

# Economic Analysis of Digital Health Infrastructure: The Case of Oneondon's Impact on Time Efficiency and Safety in Healthcare Services

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## HIGHLIGHTS

- 1. Cost Savings:** London Care Record use saved minimum of £374,143 monthly by January 2023, reflecting increased access & time efficiency.
- 2. Improved Safety:** Sites using the system reported 15% fewer safety incidents, suggesting enhanced safety.
- 3. Scalable Impact:** With access growing to 1.3 million monthly, cumulative time-based savings reached nearly £44.5 million since launch.

## Background

- Almost 10 million population
- 5 Integrated Care Systems
- 40+ NHS Trusts, 1,400 general practices, 33 local authorities
- About 30% of Londoners receive care in an ICS that is not their 'home ICS'
- 4 of 5 of London ICSs have at least one NHS Trust where under 50% of their patients are from that same ICS.
- The specific aims of the evaluation were:
  - To model London Care Record (OneLondon) utilisation metrics mapped to improved safety and care outcomes
  - To estimate the costs of changes to safety and time consequences of OneLondon users
  - To model the potential downstream consequences of OneLondon on morbidity

## Methods

- An economic model was created using NHS Staff pay estimates to quantify time-based cost savings related to London Care Record utilisation metrics in January 2022 and January 2023.
- We assume NHS accesses 71.4% / GP Practice accesses 28.6%. And apply NHS National Workforce Statistics and General Practice Workforce data (January 2022), with a preference for professionally qualified clinical staff groups in the base case., alongside NHS staff pay estimates (January 2022), and GP Practice Contractor & Salaried GP data (2022).
- On-costs: National Insurance, Pension Contributions and London Weighting were applied.
- Time assumptions were informed by published literature, comparing time savings relative to historical resource utilisation methods.
- Base case estimates assumed a minimum time saving of 0.5 minutes per system access, with the potential for up to 20 minutes of saved time in complex cases.
- Three alternative scenarios were modelled to account for different levels of time saving, including potential net time loss due to training deficit or user errors.
- Secondary analyses compared relative risk for reported incidents in OneLondon sites versus non-OneLondon sites were compared from existing national level safety reports to assess for potential mortality or morbidity changes linked to the London Care Record.

## Results

London Care Record Accesses	January 2022	January 2023	Cumulative Accesses Since March 2020	Average £ saved /Access	Cumulative Total Hours Saved
Number	839,996	1,297,786	27,559,911		
Net Time Change (mins)	Average (£) saved				
+ 0.5 <sup>18</sup>	242,166	374,143	7,945,347	0.29	229,666
+ 1.4 <sup>19</sup>	678,063	1,047,602	22,246,972	0.81	459,332
Mixed Scenario 1*	1,356,127	2,095,203	44,493,944	1.61	1,286,129
Mixed Scenario 2**	1,174,503	1,814,596	38,534,934	1.40	1,113,880
Mixed Scenario 3***	1,259,261	1,945,546	41,315,806	1.50	1,194,263

\*Scenario 1 = 75% of system accesses save 1 min, 10% save 3 min and 5% each save 5,10,20 mins respectively (av = 2.8mins). \*\* Scenario 2 = 75% of system accesses save 0.5 mins, 10% save 3 min and 5% each save 5,10,20 mins respectively (av = 2.4mins). \*\*\*Scenario 3 = 10% lose 1 min and 65% of system accesses save 1 min, 10% save 3 min and 5% each save 5,10,20 mins respectively (av = 2.6mins).

- Minimum potential time-based cost-saving equivalent of £242,166 (January 2022) and rising to £374,143 (January 2023) per month. Average cost saved per system access range from £0.29- £1.61
- Cumulative savings since system launch, stemming from ~27 million accesses, were estimated at up to £44,493,944.
- Est. time-saving equivalent increased from 80.9 FTE staff in January 2022 to 124.9 FTE staff in January 2023.



A comparative analysis between OneLondon Sites and Other Sites is conducted on incident categories.



Findings show variations in incident reporting and relative risks, suggesting differences in safety outcomes.



Study highlights the potential for safety benefits and relative risk reduction associated with OneLondon.



The limitations and potential confounding factors in safety reporting are acknowledged.



Suggestions are made for future research to enhance the accuracy and validity of safety findings.

## Implications

Estimated monthly savings potentially up to ~£1.9m compared to base case

Since its Launch, OneLondon is estimated to have saved time equivalent to ~£44 million

FTE staff release may be up to approx. 840,920 minutes / 80.9 FTE staff

The average time-based saving per system access ranges from £0.29 - £1.61

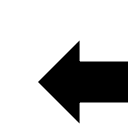
Overall, the OneLondon initiative presents significant economic benefits by improving efficiency, reducing costs, and enhancing patient safety in the healthcare system.

The study highlights the need for more research on outcome metrics for safety and mortality.

Estimated relative risk reduction associated with OneLondon's impact on incident reporting

Type of Incident Reported	Sample Size	Total No of incidents	Average No. incidents In Intervention Sites	Std Dev	Confidence Interval	Sample Size	Total No of incidents	Average No. incidents In Other Sites	Std Dev	Confidence Interval	Relative Risk
One London Sites						Other Sites					
Organisational Totals	36	31,357	871.03	414.20	290.34 ± 135.19	177	180,522	1019.90	493.79	340.52 ± 72.72	0.85
Deaths	36	83	2.31	1.40	0.39 ± 0.58	177	470	2.66	1.67	0.44 ± 0.12	0.89
Severe	36	71	1.97	1.12	0.33 ± 0.47	177	630	3.56	2.53	0.60 ± 0.18	0.55
Moderate	36	1,146	31.82	20.74	5.30 ± 7.63	177	5,487	31.00	17.93	5.19 ± 3.14	1.02
Low	36	6,725	186.79	92.46	31.13 ± 43.32	177	48,323	273.01	138.24	45.58 ± 27.04	0.68
No Harm	36	23,332	648.12	317.27	108.02 ± 148.03	177	125,611	709.66	356.02	118.45 ± 66.77	0.91

Note: Using the NHS England - Number of patient safety incidents uploaded per month by provider in England Apr 2022 to Mar 2023, stratified those trusts participating in the OneLondon v/s those who were not. Data were tallied by type of incident and then relative risk values, standard deviation and confidence intervals calculated. Relative Risk was calculated to indicate the ratio of the average incidents reported in OneLondon sites compared to other sites for each type of incident. A value less than 1 indicates a lower risk in OneLondon sites, while a value greater than 1 indicates a higher risk in OneLondon sites.



FULL REPORT RESULTS HERE



LONDON CARE RECORD



QUEEN'S UNIVERSITY BELFAST