Health Innovation Yorkshire & Humber

Transforming Lives Through Innovation

A Rapid Influenza Test-And-Treat Community Pathway

Fighting Flu, Curbing Antimicrobial Resistance (AMR), and Easing Winter Pressures

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INFLUENZA TEST AND TREAT COMMUNITY PATHWAY

A rapid 'test and treat' influenza (flu) community pathway incorporating a rapid diagnostic point of care test (POCT) was found to enhance clinical decision-making and thus reduce unnecessary antibiotic use and enable timely antiviral treatment to decrease the impact of infectious diseases and antimicrobial resistance.

This collaborative working project between Health Innovation Yorkshire & Humber, Roche Diagnostics Ltd, and Roche Products Ltd directly supports government ambitions introduced by Lord Darzi [1] and UK Health Secretary Wes Streeting [2] to introduce technology and shift towards proactive care in the community via the early detection of disease to reduce the burden of illness.

SYSTEM NEED

Influenza, or flu, is a common respiratory illness that affects many people annually. While most recover without medical care, it can cause severe complications, especially in older adults and high-risk groups. Severe cases can lead to hospitalisations and significantly impact healthcare resources. For instance, flu-related illnesses can occupy approximately 5,400 hospital beds daily and consume over 100,000 bed days in a single month [3,4], This burden is highest in colder months when influenza is more prevalent, making it a major contributor to NHS "winter pressures" [5] (Figure 1).

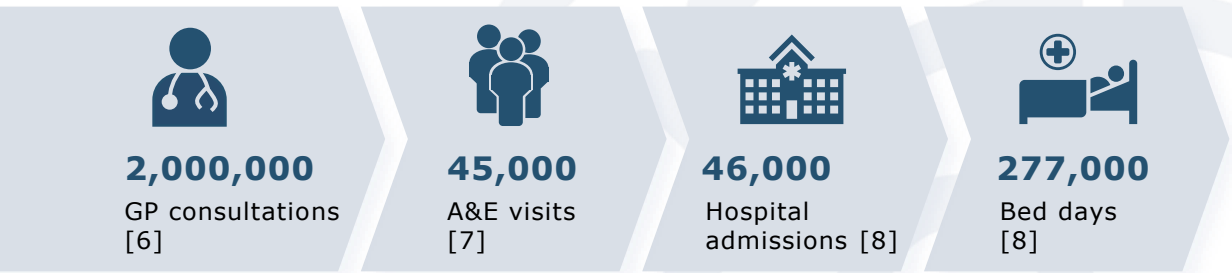

Figure 1: Influenza impacts across the healthcare system with cases peaking during colder months, making it a major contributor to NHS winter pressures. Data was collected from a 12-month period in the 2022/23 reporting year.

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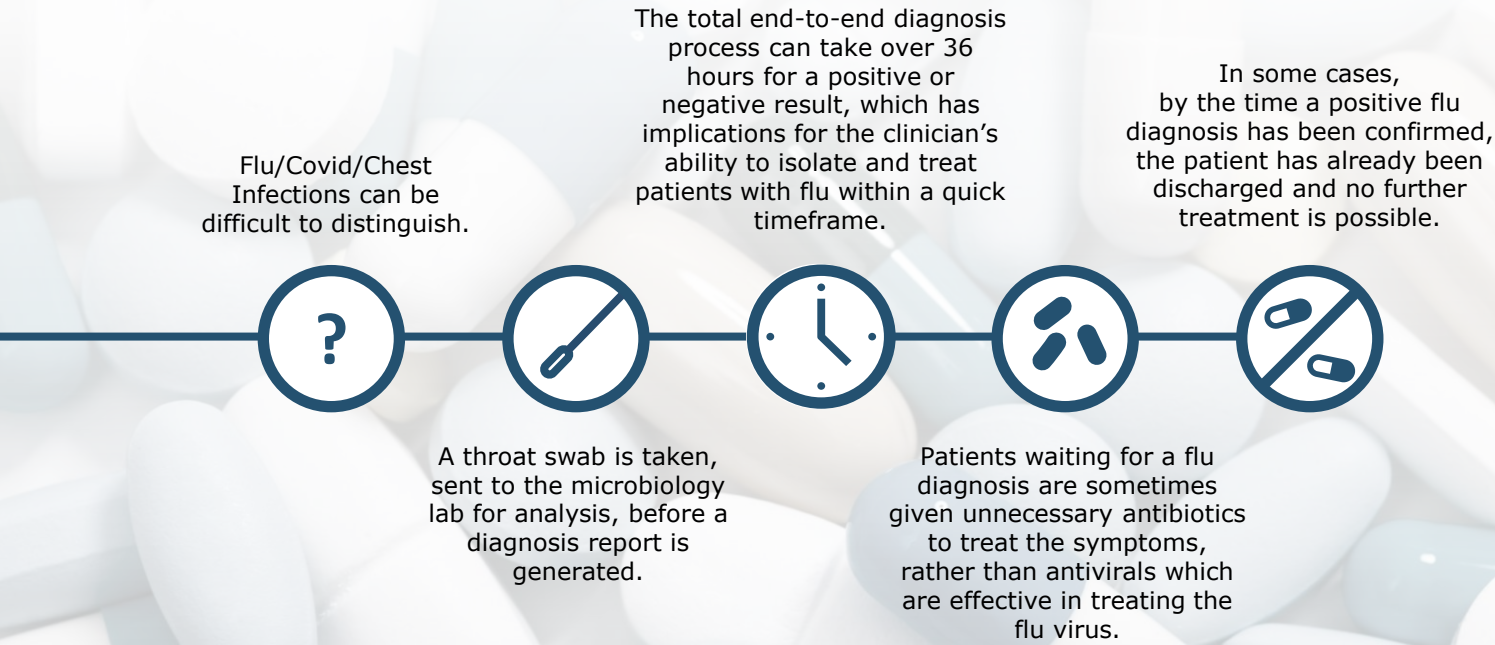
SYSTEM CHALLENGES

Early identification and treatment of flu can help reduce visits to Accidents and Emergencies (A&E) departments and hospital admissions. However, diagnosing flu in community settings is challenging, as its symptoms overlap with COVID-19 and chest infections (figure 2). Distinguishing between these illnesses can therefore be difficult without additional testing [9,10]. This testing often relies on lab-based throat swabs, but results can take several days so preventing timely antiviral treatment [9,10]. While waiting, patients may receive unnecessary antibiotics [11], contributing to AMR [9,10]. Diagnosis delays also hinder infection control in hospitals and care homes, limiting timely isolation measures [12] and hindering patient flow, for instance delaying transfers from hospital back to care homes which places further strain on healthcare resources.

Figure 2: Early diagnosis and treatment can ease illness, but lab swab results often arrive too late for timely antiviral use. Antivirals must be taken within 48 hours, but delayed test results often cause this window to be missed [10].



Therefore, there is an unmet need to implement POCT that delivers rapid results, enabling clinicians to make more informed and confident diagnostic decisions. This would help ensure the best treatment is provided for each patient, potentially reducing the occurrence of deterioration, ED visits and hospitalisation.

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THE TEST AND TREAT PATHWAY SOLUTION

This presented an opportunity to introduce innovation into a community setting to support early diagnostic and treatment decisions (Figures 3 and 4). This initiative aimed to determine whether fast, community-based diagnosis and treatment pathways that incorporated a POCT could help health care professionals make informed clinical decisions and provide appropriate treatment, potentially reducing deterioration and ease pressure on the health and care system.

At request of the anti-microbial resistance (AMR) steering group at NHS West Yorkshire Integrated Care Board, Health Innovation Yorkshire & Humber initiated the development and evaluation of a 'test and treat' influenza community pathway between January and April 2024. This service evaluation was delivered across 21 sites in Yorkshire, comprising care homes, GP settings and community hospital wards (including dementia, learning disabilities, and older people services).

Figure 3: Example of the test and treat pathway developed for the care homes where treatment could be reduced from over 72 hours to under 24 hours, thus allowing for the prescribing of antivirals in appropriate cases.

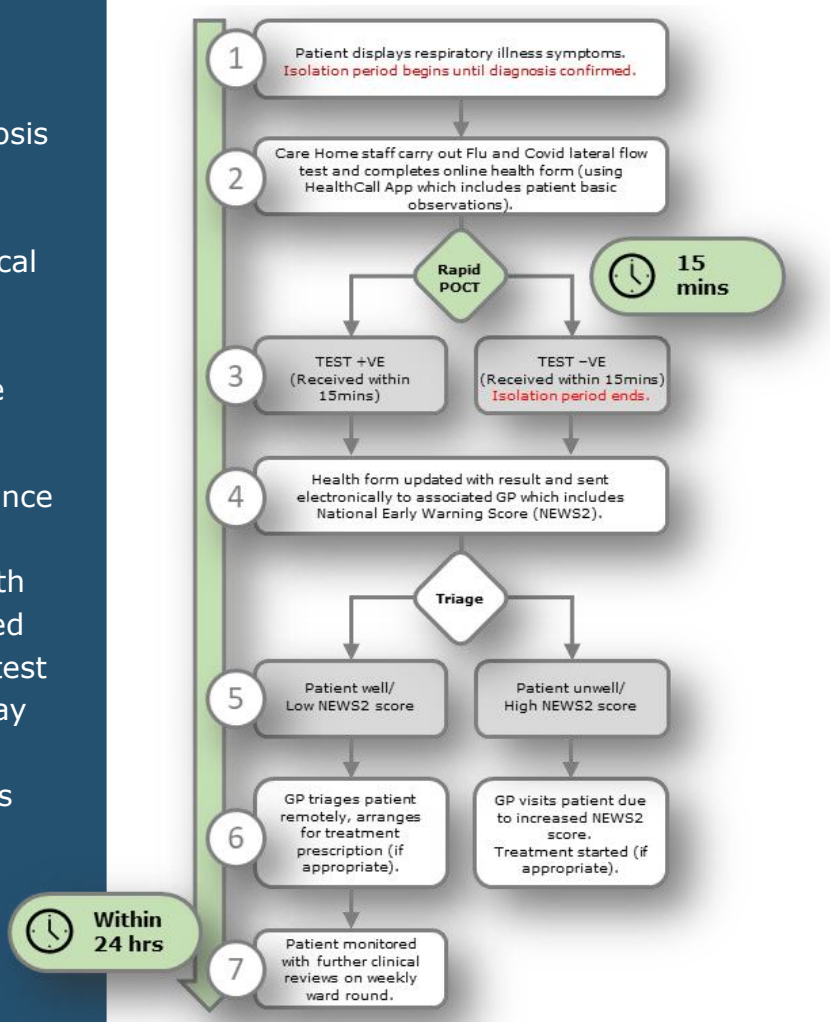

Figure 4: Features and benefits of the test and treat pathway.

Early and accurate diagnosis

Rapid results from POCTs support clinicians to make faster, more confident decisions, and enhance communication with patients.

Timely and appropriate treatment

Enabling clinicians to prescribe antiviral medication within the optimal time window helps prevent disease progression, reducing A&E visits, hospital admissions, and alleviating winter pressures.

Distinguishing between viral and bacterial infections also helps reduce unnecessary antibiotic use.

Infection control

This approach strengthens infection control, preventing flu outbreaks that can force care home closures. This, in turn, maintains patient flow, reducing bed days lost to delayed hospital discharges. Freeing up beds may also reduce the number of patients left waiting in ambulances for treatment in hospital.

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SUPPORTING NATIONAL AND LOCAL PRIORITIES

From a local perspective this project matched one of the "10 big ambitions" of the NHS West Yorkshire Integrated Care Board [13] for improving infection control and the earlier diagnosis of ill health to reduce antimicrobial resistant infections.

It further supports the ambitions of NHS England and the UKHSA for early detection, accurate diagnosis and improved decision-making, to reduce the impact of infectious diseases and antimicrobial resistance [14,15].

This project was also in direct alignment with the report from Prof Lord Darzi [1] which highlighted the benefits that a tilt towards technology and a shift towards more proactive care in the community could unlock productivity within the NHS. It also aligns with two of the three "big shifts" expressed by the UK Health Secretary Wes Streeting [2]. Firstly, it matches the shift "from hospital to community" since the diagnosis and treatment is delivered in the community setting (Figure 5). Moreover, since the flu test and treat pathway reduces the burden of illness subsequently placed on secondary care. Secondly, this pathway focuses on detecting and treating the disease early and thus shorten the amount of time people spend in ill health, which matches the move "from sickness to prevention".

Figure 5: Alignment With The 3 Shifts in Healthcare.

DELIVERY THROUGH PARTNERSHIP

Together with NHS West Yorkshire Integrated Care Board, Health Innovation Yorkshire & Humber forged a dynamic multi-organisational team that combined resources and expertise to accelerate project delivery.

This included West Yorkshire community services, regional infection prevention and control (IPC) teams, and implementation sites including South West Yorkshire Patient Foundation Trust (SWYPFT), the Mount at Leeds & York Health and Care Partnership, Recovery Hubs and alliance beds at Leeds Community Healthcare, and the GP practices of Oaklands Health Centre, Slaithwaite Health Centre, Roche Diagnostics Ltd, and Roche Products Ltd, York Health Economics Consortium (YHEC) and Health Call Solutions were also commissioned to provide independent evaluation and digital technology solutions respectively.

This wide project team co-created innovative test and treat community pathways for flu in care home, community hospital wards and GP settings. The service evaluation used a lateral flow type of POCT for diagnosing Flu A/B and SARS-CoV-2, which was preferred by all sites over a benchtop analyser due to its ease of deployment.

IMPACT ON PATIENTS AND CLINICAL SYSTEM

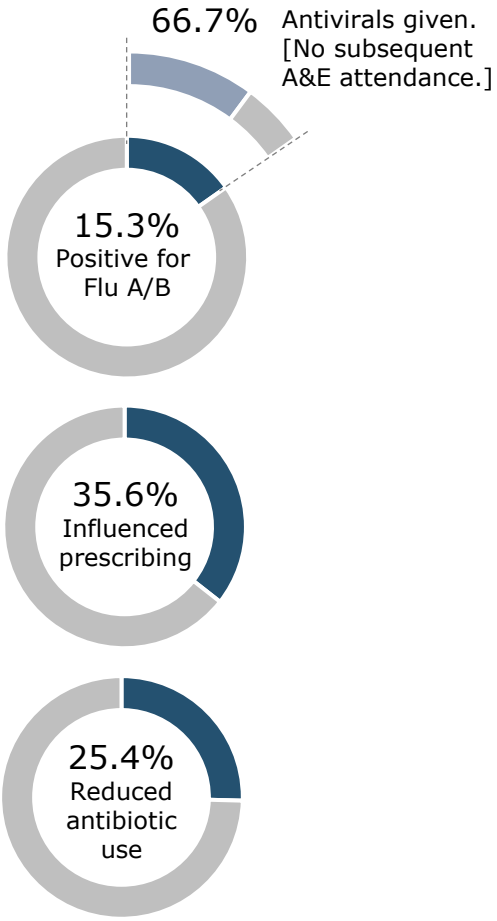
A total of 59 people, aged 65+ or clinically 'high-risk' as defined by the UK HSA were tested [16]. Data on symptoms, test results, and prescriptions were collected at initial consultation [17]. Follow-up data was gathered 30 days later to assess the influence on the prescribing decision and whether subsequent A&E attendance or hospital admission was required. Key findings include (Figure 6):

- **9 people (15.3%)** tested positive for flu A/B and **22 (37.3%)** for SARS CoV 2.
- **6 of the 9 flu-positive cases (66.7%)** were prescribed antivirals and **1 (11.1%)** was prescribed antibiotics. Of these 9, 4 had also been vaccinated for flu.
- The rapid diagnostic test **altered prescribing decisions in 21 of the 59 cases (35.6%),** had no impact in 8 cases (13.8%), and its effect was unclear in 30 cases (50.8%).
- There was a potential **25.4% reduction in the unnecessary prescribing of antibiotics** (15/59 cases): Among the 21 cases where decisions changed, 4 patients were prescribed antibiotics, while 15 were not, and it was unknown for 2 cases.
- **Zero patients attended A&E** within 30 days due to flu symptoms.

These encouraging results suggest an increased number of people received antiviral treatment compared to values previously reported the literature, which can average 19% and rise to 35% of cases when there is access to testing [18-21]. The outcomes also suggest the pathways could help avoid hospitalisations.

> We've had quite low numbers of flu cases this year, but for those patients who are vulnerable, it just means that we can kind of nip it in the bud sooner rather than later and avoid any unnecessary secondary care admissions."
>
> Health care professional

Figure 6: The test and treat pathway influenced prescribing decision-making and thus helped reduce unnecessary antibiotic use and enabled timely antiviral treatment.



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STAFF SURVEY

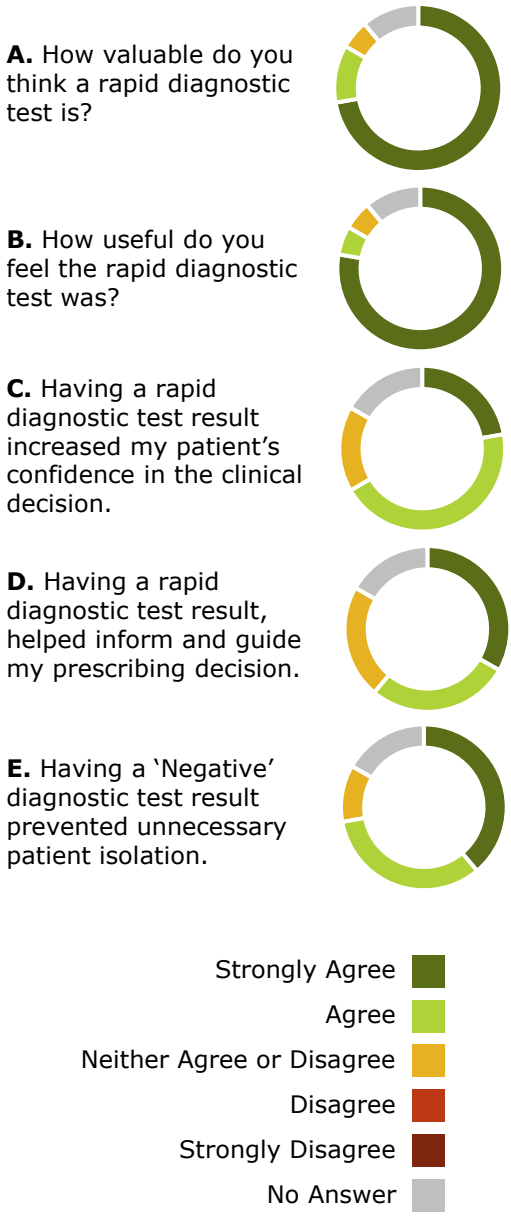
We also provided qualitative data collection and analysis expertise via anonymous survey and structured interviews, to capture workforce experiences across all implementation sites. The survey received an overwhelmingly positive response, including (Figure 7) [17]:

- **100% of surveyed staff** indicated the benefit of having the test, with 78% rating its usefulness as 5 out of 5.
- 61% of responses were positive to whether it **helped guide the prescribing decision** and 66% indicated that it **increased the patient's confidence** in the decision.
- 72% of responses were positive for it **preventing unnecessary patient isolation**.

Although some responses in the survey were neutral or abstained, notably, none were negative. Further detail on the pathway design, evaluation approach and impact can be found in the HI Yorkshire & Humber reports [22,23].

The above responses aligned with a thematic analysis of the interviews that highlighted many benefits including communication and information sharing, improvements in patient care, ease of use and confidence in the results. A central finding that emerged from the survey and interview responses was the perceived positive impact of the tests on clinical decision-making and patient care.

Figure 7: Results of the staff survey.



> We've had quite low numbers of flu cases this year, but for "I think because of the complexities with the patients, a lot of them have mental health conditions. If you put them in the room and you take a swab and then it's, you know, we're going to have to wait two or three days for it to come back, I think it's very difficult to keep someone isolated. But because they [results] showed within half an hour, it was certainly helpful [to encourage patients to follow guidance]."
>
> Health care professional

FINANCIAL SAVINGS

The independent analysis by YHEC indicated that the test and treat pathway can create cost saving benefits and health benefits [17].

The model was run on a population of 100,000 over a 12 month period, with an average prevalence for flu of 4% which was the level experienced during 2023/24 when this evaluation was run. The benefits of Introducing the pathway were predicted as a:

- **96% reduction in hospitalisations** from 77 to 3. Where an estimated 5/77 would require ICU with the rest occupying a bed in a general ward.
- **94% reduction in the number of deaths** from 49 to 3 (Figure 8).

The model also predicted the following financial savings associated with implementing the pathway with a LFT POCT costing £10, compared to a pathway having no testing:

- **91% cost reduction per person in care home and ward settings** going through the pathway, saving approximately £1003, in both settings (Figure 9). These saving could be accrued by the intervention minimising isolation costs and treatment costs in secondary care.
- **64% cost saving in the GP walk-in patient setting**, saving approximately £34 per patient.

The model allows for different parameters to be changed, such as population sizes, flu prevalence and POCTs, to estimate potential savings for specific regions, with different severity of a given flu season and the introduction of different tests.

Figure 8: The budget impact model by YHEC predicted patient and system benefits over a 12 month period based on a population of 100,000 and an average prevalence of flu of 4%. The results indicated similar reductions in hospitalisations and deaths for each of the three pathways: Care homes, Ward based areas and GP Walk-in patients.

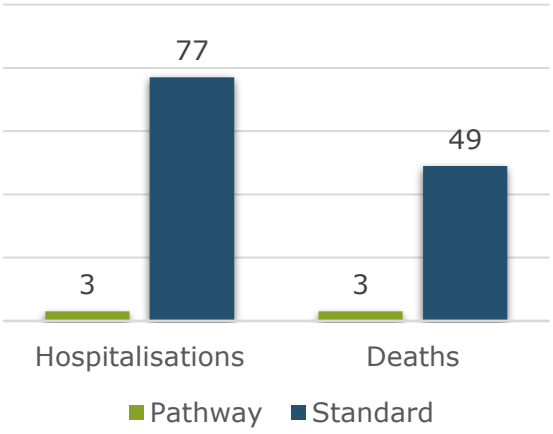
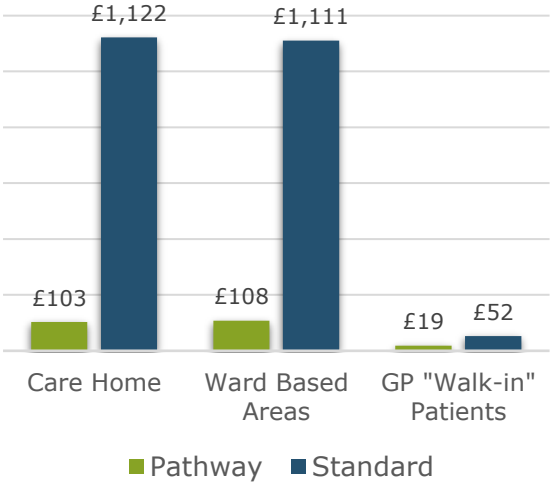


Figure 9: The budget impact model by YHEC predicted financial benefits per person in each of the three settings where the pathway was implemented.



CONCLUSIONS

The evaluation concluded that the use of the pathway in conjunction with rapid diagnostic point of care testing (POCT) was found to:

- shift diagnosis and treatment into the community;
- enhance clinical decision-making;
- increase the patient's confidence in the decision;
- reduce unnecessary antibiotic use and enable timely antiviral treatment to decrease the impact of infectious diseases and antimicrobial resistance;
- support people to remain out of hospital;
- be easily adaptable across a range of different community health settings.

These positive outcomes and lessons learned are driving the spread of the flu test and treat pathway. A range of reports and the budget impact model are available to support the development of local and regional business cases to pave the way for wider adoption.

OPPORTUNITIES FOR FURTHER ANALYSIS

Reducing flu-related hospital bed occupancy in winter could free up space to maintain elective care surgeries, preventing cancellations and reducing waiting lists. This may offer broader system benefits beyond the cost savings outlined in this study.

CHALLENGES

The incidence of flu over the 2023/24 winter period was not as high as in previous years [24]. This resulted in fewer tests being performed than envisaged at the start of the project, leading to a smaller dataset. The data collected could be pooled with that gathered via other studies to build the evidence base, or a similar evaluation could be delivered in future years to increase the number of test results.

ACKNOWLEDGEMENTS

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REFERENCES

1. Darzi A. Independent investigation of the NHS in England. Available from: https://www.gov.uk/government/publications/independent-investigation-of-the-nhs-in-england Accessed: Jun 2025.

2. UK Government, Department of Health and Social Care. Government issues rallying cry to the nation to help fix NHS. Published October 2024. Available at: https://www.gov.uk/government/news/government-issues-rallying-cry-to-the-nation-to-help-fix-nhs Accessed Jun 2025.

3. BBC. Flu rises sharply in England's hospitals, NHS warns. Published 3 January 2025. Available at: https://www.bbc.co.uk/news/articles/c047ky5qv4ro Accessed Jun 2025.

4. Financial Times. Flu cases in England's hospitals soar after season starts early. Available at: https://www.ft.com/content/9f230274-01d5-4dc5-9007-48bb77624c9d Accessed Jun 2025.

5. NHS England. Our ambition for respiratory disease. Available at: https://www.england.nhs.uk/ourwork/clinical-policy/respiratory-disease/ Accessed Jun 2025.

6. NHS England Digital. [MI] SNOMED Code Usage in Primary Care, 2022-23. SNOMED code usage for influenza and upper respiratory infection. Available at: https://digital.nhs.uk/data-and-information/publications/statistical/mi-snomed-code-usage-in-primary-care/2022-23 Accessed Jun 2025.

7. NHS England Digital. Hospital Accident & Emergency Activity, 2022-23: ECDS National Report Tables. Available at: https://digital.nhs.uk/data-and-information/publications/statistical/hospital-accident--emergency-activity/2022-23 Accessed Jun 2025.

8. NHS England Digital. Hospital Admitted Patient Care Activity, Primary diagnosis: 3 character, 2022-23. Available at: https://digital.nhs.uk/data-and-information/publications/statistical/hospital-admitted-patient-care-activity/2022-23 Accessed Jun 2025.

9. Martínez-González NA, Keizer E, Plate A, Coenen S, Valeri F, Verbakel JYJ, Rosemann T, Neuner-Jehle S, Senn O. Point-of-Care C-Reactive Protein Testing to Reduce Antibiotic Prescribing for Respiratory Tract Infections in Primary Care: Systematic Review and Meta-Analysis of Randomised Controlled Trials. Antibiotics (Basel). 2020 Sep 16;9(9):610.

10. Nottingham University Hospitals NHS Trust. Rapid diagnostic test helps stop the spread of flu at NUH. Available at https://www.nuh.nhs.uk/news/rapid-diagnostic-test-helps-stop-the-spread-of-flu-at-nuh-3334/ Accessed: Jun 2025.

11. Cole A. GPs feel pressurised to prescribe unnecessary antibiotics, survey finds. BMJ. 2014 Aug 19;349:g5238.

12. Public Health England. Infection Prevention and Control: An Outbreak Information Pack for Care Homes - The "Care Home Pack". Published January 2024. Available at: https://swcouncils.gov.uk/wp-content/uploads/2022/05/UKHSASW_care_home_pack.pdf Accessed Jun 2025.

13. West Yorkshire Integrated Care Board. Our 10 big ambitions. Available at: https://www.wypartnership.co.uk/about/our-10-big-ambitions Accessed: Jun 2025.

14. NHSE. NHS England. The NHS Long Term Plan. 21 Aug 2019. Available at: https://www.longtermplan.nhs.uk/publication/nhs-long-term-plan/ Accessed Jun 2025.

15. UKHSA. Strategic Plan 2023 to 2026. Available at: https://www.gov.uk/government/publications/ukhsa-strategic-plan-2023-to-2026 Accessed Jun 2025.

16. UK HSA. Guidance on use of antiviral agents for the treatment and prophylaxis of seasonal influenza. Available at: https://www.gov.uk/government/publications/influenza-treatment-and-prophylaxis-using-anti-viral-agents Accessed Jun 2025.

17. Health Innovation Yorkshire & Humber. A Rapid Test-and-Treat Community Pathway: Fighting Flu, Curbing antimicrobial resistance (AMR), and Easing Winter Pressures. Apr 2025. Ref M-GB-00022125. Data on File.

18. Havers F, Thaker S, Clippard JR, Jackson M, McLean HQ, Gaglani M, Monto AS, Zimmerman RK, Jackson L, Petrie JG, Nowalk MP, Moehling KK, Flannery B, Thompson MG, Fry AM. Use of influenza antiviral agents by ambulatory care clinicians during the 2012-2013 influenza season. Clin Infect Dis. 2014 Sep 15;59(6):774-82.

19. Stewart RJ, Flannery B, Chung JR, Gaglani M, Reis M, Zimmerman RK, Nowalk MP, Jackson L, Jackson ML, Monto AS, Martin ET, Belongia EA, McLean HQ, Fry AM, Havers FP. Influenza Antiviral Prescribing for Outpatients With an Acute Respiratory Illness and at High Risk for Influenza-Associated Complications During 5 Influenza Seasons-United States, 2011-2016. Clin Infect Dis. 2018 Mar 19;66(7):1035-1041.

20. Havers F, Flannery B, Clippard JR, Gaglani M, Zimmerman RK, Jackson LA, Petrie JG, McLean HQ, Nowalk MP, Jackson ML, Monto AS, Belongia EA, Eng HF, Lamerato L, Campbell AP, Fry AM. Use of influenza antiviral medications among outpatients at high risk for influenza-associated complications during the 2013-2014 influenza season. Clin Infect Dis. 2015 Jun 1;60(11):1677-80.

21. Fowlkes AL, Steffens A, Reed C, Temte JL, Campbell AP; Influenza Incidence Surveillance Project Working Group. Influenza Antiviral Prescribing Practices and the Influence of Rapid Testing Among Primary Care Providers in the US, 2009-2016. Open Forum Infect Dis. 2019 Apr 26;6(6):ofz192.

22. Health Innovation Yorkshire & Humber. Test and Treat Influenza Pathway: Conference Flyer. Sep 2024: Ref M-GB-00019467. Data on File

23. Health Innovation Yorkshire & Humber. Community Test & Treat Flu Project: Project Overview. Oct 2024. Ref M-GB-00019678. Data on File.

24. UKHSA. Surveillance of influenza and other seasonal respiratory viruses in the UK, winter 2023 to 2024. Strategic Available at: https://www.gov.uk/government/statistics/surveillance-of-influenza-and-other-seasonal-respiratory-viruses-in-the-uk-winter-2023-to-2024/surveillance-of-influenza-and-other-seasonal-respiratory-viruses-in-the-uk-winter-2023-to-2024 Accessed Jun 2025.

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