

SystemOne & Map of Medicine

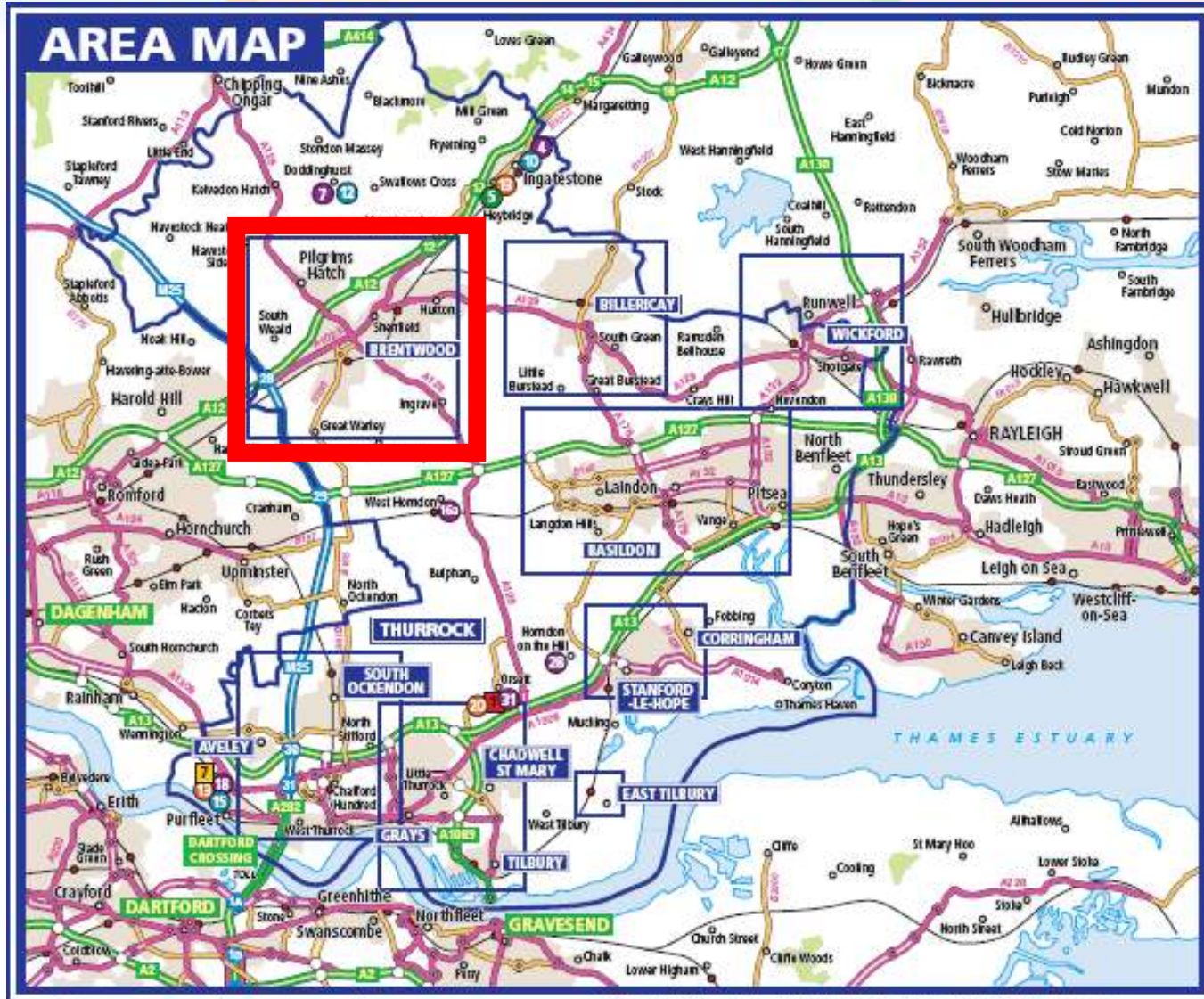
IT & care of long term conditions

Our experience of improving health care and efficiency by producing an integrated system (primary care, community services and secondary care consultants) in SW Essex.

Dr Jon Tuppen - GP and clinical architect
Marija Kontic - Project Manager

From A to B

Integrated Care Pathways



The 'Family'

Integrated Care Pathways



*South West Essex
PCT*



*South West Essex
Community Services*



BRENTWOOD COUNCIL FOR VOLUNTARY SERVICE

**Brentwood PBC Group
LLP**



South West Essex

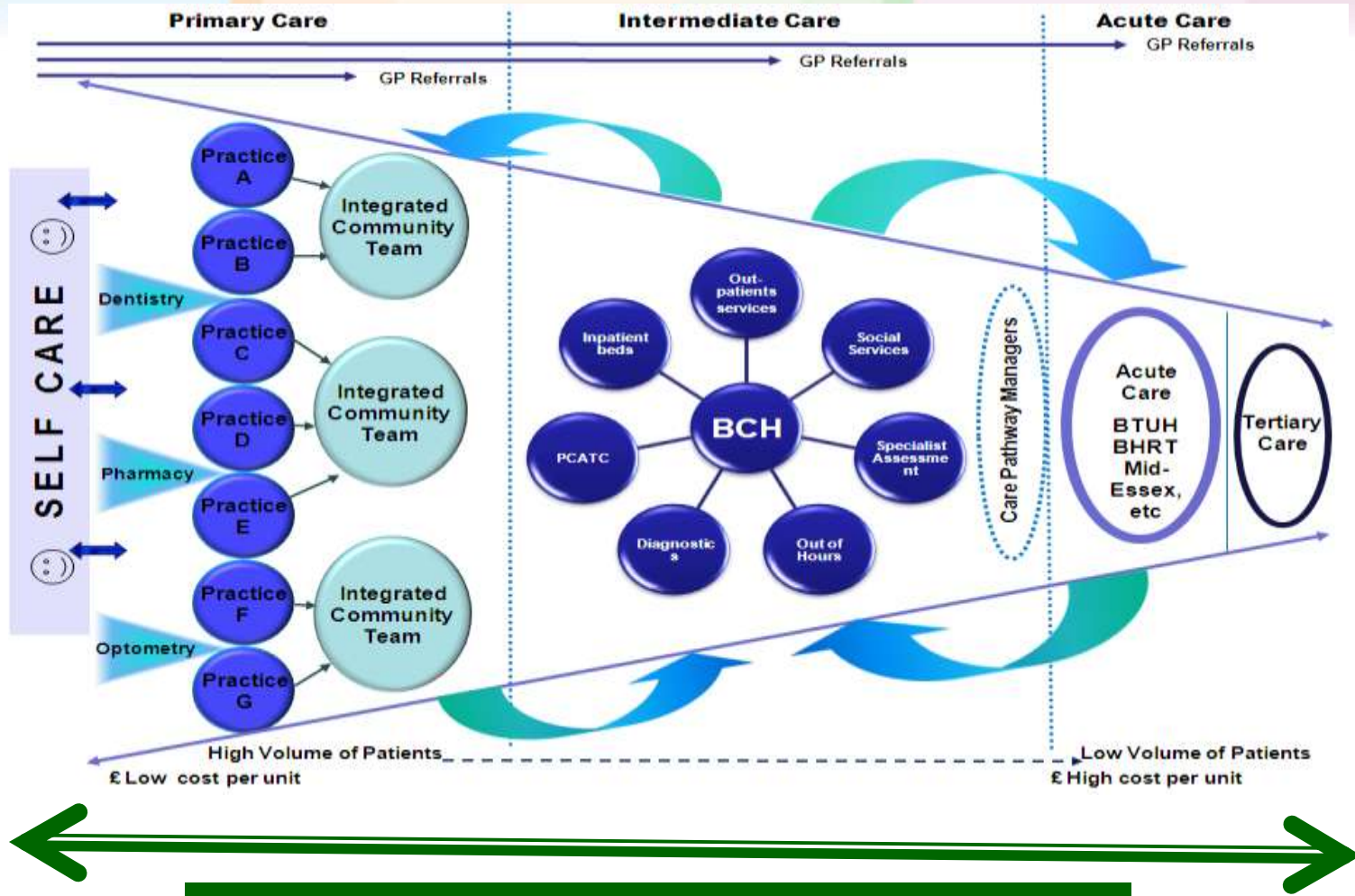
Navigation without Integration

Integrated Care Pathways



The 'Integrated Team'

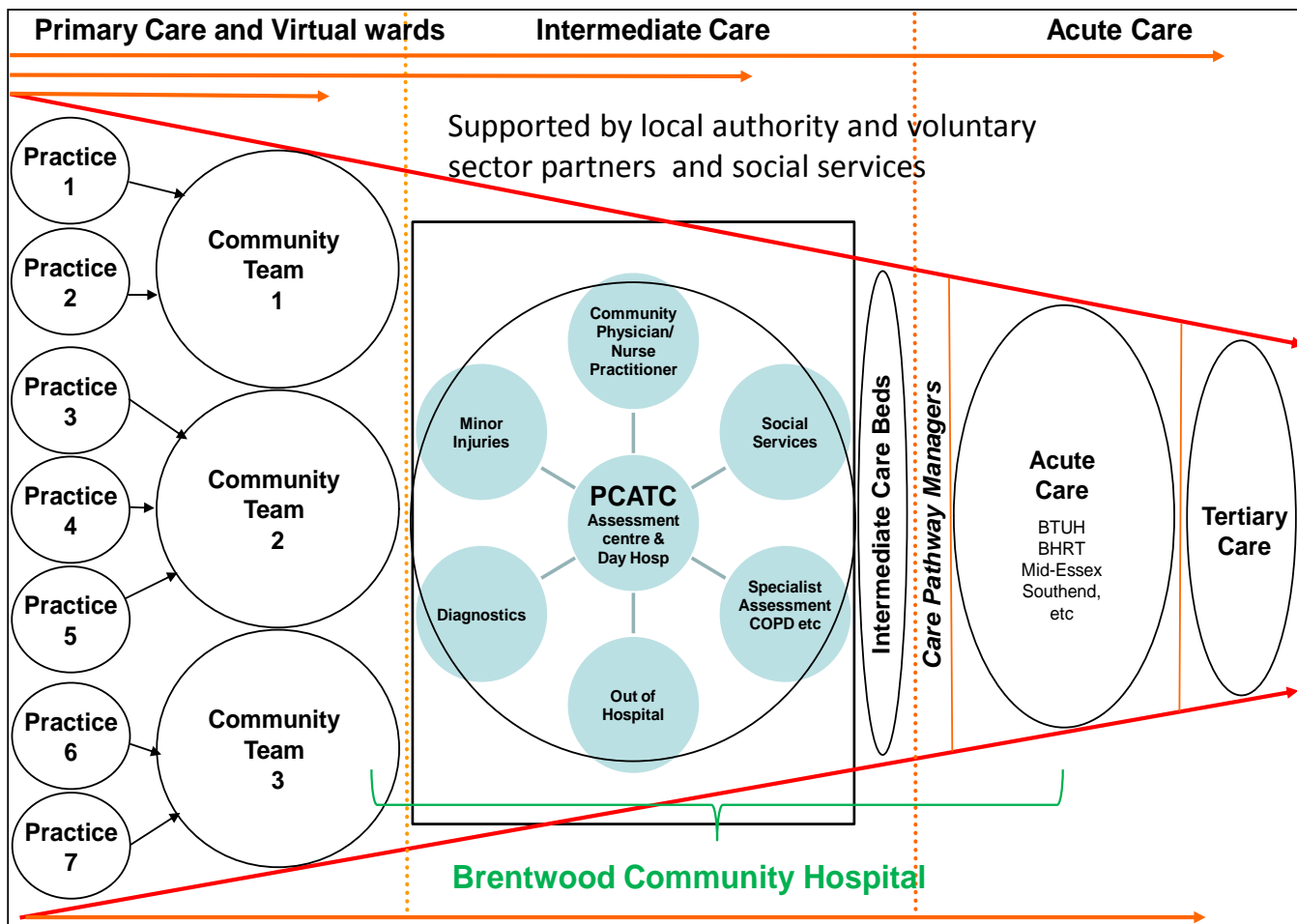
Integrated Care Pathways



SystemOne and Map of Medicine enablement

The Vision

Integrated Care Pathways

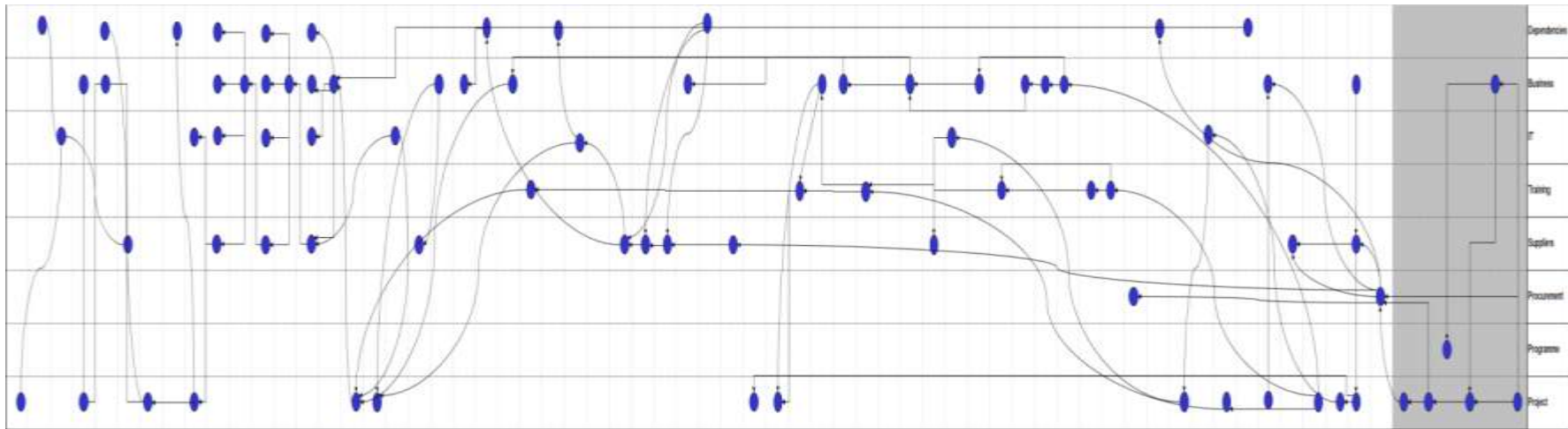


Integrated Care Pathways



The Plan, the Communication

Integrated Care Pathways





Austerity measures EoE

Integrated Care Pathways

- Contract Management £160m plus
- Medicines Management £50-90m
- Location of Care £80-60m
- Long Term Conditions £200m
- Unscheduled Care £110-170m
- Surgical Thresholds £28-65m
- Out-patient Thresholds £40-70m
- Length of Stay/Pre-op bed days £166m
- Staff Productivity £200-300m +
- Estates £40m
- Supply Chain £110-190m

Total

£1.2-1.6 billion



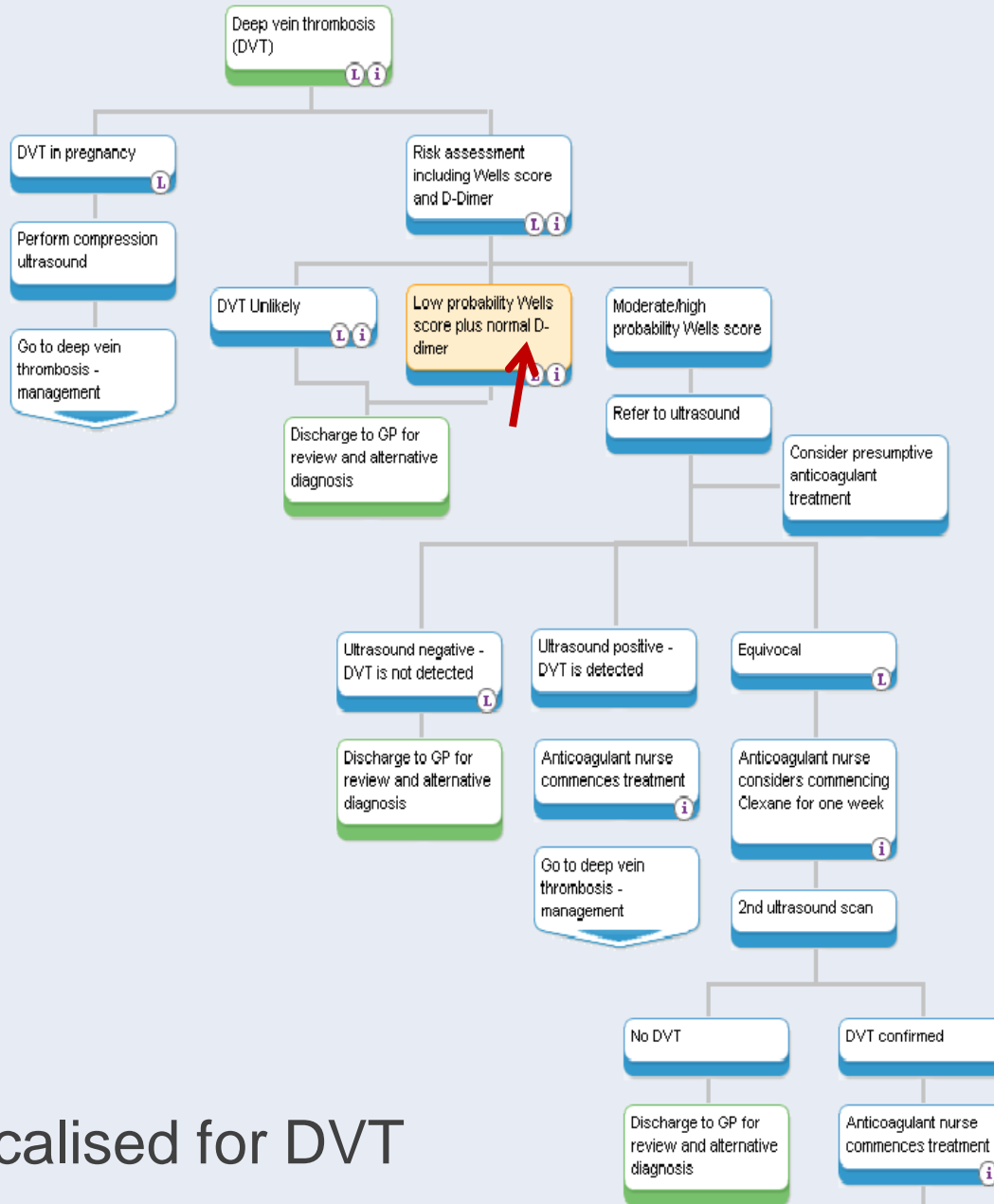
NHS

East of England

Commissioning with MoM

Integrated Care Pathways

- Excellent visual starting point
- Enables broad stakeholder involvement
- Provides clinical evidence
- Encourages/ensures development of complete pathways
- Effective commissioning of complete pathways
- Dissemination of pathways to care/nursing homes and ambulance services



Wells score: give each of the following features 1 point:

- active cancer (treatment current, in previous 6 months or palliative)
- paralysis or leg in plaster
- recent bed rest for more than 3 days or surgery in the last 4 weeks
- tenderness along veins
- entire leg swollen
- calf swollen more than 3cm
- pitting oedema
- collateral veins (non-varicose)

• also give 1 point for previous family history of VTE
Deduct 2 points if an alternative diagnosis is at least as likely as DVT

Scoring:

- score 0 or less: low probability (3%)
- score 1 or 2: moderate probability (17%)
- score 3 or more: high probability (75%)

In the validation study, the percentage of patients who had DVT was:

- 3% for the low probability category
- 17% for moderate probability
- 75% for high probability

D-Dimer levels are raised
The cut-off point for the D-dimer threshold varies according to the methods used:
Deep vein thrombosis - diagnosis
Medicine > Haematology and haemostasis > Deep vein thrombosis

Locally reviewed: 15-Apr-2010 Due for review: 31-Apr-2010
Printed on: 16-May-2010 © Map of Medicine Ltd
IMPORTANT NOTE

Locally reviewed refers to the date of completion of the most recent review process for a pathway. All pathways are reviewed regularly every twelve months, and on an ad hoc basis if required. Due for review refers to the date after which the pathway on this page is no longer valid for use. Pathways should be reviewed before the due for review date is reached. Page 4 of 6

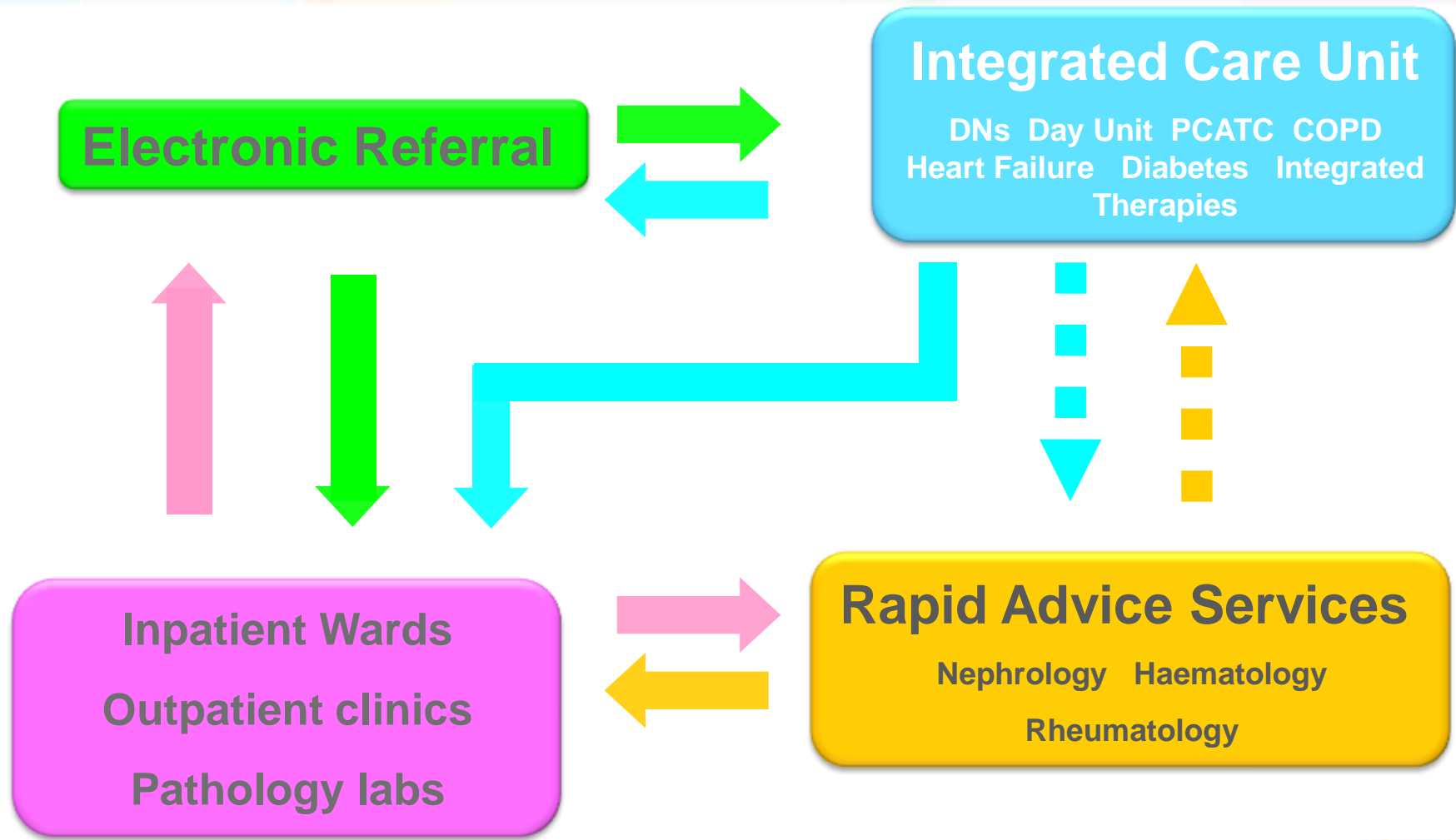
- BCH - Local D-dimer test threshold; 0.5 micrograms per ml
- BTUH - Local D-dimer threshold; 200 micrograms per litre

NB: Also raised in inflammatory states

Localised for DVT

Construction begins

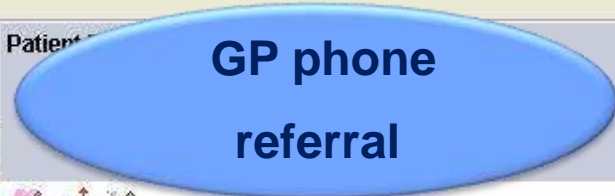
Integrated Care Pathways





Search Task Discard Save Record Details Today Next Acute Smoking

Start Consultation Reminder Labels Print Summary Print Record Map Event Details Next Event Settings



Clinical Administrative

- Patient Home
- Problems (2)
- Summary & Family History (18)
- New Journal
- Read Code Journal (109)
- Quick Glance
- SWE Consent Status
- Medication (6)
- Repeat Templates (6)
- Sensitivities & Allergies
- Prescription History (69)
- Referrals (3)
- Letters (3)
- Communications (31)
- Recalls (1)
- Reminders
- QOF Alerts & Patient Warnings
- Pathology Reports (22)
- Other Services Involved
- PCATC Combined Blood and Urine Form
- PCATC Pathology Form
- Mid Essex Radiology Request Form
- GPwSI Diabetes Podiatry Request Form
- Community Dietetic Service Referral Form
- DYOC - Clinical Issues: Hypoglycaemia

New Journal

Custom Filter

Blood Pressure: 120 / 80

Thu 24 Sep 2009 10:05 - Surgery: Ruth Thacker (Receptionist Access Role) @ The Brambles RT

Thu 24 Sep 2009 10:27 - Surgery: Mrs Carole Swain (Clerical Access Role) @ The Brambles CHS

✉ Discharge Letter to unknown recipient

Wed 28 Oct 2009 **** Care started at Brentwood Community Hospital Integrated Care ****

Wed 28 Oct 2009 10:08 - Surgery: Dr May Ghannam (Salaried General Practitioner) @ The Brambles MG

both lower ankle and left lower led to the calf, had hip replacement left one 6 weeks ago, to go back on irbesartan, refer to exclude DVT appointment made in 1 hour time

BP 170 / 80 mmHg

Leg swelling (XE0qy)

(R) Irbesartan 300mg / Hydrochlorothiazide 12.5mg tablets - 56 tablets - take one once daily

Smoking v14

Current smoking status: Smoker (137R.)

Irbesartan 300mg / Hydrochlorothiazide 12.5mg tablets - 56 tablets - take one once daily

Ended 16 Nov 2009 End of course

FP10 Printed On Wed 28 Oct 2009 10:19 By Dr May Ghannam

NHS Summary Update

Smoker (137R.)

Wed 28 Oct 2009 16:44 - PCATC: Benjamin Hall (Nurse Access Role) BMH

Referral In for PCATC: Discharged From Care

With the Following Intervention(s)

Onward referral

Status Update for PCATC Referral In: Receiving Care

Current Home Address: XX XXXXXXXXXXXXXXXXXXXX, XXXXXXXXXXX XXXXX, XXXXXXXXXXX XXXX XXX

Home telephone number

Thu 29 Oct 2009 08:56 - Surgery: Ruth Thacker (Receptionist Access Role) @ The Brambles RT

219 Journal Entries (0 Selected)

Search Task Discard Save Record Details Today Next Acute Smoking

Start Consultation Reminder Labels Print Summary Print Record Map Event Details Next Event Settings

Patient Dr

Template driven assessment

- Clinical Administrative
- Patient Home
 - Problems (2)
 - Summary & Family History (18)
 - New Journal**
 - Read Code Journal (109)
 - Quick Glance
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 - DYOC - Clinical Issues: Hypoglycaemia

New Journal

Custom Filter

Thu 29 Oct 2009 08:56 - Surgery: Ruth Thacker (Receptionist Access Role) @ The Brambles

RT Incoming share from The Brambles with access level 3

Fri 30 Oct 2009 15:26 - PCATC: Mrs Beverley Piper (Clinical Practitioner Access Role)

BAP BP 146 / 80 mmHg

Enoxaparin sodium 150mg/1 ml solution for injection pre-filled syringes - 10 syringe - Administer 128mg OD s/c

Warfarin 1mg tablets - 28 tablets - take one as directed

Warfarin 3mg tablets - 28 tablets - take one as directed

DVT Assessment

Medical History

[X] General symptoms and signs: Painful, swollen left leg for past 6/52 following a left hip replacement

H/O: surgery (within last 12 weeks): Yes Left hip replacement 6/52 ago.

Vital Signs / Clinical Assessment

Blood Pressure: 146 / 80

Heart rate: 72 Beats

Weight: 85.0 Kg (13 st 5 lb)

Left calf circumference: 41.0 cm (16")

Right calf circumference: 39.0 cm (15")

Left mid thigh circumference: 49.0 cm (19")

Right mid thigh circumference: 49.5 cm (19")

Wells Score / D-dimer

Wells deep vein thrombosis clinical probability score: 3

Examination interpretation (Enter Low, Mod, High): HIGH

DDimer level: 4.0 ng/mL

Probable: Yes

Clinical Assessment Cont'd

Full blood count - FBC: Yes

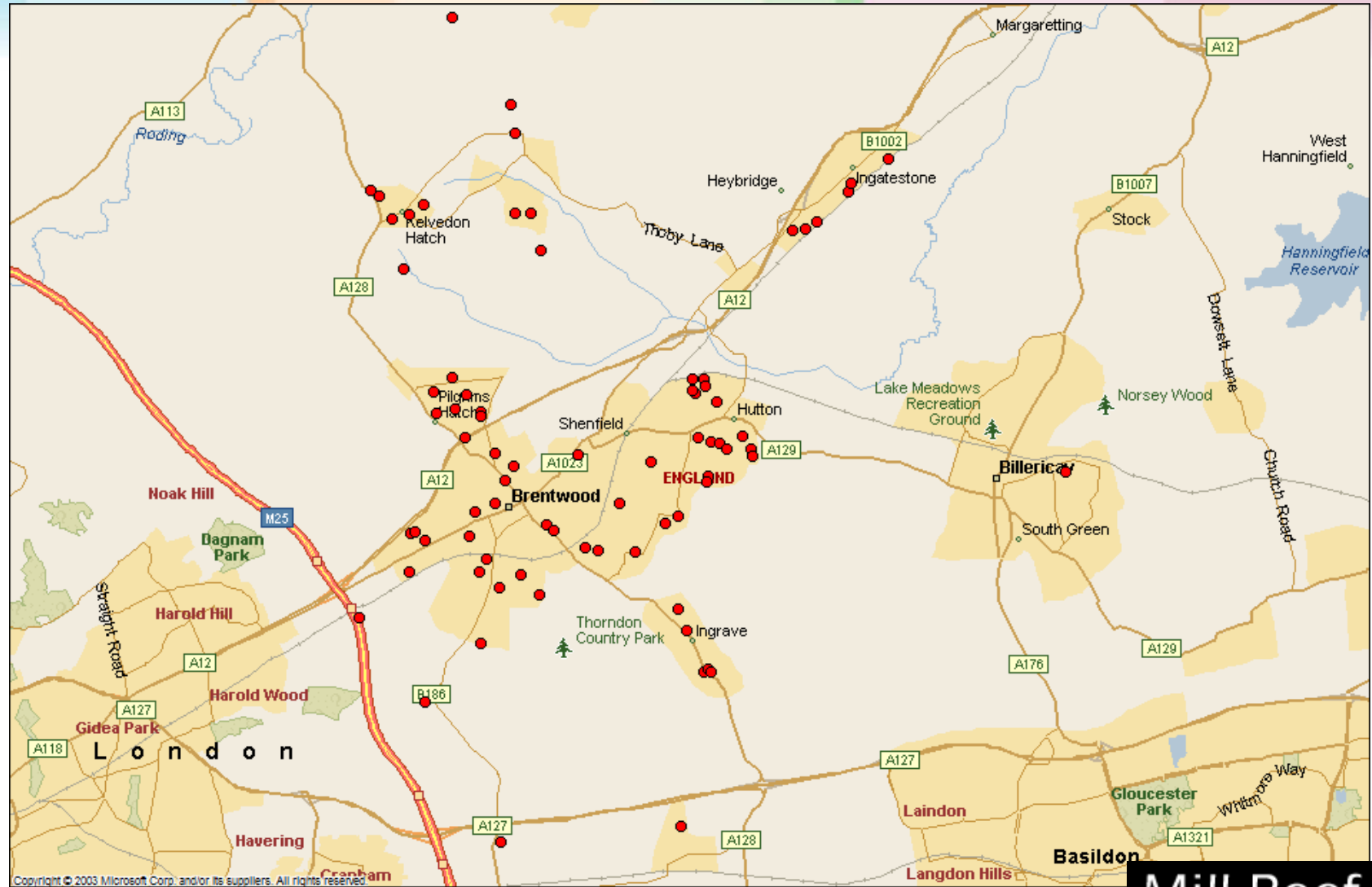
Liver function tests: Yes

Self-administration of medication: Yes

219 Journal Entries (0 Selected)

Business process analysis for Planning

Integrated Care Pathways



Rapid Advice

SystemOne as platform for innovation

- Example of a **local virtual referral**
- Consultant Haematologist led
- QIPP effective
 - Average response time **2.3 days**
 - 46% reduction in haematology referrals to secondary care
 - Haematinics (B12, folate and iron) 21%
 - Anaemia 20%
 - White blood cell quantitative abnormalities 18%
 - Platelet quantitative abnormalities 12%
 - Problems relating to anticoagulation,
 - Thrombosis and bleeding 10%
 - 1st year n = 240

Sharing & Consent

Integrated Care Pathways

View Communication

Close Print Patient Details

Communication Details

Sender: Recipient:

Reference: Their Reference:

Day Hospital

Dear Gerri/ Ben/ Beverley/

please see recent correspondence from Dr Aggarwal. Mr P has consented to sharing record. He has CCF which is as stable as we can get at present.

He is now anaemic again - he had full GI Ix last Sept without finding reason.

I agree with Dr Aggarwal that a small transfusion say 2 units would help - he needs it relatively slowly say over 3 hours with perhaps 40mg furosemide IV too

is this something you could organise - please phone Mr P

Thank
Jon

GP electronic referral

Search Task Discard Save Record Details Today Next Acute Smoking

Start Consultation Reminder Labels Print Summary Print Record Map Event Details Next Event Settings

Patient Details Hidden

- Clinical Administrative
- Depression: [reactive (neurotic)] or [p...
 - Antibiotic cover - dentistry (1)
 - Subacute bacterial endocarditis (G5101)
 - Paroxysmal atrial fibrillation (Xa2E8) (1)
 - Bilateral inguinal hernia repair (7H115)
 - Epididymo-orchitis (K242.) (1)
 - Epilepsy (F25..) (1)
 - Right ventricular failure (X202) (1)
 - Summary & Family History (18)

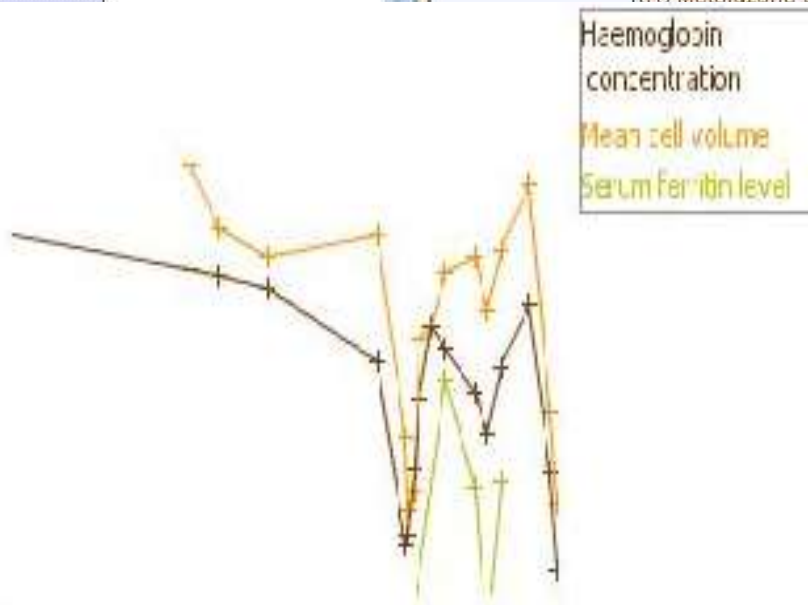
New Journal

Tue 27 Apr 2010 11:55 - GP Surge
Jon T see Dr Aggarwal
drug use today
I agree no point
- transfusion will
agreeable to this
referral made
Ferrous sulphate
(R) Furosemide
(R) Metolazone 5

Data Settings Graph New Graph

Preset Only show readings that the patient has at least one of

| Date | Mean cell volu... | Serum ferritin ... | Haemoglobin c... |
|-------------|-------------------|--------------------|------------------|
| 26 Mar 1997 | | | 15.9 |
| 18 May 2001 | | | 15.9 |
| 25 Apr 2002 | | | 15.2 |
| 24 Feb 2006 | 101.1 | | 14.0 |
| 26 Jun 2006 | 98.2 | | 13.9 |
| 08 Jan 2007 | 96.9 | | 13.7 |
| 02 Apr 2008 | 97.9 | | 12.4 |
| 28 Jul 2008 | 88.8 | | 9.1 |
| 08 Aug 2008 | 85.5 | 19.6 | 9.3 |
| 08 Sep 2008 | 86.4 | | 10.5 |
| 29 Sep 2008 | 93.2 | | 11.7 |
| 17 Nov 2008 | 93.8 | | 13.0 |
| 13 Jan 2009 | 96.2 | 111.5 | 12.6 |
| 20 May 2009 | 97.0 | 76.5 | 11.8 |
| 07 Jul 2009 | 94.5 | 23.5 | 11.1 |
| 03 Sep 2009 | 97.2 | 79.0 | 12.3 |
| 21 Dec 2009 | 100.2 | | 13.4 |
| 19 Mar 2010 | 90.0 | | 10.4 |
| 22 Apr 2010 | 85.8 | | 8.7 |



Print Table
Print Partial Table
Send to Spreadsheet

but in future his Hb, MCV and ferritin may need to be regularly monitored.

Proof of concept & next steps

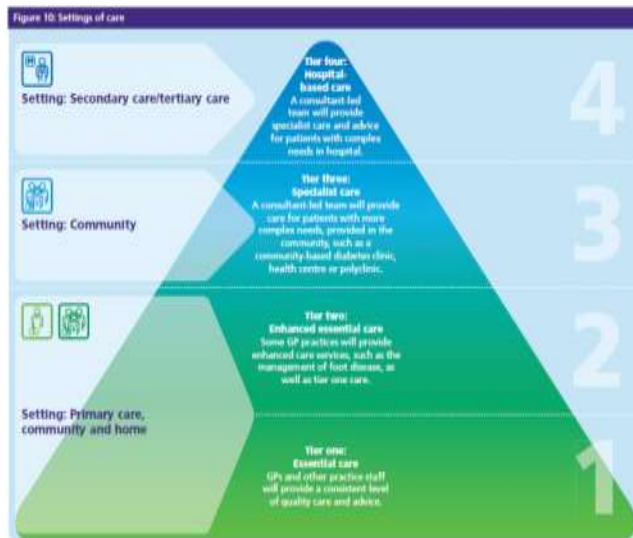
Integrated Care Pathways

- Quality and Productivity release through innovative use of existing CfH solutions
- More advice services
- Inpatient wards & length of stay
- Moving diabetes out into community settings and upskilling primary care
- Online patient records
- Briefcase & mobile solution that works!

Sharing good practice

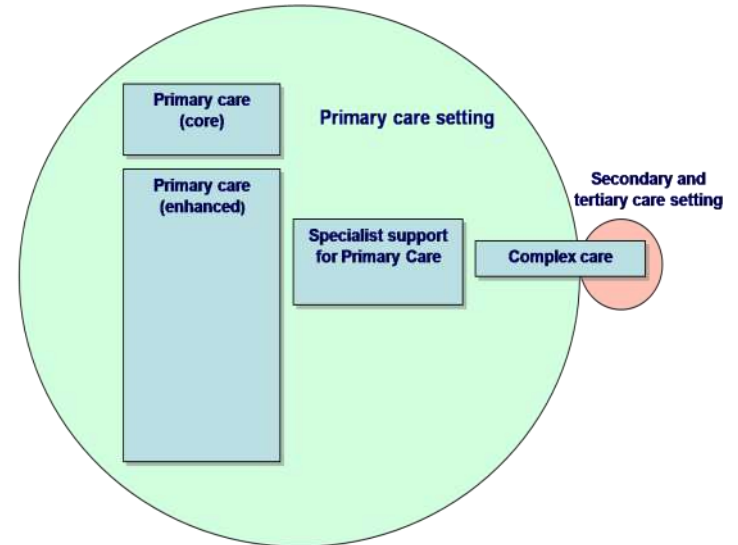
Model A London

the structural approach based on individual complexity



Model B Cumbria

Functional Approach based on population wide improvement



QIPP and Diabetes



Search Task Discard Save Record Details Today Next Acute Smoking

Start Consultation Reminder Labels Print Summary Print Record Map Event Details Next Event Settings

New Electronic share at Referral

- Clinical Administrative
- Patient Home
 - Problems (8)
 - Angina (G33..) (3)
 - Osteoarthritis (XE1DV) (2)
 - Diabetes mellitus (C10..) (4)
 - Background diabetic retinopathy (F420)
 - Chronic kidney disease stage 3 (XaLHI)
 - Indigestion (1954.) (2)
 - Adverse reaction to drugs/medicines/bi
 - Hypothyroidism (X40IQ) (3)
 - Summary & Family History (20)
 - New Journal
 - Read Code Journal (161)
 - Quick Glance
 - SWE Consent Status
 - Medication (8)
 - Repeat Templates (15)
 - Sensitivities & Allergies (4)
 - Prescription History (150)
 - Referrals (5)
 - Letters (1)
 - Communications (74)
 - Recalls (3)
 - Reminders
 - QOF Alerts & Patient Warnings (2)

New Journal

| Date | Time | Location | Practitioner | Notes |
|-----------------|-------|----------|---|--|
| Thu 15 Apr 2010 | 11:11 | Surgery | Dr Graham Hillman (General Medical Practitioner) @ Tile House Surgery - Hillman | H: she is now coughing again see last CXR 19 March triang opacity left mid zone cough some phlegm small amount . she feels aches and pains agian also left otalgia and neck pains . E: ears nad . RS clear HS nad P: rep CXR and review .. sees Dr Water Mon . at Basildon .. |
| Tue 20 Apr 2010 | 11:04 | Surgery | Mrs Sara Ware (Clerical Access Role) @ Tile House Surgery - Hillman | ✉ X-ray Results to unknown recipient Notes: X ray chest to see doctor |
| Tue 20 Apr 2010 | 11:57 | Surgery | Miss Lucy Oborn (Clerical Manager Access Role) @ Tile House Surgery - Hillman | |
| | | | | CKD (Chronic Kidney Disease) v16 Chronic Kidney Disease BP recording exception code: Blood pressure procedure refused (XaJkR) per GH Blood pressure procedure refused (XaJkR) - per GH |
| Tue 20 Apr 2010 | 12:01 | Surgery | Mrs Sara Ware (Clerical Access Role) @ Tile House Surgery - Hillman | 📄 X ray chest Report, Abnormal, Make an appointment to see doctor (Patient Informed) |
| Thu 22 Apr 2010 | | | | ** Care started at Brentwood Community Hospital Integrated Care ** |
| Thu 22 Apr 2010 | 14:18 | Surgery | Dr Graham Hillman (General Medical Practitioner) @ Tile House Surgery - Hillman | H: Telephone encounter (9N31.) saw Basildon on Monday saw another consultant .. see CXR = nad .. some oa spine .. P: refer Dr Tuppen At BCH .. awaiting an MRI .. |
| Thu 22 Apr 2010 | 16:01 | Surgery | Ms Anne McHugh (Medical Secretary Access Role) @ Tile House Surgery - Hillman | ✉ Referral to Brentwood Community Hospital Integrated Care at Brentwood Community Hospital - "1735697122 Apr 2010" 📄 Incoming share from Tile House Surgery - Hillman with access level 3 |



New share at Electronic Referral

Search Task Discard Save Record Details Today Next Acute Smoking

Start Consultation Reminder Labels Print Summary Print Record Map Event Details Next Event Settings

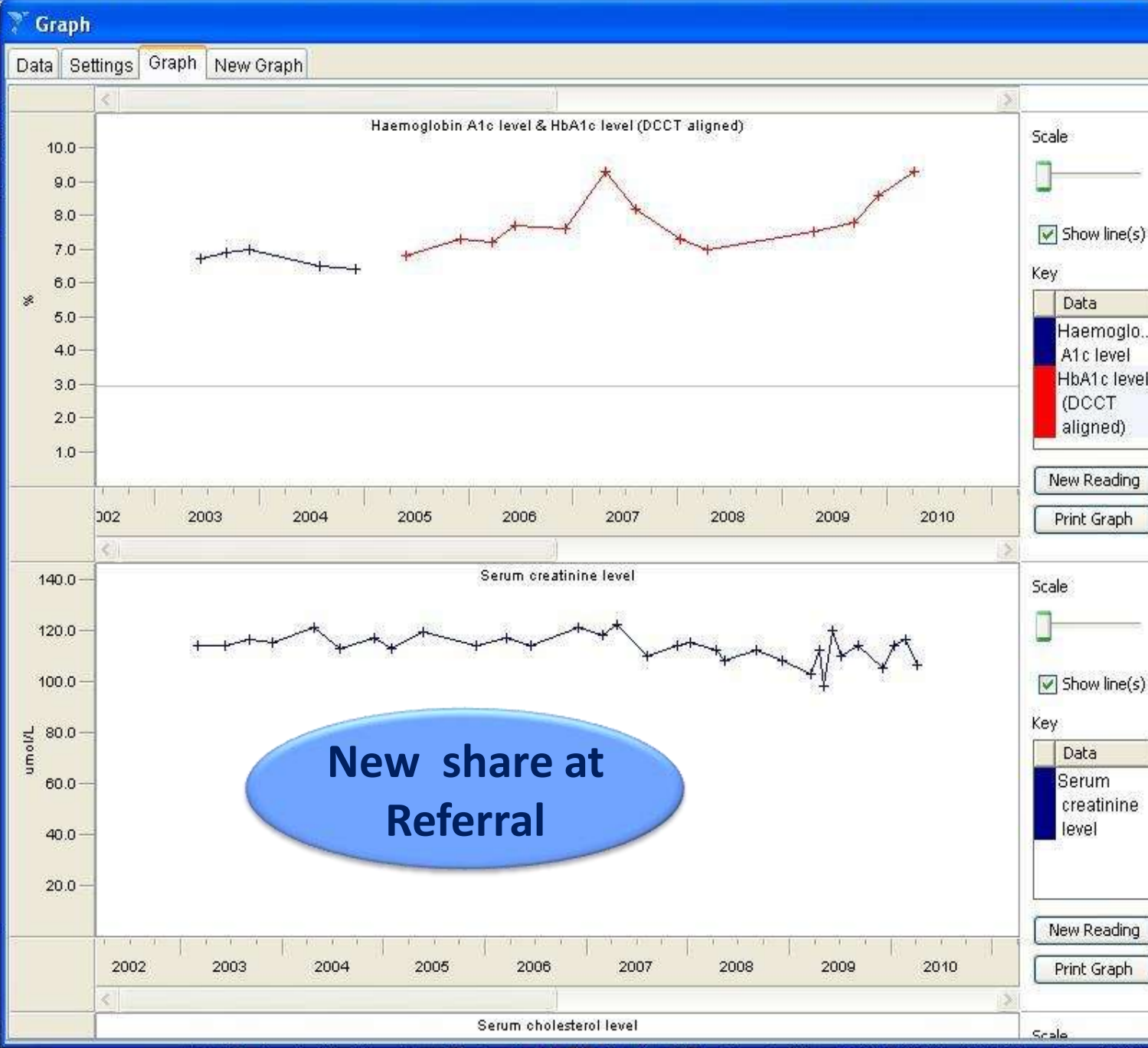
Patient Dr

- Clinical
 - Administrative
 - Osteoarthritis (XE1DV) (2)
 - Diabetes mellitus (C10..) (4)
 - Background diabetic retinopathy (F420)
 - Chronic kidney disease stage 3 (XaLHI)
 - Indigestion (1954.) (2)
 - Adverse reaction to drugs/medicines/bi
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 - Referrals (5)
 - Letters (1)
 - Communications (74)
 - Recalls (3)
 - Reminders
 - QOF Alerts & Patient Warnings (2)
 - Pathology Reports (125)
 - Other Services Involved
 - PCATC Combined Blood and Urine Form

Repeat Templates (Current repeats)

| Authori... | Drug | Last Issued | Review | Issues | Flags |
|-------------|--|-------------|-------------|---------|--------------|
| | Fybogel 3.5g effervescent granules sachets plain SF (Forum Health Products Ltd) 1 pack of 60 X 3.5g sachet(s) orange - 1 Every Day <i>Indigestion (1954.)</i> | 04 Sep 2009 | 04 Mar 2011 | 30 (30) | [Red Flag] |
| 11 Jun 2001 | Aspirin 75mg dispersible tablets 100 tablets - ONE TO BE TAKEN ONCE DAILY <i>Angina (G33.)</i> | 24 Mar 2010 | 04 Mar 2011 | 27 (27) | [Green Flag] |
| 13 Jun 2001 | GAVISCON ADVANCE sugar free oral suspension [RECKITT B] 500 ML - MDU <i>Indigestion (1954.)</i> | 29 Sep 2009 | 04 Mar 2011 | 13 (13) | [Red Flag] |
| 09 Jan 2002 | Candesartan 16mg tablets 56 tablet(s) - TAKE ONE DAILY <i>Hypertension (XE0Ub)</i> | 13 Apr 2010 | 04 Mar 2011 | 29 (29) | [Green Flag] |
| 09 Jan 2002 | Gliclazide 80mg tablets 112 tablets - 1 Twice Daily <i>Type II diabetes mellitus (X40J5)</i> | 13 Apr 2010 | 04 Mar 2011 | 24 (24) | [Green Flag] |
| 17 Jan 2002 | Paracetamol 500mg capsules 100 capsules - TWO TABLETS TO BE TAKEN FOUR TIMES DAILY <i>Osteoarthritis (XE1DV)</i> | 13 Apr 2010 | 04 Mar 2011 | 33 (33) | [Green Flag] |
| 11 Apr 2002 | Allopurinol 300mg tablets 84 tablet(s) - ONE TO BE TAKEN ONCE DAILY <i>Gout NOS (C34z.)</i> | 13 Apr 2010 | 04 Mar 2011 | 16 (16) | [Green Flag] |
| 13 Jun 2002 | Diastix testing strips (Bayer Diagnostics Manufacturing Ltd) 50 strip(s) - MDU <i>Type II diabetes mellitus (X40J5)</i> | 14 Feb 2007 | 04 Mar 2011 | 7 (7) | [Red Flag] |
| 11 Mar 2008 | Diclofenac 1% gel | 06 Mar 2008 | 04 Mar 2011 | 5 (5) | [Red Flag] |

- Clinical Administrative
- Medication (8)
 - Repeat Templates (15)
 - Sensitivities & Allergies (4)
 - Prescription History (150)
 - Referrals (5)
 - Letters (1)
 - Communications (74)
 - Recalls (3)
 - Reminders
 - QOF Alerts & Patient Warnings (2)
 - Pathology Reports (125)
 - Pathology Requests
 - Haematology
 - Biochemistry
 - Endocrinology
 - Microbiology
 - Radiology
 - Histology
 - Immunology
 - Misc. Results
 - Microscopy
 - Other Services Involved
 - PCATC Combined Blood and Urine Fo
 - PCATC Pathology Form
 - Mid Essex Radiology Request Form



Scale

Show line(s)

Key

- Haemoglobin A1c level
- HbA1c level (DCCT aligned)

Scale

Show line(s)

Key

- Serum creatinine level

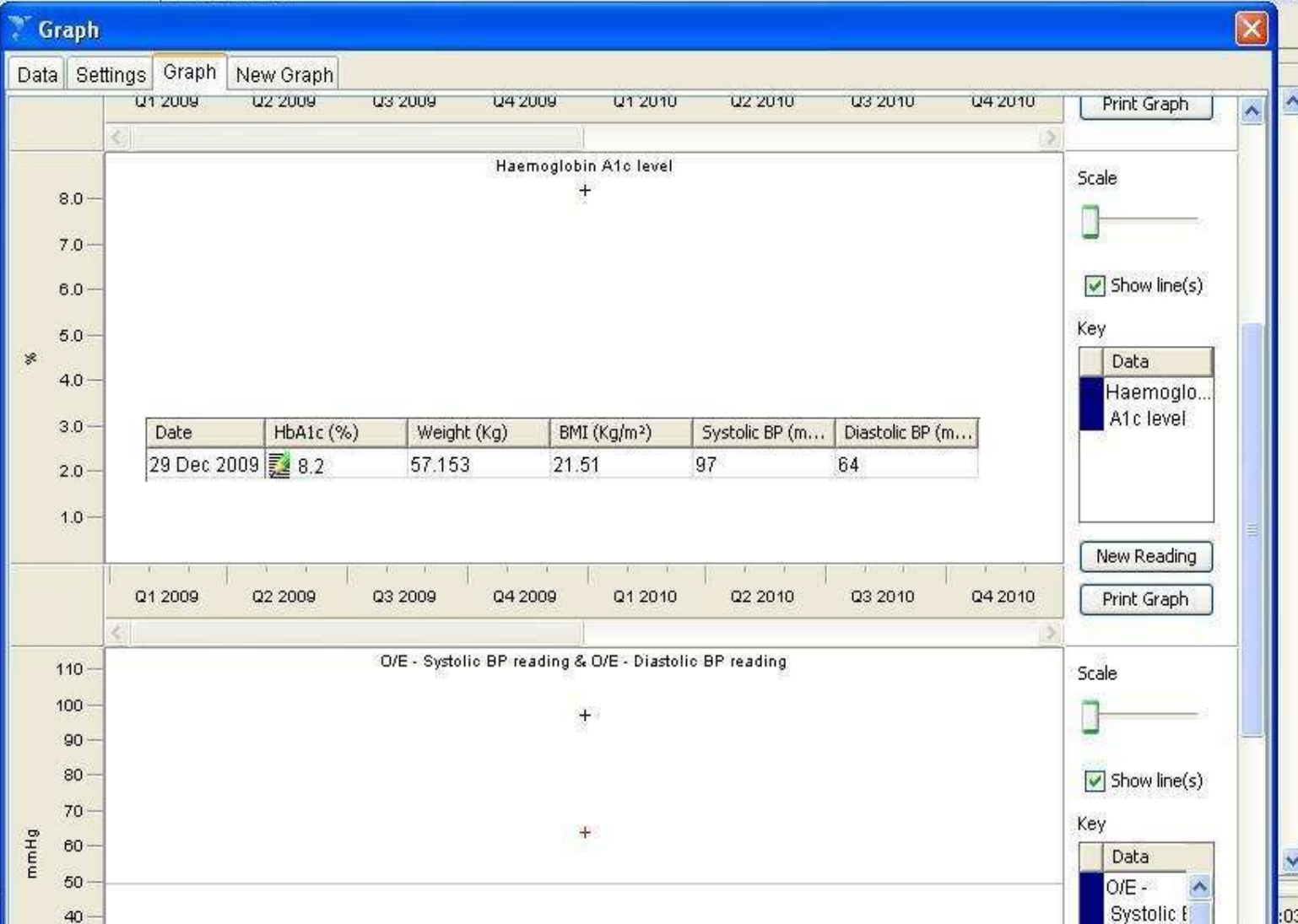
Search Task Discard Save Record Details Next Acute Record ... Caseloads Waiting ... More

Start Consultation Reminder Labels Print Summary Print Record Map Event Details Next Event Settings

Current process at Referral

Clinical Administrative **Problems**

- Patient Home
- Problems**
- Summary & Family History
- Quick Glance
- New Journal
- Read Code Journal (30)
- Communications (6)
- Letters (2)
- Referrals (2)
- Record Attachments
- Reminders (1)
- Recalls
- Repeat Templates
- Medication
- Prescription History
- Sensitivities & Allergies
- Pathology Reports
- Numeric Results
- Sugar Observations
- Diabetes Template
- Consent to Share
- 18 Week Waits
- Forms
- Pathology Results



Systemwide Templates & PHPs

New Goal

Other Details... Exact date & time Fri 14 May 2010 16:01

Changing the consultation date will affect all other data entered. To avoid this, cancel and press the 'Next' button

Importance: 5 /10 (0 - low, 10 - high)

Objective & reason: Enter goal objective and reason

Category: [Dropdown]

Type of goal: Improvement Maintain

Achievement Trigger: Numeric Reading Read Code Recorded No trigger (manual recording of achievement)

Goal Action Plans

| Started | Description | Category | Outcome | Ended |
|----------------|-------------|----------|---------|-------|
| 0 Action plans | | | | |

New Action Plan

Description: Enter description of the action plan

Category: [Dropdown]

Patient Confidence: 5

Action plan cannot be met (eg. service is unavailable locally)

HS Essex

Thank You & Questions

Our experience of improving health care and efficiency by producing an integrated system (primary care, community services and secondary care consultants) in SW Essex

Dr Jon Tuppen - jtuppen@doctors.org.uk

Marija Kontic - mkontic@mill-reef.co.uk