

## Modelling the relative costs of retention in the nursing professions

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# Overview

## 1. STP/Local office level model

- Complete (nursing/community nursing)
- Scenarios
- Outcomes

## 2. Trust Level Model

- Progress to date (pilot projects underway)
- Worked examples
- Conclusions

## 3. Medical Model

- Tender exercise complete subject to contract
- Clinical radiology, emergency medicine, obstetrics, paediatrics, trauma and orthopaedics

# Project Background

- Budget challenges
- Demonstrate the relative economic impact of investment/retention
- Project Initiated by HEE NWL in 2014
- Initially a London wide model, then adapted to local teams
- Initially nursing and midwifery professions and community nursing
- 10 year model
- Utilised data from the HEE finance model, and the 2014/15 planning process
- Stakeholder engagement to agree assumptions (nursing leads, planners, commissioners, finance)

# The overall model structure

The model is split into **two components** (informed by various sources)

**(1) The composition of the current and future workforce including.....**

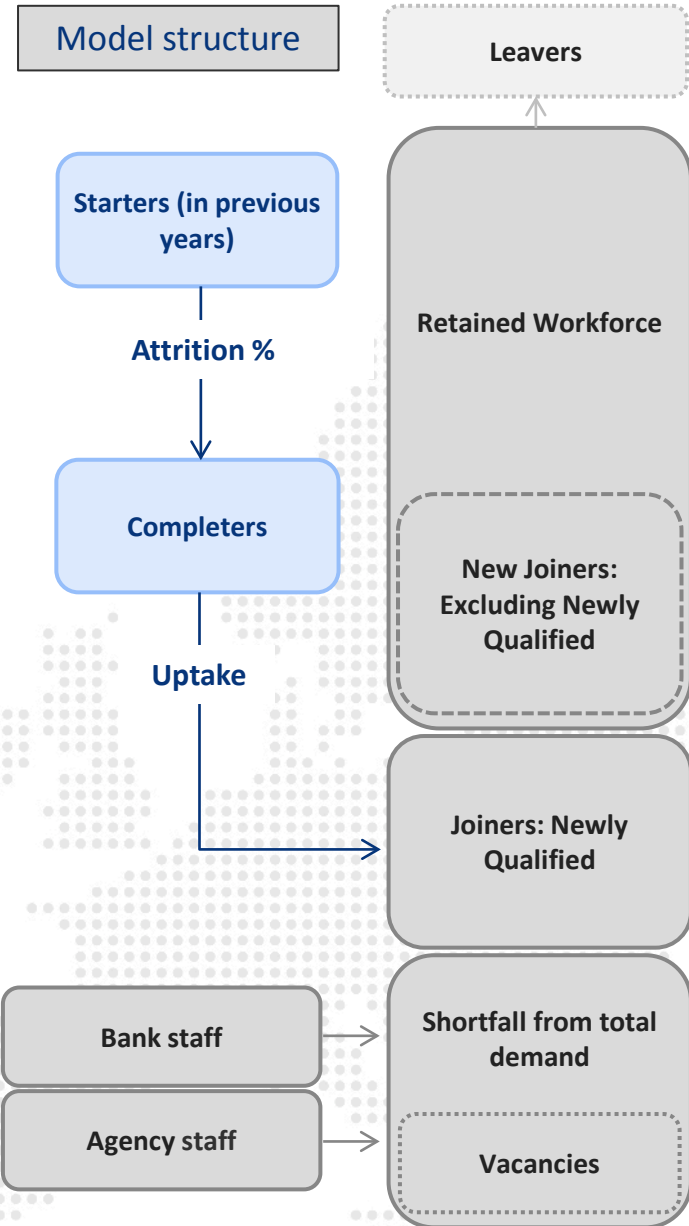
- Historic and future commissions
- New joiners (Excluding newly qualified staff)
- Retained NHS staff (and staff leavers)
- Workforce uptake
- In-course attrition
- Bank and Agency usage

**2) Costs associated with these workforce elements (2016 to 2025) including.....**

- Education costs (including salary support)
- Staffing costs
- Recruitment and retention costs

Main data sources: Investment plans, ESR data, eWorkforce data, NHSI submissions, National Finance Model.

Other information sources: Royal College of Nursing, National Nursing Research Unit, McKinsey & Co., Liaison, Migration Advisory Committee.



# STP/Local Office Model

## *Illustrative scenarios considered*

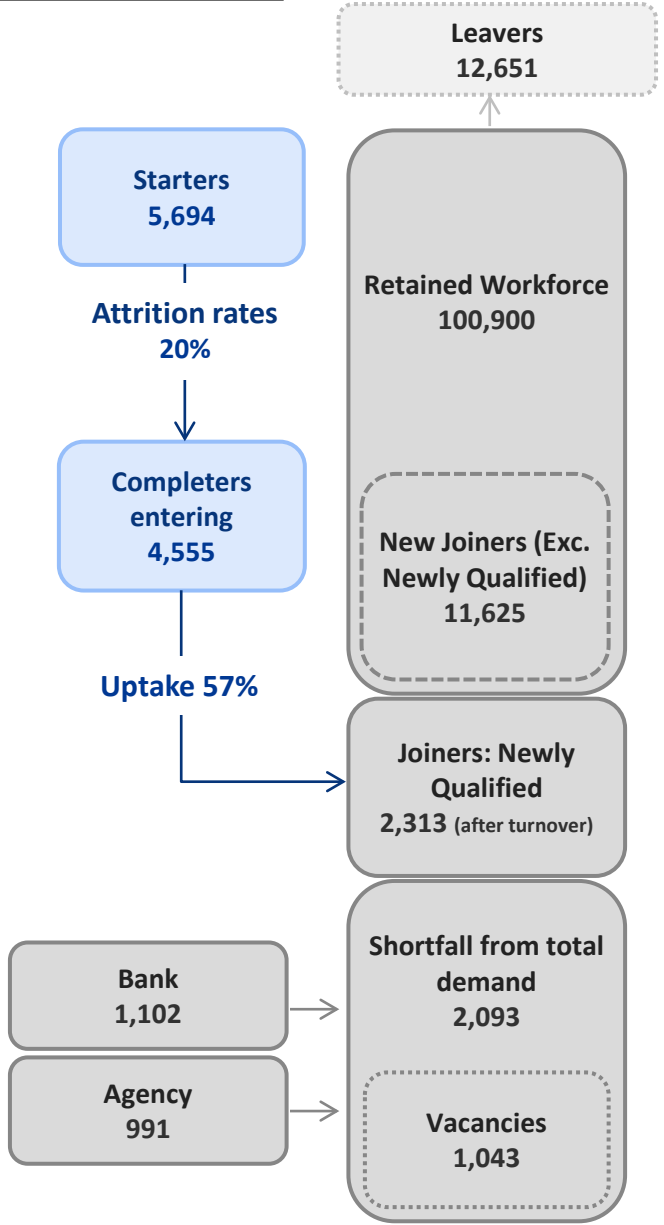
### Five independent scenarios modelled

- Increase the number of commissions by 25 per annum
- 4 percentage point reduction of in-course attrition rates
- 1 percentage point reduction of workforce turnover rate
- 1 year '*managed rotation*' – all newly qualified nurses remain in NWL for 1 year
- Reduce use of agency staff by half

# Baseline scenario – Adult nursing (2016/17 – 2025/26)



## Summary WTE



## Summary costs

	Cost (£m)
	<b>Baseline</b>
<b>Education Commissions*†</b>	<b>£268.9</b>
<b>Substantive NHS workforce</b>	<b>£4,381.6</b>
<i>Retained workforce</i>	<i>£3,856.0</i>
<i>New Joiners: Excluding Newly Qualified</i>	<i>£444.5</i>
<i>New Joiners: Newly Qualified</i>	<i>£81.1</i>
<b>Shortfall from total demand</b>	<b>£96.3</b>
<i>Bank staff</i>	<i>£41.8</i>
<i>Agency staff</i>	<i>£54.5</i>
<b>Recruitment &amp; retention costs</b>	<b>£49.9</b>
<b>Total</b>	<b>£4,796.7</b>

\*This excludes commissioning costs of £46.7m between 2012/12 and 2015/16 that have already been incurred in order to generate Newly Qualified Joiners in 2016/17.  
 †The 2015 Comprehensive Spending Review suggests that students will move on to the standard student support system from September 2017. Under this scenario and assuming no change in demand for places, HEE will bear a lower cost of commissioning than that presented here (by £100.1 million), as students/graduates and HMT will both contribute towards tuition fees costs. Assuming a RAB charge of 45.1%, the cost to students/graduates will be £45.2m compared to £55.0m for HMT (corresponding to a reduction in costs of £100.1m for HEE). Note: Differences in total costs and sum of individual components is due to rounding

### Observations

1. The total cost of education commissions stands at **£268.9m**, or **£47,200** per starter (i.e. pre attrition and uptake) or **£103,500** per completer entering the profession.
2. The total salary bill for substantive staff stands at **£4.38bn** compared to **£0.042bn** for Bank Staff and **£0.055bn** for Agency staff.

# Summary of scenarios

- In order of potential savings

Scenario	Education commissions	Core NHS workforce	Bank/Agency staff	Recruitment & retention	Total
Baseline	£268.9m	£4,381.6m	£96.3m	£49.9m	<b>£4,796.7m</b>
3. Reduce the turnover rate by one percentage point	-	<b>+£19.5m</b>	<b>-£33.4m</b>	<b>-£1.6m</b>	<b>-£15.5m</b>
4. Retain newly qualified staff for one extra year	-	<b>-£1.7m</b>	<b>-£9.5m</b>	<b>-£0.3m</b>	<b>-£11.5m</b>
5. Replace half Agency staff with Bank staff	-	-	<b>-£8.4m</b>	-	<b>-£8.4m</b>
2. Reduce the in-course attrition rate on 3-year courses (20% to 16%)	<b>+£5.0m</b>	<b>-£0.4m</b>	<b>-£0.4m</b>	<b>-£0.1m</b>	<b>+£4.2m</b>
1. Increase the number of education commissions by 25 in each year	<b>+£8.7m</b>	<b>-£0.3m</b>	<b>-£0.8m</b>	<b>-£0.1m</b>	<b>+£7.5m</b>

Note: Differences in total costs and sum of individual components is due to rounding



# Trust Level Model (Nursing)

1. The model would support consideration of the potential costs and benefits of various retention policies – a **'retention tool'** for use within Trusts.
  
2. This would include:
  - the **number, composition** and **associated costs of qualified nurses** in the Trust
  
  - the **incidence** and **costs of Agency staff** to fill any shortfall from total demand
  
  - the **cost** and **potential benefits** of various **options aimed at reducing staff turnover**
  
3. **Hypothetical retention policies** for the following areas can be **designed** and analysed – this shows how this can be applied locally:
  - Travel
  - Housing
  - Student debt
  - Pay
  - Childcare



# Trust Level Economic retention tool



- The economic retention tool models:
  - The **composition of the workforce** in 8 nursing and midwifery professions; and,
  - The **associated costs** with the different elements of the workforce

- The tool can be adapted to estimate the monetary impact of a reduced staff turnover rate



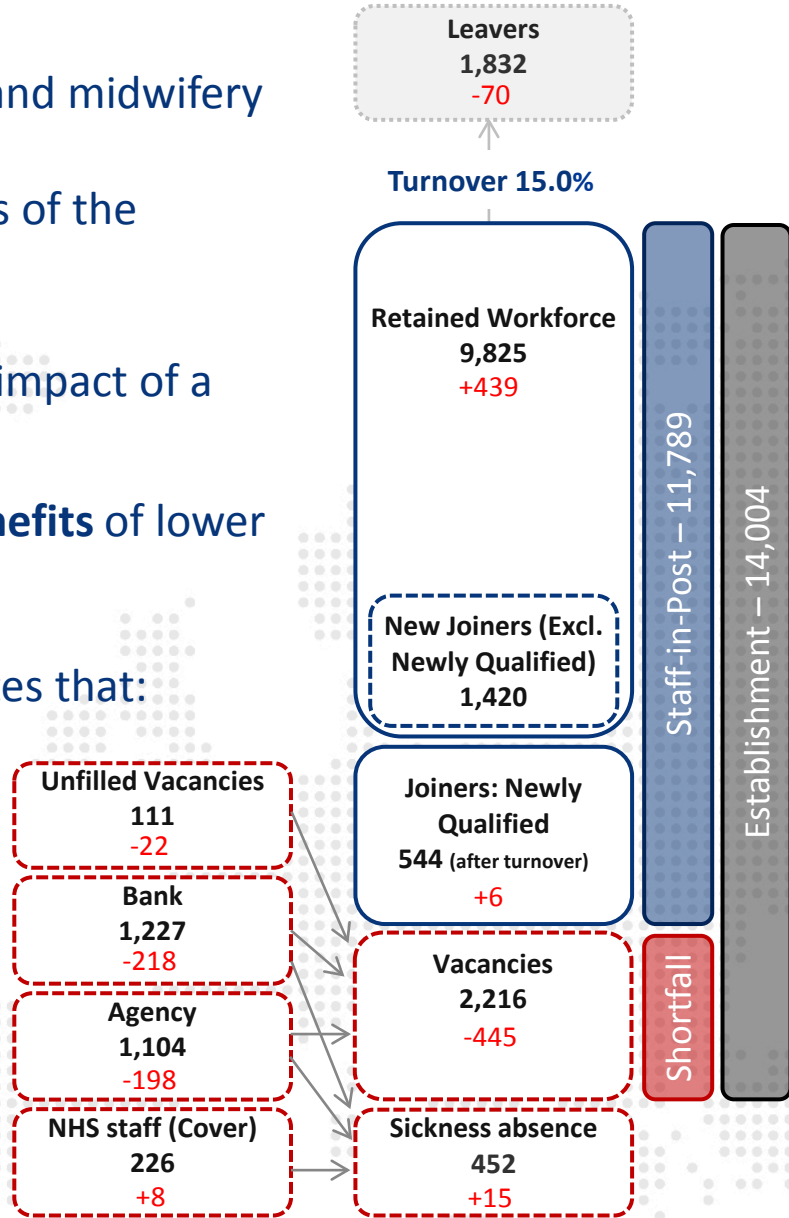
This provides an estimate of the **economic benefits** of lower reliance on Bank and Agency staff

- Using dummy data for a NHS Trust, the tool estimates that:

1 percentage point **reduction** in the turnover rate (over 10 Years)



**£2.3m cost savings** over 10 years in Adult Nursing across all pay bands and divisions



# Quantifying the impact of retention policies

- It is inherently difficult to quantify the impact of retention policies on the underlying turnover rate
- **An extensive literature search** was performed to gather relevant evidence from **survey analyses** and **impact assessments** relating to nursing retention policies

- Using survey data from 1997 to 2012, an **Institute of Fiscal Studies** study (2015) found that:

For every **10%** increase in pay for nurses in NHS positions in London



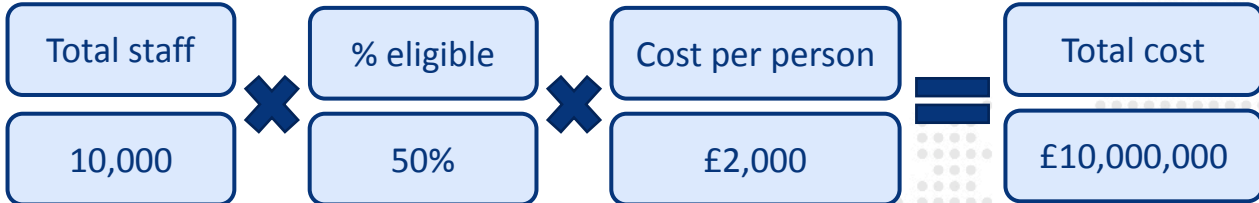
The short-run supply of nurses in NHS positions in London increased by **7%**



- This is compared to a 0.6-0.7% increase in other UK regions, i.e. the elasticity is **heterogeneous**
- In economic terms, the **short-run price elasticity of supply of NHS nurses in London is 0.7**
- An increase in supply can be modelled as a reduction in the turnover rate in the economic retention tool
- Therefore, by calculating the **pay-equivalent uplift** associated with any retention policy, the impact on the staff turnover rate can be estimated
- This allows us to provide an indication of the costs and benefits associated with different retention policies

# Worked example

- Suppose a NHS Trust is considering to offer a **travel subsidy** to all staff that use public transport to get to work
  - Assume 50% of staff use public transport to get to work (and there is no induced effect)
- If there are 10,000 staff in the substantive workforce, 5,000 will use public transport
- The cost of the travel subsidy is equal to £2,000 per person
- Therefore the total cost of the retention policy is:



- The average annual salary for the staff covered by the policy is **£25,000** per annum
- The travel subsidy may be viewed as a pay increase of **8%** (£2,000 divided by £25,000)
- Therefore, the turnover rate will fall by:



# Retention policies modelled

## Travel

- Nurses using public transport to travel to work are offered a free travelcard
- LFS analysis suggests that 50% of nurses working in London use public transport to travel to work (consistent with ONS analysis of 2011 Census)
- A 100% take-up is assumed for all eligible nurses

## Housing

- Council tax payment and utility bills (electricity, gas and water) are paid by the Trust for all nurses
- Family Spending Survey (ONS, 2014) suggests that average council tax payments in London are £634 per adult per year and £883 per adult per year for utility bills
- A 100% take-up is assumed for all eligible nurses

## Student debt

- Student loan repayments are paid by the Trust for all Newly Qualified staff
- Repayment of 9% on additional income above £21,000
- A 100% take-up is assumed

## Pay

- A pay increase of 2.5% is offered to all NHS staff
- A 100% take-up is assumed

## Childcare

- Nurses with up to 5 dependent children are offered childcare support
- LFS analysis suggests that 44.4% of nurses working in London have at least one dependent child aged 14 or under
- The median cost of childcare by age is taken from the Childcare and early years survey of parents 2014-15 (Department of Education)
- A weighted average cost of childcare is calculated using a uniform distribution across age
- A 100% take-up is assumed for all eligible nurses

# Summary

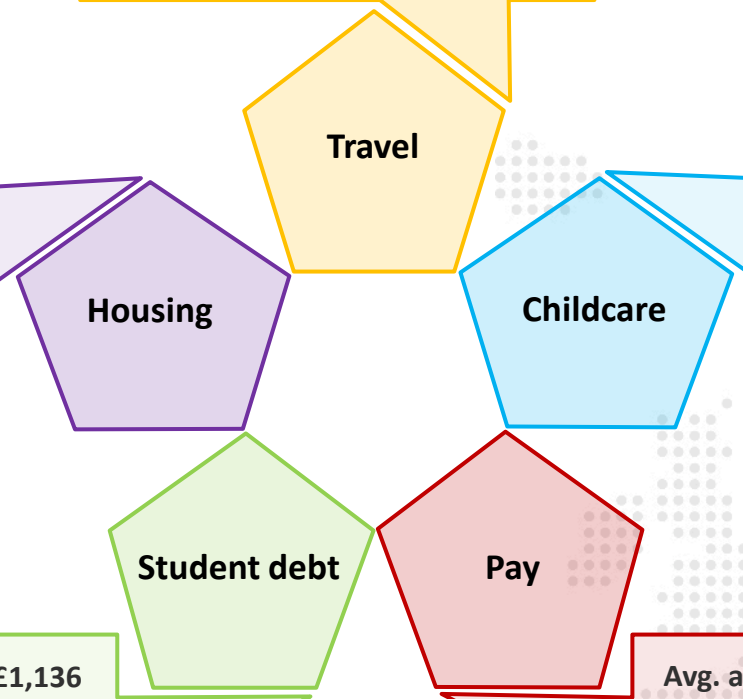


Note: Reported total costs and benefits are aggregated over a 10 year period. The reported average annual cost per staff are for those covered.

Avg. annual cost per staff	£2,318
Coverage	50%
Reduction in turnover (pp)	-2.37
Total cost (£m)	-£5.8
Total benefit (£m)	£1.4
Net savings/costs (£m)	-£4.4

Avg. annual cost per staff	£1,650
Coverage	100%
Reduction in turnover (pp)	-3.37
Total cost (£m)	-£8.5
Total benefit (£m)	£2.0
Net savings/costs (£m)	-£6.5

Avg. annual cost per staff	£4,863
Coverage	44.4%
Reduction in turnover (pp)	-4.40
Total cost (£m)	-£11.4
Total benefit (£m)	£2.7
Net savings/costs (£m)	-£8.7



Avg. annual cost per staff	£1,136
Coverage	100%
Reduction in turnover (pp)	-2.29
Total cost (£m)	-£1.3
Total benefit (£m)	£0.5
Net savings/costs (£m)	-£0.8

Avg. annual cost per staff	£836
Coverage	100%
Reduction in turnover (pp)	-1.70
Total cost (£m)	-£4.2
Total benefit (£m)	£1.0
Net savings/costs (£m)	-£3.1

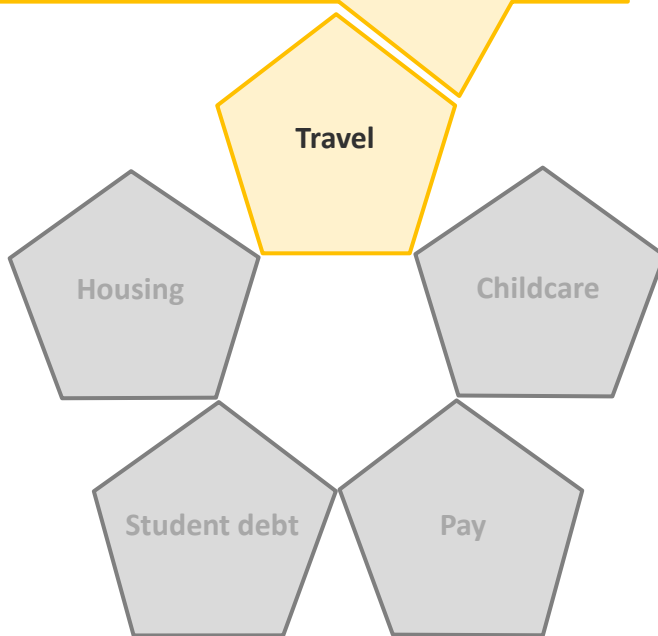


# Targeted retention policies

- So far, the analysis has assumed that the elasticity of supply is homogeneous – that is, all nurses respond to changes in pay in the same way
- In reality, the elasticity of supply is **heterogeneous** – e.g. it could be +0.2 for some group of nurses and +3.0 for others, such that the average is +0.7)
- Therefore, to maximise the policy impact, retention policies that **effectively target** particular groups of staff will be more beneficial as they **reduce the deadweight loss** that is associated with staff who would have remained independent of the of the policy change
- On the following slides, two examples are provided showing the potential benefit of a targeted retention policy

# Targeted retention policy: Example 1

	Zones 5 and 6	Zone 6 only
Avg. annual cost per staff	£475	£548
Coverage	35%	20%
Reduction in turnover (pp)	-1.10	-1.05
Total cost (£m)	-£0.8	-£0.5
Total benefit (£m)	£0.6	£0.6
Net savings/costs (£m)	-£0.2	£0.1



**Travel:** If we knew that elasticity among nurses using public transport was heterogeneous, e.g.

Travel card	Annual cost	Elasticity	% of staff using public transport
Zones 1-6	£2,364	3.2	20%
Zones 1-5	£2,208	0.3	15%
Zones 1-4	£1,860	0.0	10%
Zones 1-3	£1,520	0.0	5%

→ A retention policy subsidising travelcard costs above the annual cost of a Zones 1-4 travelcard for nurses travelling from Zones 5 or 6 is associated with a net cost of £0.2m

→ However, a retention policy **specifically targeting those travelling in from Zone 6 only** is associated with net savings of £0.1m



# Next steps

- Local offices now using the STP model across HEE areas
- Conclusion of the pilot work on the trust model (few bespoke projects)
- Development of the local model for medical (Clinical radiology, emergency medicine, obstetrics, paediatrics, trauma and orthopaedics)
- Linking up with other key work on retention and bank and agency
- Opportunities to join up across North West London