



Third Joint Conference  
of the  
British HIV Association (BHIVA)  
with the  
British Association for Sexual Health and HIV (BASHH)

**1–4 April 2014**

Arena and Convention Centre · Liverpool

THIRD JOINT CONFERENCE  
OF BHIVA AND BASHH 2014



**Dr Michael Rayment**  
Homerton University Hospital

THIRD JOINT CONFERENCE  
OF BHIVA AND BASHH 2014



**Dr Michael Rayment**  
Homerton University Hospital

COMPETING INTEREST OF FINANCIAL VALUE $\geq$ £1,000:	
Speaker Name	Statement
Dr Michael Rayment	None declared
Date	April 2014

**FROM RESEARCH  
PROPOSAL TO ROUTINE CARE •  
ESTABLISHING A SERVICE OF SUSTAINABLE HIV  
TESTING IN AN EMERGENCY DEPARTMENT**

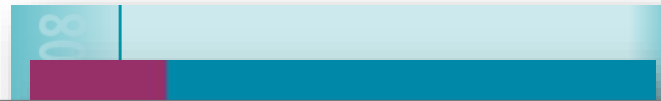
**MICHAEL RAYMENT**

**BHIVA / BASHH CONFERENCE •**

**NEW CONSULTANTS' FORUM**

**LIVERPOOL 2014**

# THE STORY BEGINS



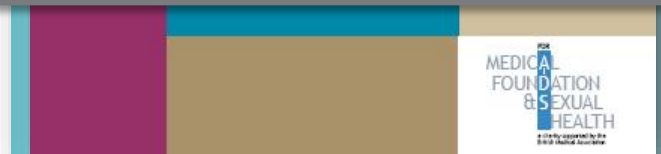
*Richmond House  
79 Whitehall  
London  
SW1A 2NS*

13 September 2007

Dear Colleague

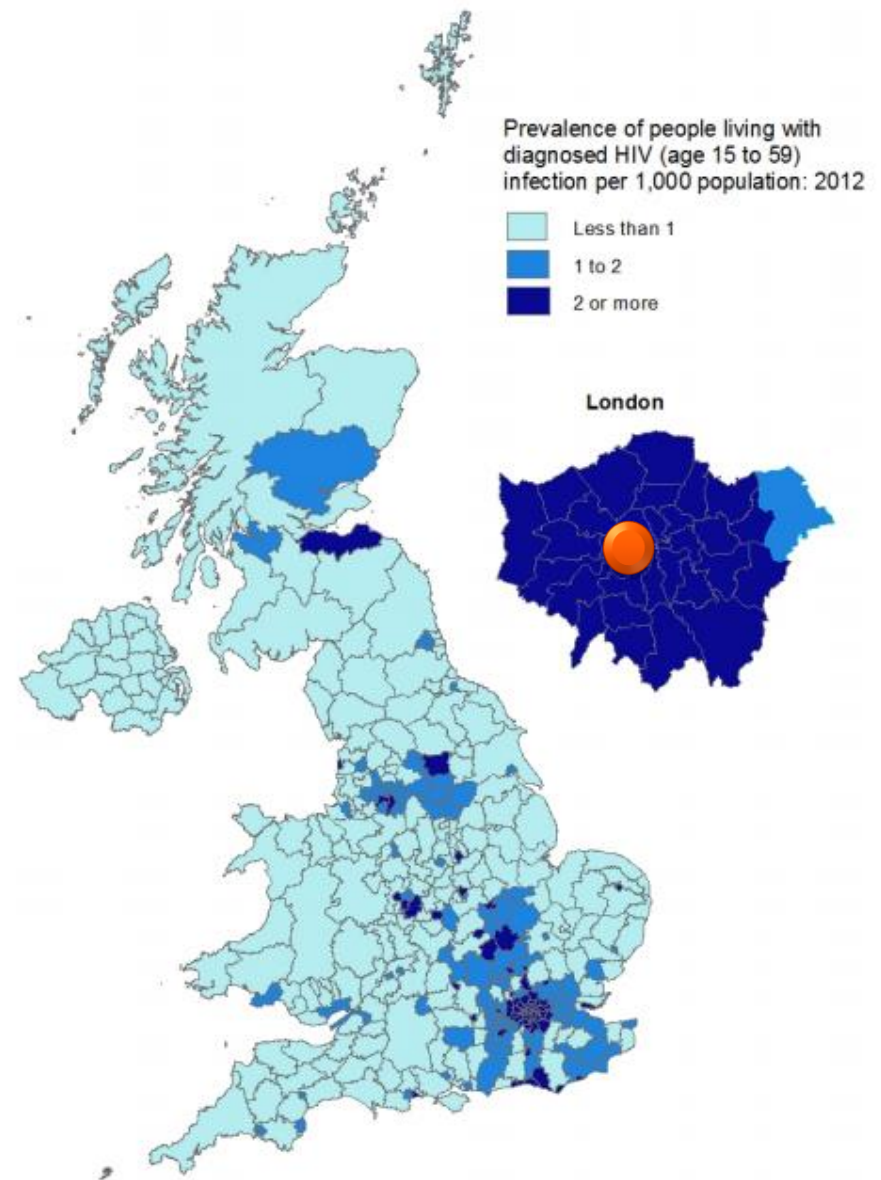
**Improving the detection and diagnosis of HIV in non-HIV specialties including primary care**

We are writing to ask for your help in combating the continuing threat of HIV infection to the public health. A special effort on your part would do much to improve the situation.....



# HIV TESTING GUIDELINES 2008

- Increased testing in risk-groups by all health professionals
- Routine testing in indicator conditions
- Routine testing in high prevalence areas



# DEPARTMENT OF HEALTH • CALL FOR PROPOSALS 2009

- Four site collaboration
- Planned mixed methodology observational trial of routine HIV testing in four acute medical settings in areas of high HIV prevalence • HINTS Study
- £120K successfully awarded

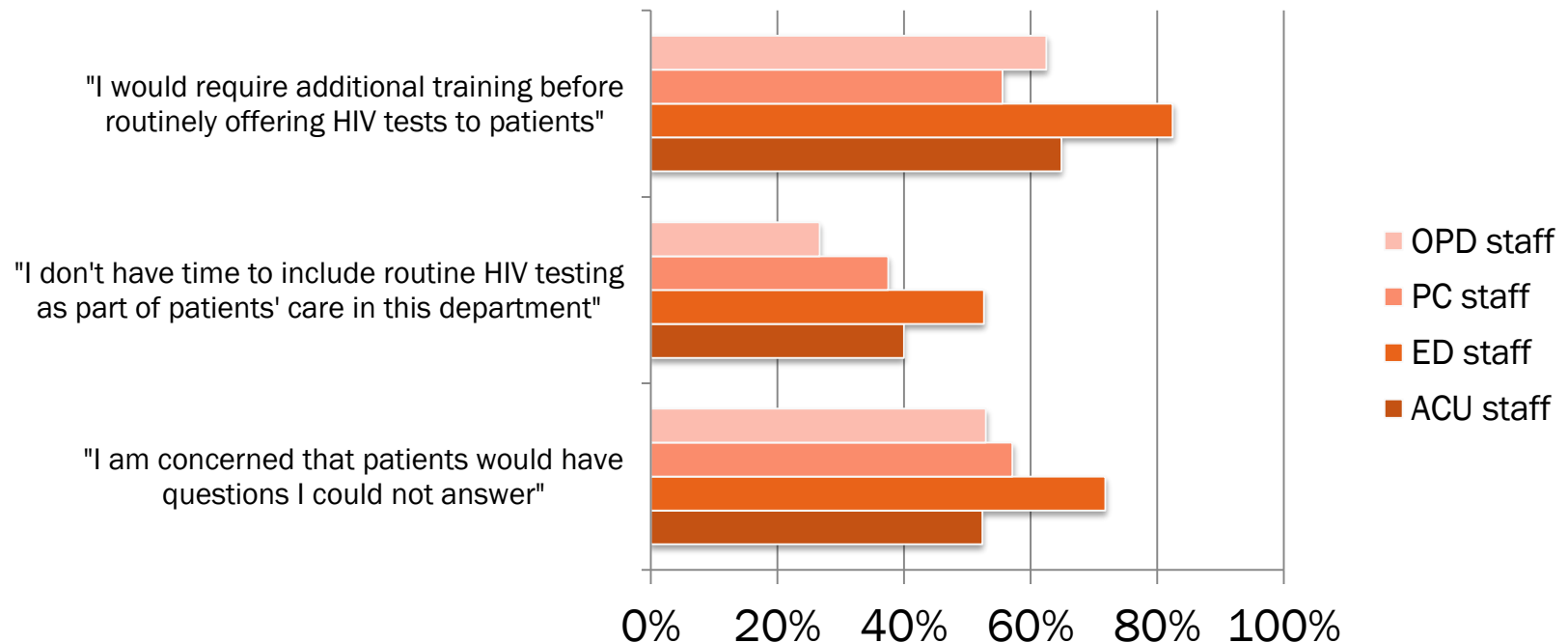
# HINTS STUDY KEY FINDINGS

Category	Number	Range across sites
Total eligible attendees (first offer of test; not known HIV-positive)	13 855	84 – 99%
Attendees approached (coded episodes): Coverage (%)	7033 (50.8%)	27 – 74%
Clinically Ineligible (% of all approached)	813 (11.6%)	2 – 15%
Total tests offered	6194	
Total tests accepted: Uptake (%)	4105 (66.3%)	62 – 74%
Newly diagnosed individuals; Prevalence (per 1000) [95% CI]	8 (1.9 [0.6 – 3.2])	0 – 10.1
Proportion transferred to care	100%	



# PATIENT AND STAFF ATTITUDES

- Test offer acceptable to 92% patients and 95% staff
- Staff identified operational and training needs if testing were to be sustained beyond a research trial



# AUTUMN 2010 • WHERE TO NEXT?

- Gilead Fellowship application
- HEDsUP NW London: aim to bring the successful outcomes of the Emergency Department arm of the HINTS Study to a network of Emergency Departments across North West London



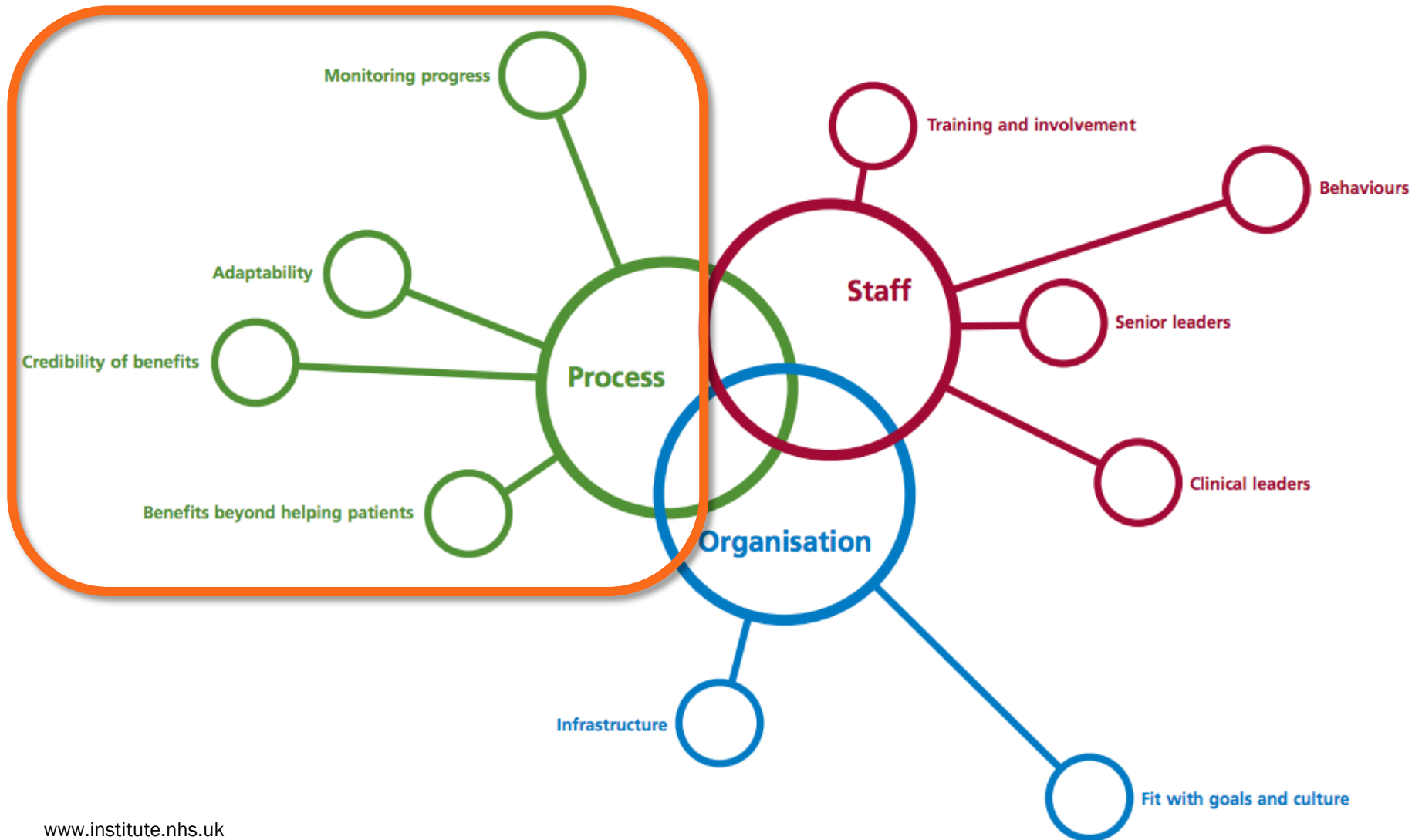
# HEDSUP NW LONDON: AIMS AND METHODS

- To sequentially and iteratively generate a model of sustainable HIV testing at each ED site. All adults, not known to have HIV infection, to be offered an HIV test in line with good clinical practice, over fifty-two weeks
- Key methodological principles:
  - *Delivery of testing by ED staff*
  - *Close liaison with local Sexual Health service (training, support, results governance, transfer to care)*
  - *Use of oral fluid HIV testing technology where applicable*
  - *Application of sustainability methodology (run charts; PDSA cycles) to each testing service to optimise key outcome measures (test offer rate; test uptake)*



Sustainability can be described  
as *‘when new ways of working  
and improved outcomes  
become the norm’*

# SUSTAINABILITY METHODOLOGY



# SUSTAINABILITY METHODOLOGY • PROCESS

## Involving staff

- Staff engagement is the key – proving the value to patients and staff
- *‘Tell me, I’ll forget; show me, I may remember; but involve me and I’ll understand’*
- Involvement table:

Questions to ask	Who could be involved? List roles, names and contact details.	How could they be involved?	At what stage might you involve them?
Who currently benefits from, or is affected by, the new process?			
Who are the other groups or individuals that could benefit?			
What needs might be met by joining in this effort?			
Who are the key decision makers and opinion leaders who may take a more active role?			
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# SUSTAINABILITY METHODOLOGY • PROCESS

Monitoring progress and communicating the evidence

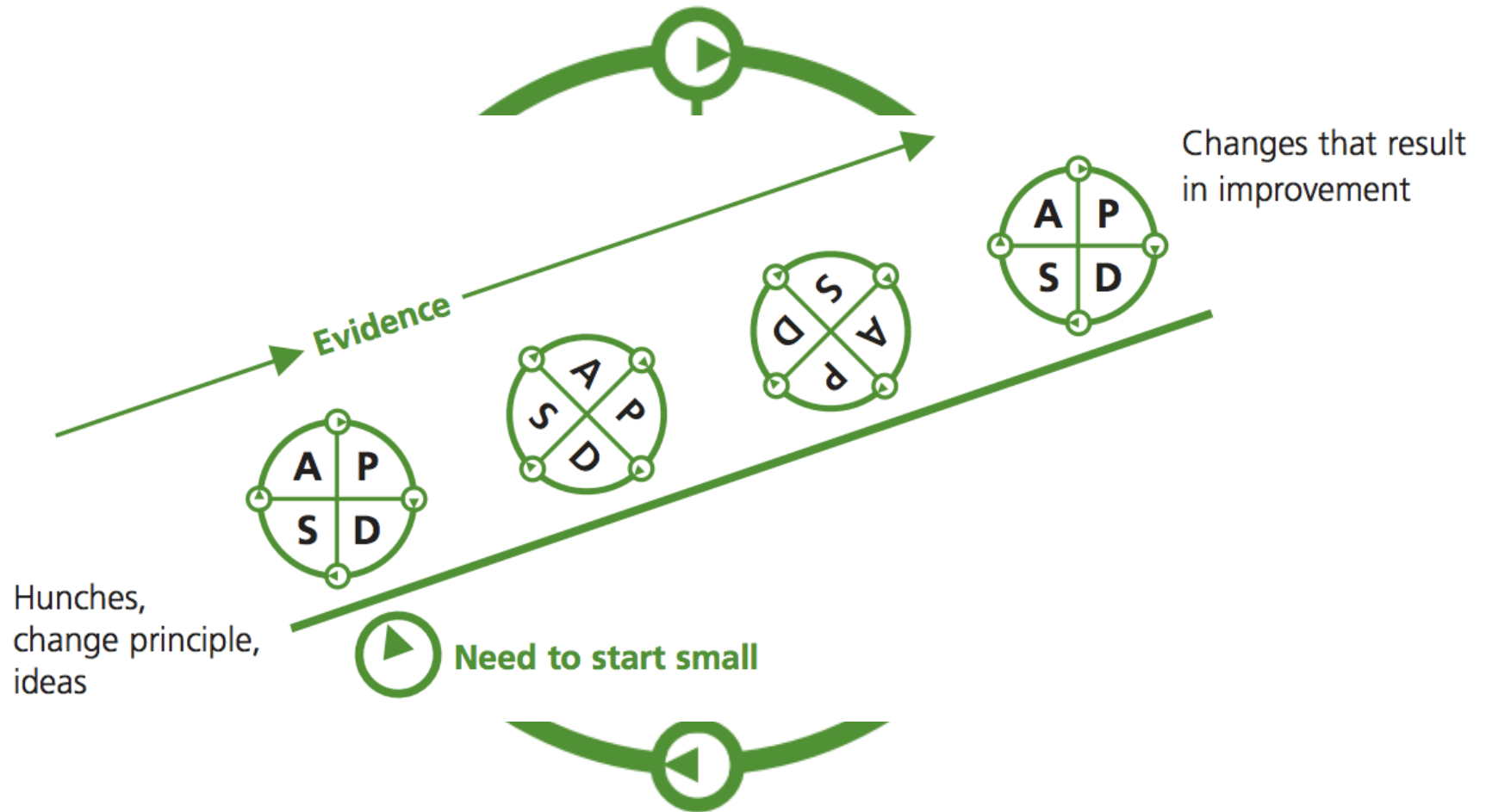
## Outcome measures

- Operational/process measures
  - HIV testing offer rate (% eligible patients)
  - HIV test uptake
- Measure of effectiveness
  - Prevalence of newly diagnosed HIV infection

Plan-Do-Study-Act (PDSA) cycles

Run charts and statistical process control charting

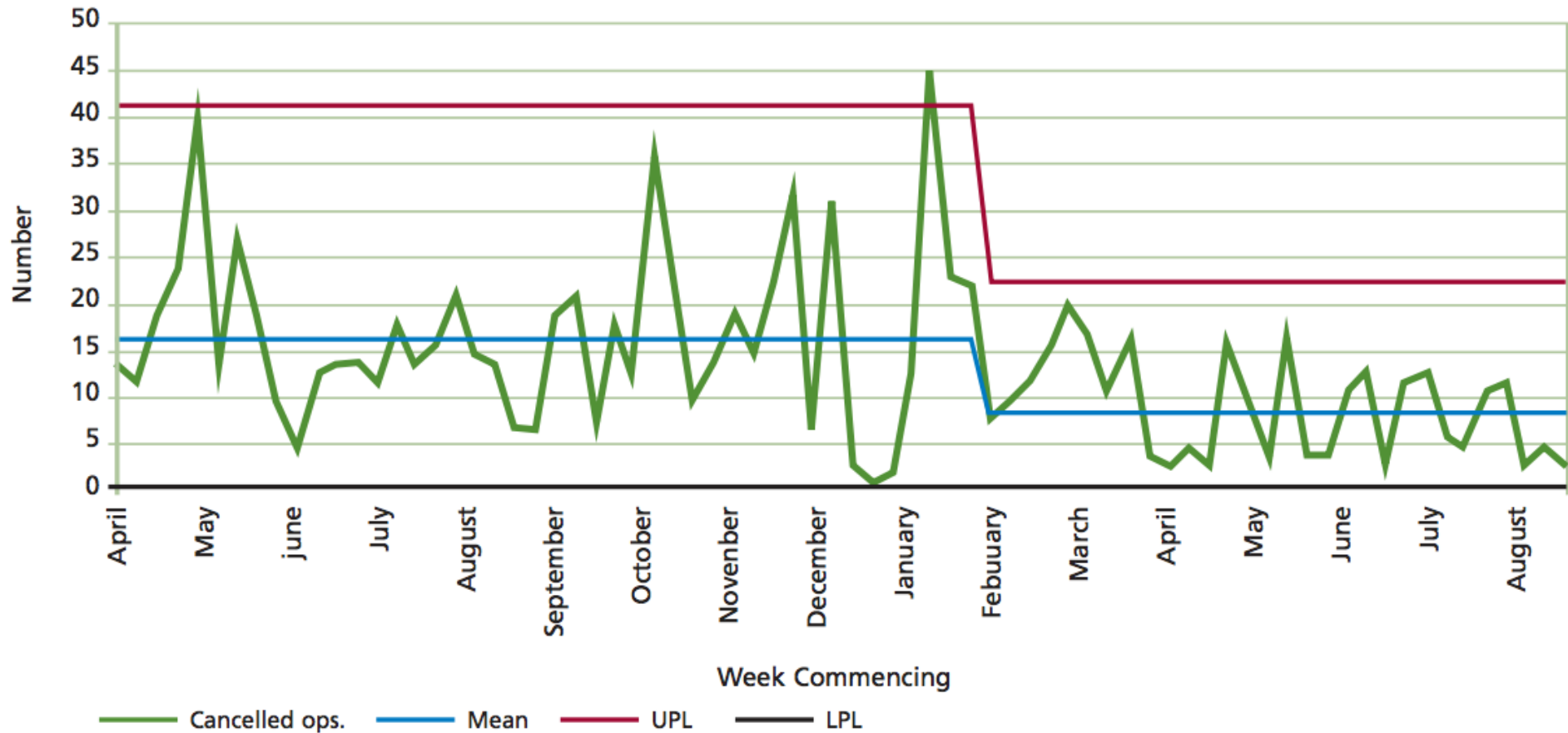
# PDSA CYCLES





# RUN CHARTS

Outcome measure: number of cancelled operations



# HEDS-UP NW LONDON • JANUARY 2011

- Development of pathways via process mapping
- Local HIV testing champions identified
- Multi-disciplinary teaching delivered
- Use of oral fluid HIV tests
- Weekly meetings between ED/GU teams to evaluate key outcome measures and implement PDSA cycles

Emergency Department	Site specific eligibility criteria	Clinical site	Staff group offering testing	HIV Testing Modality
Chelsea and Westminster (ED 1)	Aged 16-65	Majors	Doctors	Oral fluid testing (Oracol+ collection device; Abbott Architect platform)
St Mary's (ED 2)	All ages	Majors and ambulant care	Doctors and Nurses	<i>Ambulant care:</i> Oral fluid testing (Oracol+ collection device; Abbott Architect platform) <i>Majors:</i> Fourth generation serology (Abbott Architect)

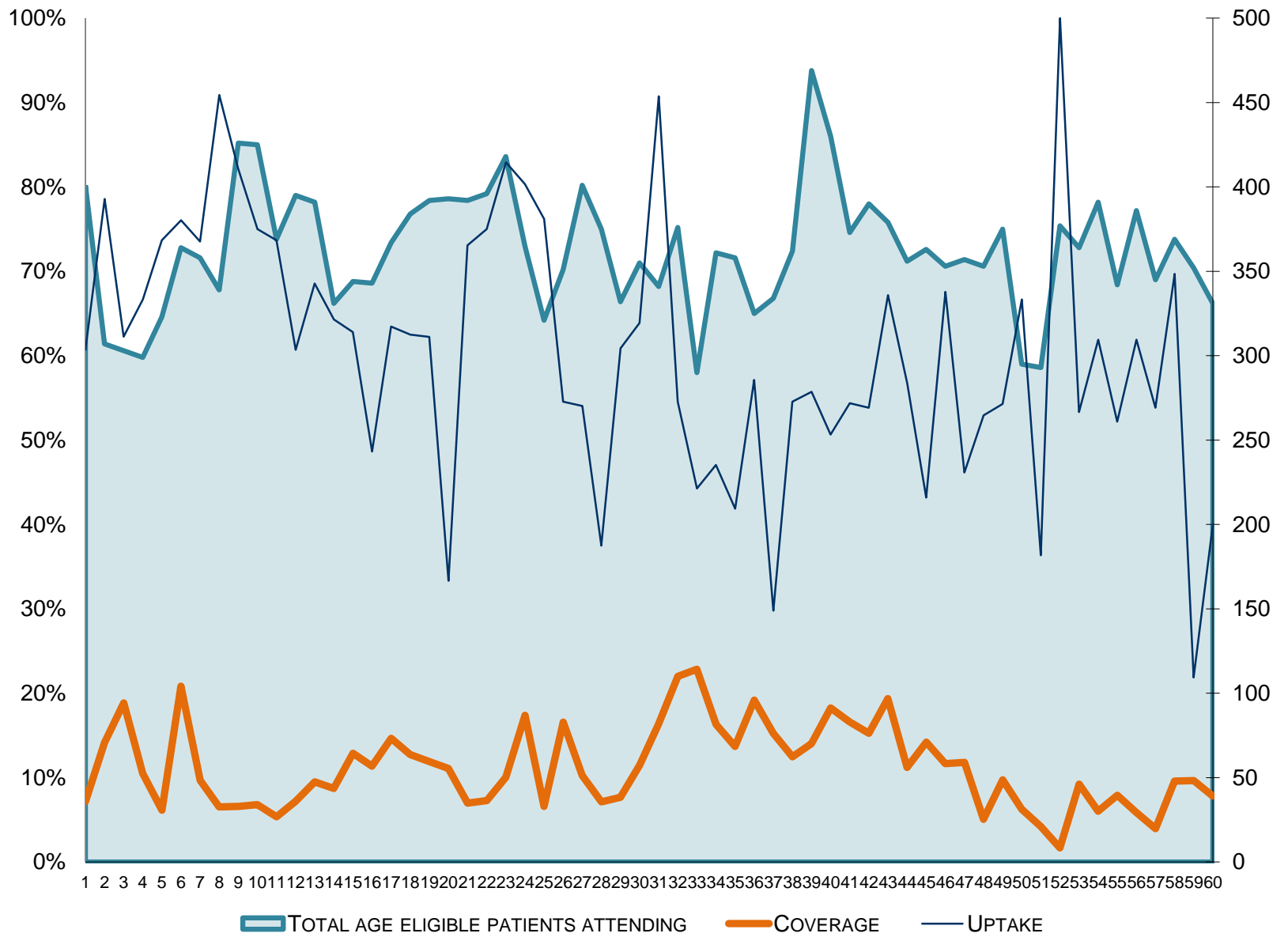
# HEDSUP NW LONDON: JAN 2011 - MARCH 2012

OUTCOME MEASURE	Chelsea and Westminster (ED 1) (weeks 1-60)
Total age-eligible attendees	21 750
Documented as <i>not offered</i>	1319 (6.1%)
Eligible to be offered	20 431
Offered (Coverage %)	2271 (11%)
Accepted (Uptake %)	1358 (60%)
Reactive tests	5
Confirmed newly diagnosed HIV+ individuals; [HIV seropositivity (per 1000)]	3 [2.21]

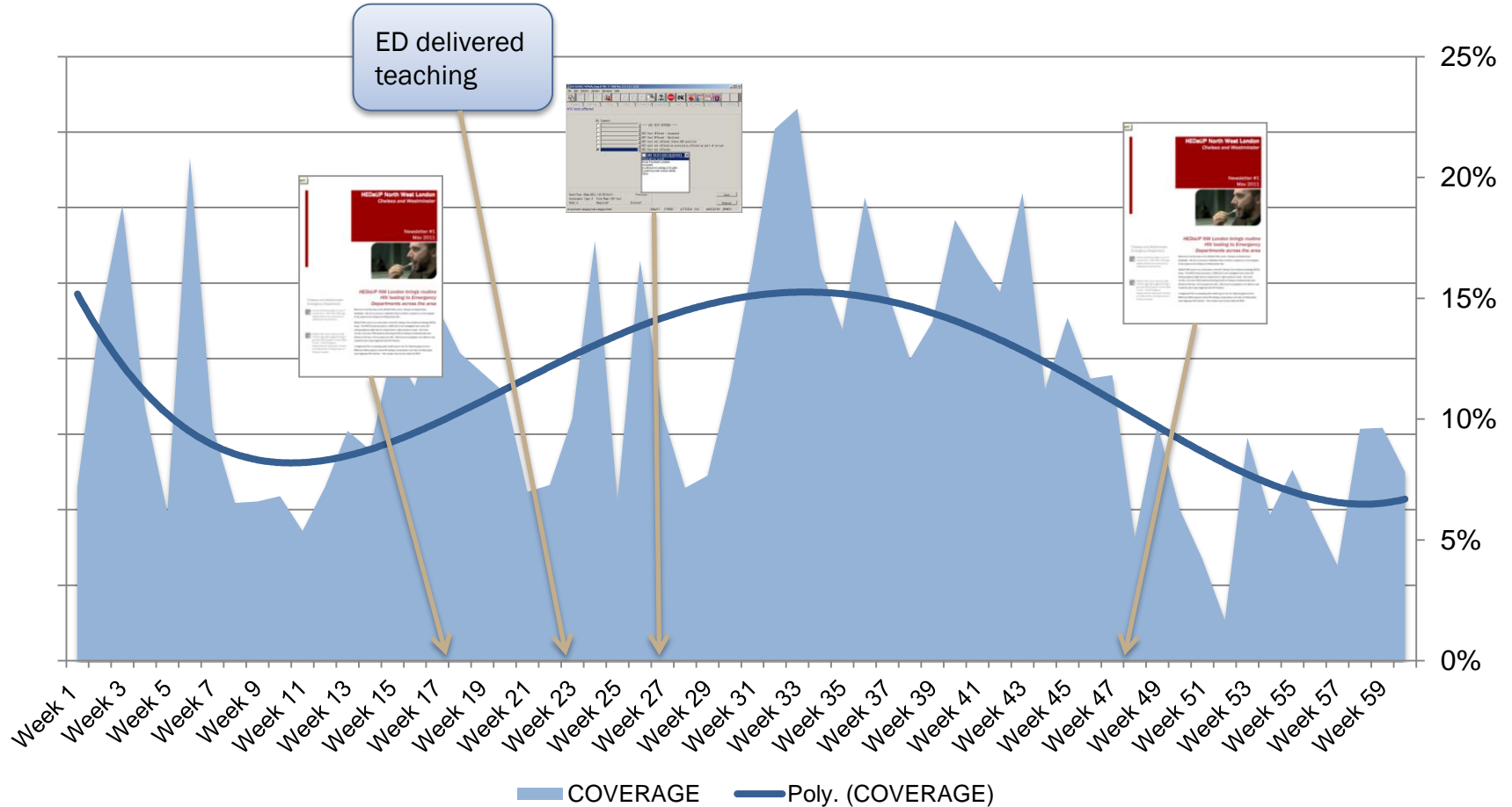
# HEDSUP NW LONDON: JAN 2011 - MARCH 2012

OUTCOME MEASURE	Chelsea and Westminster (ED 1) (weeks 1-60)	St Mary's (ED 2) (weeks 1-26)
Total age-eligible attendees	21 750	15 569
Documented as <i>not offered</i>	1319 (6.1%)	
Eligible to be offered	20 431	
Offered (Coverage %)	2271 (11%)	
Accepted (Uptake %)	1358 (60%)	465
Reactive tests	5	4
Confirmed newly diagnosed HIV+ individuals; [HIV seropositivity (per 1000)]	3 [2.21]	3 [6.45]

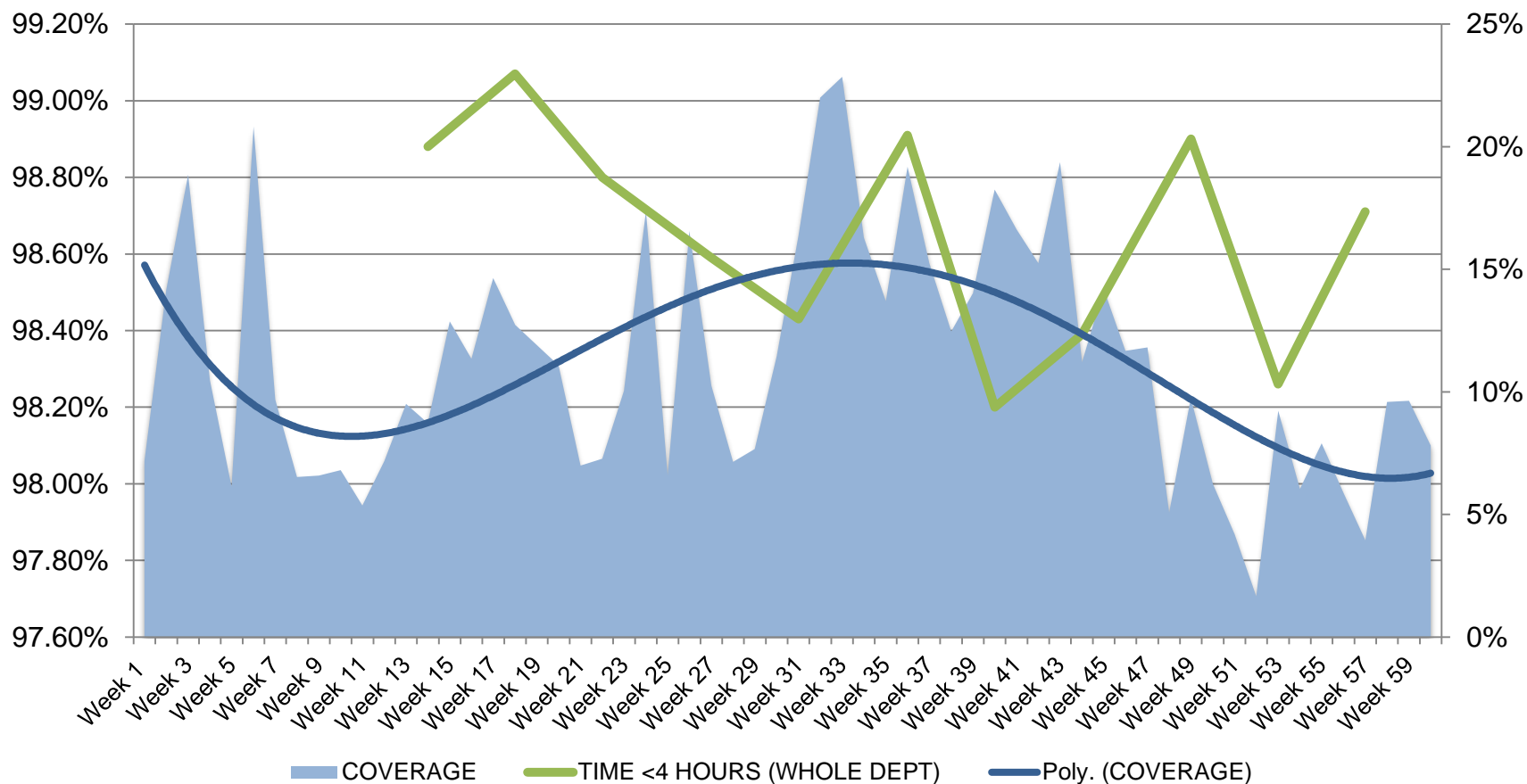
# Run Chart: Weeks 1-60



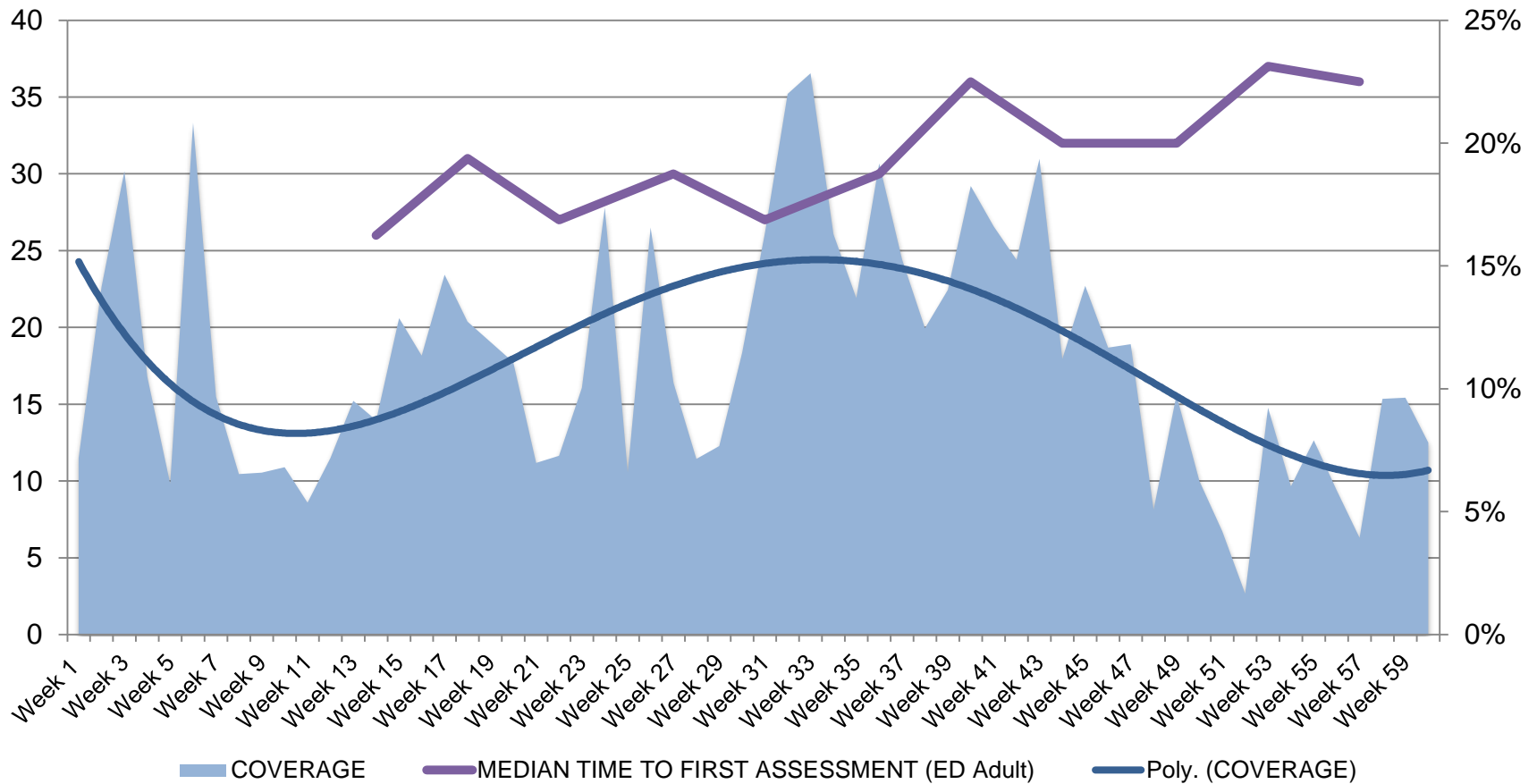
# ED 1: PLAN-DO-STUDY-ACT CYCLES



# CQI OVER PERIOD: PROPORTION <4 HOUR STAY IN ED



# CQI OVER PERIOD: MEDIAN TIME TO DOCTOR ASSESSMENT





# MISSED OPPORTUNITIES: SOPHID MODELLING

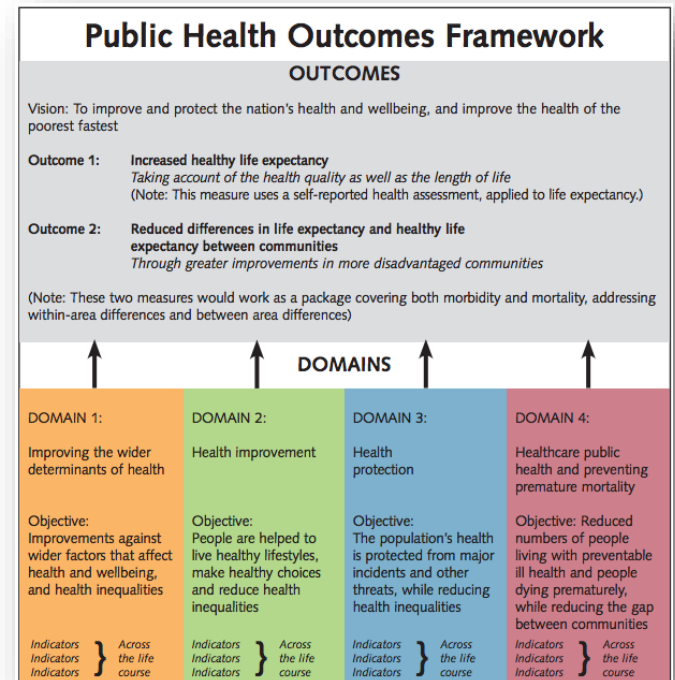
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Confirmed newly diagnosed HIV+ individuals; [HIV seropositivity (per 1000)]	3 [2.21]

# MISSED OPPORTUNITIES: SOPHID MODELLING

OUTCOME MEASURE	Chelsea and Westminster (ED 1) (weeks 1-60)	Modelled seroprevalence over weeks 1-52
Total age-eligible attendees	21 750	
Documented as <i>not offered</i>	1319	
Eligible to be offered	20 431	
Offered (Coverage %)	2271 (11%)	100%
Accepted (Uptake %)	1358 (60%)	100%
Reactive tests	5	
Confirmed newly diagnosed HIV+ individuals; [HIV seropositivity (per 1000)]	3 [2.21]	145

# ED TESTING RE-LAUNCH • AUGUST 2012

- Business case submitted to Acute Trust to establish routine HIV testing in the ED on ongoing basis
- Written to fit within organisational strategic objectives:
  - translational research;
  - collaboration across Trusts;
  - QIPP agenda;
  - HIEC agenda;
  - NICE guidance 2011; Public Health Outcomes Framework;
- Profitable enterprise
- Disincentives to not supporting service including costs, litigation, failure to implement national guidance



# BUSINESS CASE

## To cover for years 1, 2, 3:

- Costs of HIV tests
- Results governance and transfer to care
- Teaching and training including development of online training module, and development of curriculum and competencies for MDT personnel
- Implementation and maintenance of sustainability methodology
- 0.2 WTE Band 6 Project Co-ordinator

# BUSINESS CASE

Item	Unit cost	Year 1		Year 2	
		Volume/WTE	Total cost	Volume/ WTE	Total cost
Consultant 0.1 M1-4 (Includes edu & training)		0.1 for 4 months	4971	0	0
Consultant 0.05 M5-12 (Includes edu & training)		0.05 for 8 months	4971	0	0
Consultant			0	0.025 for 12 months	3728
SpR 0.1 M1-4 (Includes edu & training)	52,472	0.1 for 4 months	1749	0	0
SpR 0.05 M5-12 (Includes edu & training)	52,472	0.05 for 8 months	1749	0	0
Coordinator B6 0.1 M1-12 (Includes edu & training)	45,000	0.1 for 12 months	4500	0.1 for 12 months	4500
Recall Health Adviser B4 0.2 M2-12	30,201	0.2 for 11 months	5537	0.2 for 12 months	6040
Health Advisor B6 0.05 M2-12	45,000	0.05 for 11 months	2063	0.05 for 11 months	2250
HIV saliva test costs (Lab +oracoll+collection devices)	6.98	3650	25477	7300	50954
Serology HIV test	5.42	2172	11772	4344	23544.48
Text results	0.09	5786	521	11572	1041.48
Education & training time B6 HA/nurse			5240	0.025 for 12 months	1125
Edu & training materials			1000	0	500
TOTAL			£69,549		£93,683
<b>Income</b>					
Assume 24 new diagnoses(50% in yr 1)	7,500	12	£ 45,000	24	£ 90,000
NET income - cost			-£ 24,549		-£ 3,683

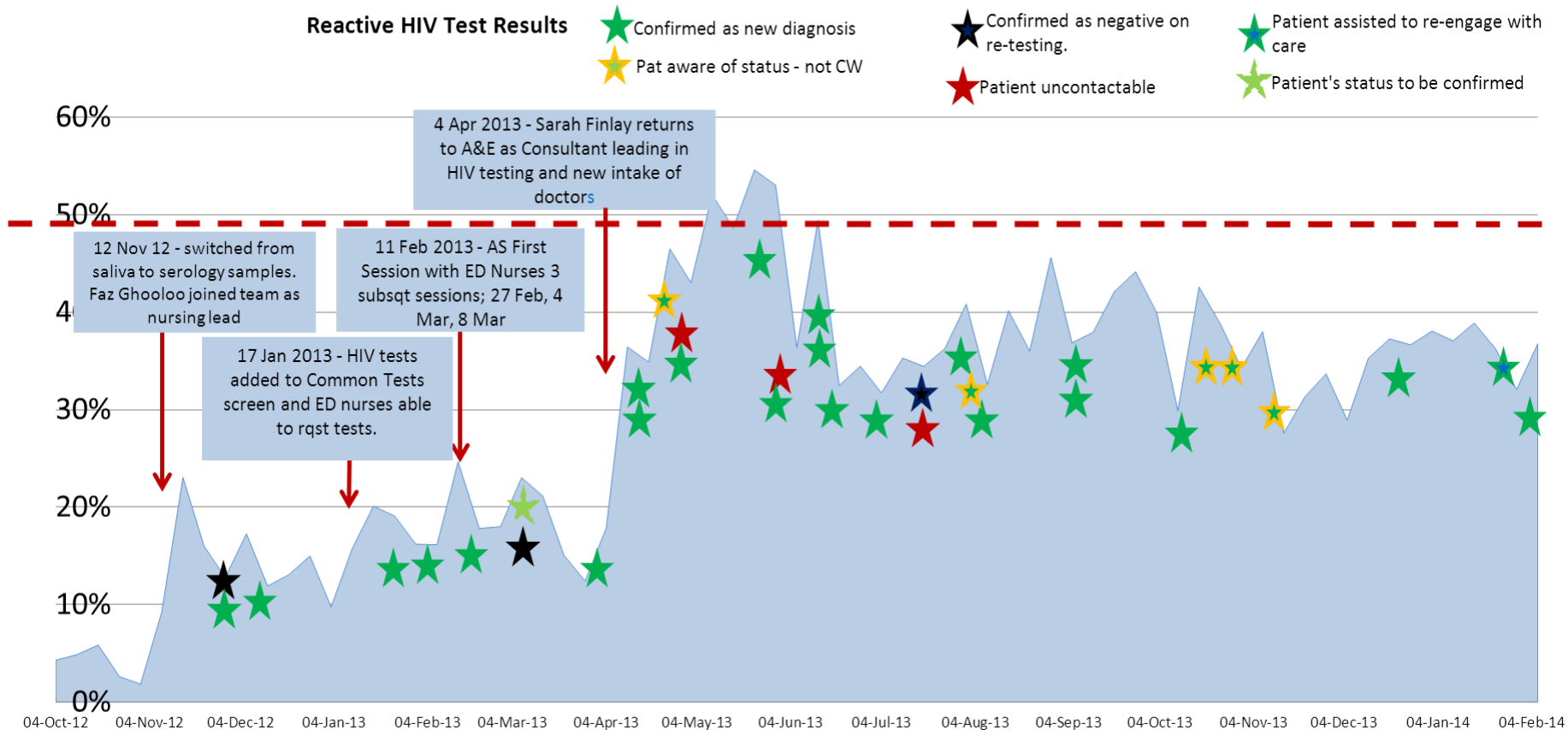
# ROUTINE HIV TESTING IN THE ED

- Sustainable, routine delivery of blood-based HIV testing with increased coverage – initial target 50% at 12M
- ALL patients in the majors stream to be offered a standard serological HIV test
- Process mapping undertaken again: given the patient flow, this is a largely NURSE DEPENDENT PROCESS; nurses to be included in offer pathway and nurse champion identified
- Outcome measures:
  - Test offer (process)
  - Test uptake (process)
  - HIV prevalence (effectiveness)
- Continued GU service support, and weekly implementation team meeting

# OUTCOMES SINCE RE-LAUNCH

OUTCOME MEASURE	Weeks 1-71
Total age-eligible attendees	27 611
Offered and accepted (%)	8497 (31%) [Range: 4 – 46% Median 34%]
Reactive tests	34
Confirmed newly diagnosed HIV+ individuals; [HIV seropositivity (per 1000)]	20 [2.4]

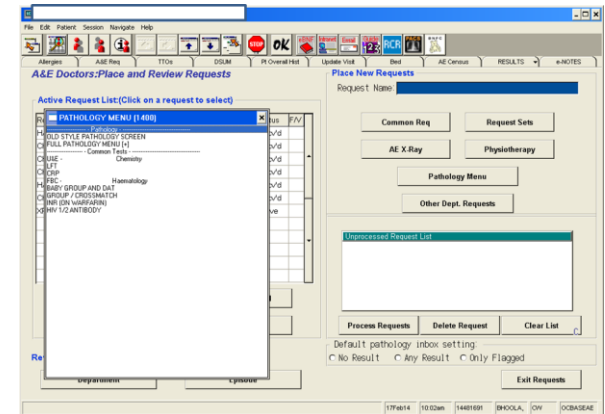
# RUN CHART • WEEKS 1-71





# PDSA CYCLES SINCE RE-LAUNCH

- Switch to serology
- Posters
- Prompts
- Nurse involvement
- HIV added to common order set
- Nurse, junior doctor, consultant champions
- Individual level reporting; and top tester of the week with rewards
- Education sessions
- Newsletters and patient stories
- Staff badges
- Rewarding overall team performance
- Supporting abstract submission and conference attendance



## HIV TESTING IN A&E

Results Reported between 14 and 20 Feb 2013

Ordered by Full Name	Duplicate*	NEGATIVE	No sample received in laboratory.*	Sample received unlabelled therefore not processed.*	SCREENING TEST REACTIVE, a further sample should be sent for confirmation, HIV Antibody/Antigen combination Assay	Grand Total
A&E, CONSULTANT		4				4
ALICE, TIMOTHY		1				1
BARBER, ALEX		1				1
DEHYA-ALDIN, RADHWAN		1				1
DIKKENBERG VD, FIONA		7			1	8
EHSANULLAH, JASMINE		2				2
FLYNN, CAMPBELL		1				1
GEORGE, JOSEPH		1				1
GHOOLLO, FAZ		12				12
HOUSTON, JAMES		1				1
HOWELL, SOPHIE		5				5
KALOGIANAKIS, DIMITRIOS		2				2
KHEHAR, RAVI		1				1
KING, CHRIS		4	1			5
KOIZIA, LOUIS	1					1
LACEY, EVE		1				1
LAPA, TANA		2			1	3
LEE, TERESA		2				2
MURPHY, KENNETH		7			1	8
PATEL, SUNIL		6				6
PATIL, SHASHANK		1				1
PELAY, KIRBS		1		1		2
PRIMROSE, NAOMI		4				4
ROBINSON, LOUISE		5				5
SHARPLEY, FAYE		1				1
SONG, MARIE		1				1
TETLOW, HANNAH		3				3
UCC, CONS		1				1
WILSON, NERINA		3				3
ZUBIRI, MARK		1				1
<b>Grand Total</b>	<b>1</b>	<b>82</b>	<b>1</b>	<b>1</b>	<b>3</b>	<b>88</b>

Test Location	Duplicate*	NEGATIVE	No sample received in laboratory.*	Sample received unlabelled therefore not processed.*	SCREENING TEST REACTIVE	Grand Total
Majors	1	64	0	1	3	69
UCC	0	18	1	0	0	19

80/88 HIV Tests were requested in week 14-20 Feb 2013

8/88 HIV Tests were requested in previous week, but not reported until now

28 individual testers  
1  $\geq$  10 tests  
5  $\geq$  5 tests

## HIV TESTING IN A&E

Results Reported between 6 and 12 February 2014

Please note that this list will include results for tests requested before 6 February but only reported in this week. There will also be some tests requested towards the end of the week, which have not yet had their results reported. These will be picked up in next week's Results Report

154/168 HIV Tests requested between 6-12 February 2014

14/168 HIV Tests requested in previous week

Ordered by Full Name	Duplicate*	Miscount of samples on forms and sample transformation processed.*	NEGATIVE	Repeat sample bottle looked in sample, insufficient sample remaining in tube.	Sample not processed in laboratory, tested in other lab, are unlabelled test vital on relogs	Grand Total
A&E, CONSULTANT		6			1	7
ASTIN CHAMBERS-LAIN, RAINE		1				1
BARBER, ALEX		1				1
BADJI, ARI	1	3				4
BALUTISA, LEO		4				4
BIGGOLD, JESSIE		1				1
BONGA TO, ALE-ANDRO		3				3
BORLEY, ANNA		2				2
BROWN, RANNA		7				7
BUSLAND, IS-BANNE	1	4	4			7
BURD, CHRISTIAN		1				1
BURNS, MICHAEL		2				2
BURRAY, GEMMA		2				2
CALLANDER, ALICE		2				2
CHAGGAR, SATIRAL		8				8
CHAI, C. LUCK		1				1
CRAUFORD, ANNABEL		1				1
DAGUELENS, JOHNNIS		1				1
DIKKENBERG VD, FIONA		1				1
FORTESCUE, BETHANY		2				2
FRYCE, JAMIE		2				2
HARPER, BEN		5				5
HEALD, ANNA		1				1
HEND, JACOB		2				2
HICKS, ANNE		1				1
HICKIN, SARAH		1				1
KAMATH, MEL		8				8
KAMEJA, ANNA		2				2
LACEY, EVE		4				4
LESTER, CLARE		13				13
LYNDLAND, SARAH		1				1
MISSION, KATE		1				1
MCKEAN, MATTHEW		1				1
MURPHY, KENNETH		1				1
NE, KENNEDY		4				4
OLIVERIA, ANDRE		1				1
OSWALD, JESSIE ROSA, IND		6				6
PANDEMARAL, CHRISTINE		11				11
PHILLIPS, MATTHEW	1	8				9
PHILLIPS, KATE		1				1
PHILLIPS, AGATA		14				14
PIZZI, SARAH LOUISE		1				1
SATIN, KATE		1				1
SEHM, RAVI		2				2
SHAH, MICHAEL		3				3
SHARP, GANNY		1				1
SIMPSON, NAREEN		2				2
SMITH, LUCY		1				1
STURDY, ANN		2				2
THURSTON, JASON		3				3
TILSON, STEPHEN		1				1
WADE, LOUISE		1				1
ZUBIRI, MARK		2	2	2	1	5

Ordered by Full Name	Duplicate*	Miscount of samples on forms and sample transformation processed.*	NEGATIVE	Repeat sample bottle looked in sample, insufficient sample remaining in tube.	Sample not processed in laboratory, tested in other lab, are unlabelled test vital on relogs	Grand Total
A&E Majors	2	2	345	5	1	353
A&E			3			3
Clynes			1			1
UCC	0	0	1	0	0	1

53 individual testers  
3  $\geq$  10 tests  
8  $\geq$  5 tests

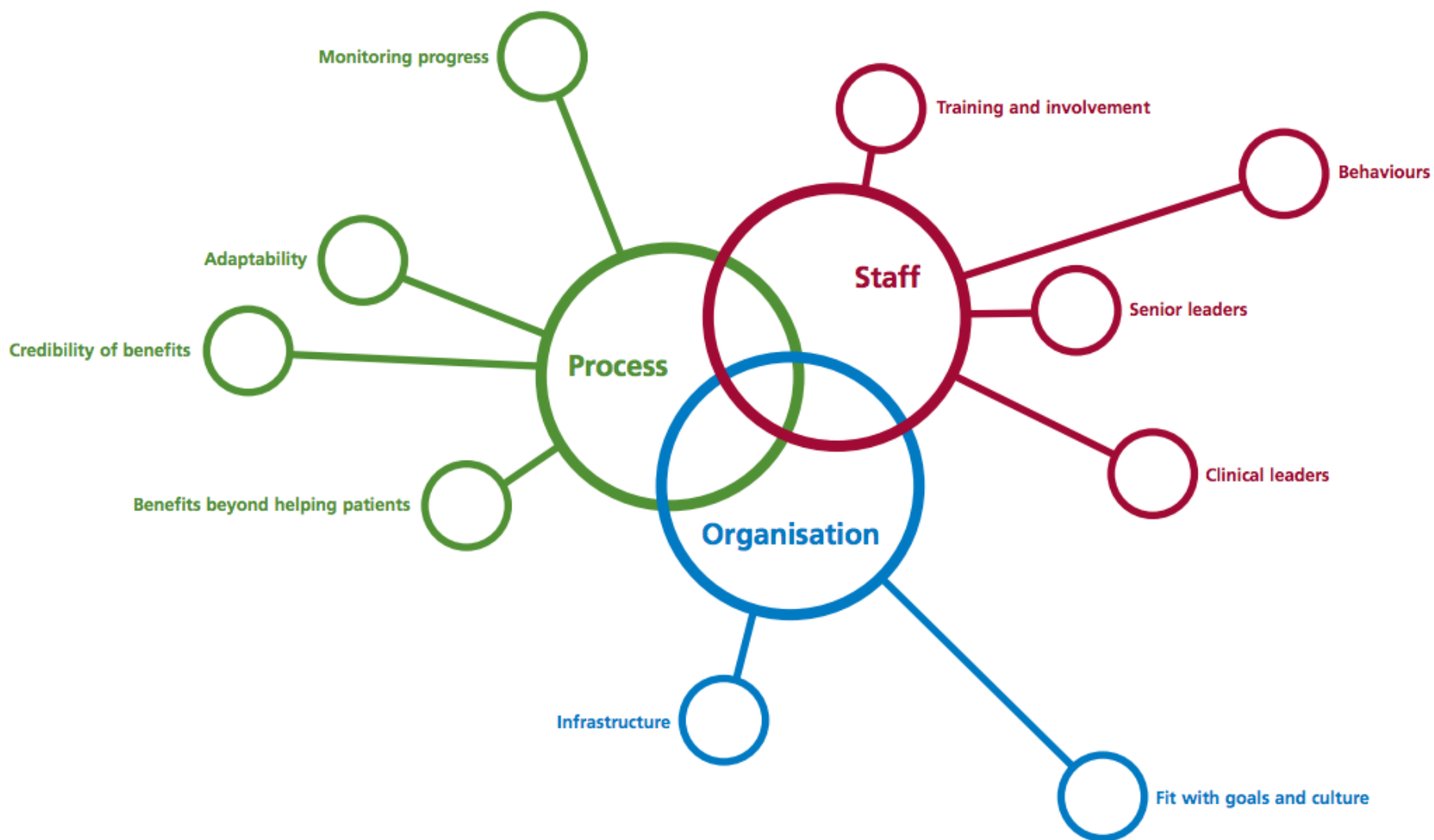
# NEW DIAGNOSES • COSTS/DIAGNOSIS

- Median testing rates rose from 11% in HEDsUP to 34% (peak of 46%)
- 34 reactive HIV tests
  - 20 confirmed new diagnoses - 0.24%
  - 9 known positives
  - 2 weakly reactives, confirmed negative
  - 3 were not contactable (2 overseas visitors)
- 20 new diagnoses
  - 100% transferred to care
  - CD4 count - 353 cells/uL (range 18-1161)
  - 8 (40%) likely to have recently acquired their HIV infection (RITA +)

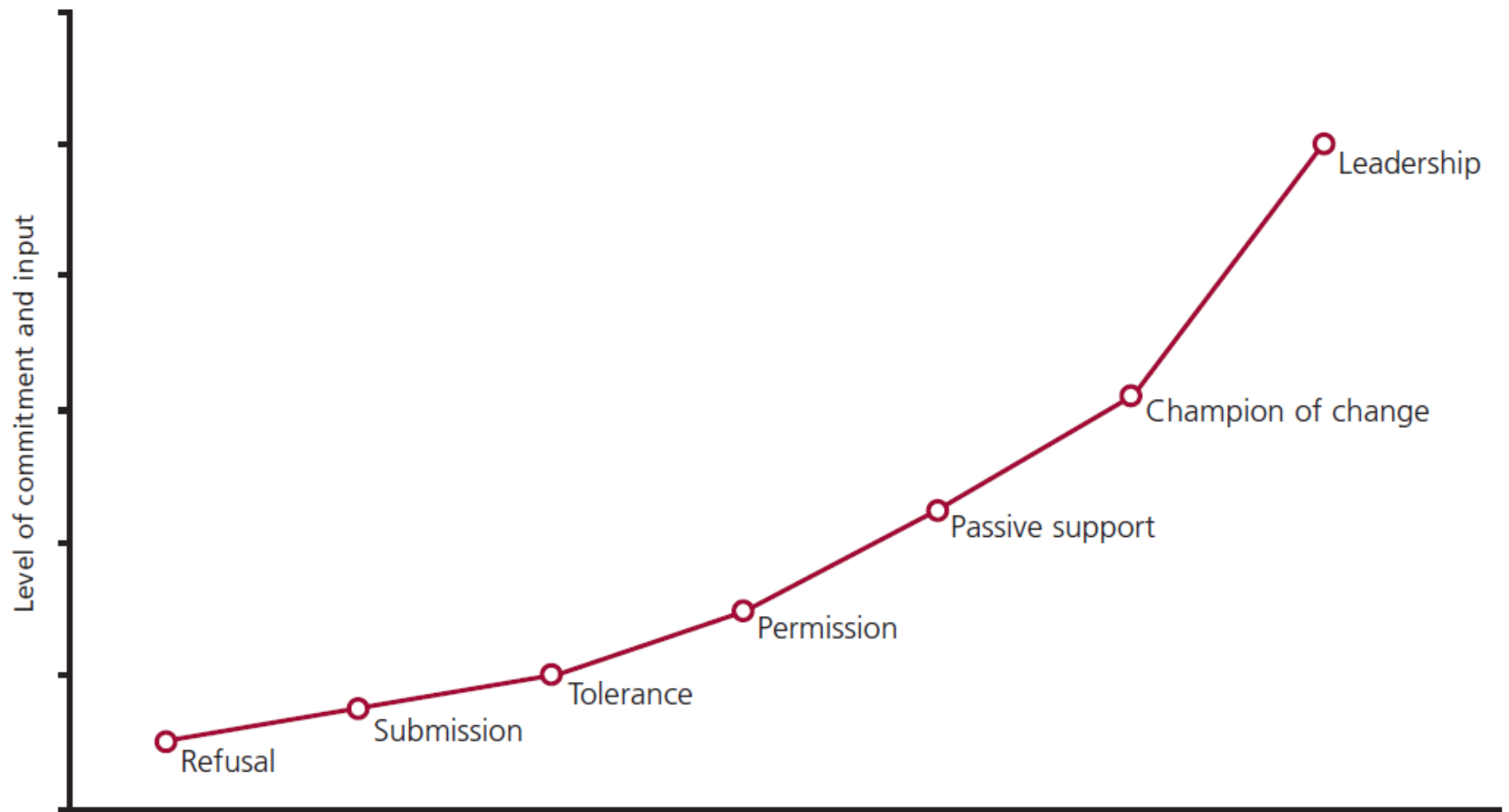
	Cost per new diagnosis
Test costs only	£1663
Test costs plus ED staff time	£1886
<b>Test costs plus ED staff time plus implementation team time</b>	<b>£2035</b>

# FUTURE OF THE SERVICE

- Ongoing business case to support continued investment In ED testing, rolling out to other settings
- Negotiations with LA re: investment
- Transferring learning to other settings
- Ongoing use of sustainability methodology
- Letting ED take the reins..



# CLINICAL ENGAGEMENT CONTINUUM



# ACKNOWLEDGEMENTS

## Chelsea and Westminster

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## Gilead Sciences

## HINTS

Alicia Thornton

David Mummery

Melinda Tenant-Flowers

Jane Anderson

Elena Pizzo

## St Mary's Hospital

John Walsh

Caroline Hart

## HPA/PHE

Anthony Nardone

Valerie Delpech

Tom Hartney