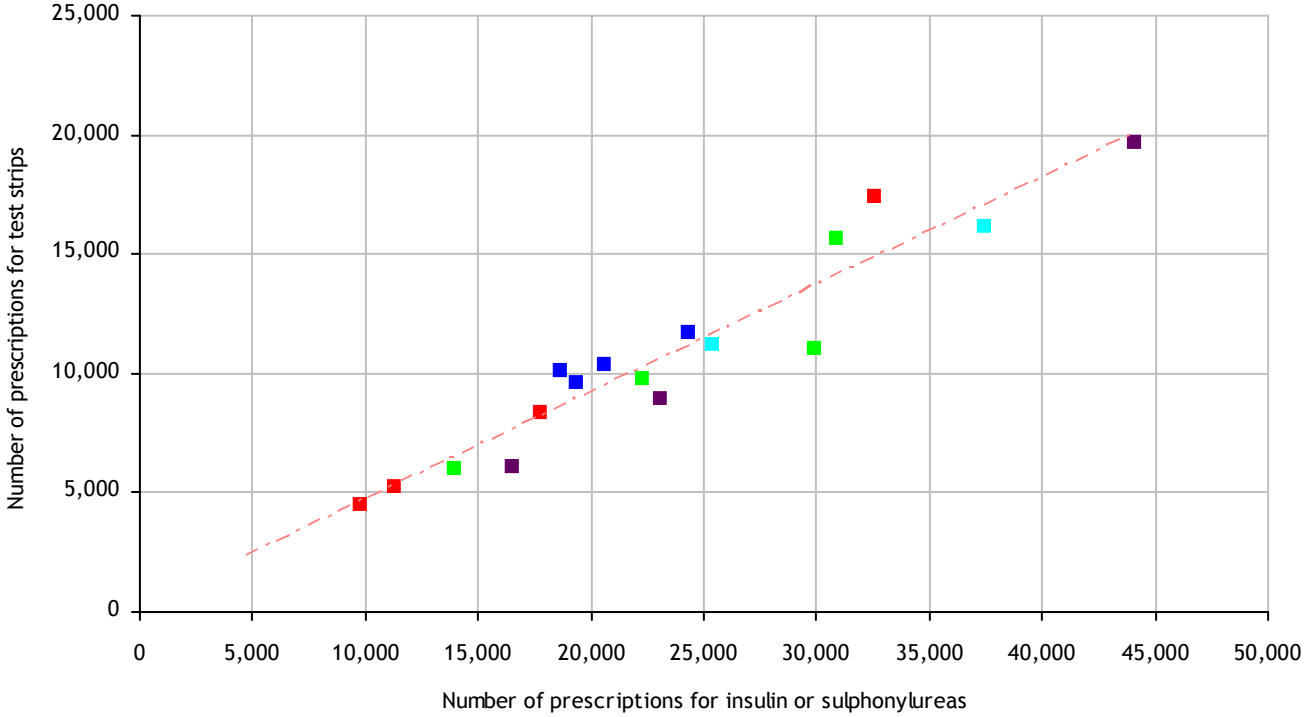


Fig 2 **West Midlands: Number of prescriptions for Blood Glucose Test Strips (BNF 6.1.6) versus Insulins (BNF 6.1.1) and Sulphonylureas (BNF 6.1.2.1) for the period Aug-11 to Oct-11**



Data: PPD

The following table is based on data for the last 3 months (Aug-11 to Oct-11). Savings are then extrapolated from this data to give an annual saving which is based on current data.

It is likely that those PCTs with a lower volume per diabetic patient for blood glucose testing strips are already in the process of promoting cost-effective prescribing in this area.

Table 1 Blood Glucose Testing Strips (BNF 6.1.2.3): Potential Savings from Prescribing at a Lower Number of Strips per Diabetic Patient

PCT	Strips per diabetic patient**	% change in strips*	WM Indicator^ (Quarterly)		Potential Annual Saving
			Oct-11	Oct-10	
PCT	57.42	5%	£17.22	£16.85	£336,455
PCT	58.25	8%	£17.50	£16.51	£180,453
PCT	53.43	7%	£16.07	£15.58	£62,758
PCT	56.42	-1%	£17.00	£17.79	£100,053
Cluster	**56.90**	**5%**	**£17.09**	**£16.73**	**£679,719**
PCT	38.74	2%	£11.43	£12.14	£0
PCT	52.47	2%	£15.50	£15.80	£114,923
PCT	55.93	1%	£16.79	£17.25	£246,734
PCT	50.60	1%	£15.21	£15.70	£46,526
Cluster	**49.22**	**2%**	**£14.66**	**£15.18**	**£408,183**
PCT	43.36	4%	£13.04	£12.80	£0
PCT	53.22	6%	£15.98	£15.96	£115,260
PCT	46.76	7%	£13.98	£13.90	£0
PCT	56.58	6%	£17.06	£16.63	£177,221
Cluster	**49.65**	**6%**	**£14.91**	**£14.72**	**£292,481**
PCT	51.26	-2%	£15.39	£16.16	£85,433
PCT	57.73	6%	£17.33	£16.96	£308,282
Cluster	**55.12**	**3%**	**£16.55**	**£16.64**	**£393,715**
PCT	43.74	-5%	£13.16	£14.24	£0
PCT	45.00	3%	£13.52	£13.58	£0
PCT	54.62	2%	£16.42	£16.75	£266,682
Cluster	**49.71**	**1%**	**£14.94**	**£15.35**	**£266,682**
SHA Totals	**51.73**	**3%**	**£15.51**	**£15.61**	**£2,040,779**

Data: PPD and QOF

** Change compared to the same period last year*

*** Diabetic patient data taken from QMAS register 2010/11 for "This Year" and 2009/10 for "Last Year"*

^ West Midlands Medicines Management Network Performance Indicator: Reduce the cost of SMBG strips per patient on QOF diabetes register – Aspiration ≤ £15

NOTE: We have selected the 25th percentile STRIPS per PATIENT value, which raises the benchmark compared to previous reports which benchmarked on the lowest STRIPS per PATIENT value. Therefore savings in this lowest quartile are now £0. This does not necessarily mean that prescribing cost cannot be improved in this area.

Fig 3 **West Midlands: Breakdown of Glucose Monitoring (BNF 6.1.6) Prescribing by Volume (Items), for the period Aug-11 to Oct-11**

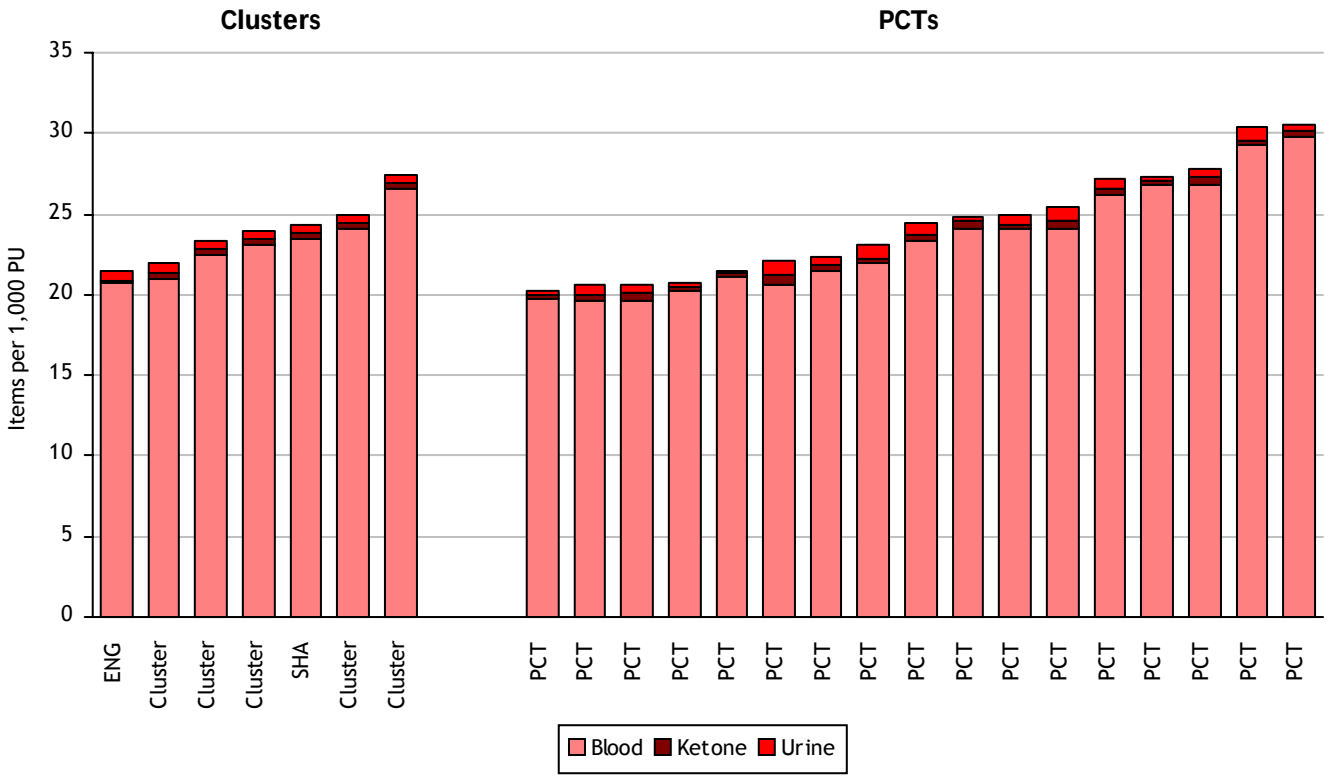
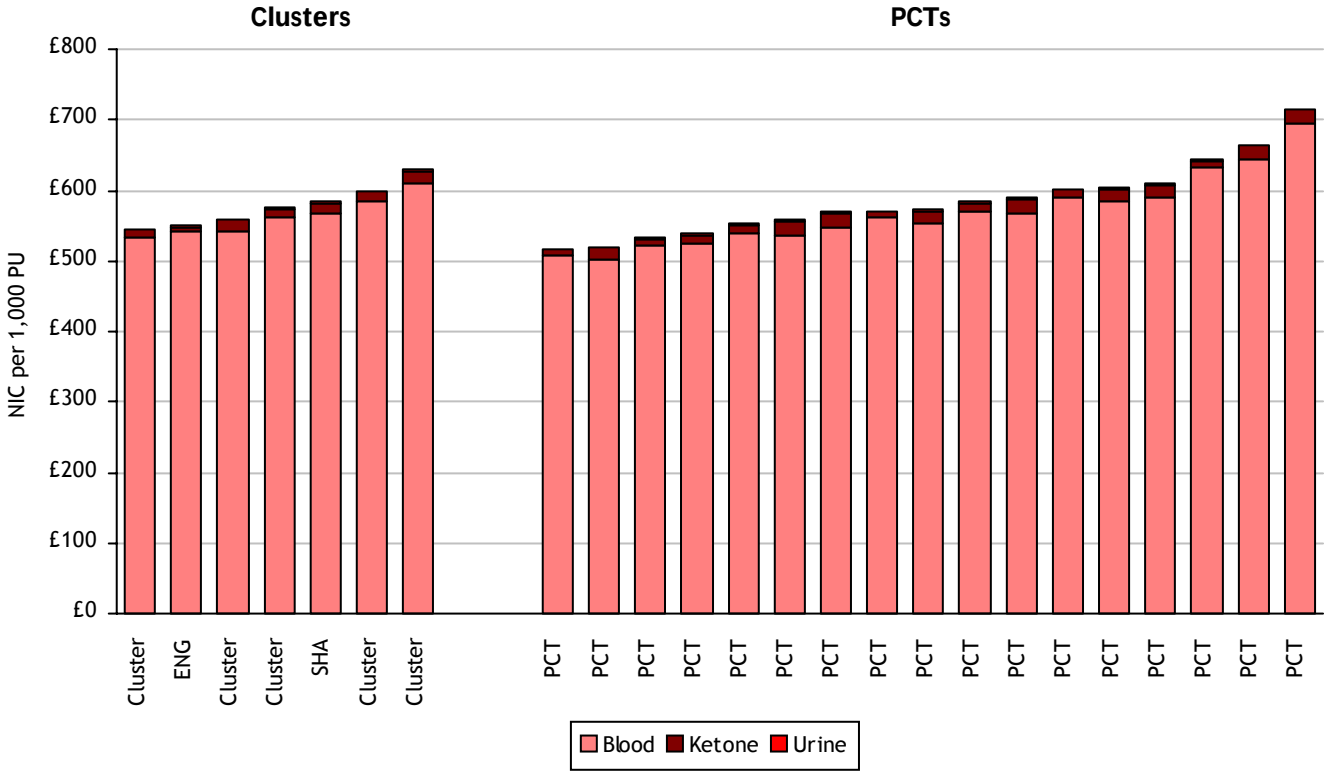


Fig 4 **West Midlands: Breakdown of Glucose Monitoring (BNF 6.1.6) Prescribing by Spend (NIC), for the period Aug-11 to Oct-11**



Data: PPD

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Prescribing Information *to support* QIPP

Section: J

Hypnotics

January 2012

EXAMPLE

What are the issues?

- The risks of benzodiazepine dependence have been recognised for many years, with guidance first issued by the Committee on Safety of Medicines (CSM) back in 1988 recommending that **benzodiazepine use as an hypnotic should be limited to patients in whom insomnia is severe, disabling or causing extreme distress.**[1] The recommendations of the CSM, which are still relevant today, also advised that benzodiazepines:
    - should be used at the **lowest dose** to control symptoms
    - should not be continued for beyond **four weeks**
    - when used as a hypnotic, treatment should, where possible, be **intermittent**.
- In 2004, NICE issued guidance recommending that doctors should consider the use of non-pharmacological treatments first-line for the management of insomnia (i.e. good sleep hygiene, avoidance of stimulants, use of cognitive behavioural therapy).[2] If, after due consideration, hypnotic drug therapy is considered appropriate, when insomnia is severe and interfering with normal daily life, hypnotics should only be prescribed for **short periods of time**, in strict accordance with their licensed indications.[2]
- Notably, NICE stated that there was a lack of compelling evidence supporting differences between the effects of the newer Z-drug hypnotics (e.g. zaleplon, zolpidem and zopiclone) and shorter-acting benzodiazepines. As such, NICE recommended that doctors should **prescribe the cheapest drug**, taking into account the daily dose required and the cost for each dose. A recent examination of the literature by Keele has again confirmed an absence of high-quality evidence to support the use of one group of drugs over another.
- NICE also recommended that switching from one of these hypnotics to another should only occur if a patient experiences adverse effects considered to be directly related to a specific agent. These are the only circumstances in which the drugs with the higher acquisition costs are recommended by NICE. Patients who have not responded to one of these hypnotic drugs should not be prescribed any of the others.
- The NPC has highlighted that despite these explicit safety warnings and guidance, overall prescribing of hypnotics is not decreasing.[3] **Looking at prescribing data for West Midlands, there has been a generally steady decline in benzodiazepine prescribing over the past five years; however, prescribing of Z-drugs has risen during this period.**

What are the actions?

- **Review current practices/protocols for the prescribing of hypnotics and benzodiazepines to ensure that it is in line with national guidance.**
- **Consider undertaking practice-based audits to assess the use of benzodiazepines and hypnotics.**
- **Ensure regular medication review for people taking benzodiazepines and hypnotics.**
- **Benzodiazepines and hypnotics should only be prescribed in minimum quantities and not be placed on repeat.**
- **Consider the implementation of interventions to encourage a reduction in the use of hypnotics.** For example, the NPC learning materials on this QIPP topic discuss the results of a UK-based RCT, which demonstrated the effectiveness of a simple GP letter to patients suggesting that benzodiazepine use be reduced or stopped.[4,5]

Cost Implications:

- In this section we provide trends and breakdowns of hypnotic prescribing within local primary care organisations. In addition, the West Midlands Medicines Management Network prescribing comparator for hypnotics is provided, to indicate local rates of benzodiazepine and Z-drug prescribing, comparing this year and last year. We also demonstrate the potential savings available to some organisations from prescribing hypnotics at a lower cost per DDD. Additionally, an updated cost comparison chart for hypnotics is presented.
- Data are also included for melatonin, a hypnotic not specifically covered by the NPC QIPP document, but which accounts for considerable spend and with which there have been concerns over the amount of 'specials' prescribed.
- We also show a breakdown of hypnotic prescribing in West Midlands' hospitals, which may be helpful in your discussions with providers, commissioners and practices.

References:

1. UK Government Bulletin to Prescribing Doctors. January 1988. Current Problems. Number 21:1-2. Benzodiazepeins, dependence and withdrawal symptoms. Committee on Safety of Medicines. 1988. http://www.benzo.org.uk/commit.htm <accessed 11/2011>
2. Guidance on the use of zaleplon, zolpidem and zopiclone for the short-term management of insomnia. NICE Technology Appraisal 77. National Institute for Health and Clinical Excellence. 2004. http://www.nice.org.uk/nicemedia/live/11530/32845/32845.pdf <accessed 11/2011>
3. Key therapeutic topics. Medicines management options for local implementation. July 2011 update. National Prescribing Centre. 2011. http://www.npc.co.uk/qipp/resources/qipp_document_version3.0_july11_final.pdf <accessed 11/2011>
4. NPC QIPP e-learning materials. Hypnotics - QIPP notes. National Prescribing Centre. 2011. http://www.npc.nhs.uk/qipp/resources/hypnotics_qipp_notes.doc <accessed 11/2011>
5. Cormack MA, Sweeney KG, Hughes-jones H *et al.* Evaluation of an easy, cost-effective strategy for cutting benzodiazepine use in General-Practice. *British Journal of General Practice* 1994;**44:**5-8.

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The following table is based on data for the last 3 months (Aug-11 to Oct-11). Savings are then extrapolated from this data to give an annual saving which is based on current data.

It is likely that those PCTs with a lower cost per DDD for hypnotics are already in the process of promoting cost-effective prescribing in this area.

Table 1 Hypnotics (BNF 4.1.1): Potential Savings from Prescribing at a Lower Cost per DDD

PCT	NIC per DDD	% change in NIC per DDD*	WM Indicator^ (Quarterly)		Potential Annual Saving
			Oct-11	Oct-10	
PCT	£0.23	-3%	1.17	1.19	£191,288
PCT	£0.22	1%	1.13	1.16	£84,274
PCT	£0.16	-11%	1.29	1.42	£0
PCT	£0.16	0%	0.67	0.76	£1,072
Cluster	**£0.21**	**-2%**	**1.09**	**1.14**	**£276,633**
PCT	£0.18	-11%	0.94	1.11	£12,028
PCT	£0.16	-8%	1.03	1.10	£0
PCT	£0.18	4%	1.31	1.31	£30,338
PCT	£0.16	-12%	1.04	1.05	£0
Cluster	**£0.17**	**-5%**	**1.11**	**1.17**	**£42,366**
PCT	£0.34	-9%	0.92	0.97	£191,935
PCT	£0.27	-12%	1.13	1.11	£113,075
PCT	£0.29	32%	0.93	0.97	£131,298
PCT	£0.31	11%	1.13	1.19	£217,618
Cluster	**£0.30**	**3%**	**1.03**	**1.06**	**£653,926**
PCT	£0.16	12%	1.47	1.59	£0
PCT	£0.13	-6%	1.37	1.41	£0
Cluster	**£0.14**	**1%**	**1.41**	**1.47**	**£0**
PCT	£0.17	-4%	1.21	1.30	£12,338
PCT	£0.16	5%	1.49	1.67	£371
PCT	£0.19	0%	1.10	1.12	£66,585
Cluster	**£0.18**	**1%**	**1.21**	**1.29**	**£79,295**
SHA Totals	**£0.20**	**0%**	**1.16**	**1.21**	**£1,052,220**

Data: PPD

** Change compared to the same period last year.*
^ West Midlands Medicines Management Network Performance Indicator - Reduce the Hypnotic Benzodiazepine and Z Drug Prescribing Rate - Aspiration ≤ 1.18 ADQs per Sub-therapeutic STARPU

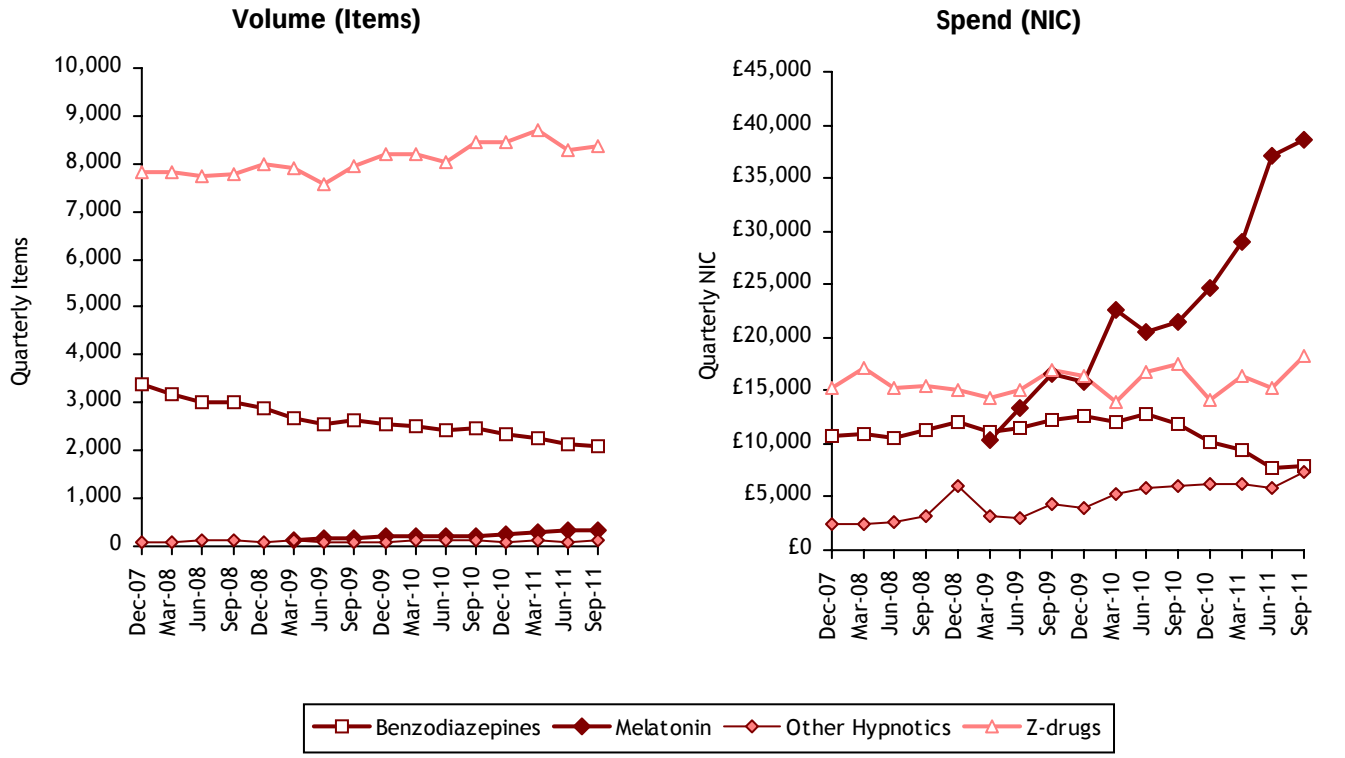
NOTE: We have selected the 25th percentile NIC per DDD value. Therefore savings in this lowest quartile are £0. This does not necessarily mean that prescribing cost cannot be improved in this area in these PCTs.

Table 2 Cost Comparison of Hypnotics

Category	Chemical	Formulation and daily dose	Cost per 28 days	No. of people treated for £100 a month
Benzodiazepines	Nitrazepam	5mg tablets	£0.95	105.3
	Temazepam	10mg tablets	£2.52	39.7
	Loprazolam	1mg tablets	£18.00	5.6
	Lormetazepam	0.5mg tablets	£52.34	1.9
Z-drugs	Zopiclone	7.5mg tablets	£1.65	60.6
	Zolpidem	10mg tablets	£1.76	56.8
	Zaleplon	5mg capsules (Sonata®)	£6.24	16.0
Other Hypnotics	Clomethiazole	192mg capsules (Heminevrin®)	£3.62	27.6
	Chloral Hydrate	143mg (5ml) elixir (welldorm®)	£8.12	12.3
	Cloral Betaine	707mg tablets (welldorm®)	£11.29	8.9
	Melatonin	2mg tablets (Circadin®)	£14.36	7.0

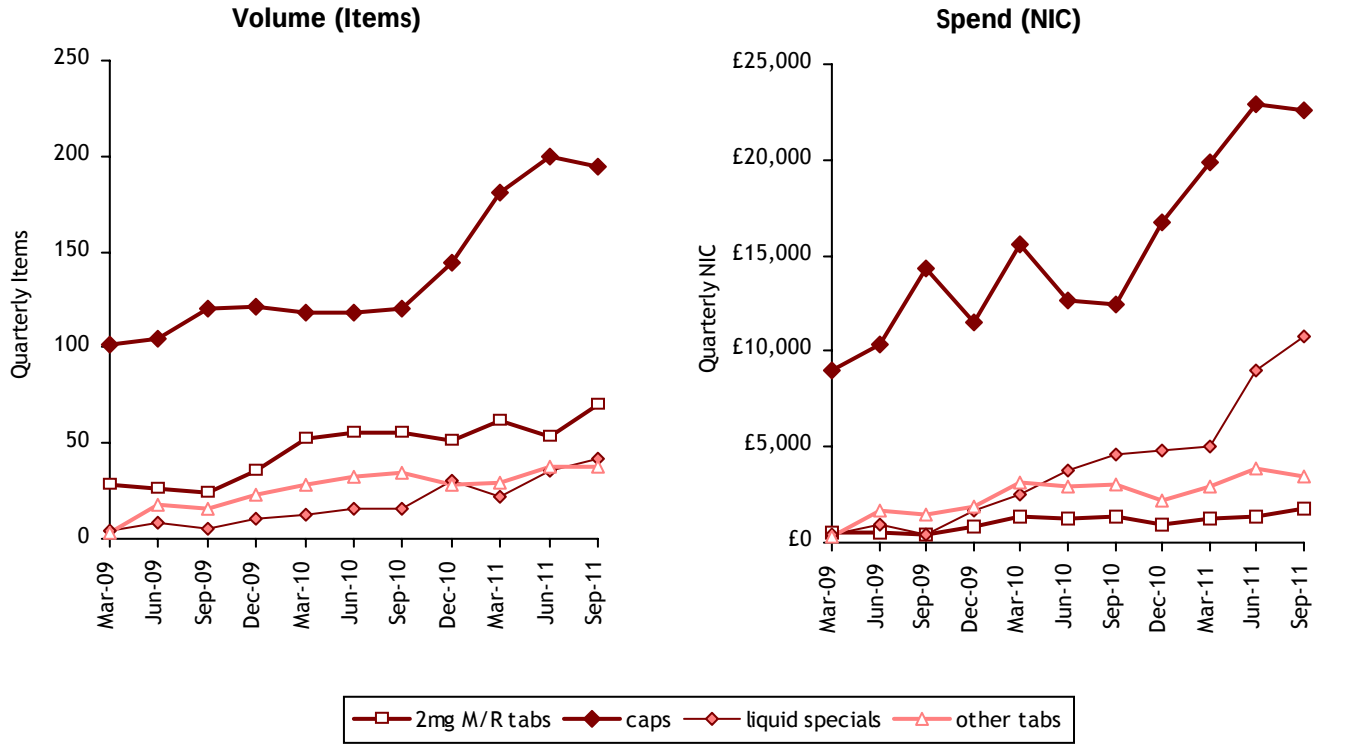
Prices: MIMS and Drug Tariff January 2012

Fig 1 **Hypnotics (BNF 4.1.1): Quarterly Volume (Items) and Spend (NIC) in EXAMPLE**



Data: PPD

Fig 2 **Melatonin (BNF 4.1.1): Quarterly Volume (Items) and Spend (NIC) in EXAMPLE**



Data: PPD

Fig 3 **West Midlands: Breakdown of Hypnotic Prescribing (BNF 4.1.1) by Volume (Items), for the period Aug-11 to Oct-11**

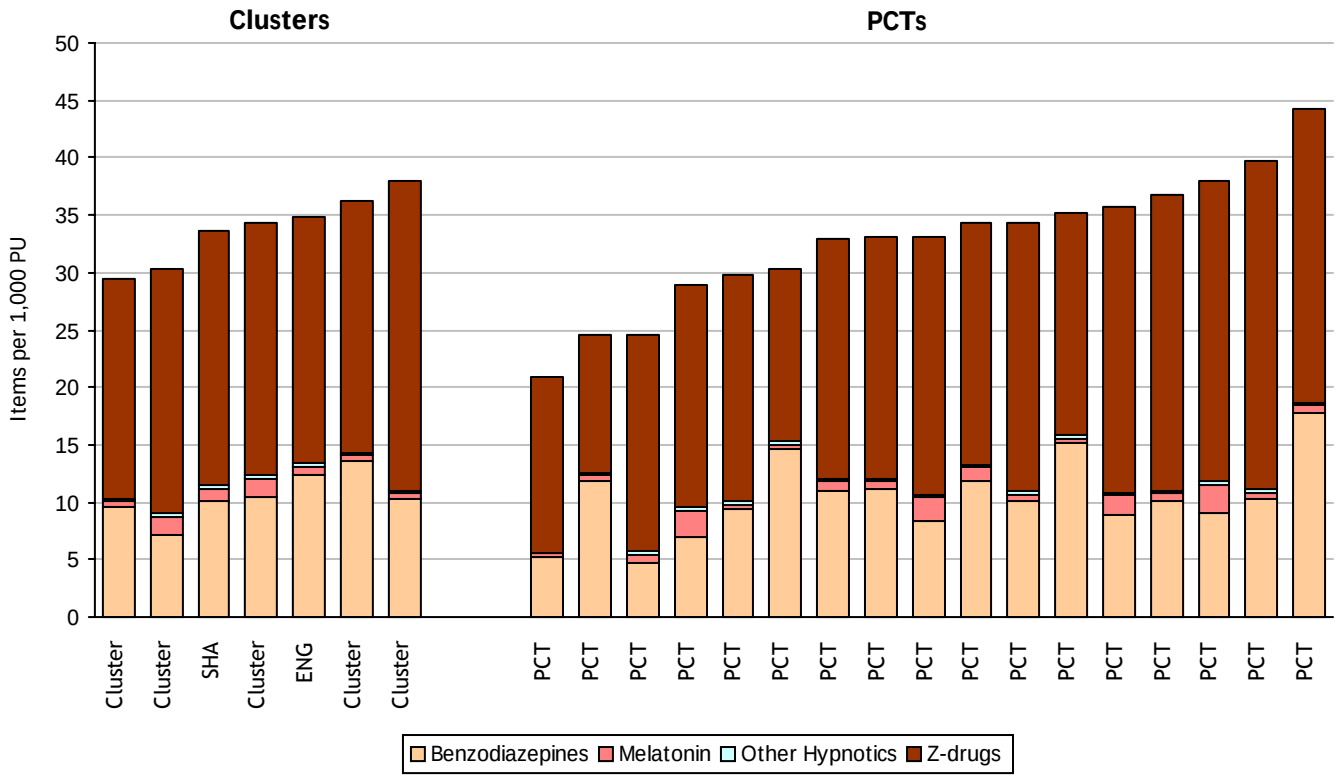
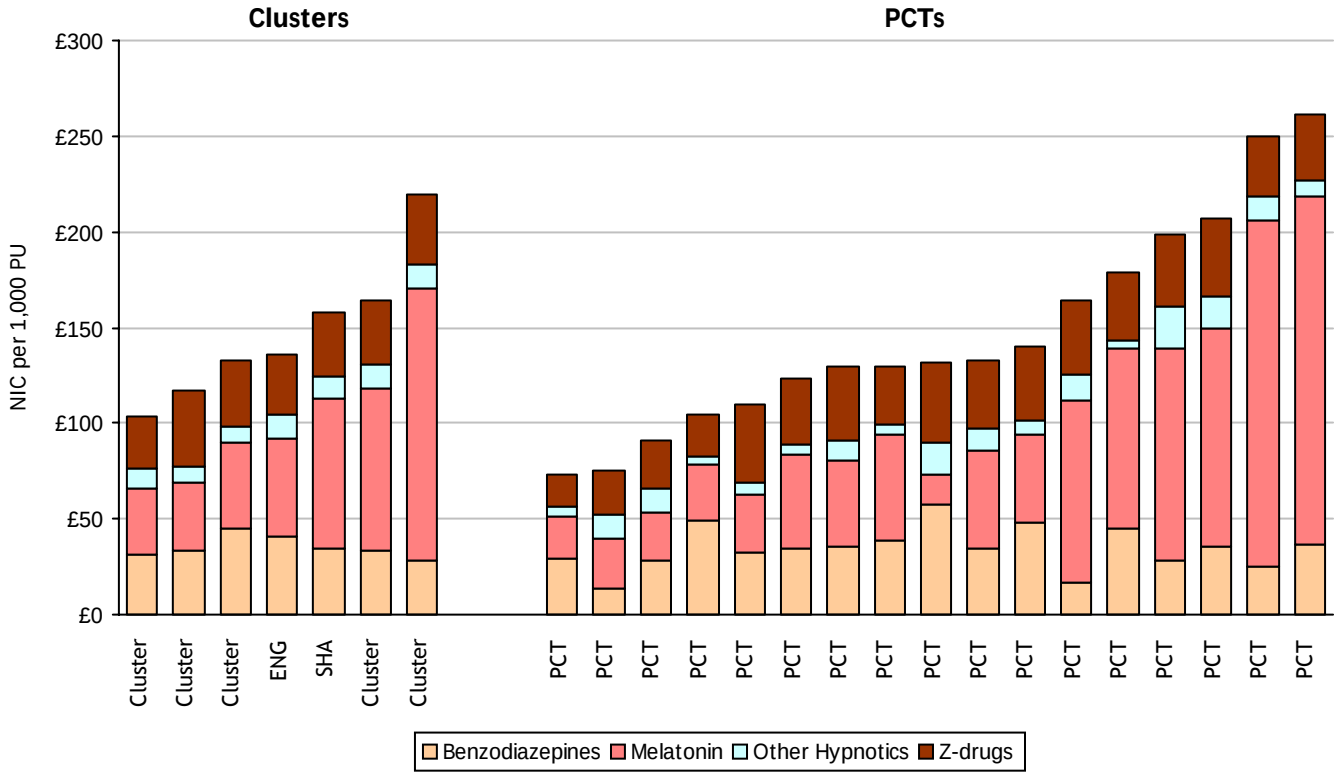


Fig 4 **West Midlands: Breakdown of Hypnotic Prescribing (BNF 4.1.1) by Spend (NIC), for the period Aug-11 to Oct-11**



Data: PPD

Fig 5 **West Midlands: Breakdown of Melatonin Prescribing (BNF 4.1.1) by Volume (Items), for the period Aug-11 to Oct-11**

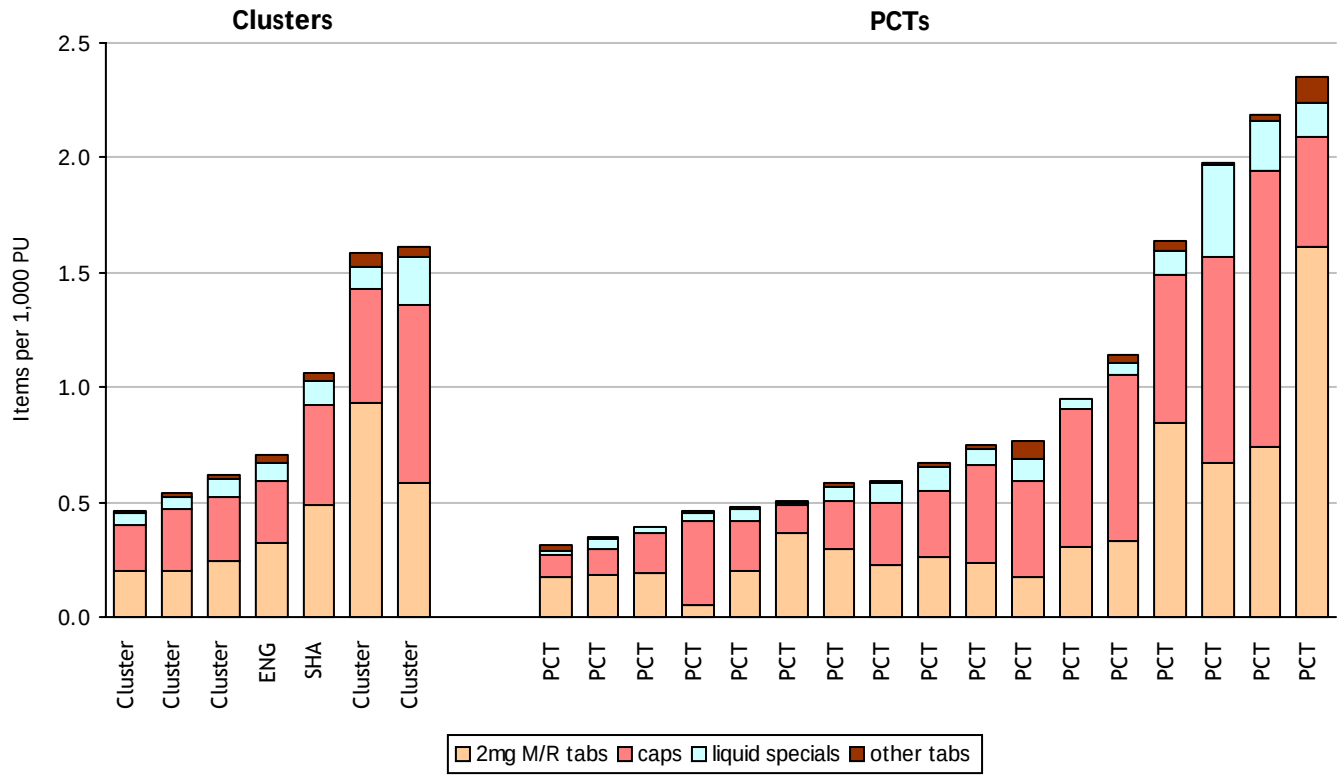
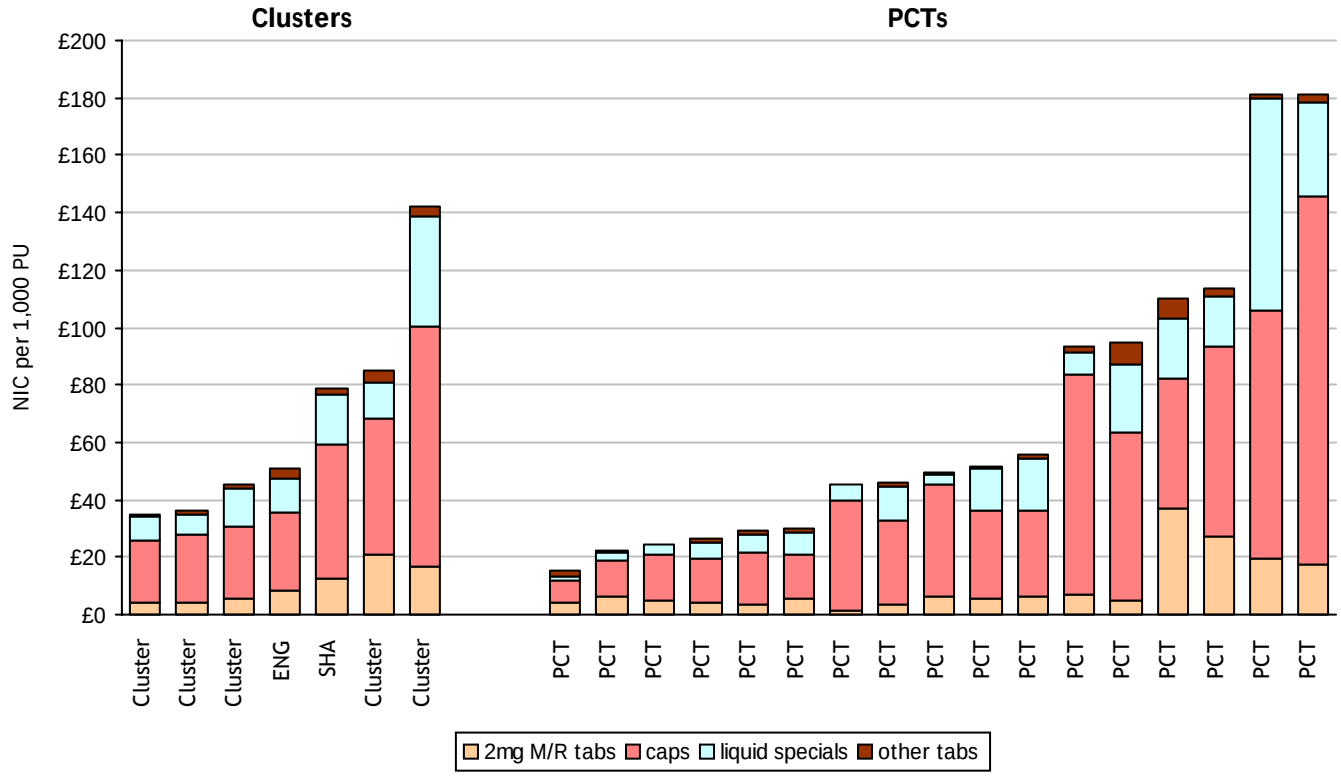
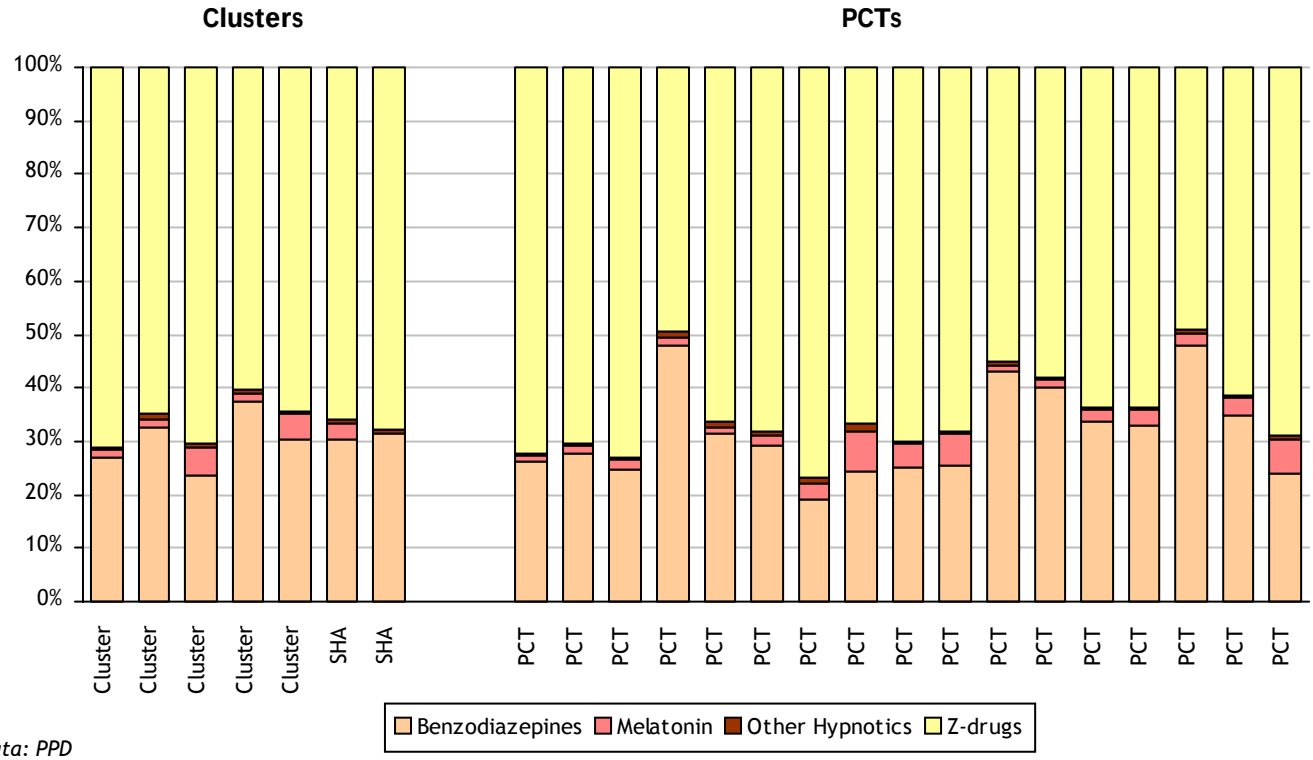


Fig 6 **West Midlands: Breakdown of Melatonin Prescribing (BNF 4.1.1) by Spend (NIC), for the period Aug-11 to Oct-11**



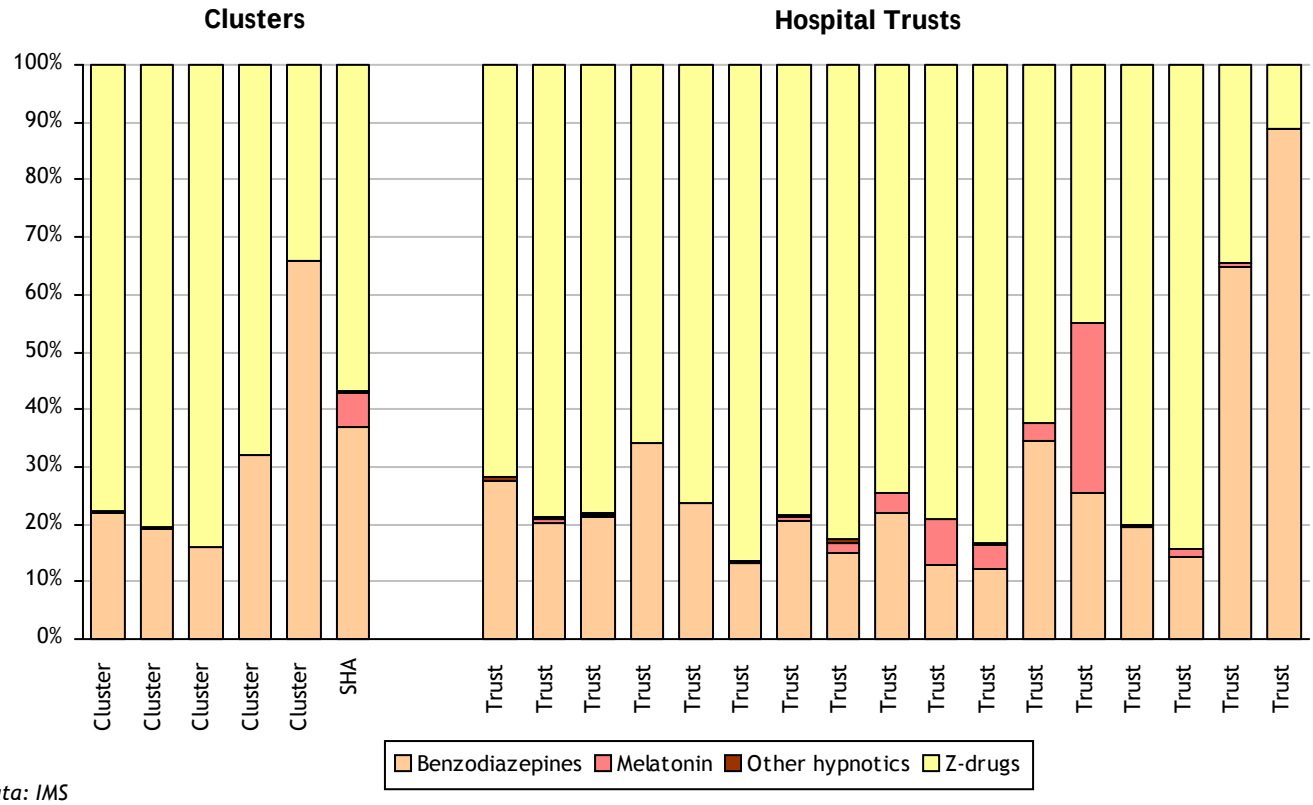
Data: PPD

Fig 1 **PRIMARY CARE - West Midlands: Breakdown of Hypnotic Prescribing (BNF 4.1.1) by Volume (Items), for the period Aug-11 to Oct-11**



Data: PPD

Fig 2 **SECONDARY CARE - West Midlands: Breakdown of Hypnotic Prescribing (BNF 4.1.1) by Volume (Packs), for the period Aug-11 to Oct-11**



Data: IMS

Prescribing Information *to support* QIPP

Section: K

PPIs

January 2012

EXAMPLE

What are the issues?

- Proton Pump Inhibitors (PPIs) are highly effective in the suppression of gastric acid. They are used in primary care for the short-term treatment of gastric and duodenal ulcers, in regimens with antibacterials to eradicate *Helicobacter pylori*, and in the management of Zollinger-Ellison syndrome, Barrett's oesophagus, dyspepsia and gastro-oesophageal reflux disease.[1] PPIs also have a valuable role in the prevention and treatment of NSAID-associated ulcers. However, some authors have speculated that there has been a liberalisation in their use for treating upper GI symptoms, suggesting that a substantial proportion of patients receive PPIs where there is no true indication for treatment.[2] Data provided overleaf indicate that PPI prescribing is continuing to increase in the West Midlands.

- As discussed by the NPC, when comparing equivalent doses "*there is nothing in the evidence base that strongly and consistently favours one PPI over the other*".[3] **Therefore, the key QIPP message remains to promote, where appropriate, the use of low-cost generic PPIs (i.e. generic omeprazole, lansoprazole or pantoprazole).** The use of PPIs with the lowest acquisition cost is also advocated by NICE, in guidance on the management of dyspepsia,[4] and for osteoarthritis, when the co-prescription of a PPI with an NSAID/COX-2 inhibitor is required.[5] Although this message is now well-established, based on our data, some PCTs may still find considerable potential savings through the wider use of lower cost PPIs.

- Whilst generally well-tolerated, prescribers should be aware that there is evidence concerning the risks of long-term PPI use, including an increased risk of fracture, pneumonia and a possible increased risk of *Clostridium difficile* infection.[3] (Indeed, HPA advice on *Clostridium difficile* recommends that PPIs should only be used where there is a clear clinical indication.[6]) As such, the benefits of PPIs should be balanced against the potential risks, particularly in relation to long-term use of PPIs, at high doses.

- Previous studies have suggested a possible drug interaction between clopidogrel and PPIs. Current advice from the MHRA is that **the use of either omeprazole or esomeprazole with clopidogrel should be discouraged**.[7] Current evidence does not support extending this advice to other PPIs. Generic lansoprazole or pantoprazole may therefore be the preferred low cost PPIs for this patient group.

- NICE guidance on dyspepsia advocates an **annual review** of patients requiring long-term management of symptoms, encouraging them to try stepping down or stopping treatment.[4] For patients discontinuing treatment, NICE advises that self-treatment with antacid and/or alginate therapy (either prescribed or purchased over-the-counter and taken as required) may be appropriate.[4] There is evidence to suggest that for some patients, PPI withdrawal may induce rebound acid secretion.[8] Therefore, patients should be informed of this potential adverse effect when trialing a reduction in their PPI dose, and it is pragmatic for prescribers to offer advice on managing their symptoms should this occur, e.g. intermittent dosing where clinically appropriate or use of antacid/alginate treatments.

What are the actions?

- Review the prescribing data overleaf. How does your organisation compare with other West Midlands organisations?
- Ensure that local prescribing guidance is consistent with NICE guidelines on dyspepsia.[4]
    - Review patients annually who require long-term treatment and encourage patients to try stepping-down to the lowest dose to control symptoms or stopping PPI treatment.
    - Provide patients with potential strategies to manage rebound acid hypersecretion. (*There is currently little in the way of evidence to guide management strategies for rebound acid hypersecretion. Potential options may include intermittent dosing with a PPI or the use of antacids or alginates to manage symptoms. Re-institution of treatment followed by a tapered step-down and withdrawal could also be considered.*)
- Discontinue a patient's PPI use where there is no clear indication for long-term treatment.
- Ensure that the use of PPIs with NSAIDs/COX-2 inhibitors is in accordance with NICE guidance,[5] in particular that the PPI with the lowest acquisition cost is prescribed.
- For patients receiving clopidogrel, check that PPI use is in line with the latest MHRA safety guidance (i.e. is not being used in conjunction with either omeprazole or esomeprazole).[7]
- Review patients discharged from hospital on a PPI. Did they require it **before** being admitted to hospital? Do the still require the PPI after discharge?

Cost Implications:

- In relation to PPI prescribing, in table 1 we show potential savings for local organisations that may be achieved through the wider use of low cost PPIs.
- There have been category M price changes for some PPIs, which have helped drive the substantial reduction in prescribing costs for PPIs over the past year (as illustrated by the reduction in NIC per DDD across West Midlands organisations shown in table 3). This table also illustrates potential savings for some organisations that may be achieved through prescribing at a lower cost per DDD. The West Midlands Medicines Management Network performance indicator for PPI prescribing is also presented, comparing this year's and last year's performance.
- An updated cost-comparison chart for PPIs is provided in table 2.
- We have also included prescribing trends and a comparative breakdown of PPI prescribing across PCTs, and shown hospital data which may be helpful in your discussions with providers, commissioners and practices.

LATE NEWS: Generic versions of esomeprazole have recently been launched in the UK. Although there are some savings associated with use of generic esomeprazole, existing low-cost PPIs (e.g. low-cost formulations of omeprazole, lansoprazole and pantoprazole) are at the time of writing associated with substantially lower acquisition-costs than generic esomeprazole.

References:

1. British National Formulary 62. September 2011. bnf.org . 2011. 16-11-2011.
2. McColl KE, Gillen D. Evidence that proton-pump inhibitor therapy induces the symptoms it is used to treat. Gastroenterology 2009;137:20-2.
3. NPC QIPP e-learning materials. Proton Pump Inhibitors. National Prescribing Centre. 2011. http://www.npc.nhs.uk/qipp/resources/proton_pump_inhibitors_qipp_notes.doc <accessed 11/2011>
4. NICE Guideline CG17: Dyspepsia. National Institute for Health and Clinical Excellence. 2004. http://www.nice.org.uk/nicemedia/live/10950/29460/29460.pdf <accessed 11/2011>
5. NICE Guideline CG59: Osteoarthritis. National Institute for Health and Clinical Excellence. 2008. http://www.nice.org.uk/nicemedia/live/11926/39557/39557.pdf <accessed 11/2011>
6. *Clostridium difficile* infection:How to deal with the problem. Health Protection Agency. 2008. http://www.hpa.org.uk/webc/HPAwebFile/HPAweb_C/1232006607827 <accessed 11/2011>
7. Clopidogrel and proton pump inhibitors: interaction-updated advice. Drug Safety Update. Volume 3, Issue 9 April 2010. Medicines and Healthcare products Regulatory Agency. 2010. http://www.mhra.gov.uk/Safetyinformation/DrugSafetyUpdate/CON087711 <accessed 11/2011>
8. Reimer C, Sondergaard B, Hilsted L et al. Proton-pump inhibitor therapy induces acid-related symptoms in healthy volunteers after withdrawal of therapy. Gastroenterology 2009;137:80-7.

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Table 1 **Potential savings from switching existing patients to low-cost* PPIs in your PCT**

Low-cost* DDDs (Aug-11 to Oct-11)	1,885,000
Low-cost* NIC (Aug-11 to Oct-11)	£123,709
Low-cost NIC per DDD	£0.07
Other PPI DDDs (Aug-11 to Oct-11)	137,557
Other PPI NIC (Aug-11 to Oct-11)	£100,477
Other PPIs NIC per DDD	£0.73

Potential Annual Saving from Prescribing Low-cost PPIs instead of other PPIs:

25% of DDDs:	£91,450
50% of DDDs:	£182,900
90% of DDDs:	£329,219

Data: PPD

** low cost PPIs are defined as generic omeprazole capsules, generic lansoprazole capsules and generic pantoprazole tablets*

Table 2 **Cost Comparison of PPIs**

Group	Formulation	Cost per 28 days	No. of people treated for £100 per month at usual dose
Low-cost PPIs	**Omeprazole: Generic 20mg capsule**	**£1.51**	**66.2**
	Lansoprazole: Generic 30mg capsule	**£1.72**	**58.1**
	Pantoprazole: Generic 40mg tablet	**£1.93**	**51.8**
Other PPIs	Lansoprazole: Zoton FasTab® 30mg	£5.50	18.2
	Omeprazole: Losec MUPS 20mg	£11.60	8.6
	Esomeprazole: Emozul® 20mg tablet	£13.88	7.2
	Rabeprazole: Pariet® 20mg	£17.54	5.7
	Esomeprazole: Generic 20mg tablet	£18.50	5.4
	Esomeprazole: Emozul® 40mg tablet	£18.89	5.3
	Esomeprazole: Generic 40mg tablet	£25.19	4.0

Prices: MIMS and Drug Tariff January 2012

The following table is based on data for the last 3 months (Aug-11 to Oct-11). Savings are then extrapolated from this data to give an annual saving which is based on current data.

It is likely that those PCTs with a lower cost per DDD for PPIs are already in the process of promoting cost-effective prescribing in this area.

Table 3 PPIs (BNF 1.3.5): Potential Savings from Prescribing at a Lower Cost per DDD

PCT	NIC per DDD	% change in NIC per DDD*	WM Indicator^ (Quarterly)		Potential Annual Saving
			Oct-11	Oct-10	
PCT	£0.12	-24%	89.5%	87.4%	£110,781
PCT	£0.10	-29%	93.3%	91.9%	£0
PCT	£0.13	-28%	88.6%	84.7%	£236,888
PCT	£0.13	-23%	91.0%	88.9%	£96,516
Cluster	**£0.12**	**-26%**	**89.8%**	**86.9%**	**£444,185**
PCT	£0.10	-27%	94.3%	92.7%	£0
PCT	£0.11	-26%	92.2%	91.2%	£0
PCT	£0.12	-24%	92.7%	91.7%	£47,848
PCT	£0.11	-29%	93.3%	90.5%	£6,798
Cluster	**£0.11**	**-27%**	**93.1%**	**91.4%**	**£54,645**
PCT	£0.10	-24%	94.6%	94.2%	£0
PCT	£0.13	-24%	92.7%	92.1%	£99,301
PCT	£0.11	-25%	93.7%	92.3%	£7,345
PCT	£0.12	-30%	93.0%	91.9%	£67,635
Cluster	**£0.11**	**-26%**	**93.5%**	**92.6%**	**£174,281**
PCT	£0.11	-30%	92.7%	90.2%	£0
PCT	£0.12	-26%	91.7%	89.6%	£107,168
Cluster	**£0.11**	**-27%**	**92.1%**	**89.8%**	**£107,168**
PCT	£0.11	-23%	91.9%	91.0%	£4,771
PCT	£0.11	-28%	92.1%	89.9%	£15,378
PCT	£0.11	-26%	93.4%	91.2%	£10,255
Cluster	**£0.11**	**-25%**	**92.3%**	**90.8%**	**£30,405**
SHA Totals	**£0.11**	**-26%**	**92.1%**	**90.2%**	**£810,685**

Data: PPD

** Change compared to the same period last year.*

^ West Midlands Medicines Management Network Performance Indicator: Increase the proportion of PPIs prescribed as generic omeprazole caps, generic lansoprazole caps or generic pantoprazole tabs - aspiration ≥ 92% (NOTE: This is different to the NPC QIPP indicator)

NOTE: We have selected the 25th percentile NIC per DDD value as the benchmark. Therefore, savings in this lowest quartile are £0. This does not necessarily mean that prescribing cost cannot be improved in this area.

Fig 1 **PPIs (BNF 1.3.5): Quarterly Volume (Items) and Spend (NIC) in EXAMPLE**

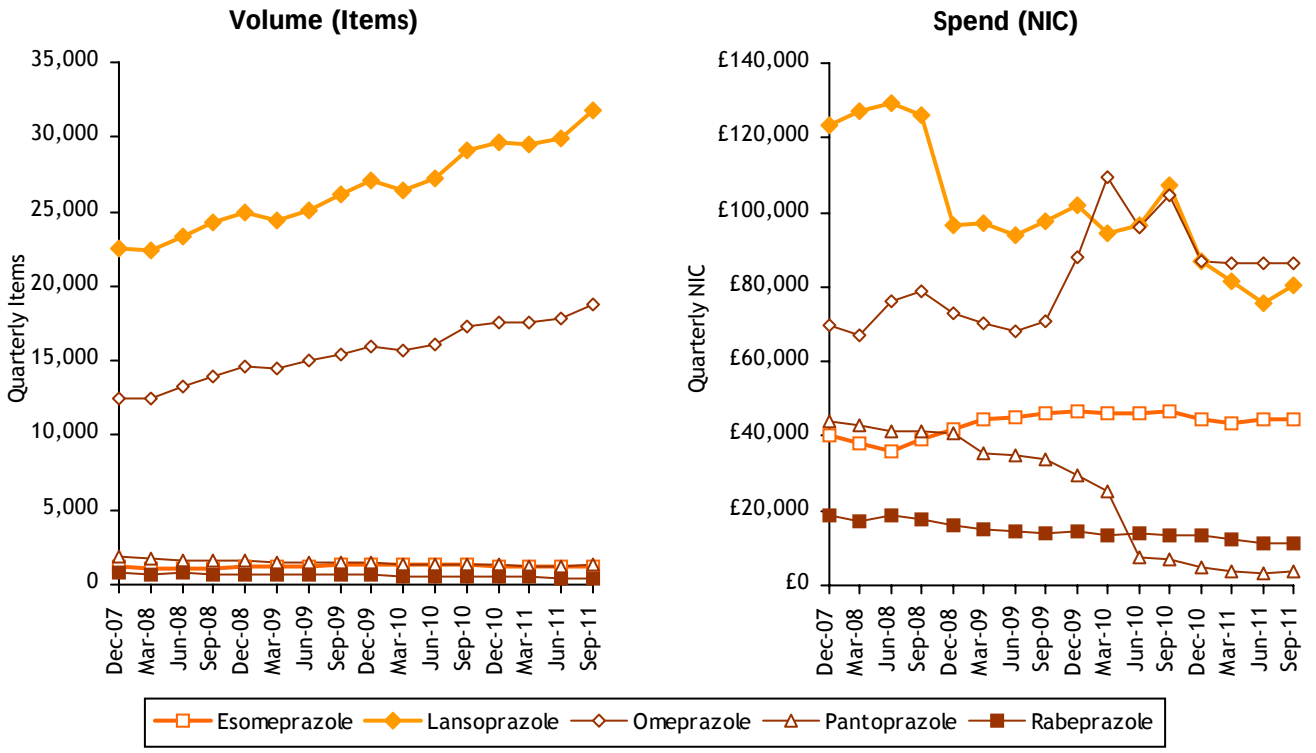
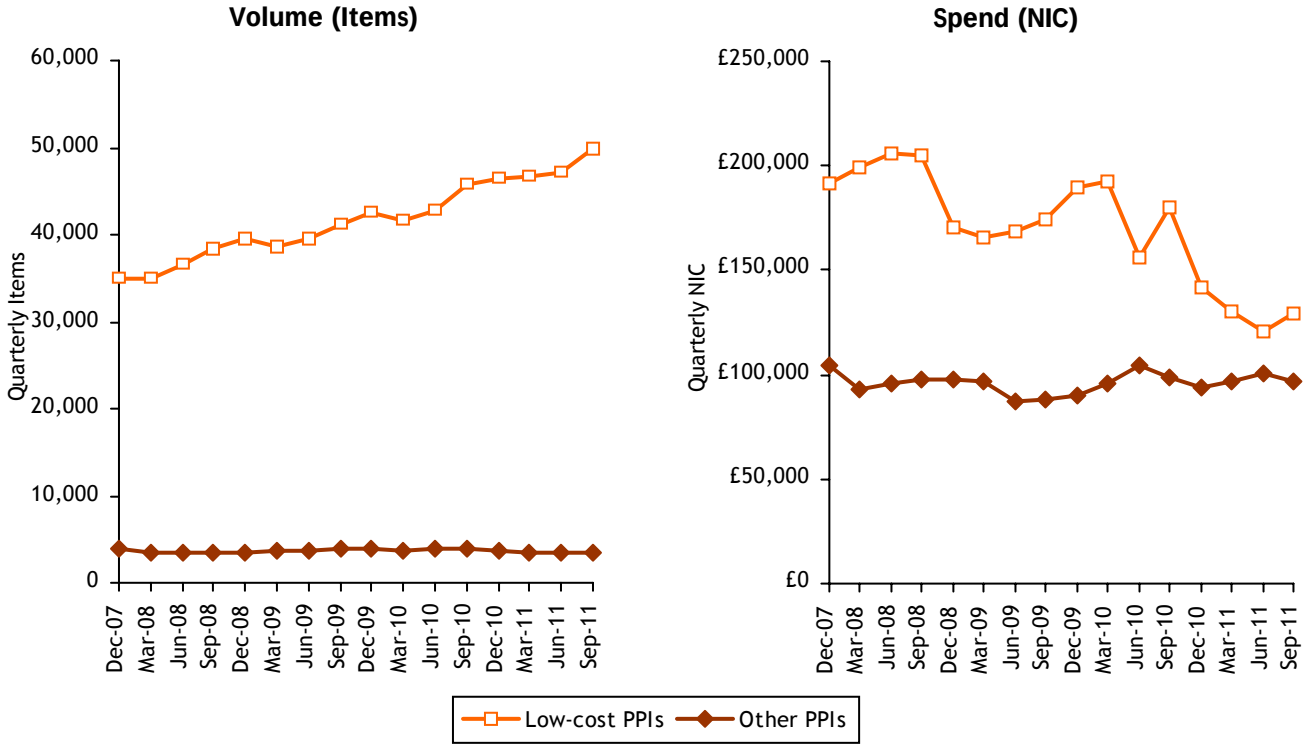


Fig 2 **Low-cost PPIs (BNF 1.3.5): Quarterly Volume (Items) and Spend (NIC) in EXAMPLE**



Data: PPD

** low cost PPIs are defined as generic omeprazole capsules, generic lansoprazole capsules and generic pantoprazole tablets*

Fig 3 **West Midlands: Breakdown of PPI Prescribing (BNF 1.3.5) by Volume (Items), for the period Aug-11 to Oct-11**

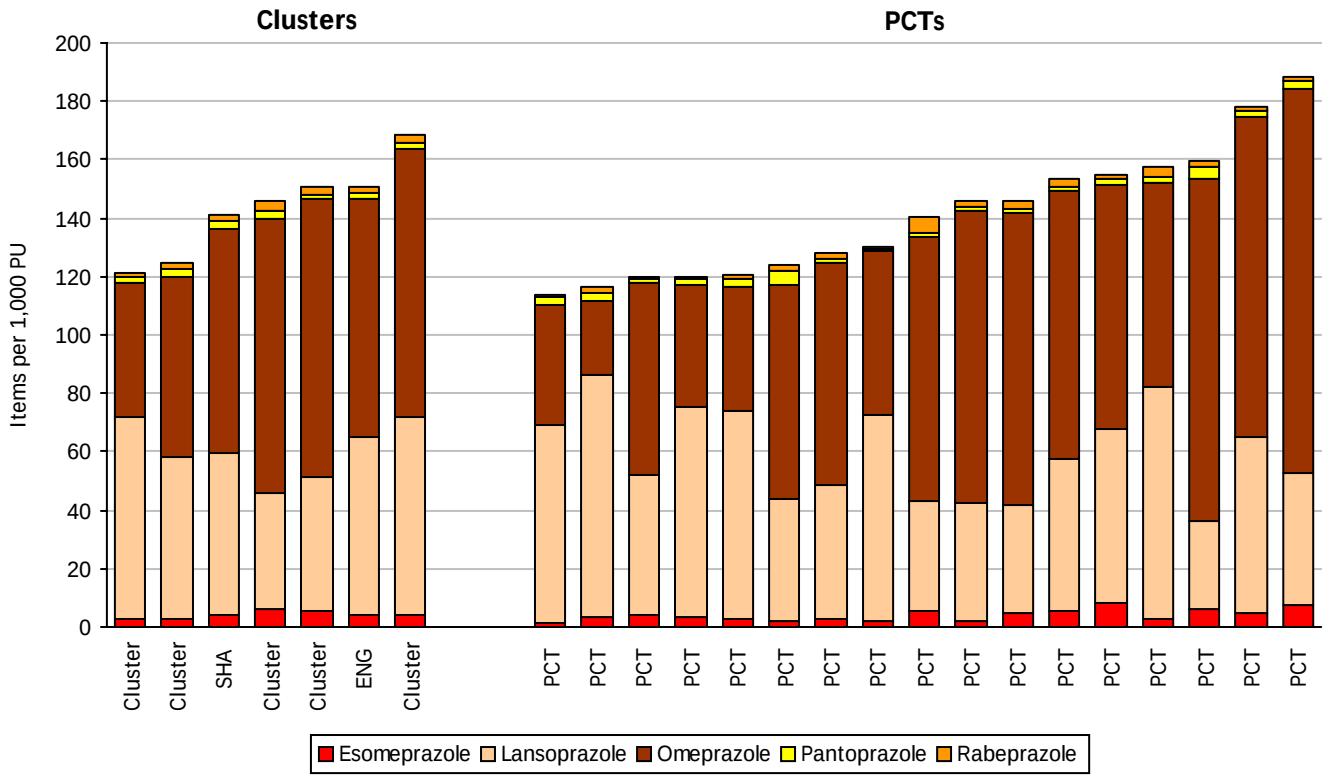
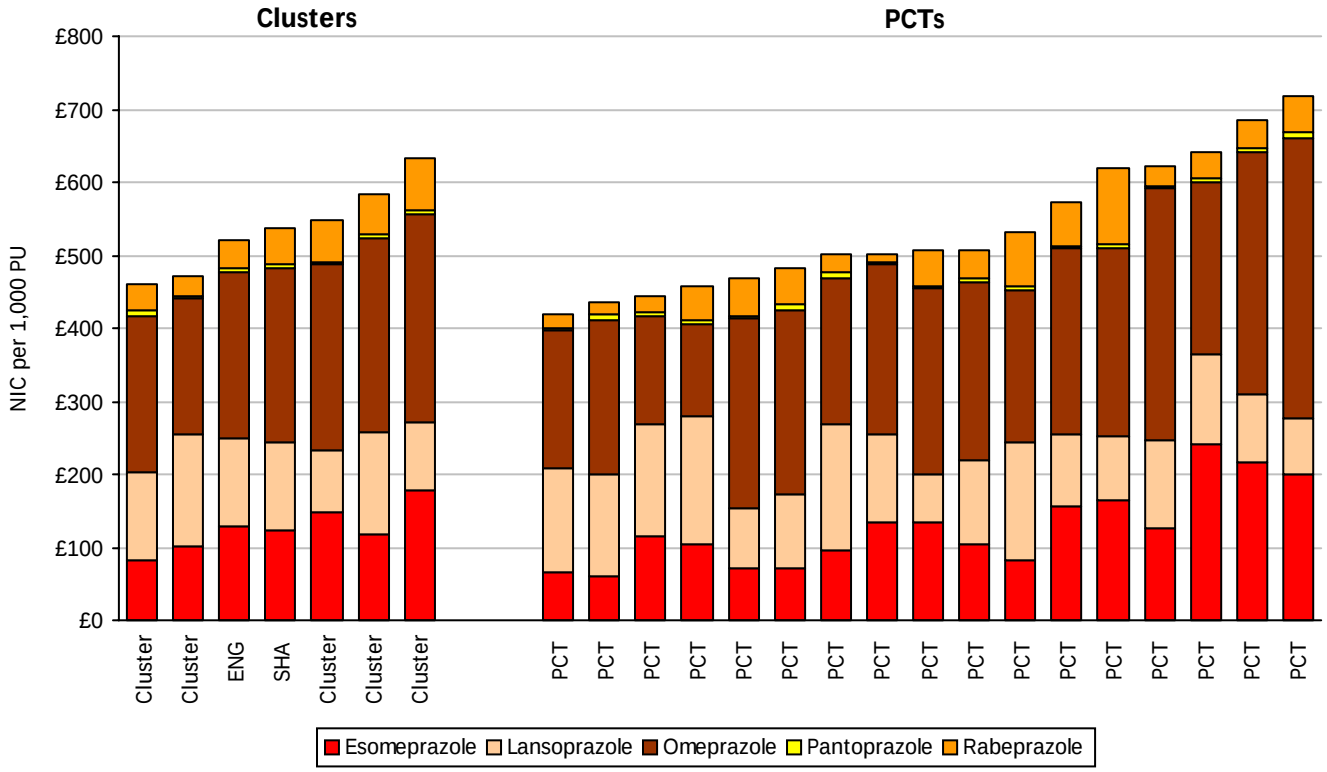


Fig 4 **West Midlands: Breakdown of PPI Prescribing (BNF 1.3.5) by Spend (NIC), for the period Aug-11 to Oct-11**



Data: PPD

Fig 5 **West Midlands: Breakdown of Low-cost PPI Prescribing (BNF 1.3.5) by Volume (Items), for the period Aug-11 to Oct-11**

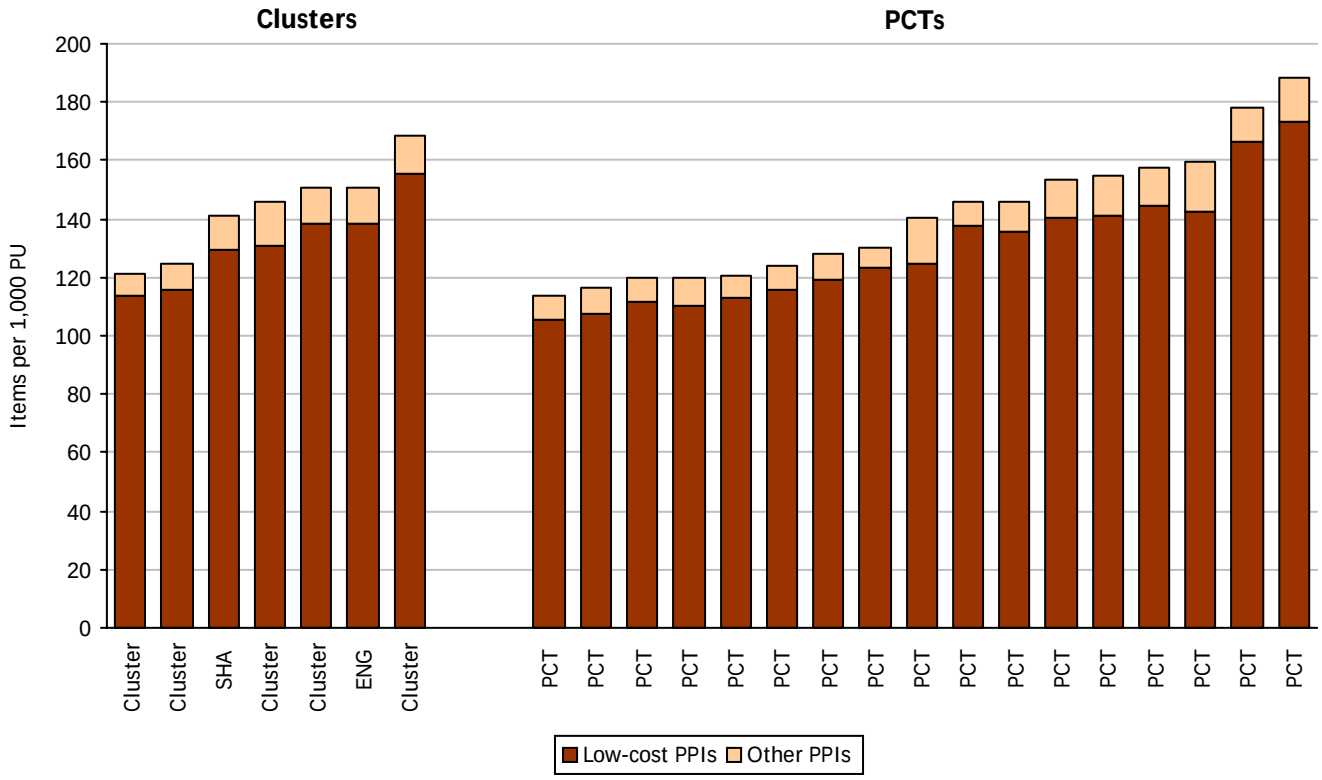
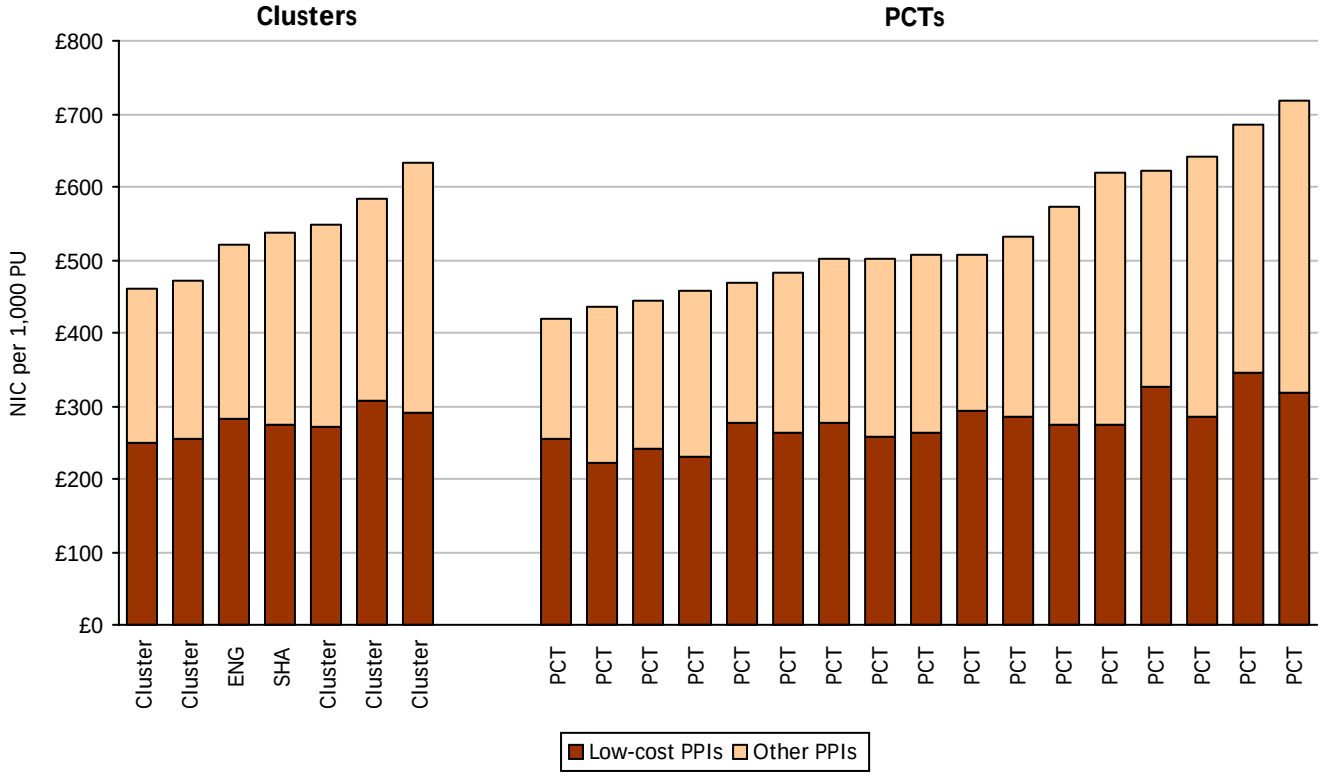


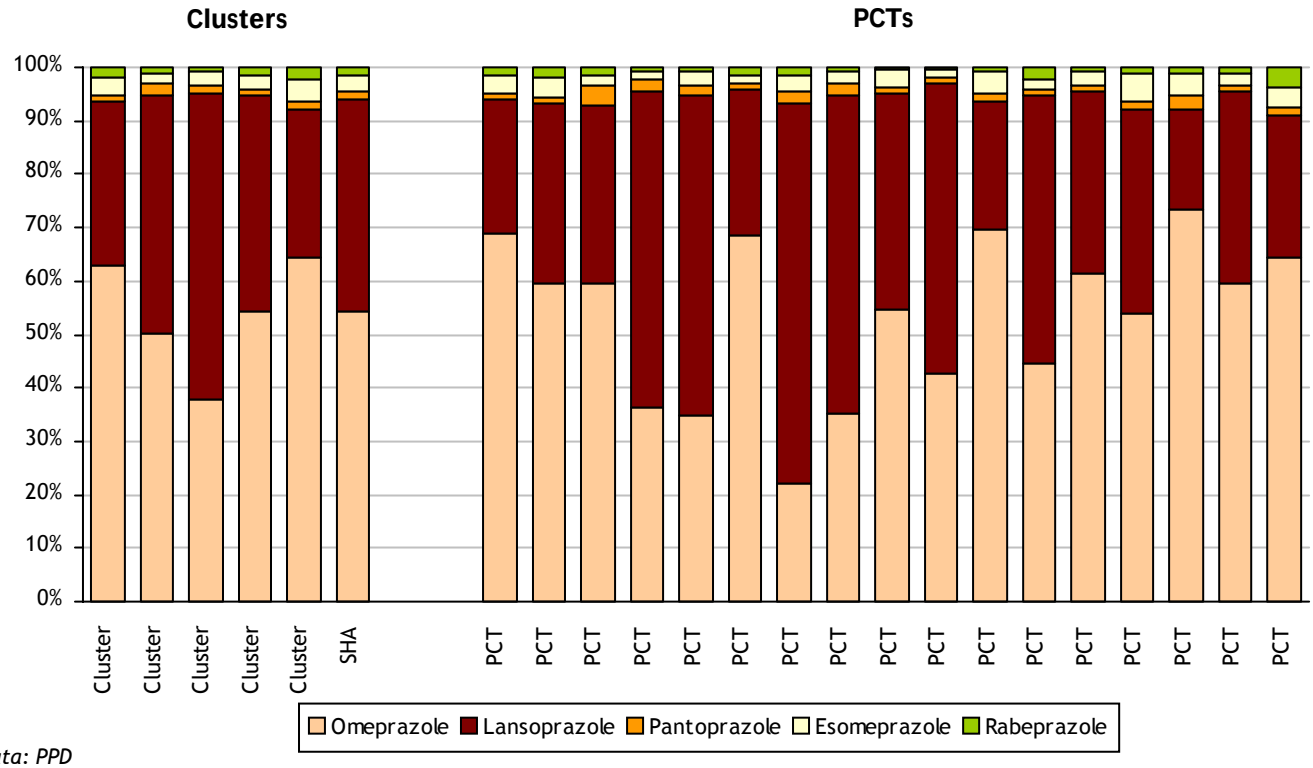
Fig 6 **West Midlands: Breakdown of Low-cost PPI Prescribing (BNF 1.3.5) by Spend (NIC), for the period Aug-11 to Oct-11**



Data: PPD

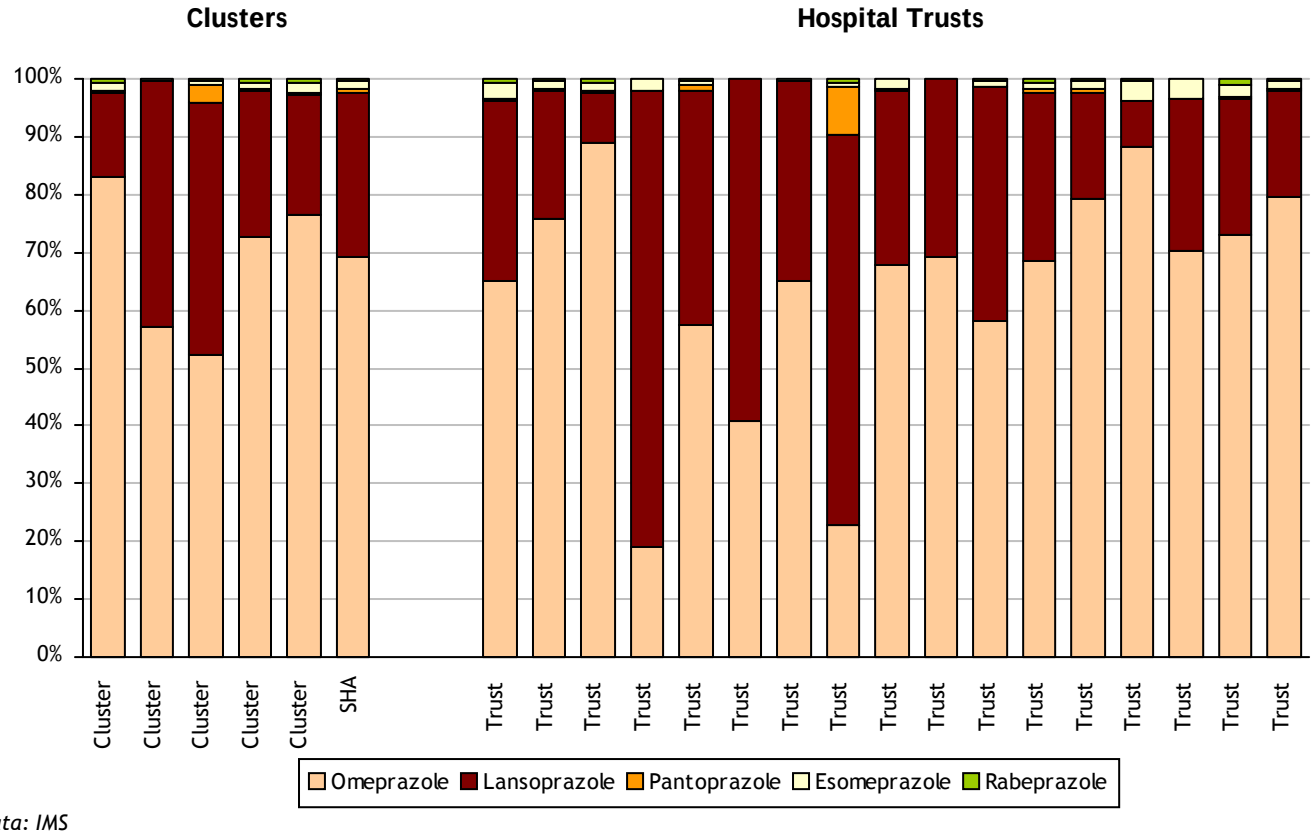
** low cost PPIs are defined as generic omeprazole capsules, generic lansoprazole capsules and generic pantoprazole tablets*

Fig 1 **PRIMARY CARE - West Midlands: Breakdown of PPI Prescribing (BNF 1.3.5) by Volume (Items), for the period Aug-11 to Oct-11**



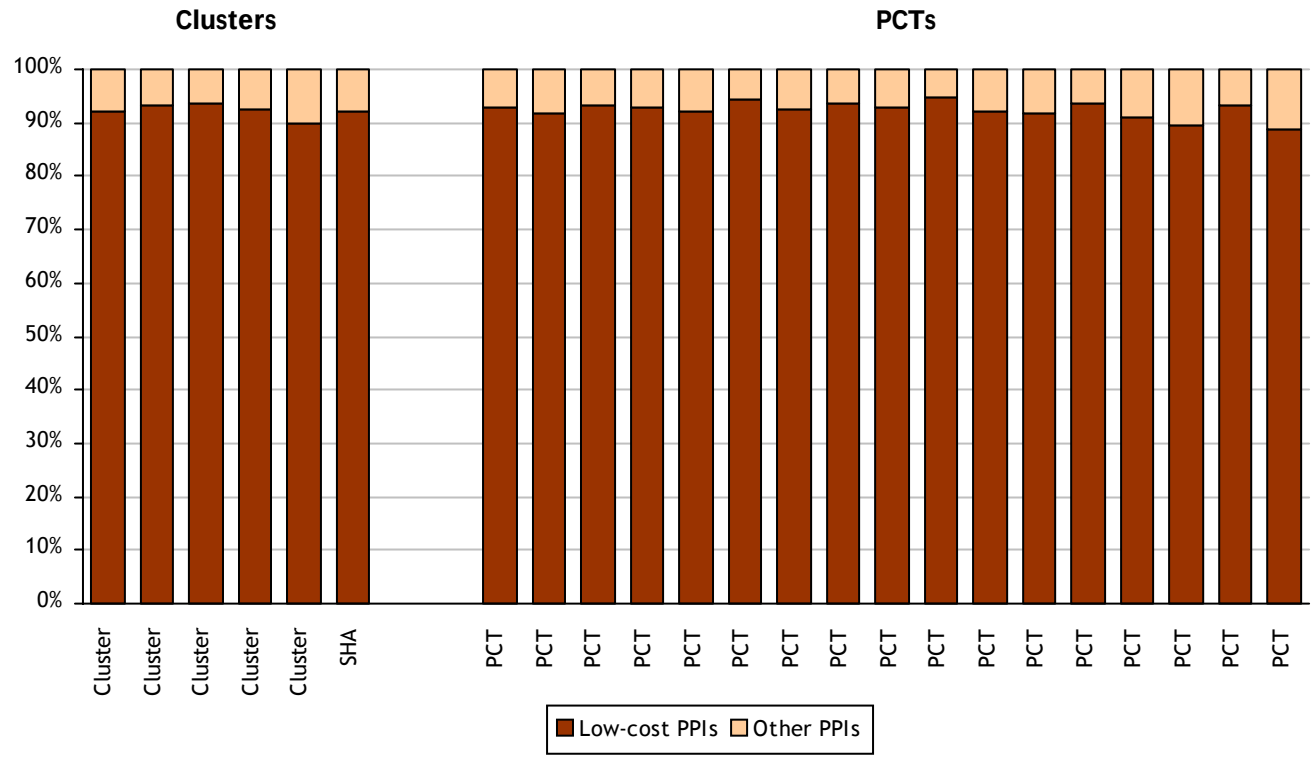
Data: PPD

Fig 2 **SECONDARY CARE - West Midlands: Breakdown of PPI Prescribing (BNF 1.3.5) by Volume (Packs), for the period Aug-11 to Oct-11**



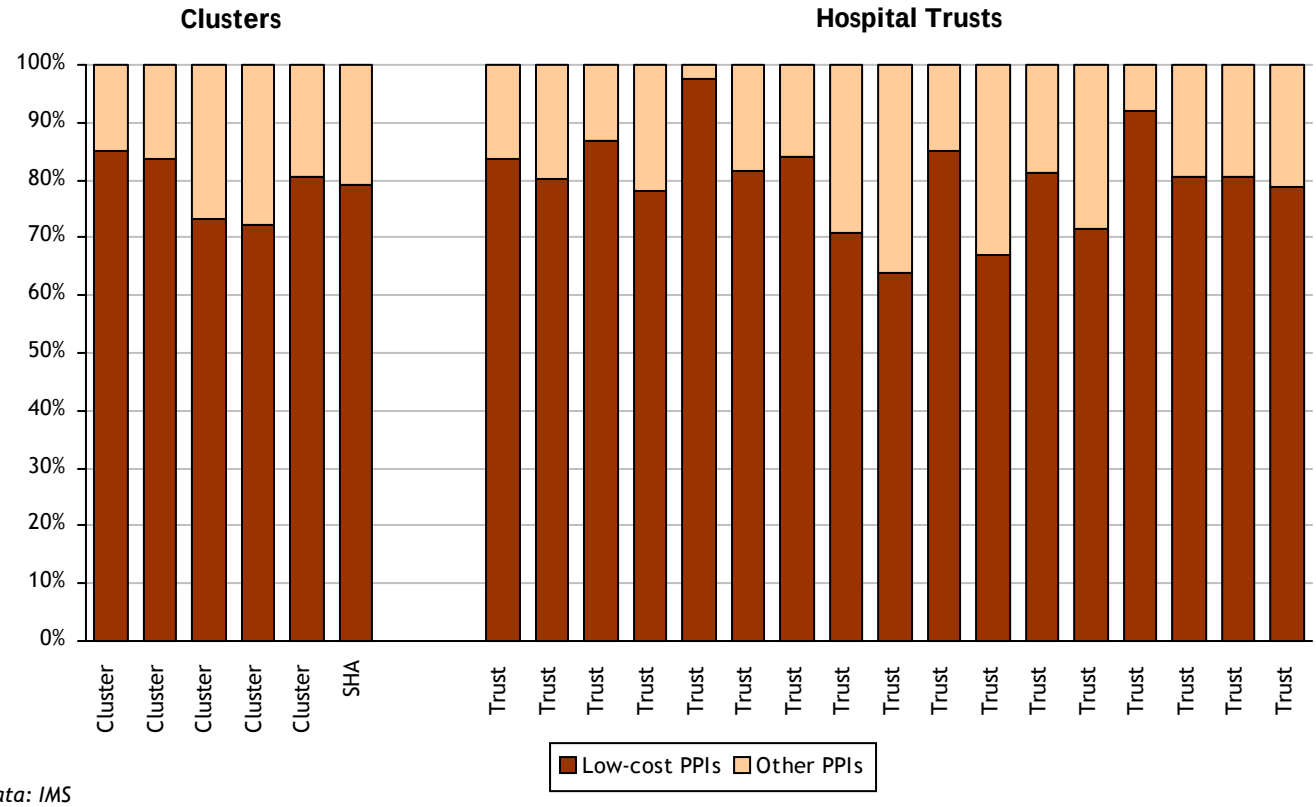
Data: IMS

Fig 3 **PRIMARY CARE - West Midlands: Breakdown of Low-cost PPI* Prescribing (BNF 1.3.5) by Volume (Items) for the period Aug-11 to Oct-11**



Data: PPD

Fig 4 **SECONDARY CARE - West Midlands: Breakdown of Low-cost PPI* Prescribing (BNF 1.3.5) by Volume (Packs) for the period Aug-11 to Oct-11**



Data: IMS

** low cost PPIs are defined as generic omeprazole capsules, generic lansoprazole capsules and generic pantoprazole tablets*

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Prescribing Information *to support* QIPP

Section: L

Clopidogrel

January 2012

EXAMPLE

What are the issues?

Oral antiplatelets for primary prevention

- Aspirin should only be used after careful consideration of the individual risks and benefits and consultation with the patient for the primary prevention of cardiovascular disease (CVD).[1]
- Aspirin is not licensed for primary prevention. Clopidogrel, prasugrel and ticagrelor are also not licensed for primary prevention.
- The MHRA highlighted that if aspirin is used in primary prevention, the balance of benefits and risks should be considered for each individual, particularly the presence of risk factors for vascular disease (including conditions such as diabetes) and the risk of gastrointestinal bleeding.[1]
- This guidance was issued following the publication of two studies (AAA study and ATT collaboration) that looked at the use of aspirin in primary prevention and found the risk of having a major bleed outweighed any vascular benefit.

Oral antiplatelets for Secondary Prevention

Myocardial Infarction (MI)

- Aspirin should be offered to all patients after a MI and continued indefinitely.[2]
- Clopidogrel monotherapy should not be used first-line but can be considered for patients with aspirin hypersensitivity.

Non-ST-segment-elevation MI (NSTEMI) and unstable angina

- NICE recommends aspirin 75 mg daily long-term in combination with clopidogrel 75 mg daily for 12-months after the most resent acute episode; after this continue with aspirin alone.[3]
- Clopidogrel monotherapy can be considered for patients with aspirin hypersensitivity.[3]

ST-elevation MI (STEMI)

- After STEMI, patients should be treated with a combination of aspirin and clopidogrel within the first 24-hours – NICE recommends this combination should continue for at least four weeks.[2] After this continue with aspirin alone (unless there is another indication to continue dual antiplatelet therapy)

The NICE technology appraisal on clopidogrel and modified-release (M/R) dipyridamole for prevention of occlusive vascular events (TA210) recommends:[4]

- Clopidogrel for people who have had an **ischaemic stroke** or who have **peripheral arterial disease** or **multivascular disease** (not transient ischaemic attack - TIA).
- M/R dipyridamole and aspirin in combination is recommended (now not limited to 2 years duration):
  - For people who have had a **TIA** (clopidogrel is not licensed for TIA).
  - For people who have had an **ischaemic** stroke and where clopidogrel is not tolerated or contraindicated.
- M/R dipyridamole alone is recommended:
  - For people who have had an **ischaemic stroke** and where clopidogrel and aspirin are not tolerated or contraindicated.
  - For people who have had a **TIA** and aspirin is not tolerated or contraindicated.

Newer preparations

Prasugrel - NICE recommend prasugrel (in combination with aspirin) **as an option** in people with acute coronary syndromes (ACS) having percutaneous coronary intervention (PCI) only when immediate primary PCI for STEMI is necessary *or* stent thrombosis has occurred during clopidogrel treatment *or* the patient has diabetes.[5] MTRAC recommend that prasugrel should not be initiated within primary care as the potential benefits of the drug must be carefully balanced against the risk of bleeding.

Ticagrelor - is recommended by NICE **as an option** in combination with aspirin for up to 12-months in adults with ACS, that is people with STEMI, that cardiologists intend to treat with PCI *or* NSTEMI *or* admitted to hospital with unstable angina, defined as ST or T wave changes on electrocardiogram suggestive of ischaemia.[6] MTRAC considered ticagrelor to have **a low place in therapy** due to the lack of long-term safety and efficacy data (beyond 12 months) and the availability of alternative treatments at lower acquisition costs.

A note on branded Plavix® versus generic clopidogrel

There are now a number of generic versions of clopidogrel available on the UK market. The generic preparations of clopidogrel available in the UK contain different salts (either hydrochloride or besilate) from that of branded clopidogrel (hydrogen sulphate in Plavix®). Generic clopidogrel has been licensed as bioequivalent to Plavix® although there are differences between the licensed indications for the generic preparations and Plavix®; this is due to a patent protection issue. Available generic clopidogrel products are not licensed for use with aspirin for the treatment of ACS since patents are in place which precludes generics manufacturers from including this indication in their SPCs.

This should be viewed as a licensing difference rather than a clinical difference between the branded and the generic products.

What are the Actions?

- The availability of the newer oral antiplatelets (ticagrelor and prasugrel) will place a cost burden on the local health economy.
  - Ticagrelor - **A managed introduction will be crucial across-the-board**. All stakeholders (commissioners, Heart and Stroke Networks, primary care and secondary care clinicians) should be involved to ensure the appropriate patients are treated in the most appropriate way.
  - Prasugrel – NICE technology appraisal guidance (TAG) for the use of prasugrel in ACS was published in December 2010,[6] and the data shows a steady increase in its use since the TAG was published. **Check and monitor local prescribing/commissioning policies.**
  - Review and where appropriate revise prescribing of prasugrel to ensure it is in line with NICE recommendations.
- Policies and procedures should be in place to ensure that patients receiving *dual* antiplatelet therapy do not continue beyond the period recommended by NICE.
- All clopidogrel preparations (generic and branded) are licensed for the secondary prevention of atherothrombotic events in adults suffering from myocardial infarction (from a few days until less than 35 days), ischaemic stroke (from 7 days until less than 6 months) or established peripheral arterial disease.
- **In primary care, identify all patients currently using clopidogrel for these indications and make sure it is prescribed as generic clopidogrel (as clopidogrel hydrochloride or clopidogrel besilate).**

For patients with ACS: In order to release efficiency savings into the local health economy an agreement should be reached between primary and secondary care to promote generic clopidogrel use for ACS.

Cost Implications

- We have provided details of Coronary Heart Disease (CHD), stroke and TIA QOF prevalence and prescribing by PCT and cluster.
- We have demonstrated the potential savings by PCT and cluster of prescribing at a lower cost per DDD and a cost comparison chart of antiplatelet drugs.
- We have added in prescribing trends and comparisons in order to provide context. Those PCTs that have instituted generic prescribing for clopidogrel will notice the most profound reductions in spend.
- In addition we have provided hospital data which we hope that you will find helpful in your discussions with your provider trusts and commissioners:
  - Primary care versus secondary care prescribing data (issue data)
  - Hospital admissions data for ACS (weighted per 1,000 prescribing units). Where possible, we have provided a comparison to the previous year's data.

References

1. MHRA and CHM. Drug Safety Update. October 2009. http://www.mhra.gov.uk/Safetyinformation/DrugSafetyUpdate/CON087716 <accessed 01/2012>
2. National Institute for Health and Clinical Excellence. MI: Secondary Prevention. Clinical Guideline 48. Issued March 2007. http://guidance.nice.org.uk/CG48 <accessed 01/2012>
3. National Institute for Health and Clinical Excellence. Unstable angina and NSTEMI. Clinical Guideline 94. Issued March 2010. http://guidance.nice.org.uk/CG94 <accessed 01/2012>
4. National Institute for Health and Clinical Excellence. Clopidogrel and m/r dipyridamole for prevention of occlusive vascular events. Technology Appraisal 210. http://guidance.nice.org.uk/TA210 <accessed 01/2012>
5. National Institute for Health and Clinical Excellence. Prasugrel for treatment of acute coronary syndromes with PCI. Technology Appraisal 182. http://guidance.nice.org.uk/TA182 <accessed 01/2012>
6. Ticagrelor for the treatment of acute coronary syndromes. TA236. National Institute for Health and Clinical Excellence. 2011 http://www.nice.org.uk/nicemedia/live/13588/56819/56819.pdf <accessed 10/2011>

Fig 1 **West Midlands: CHD Prevalence and Prescribing (BNF Chapter 2) Rates for the period Apr-10 to Mar-11**

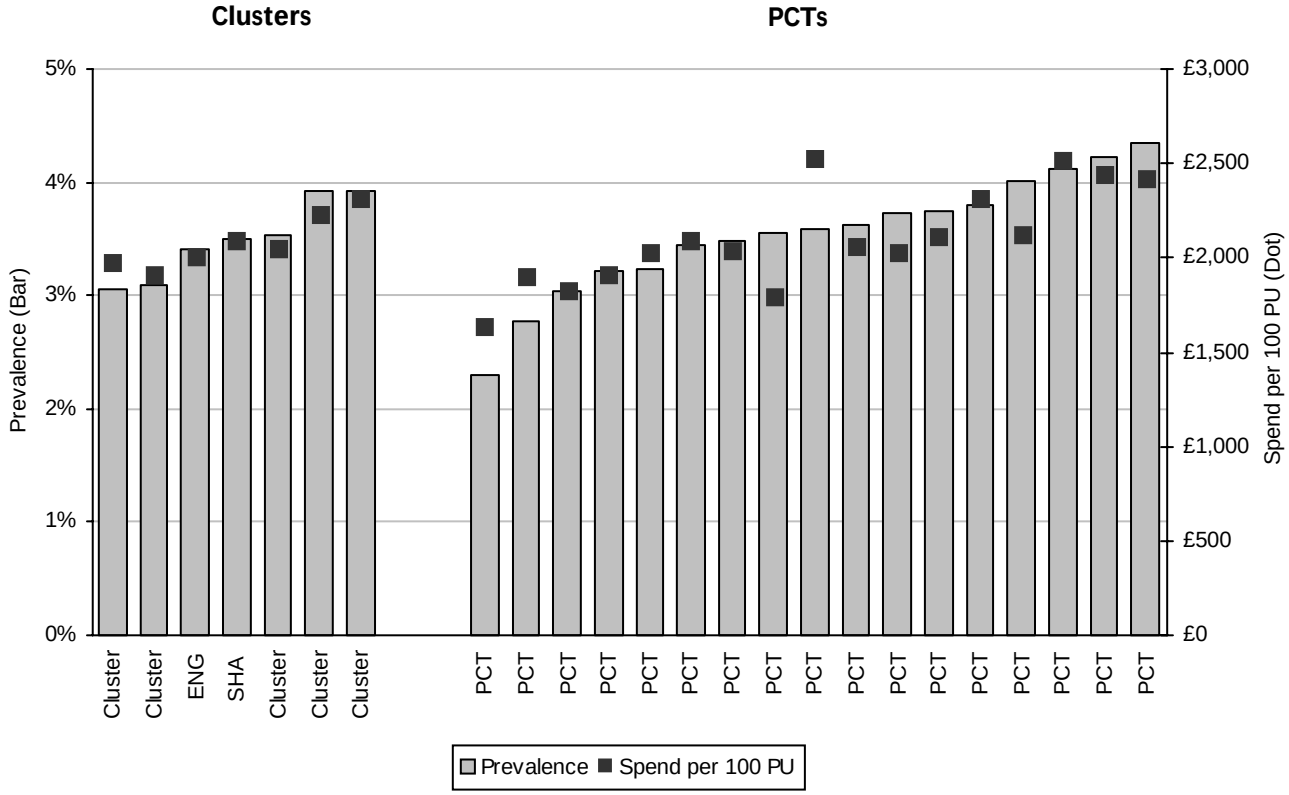
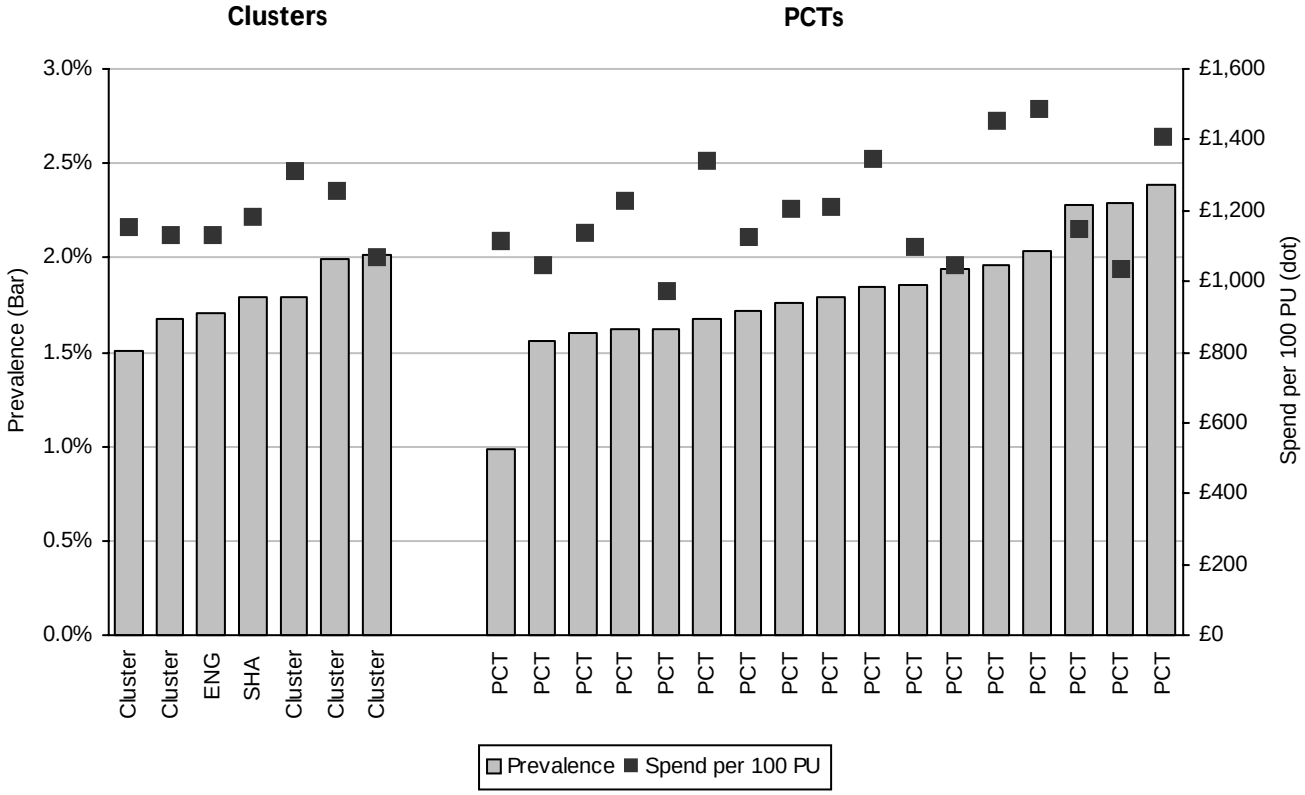


Fig 2 **West Midlands: Stroke & TIA Prevalence and Prescribing (clopidogrel, dipyridamole and 75mg aspirin [part of BNF Section 2.9]) Rates for the period Apr-10 to Mar-11**



Data: PPD and QOF

The following table is based on data for the last 3 months (Aug-11 to Oct-11). Savings are then extrapolated from this data to give an annual saving which is based on current data.

It is likely that those PCTs with a lower cost per DDD for antiplatelet drugs are already in the process of promoting cost-effective prescribing in this area.

Table 1 Antiplatelet Drugs (BNF 2.9): Potential Savings from Prescribing at a Lower Cost per DDD

PCT	NIC per DDD	% change in NIC per DDD*	WM Indicator^ (Quarterly)		Potential Annual Saving
			Oct-11	Oct-10	
PCT	£0.05	-16%	99.3%	98.6%	£0
PCT	£0.06	-20%	95.9%	91.7%	£42,121
PCT	£0.05	-21%	99.6%	95.4%	£13,457
PCT	£0.05	-28%	99.4%	91.7%	£0
Cluster	**£0.05**	**-20%**	**98.4%**	**95.5%**	**£55,578**
PCT	£0.06	-3%	99.0%	97.7%	£79,159
PCT	£0.05	-15%	99.2%	97.9%	£19,019
PCT	£0.05	-24%	98.9%	97.2%	£0
PCT	£0.05	-20%	97.9%	97.2%	£22,728
Cluster	**£0.05**	**-17%**	**98.7%**	**97.4%**	**£120,907**
PCT	£0.05	-14%	98.6%	97.1%	£28,610
PCT	£0.05	-17%	98.2%	94.9%	£19,726
PCT	£0.06	-14%	99.0%	97.8%	£92,541
PCT	£0.06	-18%	98.7%	91.6%	£107,643
Cluster	**£0.06**	**-16%**	**98.6%**	**95.2%**	**£248,521**
PCT	£0.05	-24%	98.6%	97.6%	£0
PCT	£0.05	-21%	99.1%	98.2%	£0
Cluster	**£0.05**	**-22%**	**98.9%**	**98.0%**	**£0**
PCT	£0.06	-19%	98.8%	97.0%	£35,775
PCT	£0.06	-19%	99.1%	96.3%	£50,887
PCT	£0.05	-17%	99.0%	97.4%	£20,483
Cluster	**£0.05**	**-18%**	**99.0%**	**97.0%**	**£107,146**
SHA Totals	**£0.05**	**-18%**	**98.7%**	**96.6%**	**£532,152**

Data: PPD

** Change compared to the same period last year.*

^ West Midlands Medicines Management Network Performance Indicator – Percentage of clopidogrel prescribed as generic 75mg tablets (and not written as hydrogen sulphate) – Aspiration > 99% (Note: This differs from the NPC indicator for clopidogrel prescribing)

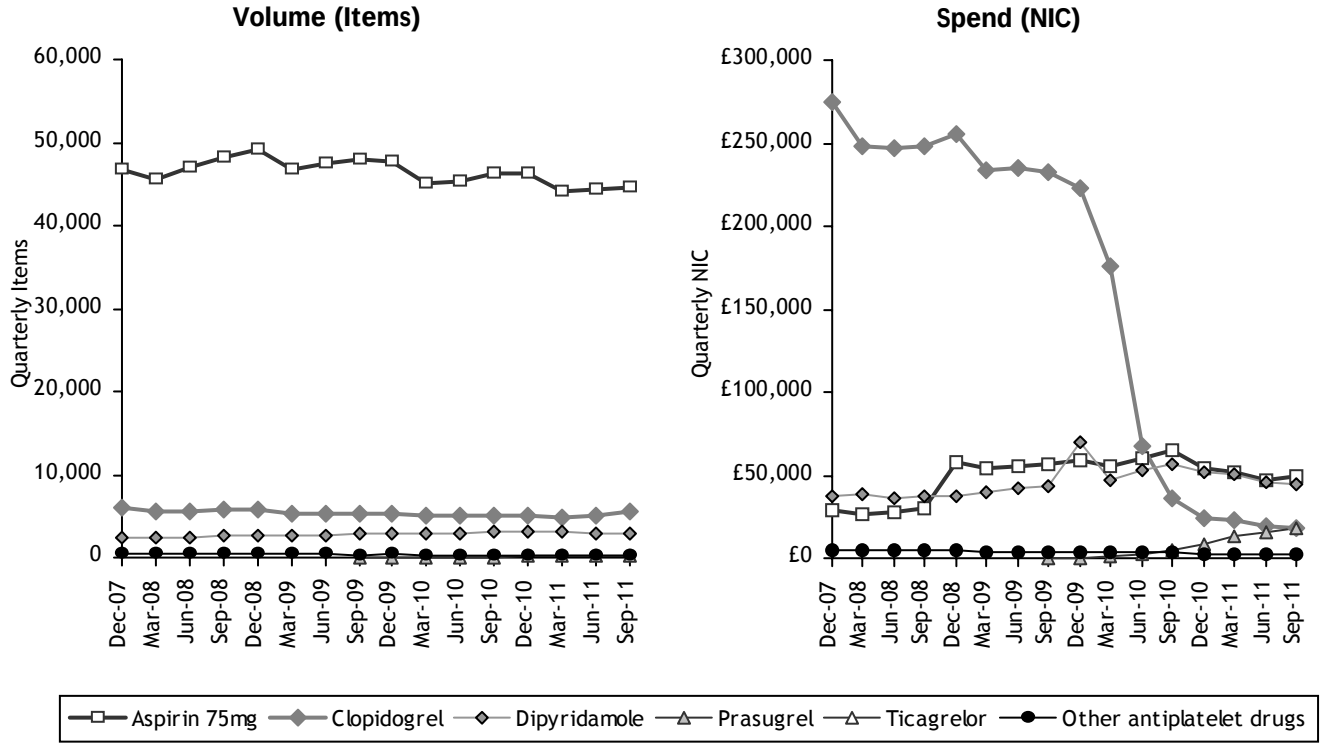
NOTE: We have selected the 25th percentile NIC per DDD value, which raises the benchmark compared to previous reports which benchmarked on the lowest NIC per DDD value. Therefore savings in this lowest quartile are now £0. This does not necessarily mean that prescribing cost cannot be improved in this area.

Table 2 **Cost Comparison of Antiplatelet Drugs**

Drug	Usual dose	Cost per 28 days	No. of people treated for £100 per month
Aspirin (dispersible)	75mg	£0.27	372.0
Aspirin (G/R tablet)	75mg	£0.54	186.9
Clopidogrel (generic)	75mg	£2.03	49.4
Dipyridamole (generic)	100mg x 4	£4.48	22.3
Dipyridamole (Persantin Retard®)	200mg x 2	£9.39	10.7
Clopidogrel (Plavix®)	75mg	£33.26	3.0
Prasugrel (Efient®) and aspirin (disp.)	10mg / 75mg	£47.83	2.1
Ticagrelor (Brilique®) and aspirin (disp.)	90mg x 2 /75mg	£54.87	1.8

Prices: MIMS and Drug Tariff January 2012

Fig 3 **Antiplatelet drugs (BNF 2.9): Quarterly Volume (Items) and Spend (NIC) in EXAMPLE**



Data: PPD

Fig 4 **West Midlands: Breakdown of Antiplatelet Prescribing (BNF 2.9) by volume (Items) for the period Aug-11 to Oct-11**

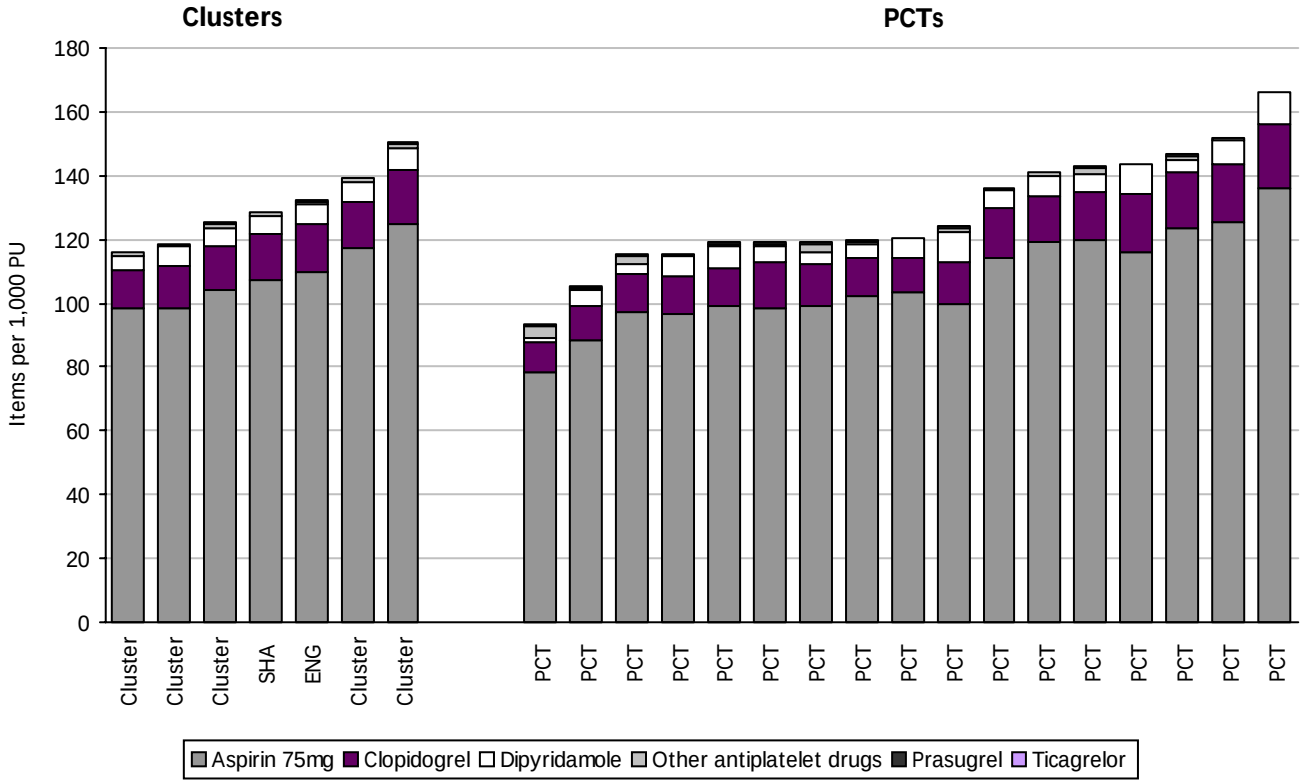
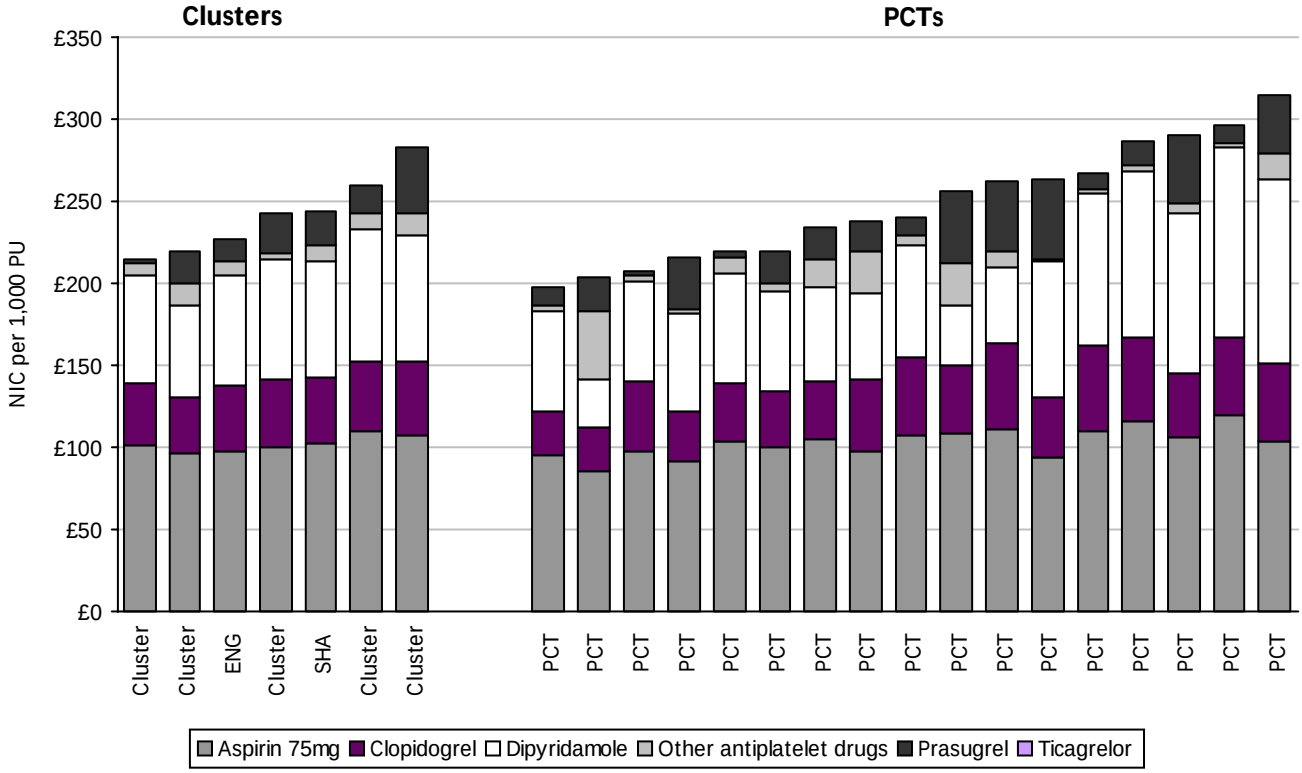


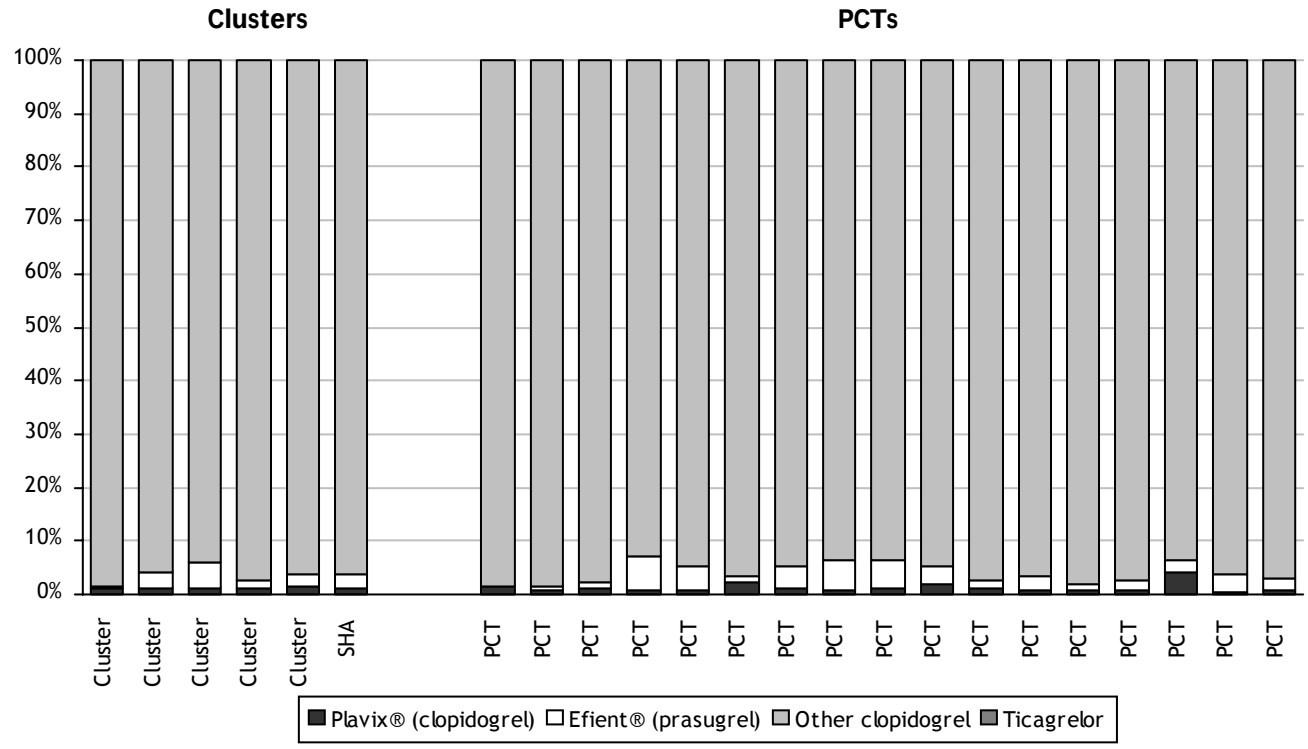
Fig 5 **West Midlands: Breakdown of Antiplatelet Prescribing (BNF 2.9) by spend (NIC) for the period Aug-11 to Oct-11**



Data: PPD

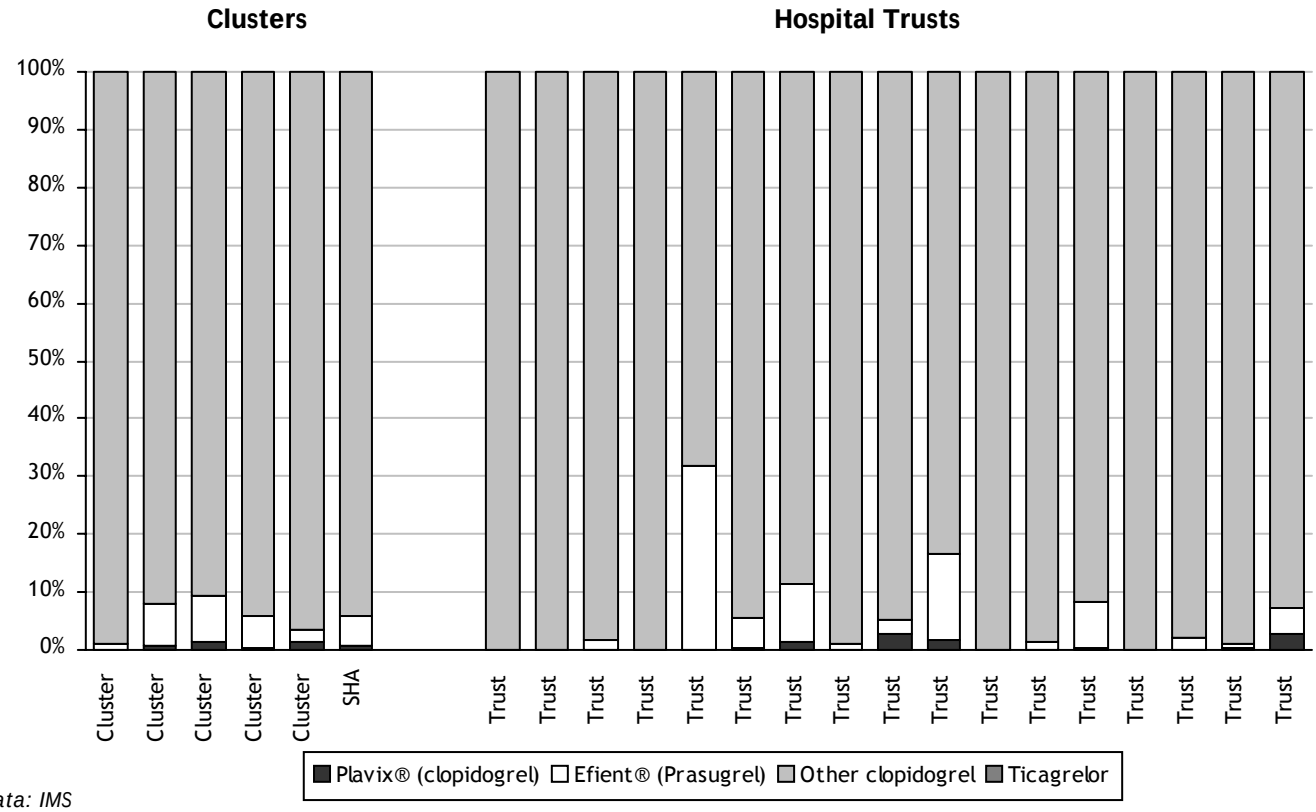
COMPARISONS WITH SECONDARY CARE

Fig 1 **PRIMARY CARE - West Midlands: Breakdown of Clopidogrel, Prasugrel and Ticagrelor Prescribing (BNF 2.9) by Volume (Items), for the period Aug-11 to Oct-11**



Data: PPD

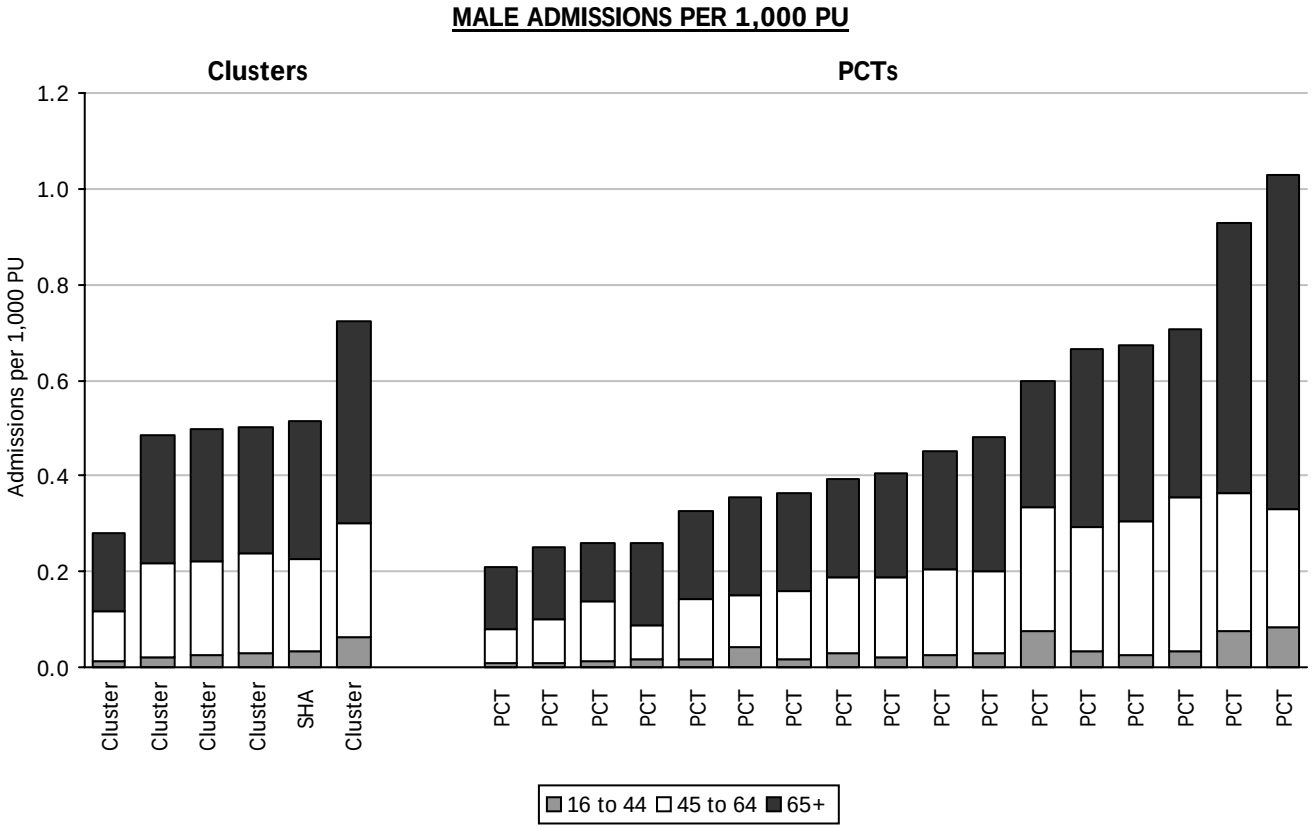
Fig 2 **SECONDARY CARE - West Midlands: Breakdown of Clopidogrel, Prasugrel and Ticagrelor Prescribing (BNF 2.9) by Volume (Packs), for the period Aug-11 to Oct-11**

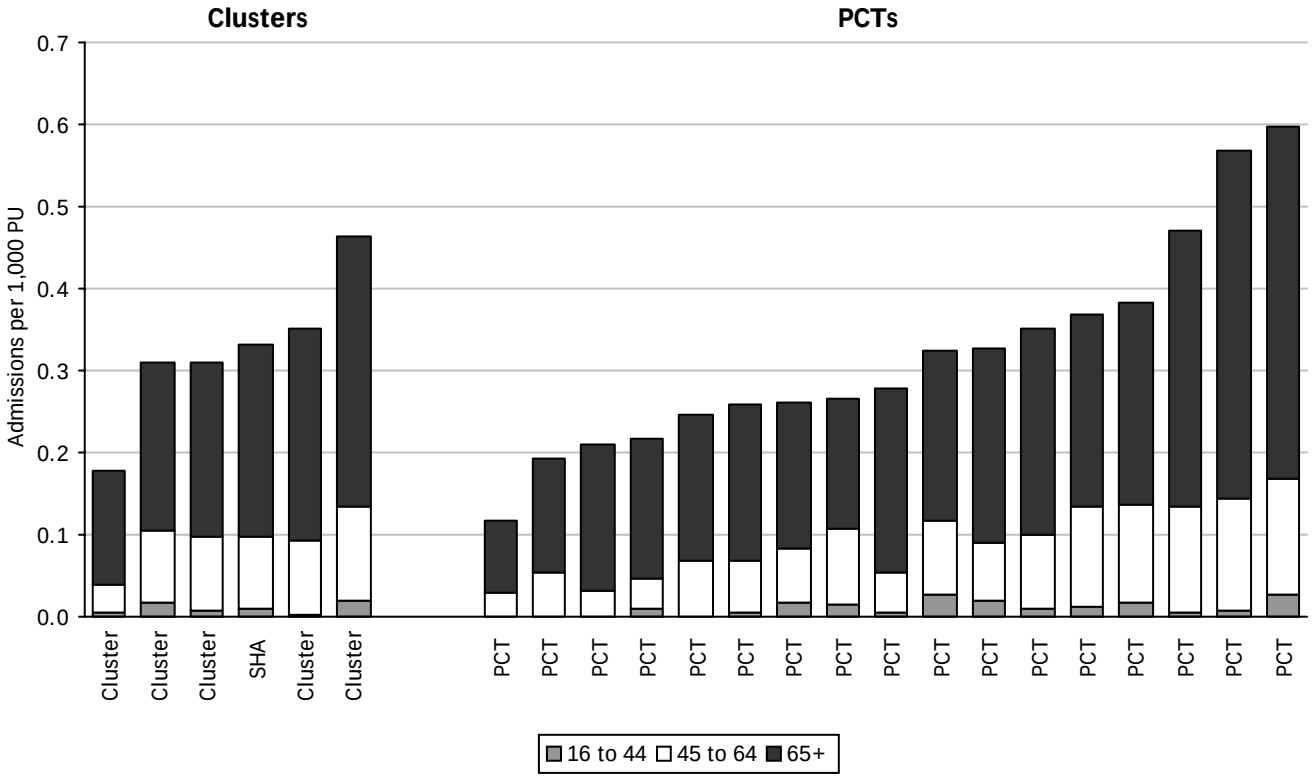


Data: IMS

NOTE: There has been no Ticagrelor prescribing in secondary care this quarter

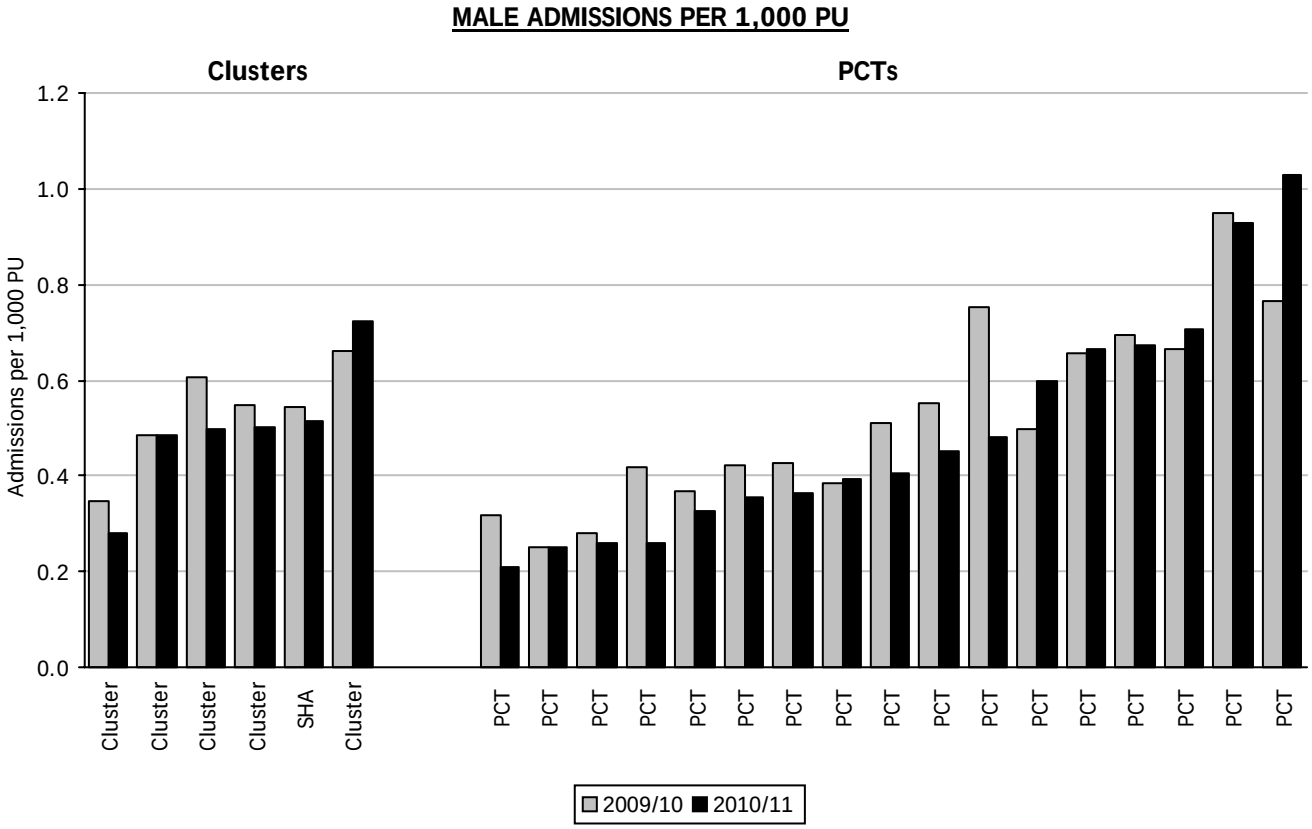
Fig 1 **West Midlands: Emergency Admissions for Acute Coronary Syndrome*, by broad age groups and gender, for the period Apr-10 to Mar-11**

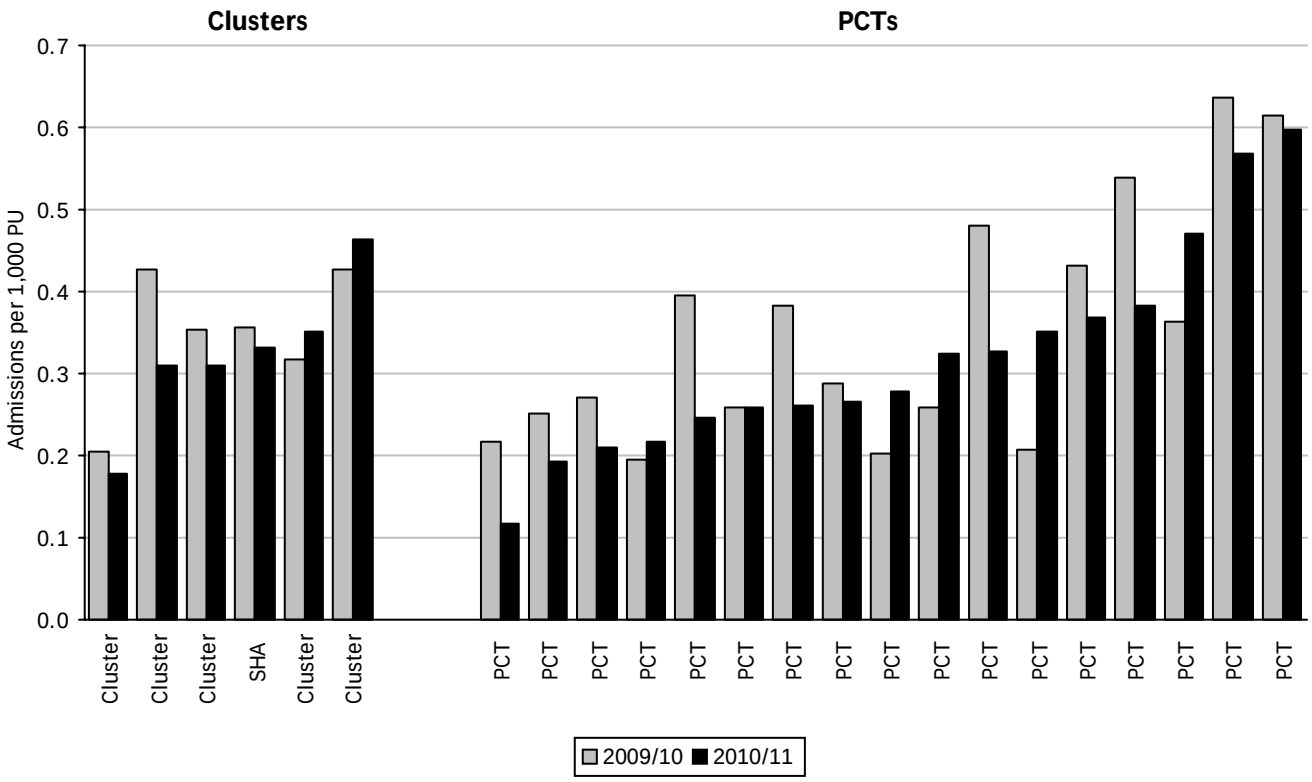




** where Acute Coronary Syndrome is classified as ICD-10 I20.0*
Data: HES and PPD

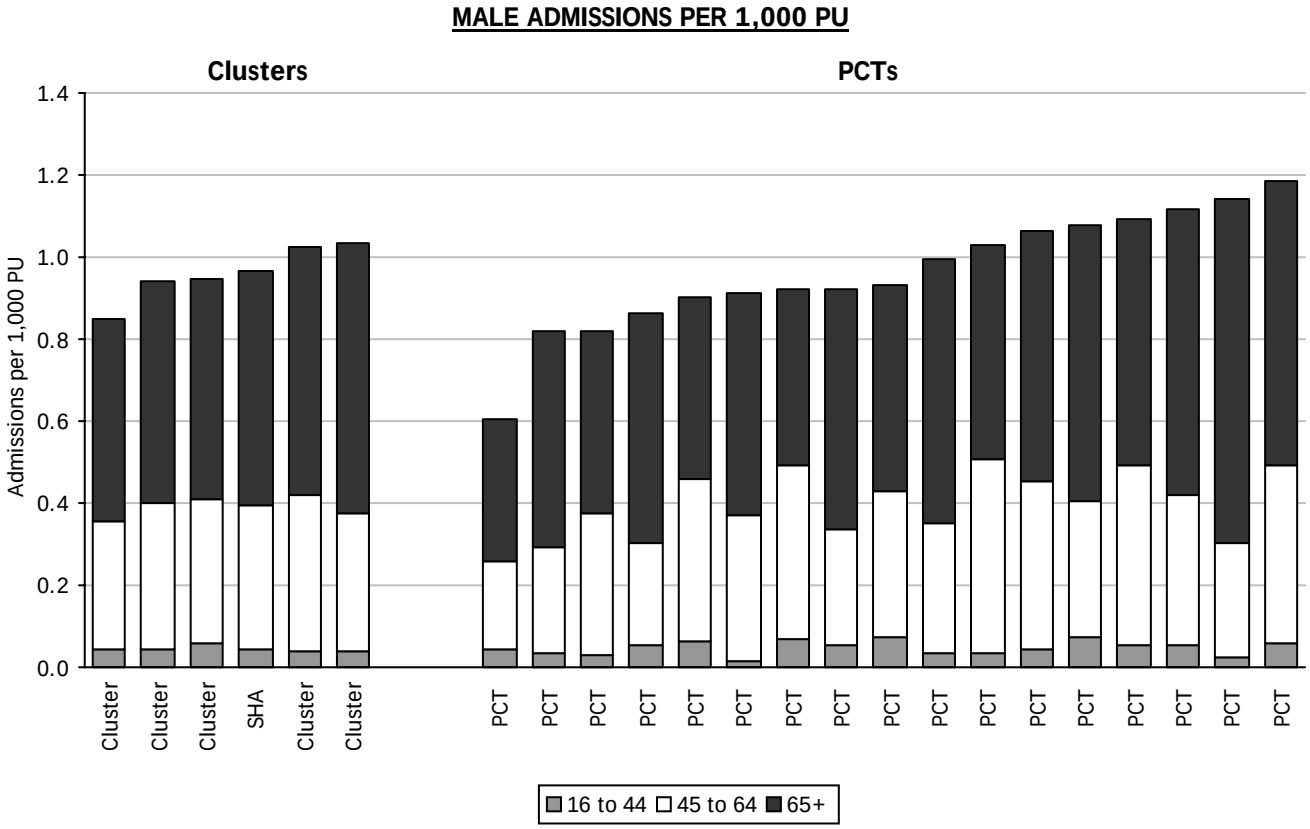
Fig 2 **West Midlands: Emergency Admissions for Acute Coronary Syndrome*, by broad age groups and gender, for the period Apr-09 to Mar-11**

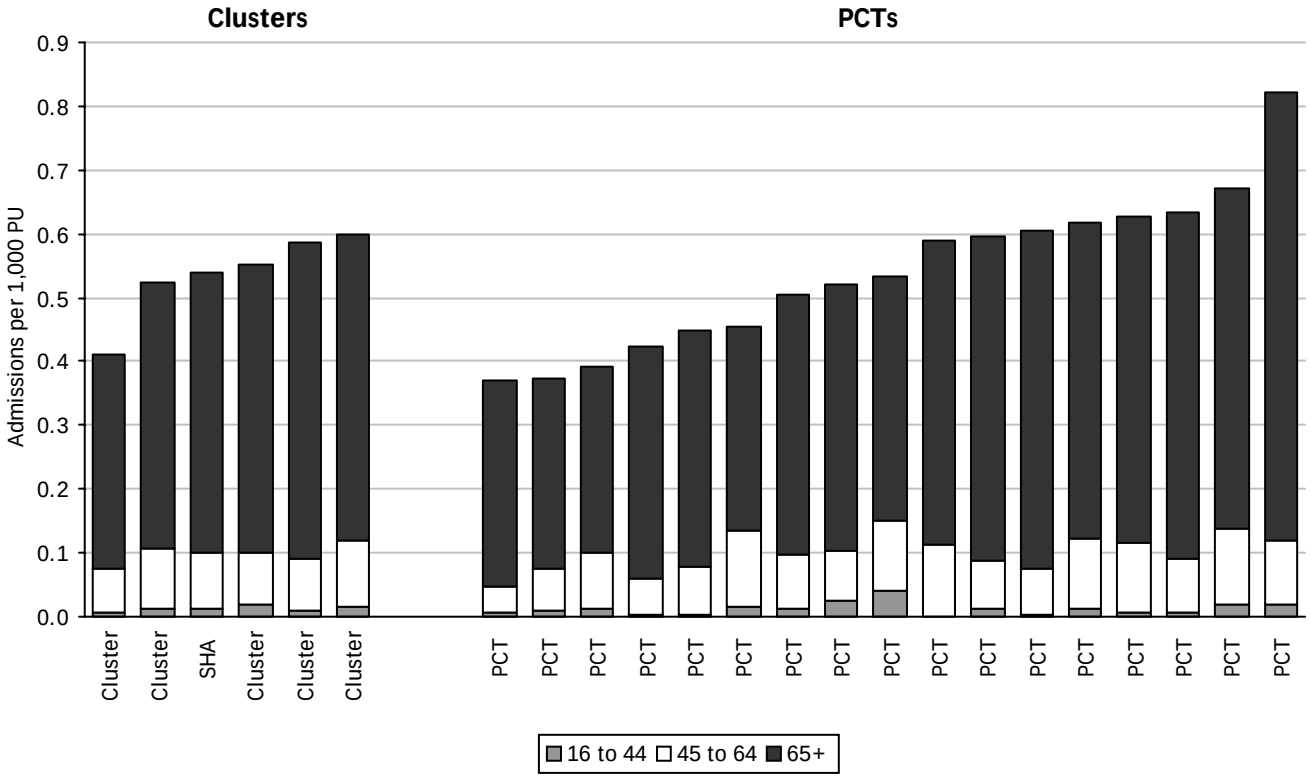




** where Acute Coronary Syndrome is classified as ICD-10 I20.0*
Data: HES and PPD

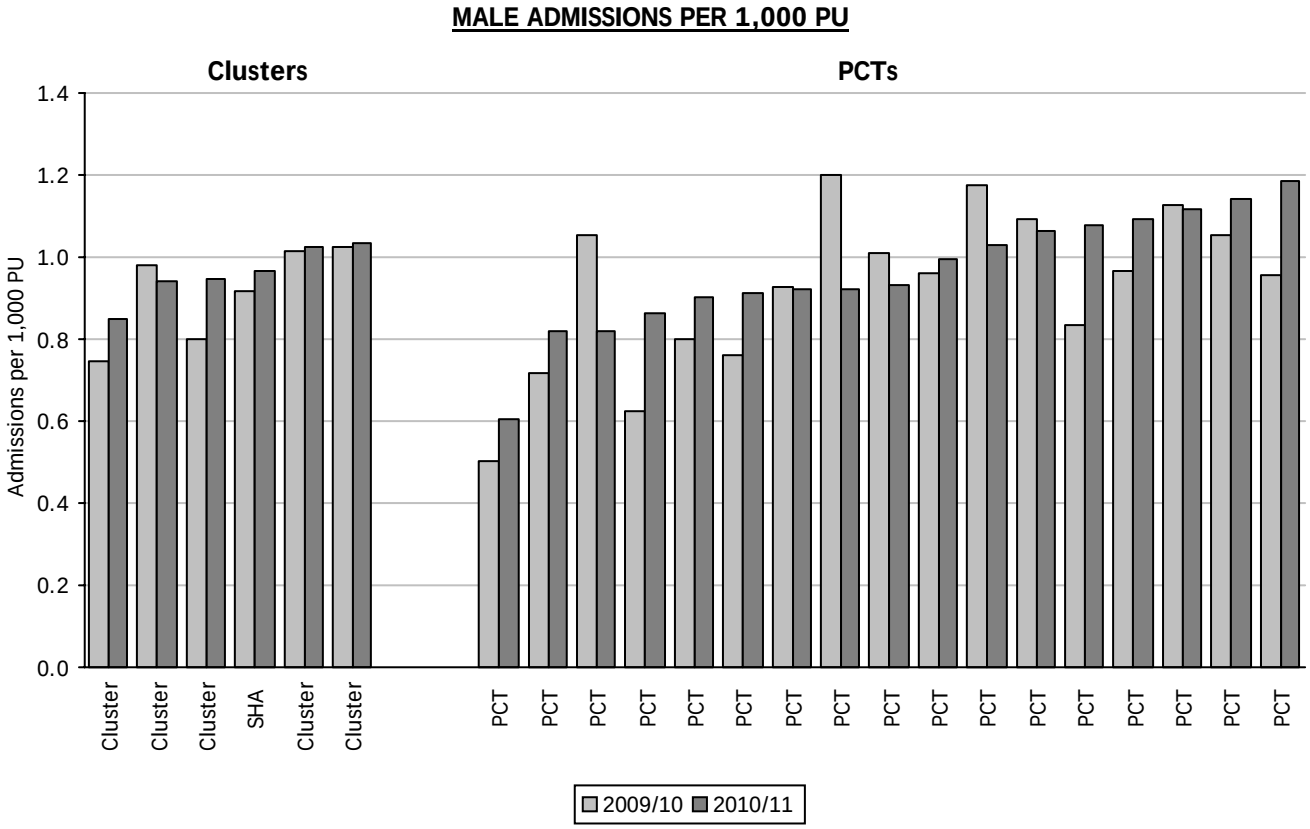
Fig 3 **West Midlands: Emergency Admissions for Myocardial Infarction*, by broad age groups and gender, for the period Apr-10 to Mar-11**

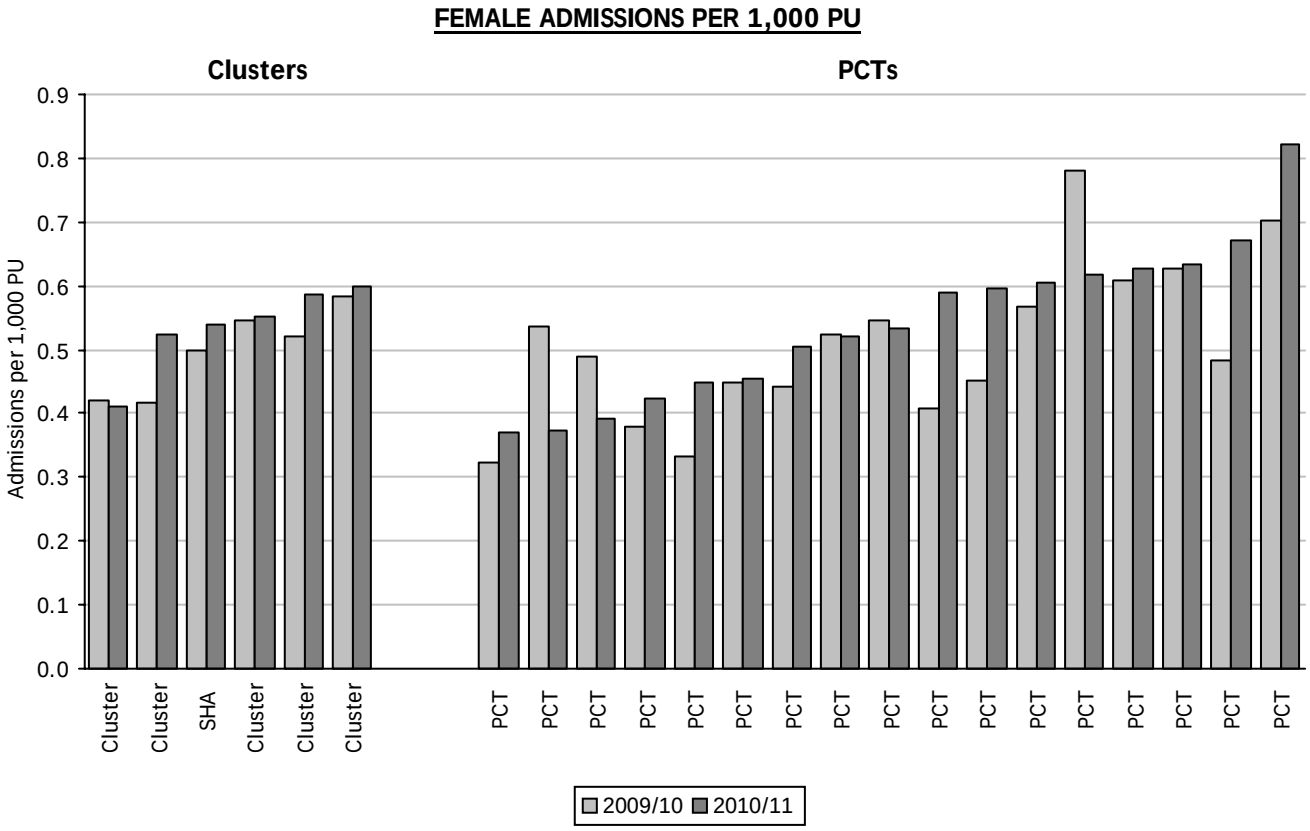




** where Myocardial Infarction is classified as ICD-10 I21, I22 and I23*
Data: HES and PPD

Fig 4 **West Midlands: Emergency Admissions for Myocardial Infarction*, by broad age groups and gender, for the period Apr-09 to Mar-11**





** where Myocardial Infarction is classified as ICD-10 I21, I22 and I23*
Data: HES and PPD

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Prescribing Information *to support* QIPP

Section: M

Orlistat

January 2012

EXAMPLE

What are the issues?

- Following the suspension of the marketing authorisation for sibutramine by the EMA in January 2010, due to concerns that the benefits of treatment do not outweigh the cardiovascular risks, orlistat is the last remaining drug treatment for obesity.
- The SPC for orlistat states that it should be discontinued after 12 weeks if patients have been unable to lose at least 5% of the body weight as measured at the start of therapy.[1] A recent small study found that, in one GP practice, 67% of patients treated with orlistat continued to be prescribed it after three months even if they had failed to achieve significant weight loss.[2]
- The European Medicines Agency (EMA) has started a review of orlistat-containing medicines (the prescription only medicine [POM] Xenical® and the over-the-counter [OTC] medicine Alli®), to determine whether the very rare cases of hepatic injury reported in safety monitoring have an impact on their benefit-risk profile and conditions of use. The risk of liver reactions with orlistat is well known and has been kept under close review by the EMA since its initial marketing authorisation, and information on the risks is included in Summaries of Product Characteristics. After reviewing all relevant data on the risk of hepatotoxicity with orlistat, the Committee for Medicinal Products for Human Use (CHMP) will issue an opinion on whether or not the marketing authorisations for orlistat should be revoked, suspended or changed.[3]
- Prescribers should consider recommending sustained lifestyle change and other types of weight-loss programmes before prescribing orlistat.[4] These programmes may be as effective as anti-obesity drugs.
    - A six-month randomised controlled trial (RCT) of four commercial weight loss courses showed an average weight loss of 5.9 kg and average fat loss of 4.4 kg.[5]
    - A recently published RCT (n = 740) evaluated commercial or primary-care led weight loss programmes (Lighten up) in Birmingham.[6] Participants were randomly assigned to one of the following weight loss programmes for 12 weeks: Weight Watchers; Slimming World; Rosemary Conley; group based, dietetics programme; general practice one-to-one counselling; pharmacy one-to-one counselling; or a choice of any of the six programmes. Participants allocated to commercial operators were provided with vouchers that exempted them from paying for 12 consecutive weeks of the programmes. A comparator group were given 12 vouchers enabling free entry to a local fitness centre. All groups (including the comparator group) achieved significant weight loss at 12 weeks. Mean weight loss ranged from 1.37 kg (general practice) to 4.43 kg (Weight Watchers). At one year follow-up, participants in all the programmes apart from the primary care and pharmacy settings had significant weight loss from baseline. The primary care programmes were the most costly to provide.

What are the actions?

- Check the availability of weight loss programmes in your area. Commissioners may want to consider their approach to weight management services in the light of the Lighten-up trial results (see above).
- Audit to check that all patients prescribed orlistat have a weight reading recorded after 12 weeks. Those who have not attained sufficient weight loss should discontinue treatment.
- Be aware of the risk of hepatic events in patients taking POM or OTC orlistat and report any suspected serious adverse reactions via the yellow card scheme.

Cost Implications

- Using data extracted from QMAS we have identified the possible cost implications of treating 25%, 50% and 90% of patients on obesity registers with orlistat. We have also provided obesity prevalence and relative costs of prescribing by PCT and cluster
- We have identified the potential savings that could be available to your PCT or cluster over the next five years from prescribing less orlistat per registered obese patient.
- We have added prescribing trends and comparisons in order to provide context.
- We have also provided hospital data which we hope that you will find helpful in your discussions with your provider trusts and commissioners.
- Individual PCTs may have made policy decisions around commissioning bariatric surgery which is likely to be reflected in the data.

References:

1. Roche Products Limited. Xenical 120mg hard capsules. Summary of Product Characteristics. Electonic medicines compendium. 2011. http://www.medicines.org.uk/EMC/medicine/1746/SPC/Xenical+120mg+hard+capsules/#INDICATIONS <accessed 11/2011>
2. GPs should monitor the use of anti-obesity drug, study suggests. National Institute for Health and Clinical Excellence. 2010. http://www.nice.org.uk/newsroom/news/GPsShouldMonitorUseOfAntiObesityDrug.jsp <accessed 11/2011>
3. European Medicines Agency starts review of orlistat-containing medicines. European Medicines Agency. 2011. http://www.ema.europa.eu/ema/index.jsp?curl=pages/news_and_events/news/2011/09/news_detail_001345.jsp&murl=menus/news_and_events/news_and_events.jsp&mid=WC0b01ac058004d5c1 <accessed 11/2011>
4. Obesity: the prevention, identification, assessment and management of overweight and obesity in adults and children. CG43. National Institute for Health and Clinical Excellence. 2006. http://guidance.nice.org.uk/CG43 <accessed 11/2011>
5. Truby H, Baic S, deLooy A *et al*. Randomised controlled trial of four commercial weight loss programmes in the UK: initial findings from the BBC "diet trials". *BMJ* 2006;**332**:1309-14.
6. Jolly K, Lewis A, Beach J *et al*. Comparison of range of commercial or primary care led weight reduction programmes with minimal intervention control for weight loss in obesity: Lighten Up randomised controlled trial. *BMJ* 2011;**343**:d6500.

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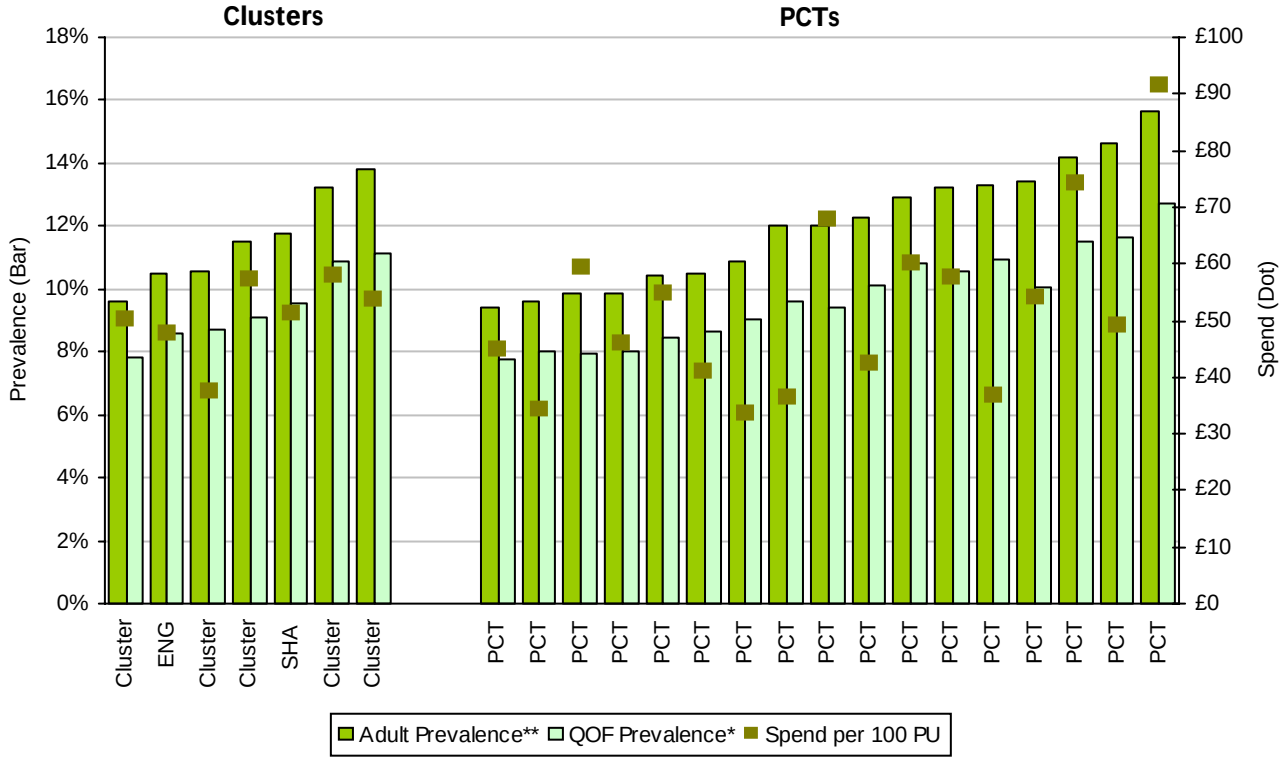
Fig 1 **West Midlands: Obesity Prevalence and Orlistat Prescribing (BNF Section 4.5) Rates for the period Apr-10 to Mar-11**



** QOF Prevalence = Number of obese patients over 16 / Number of patients*

*** Adult Prevalence = Number of obese patients over 16 / Number of patients over 16*

Data: PPD and QOF

Table 1 **Cost implications of treating patients on obesity register**

Orlistat tablets prescribed Aug-11 to Oct-11	**143,341**
Orlistat spend Aug-11 to Oct-11	**£53,930**
Number of patients on 2010/11 obesity register	**24,856**
Approximate number of patients treated	**569**
Approximate percentage of patients on obesity register treated	**2.3%**

Cost implications of treating patients on the 2010/11 obesity register for:

	28 days:	3 months:
25% of Patients:	£196,549	£589,646
50% of Patients:	£393,098	£1,179,293
90% of Patients:	£707,576	£2,122,727

NOTE: 3 months is taken as three 28-day periods
Data: PPD, QOF
Prices: MIMS January 2012

The following table is based on data for the last 3 months (Aug-11 to Oct-11). Savings are then extrapolated from this data to give an annual saving which is based on current data.

It is likely that those PCTs with a lower volume per QOF registered obese patient for orlistat are already in the process of promoting cost-effective prescribing in this area.

Table 2 Orlistat (BNF 4.5.1): Potential Savings from Prescribing at a Lower DDD per QOF registered obese patient

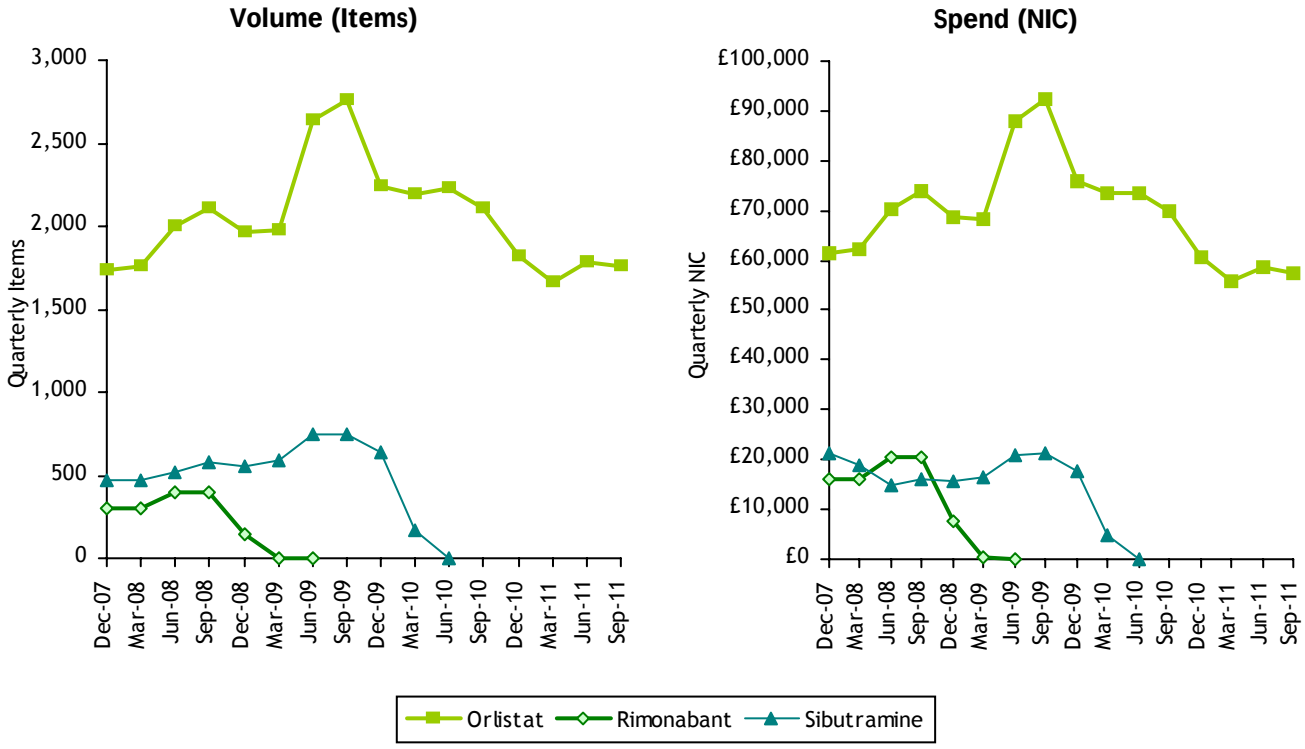
PCT	DDDs per 1,000 QOF registered obese patient (Quarterly) Oct-11	%change*	Actual Change* in NIC	Potential Annual Saving
PCT	1,213	-18%	-£12,055	£35,502
PCT	1,018	-29%	-£9,545	£0
PCT	868	-27%	-£4,562	£0
PCT	1,055	-20%	-£4,039	£0
Cluster	**1,092**	**-22%**	**-£30,200**	**£35,502**
PCT	1,225	-18%	-£7,142	£24,989
PCT	1,135	-37%	-£23,845	£11,990
PCT	1,866	-7%	-£5,402	£157,102
PCT	1,476	-12%	-£5,516	£33,780
Cluster	**1,453**	**-18%**	**-£41,906**	**£227,862**
PCT	986	-26%	-£9,712	£0
PCT	1,528	-23%	-£13,291	£64,309
PCT	1,310	-17%	-£12,006	£41,917
PCT	829	-24%	-£8,332	£0
Cluster	**1,158**	**-22%**	**-£43,340**	**£106,226**
PCT	1,542	-32%	-£21,611	£63,153
PCT	1,404	-23%	-£16,501	£67,753
Cluster	**1,459**	**-27%**	**-£38,112**	**£130,906**
PCT	1,487	-26%	-£7,242	£43,904
PCT	1,887	-21%	-£12,983	£132,111
PCT	1,085	-18%	-£12,422	£8,633
Cluster	**1,394**	**-20%**	**-£32,646**	**£184,648**
SHA Totals	**1,302**	**-21%**	**-£186,205**	**£685,144**

Data: PPD, QOF

** Change compared to the same period last year.*

NOTE: We have selected the 25th percentile DDD per QOF obese patient value, which raises the benchmark compared to previous reports which benchmarked on the lowest DDD per PU value. Therefore savings in this lowest quartile are now £0. This does not necessarily mean that prescribing cost cannot be improved in this area.

Fig 2 **Obesity Prescribing (BNF 4.5.1): Quarterly Volume (Items) and Spend (NIC) in EXAMPLE**



Data: PPD

Fig 3 **West Midlands: Orlistat Prescribing (BNF 4.5.1) by Volume (Items), for the period Aug-11 to Oct-11**

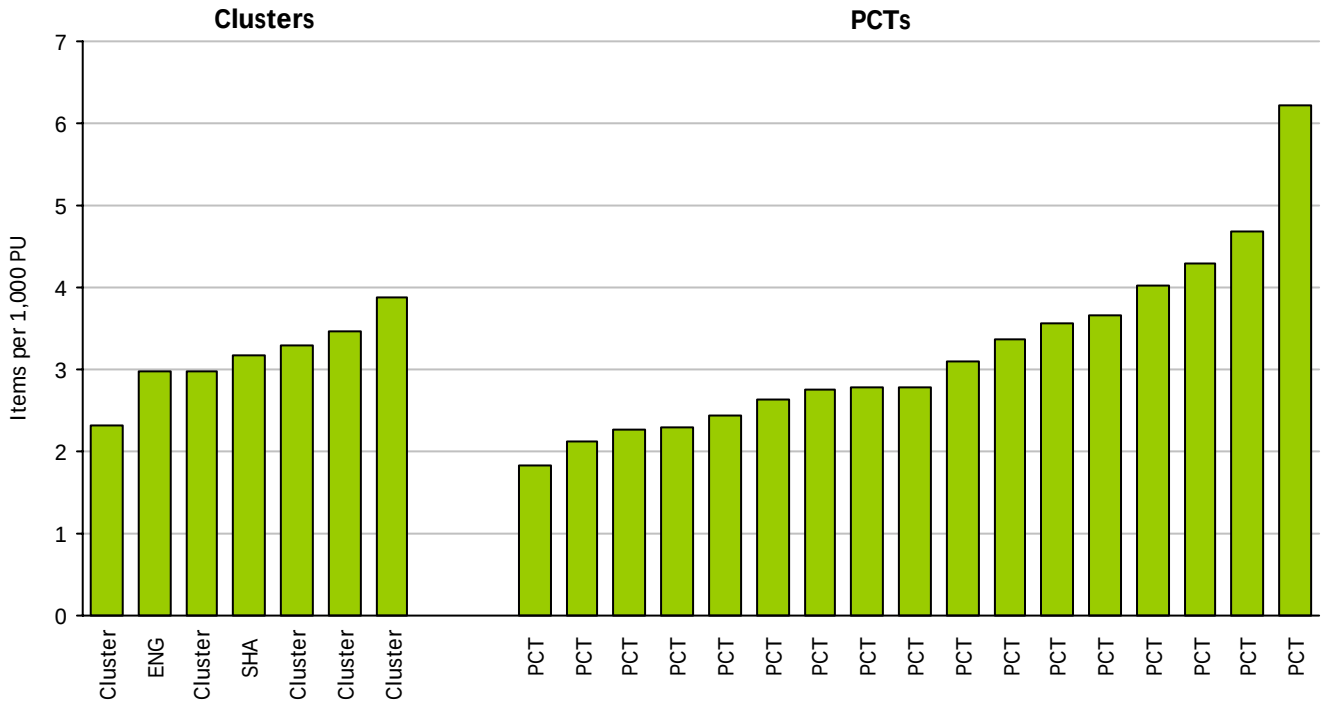
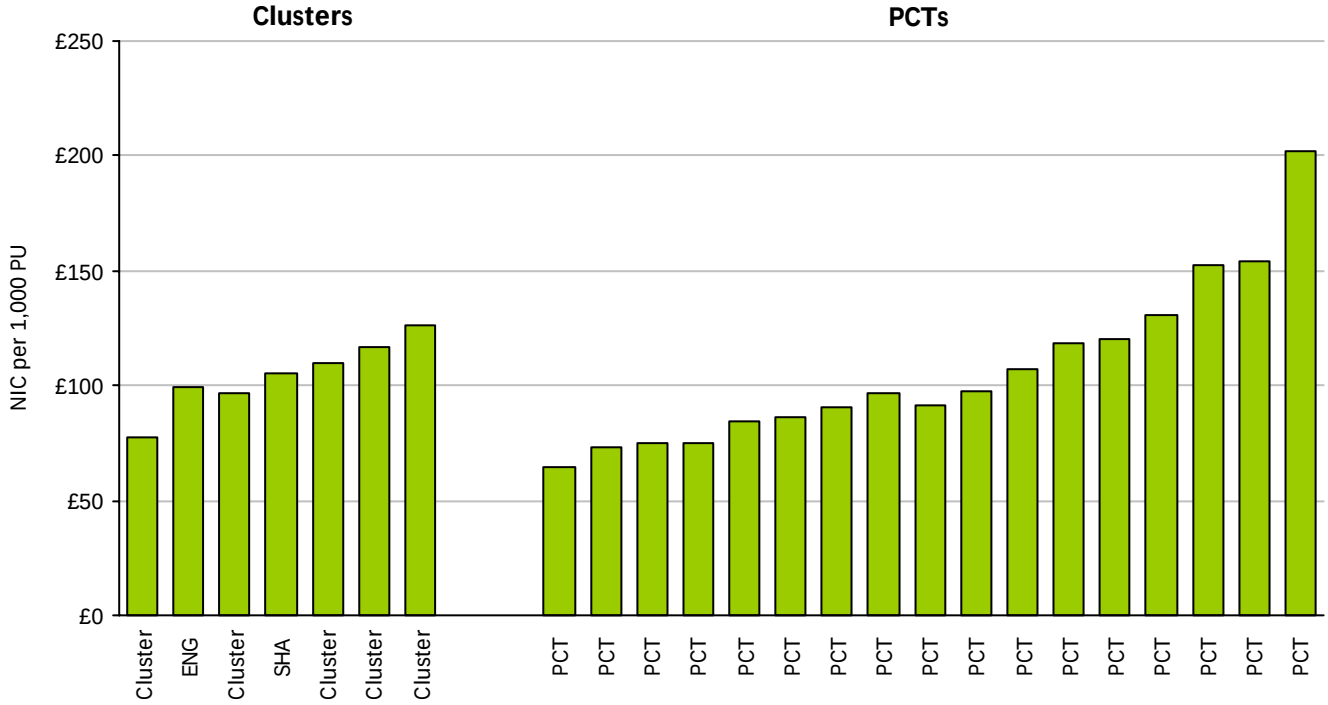
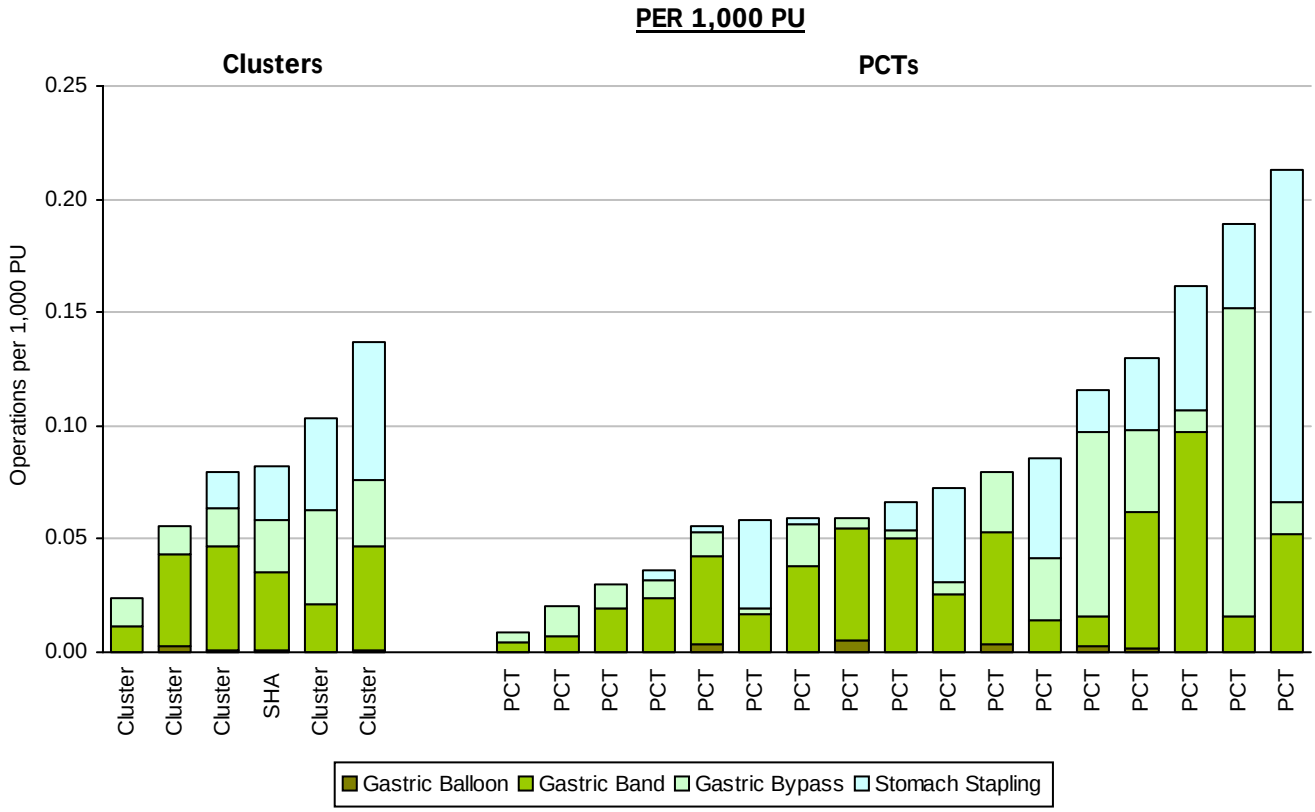


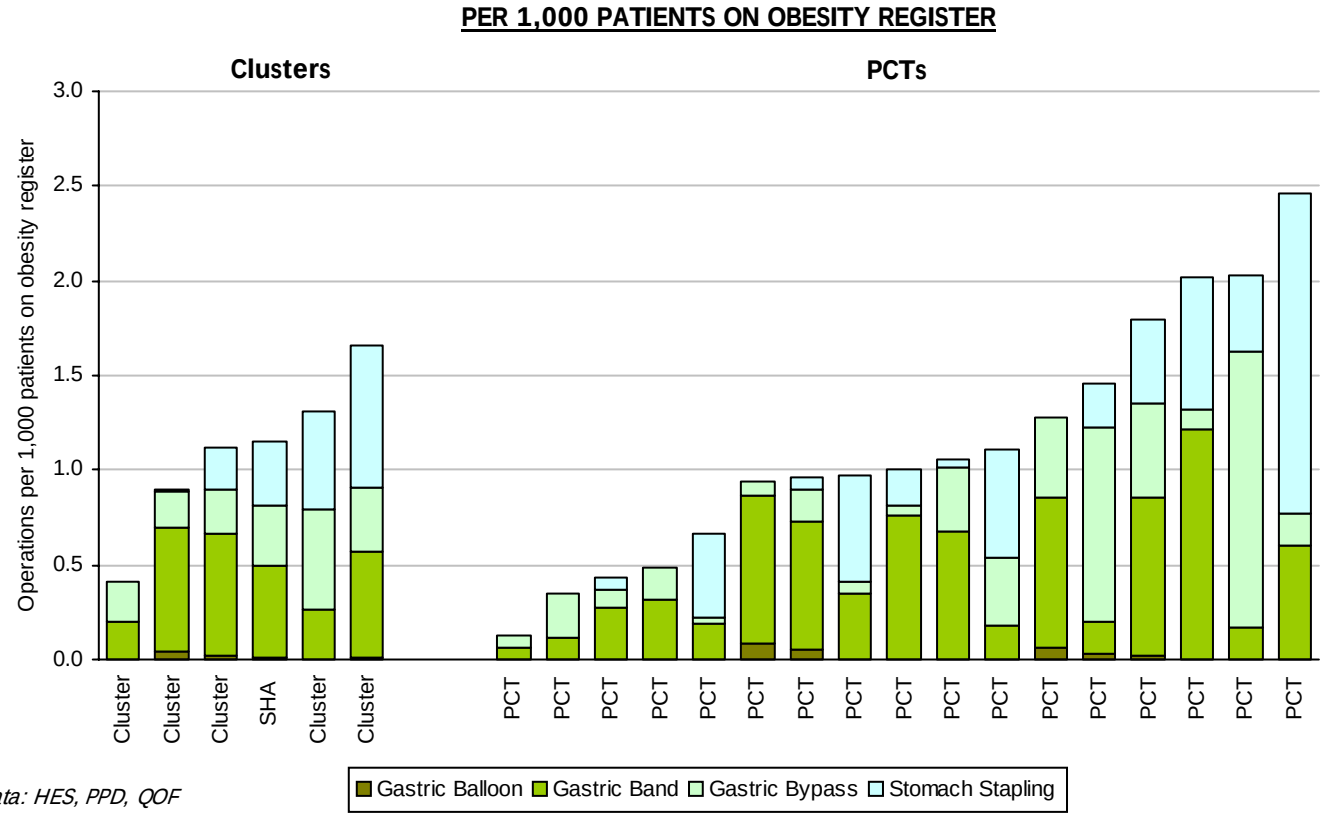
Fig 4 **West Midlands: Orlistat Prescribing (BNF 4.5.1) by Spend (NIC), for the period Aug-11 to Oct-11**



Data: PPD

Fig 1 **West Midlands: Elective Hospital Admissions for Bariatric Surgery* as the Primary Operation where the Primary Diagnosis was Obesity**, for the period Apr-10 to Mar-11**



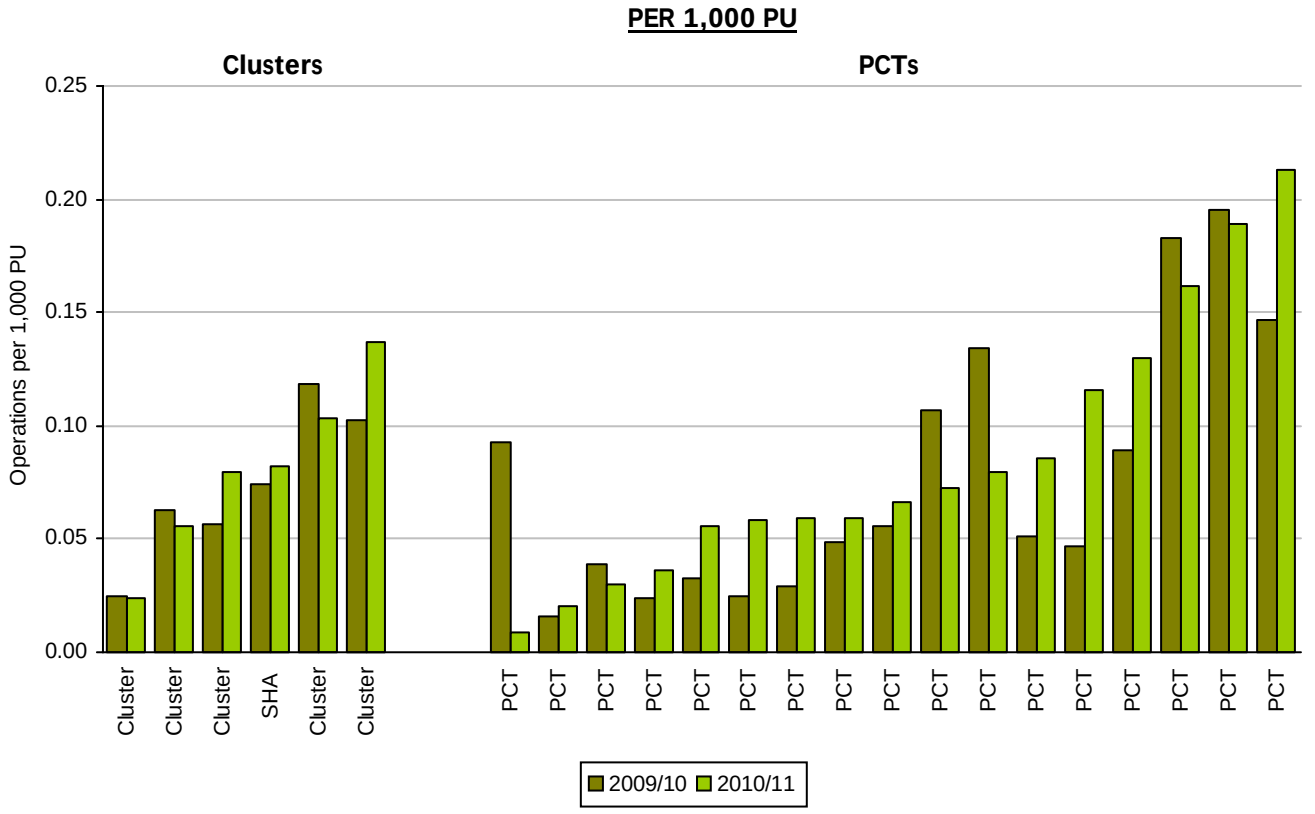


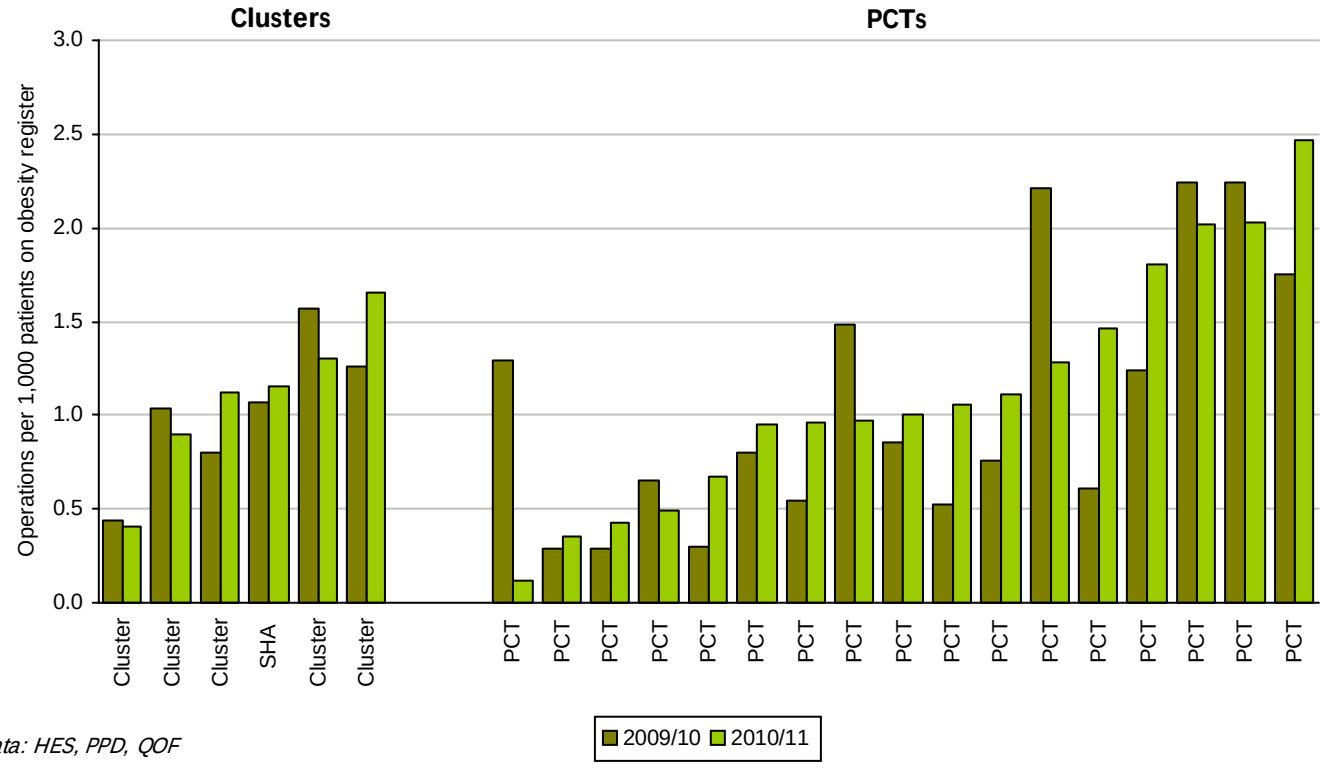
Data: HES, PPD, QOF

** Where Bariatric Surgery is classified using OPCS-4 codes: Gastric Balloon G48.1, G48.2; Gastric Band G 30.3, G 30.4, G38.7; Gastric Bypass G27, G28, G31 to G33, G71.6; Stomach Stapling G30.2, G30.4*

*** Where Obesity is classified as ICD-10 code E66*

Fig 2 **West Midlands: Elective Hospital Admissions for Bariatric Surgery* as the Primary Operation where the Primary Diagnosis was Obesity** per 1,000 PU, for the period Apr-09 to Mar-11**





Data: HES, PPD, QOF

** Where Bariatric Surgery is classified using OPCS-4 codes: Gastric Balloon G48.1, G48.2; Gastric Band G 30.3, G 30.4, G38.7; Gastric Bypass G27, G28, G31 to G33, G71.6; Stomach Stapling G30.2, G30.4*

*** Where Obesity is classified as ICD-10 code E66*

Prescribing Information *to support* QIPP

Section: N

Alendronate

January 2012

EXAMPLE

What are the issues?

- **Consistent with last year's message, generic alendronate should continue to be promoted as the first-line bisphosphonate treatment for osteoporosis.**[1] This advice is in line with NICE guidance on osteoporosis, which recommends alendronate as a first-line treatment for both primary and secondary prevention of osteoporotic fragility fractures.[2,3] NICE also recommends that alendronate preparations with the **lowest acquisition cost** should be chosen; at the time of writing (January 2012) this is the **generic alendronate once-weekly preparation**.

- For a minority of patients for whom alendronate is unsuitable, risedronate and etidronate are alternative treatment options in patients meeting the additional criteria specified by NICE, which include threshold T-scores and the presence of additional clinical risk factors.[2,3] In relation to the evidence-base for these two treatments, the NPC comments that risedronate has shown benefit in the prevention of both vertebral and non-vertebral fractures, whereas etidronate has been shown to prevent only vertebral fractures.[4]

- There have been a number of safety issues considered by regulatory authorities for bisphosphonates in recent years.[5] In June-11, the MHRA published new advice following a Europe-wide review of evidence relating to atypical femoral fractures with bisphosphonates.[6] The review concluded that atypical femoral fractures should be considered a 'class effect' of bisphosphonates, but the overall balance of risks and benefits of individual bisphosphonates in their authorised indications remains favourable. The MHRA has advised that patients receiving bisphosphonates should be encouraged to report any thigh, hip or groin pain, and patients presenting these symptoms should be evaluated for an incomplete femur fracture. Discontinuation of bisphosphonate therapy should be considered when fracture is suspected, whilst the patient is evaluated (see http://www.mhra.gov.uk/Safetyinformation/DrugSafetyUpdate/CON120213 for further information).

- Given the possible risks of long-term bisphosphonate treatment, there has been debate about the appropriate duration of therapy. In June-11, the MHRA commented that the optimum duration of treatment for osteoporosis has not been established, advising that "*the need for continued treatment should be re-evaluated periodically based on the benefits and potential risks of bisphosphonate therapy for individual patients, particularly after 5 or more years of use*".[6] The uncertainty in this area is also reflected by the recent failure of an FDA advisory panel to agree on a time limit specifying duration of therapy, citing a lack of data to pinpoint an ideal therapeutic time limit.[7] The FDA panel also discussed 'bisphosphonate holidays' (i.e. a break in treatment in order to minimise risks), but concluded there was currently insufficient evidence to warrant recommending a drug holiday as a treatment plan.

- Guidance from NICE assumes that all women who receive bisphosphonates have an adequate **calcium** intake and are **vitamin D** replete, and that where there is uncertainty, supplementation should be considered.[2,3] During the last year, there have been concerns raised over the safety of calcium/vitamin D supplementation, following the publication of a meta-analysis reporting an increased risk of some cardiovascular events in postmenopausal women using these supplements.[8] The MHRA has recently provided guidance to prescribers advising that there were limitations to the data used in this meta-analysis and that no change to prescribing practice is currently recommended.[9] (n.b. the use of these supplements was reviewed in the Actions for Practice Teams [APT] educational pack on the use of 'Health Supplements', published by Keele in July-11, available at www.pctsla.org).

What are the actions?

- **Review the prescribing data overleaf; how is your organisation performing? What changes have there been since last year, for example, in the rate of generic alendronate prescribing?**
- **Continue to review your patients to ensure prescribing is in line with NICE guidance on primary and secondary prevention of fractures related to osteoporosis.[2,3]**
- **Continue to promote the use of generic alendronate as first-line treatment. For existing patients prescribed a proprietary alendronate brand, consider the switch to generic alendronate. Where first-line treatment with alendronate is inappropriate, and a patient is receiving second-line treatment with proprietary risedronate, consider whether a switch to lower-cost generic risedronate is appropriate.**
- **Educate patients on methods to help avoid oesophageal irritation, the need for regular dental check-ups and good oral hygiene, and, in relation to risk of atypical femoral fractures, the importance of reporting thigh, hip or groin pain.[5]**

Cost implications:

- Table 1 overleaf shows the West Midlands Medicines Management Network performance indicators assessing the rates of prescribing of generic alendronate and the % bisphosphonates prescribed as alendronate. Both this year's and last year's data are provided to allow comparison. We also indicate potential savings from prescribing at a lower cost per DDD for some organisations.
- A cost chart comparing selected bisphosphonates is also provided (see table 2). Notably, generic risedronate has now become available, which offers significant cost-savings compared with the branded formulation, and as is also illustrated by the trend shown in figure 1 (spend) in the primary care prescribing data accompanying this section.
- Breakdowns of bisphosphonate prescribing in terms of volume and spend are presented, and data are also provided relating to hospital-prescribing of bisphosphonates and related emergency and elective hospital admissions.
- Data for hospitals admissions related to osteoporosis are also provided, as are data concerning admissions due to fracture of neck of femur. In relation to the latter, we have compared data for both 2009/10 and 2010/11, which organisations may find of interest when considering local 'falls prevention' strategies, e.g. is a review of falls prevention services required; have redesigned services met expectations?

References

1. Key therapeutic topics. Medicines management options for local implementation. July 2011 update. National Prescribing Centre. 2011. http://www.npc.co.uk/qipp/resources/qipp_document_version3.0_july11_final.pdf <accessed 11/2011>
2. Alendronate, etidronate, risedronate, raloxifene and strontium ranelate for the primary prevention of osteoporotic fragility fractures in postmenopausal women. NICE Technology Appraisal TA160. National Institute for Health and Clinical Excellence. 2011. http://www.nice.org.uk/TA160 <accessed 11/2011>
3. Alendronate, etidronate, risedronate, raloxifene, strontium ranelate and teriparatide for the secondary prevention of osteoporotic fragility fractures in postmenopausal women.NICE TEchnology Appraisal 161. National Institute for Health and Clinical Excellence. 2011. http://www.nice.org.uk/guidance/index.jsp?action=byID&o=11748 <accessed 11/2011>
4. NPC e-learning materials for QIPP - alendronate notes. National Prescribing Centre. 2011. http://www.npc.nhs.uk/qipp/resources/alendronate_qipp_notes.doc <accessed 11/2011>
5. Bisphosphonates - MHRA safety Information. Medicines and Healthcare products Regulatory Agency. 2011. http://www.mhra.gov.uk/Safetyinformation/Generalsafetyinformationandadvice/Product-specificinformationandadvice/Product-specificinformationandadvice-A-F/Bisphosphonates/index.htm <accessed 11/2011>
6. Bisphosphonates: atypical femoral fractures. MHRA Drug Safety Update. Volume 4, Issue 11 June. Medicines and Healthcare products Regulatory Agency. 2011. http://www.mhra.gov.uk/Safetyinformation/DrugSafetyUpdate/CON120213 <accessed 11/2011>
7. FDA panel waffles on limiting duration of bisphosphonate use. Medpage Today.2011. http://www.medpagetoday.com/Endocrinology/Osteoporosis/28442 <accessed 01/2012>
8. Bolland MJ, Grey A, Avenell A, Gamble GD, Reid IR. Calcium supplements with or without vitamin D and risk of cardiovascular events: reanalysis of the Womens Health Initiative limited access dataset and meta-analysis. BMJ 2011;342.
9. Calcium and vitamin D: studies of cardiovascular risk do not support prescribing changes. MHRA Drug Safety Update. Volume 5, Issue 3 October. Medicines and Healthcare products Regulatory Agency. 2011. http://www.mhra.gov.uk/Safetyinformation/DrugSafetyUpdate/CON131932#ref2 <accessed 11/2011>

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The following table is based on data for the last 3 months (Aug-11 to Oct-11). Savings are then extrapolated from this data to give an annual saving which is based on current data.

It is likely that those PCTs with a lower cost per DDD for oral bisphosphonates are already in the process of promoting cost-effective prescribing in this area.

Table 1 Oral bisphosphonates (BNF 6.6.2): Potential Savings from Prescribing at a Lower Cost per DDD

PCT	NIC per DDD	% change in NIC per DDD*	WM Indicator^ % Alendronate as Generic (Quarterly)		WM Indicator** % Bisphosphonates as Alendronate (Quarterly)		Potential Annual Saving
			Oct-11	Oct-10	Oct-11	Oct-10	
PCT	£0.17	-33%	99.4%	99.0%	79.8%	75.1%	£88,909
PCT	£0.17	-36%	98.8%	98.5%	77.4%	75.4%	£39,341
PCT	£0.13	-46%	99.7%	99.2%	81.0%	76.7%	£0
PCT	£0.16	-17%	99.8%	99.3%	84.2%	84.7%	£10,923
Cluster	**£0.16**	**-33%**	**99.3%**	**99.0%**	**80.0%**	**77.0%**	**£139,174**
PCT	£0.15	-51%	98.2%	93.9%	80.6%	76.6%	£0
PCT	£0.15	-34%	99.6%	97.3%	85.2%	83.1%	£9,789
PCT	£0.20	-30%	98.6%	97.1%	82.0%	77.7%	£94,116
PCT	£0.20	-28%	99.4%	99.0%	83.0%	78.1%	£65,205
Cluster	**£0.18**	**-33%**	**99.0%**	**97.3%**	**83.0%**	**79.3%**	**£169,109**
PCT	£0.18	-28%	99.8%	99.7%	85.7%	83.0%	£44,201
PCT	£0.15	-47%	99.8%	99.6%	71.6%	69.6%	£6,256
PCT	£0.13	-44%	99.4%	98.3%	84.0%	80.8%	£0
PCT	£0.16	-34%	99.3%	99.3%	80.9%	80.1%	£14,364
Cluster	**£0.15**	**-39%**	**99.5%**	**99.2%**	**80.2%**	**78.3%**	**£64,821**
PCT	£0.13	-37%	99.2%	98.7%	84.3%	79.8%	£0
PCT	£0.15	-27%	99.4%	99.0%	84.1%	82.2%	£0
Cluster	**£0.14**	**-30%**	**99.3%**	**98.9%**	**84.2%**	**81.4%**	**£0**
PCT	£0.16	-35%	98.2%	97.0%	86.9%	81.6%	£8,400
PCT	£0.16	-30%	99.3%	97.7%	84.7%	83.8%	£16,158
PCT	£0.17	-30%	99.3%	98.9%	82.2%	78.5%	£70,162
Cluster	**£0.16**	**-31%**	**99.1%**	**98.3%**	**83.7%**	**80.4%**	**£94,720**
SHA Totals	**£0.16**	**-33%**	**99.3%**	**98.6%**	**82.1%**	**79.1%**	**£467,823**

Data: PPD

** Change compared to the same period last year.*

West Midlands Medicines Management Network Performance Indicators:

^ *Increase the Proportion of Alendronic Acid Prescribed as Generic- Aspiration ≥ 99%*

** *Increase the Proportion of Bisphosphonates Prescribed as Alendronic Acid - Aspiration ≥ 80%*

NOTE: We have selected the 25th percentile NIC per DDD value. Therefore savings in this lowest quartile are £0. This does not necessarily mean that prescribing cost cannot be improved in this area in these PCTs.

Table 2 **Cost Comparison of Bisphosphonates**

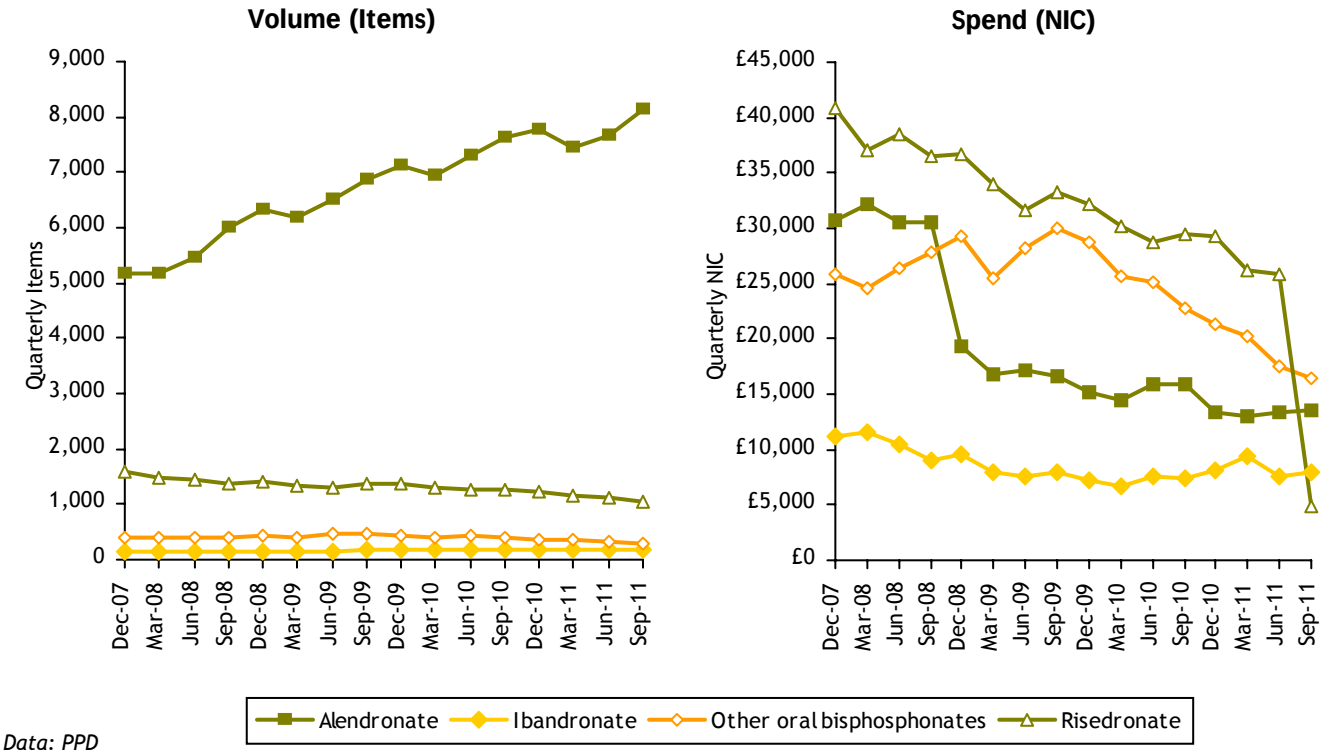
Drug	Frequency	Cost per 28 days	No. of people treated for £100 per month
Generic alendronate 70mg	Weekly	£1.07	93.5
Generic alendronate 10mg	Daily	£1.53	65.4
Generic risedronate 35mg	Weekly	£1.61	62.1
Didronel PMO® (etidronate & calcium)	90 day cycle*	£6.19	16.2
Bonviva® (ibandronate)	Monthly^	£16.99	5.9
Actonel Tablets® 5mg (risedronate)	Daily	£17.99	5.6
Actonel Once a Week® 35mg (risedronate)	Weekly	£19.12	5.2
Fosamax Once Weekly® (alendronate)	Weekly	£22.80	4.4
Fosamax® (alendronate)	Daily	£23.12	4.3

** average cycle cost for a 28 period*

^ 28 day cost approximate - based on 12 doses per year divided by 13 "28 day" periods

Data: MIMS and Drug Tariff January 2012

Fig 1 **Oral bisphosphonates (BNF 6.6.2): Quarterly Volume (Items) and Spend (NIC) in EXAMPLE**



Data: PPD

Fig 2 **West Midlands: Breakdown of Oral Bisphosphonate Prescribing (BNF 6.6.2) by Volume (Items), for the period Aug-11 to Oct-11**

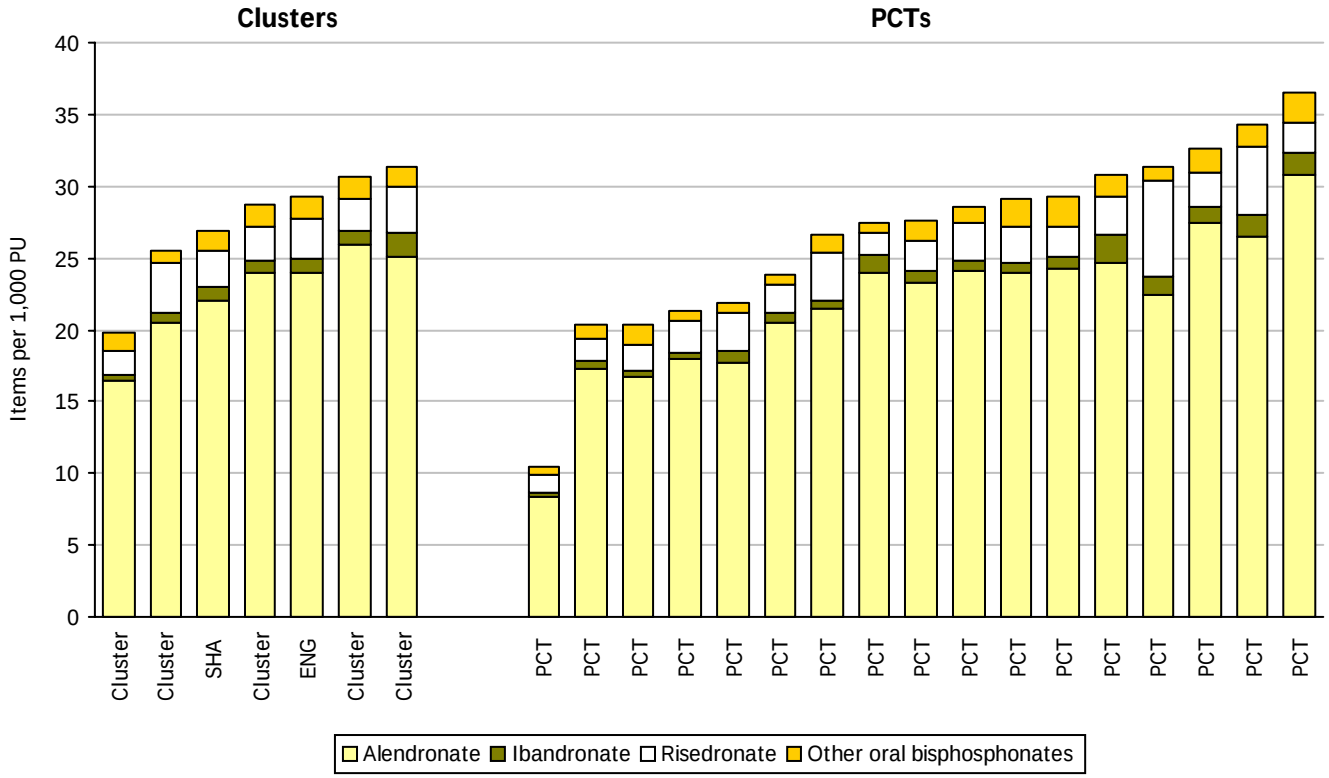
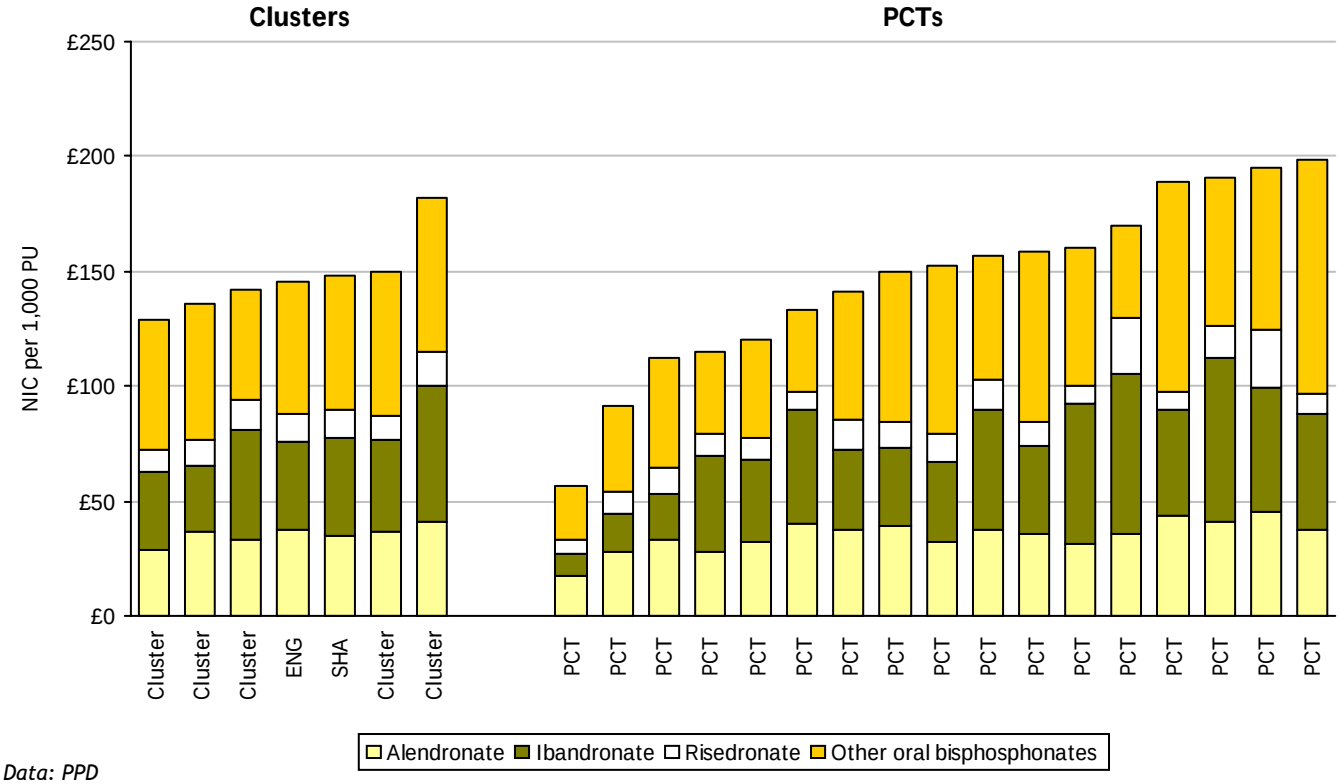
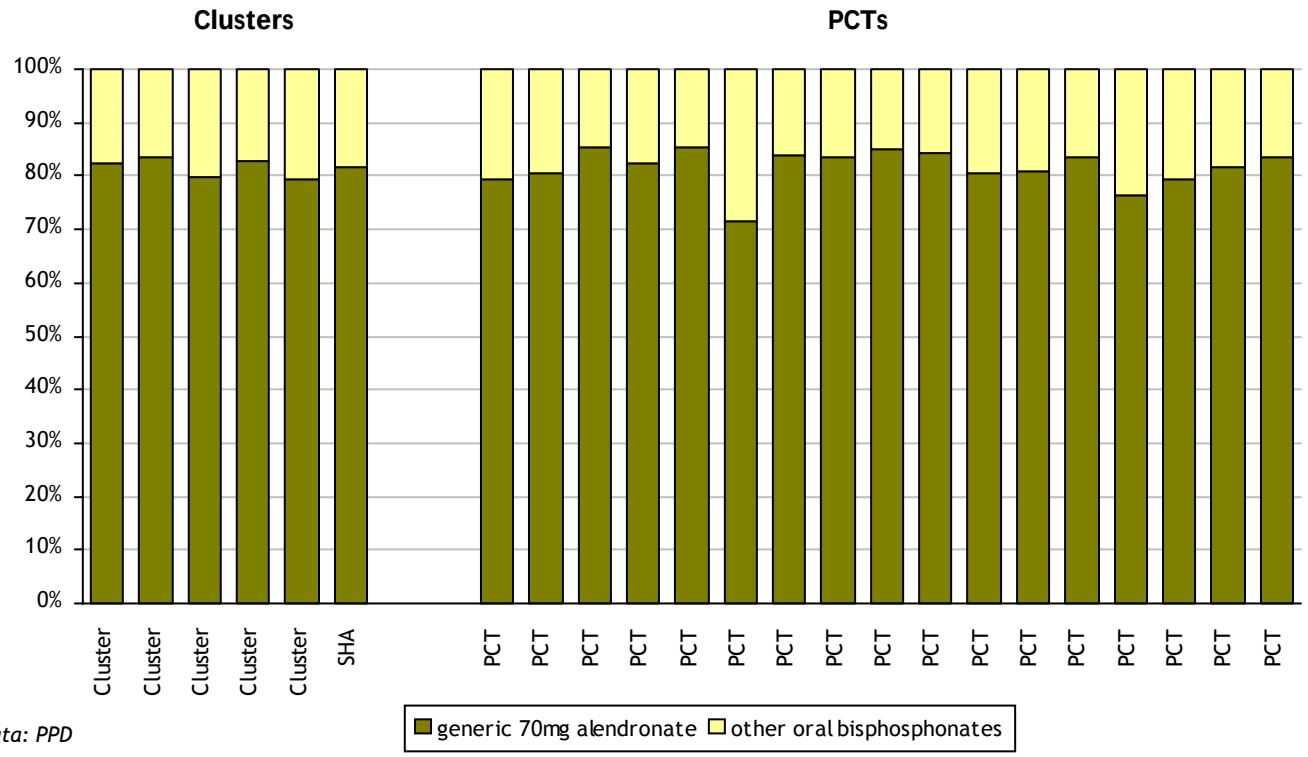


Fig 3 **West Midlands: Breakdown of Oral Bisphosphonate Prescribing (BNF 6.6.2) by Spend (NIC), for the period Aug-11 to Oct-11**



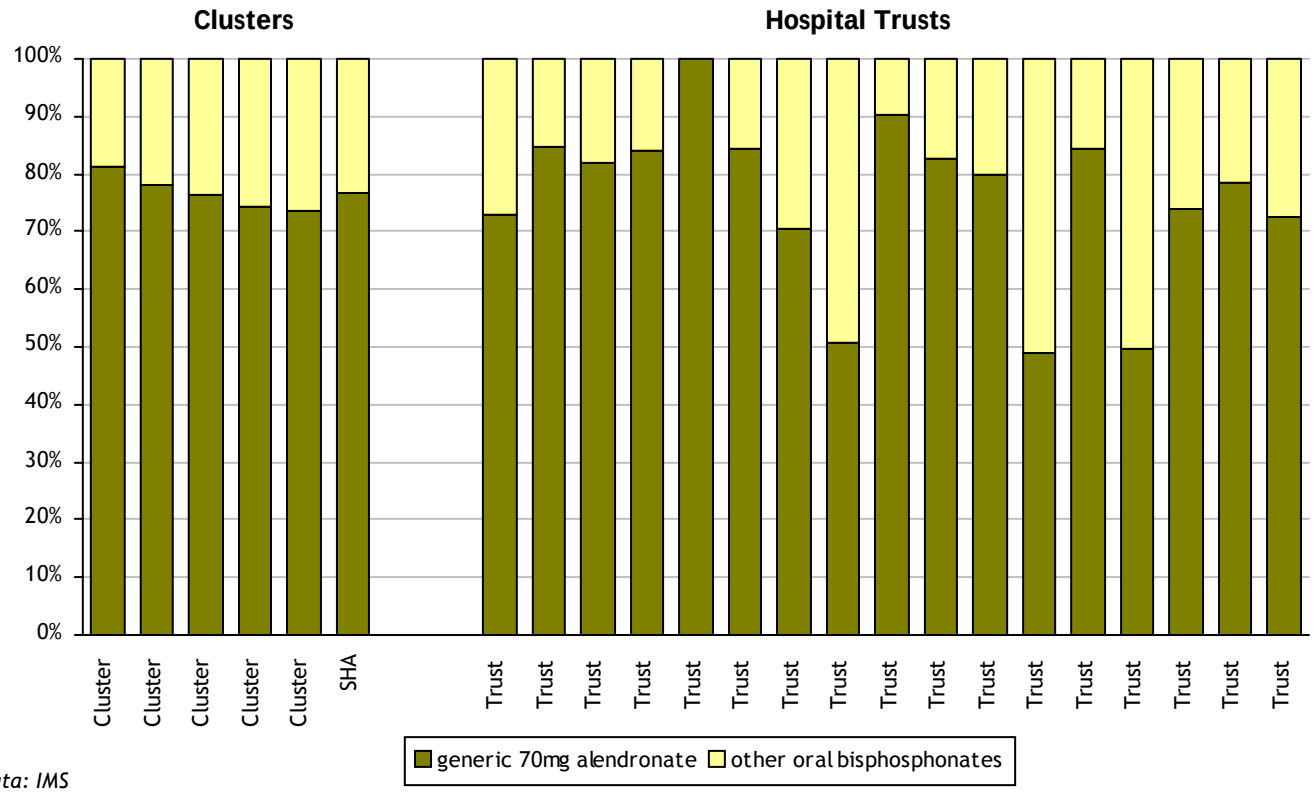
Data: PPD

Fig 1 **PRIMARY CARE - West Midlands: Breakdown of Oral Bisphosphonate Prescribing (BNF 6.6.2) by Volume (Items), for the period Aug-11 to Oct-11**



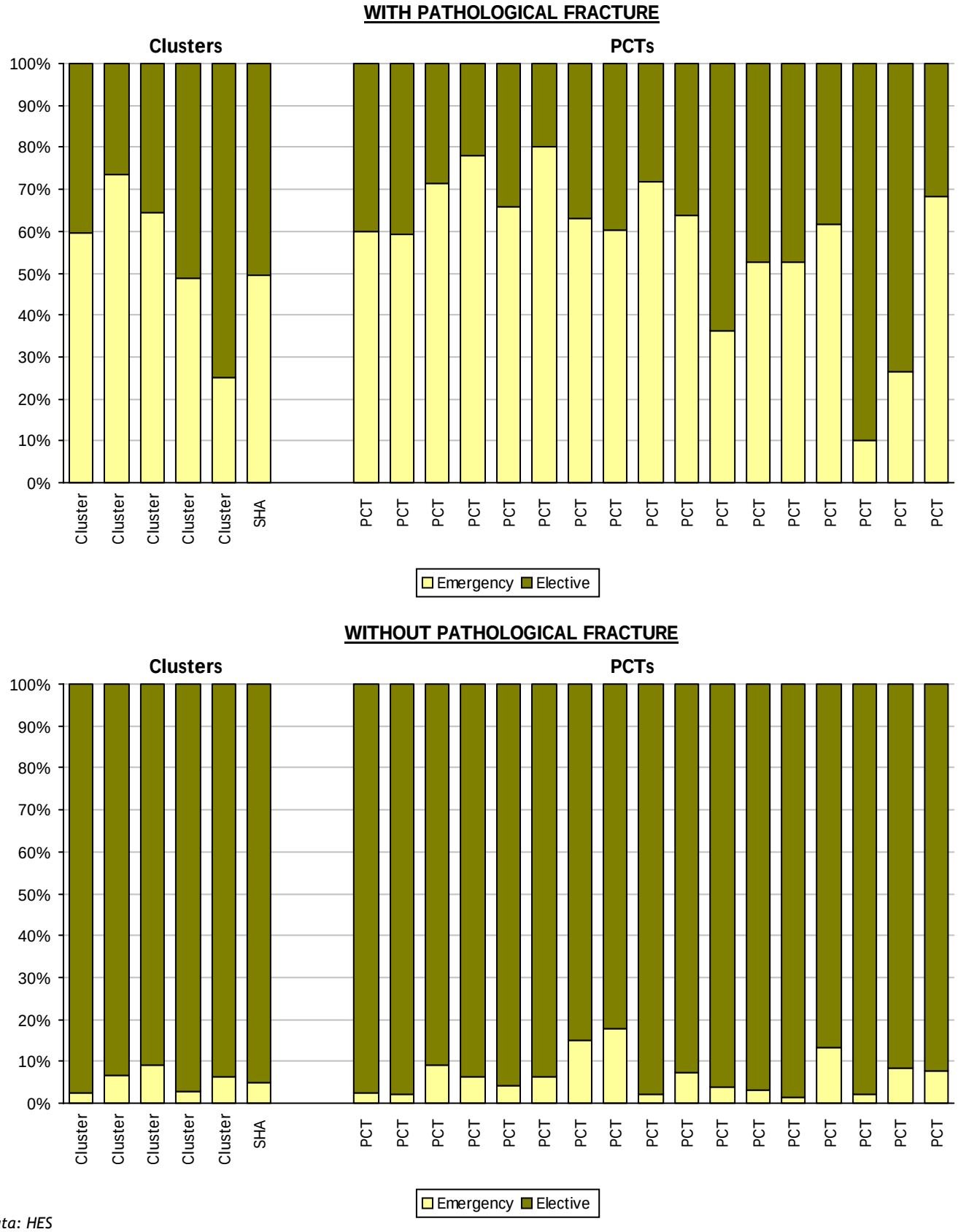
Data: PPD

Fig 2 **SECONDARY CARE - West Midlands: Breakdown of Oral Bisphosphonate Prescribing (BNF 6.6.2) by Volume (Packs), for the period Aug-11 to Oct-11**



Data: IMS

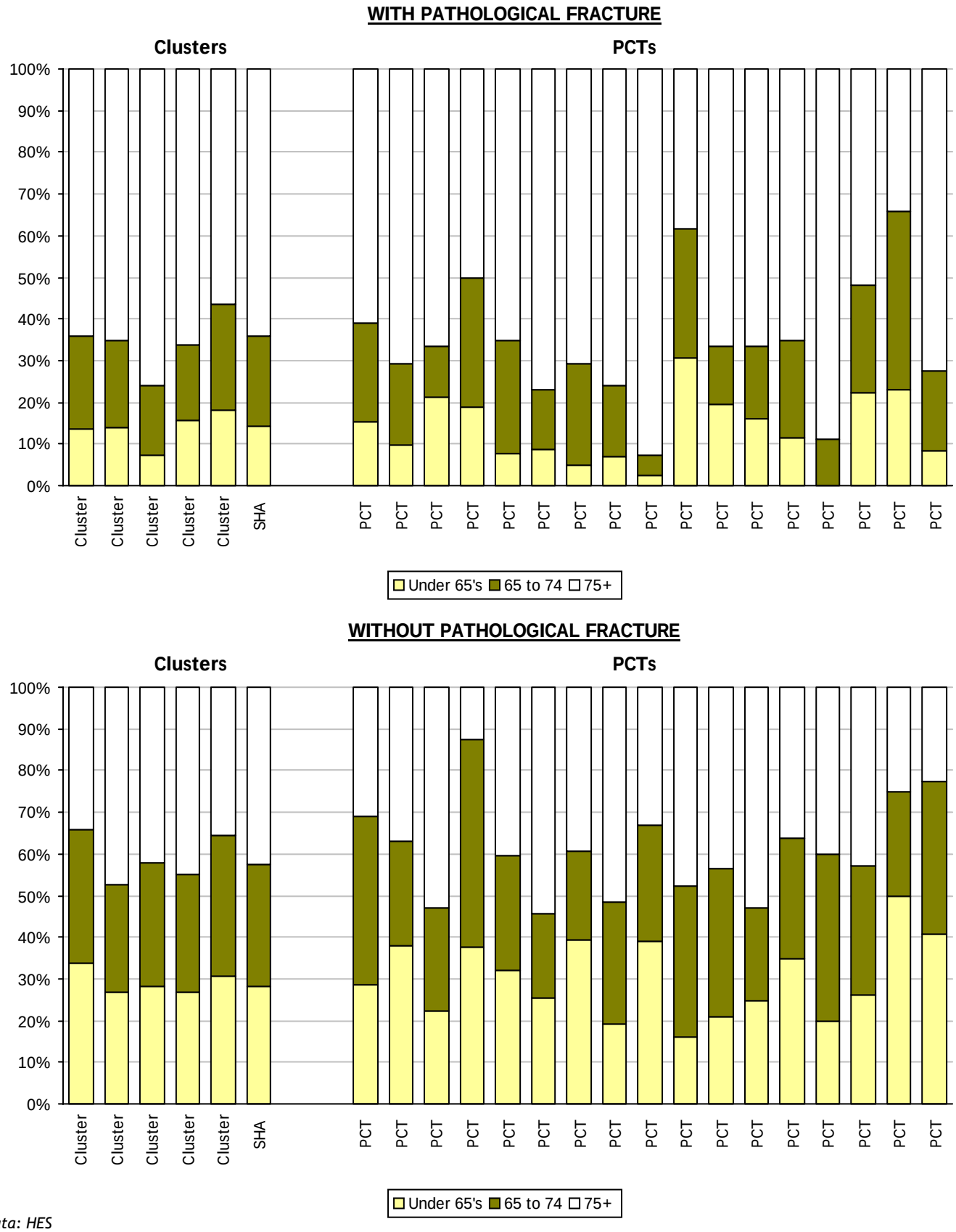
Fig 1 **West Midlands: Emergency and Elective Hospital Admissions for Osteoporosis*, for the period Apr-10 to Mar-11**



Data: HES

** where osteoporosis is classified as ICD-10 codes M80 and M81 as a primary diagnosis*

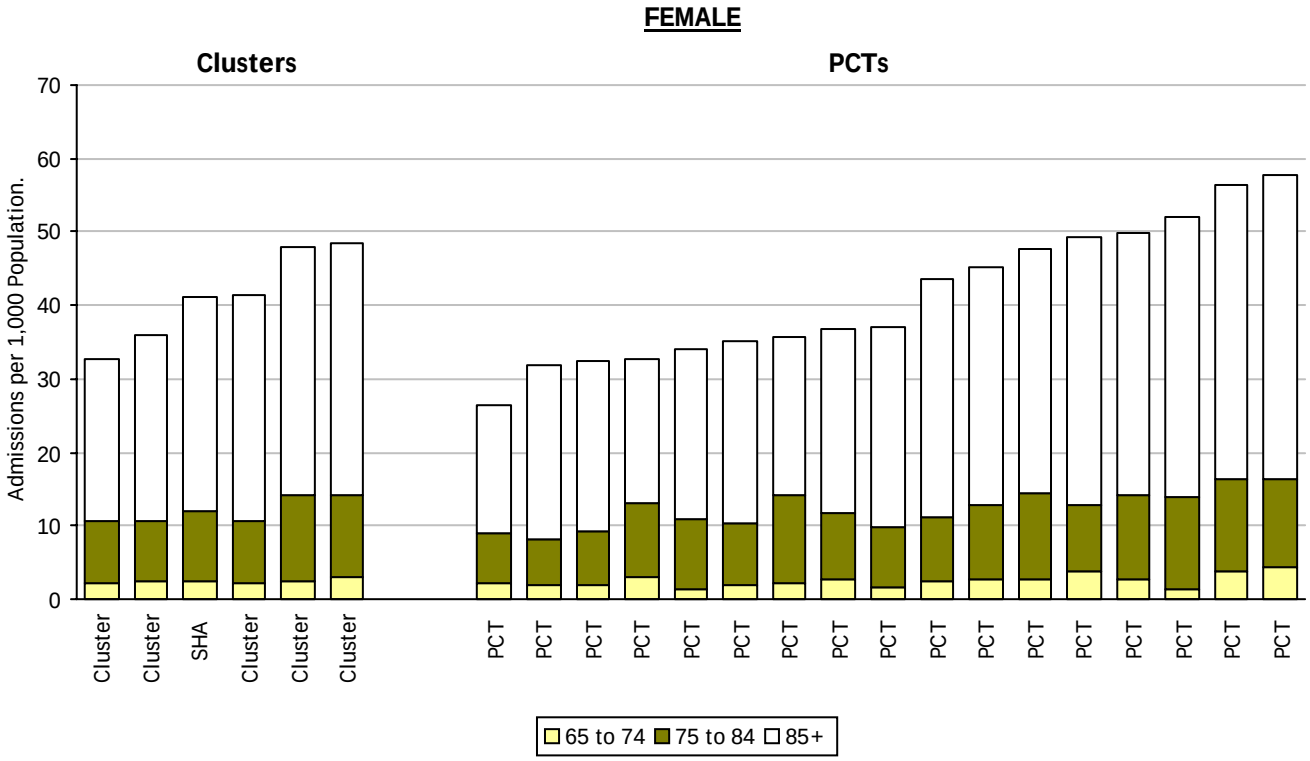
Fig 2 **West Midlands: Emergency and Elective Hospital Admissions for Osteoporosis* by age, for the period Apr-10 to Mar-11**

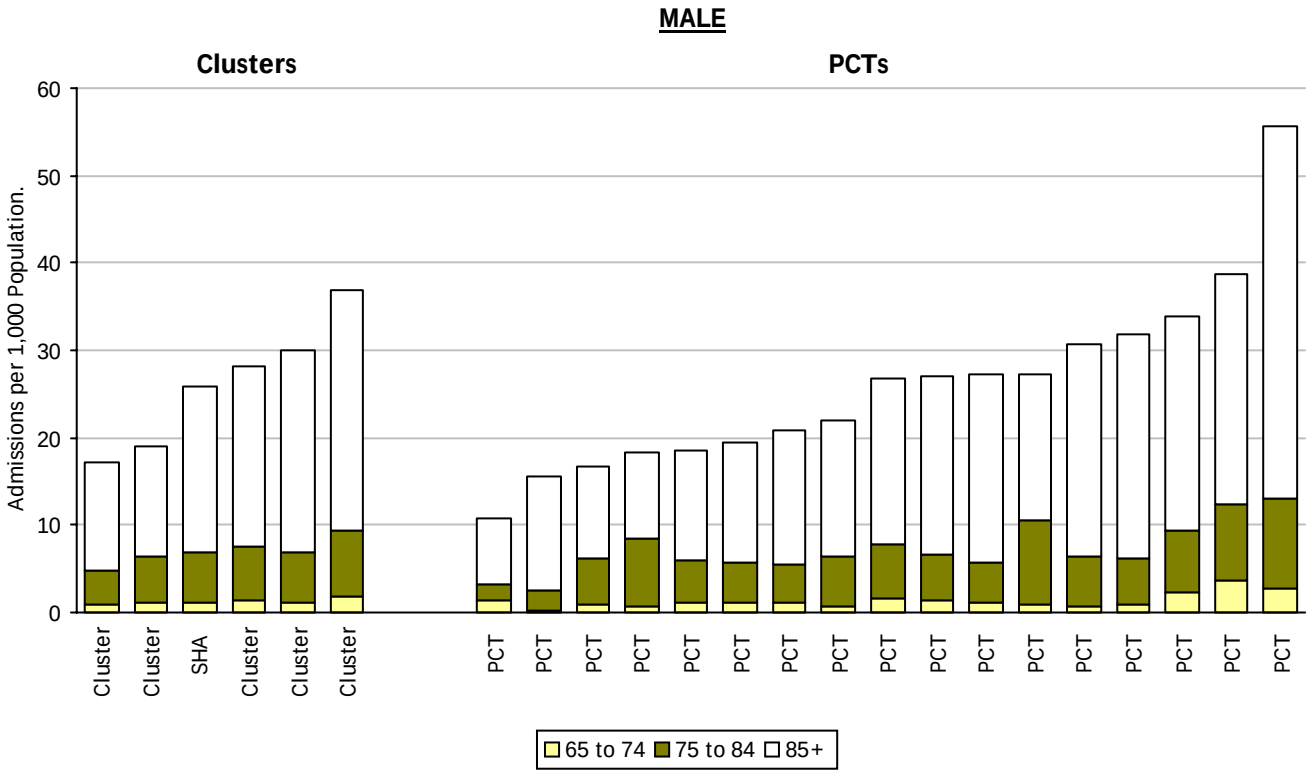


Data: HES

** where osteoporosis is classified as ICD-10 codes M80 and M81 as a primary diagnosis*

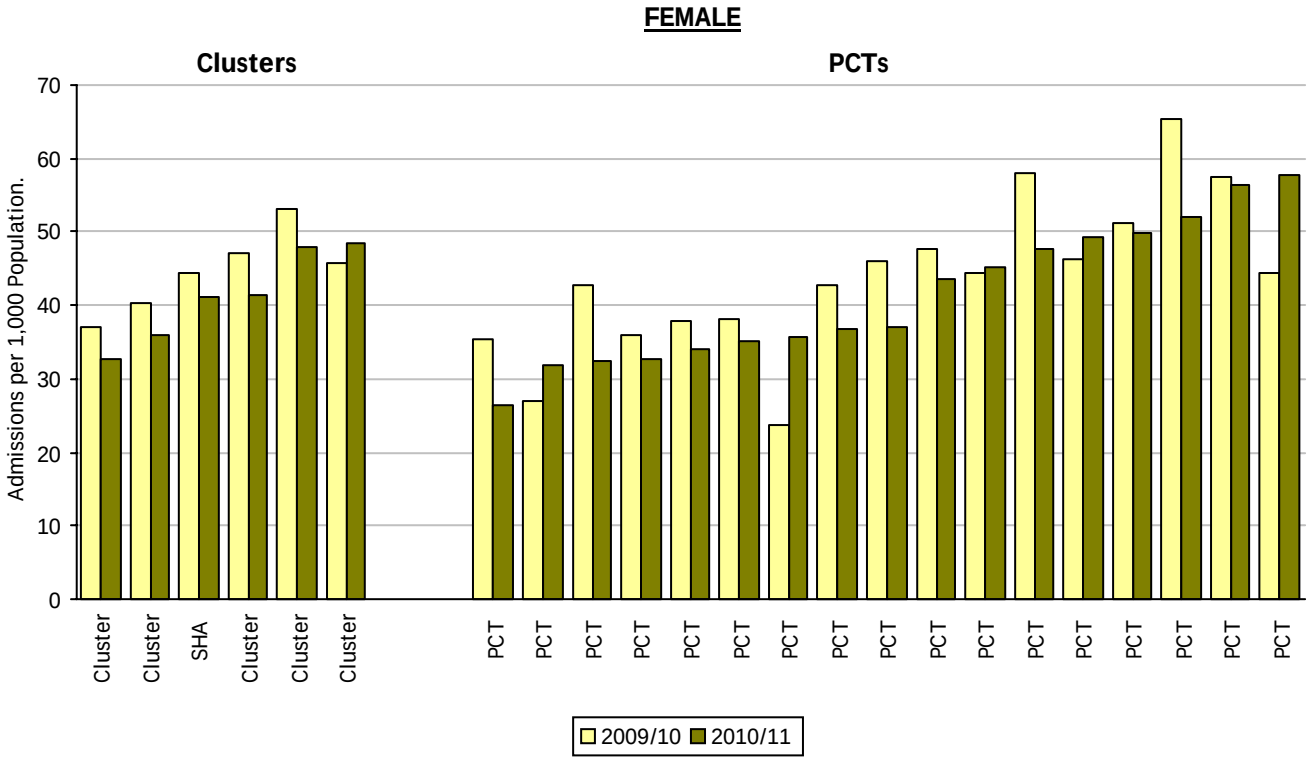
Fig 3 **West Midlands: Emergency Hospital Admissions for Fracture of Neck of Femur*, for the period Apr-10 to Mar-11**

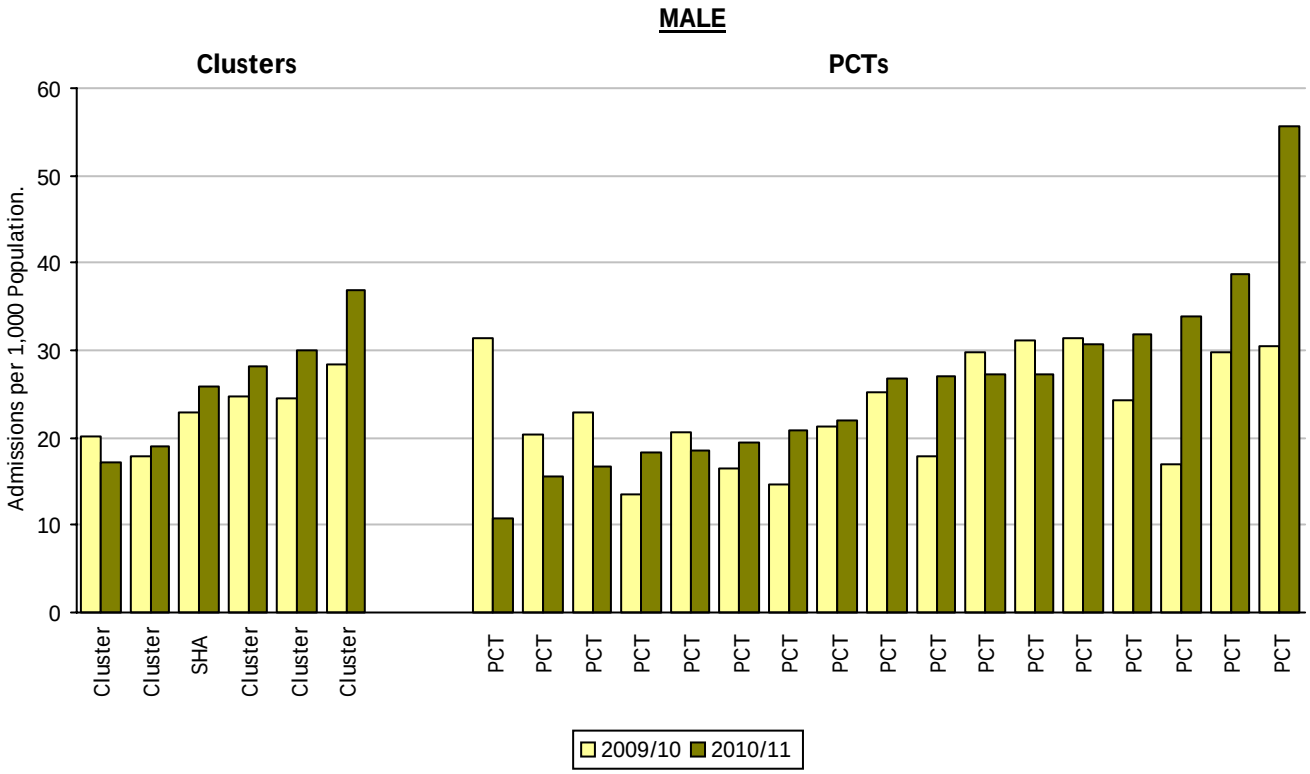




Data: HES and ONS
** where fracture of neck of femur is classified as ICD-10 code S72.0 as a primary diagnosis, this is a proxy indicator of osteoporosis and not all admissions may be a result of osteoporosis*
Admissions have been standardised using ONS population estimates i.e. female admissions in those aged 65 to 74 / estimated female population aged 65 to 74, these estimates are rounded to the nearest 100 for each quinary age band

Fig 4 **West Midlands: Emergency Hospital Admissions for Fracture of Neck of Femur*, for the period Apr-09 to Mar-11**





Data: HES and ONS

** where fracture of neck of femur is classified as ICD-10 code S72.0 as a primary diagnosis, this is a proxy indicator of osteoporosis and not all admissions may be a result of osteoporosis*

Admissions have been standardised using ONS population estimates i.e. female admissions in those aged 65 to 74 / estimated female population aged 65 to 74, these estimates are rounded to the nearest 100 for each quinary age band

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Please Note:
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Financial and General Prescribing – quarterly financial overview for individual PCTs

Better Value & Quality and Productivity Prescribing Changes – a series of prescribing optimisation options for individual practices

For more details see: http://www.keele.ac.uk/pharmacy/general/pctsla/