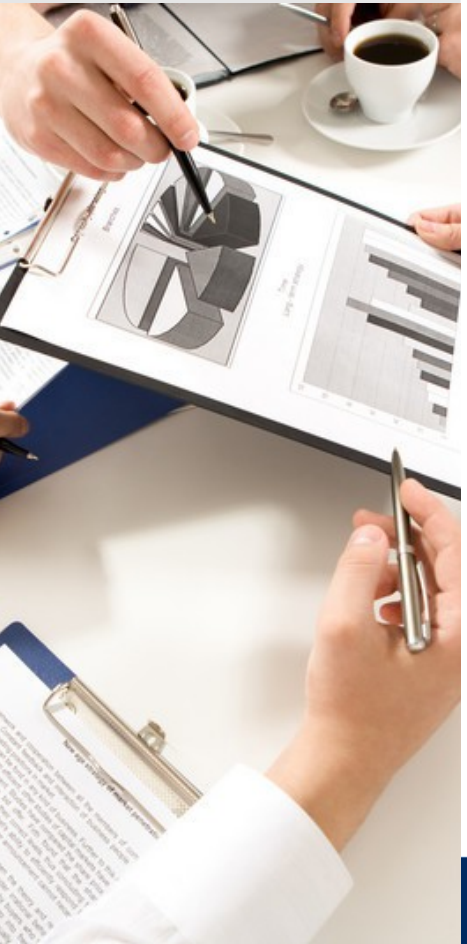


Impact of Data and Technology on the NHS

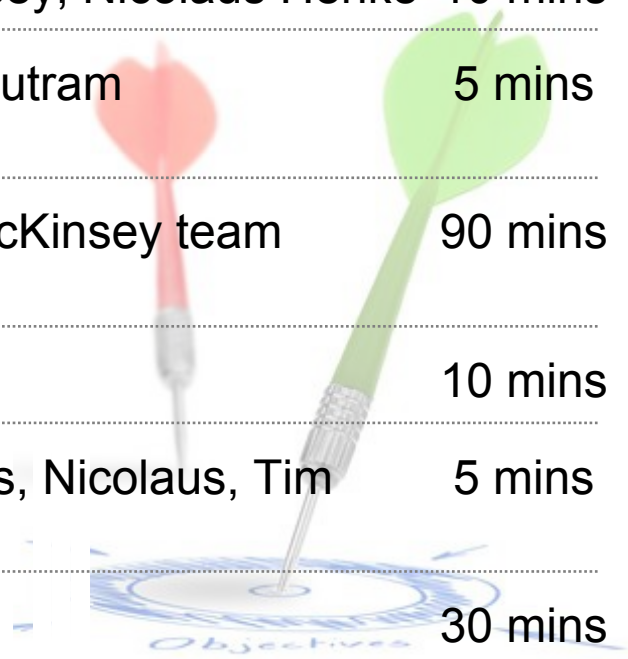
NHS England – Directorate for Patient and Information

Kick-off meeting

January 17, 2014

Agenda

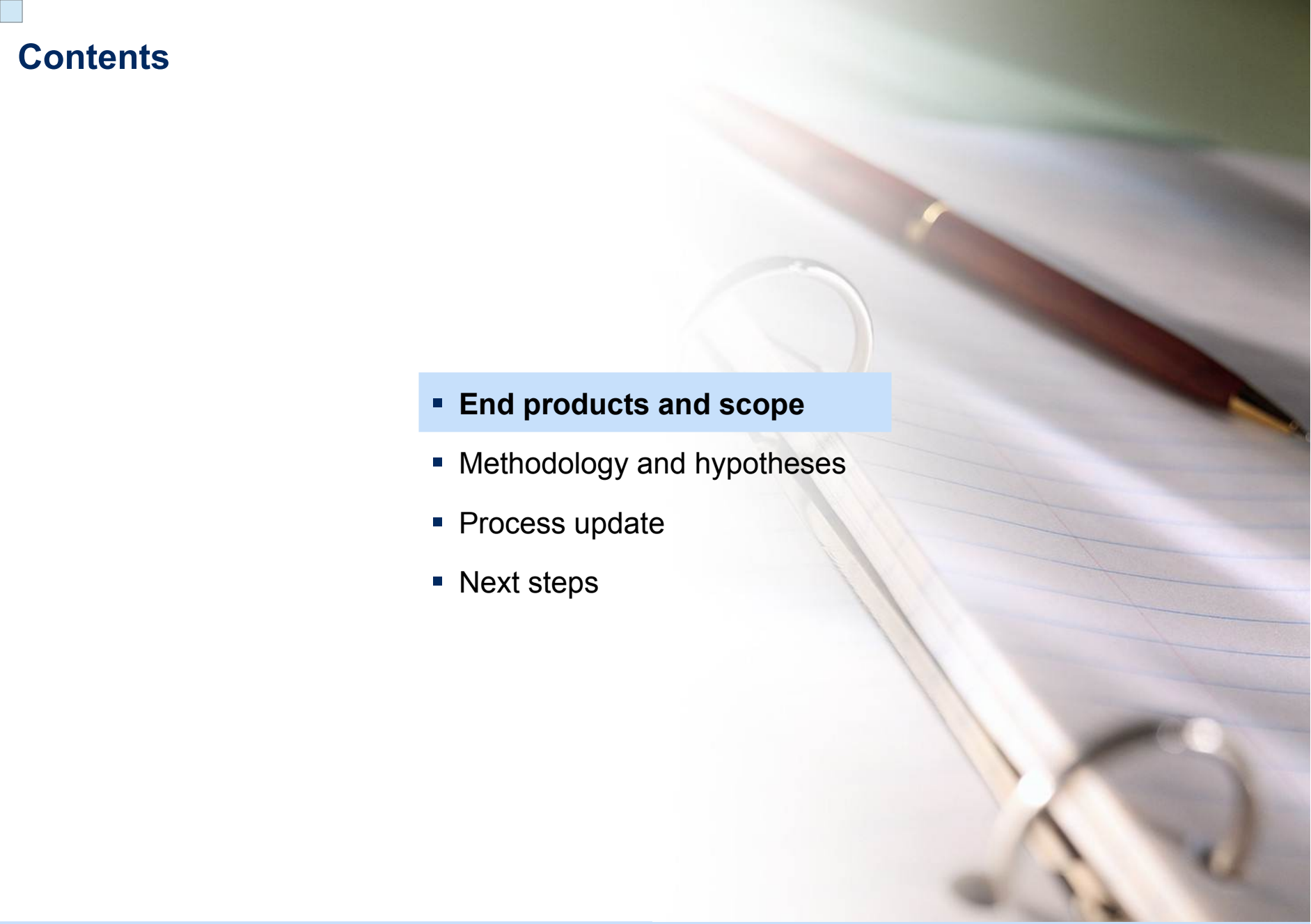
Item	Lead	Time
1. Welcome, strategic overview, meeting purposes/agenda/timetable	Chris	10 mins
2. Introductions by NHS England & McKinsey	All	5 mins
3. Contextual remarks & high level expectations	Tim Kelsey, Nicolaus Henke	10 mins
4. Transparency & Participation strategic approach & ISCG strategy	Chris Outram	5 mins
5. McKinsey's proposed approach to Economic Modeling & discussion	McKinsey team	90 mins
6. AOB		10 mins
7. Key issue arising/outstanding, concluding remarks	Chris, Nicolaus, Tim	5 mins
8. Light lunch, follow up discussions		30 mins



Objectives of today

1. Agree end products and scope
2. Discuss the proposed methodology and emerging hypotheses
3. Align on process
   a. Meeting schedule
   b. Revised workplan
4. Agree next steps

Contents



- **End products and scope**
- Methodology and hypotheses
- Process update
- Next steps

In this project we propose to deliver four end products…

See box # (p7)

Problem statement
What is the potential impact of data and technology on the NHS? How should NHS England Directorate for Patient and Information prioritise its programmes to maximise the benefits of data and technology?

Estimate of the total potential improvement opportunity in the NHS across demand and supply

1
2

A review of evidence base for
A. Improvement opportunity from supply and demand interventions
B. Potential of Data and Technology interventions

1
2
3

An adaptable model documenting all levers and assumptions

4

A business case that
- Assesses the cost/benefit of different programmes
- Prioritises Data and Technology programmes
- Lays out their impact over time
- Is stress-tested with a model region

5

… within the following scope

What is in scope

- Technology and data that enables the transfer of information
- Initiatives that cut across organisational boundaries
- Assessment of financial impact
- Enablers of supply levers (e.g., e-prescribing, e-referrals, summary care record, enablers of integrated care, commissioner analytics)
- Enablers of demand levers (e.g., NHS Choices, Patient Online, Friends&Family Test, decision tools, D&T elements of patient incentives)
- Technology enablers (e.g. technology required to implement summary care records)

What is out of scope

- Technology that relates to care delivery itself (e.g., telehealth, medical imaging devices)
- Initiatives that that are already within the remit of individual organisations e.g., PTS
- Assessment of quality impact (with proviso that quality is not reduced)
- Current technology portfolio (e.g., NHS mail – though enabling costs to be considered at later stage)

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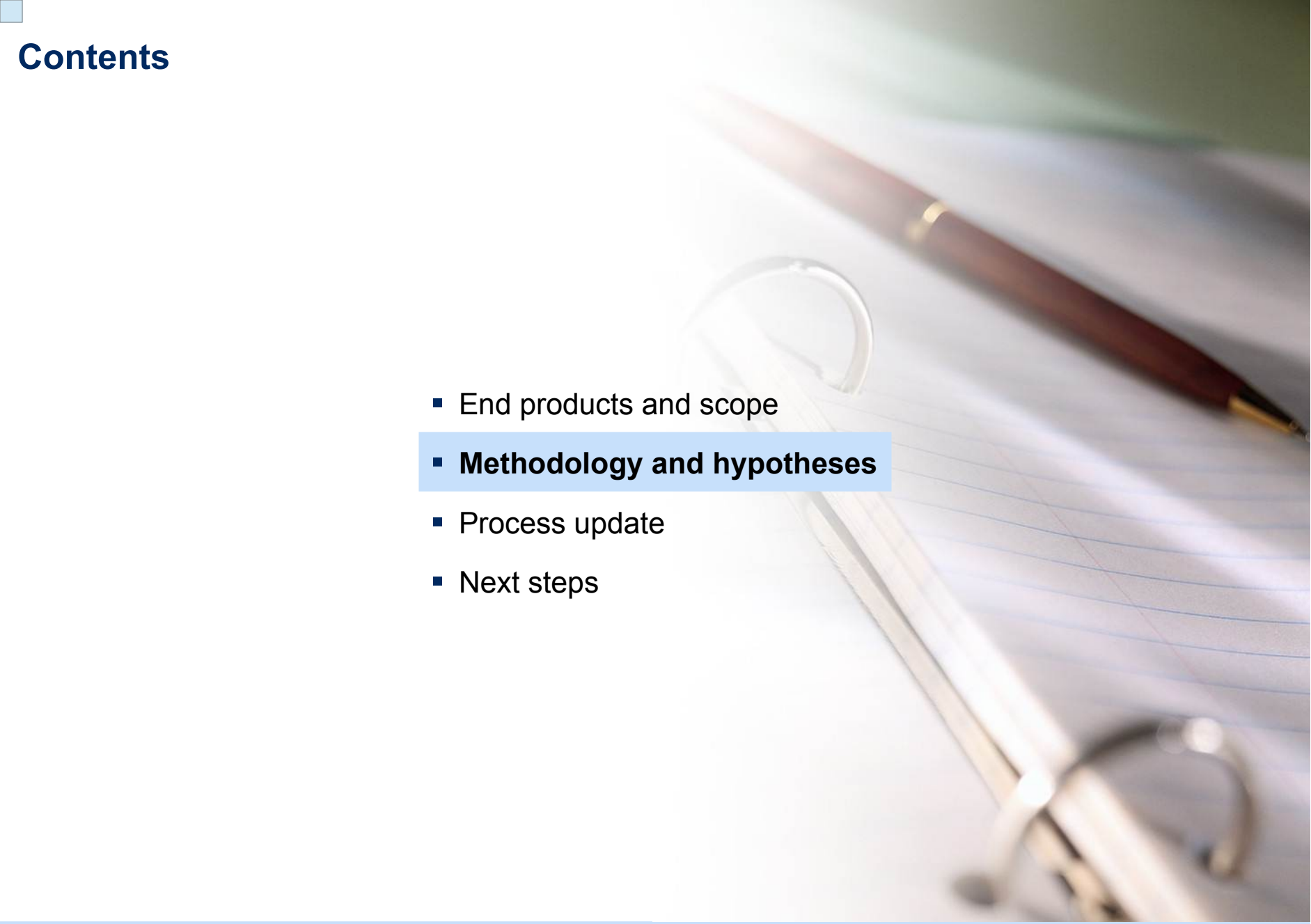


- End products and scope
- **Methodology and hypotheses**
- Process update
- Next steps

As part of this work, we will apply the following methodology to provide a robust estimate of the potential impact of data and technology

1 Supply levers

Levers and interventions from NHS Improvement Opportunities 2021/2022 work (which assumes constant demand), fully quantified based upon scientific research

2 Demand levers

Patient-directed levers and interventions leading to reduced demand (i.e., less consumption of care due to self-care and less disease prevalence due to healthier lifestyles)

3 Potential of Data and Technology interventions (evidence base)

Savings potential derived from research publications are mapped against NHS forecast

5 NHS impact

- A) Business case, including cost estimates of programmes
- B) D&T Priorities
- C) Calculate D&T impact over time
- D) Apply model to a region (e.g. NWL)

4 Modelling approach

Economic model with a NHS base line and a documentation of all levers and assumptions

1 We will build on our previous work to estimate the impact of supply levers

Strong
Medium
Weak

Drivers of health system value	Sub-area	Opportunity £b	Opportunity %	Opportunity for productivity gain	Productivity gain £b	Strength of evidence
1 Allocative efficiency	1A Between regions, diseases or risk groups	-	-	▫ **Process to link** regional allocation decisions to highest burden diseases and high risk patients	-	
2 Productive efficiency	2A Right care, in the right setting	2.2-3.6	5-9%1	▫ **Prevent hospitalisations through integrated care** ▫ **Directly shift activity** to more cost-effective settings	1.2-2.0 1.0-1.6	
	2B Ineffective interventions	0.9-1.8	2-4%1	▫ **Decommission elective procedures of low clinical value** (e.g., grommets, tonsillectomy) ▫ **Stop using low value drugs and devices** (pathways)	0.2-0.6 0.7-1.2	
3 Technical efficiency	3A Provider efficiency (Current paradigm by setting)	5.6-10.3	6-12%2	▫ Improve **efficiency in acute1** ▫ Improve **efficiency in primary care8** ▫ Improve **efficiency in community care8** ▫ Improve **efficiency in mental health8**	2.7-4.7 1.2-2.5 1.2-1.8 0.5-1.3	
	3B Provider efficiency (Innovative delivery models)	1.7-1.95+	2-3%9+	▫ Move to **radically different delivery models** (e.g., Aravind delivers 60% of England's NHS eye surgery volume at less than 1/6th the cost)	1.7-1.95+	
4 Input costs	4A Labour (i.e., wages)	5.03	11%3	▫ The government's **wage freeze** and restrictions to 2014/15 (two year nominal freeze followed by two year real freeze) will result in ~£5bn in savings	5.0	
	4B Capital cost	4.8-7.5	13-21%4	▫ Use **cost of capital to incentivise** improved asset utilisation (cost neutral through tariff increase) - Acute asset base - Mental Health asset base	 4.2-6.46 0.6-1.16	

Recurrent productivity gains

One-off gains

1 Secondary spend excl. community £46.9b; 2 NHS spend £91b; 3 Total pay costs £45.3b with saving assumption as per Nuffield Trust report, Decade of Austerity: The funding pressures facing the NHS from 2010/11 to 2021/22; 4 Acute tangible assets £31.2b and Mental Health tangible assets £5.3b; 5 This is a hypothetical "what if" analysis based on sample procedures; 6 One-off capital receipts; 7 £8.9bn elective IP spend plus maternity OP; 8 Primary care spend £21.3b, Community services spend £8.4b and Mental Health spend £10.5b; 9 Primary and secondary spend excl. community £68.2bn; 10 Secondary IP Elective spend and maternity OP spend of £7.6 bn

SOURCE: FIMS 2010/11; NHS programme budgets 2010/11; Laing & Buisson

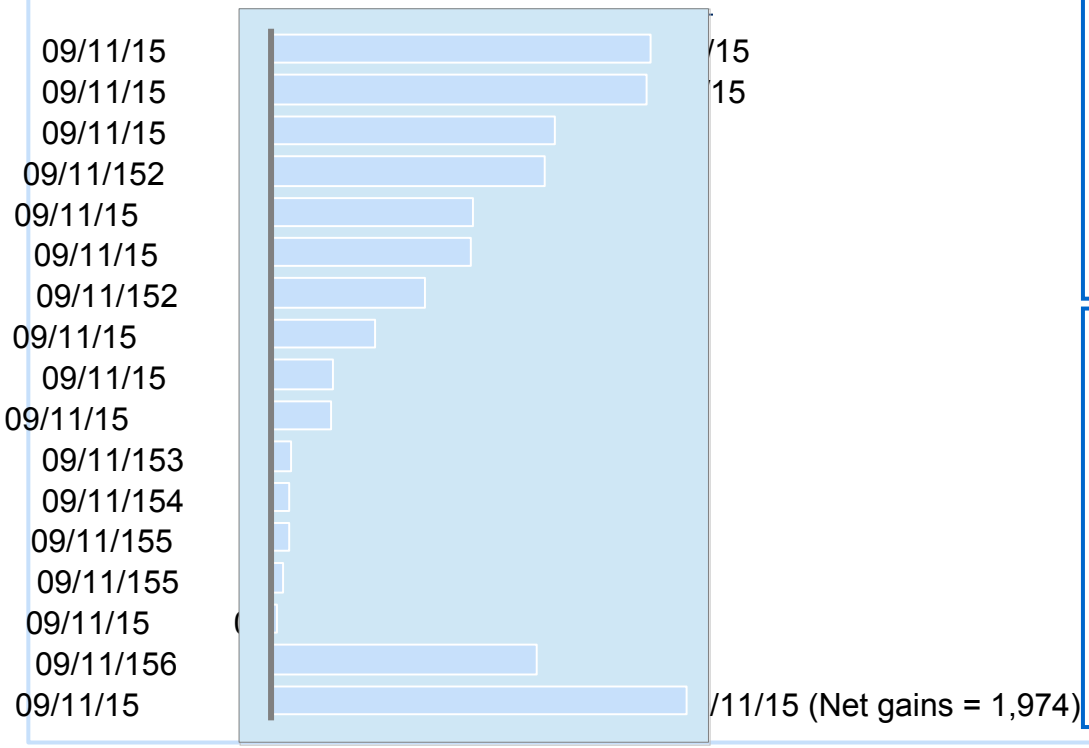
1 Each supply lever has different requirements for data and technology and drivers of change (1/2)

	Lever	Description	Driver of change	Requirements for data and technology
Productive efficiency	Prevent hospitalisations through integrated care	▪ Improved care in primary and community settings ▪ Multidisciplinary teams ▪ Using GP time more effectively (e.g. on chronic complex care) ▪ Risk stratification ▪ Rapid response teams (joint assessment via case conferences and use of hybrid workers)	▪ Commissioners (CCGs, NHS England)	▪ Data flowing across care settings, requiring supporting information systems ▪ Clear metrics ▪ Performance transparency
	Directly shift activity	▪ Improve ambulatory emergency services to reduce emergency admissions ▪ Redirect A&E attendances to urgent care centres ▪ Enhanced specialised training for GP to shift outpatient care from secondary to primary ▪ Increased availability of remote consultant-level advice to support shift of care to lower cost settings ▪ Enhance intermediate care provision ▪ Complex surgical pathway redesign	▪ Commissioners to provide incentives ▪ Providers to implement changes	▪ Information for clinicians
	Decommission elective procedures of low clinical value	▪ Systematic application of NICE guidance ▪ Formal adherence to clinical guidelines	▪ Commissioners to decommission procedures ▪ Agencies (e.g., NICE) to revise	▪ Clinician access to up-to-date guidelines ▪ Reviews of evidence base for low value procedures
	Stop using low value drugs and devices	▪ Prescribing for more effective interventions ▪ Improved prescribing to reduce medical errors	▪ Providers	▪ Commissioners use of cost curve ▪ Prescribing systems

1 Each supply lever has different requirements for data and technology and drivers of change (2/2)

	Lever	Description	Driver of change	Requirements for data and technology
Technical efficiency	Acute care efficiency	▪ Improved staff productivity through skill mix ▪ Reductions in ALOS ▪ Better throughput for diagnostics and theatres ▪ Consolidation of activity to release unnecessary estate costs ▪ Pooled procurement ▪ Internal systems to curb demand	▪ Providers	▪ Streamlined data entry ▪ Pathway protocol tools ▪ Booking systems Discharge tools ▪ Data analytics ▪ Purchasing websites ▪ Prescribing support tools
	Primary care efficiency	▪ Labour productivity through skill mix ▪ Estate rationalisation ▪ Pooled procurement ▪ Medicine use reviews	▪ Providers	▪ Triage systems ▪ Automated reminders ▪ Online patient booking ▪ Data analytics
	Community care efficiency	▪ Labour productivity through skill mix ▪ Estate rationalisation ▪ Pooled procurement	▪ Providers	▪ Data analytics ▪ Demand management ▪ Centralised systems ▪ Automated reminders ▪ Route planning software
	Mental health efficiency	▪ Reduced length of stay ▪ Lower placement costs ▪ Better procurement ▪ Reduced variation in productivity	▪ Providers with commissioner support across care settings	▪ Caseload analytics ▪ Pathway protocols ▪ Discharge tools ▪ Purchasing websites
	Innovative delivery models	▪ Shifting to fundamentally different models of care	▪ Providers ▪ Commissioners	▪ TBD
Input costs	One-off wage impact	▪ Extending NHS pay freeze to 2014/15	▪ Department of Health	▪ N/A
	One-off estates receipt	▪ Selling off underused estates	▪ Providers	▪ N/A

1 We will break down the impact of the levers into further level of detail where required; Preventing hospitalisations through IC example



Quality impact

- Reduced mortality rates
- Decreased depression and anxiety rates
- Reduced morbidity rates
- Shorter lengths of stay
- Improved quality of life

Efficiency impact

- **Gross gains** of £3.3bn (19% NEL spend)
- **Net gains** of £2.0bn (Based on 40% reinvestment)
- Clinical evidence base is very strong for some conditions (e.g., diabetes, COPD, CHD, frail elderly) but weak for others (e.g., epilepsy, arthritis)

1 Based on clinical evidence and case studies indicating reductions to emergency admissions through management in non-acute settings. All gains based on non-elective admission avoidance and average PbR tariff per condition (typically 10-40%).
2 Additional gains allocated to cancer for elective care avoided through screening initiatives (£10m) and to COPD based on clinical evidence (£30m).
3 Maternity savings assumed through a reduction in elective c-sections.
4 Mental health inpatient gains likely underrepresented as the average acute tariff (£1790) applied to cost of spell in absence of mental health tariffs
5 Savings to epilepsy and arthritis pathways based on lower rates of savings for other LTCs (10-30%).
6 Reduction of 7.5% applied to remaining emergency admissions based on evidence-based impact of prescribing errors and polypharmacy.

SOURCE: HES 2011/12; HES Online; clinical evidence (references in backup slide); team analysis

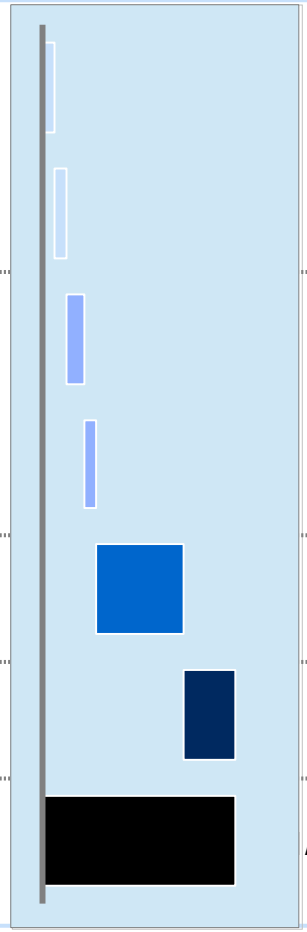
2 We will also assess the impact of demand levers

Prevention	▪ General health information ▪ Health risk assessment ▪ Targeted education based on risk profile	▪ Access to health-promoting choices (exercise, nutrition etc.) ▪ Lifestyle support ▪ Public health programmes (e.g., smoking, vaccination) ▪ Bans, taxes and mandates	▪ Incentives/penalties for healthy living/risk behaviors ▪ Peer support/influence and social networks ▪ Professional support/messaging
Diagnosis and acute treatment	▪ Condition awareness programmes (e.g., stroke) ▪ Susceptibility/risk assessment ▪ Navigation tools/advisors ▪ Targeted education on symptoms and responses	▪ Self-diagnosis tools and support ▪ Facilitated transactions (registration, appointment booking, test results)	▪ Incentives/penalties to promote screening and early intervention
Self-care for long term conditions	▪ Targeted education on ongoing condition management ▪ Navigation tools/advisors ▪ Peer-to-peer knowledge and experience sharing	▪ Personalised care plans ▪ Shared care record (patient can enter data) ▪ Facilitated transactions (e.g., appointments, repeat Rx, tests) ▪ Self-care and self-management support (e.g., digital health coach)	▪ Incentives/penalties to promote adherence ▪ Peer support/influence and social networks ▪ Professional support/messaging
Consump-tion choices	▪ Information on drugs, treatments, providers, payor plans ▪ Input into service change (e.g., PPE/PPI, consultations) ▪ Feedback on services, PROMS	▪ Decision-support and shared decision-making tools ▪ Tools to prep patients for consultations ▪ Real choice of provider (GP, acute, continuing care)	▪ Incentives/penalties for value conscious consumption (e.g., copays, longer A&E waits) ▪ Personal budgets ▪ Differential reimbursement

2 We will collate evidence; example of selected prevention levers

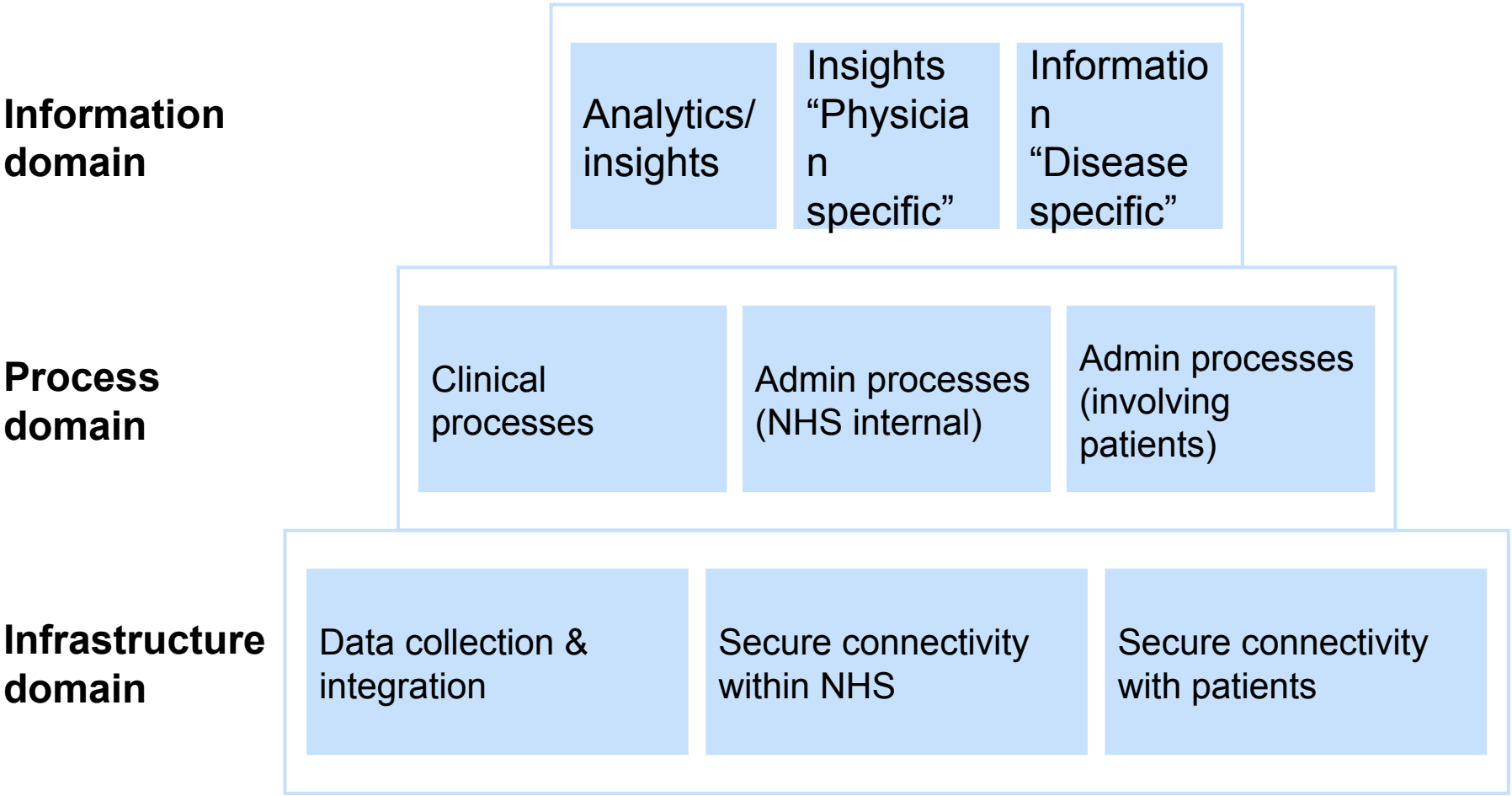
PRELIMINARY

Improvement opportunities in primary prevention £ million (annual savings)		Method	Evidence
Disease prevention programmes	Diabetes 09/11/15	▪ Avoided annual growth in diabetes spend1 ▪ Avoided costs of fatal and non-fatal CHD events3	▪ 10 year lifestyle intervention reduces incidence rate by 58%2 ▪ Wirral PCT Lifestyle & Weight Management Programme4
Smoking cessation	09/11/15 Whole population	▪ 40% COPD admissions avoided if smoking rate in patients with COPD reduced from 29% to 22% ▪ 10% CHD admissions avoided through aggressive, multi-pronged cessation campaign	▪ LSN review of international evidence and case studies ▪ LSN review of international evidence and case studies
Salt reduction	Whole population	▪ Reduced CHD spend from 3g (38%) reduction in average daily salt intake per person	▪ NICE Guidance PH25, Prevention of cardio-vascular disease
Incentives	09/11/15	▪ Program of incentives and online wellness/self-management tools: uptake 40%; cost reduction 15%5	▪ Discovery Health 5 year longitudinal study6
Primary prevention	09/11/15	/15	



1 Diabetes spend 5-yr CAGR of 11.5% less NHS inflation of 6.4% = 5.1% (£79m) increase in spend due to new incidence of which 58% (£50m) is potentially avoidable
2 Diabetes Prevention Research Group, Diabetes Care, Vol 35, April 2012 3 Costs of averted diabetes excluded (assumed double-count with previous item)
4 Evaluated by University of Liverpool Health Economics Unit 5 NHS spending on acute care (£91.2bn) x 40 x 15%. NB: Methodology needs further refinement and validation
6 Patel et al, AJHP, 2011, Vol 24(3) and AJHP, 2011, Vol 25(5); and "Participation in an incentive-based wellness program and health care costs: results of the Discovery Vitality Insured Persons Study

3 We will assess the impact of Data and Technology along three domains



We will use evidence base, review case studies and test with experts via interviews

3 We will assess the levers against this framework; supply levers example

High (~50% D&T impact)1
Medium (~25-35% D&T impact)1
Low (~10-15% D&T impact)1

HIGHLY ILLUSTRATIVE

		Prevent hospitalisation through integrated care	Directly shift activity	Decommission procedures of low clinical value	Stop using low value drugs and devices	Care efficiency: Acute	Care efficiency: Primary	Care efficiency: Community	Care efficiency: Mental	Innovative delivery models
Information domain	▪ Analytics/insights	✓			✓	✓	✓	✓	✓	
	▪ Insights "physician specific"	✗			✗	✓-	✓-	✓-	✓-	
	▪ Information "disease specific"	✓			✗	✗	✗	✗	✗	
Process domain	▪ Clinical processes	✓			✓	✓	✓	✓	✓	
	▪ Admin processes (NHS internal)	✓			✓	✓	✓	✓	✓	
	▪ Admin processes (involving patients)	✓-			✓	✗	✓	✗	✗	
Infrastructure domain	▪ Data collection and integration	✓	✓		✓-	✗	✗	✗	✗	✓
	▪ Secure connectivity within NHS	✓	✓		✓	✗	✗	✗	✗	✓
	▪ Secure connectivity with patients (remote monitoring)	✓-	✓		✗	✗	✗	✗	✗	✓
Sum (out of 9)		**7**	**3**	**TBD**	**5.5**	**3.5**	**4.5**	**3.5**	**3.5**	**TBD**
Impact of D&T		🟢	🔴	**TBD**	🟡	🟡	🟡	🟡	🟡	**TBD**

TBD (Decommission procedures of low clinical value)

TBD (Innovative delivery models)

1 Assume Score >6 = High, 3.5-6 = Medium, <3.5 = Low

3 We will then estimate the impact of Data and Technology on the levers

HIGHLY ILLUSTRATIVE

		Early estimate of impact of D&T £bn			
Supply	▪ Prevent hospitalisations through integrated care	1.2-2.0	50%	0.6-1.0	Patient level data, risk stratification, workflow support, data at point of care are critical enablers
	▪ Directly shift activity	1.0-1.6	10-15%	0.1-0.2	Information for clinicians
	▪ Decommission elective procedures of low clinical value	0.2-0.6	10-15%	0.0-0.1	Information for clinicians
	▪ Stop using low value drugs and devices	0.7-1.2	25-35%	0.2-0.4	Analytics for commissioners and prescribing systems needed
	▪ Acute care efficiency	2.7-4.7	10-15%	0.3-0.7	Need detailed transparency within providers
	▪ Primary care efficiency	1.2-2.5	10-15%	0.1-0.4	
	▪ Community care efficiency	1.2-1.8	10-15%	0.1-0.3	
	▪ Mental health efficiency	0.5-1.3	10-15%	0.1-0.2	
	▪ Innovative delivery models	1.7-1.9+	TBD	TBD	TBD
	▪ One-off wage impact	5.0	0%	0	N/A
	▪ One-off estates receipt	09/11/15	0%	0	N/A
Demand	▪ Prevention2	6.1	25-40%	1.5-2.4	Online enrolment, portal & tools
	▪ Diagnosis and acute treatment	0.5	25-40%	0.1-0.2	Web-enabled programmes1
	▪ Self-care for long term conditions	2.4-3.22	25-40%	0.6-1.3	See NESTA business case
	▪ Consumption choices	0.1	25-40%	0.05	Online info and decision-aid tools
	TOTAL			3.7-7.3	

Some initiatives may be driven primarily by providers and other system participants

1 Impact of patient activation programmes overlaps into other areas, e.g. prevention and self-care 2 Excludes impact of self-care already captured in supply-side levers 3 Gross savings

SOURCE: Team analysis

4 We will apply a robust approach to developing and communicating our modelling assumptions

We will

- Model the potential costs and benefits of different initiatives
- Be transparent about our core assumptions and grade the quality of the evidence
- Use peer reviewed evidence where possible complemented with real-world evidence and other acceptable sources
- Utilise clinical use cases, expert interviews, industry analogies and market sizing approaches to triangulate our assumptions

5 To draw out the practical implications we will answer the following questions

Create a business case including cost estimates	Prioritise programmes	Stress test with a model region e.g. NWL	Lay out portfolio rollout plan
▪ What are the costs for each programme – Implementation costs (one-off) – Operations costs (ongoing)? ▪ What is the cost/benefit balance for the current and newly proposed programmes? ▪ What are the interdependencies of the programmes?	▪ How does the current portfolio match the identified priorities? – Are there any whitespots (i.e. D&T enabled levers not covered by the current portfolio)? – Which programmes contribute most to the levers? ▪ What is the complexity/feasibility of implementation? How can we reprioritise accordingly?	▪ What is a representative NHS England region we can test the prioritisation with? ▪ What implications does the analysis have for the region?	▪ What is the optimal sequencing of the programmes? ▪ What is the expected impact curve?

Discussion point: What are your hypotheses and how could we test these?

- What are your hypotheses on which Data and Technology initiatives will have the most impact?
- Who should we interview to test these hypotheses?
- What other sources of information are you aware of that we could draw on?

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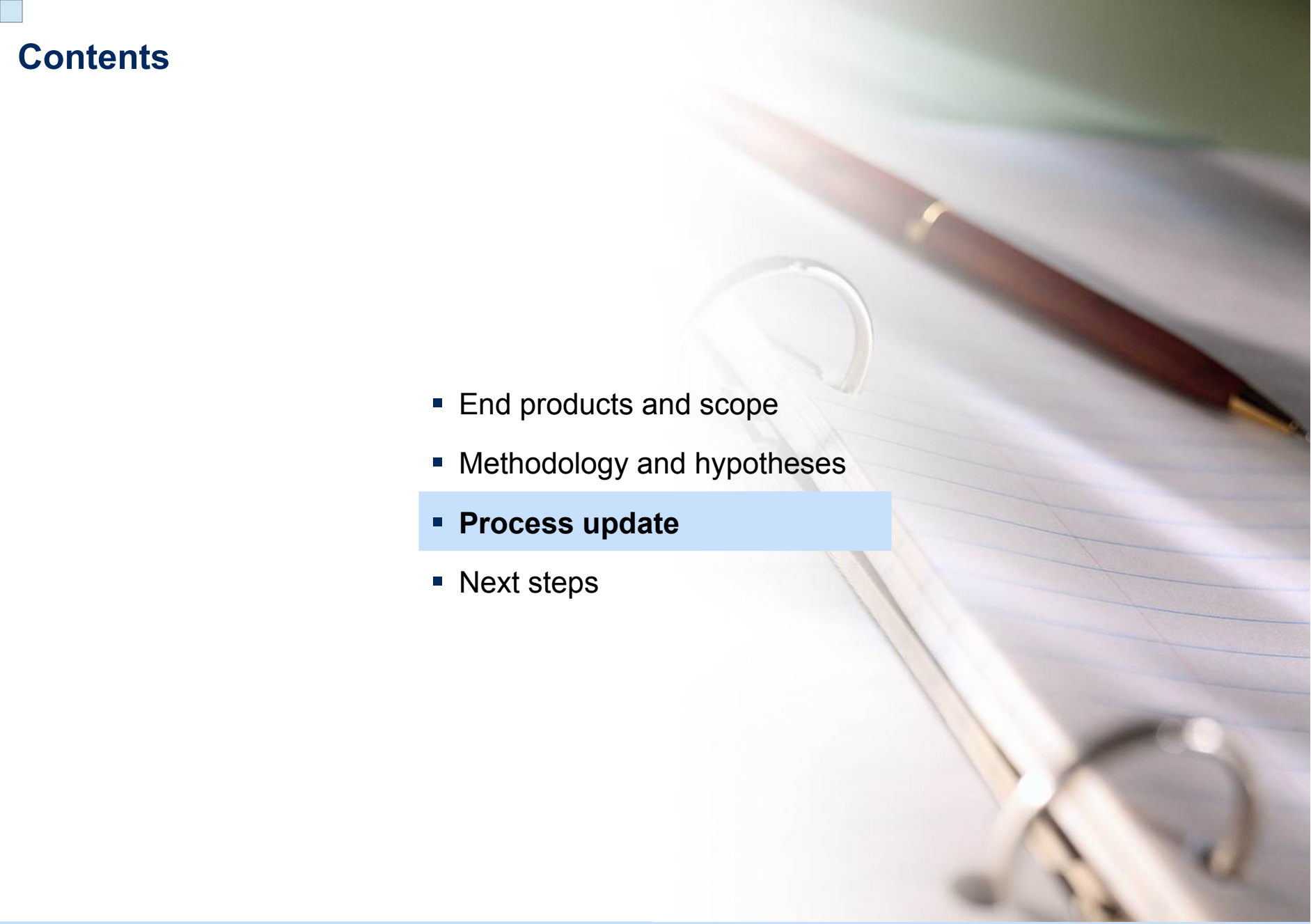

- End products and scope
- Methodology and hypotheses
- **Process update**
- Next steps

The Working Group will meet in London weekly 10:30 am to 1pm from 28th January

	Name	NHS role	Project role
NHS England	Chris Outram	Director of Intelligence and Strategy	SRO
	Henry Pares	Policy & Strategy Lead	Senior Lead
	Simon Crack	Assurance Lead	
	Wendy Rose	Business case manager	Project Engagement Manager
	Donald Franklin	Head of Analysis - Outcomes Framework	
	Pritti Mehti	Strategy Team Lead - Patient Participation	
	Ben Fletcher	Senior Finance Lead - Financial Strategy and Allocations	
	Tim Hamilton	Head of Communications - London regional team	
	Paul Rice	Head of Technology Strategy	
	Peter Flynn	Head of Strategic Intelligence	
	David Bolus	Head of Clinical Informatics Mobilisation	
	Craig Baxter		
McKinsey	Stephen Moran		Operational Project lead
	Stefan Biesdorf		Expert Principal and D&T lead
	Sundiatu Dixon-Fyle		Demand lead
	David Meredith		Modelling lead
	Grail Dorling		Research and information
	Lewis Grey		Analytics
	Martina Miskufova		Engagement Manager

Who is the day-to-day project lead? Who provides data gathering and research support?

The Steering Group will meet in London fortnightly from 2pm to 4pm 28th January

	Name	NHS role	Project role
NHS England	Chris Outram	Director of Intelligence and Strategy	SRO
	Henry Pares	Policy & Strategy Lead	Senior Lead
	Wendy Rose	Business Case Manager	Project Engagement Manager
	Wes Dale	Head of P & I Programme Delivery	
	Giles Wilmore	Director of Patient and Public Voice & Information	
	Beverley Bryant	Director of Strategic Systems and Technology	
	Jane Barnacle	Director for Patients & Information (London)	
	Julia Hickling	Regional Director for Patients and Information (North)	
	Mike Burrows	Director (Greater Manchester)	
	Steve Fairman	Director of Business, Improvement & Research	
	Robert Harris	Director of Strategy	
	Sam Higginson	Director of Strategic Finance	
	Jonathan Kay	Clinical Informatics Director	
	Chris Long	Area Director - North Yorkshire and Humberside	
	Alex Gordon	Regional Director (London)	
	Penny Emerit	Regional Director (London)	
McKinsey	Martin Markus		Director
	Nicolaus Henke		Director
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	Martina Miskufova		Engagement Manager
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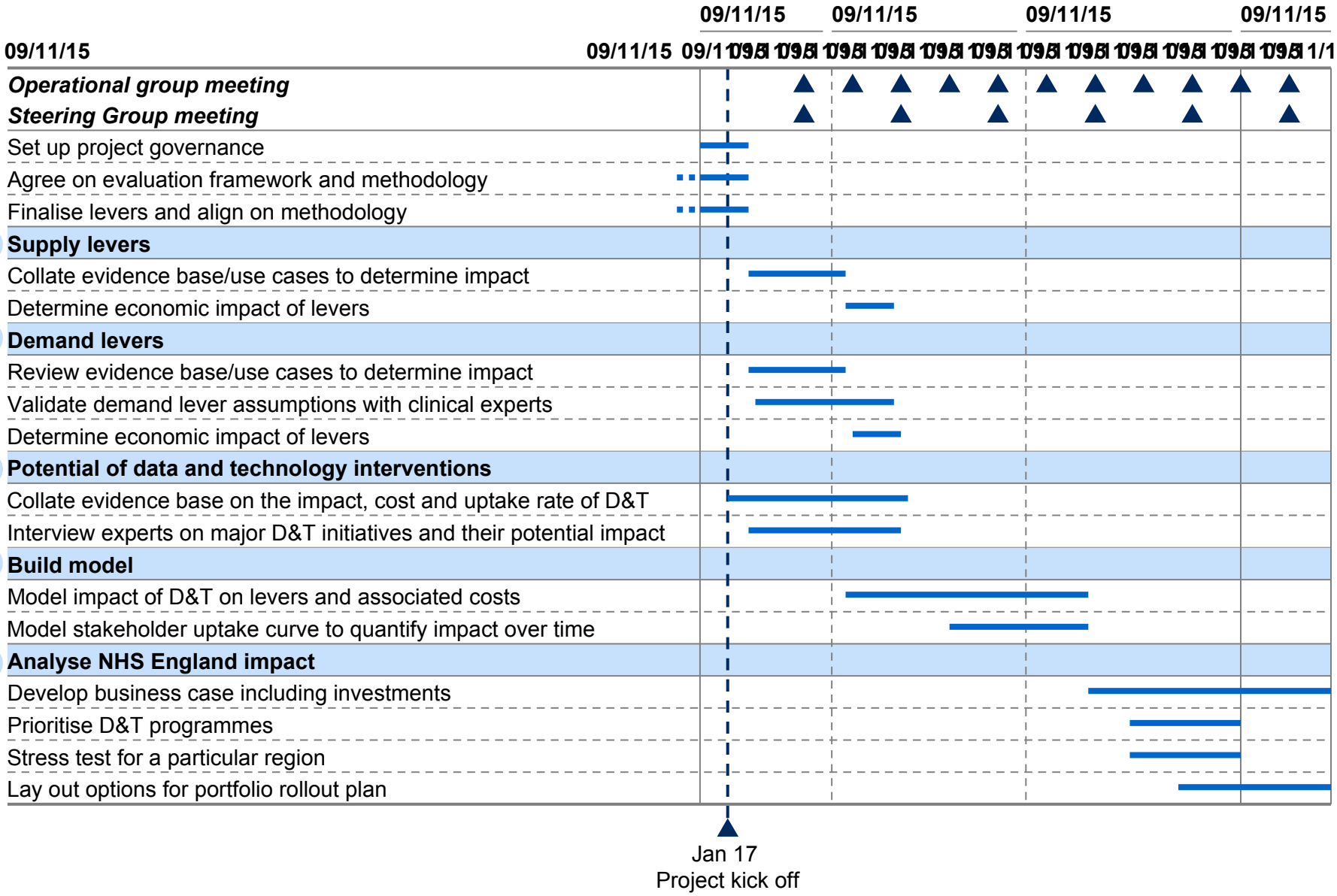
We propose the following 12-week workplan



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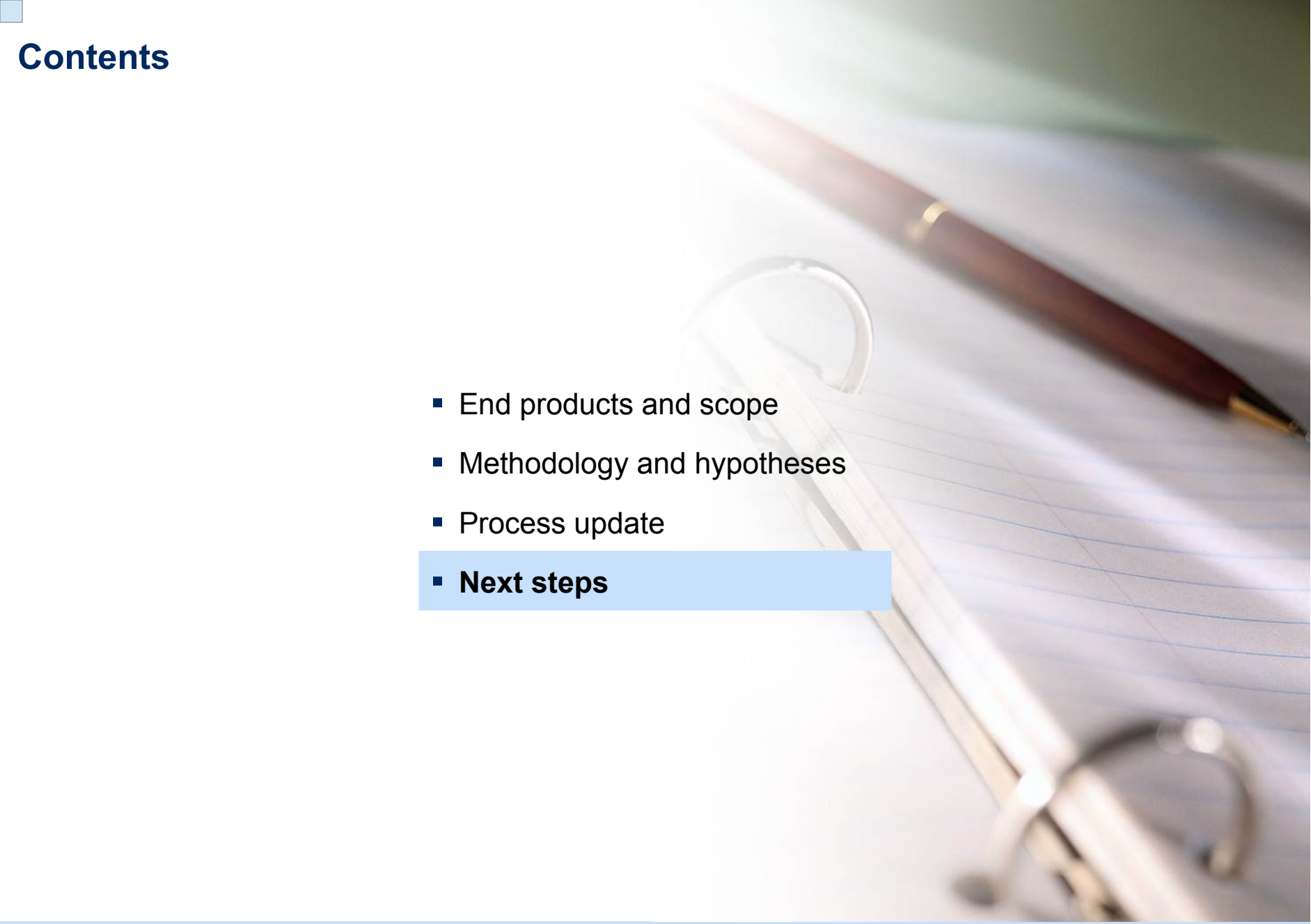


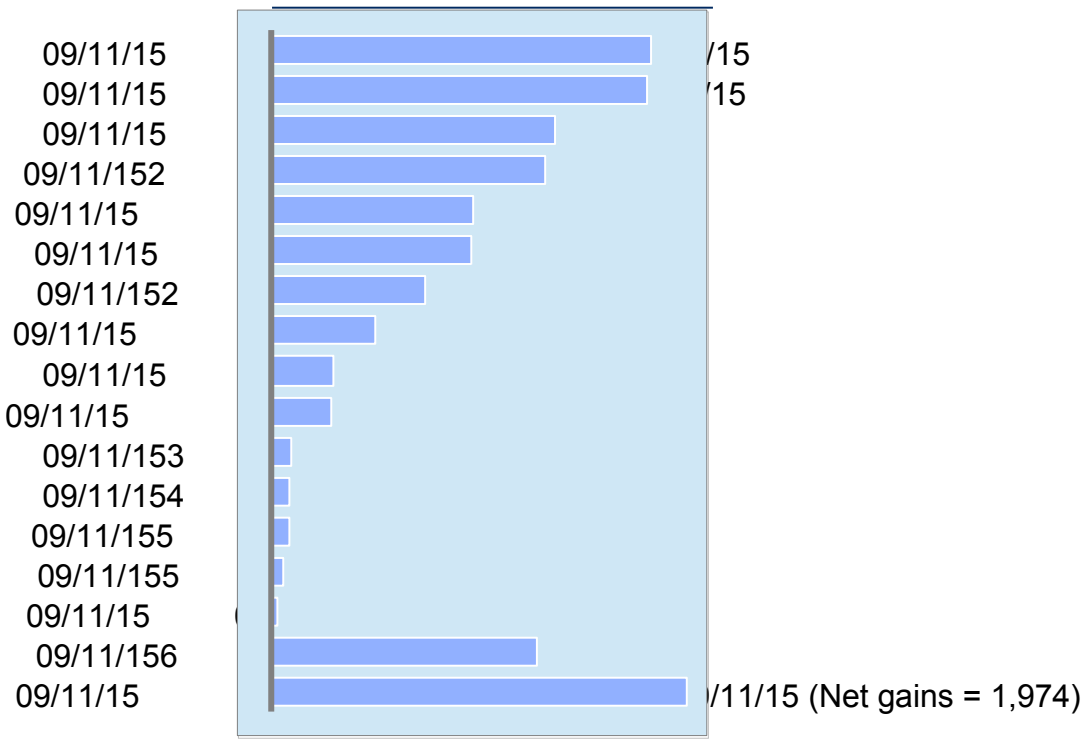
- End products and scope
- Methodology and hypotheses
- Process update
- **Next steps**

Next steps

- We will
  - Finalise lever definition
  - Start collating evidence base for demand reduction levers and set up expert panel to review the evidence and assumptions
  - Start collating evidence for impact of D&T on levers
  - Set up face to face meeting with key team members for next week
- We ask you to
  - Finalise team and roles, including main point of contact, PMO and admin support leads
  - Provide desk space for us in your offices
  - Identify individuals we can give us detail on current portfolio programmes in scope
  - Set up touch points with Transparency and Participation strategy development group
  - Identify experts to interview
  - Share any further useful documents, current modelling and assumptions

Back-up

1 Preventing hospitalisations through IC – stretch: Net gains of £2.0bn can be achieved from better management of conditions outside of hospital



Quality impact

- Reduced mortality rates
- Decreased depression and anxiety rates
- Reduced morbidity rates
- Shorter lengths of stay
- Improved quality of life

Efficiency impact

- **Gross gains** of £3.3bn (19% NEL spend)
- **Net gains** of £2.0bn (Based on 40% reinvestment)
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6 Reduction of 7.5% applied to remaining emergency admissions based on evidence-based impact of prescribing errors and polypharmacy.

SOURCE: HES 2011/12; HES Online; clinical evidence (references in backup slide); team analysis

1 Treating people in more cost-effective settings can bring net gains of £1.0-1.6bn and achieve high quality impact

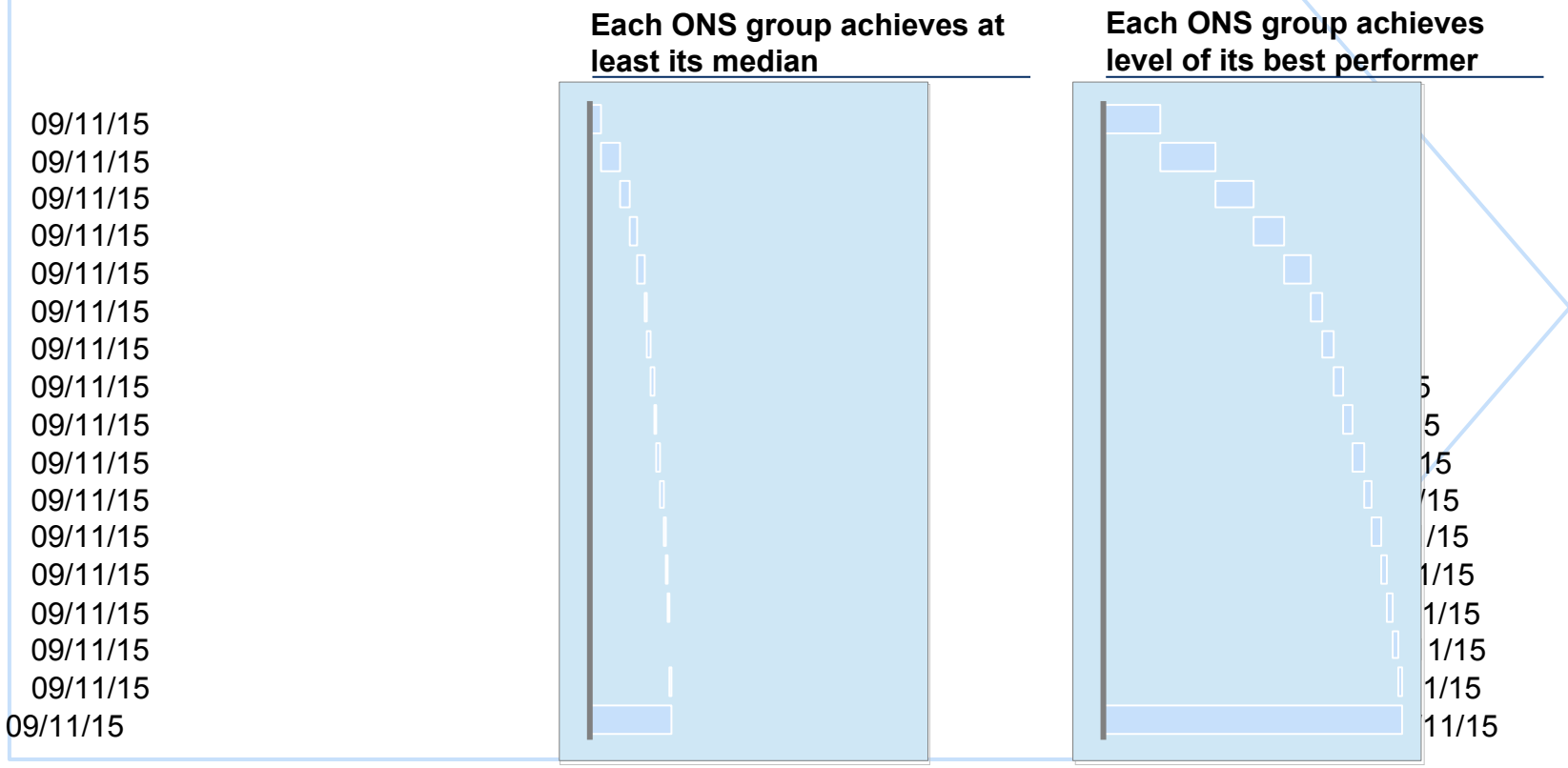
Pathways	Settings shift	Estimated net opportunity gain £m, 2011/12
Elective care pathway	▪ Elective inpatient to day case ▪ Outpatient visits to primary care ▪ Outpatient visits to out of hospital settings	▪ £68-103m ▪ £400-673m ▪ £428-687m } 43-72% outpatient attendances
Ambulatory emergency pathway	▪ Emergency inpatient to day case	▪ Negligible net gain due to new Best Practice tariff3 ▪ High quality impact through up to 19% admissions diverted
Urgent care pathway	▪ A&E minors to UCCs or primary care	▪ £70-113m
Complex surgical care pathway	▪ Stroke reconfiguration ▪ High volume cancer centres	▪ Negligible net gain ▪ High quality impact through faster access and improved survival rates ▪ See evidence review of quality impacts
Intermediate care	▪ Step-up and step-down care as alternative to hospital stay	▪ Opportunity gain not calculated as they are assumed to already have been captured in both preventing hospitalisation and acute provider efficiency (ALOS) gains

£1.0-1.6bn gained through shifting settings of care

SOURCE: NHS Institute Ambulatory Emergency Care pathway; HES 2011/12; Better Care Closer to Home final report (2009); NHS Institute Better Care Better Values indicators; DH Tariffs 2011/12; NHS Direct Annual report 2010;Sibbald et al 2008; HSJ "Bright approach to fast care" (9 Aug 2012); NHS Reference Costs (2011/12); PSSRU Unit costs of Health and Social Care 2011; London Stroke study; team analysis

1 Elective procedures of low clinical effectiveness: Gains of ~£0.2 – 0.6b1 remain from further decommissioning low value procedures

Potential gains from reducing variation in procedures of low clinical effectiveness (based on spells per weighted population) within each Office of National Statistics (ONS) group 1
£ million



1 Calculations based on clinically identified procedures of low clinical effectiveness that account for top 92% (£2.0 billion) of £2.18 billion spend from procedures on Croydon list; procedures not included in the calculation, all less than £25 million pend nationally: aesthetic surgery (breast, ENT, opthalmology, plastics), Back pain injections and fusions, bilateral hips, cochlear implants, dialtion and curettage, elective cardiac ablation., female non-surgical stress incontinence, jaw replacement, knee washouts, orthodontics, other hernia procedures, other joint prosthetics, spinal cord stimulation, trigger finger

SOURCE: NHS Hospital Episode Statistics, 2010/11

1 Across pathways, stop interventions of low clinical effectiveness: Early estimates show that disinvesting could result in gains of £0.3-0.6b (1/2)

High level approach for estimating potential gains from disinvesting in low value interventions

	gains % of spend on condition		UK spend 2010/11 £ billion		UK estimated gains £ million
Diabetes	▪ Treatment with less validated agents (GP drugs) ▪ Addition of insulin to other treatments (GP drugs)	6 – 10%	x	1,462	= 90 - 150
CHD	▪ Intercoronary stenting for STEMI patients undergoing PPCI ▪ Treating hypertension (target BP: ≤130/80 mmHg) after ACS	~ 2%	x	1,982	= 30 - 40
Stroke	▪ Anticoagulation for AF patients for rehabilitation or secondary prevention (PC drugs) ▪ TIA BP control	~ 1%	x	790	= 5 - 8
CHF	▪ Use of ECG for initial diagnosis ▪ Angio II blockers for severe/refractory patients	~ 7%	x	625	= 44
		~2 – 5%		**4,235**	**167-241**

£0.3-0.6 billion gains from a total chronic spend of ~£11.4bn (based on NHS programme budgets 2010/11)

- £167-241 million savings from diabetes, CHD and stroke (as shown to the right)
- Additional est. £156-323 million for COPD, asthma, other cardiovascular and chronic pain (applying 1-5% to remaining spend of ~£6.5b)

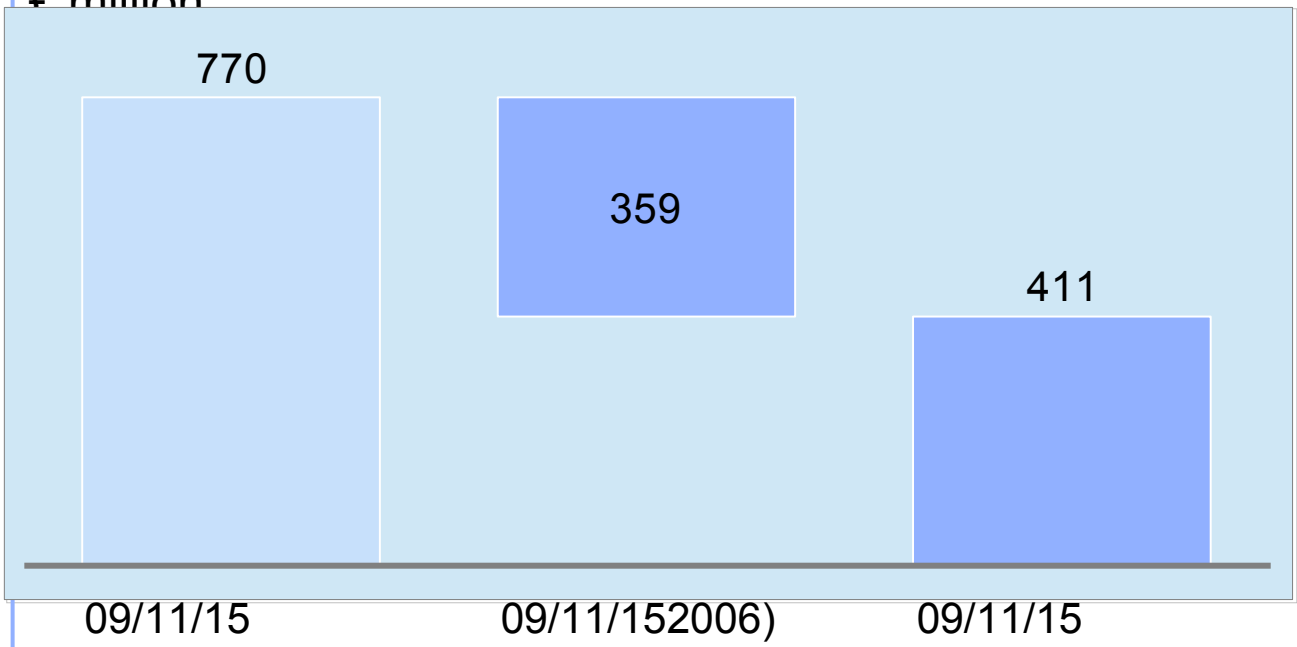
1 In-depth commissioning for quality analysis carried out in one county in England based on review of NICE guidance, variation and team analysis

SOURCE: McKinsey Health Systems Institute; NICE guidelines; Programme budgets 2010/11; National Heat Failure Audit 2010 (for CHF spend estimate)

1 Across pathways, stop adverse effects from drugs: Early estimates show that disinvesting could result in gains of £0.4-0.6b (2/2)

NPSA estimate of cost of admissions and harm due to adverse effects of drugs

£ million



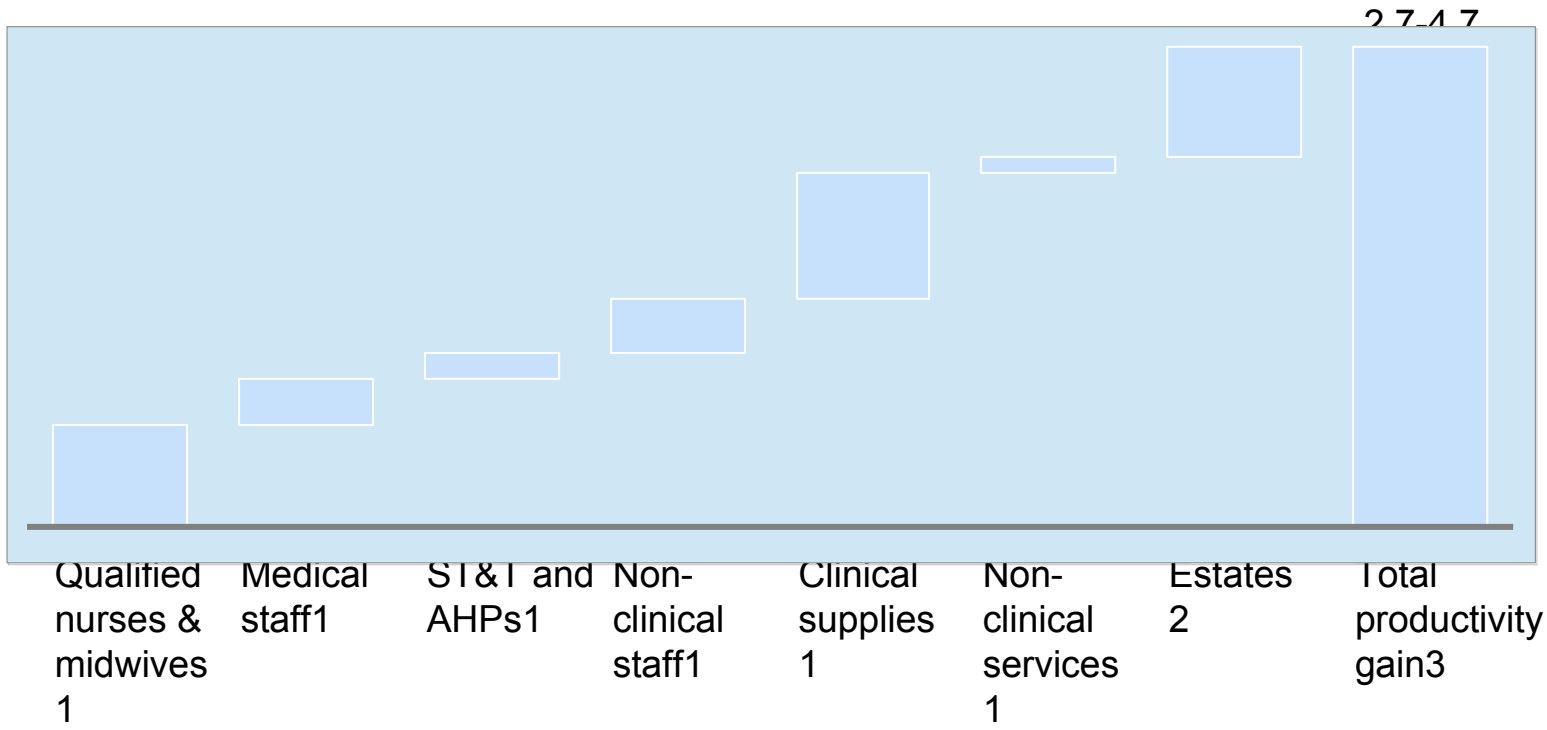
- Applying the NPSA's estimate that 5% of NEL activity is due to drug-related medical errors to 2010/11 NEL spend of £14.4 billion suggests an opportunity of £0.7 billion exists
- Assuming 50% - 85% of this could be reduced, **£0.4-0.6 billion** could be saved

SOURCE: The Health and Social Care Information Centre, Hospital Episode Statistics for England. Inpatient statistics – External Cause data, 2011-12; PC Personalising medicines management: NSF for Older People, Audit Commission; Ensuring the delivery of prescribing, medicines management and pharmacy functions in primary and community care; Healthcare Commission, Investigation into Staffordshire Ambulance Service NHS Trust; Care Quality Commission Investigation into the mental health care for older people provided by Devon Partnership NHS Trust; NHS Information Centre, External causes of admission 08/09; NHS Institute for Innovation and Improvement: ROI Calculator; National Patient Safety Agency, Safety in Doses, Improving the use of medicines in the NHS; Pirmohamed M., et al, Adverse drug reactions as cause of admission to hospital: prospective analysis of 18,820 patients; NICE CG76, Medicines Adherence – Involving patients in decisions about prescribed medicines and supporting adherence

1 Acute provider: efficiency improvements could find £2.7-4.7b in recurrent productivity gains

Net productivity gain from acute efficiency improvements

£b, 2010/11



1 Based on NHS-wide benchmarking of productivity opportunity (see next slide for methodology). Range of potential productivity opportunity is driven by using (i) "top quartile" peer as lower benchmark and (ii) average of top 3 peers as higher benchmark across 4 groups of peer trusts. Gains at the upper level have been capped to 20% for each trust for each metric.

2 Based on running costs saved annually from disposing of underutilized assets. Scope for disposals is modelled by estimating new estate asset base requirements if all trusts below median move to median "revenue per £ value of asset base" level

3 Differences in total due to rounding errors

SOURCE: FIMs 2010/11; Trust annual reports; NHS Information Centre; Laing and Buisson 2010/11; team analysis

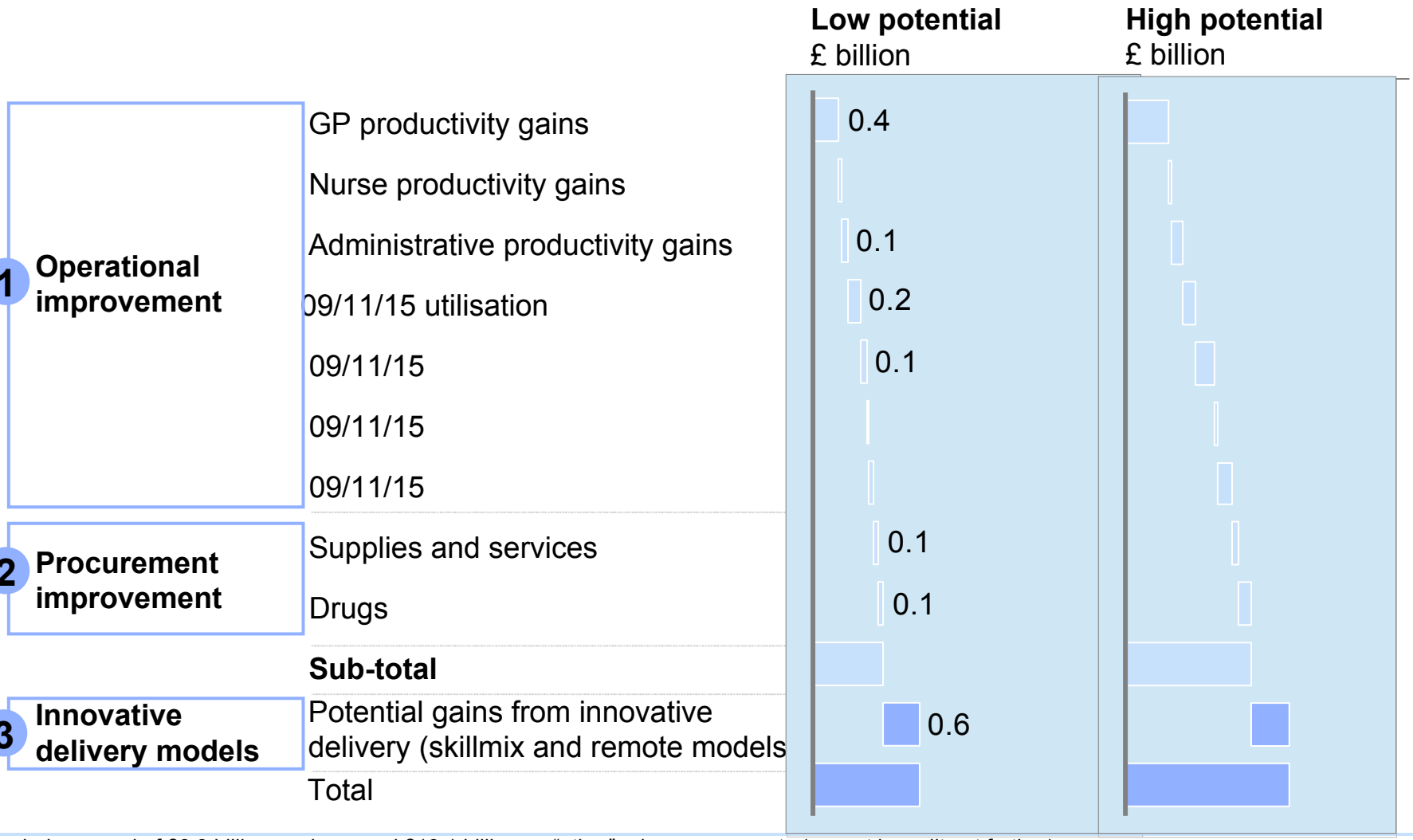
1 We have triangulated the benchmarking results with case studies to refine our estimates of productivity gains for feasibility

Category	Benchmark : productivity range	Case studies: productivity potential	Selected range for acute efficiency modelling	Commentary	Case studies sources
Qualified nurses	4-11%	10-20%	4-11%	Benchmarks seem in line with lower end of case studies range as well as meet pace of change feasibility (2% per year over 5 years)	· Nottingham Hospital implementation of Productive ward · Oslo University Hospital and Rikshospitalet
Medical staff	3-4%	Up to 15%	3-5%	Expert opinion and hospital data suggest that productivity opportunity is higher than benchmarked range, but a lack of quantified case examples exist	· Anonymised study
ST&Ts/ AHPs	2-7%	4%	2-7%	Benchmarks appear in line with recent NHS example.	· DH AHP Bulletin. "Productive therapies getting results at Nottingham University Hospitals NHS Trust", Feb 27, 2012
Non-clinical staff	6-11%	N/A	6-11%	N/A	N/A
Clinical supplies	8-15%	Minimum of 10%	10-15%	Benchmarks in line with NAO report. Minimum gains target increased to match NAO's 'conservative' estimate	· National Audit Office , *The procurement of consumables by NHS acute and FTs,* 2011
Non-clinical services	9-16%	10-25%	10-15%	Benchmarks in line with cross-industry benchmarks; adjusted to match clinical procurement gains targets	· McKinsey procurement practice reviews (75+ studies)
Estates	2-3%	N/A	2-3%	Case studies show detailed planned reconfigurations of A&E, maternity, paediatrics by local health economies - not feasible for national estimations	· London reconfiguration cases (NWL and H4NEL)

SO[illegible]

Bloor, K., "Using Hospital Episode Statistics to explore consultant clinical activity", Presentation to YHQO, April 2010; team analysis

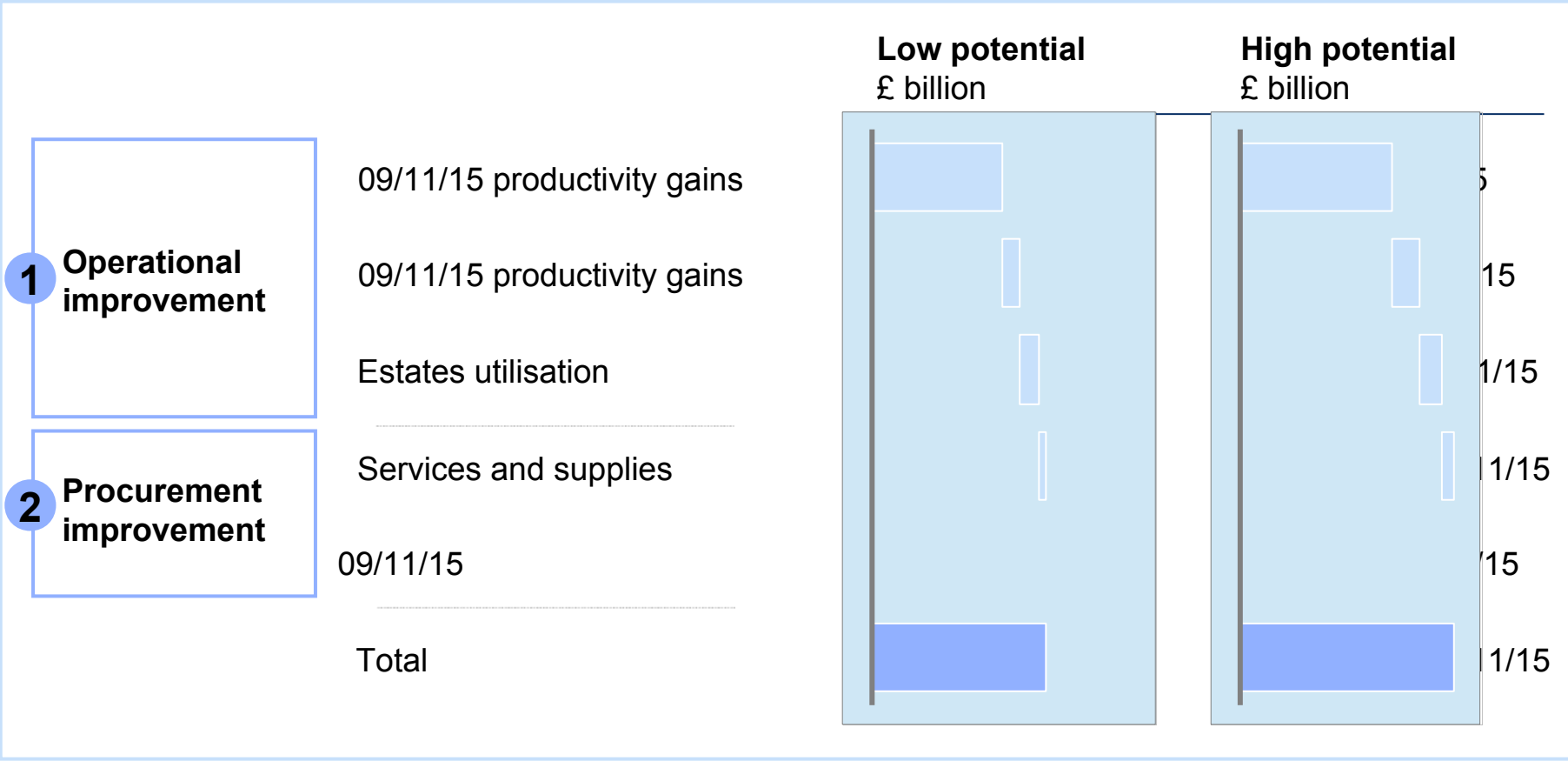
1 Primary Care sub-sector: Achieving this vision could be worth £1.2 -2.5b (relative to total spend base of £21.3b1) per annum for the NHS



1 Includes spend of £8.3 billion on drugs and £13.1 billion on "other" primary care costs (cannot be split out further)
2 Only incremental potential (i.e. in addition to the £0.5 – 0.6 billion for skillmix) is shown here

SOURCE: Laing and Buisson 2010/11; FIMS 2010/11

1 Based on a review of best practice evidence, the opportunity in the community care sub-sector is 1.2-1.8bn of a spend of £8.4bn1



1 Estimate of all Community Health Services spend as per FIMS; although CHS spend breakdown unclear for services integrated with mental health or acute trusts, the £1.5b spend on community and care trusts includes £26.5 million on drugs, £54.9 million on establishment costs and and £1.1 billion on "pay costs (incl. clinical and non-clinical)

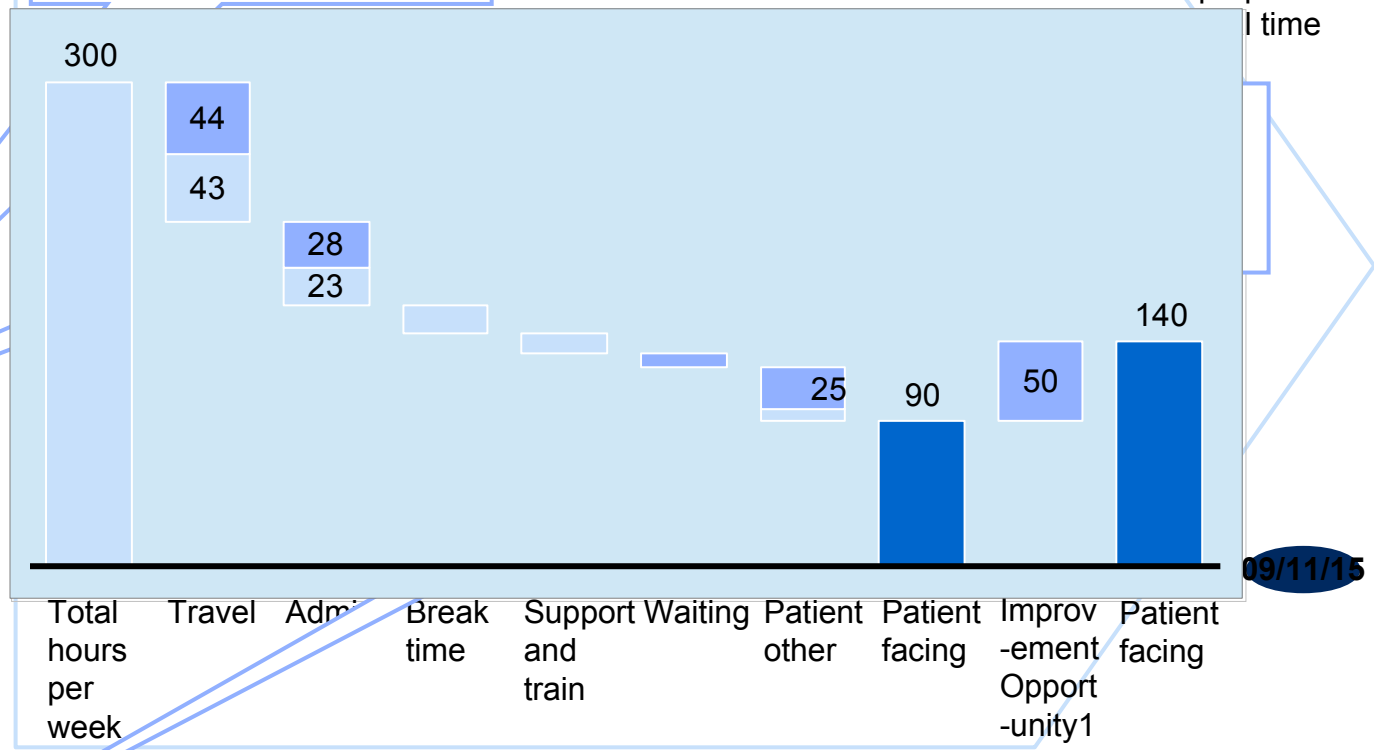
SOURCE: Laing and Buisson, 2010/11; FIMS 2010/11

1 Operational improvement: Productivity gains in nursing, STT and HCA groups would be worth £0.9 -1.3b relative to £3.9b spent on pay (1/2)

Time analysis

Hours per week, for a team of 8 staff each working 37.5 hours per week

- Improve route scheduling
- Reduce unnecessary trips



- Analysis based on productivity review by NHS Institute of Innovation
- Nurses, STT staff including therapists and HCAs could spend ~50% more time with patients, equivalent to a 1/3 reduction in staff (if savings were captured through workforce size)1
- Results in productivity gain in workforce which would be worth £907 – 1,295 b3 if 70-100% in additional workforce capacity (calculations overleaf)

1 Assuming that of the 105 hours saving per week, only 50 hours would become patient facing as for every additional patient visited staff also have to travel, complete admin, wait and do other non-patient facing tasks

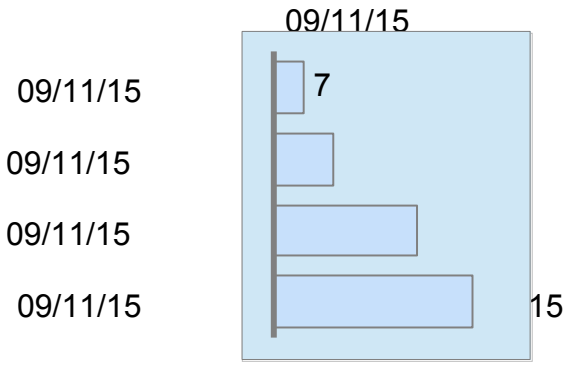
2 Using mobile technology could save ~10 hours, equivalent to ~10% of the overall savings

3 Based on estimated spend of £3.9b; average clinical pay costs (for nursing, excl. medical and dental) were estimated using actual data available for all community and care trusts which show that 66% of total spend on nursing , STT & HCA pay costs; which was applied to community budget of £8.4b

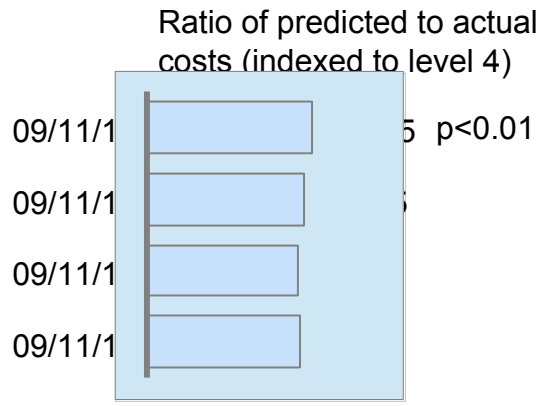
SOURCE: NHS Institute of Innovation; McKinsey Health Systems Institute; FIMs 2010/11; NHS specialist commissioning 2010/11 report; statement of comprehensive income England 2010/13

2 Overview of evidence for impact of patient activation

Patient activation levels in the population



Health care costs by level of activation



Patient activation level and health behaviours

- Higher levels of activation associated with:
  - Higher uptake of screening and immunizations
  - Attendance at regular check-ups
  - Engagement in healthy behaviours, e.g. healthy diet and regular exercise
  - Avoidance of health-damaging behaviours including smoking and illegal drug use
  - Seeking health information
- Lower levels of activation are associated with:
  - Delayed medical care
  - Unmet medical needs

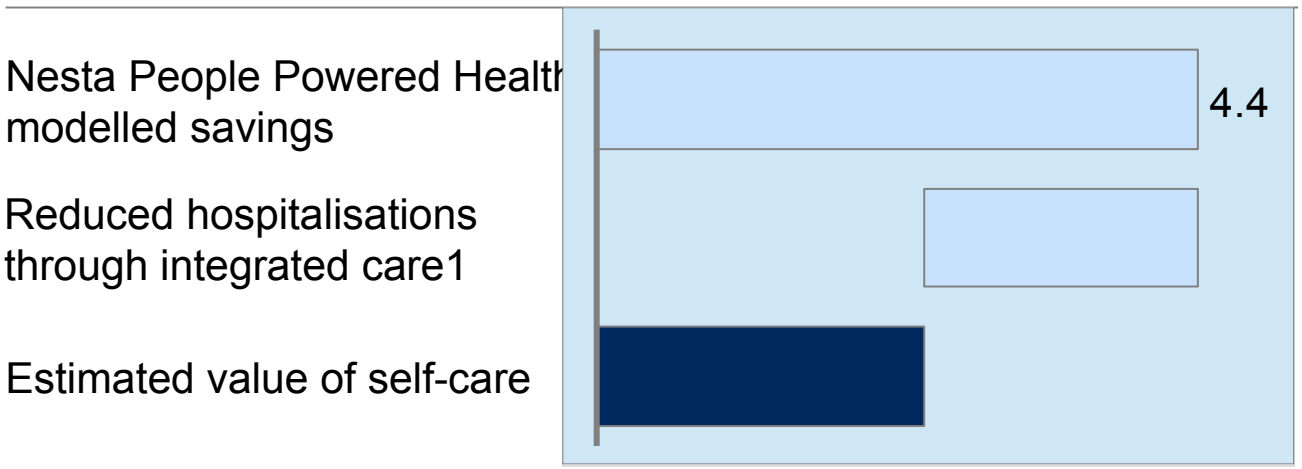
Evidence that activation level can be influenced

- Evidence suggests that a wide range of inter-ventions are effective at increasing activation levels **and** that this leads to improvements in health outcomes including health-related quality of life
- Interventions demonstrated to improve activation levels include:
  - Skills development, problem solving and peer support
  - Health classes, information campaigns and personal coaching
  - Tailored coaching

Note: For NHS context we have assumed that 7% of costs could be reduced by 8%, therefore 0.6% reduction in total

SOURCE: Hibbard et al, Health Affairs, 2013, 32(2), 207:214, 216:222 and online Appendix

2 We estimate that demand-driven self-care for long-term conditions can save an additional £2.4-3.2bn



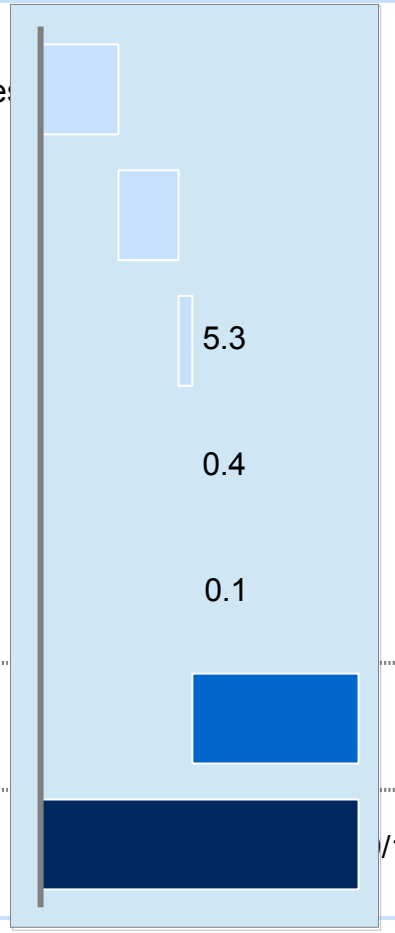
1 Value already captured under supply levers

SOURCE: Nesta, Innovation Unit and PPL, *The Business Case for People-Powered Health*, 2013

2 Overview of evidence for selected choice of care levers

PRELIMINARY

Improvement opportunities in choice of care settings
£ million (annual savings)



		Assumptions
Decision aids	Coronary Bypass surgeries	▪ Demand reduction of 29% applied, saving 3,100 elective surgeries1
	Mastectomies	▪ Demand reduction of 43% applied, saving 7,100 elective surgeries1
	Prostatectomies (cancer)	▪ Demand reduction of 24% applied, saving 1,100 elective surgeries1
	Prostatectomies (BPH)	▪ Demand reduction of 43% applied, saving 80 elective surgeries1
	Orchidectomies	▪ Demand reduction of 33% applied, saving 40 elective surgeries1
Choice in service	Minor ailment pharmacy scheme	▪ Assuming uptake of between 1-10% of eligible visits, as based on examples from 2 PCTs (see overleaf)2
Primary prevention	09/11/15	/11/15

1 Based on reduction in people receiving certain surgeries following use of decision aids identified in O'Connor et al., Cochrane Library, 2007, and updated 2009; JAMA December 4, 2002, vol. 288, No. 12, as applied to HES 2012/13 data

2 S Pumtong, HF Boardman and CW Anderson, "A multi-method evaluation of the Pharmacy First Minor Ailments scheme", International Journal of Clinical Pharmacy, 33:573-581, 2011; DH Partial impact assessment of proposals to expand the provision of minor ailment schemes, 2008; Baqir et al., 2011. "Cost analysis of a community pharmacy 'minor ailment scheme' across three primary care trusts in the North East of England."

SOURCE: As indicated in footnotes

2 Expanding the Pharmacy Minor Ailments Service nationally could save £64m

Background

- ~20% of GP visits are for minor ailments which do not require physician treatment
- Common minor health conditions seen by GPs include lice, colds and fevers, tooth and earaches, thrush, and athletes foot
- Many minor conditions can be treated through Over the Counter medications

Programme Description

- Scheme permits pharmacists to directly treat minor health conditions
- Consultation and proffered medication available free of charge
- Participation is open to people who are exempt from prescription charges (currently ~60% of the population)
- Department of Health forecast a national uptake of 50% within 3 years of programme launch

Programme Uptake

- Evidence from North of Tyne and Nottingham suggests between 1-10% of eligible patients have used the pharmacy service
- 40% of PCTs funded the scheme in 2011

Impact

- 3.1m GP appointments could be shifted to pharmacies if 10% of eligible patients nationally used the minor ailment scheme
- Assuming a cost reduction of £20 per pharmacy visit compared to GP visit, this could result in a value of £64m annually

SOURCE: S Pumtong et al., "A multi-method evaluation of the Pharmacy First Minor Ailments scheme", International Journal of Clinical Pharmacy, 33:573-581, 2011; DH Partial impact assessment of proposals to expand the provision of minor ailment schemes, 2008; Baqir et al., 2011. "Cost analysis of a community pharmacy 'minor ailment scheme' across three primary care trusts in the North East of England." Journal of Public Health, December 33(4):551-5; PSSRU Unit Costs of Health Care 2011

3 For each lever we will estimate the contribution of technology and data

	No impact	Small impact (10 - 25%)	Medium impact (25 - 40%)	High impact (40 - 60%)
Technology	No requirement for connectivity to GP's/ hospital IT systems	Requires connectivity into GP's/hospital IT systems – pull of data	Requires connectivity into GP's/hospital IT systems – push of data	Requires access for patients to own data Requires real-time access to data
Data	No requirement for patient data	Requires patient data on national level for comparison Requires demographic data for adjustment of results	Requires linking of patient data across cares settings on national level Requires anonymized patient level data	Requires non-anonymized patient level data

Impact of Technology and Data on value share is not additive, but highest score counts

Value share from enabling integrated care programmes:

40 - 60% or 0.5 – 1.2 bn

3 Example demand interventions

NOT EXHAUSTIVE

Prevention	▪ Boots/WebMD, NHS Choices LiveWell ▪ NHS HealthCheck ▪ J&J HealthMedia	▪ Discovery Vitality ▪ J&J HealthMedia ▪ Stikk (lifestyle support)	▪ YouTube ▪ Facebook ▪ NHS health trainer programme ▪ Online cognitive behaviour therapy and motivational interviewing tools ▪ Discovery Vitality (incentives)
Diagnosis and acute treatment	▪ NHS Choices, iTriage (symptom checkers) ▪ Expert patients' programmes ▪ Online disease education	▪ Ginger iO (self-diagnosis) ▪ ZocDoc (appointment booking) ▪ Self-diagnostic kiosks	▪ patientslikeme
Self-care for long term conditions	▪ myHealthLondon (navigation) ▪ J&J HealthMedia, Discovery Vitality (targeted disease education) ▪ Expert patients' programmes ▪ NHS Choices condition information ▪ patientslikeme	▪ WellDoc, Tidepool, Omada, Glooko, J&J HealthMedia (diabetes digital health apps) ▪ VitruCare (digital health coach) ▪ myHealthLondon, ZocDoc, iTriage (transactions)	▪ patientslikeme ▪ Online cognitive behaviour therapy and motivational interviewing tools
Consump-tion choices	▪ Dr Foster guides ▪ Castllight Health, ameli.fr (health plans) ▪ NHS F&F test, GP Patient survey ▪ Care Connect, PatientOpinion ▪ NHS local Healthwatch ▪ 311 non-emergency helpline1 ▪ Civil Society Assembly1	▪ NHS Choices ▪ NHS Shared-decision making ▪ WellDoc BlueStar decision support ▪ programme, Patient Decision Aids	▪ NHS Personal health budgets, eg for continuing care1 ▪ Co-pays in A&E

1 Proposed as part of P&I Directorate strategy

3 Some technologies may not be included in demand scope

FOR DISCUSSION

Relevant for supply

- Predictive modeling
- Personalised care planning
- Remote consultation (email, Skype)
- Patient preparedness for consultations
- Facilitated transactions (appointment booking, repeat prescriptions, etc.)
- Provider quality monitoring/ transparency tools
- Provider incentives to promote patient engagement

In P&I Directorate portfolio but potential out of scope?

- Remote monitoring
- NHS 111 (services directory, triage, real time feedback)
- Patient insight (market research, tools to facilitate motivational segmentation)
- Patient advocacy (e.g., AgeUK)

Stakeholders and their involvement

Citizens	▪ Citizens/patients – as service users, as participants in NHS England 'Call to Action' workshops/events
Government	▪ Secretary of State and Ministers – NHS sustainability/demand growth reduction, public satisfaction ▪ Department of Health – enabling self-care and self-management ▪ HM Treasury – NHS sustainability, UK Growth ▪ Cabinet Office – transparency agenda ▪ Number 10 Policy Unit
NHS England	▪ NHS England leadership/directorates - Finance, Policy, Medical/Nursing, Operations, Regional & Area Teams, Specialised Commissioning ▪ NHS England Strategy Board – comprised of Executive Team, chaired by David Nicholson ▪ NHS England Patients & Information directorate – all divisions ▪ NHS England Patients & Information Strategy Board – chaired by Chris Outram, responsible for Transparency & Participation Strategy, including Economic Modelling
Other public healthcare bodies	▪ Clinical Commissioning Groups & Commissioning Support Units ▪ All Health and Care Provider organisations ▪ Informatics Services Commissioning Group – including its Strategic Clinical Reference Group and the Investment & Approvals Sub-Group ▪ Monitor (initiators of the financial sustainability analysis on which this is based) ▪ Care Quality Commission ▪ Royal Colleges – especially RCP, RCGP, RCN, RCPCH, RCPsy,
Industry	▪ Life Sciences industry ▪ Information services industry – Tech UK/Intellect
Non-profit organisations	▪ Third Sector health & care organisations - condition-specific, 'umbrellas' (e.g. Nat. Voices) ▪ British Medical Association ▪ 'Think Tanks' – Nuffield Trust, Kings Fund, Health Foundation