



Social Needs

Population Health Management



16/10/24



HEALTH IS NOT HEALTHCARE

Medical care is estimated to account for only 10-20 percent of the modifiable contributors to healthy outcomes for a population^[1]

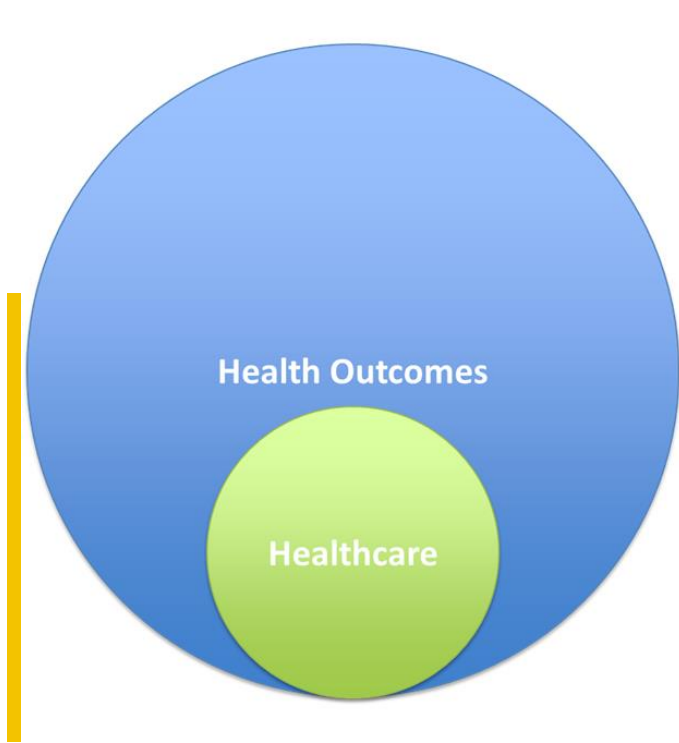
Health is broader than healthcare
Healthcare?

Medical services provided to maintain or restore health

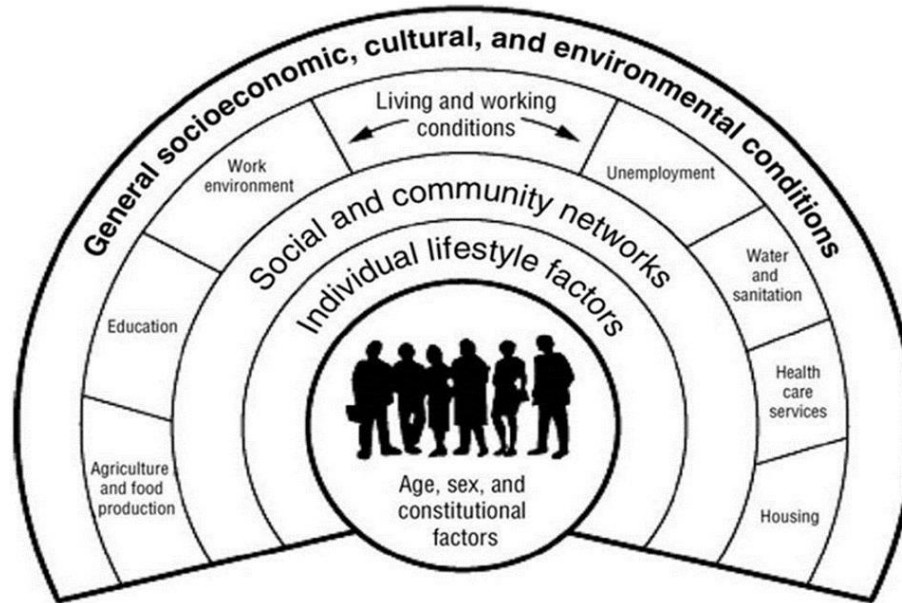
What is health?

- Overall wellbeing
- Physical
- Mental
- Social well-being

Influenced by lifestyle, environment, genetics and **social determinants**



Framework of social health factors



Source: Dahlgren and Whitehead (1991)


BBC

Home News Sport Business Innovation Culture Travel Earth Video Live

Illegal levels of air pollution linked to child's death

3 July 2018 Share

By Claire Marshall, BBC Environment Correspondent



Ella wasn't born with asthma

A nine-year-old girl's fatal asthma attack has been linked to illegally high levels of air pollution.

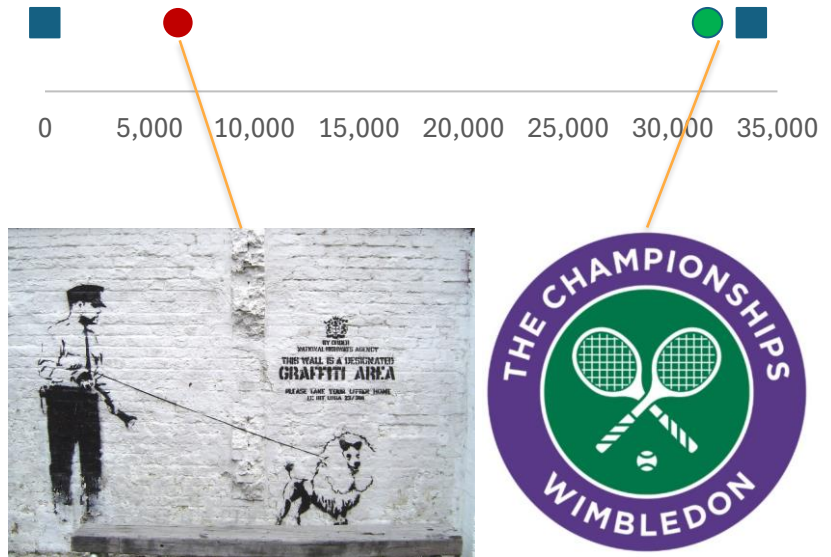
Ella Kissi-Debrah lived 25m (80ft) from London's South Circular Road - a notorious pollution "hotspot".

SOCIAL DETERMINANTS

An often-neglected variable that can have a profound impact on health outcomes

Measuring Social Determinants

- Index of Multiple Deprivation (IMD)
- Relative composite measure of deprivation in a geographical area
- Social needs are not exclusive to areas of high deprivation



What can we learn about individual social needs from routinely collected healthcare data?

- Can we learn about people's social needs from healthcare data?
- To what extent are these captured?
- How do they relate to the relative deprivation of where people live, their age and their clinical position?
- What is the association with emergency hospitalisation and how might this vary depending on the type of person?

ACG Social Needs Framework

- Social Needs Framework:

Employment

Not medically fit for work or unemployed

Social Connection

Living alone and housebound

Safety

Adult safeguarding, risk of domestic abuse

Housing

Damp/mould in house, homelessness

Finances

Difficulty/unable to manage personal financial activities

Stress

Stress at work, other problems related to life-management difficulty

Migration

Asylum seeker

Nutrition

Undernourished

Education

Unable to read

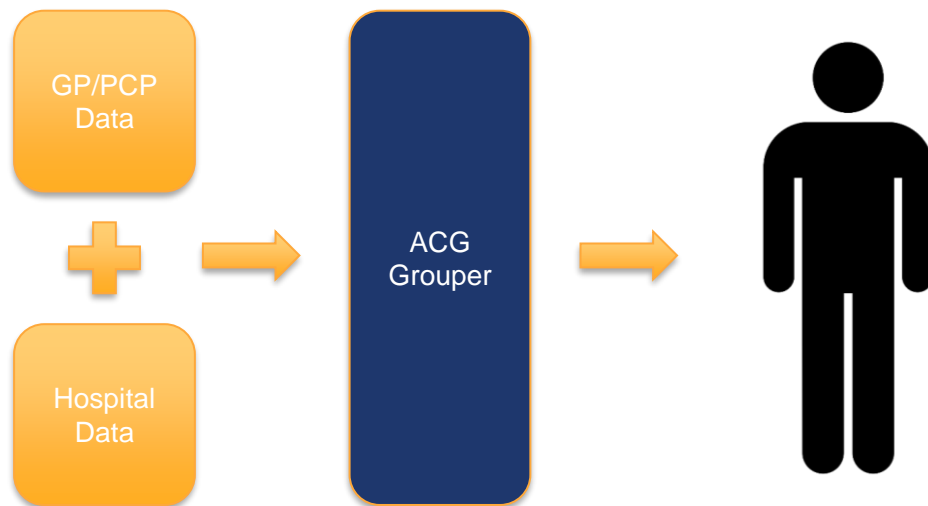
Incarceration

Recently released from prison

Military

Served in armed forces

Curating a Whole Population Dataset

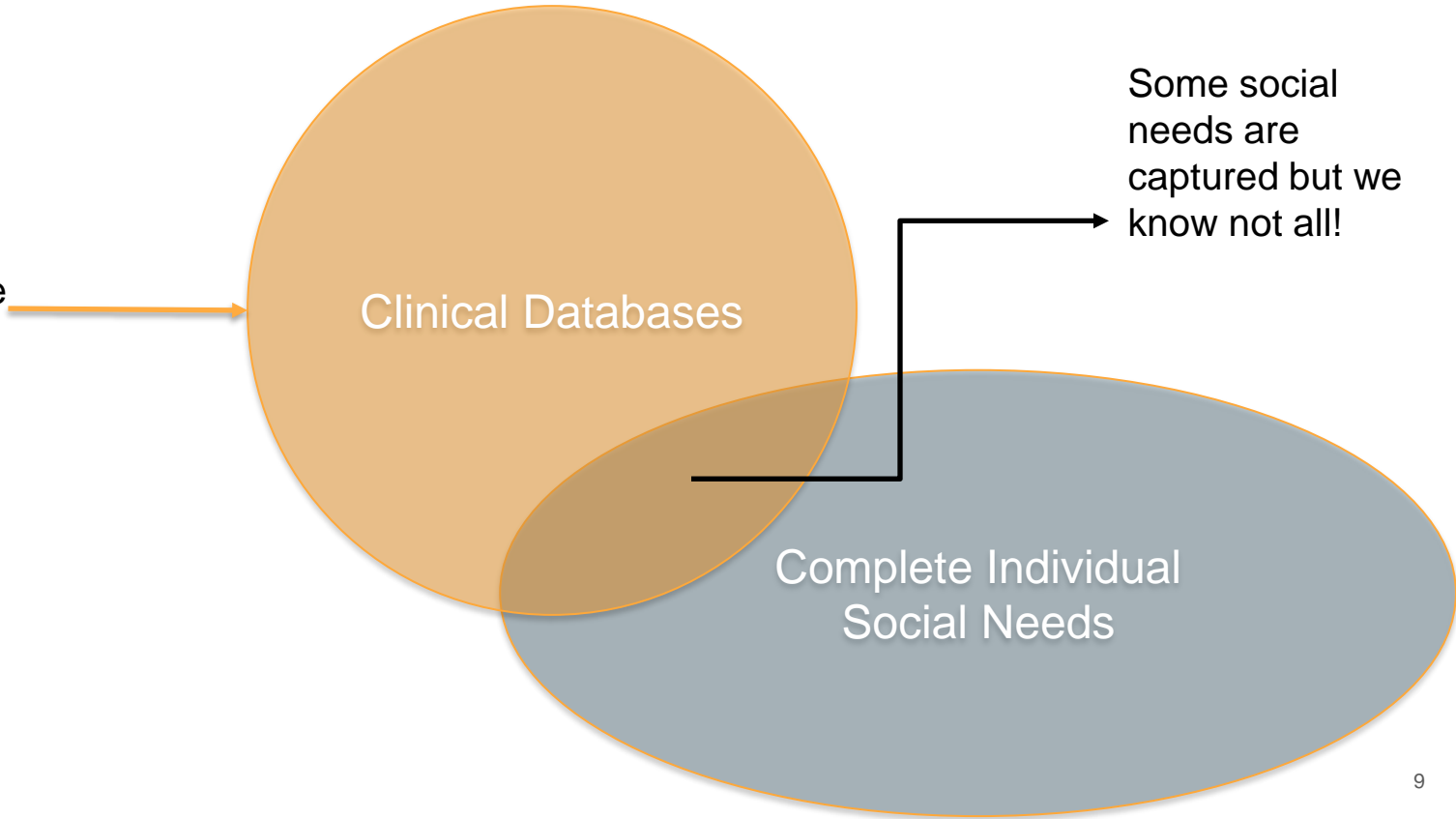


- 450K+ population
- Clinical needs
- Relative risk
- Demographics
- Service utilisation
- **Social needs** (mapped from snomed CT, ICD, ICPC etc.)

Detecting social needs from clinical contacts

Clinical contacts:

- Primary Care Events
- Hospital Inpatient Events
- Hospital ED Events



Some social needs are captured but we know not all!



Currently Used Markers

- **73438004** | Unemployed (0.35% of total population)

Maps to Psychosocial EDC

- **Z738** | Other problems related to life-management difficulty (0.3% of total population)

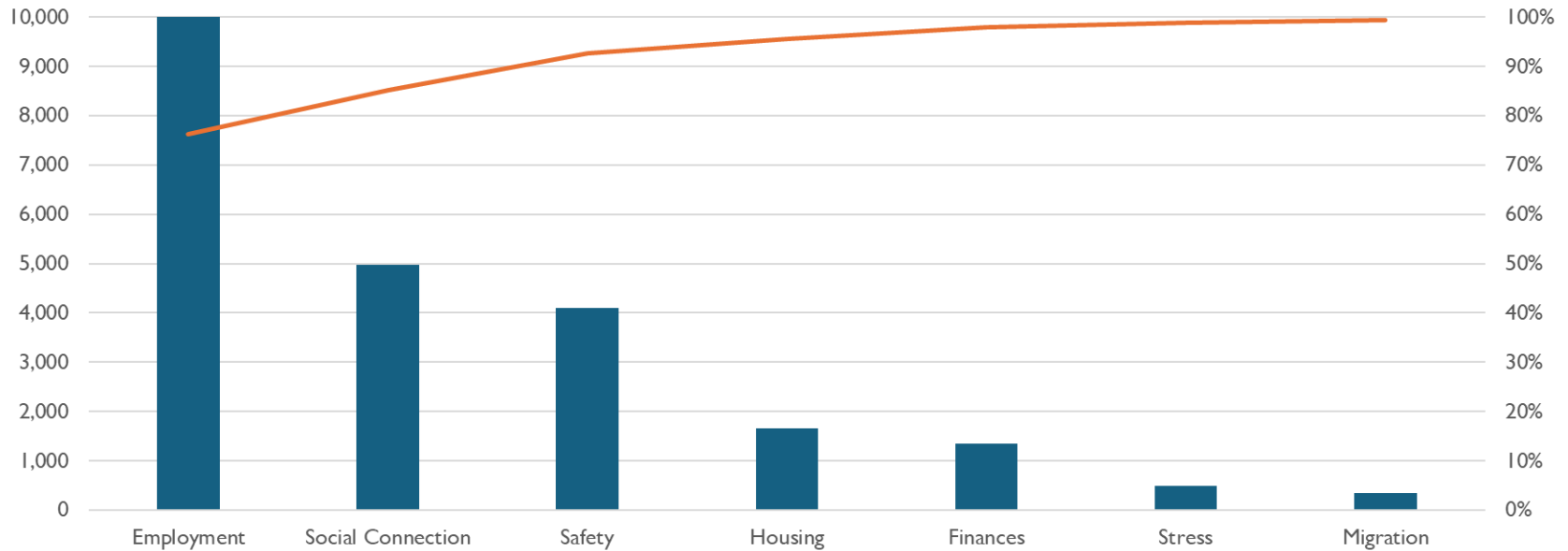
SN Marker – Stress

Maps to Psychosocial EDC

Novel Markers

- **751481000000104** | eMED3 (2010) new statement issued, not fit for work
- **160689007** | Housebound

What we discovered – more social needs captured than expected



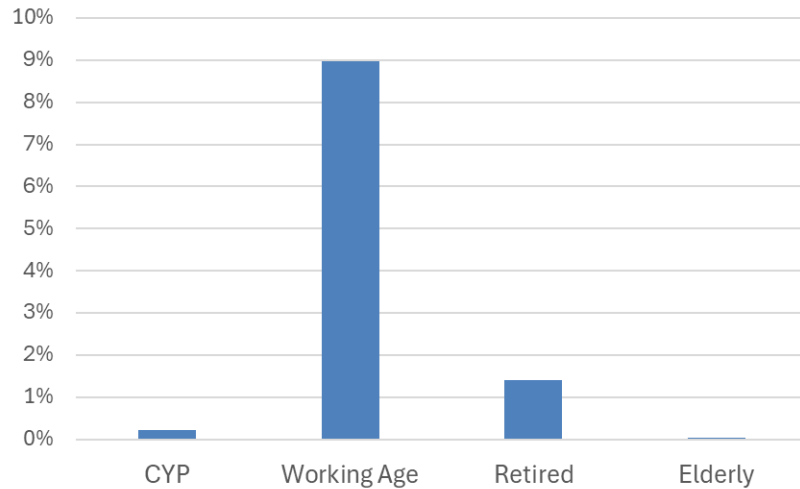
A focus on the impact of employment needs



- 5.5%+ of people had employment needs
- 24,000 (~95%) people identified who have had a Doctor's medical certificate in the past year

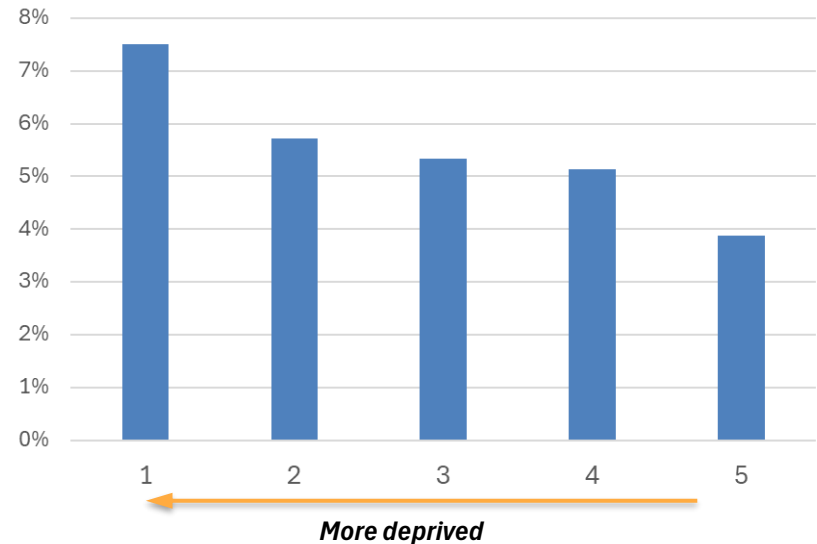
Employment Needs and Age Group

Highest proportion of employment needs in the working age group



Employment Needs and relative deprivation

Highest proportion of employment needs in the most deprived quintile



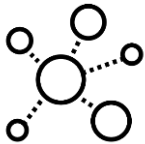
Employment needs by Patient Need Groups (PNGs)



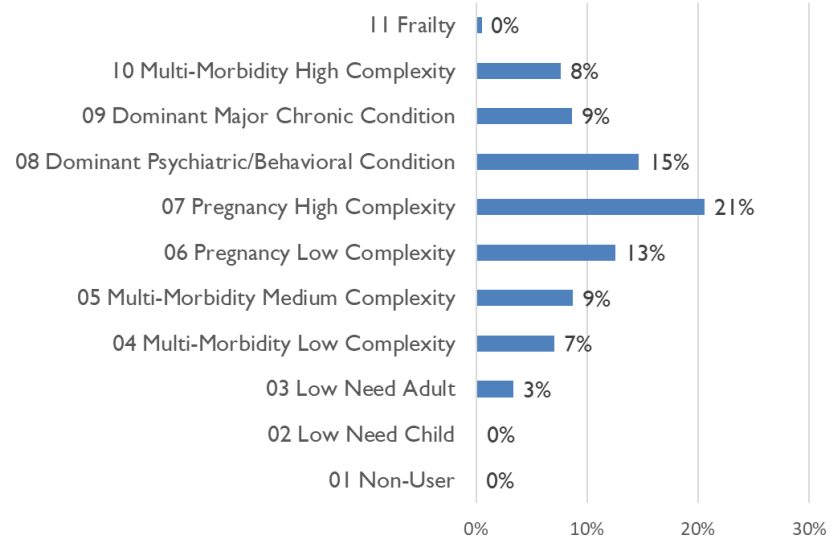
An innovative segmentation model, applicable to all age groups and the whole population, building upon the ACG System's whole-person approach to measuring health needs.



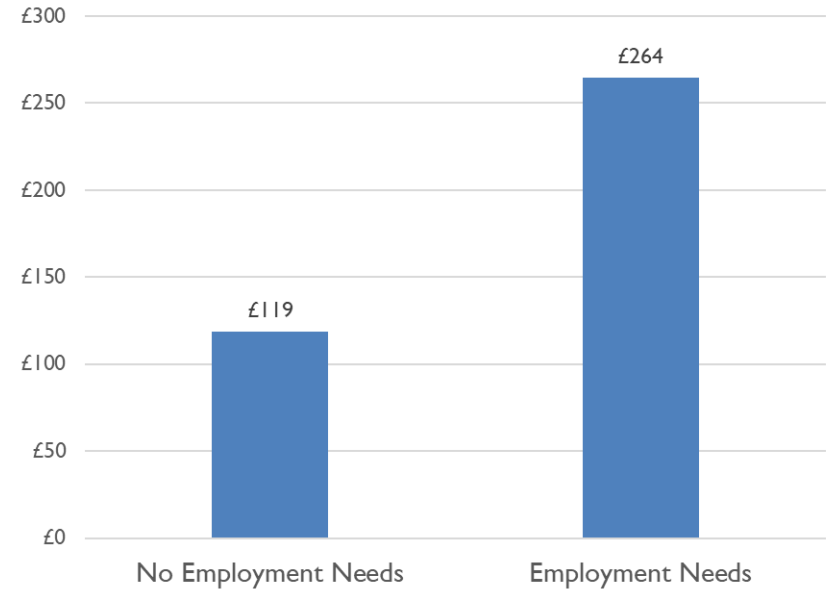
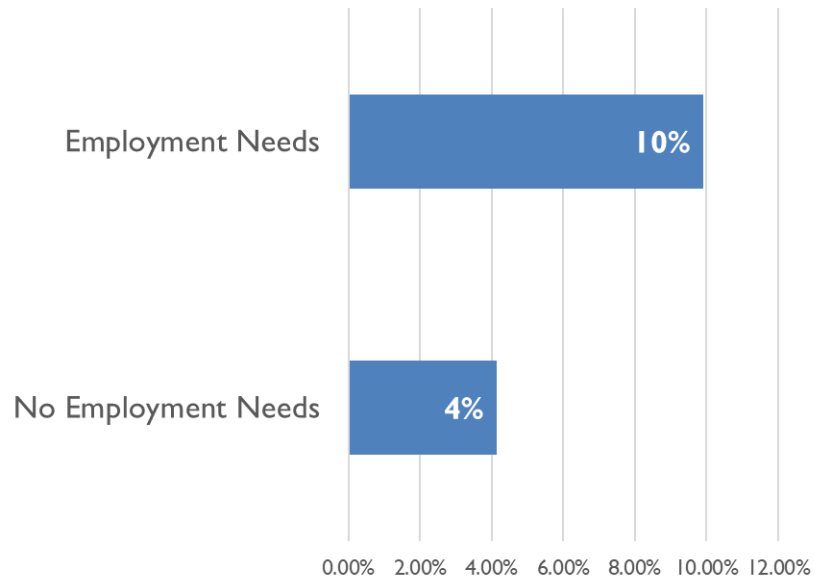
There are **eleven mutually exclusive segments** that describe an individual's health need based on the diseases and conditions they have.



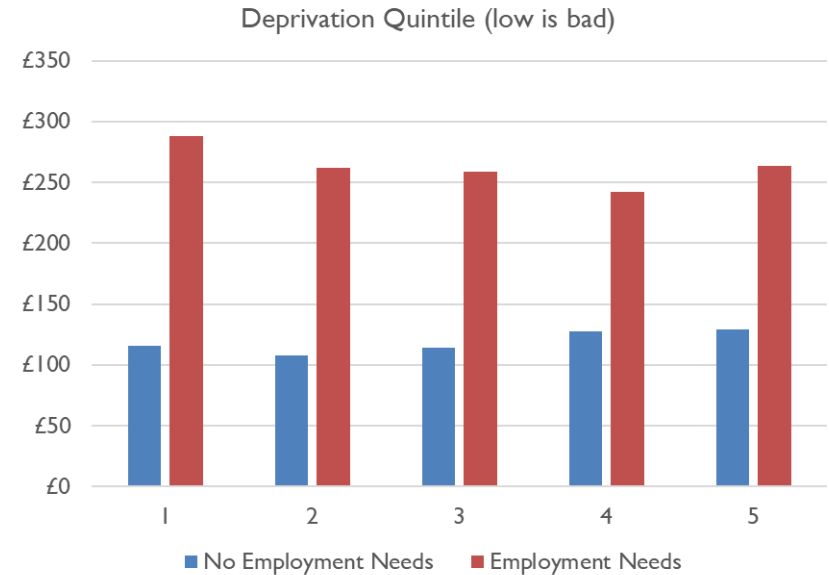
PNGs are clinically coherent and are a 'currency' that is intuitive to understand when considering the overall complexity of an individual.



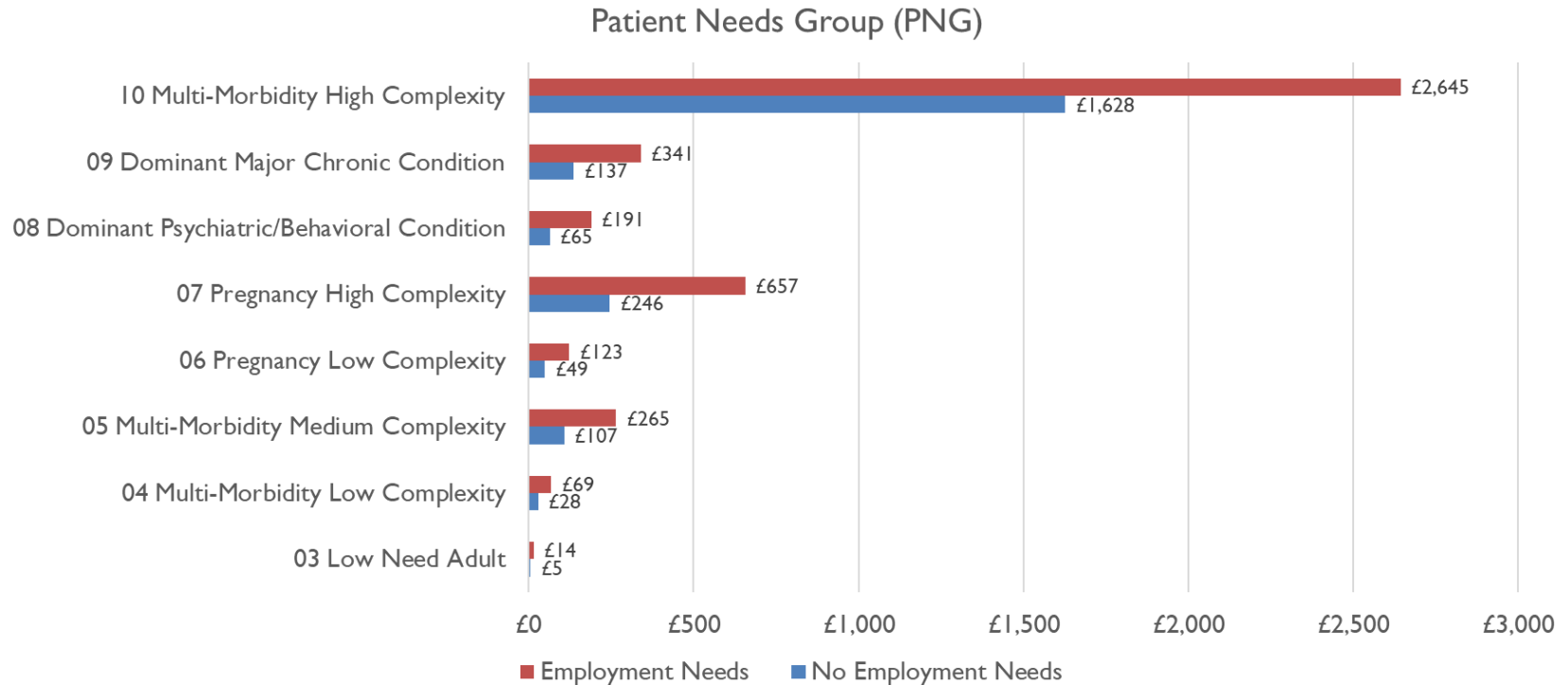
More people use emergency services who have employment needs



Impact of having employment needs on emergency costs



Most deprived, working age population (n=99K)



Isolating the effect of employment needs

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Zero hurdle model coefficients (binomial with logit link):
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	Estimate	Std. Error	z value	Pr(> z)	
(Intercept)	-17.24692	59.71538	-0.289	0.773	
Life.CourseCYP	1.49172	0.02318	64.347	< 2e-16	***
Life.CourseElderly	0.13873	0.02349	5.905	3.52e-09	***
Life.CourseRetired	-0.08727	0.01614	-5.408	6.38e-08	***
PatientNeedGroup02 Low Need Child	11.92941	59.71538	0.200	0.842	
PatientNeedGroup03 Low Need Adult	11.85714	59.71539	0.199	0.843	
PatientNeedGroup04 Multi-Morbidity Low Complexity	13.41643	59.71538	0.225	0.822	
PatientNeedGroup05 Multi-Morbidity Medium Complexity	14.62011	59.71538	0.245	0.807	
PatientNeedGroup06 Pregnancy Low Complexity	13.96449	59.71542	0.234	0.815	
PatientNeedGroup07 Pregnancy High Complexity	15.47803	59.71542	0.259	0.795	
PatientNeedGroup08 Dominant Psychiatric/Behavioral Condition	14.07303	59.71539	0.236	0.814	
PatientNeedGroup09 Dominant Major Chronic Condition	14.67338	59.71538	0.246	0.806	
PatientNeedGroup10 Multi-Morbidity High Complexity	16.48283	59.71538	0.276	0.783	
PatientNeedGroup11 Frailty	16.50878	59.71539	0.276	0.782	
Local.Quintile2	-0.08997	0.01881	-4.783	1.73e-06	***
Local.Quintile3	-0.15727	0.01893	-8.306	< 2e-16	***
Local.Quintile4	-0.08219	0.01865	-4.407	1.05e-05	***
Local.Quintile5	-0.01502	0.01854	-0.810	0.418	
Employment	0.83829	0.02010	41.712	< 2e-16	***

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Being unemployed is associated with a 130%+ increase in emergency admission costs among those with positive costs, after adjusting for age, comorbidities, and deprivation.

Is the impact significant?

- Simple linear regression modelling controlling for:
Age & sex
Clinical position (ACG)
- Examining the effect of the presence of any social needs* <12m
- Total Cost +£135 ($<2e-16$ ***)
- Emergency Inpatient Cost +£65 ($<2e-16$ ***)
- A&E Attendance Cost +£30 ($<2e-16$ ***)
- Prescription Cost +£55 ($<2e-16$ ***)
- GP Visits +2 ($<2e-16$ ***)

**this is a working list of social need markers and results are likely to change as the list is expanded and refined*

Age	60-65
GenderShort	Male
Total Cost	£2,000
PrescriptionCost	£1,100
GP Appointments	12
Patient Need Group	05 Multi-Morbidity Medium Complexity
Chronic Conditions	8
IMD	Most deprived
Rub Group	Moderate
Asthma Condition	Yes
COPD	Yes
Depression	Yes
Hypertension	Yes
Risk of Hospitalisation	High
Risk of Mortality	High
Active Ingredients	11
EFICategory	Severe

What difference would it make in how systems engage with and manage someone who also has:

- **Mould growth in home**
- **Housebound**

Reflections

■ Applications:

Should this feature as an important variable in case-mix adjustments?

Should this augment how services are planned?

Could this help create/curate cohort selection?

Is this relevant for implementation of new models of support?

Limitations and next steps

- **Limitations and future research:**
 - These only represent a fraction of all social needs
 - These social needs are only relevant to the clinical consultation
 - Should we leverage more routinely collected datasets from across all the health and care assets?
 - Does this demand an integrated approach to sharing knowledge and formulating solutions?

Conclusions

- Social needs are indeed recorded where relevant to the clinical consultation
- They are varied and represent real world challenges for people
- They have a clear and significant impact on emergency hospital utilisation
- We know they are limited in their scope, but we know reporting creates a culture of capture

Thank you