The critical role of finance in addressing health inequalities

- The role of health, wellbeing and the wider determinants of health and the risks over medicalisation of PHM
- The challenges of system working and creating a common language for change
- The critical role of finance in PHM and fixing inequalities

Andi Orlowski
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What do we mean by Population Health Management?

A local system that:

- integrates primary care, secondary care and community health services with public health, social care and Third Sector organisations
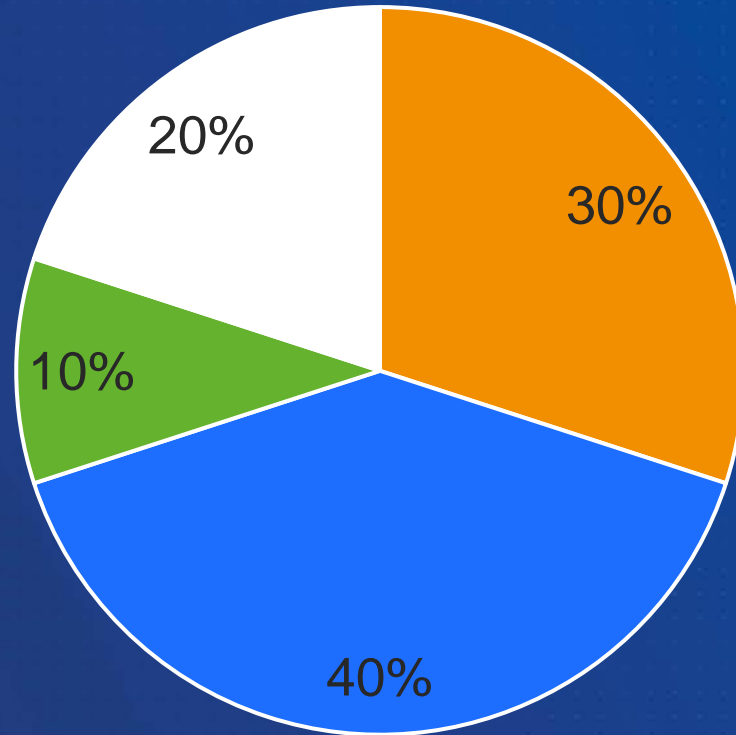- manages a **defined budget** on behalf of a **defined geographical population**

…uses evidence and person-level analysis to:

- **understan**d the health needs and wellbeing of its population and **identify opportunities** to improve the quality, efficiency and equity of the care being provided
- inform the **planning and investment** in a range of coordinated, evidence-based, cost-effective health, care and social interventions
- **monitor and evaluate** interventions to learn what works for whom, where and why

…in order to:

- **reduce health inequalities**
- achieve the **triple aim** of healthcare (higher quality care, better patient experience, lower per capita cost)
- improve the **long-term health and wellbeing** of the people it serves.

7%
Physical Environment

11%
Medical Care

36%
Individual Behavior

22%
Genetics and Biology

24%
Social Circumstances
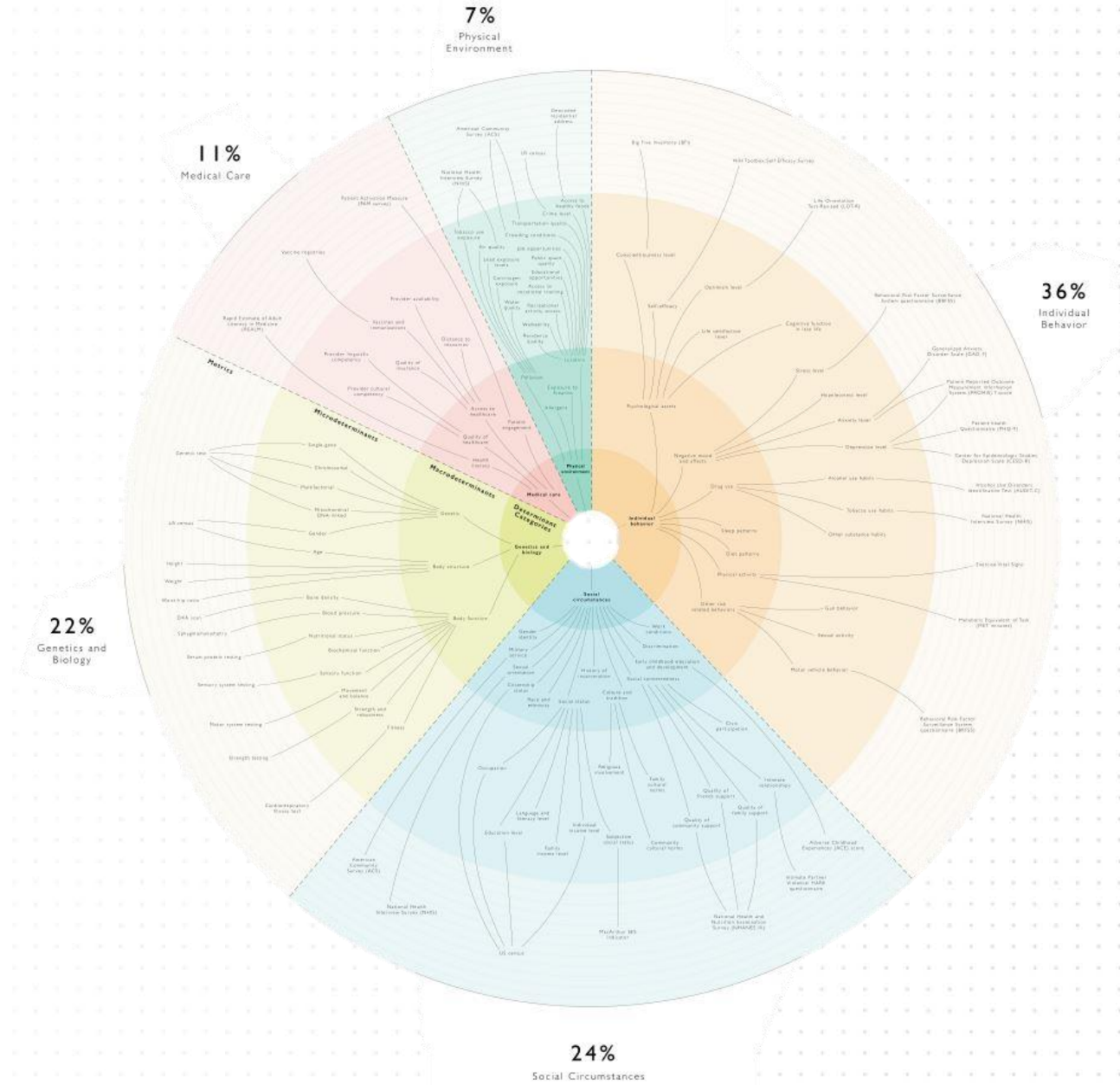
Wider determinants

- 1 in 5 dwellings doesn't meet decent standards in England
- 1 in 5 people live in poverty in the UK
- Children in deprived areas are 9 times less likely to have access to green space and places to play
- By the age of 30 those with the highest levels of education are expected to live 4 years longer than those with the lowest education

Life expectancy

- Men
  - Disease free life expectancy
    - ~55 (highest deprivation) to ~70 (least deprivation)
  - Life expectancy
    - ~74 (highest deprivation) to ~84 (least deprivation)
- Women
  - Disease free life expectancy
    - ~55 (highest deprivation) to ~72 (least deprivation)
  - Life expectancy
    - ~78 (highest deprivation) to ~86 (least deprivation)

https://www.health.org.uk/publications/reports/the-marmot-review-10-years-on?

Upstream/Macro

Greater medicalization

Proportion of effort

Proportion of effort

Downstream/Micro
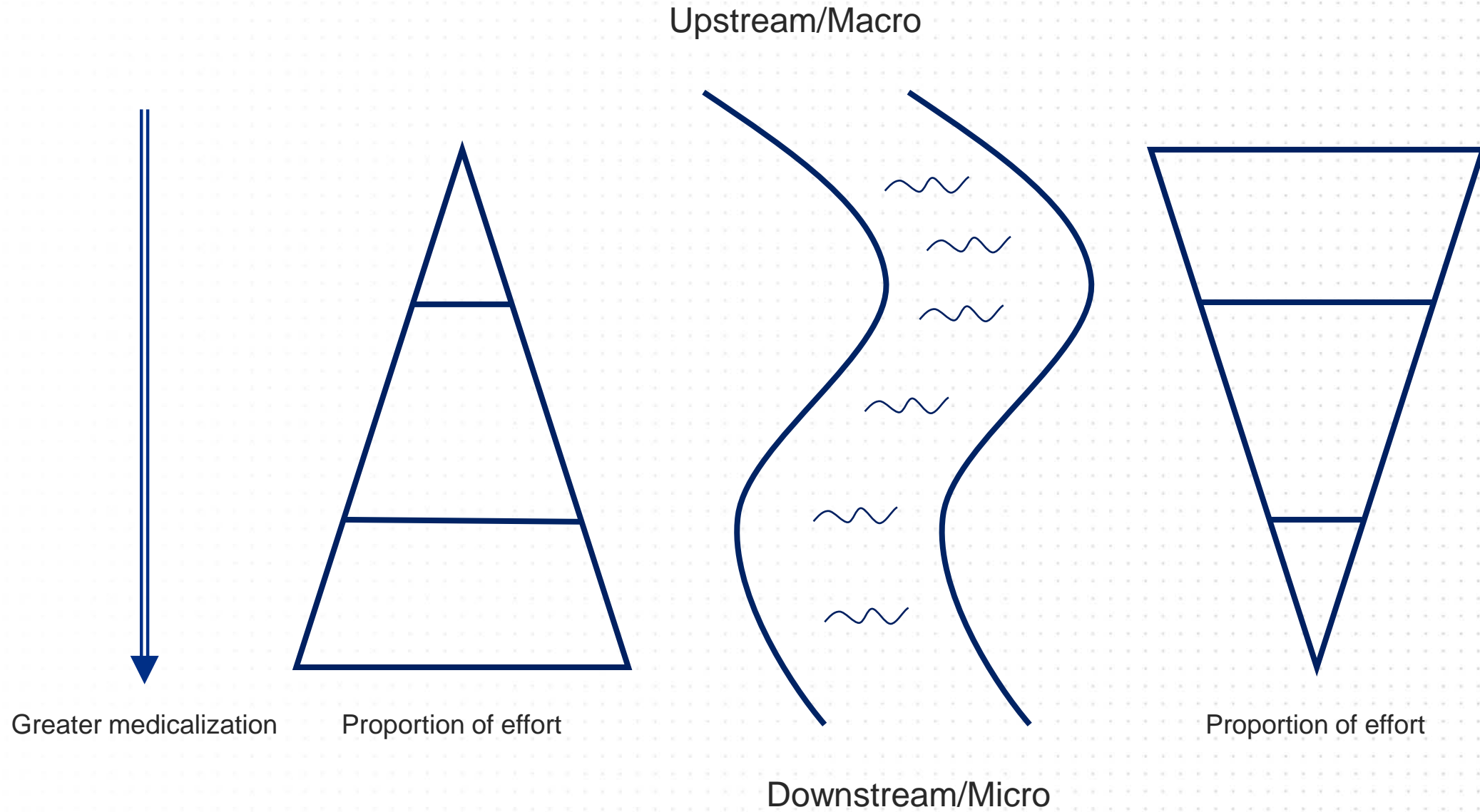
It is key to the success of risk stratification to ensure that **"high-risk individuals"** are **<u>not</u>** conflated with **"those most likely to benefit"** as there is evidence indicating that these can be highly separated groups

[Orlowski et al. 2021].
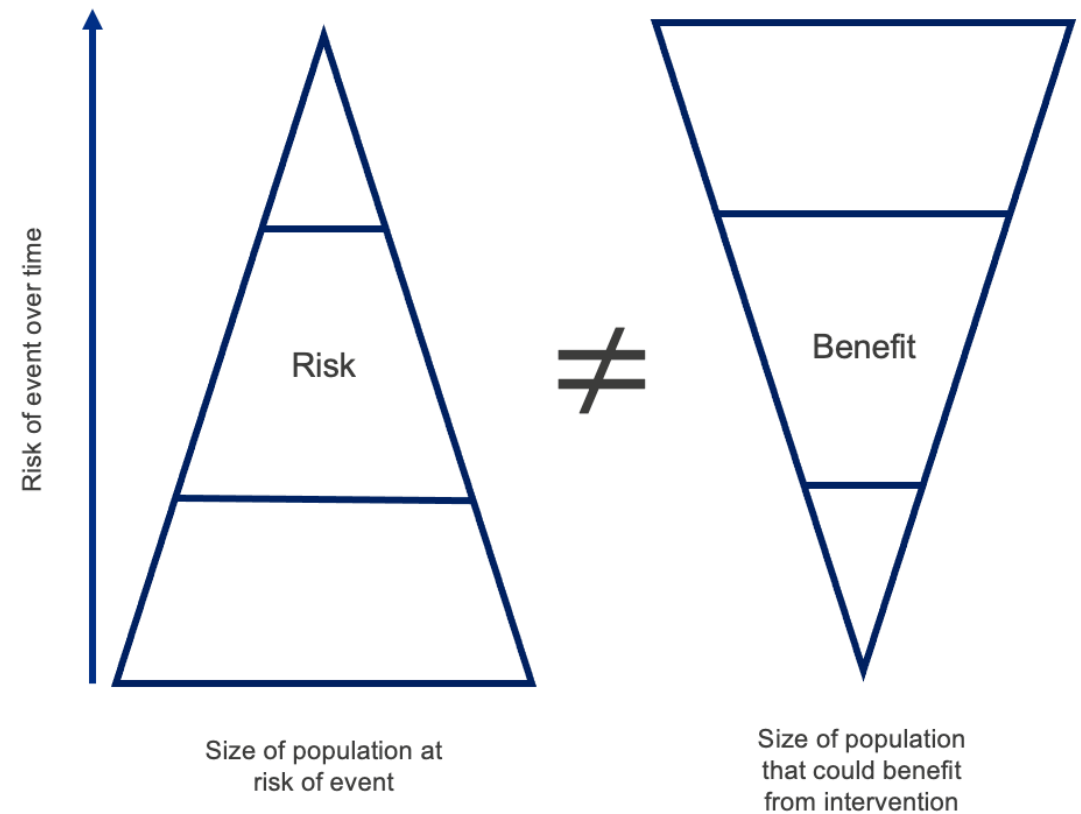
Delivering on the promise of systems

Health Economics Unit
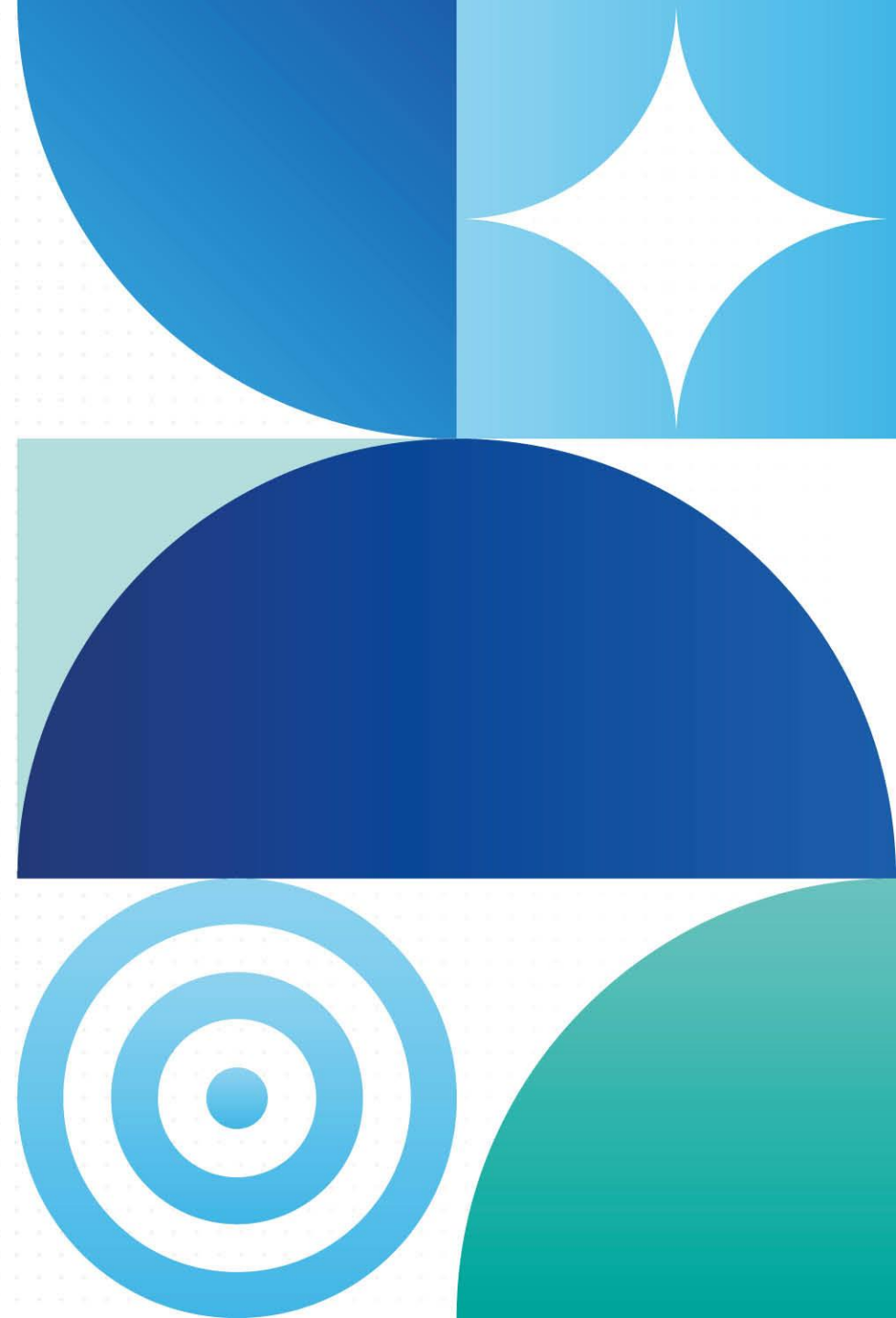
There is little convincing evidence to suggest that collaboration between local health care and non-health care organisations improves health outcomes

Alderwick, H., Hutchings, A., Briggs, A. *et al.* The impacts of collaboration between local health care and non-health care organizations and factors shaping how they work: a systematic review of reviews. *BMC Public Health* **21,** 753 (2021). https://doi.org/10.1186/s12889-021-10630-1

Motivation and purpose

Vision and aims

Commitment

Perceived benefits

Governance and leadership

Decision-making and accountability

Engagement and involvement

Leadership support

Resources and capabilities

Resources and resource sharing

Processes and infrastructure

Implementation and monitoring

Staff skills and capabilities

Relationships and cultures

Trust and relationships

Communication

Culture and values

Roles and responsibilities

External factors

Policy and political context

Institutional and organizational context

Geography

Social and economic context

Key:
Example interactions between factors identified in the studies

Alderwick, H., Hutchings, A., Briggs, A. *et al.* The impacts of collaboration between local health care and non-health care organizations and factors shaping how they work: a systematic review of reviews. *BMC Public Health* **21,** 753 (2021). https://doi.org/10.1186/s12889-021-10630-1

Programme theory—depiction of main mechanisms and outcomes at play

Aunger, J.A., Millar, R., Greenhalgh, J. *et al.* Why do some inter-organisational collaborations in healthcare work when others do not? A realist review. *Syst Rev* **10,** 82 (2021). https://doi.org/10.1186/s13643-021-01630-8

Meanwhile in the real world…

Improving social and economic factors: Wakefield

Reducing homelessness

Wakefield have been working as a partnership to prevent eviction and potential homelessness

Mental health navigators take referrals from Wakefield District Housing Debt Team, housing officers and community safety officers on problems like hoarding, poor tenancy management and anti-social behaviour.

The team engaged with over 150 clients and the wellbeing caseworkers carried out over 400 interactions yielding a social return of £1.1 million.
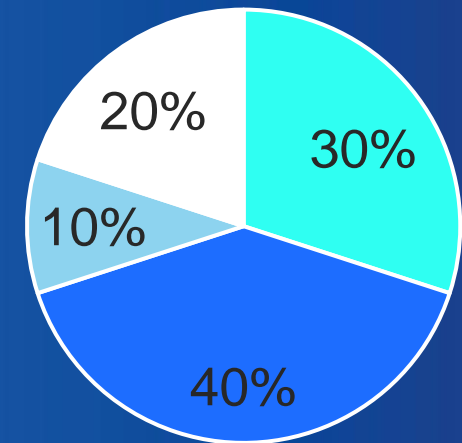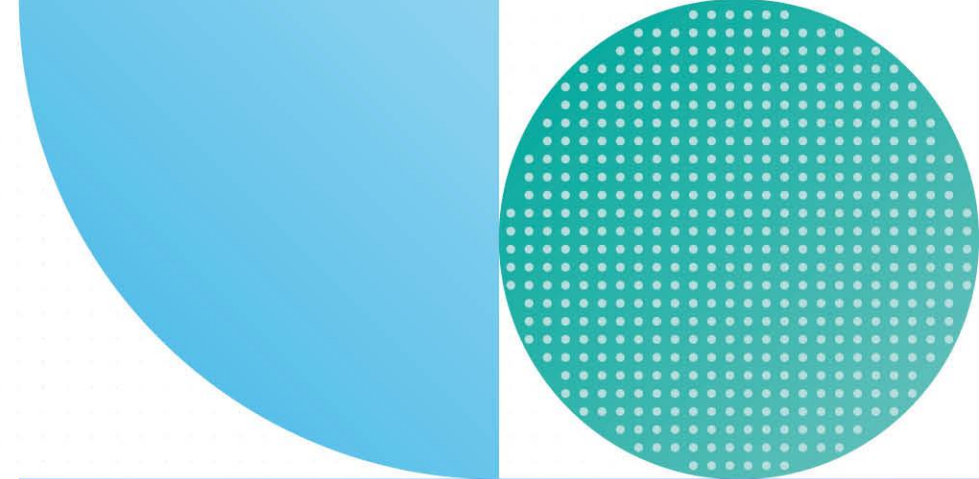
20%

30%

10%

40%

- health behaviors
- social and economic factors
- physical environment
- clinical care

Improving the physical environment: London

Traffic calming measures for public health benefit

Guy's and St Thomas' charity paid £250k to install traffic calming measures for public health benefits including tackling air pollution and obesity in Lambeth and Southwark

The Low Traffic Neighbourhoods will be focused in the areas of highest deprivation in the area

The aim is to reduce traffic and improve access for cyclists and pedestrians - including widening pavements, adding seating and roadside markings to encourage walking and cycling and removing parking spaces.

- health behaviors
- social and economic factors
- physical environment
- clinical care
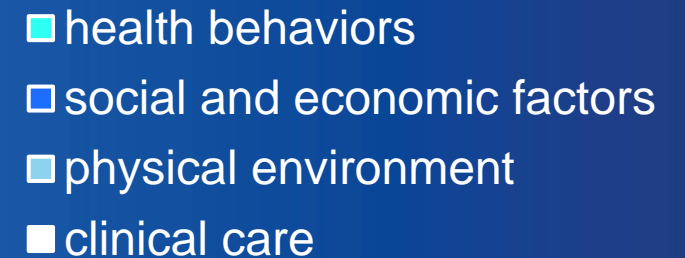
Improving the physical environment: North East

Improving homes in Sunderland and Scotland

Gentoo and Sunderland CCG provided energy efficient boilers, double glazing and insulation on 'prescription'

A&E attendances reduced by 30%. Emergency admissions reduced by 25%. GP appointments reduced by 60%

Patients suffering from respiratory diseases that are exacerbated by the cold, such as COPD, were referred onto the scheme and received improvements totalling on average £5,000 per property.

20%

30%

10%

40%

- health behaviors
- social and economic factors
- physical environment
- clinical care
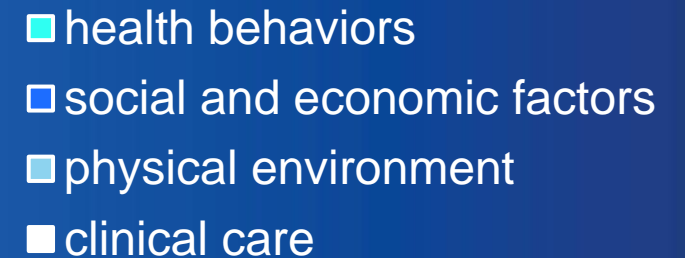
Multi-Criteria Decision Analysis (MCDA)

- MCDA is a decision-making tool that helps individuals or organizations evaluate multiple criteria when making complex decisions.

- It involves the use of mathematical models and techniques to weigh and compare various alternatives against each other based on different criteria.

- MCDA is widely used in various fields such as business, engineering, environmental management, and healthcare.

A programme to embed allocative value in NHS decision making

The Health Economics Unit are leading a development programme on allocative efficiency across systems in the Midlands.

Using COPD as an exemplar pathway, HEU will run the STAR process with:

- Birmingham and Solihull ICS
- Coventry Place
- Northamptonshire ICS
- Nottinghamshire ICS
- Gloucester ICS

Through the Midlands Decision Support Network, the HEU will run a training programme on allocative value and the STAR method.

Process

The project aimed to understand how to increase allocative efficiency of the COPD pathway in Nottinghamshire. It was facilitated through the following process:

Collect data and evidence on the pathway:

- >**500** COPD patients completed a preferences survey

- >**64** publications were part of the literature review

- >**100** data points were collected looking at costs, activity and health gain.

Collaborative workshops to value the pathway and identify improvements:

- **22** attendees contributed to two in-person workshops

- Attendees included patients, COPD clinical specialists, public health, finance, informatics, analysts and transformation.

Model pathway improvements in terms of costs and population health:

- **11** pathway improvements were modelled using methods validated by LSE

- **Five** pathway improvements are recommended for implementation due to the modelled cost and population health gain.

VALUE OF COPD CARE PATHWAY IN NOTTINGHAMSHIRE

POPULATION HEALTH BENEFIT PER 1,000 POPULATION (y-axis, 0 to 4000)

TOTAL COST £000's (x-axis, 0 to 20000)

Labels on chart:
- Lung volume reduction surgery
- Warm homes
- Respiratory assessment unit
- Hospital admission
- Community COPD services
- Emergency attendances
- Pulmonary rehabilitation
- Spirometry (secondary care)
- Oxygen therapy (ambulatory)
- Spirometry (GP)
- Secondary care outpatient appointment/Respiratory physiology
- Intent smoking cessation in schools
- Pneumonia vaccination
- COVID-19 vaccination
- Tertiary Prevention – smoking cessation
- Oxygen therapy (long-term)
- Primary Prevention – smoking cessation
- Influenza vaccination
- IAPT services
- Primary care management - AECOPD
- Primary care management – Case Management
- Primary care health checks
- Group therapy – Breathe Easy

	PRIMARY PREVENTION	SECONDARY PREVENTION	CASE MANAGEMENT	TERTIARY PREVENTION	MANAGEMENT OF AECOPD
% of total spend	4.1%	7.1%	27.7%	6.8%	54.2%
% of pop health gain	25.7%	16.9%	37.9%	7.1%	12.3%

Health Economics Unit

Recommendations

The following pathway improvements have been modelled and are recommended for implementation as they are likely to lead to the most health generation per pound spent.

Improving case-finding by targeted COPD screening	Making every contact count – 'very brief advice' on smoking cessation	Conducting patient's yearly reviews through group consultations	Introducing referral pathways to Breathe Easy	Improving uptake to smoking cessation services
Yearly savings through early diagnoses (>£1.3m)	Cost saving through reduction in AECOPDs (~£2,000)	Cost neutral	Inexpensive intervention (<£2,700)	Cost inducing but effective (£69k - £76k)
~2,600 additional cases of COPD identified per year	~243 quitters per year	~6,074 more patients having a yearly review	Large net population health gain for cost	~1,088 more quitters per year
Address priority: Improving case management in primary care	Address priority: Stopping more people from smoking and helping more people to quit	Address priority: Improving case management in primary care	Address priority: Improving uptake of tertiary prevention services	Address priority: Stopping more people from smoking and helping more people to quit

If implemented, these interventions are expected to result in £408k-872k increase on costs and a 34.24 percentage point increase to population health (best case scenario).
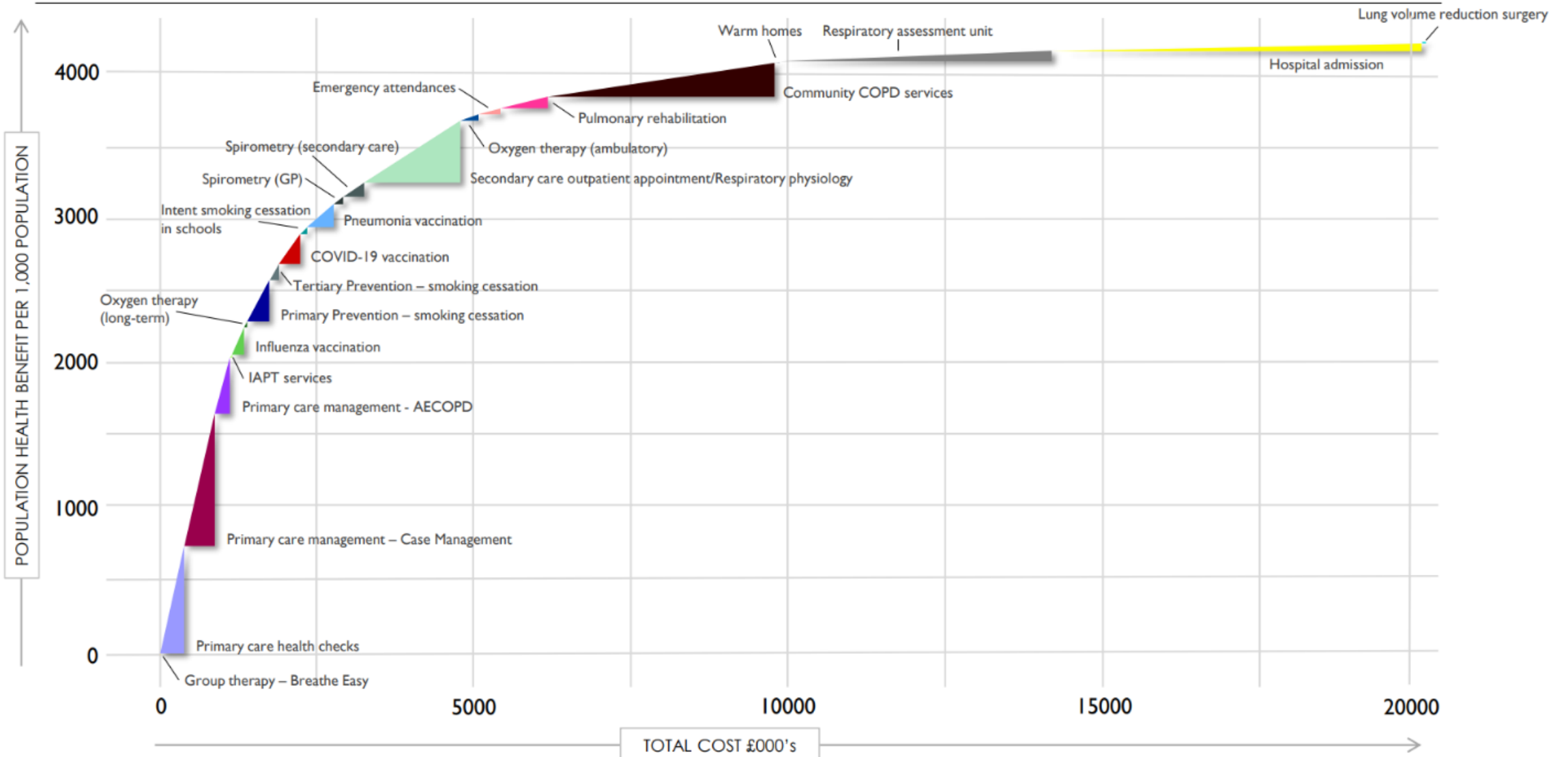
Process

The project aimed to understand how to increase allocative efficiency of the COPD pathway in Gloucestershire. It was facilitated through the following process:

Collect data and evidence on the pathway:

- >**500** COPD patients completed a preferences survey

- >**64** publications were part of the literature review

- >**100** data points were collected looking at costs, activity and health gain.

Collaborative workshops to value the pathway and identify improvements:

- **28** attendees contributed to two in-person workshops

- Attendees included patients, COPD clinical specialists, public health, finance, informatics, analysts and transformation managers.

Model pathway improvements in terms of costs and population health:

- **12** pathway improvements were modelled using methods validated by LSE

- **Five** pathway improvements are recommended for implementation due to the modelled cost and population health gain.

VALUE OF COPD CARE PATHWAY IN GLOUCESTERSHIRE

Population health benefit per 1,000 population (y-axis, 0 to 1250) vs Total cost in £000s (x-axis, 0 to 6000), with interventions plotted:

- Primary care management - AECOPD
- Pneumonia vaccination
- Influenza vaccination
- COVID-19 vaccination
- Secondary care outpatient appointments
- Primary care case management
- Smoking cessation (HLS)
- Spirometry testing (GP)
- Mind Song
- Oxygen assessment
- Smoking cessation (GP)
- Respiratory and Home Oxygen Assessment Service
- Warm Home Prescriptions
- KIActiv
- Pulmonary rehabilitation
- Virtual ward
- Spirometry testing – secondary care
- Lung volume reduction surgery
- Hospital admission

Caveats:

- No data linked to a diagnosis of COPD available for rapid response service, the discharge support and community pharmacy interventions.

- Oxygen assessment does not include the cost of the oxygen prescription itself.

- The full information on the sources used is available in the final report.

	PRIMARY PREVENTION	SECONDARY PREVENTION/DIAGNOSIS	STABLE MANAGEMENT	TERTIARY PREVENTION	MANAGEMENT OF ACUTE EXACERBATIONS
% of total spend	6.7%	8.3%	27.4%	12.4%	45.2%
% of pop health gain	10.5%	22.6%	47.4%	6%	13.5%

Recommendations

The following pathway improvements have been modelled and are recommended for implementation as they are likely to lead to the most health generation per pound spent.
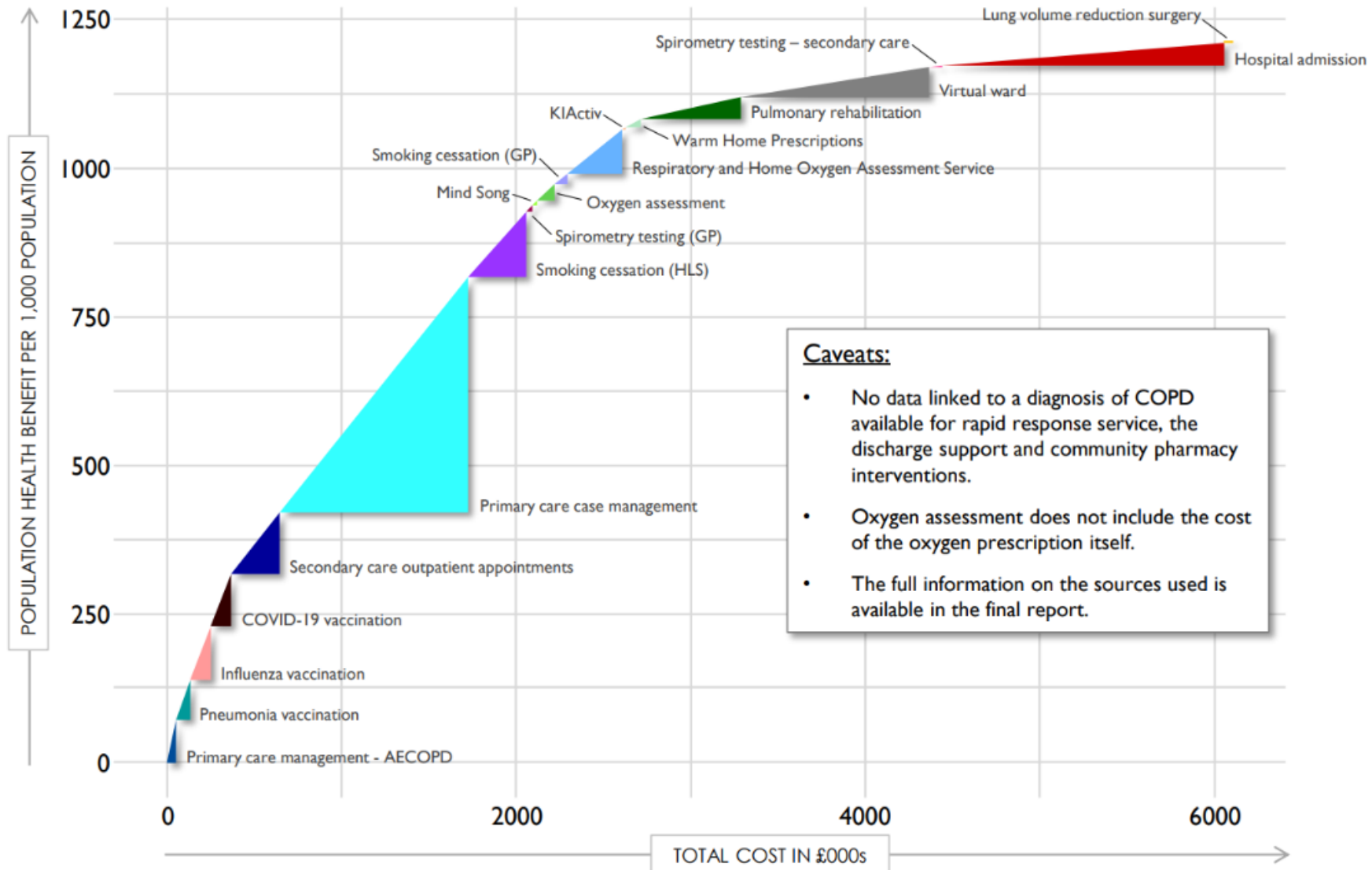
More effective use of the virtual ward	Improving uptake to Mindsong and KiActiv	Proactive case finding	Very brief advice (VBA) for tobacco dependency	Increasing uptake of PR (online offering)
~£2 saved for every £1 spent	Yearly savings through avoided admission (~£2,500)	Possible ~£7 saved for every £1 spent	Cost neutral	~£5 saved for every £1 spent
Reducing risk of hospital acquired infection	102 additional people accessing services	Increased early diagnosis	Linked to a 66% increase in quitting rate	Scalable option to increase PR engagement
Priority addressed: Managing acute exacerbations more efficiently	Priority addressed: Enhancing the role of social prescribing and awareness of services	Priority addressed: More proactive and earlier interventions in primary care	Priority addressed: Creation of a tobacco prevention and treatment alliance	Priority addressed: Enhancing the role of social prescribing and awareness of services

If implemented, these pathway improvements are expected to be cost saving. They are estimated to save £1.04m net per year and lead to a 12.4% percentage point increase to population health.

Process

The project aimed to understand how to increase allocative efficiency of the COPD pathway in Birmingham and Solihull. It was facilitated through the following process:

Collect data and evidence on the pathway:
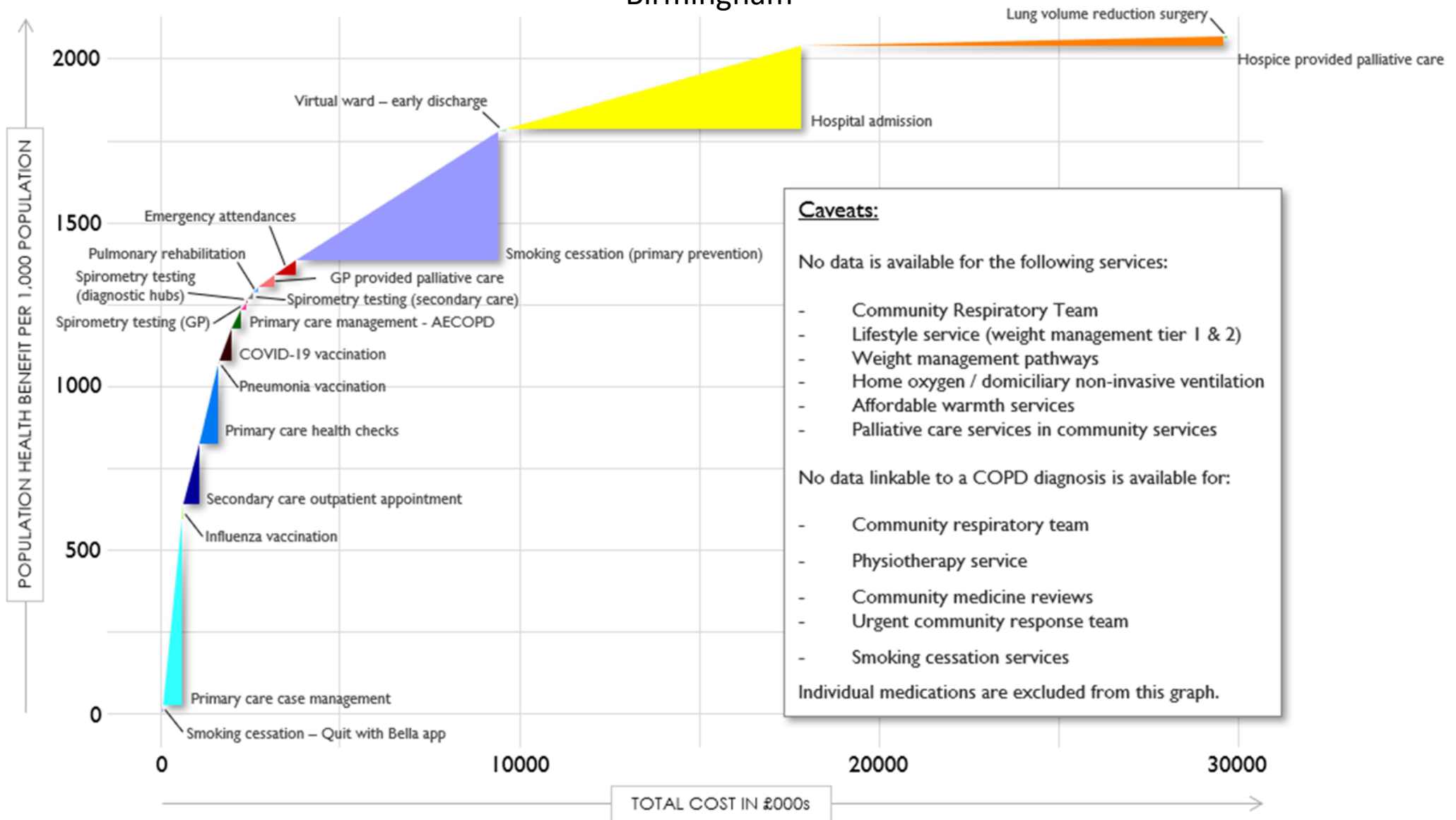
- **>500** COPD patients completed a preferences survey

- **>64** publications were part of the literature review

- **>100** data points were collected looking at costs, activity and health gain.

Collaborative workshops to value the pathway and identify improvements:

- **20** attendees contributed to two workshops

- Attendees included COPD clinicians, public health, finance, informatics, analysts and transformation managers.

Model pathway improvements in terms of costs and population health:

- **13** pathway improvements were modelled using methods validated by LSE

- **Five** pathway improvements are recommended for implementation due to the modelled cost and population health gain.

Birmingham

Chart: Population Health Benefit per 1,000 Population (y-axis) versus Total Cost in £000s (x-axis).

Labelled points from bottom to top:
- Smoking cessation – Quit with Bella app
- Primary care case management
- Influenza vaccination
- Secondary care outpatient appointment
- Primary care health checks
- Pneumonia vaccination
- COVID-19 vaccination
- Primary care management - AECOPD
- Spirometry testing (GP)
- Spirometry testing (diagnostic hubs)
- Spirometry testing (secondary care)
- Pulmonary rehabilitation
- Emergency attendances
- GP provided palliative care
- Smoking cessation (primary prevention)
- Virtual ward – early discharge
- Hospital admission
- Lung volume reduction surgery
- Hospice provided palliative care

Caveats:

No data is available for the following services:

- Community Respiratory Team
- Lifestyle service (weight management tier 1 & 2)
- Weight management pathways
- Home oxygen / domiciliary non-invasive ventilation
- Affordable warmth services
- Palliative care services in community services

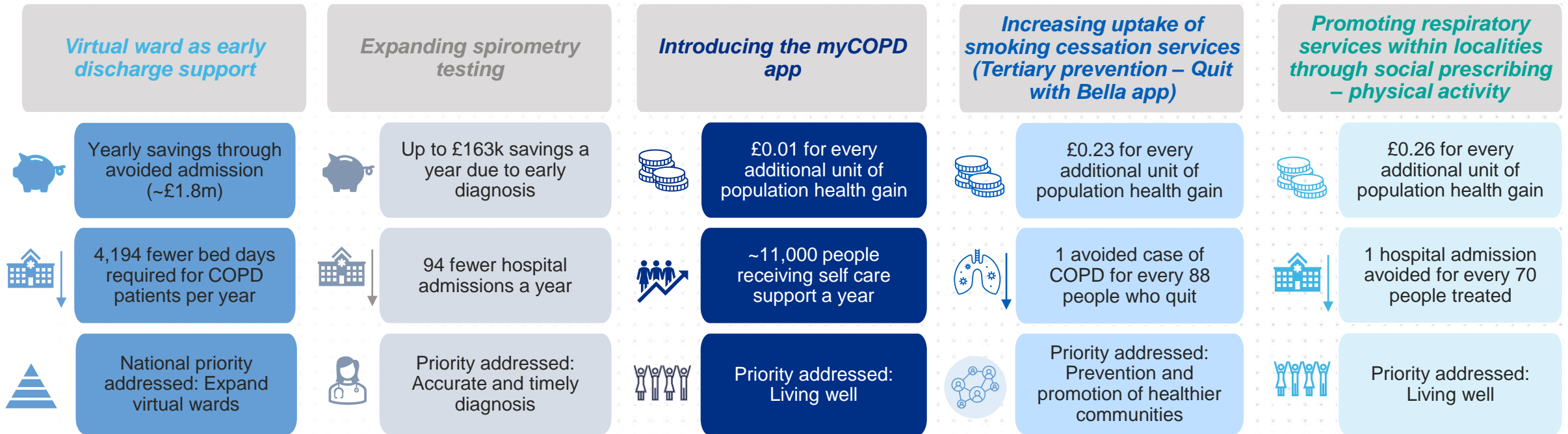No data linkable to a COPD diagnosis is available for:

- Community respiratory team
- Physiotherapy service
- Community medicine reviews
- Urgent community response team
- Smoking cessation services
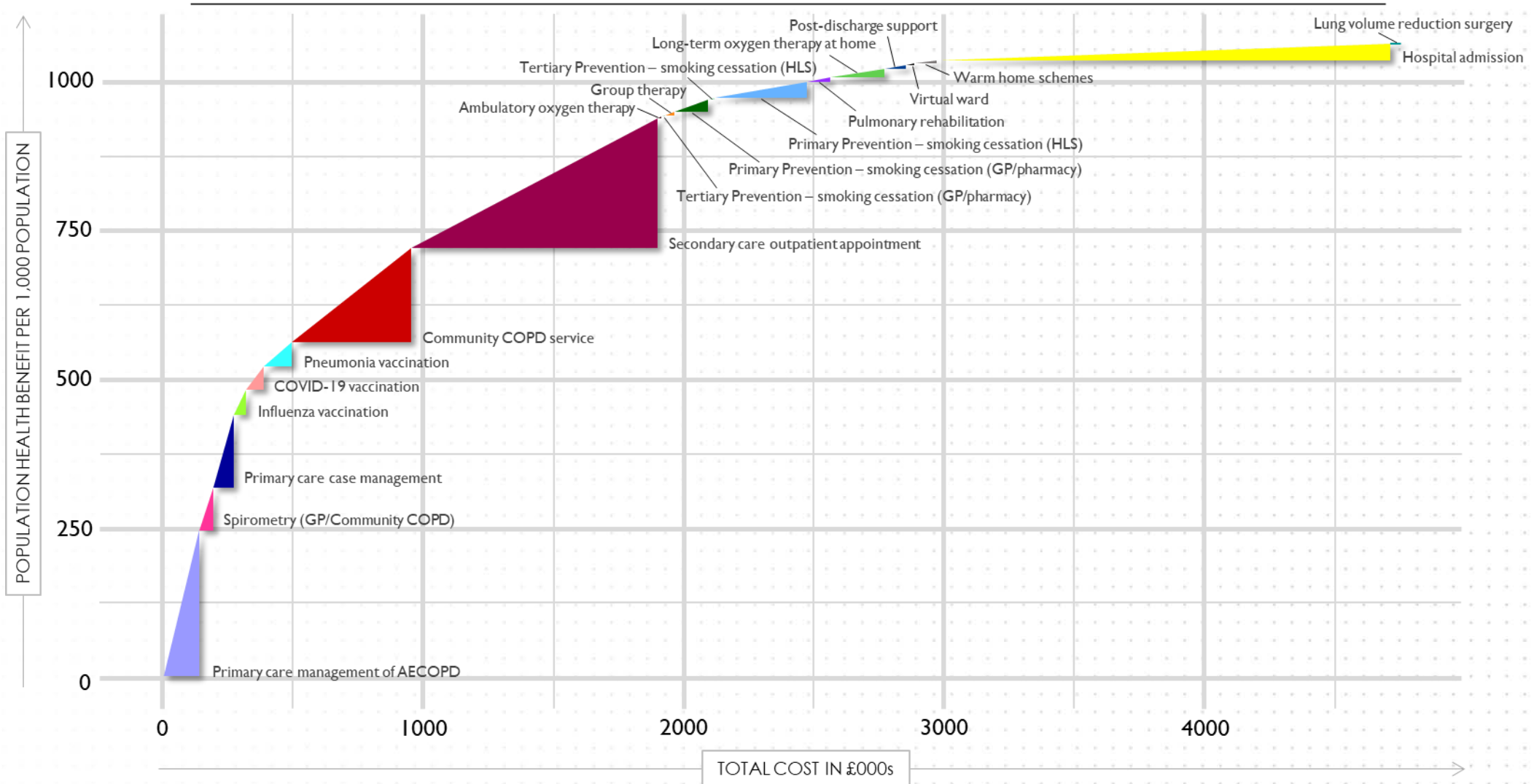
Individual medications are excluded from this graph.

	PRIMARY PREVENTION	SECONDARY PREVENTION/DIAGNOSIS	CASE MANAGEMENT	TERTIARY PREVENTION	MANAGEMENT OF EXACERBATIONS	PALLIATIVE CARE
% of total spend	20.9%	2.5%	3.32%	0.8%	31.5%	41%
% of pop health gain	30.5%	11.2%	36.5%	0.9%	17.9%	3.02%

Recommendations

The following pathway improvements have been modelled and are recommended for implementation as they are likely to lead to the most health generation per pound spent.

Virtual ward as early discharge support	Expanding spirometry testing	Introducing the myCOPD app	Increasing uptake of smoking cessation services (Tertiary prevention – Quit with Bella app)	Promoting respiratory services within localities through social prescribing – physical activity
Yearly savings through avoided admission (~£1.8m)	Up to £163k savings a year due to early diagnosis	£0.01 for every additional unit of population health gain	£0.23 for every additional unit of population health gain	£0.26 for every additional unit of population health gain
4,194 fewer bed days required for COPD patients per year	94 fewer hospital admissions a year	~11,000 people receiving self care support a year	1 avoided case of COPD for every 88 people who quit	1 hospital admission avoided for every 70 people treated
National priority addressed: Expand virtual wards	Priority addressed: Accurate and timely diagnosis	Priority addressed: Living well	Priority addressed: Prevention and promotion of healthier communities	Priority addressed: Living well

If implemented, these pathway improvements are expected to be cost saving. They are estimated to save ~£1.8m net per year and lead to a 52.46% percentage point increase to population health.
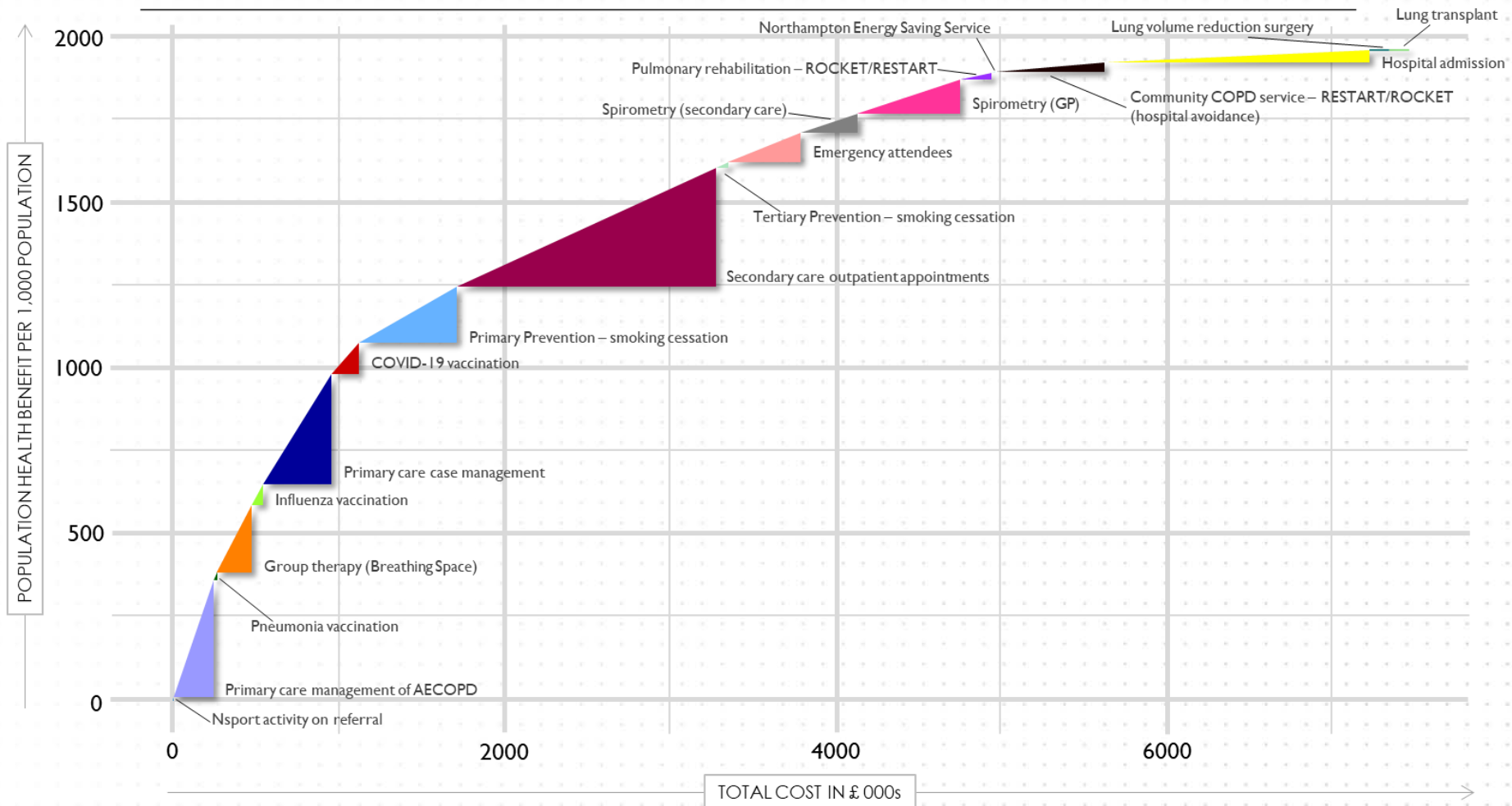
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POPULATION HEALTH BENEFIT PER 1,000 POPULATION

TOTAL COST IN £000s

Labels on chart:
- Primary care management of AECOPD
- Spirometry (GP/Community COPD)
- Primary care case management
- Influenza vaccination
- COVID-19 vaccination
- Pneumonia vaccination
- Community COPD service
- Secondary care outpatient appointment
- Ambulatory oxygen therapy
- Group therapy
- Tertiary Prevention – smoking cessation (HLS)
- Tertiary Prevention – smoking cessation (GP/pharmacy)
- Primary Prevention – smoking cessation (GP/pharmacy)
- Primary Prevention – smoking cessation (HLS)
- Pulmonary rehabilitation
- Long-term oxygen therapy at home
- Post-discharge support
- Virtual ward
- Warm home schemes
- Lung volume reduction surgery
- Hospital admission

|	PRIMARY PREVENTION	SECONDARY PREVENTION	CASE MANAGEMENT	TERTIARY PREVENTION	MANAGEMENT OF AECOPD
% of total spend	10.3%	5.5%	11.3%	30.8%	42%
% of pop health gain	5%	17.9%	26.3%	24.1%	26.6%

Recommendations for Coventry

- As a result of this project, it is recommended that the respiratory programme prioritises the following pathway improvements:
    - Expansion of the virtual ward.
    - Joint clinics in primary care with the current establishment of Respiratory Nurse Specialists.
    - Targeting spirometry testing and improving diagnosis
    - An education package for people with COPD.
    - Education in schools against smoking and vaping.
- The estimated savings from the virtual ward, £553,523.40 per year, could save enough to cover most of the additional cost of these improvements if the resource could be freed up

VALUE OF COPD CARE PATHWAY IN NORTHAMPTONSHIRE

	PRIMARY PREVENTION	SECONDARY PREVENTION	CASE MANAGEMENT	TERTIARY PREVENTION	MANAGEMENT OF AECOPD
% of total spend	7.9%	16%	14.4%	31%	30.7%
% of pop health gain	8.7%	17.2%	18.5%	31.1%	24.6%
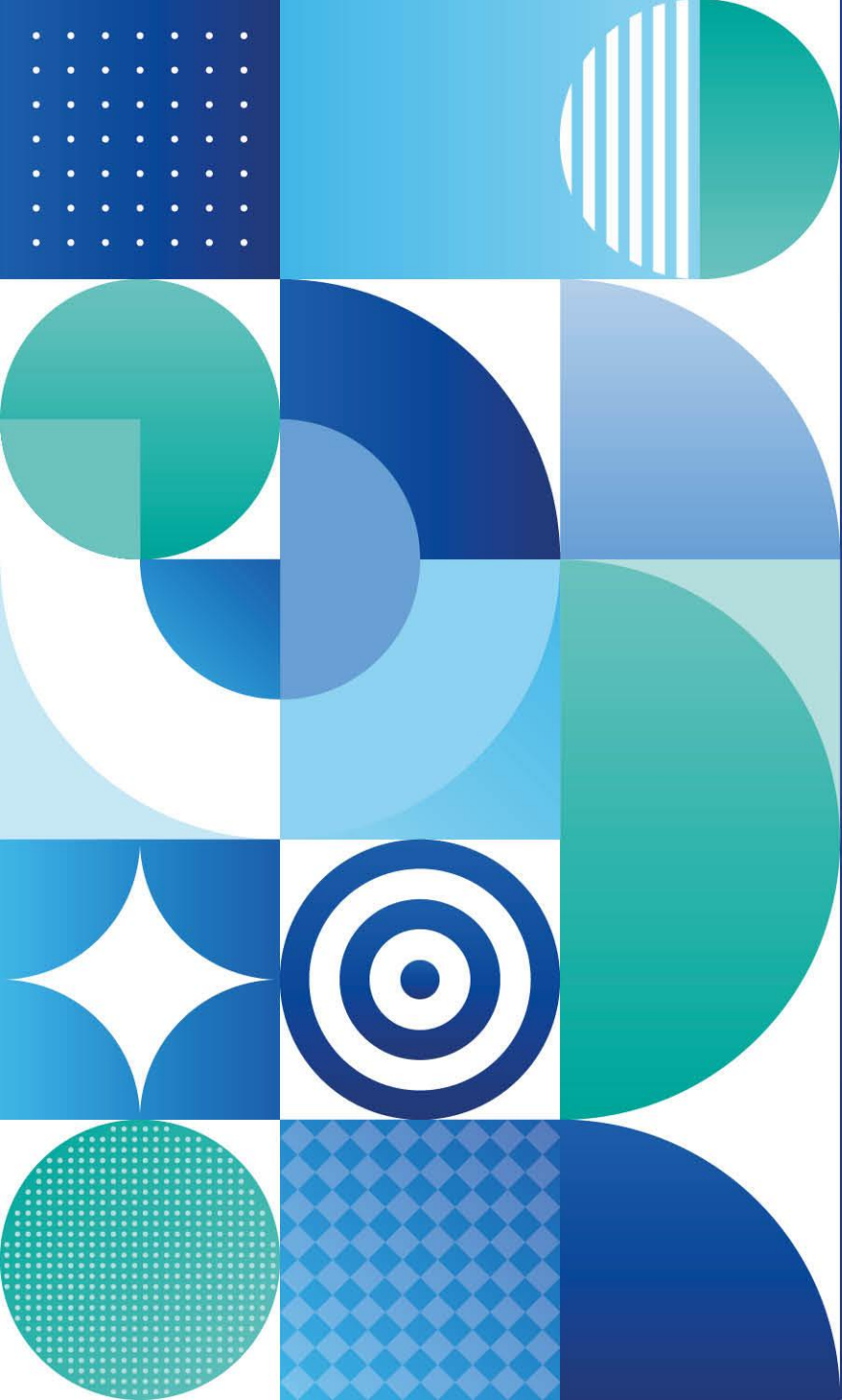
Questions

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https://healtheconomicsunit.nhs.uk/