HSPN Health System Performance Network

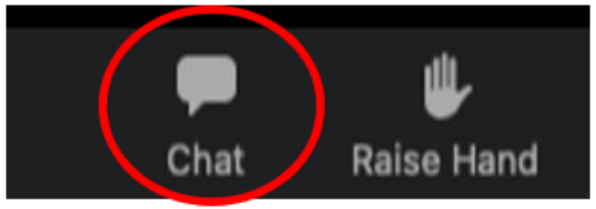
Measuring Equity

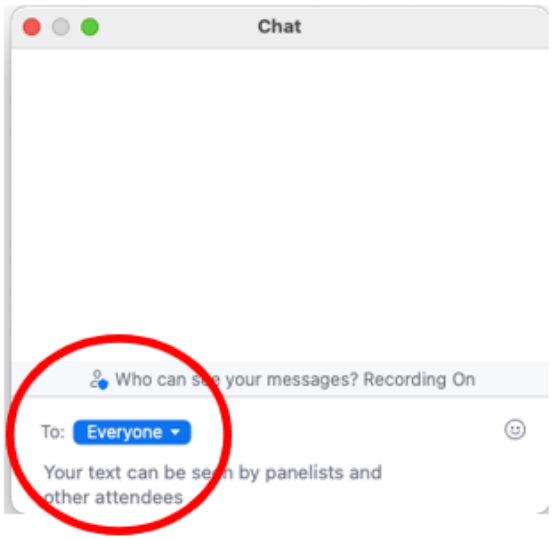
HSPN Monthly Webinar

June 27, 2023

Welcome & thank you for joining us!

Please let us know who you are by introducing yourself (name & OHT or other org)





➢Open Chat

➢Set response to everyone in the chat box

HSPN

Land Acknowledgement

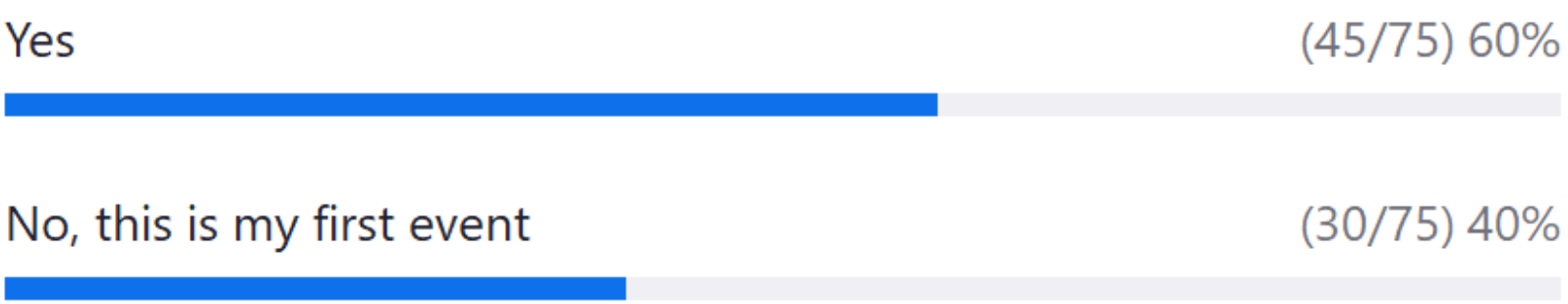
We wish to acknowledge this land on which the University of Toronto operates. For thousands of years it has been the traditional land of the Huron-Wendat, the Seneca, and the Mississaugas of the Credit. Today, this meeting place is still the home to many Indigenous people from across Turtle Island and we are grateful to have the opportunity to work on this land.

Poll 1

Poll | 1 question | 75 of 93 (80%) participated

1. Have you joined us for an HSPN webinar previously ? (Single Choice)
*

75/75 (100%) answered



HSPN

HSPN Health System Performance Network

Today's event

Measuring Equity

Co-Hosts

Dr. Paul Wankah-Nji
Post-Doctoral Fellow
UofT and HSPN

Dr. Walter Wodchis
Principal Investigator
HSPN

Presenters

Dr. John Ford
Public Health Doctor;
Senior Clinical Lecturer at Queen Mary University London
NHS England

Will Manners
Senior Analytical Manager: NHS England

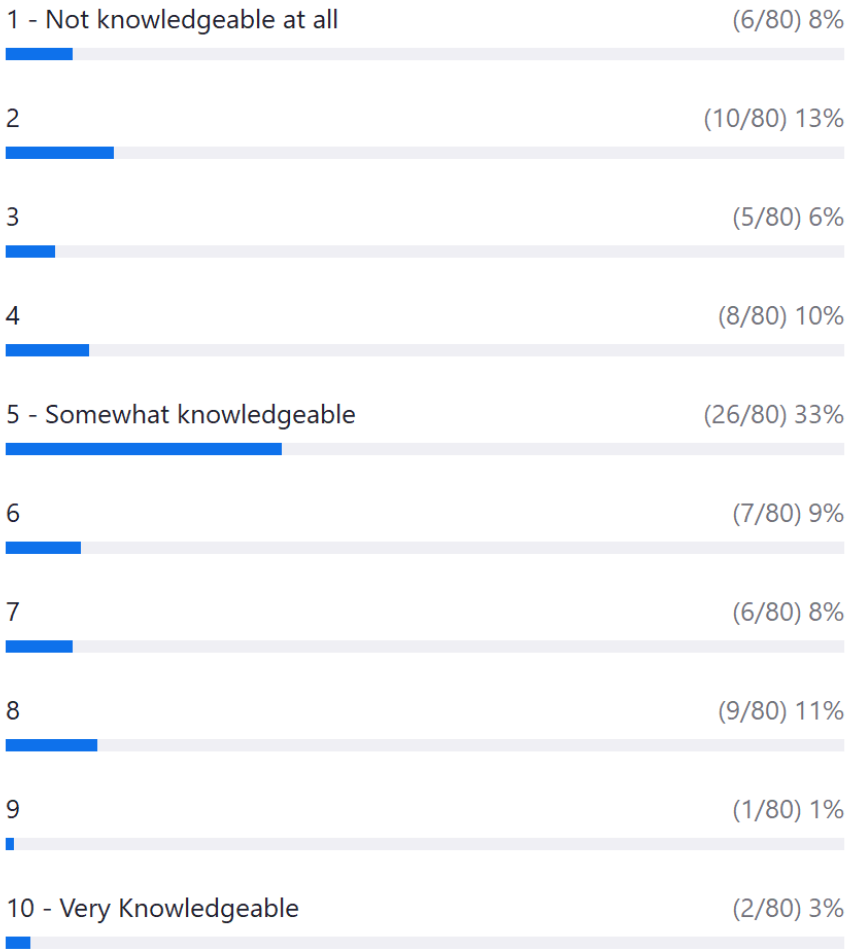
Jessica Morgan
MSc student in Health Services Research
University of Toronto

Poll 2

Poll | 1 question | 80 of 113 (70%) participated

1. How knowledgeable are you about health equity measurement ? (Single Choice) *

80/80 (100%) answered



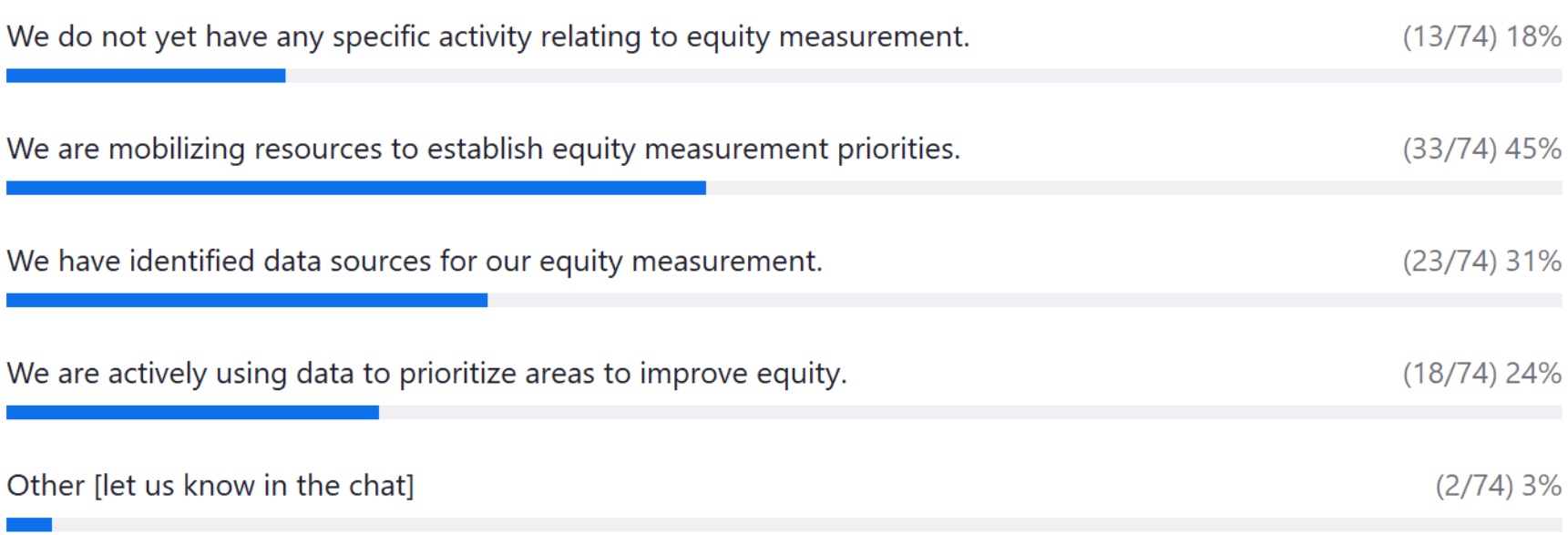
HSPN

Poll 3

Poll | 1 question | 74 of 123 (60%) participated

1. Where have you focused efforts in relation to Equity? [check all that apply] (Multiple Choice) *

74/74 (100%) answered



STATISTICAL APPROACHES TO MEASURE HEALTH INEQUITIES

JUNE 27, 2023
PREPARED BY JESSICA MORGAN

HSPN

HEALTH EQUITY:

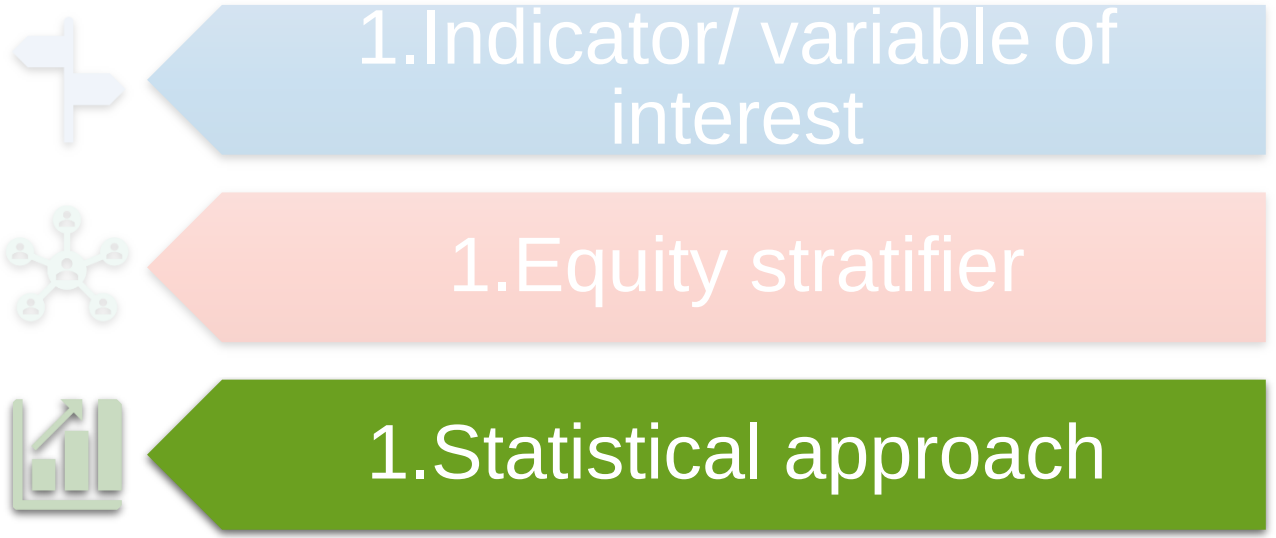
Every person has a fair opportunity to achieve their full potential for health.[1]

Working towards eliminating **disparities** in health and the determinants of health.[2]

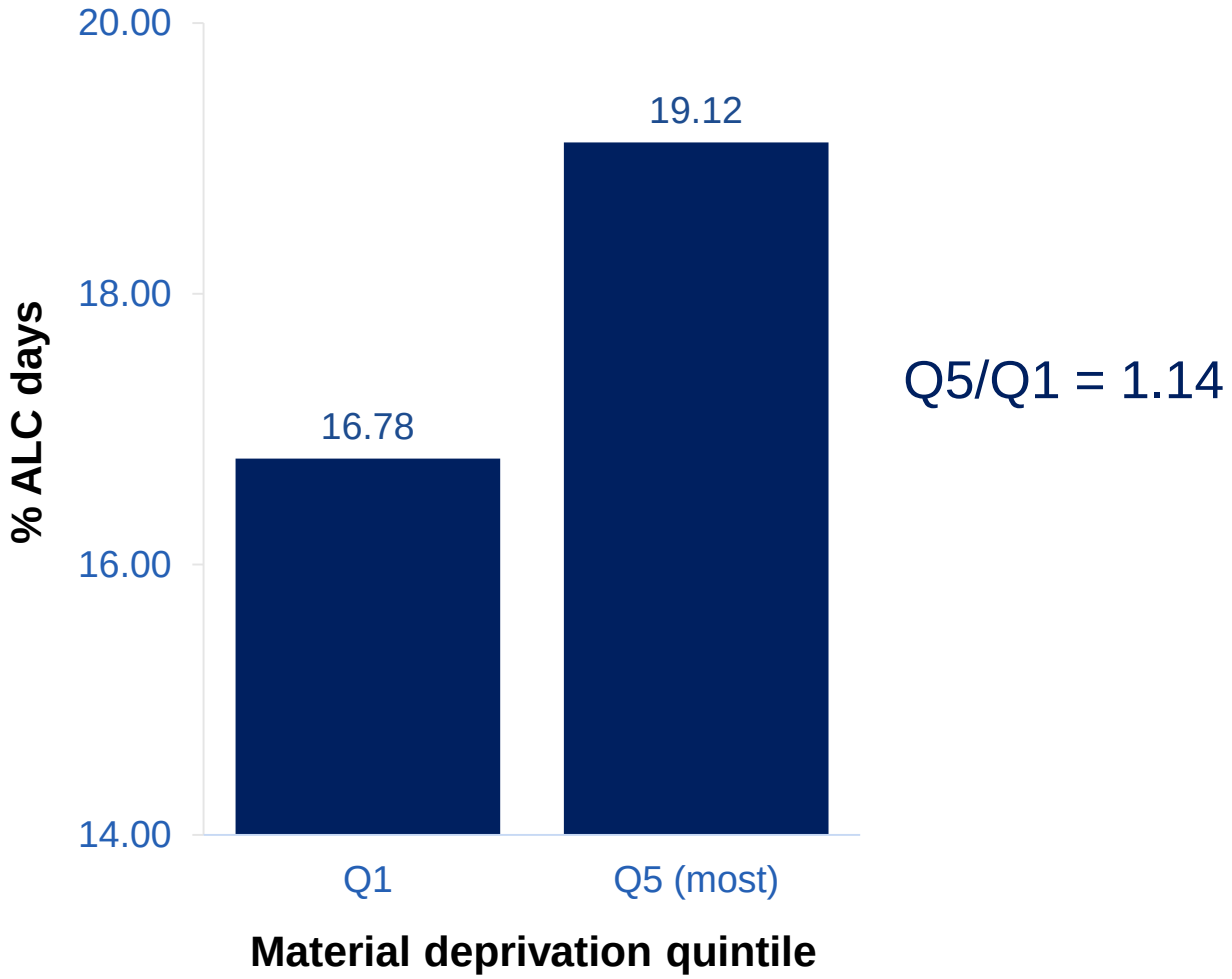
Disparities are adverse and avoidable differences in health that are linked to economic, social, or environmental disadvantage/under-resourcing.[2,3]

1. Whitehead, M. (1991). The concepts and principles of equity and health. *Health Promotion International*, *6*(3), 217–228.
2. Braveman, P. (2014). What are health disparities and health equity? We need to be clear. *Public Health Reports (Washington, D.C. : 1974)*, *129 Suppl 2*(Suppl 2), 5–8.
3. HealthyPeople.gov. Disparities [cited 2023 June 20] Available from: URL: https://wayback.archive-it.org/5774/20190703195956/https://www.healthypeople.gov/2020/about/foundation-health-measures/Disparities#6

COMPONENTS OF HEALTH EQUITY MEASUREMENT

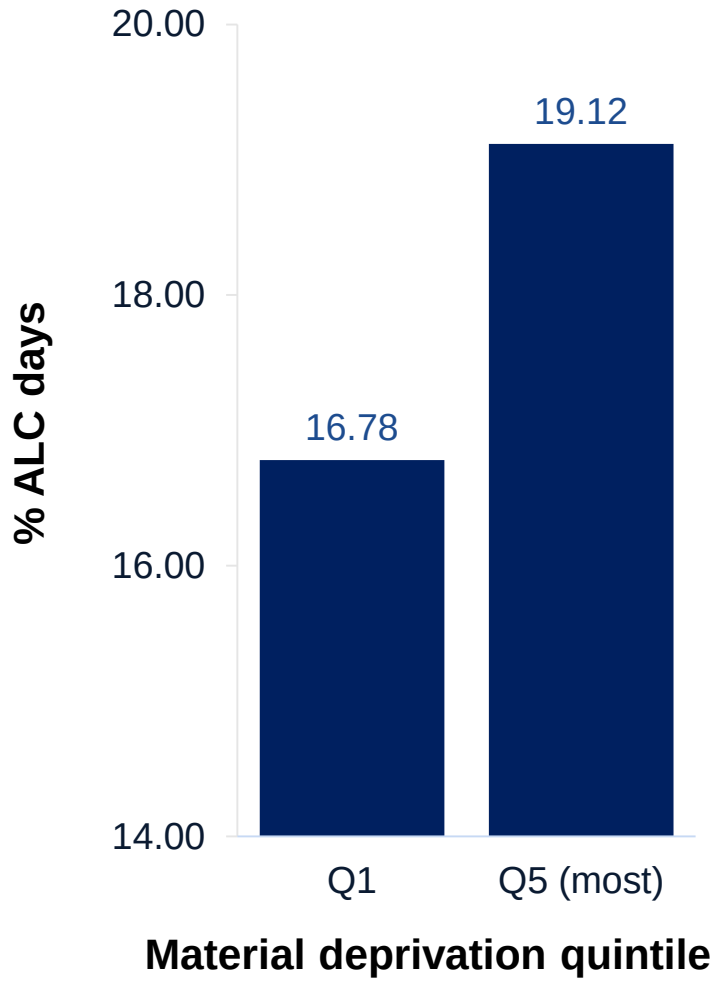


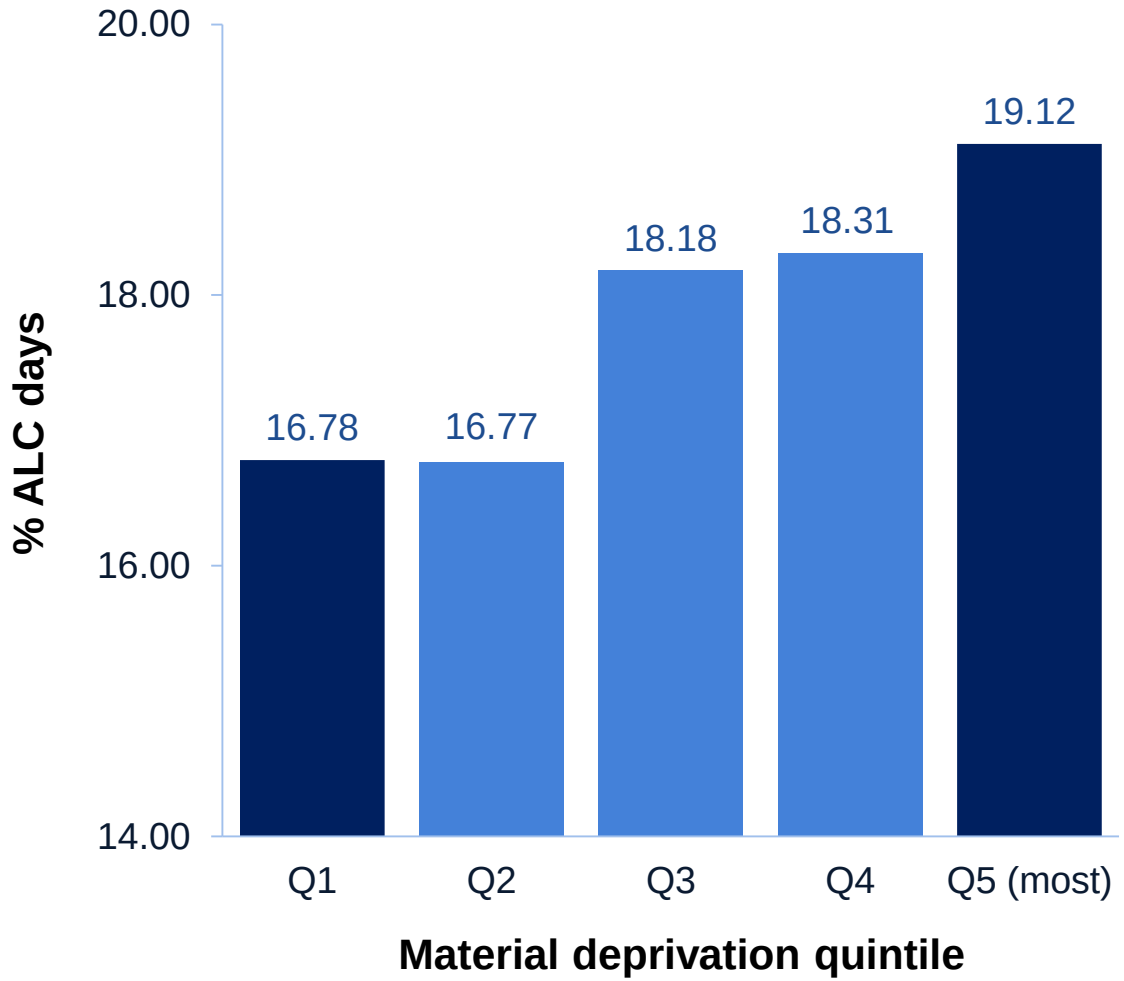
2020/21 ALTERNATE LEVEL OF CARE (ALC) DAYS EXPRESSED AS A PERCENTAGE OF ALL INPATIENT DAYS IN THE SAME PERIOD BY MATERIAL DEPRIVATION QUINTILE



Data source: HSPN Evaluation of Ontario Health Teams (OHT): Segmentation Results for FULL OHTAM DATASET using the CIHI POP GROUPER methodology

2020/21 ALTERNATE LEVEL OF CARE (ALC) DAYS EXPRESSED AS A PERCENTAGE OF ALL INPATIENT DAYS IN THE SAME PERIOD BY MATERIAL DEPRIVATION QUINTILE





Data source: HSPN Evaluation of Ontario Health Teams (OHT): Segmentation Results for FULL OHTAM DATASET using the CIHI POP GROUPER methodology

Statistical approach

MEASURES OF EFFECT

- Ratio
- Range

MEASURE OF POTENTIAL IMPACT

- Population attributable risk (PAR)

MEASURES OF SOCIOECONOMIC DISTRIBUTION

- Slope index of inequality (SII)
  - Absolute gradient index (AGI)
- Relative index of inequality (RII)
- Index of disparity (ID)
- Concentration index of inequality (CII)
  - Horizontal inequity index (HI)

Statistical approach

MEASURES OF EFFECT

- Ratio
- Range

MEASURE OF POTENTIAL IMPACT

- Population attributable risk (PAR)

MEASURES OF SOCIOECONOMIC DISTRIBUTION

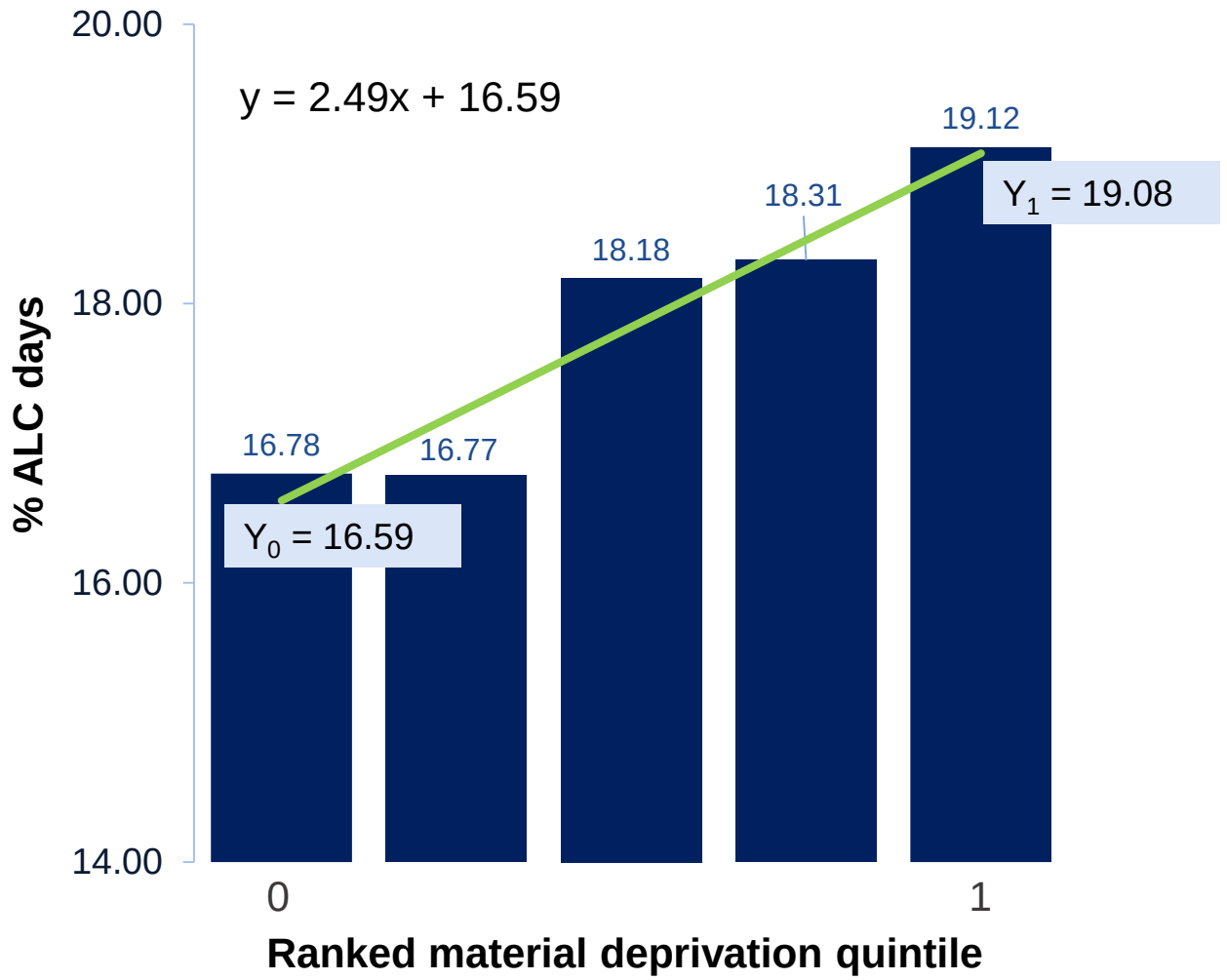
- Slope index of inequality (SII)
  - Absolute gradient index (AGI)
- Relative index of inequality (RII)
- Index of disparity (ID)
- Concentration index of inequality (CII)
  - Horizontal inequity index (HI)

Statistical approach

Approach	Definition
Slope index of inequality (SII)	A regression-based measure of the gradient in a variable of interest across fractionally ranked equity stratifiers. It corresponds to the regression coefficient of a population-weighted linear regression equation where groups are given a fractional ranking from most advantaged (rank of 0) to least advantaged (rank of 1) .[4,5]
Relative index of inequality (RII)	The relative counterpart to the SII and is most often calculated by dividing the predicted value of a linear regression (same as SII) for the least advantaged group by the most advantaged group.[4,5]
Index of disparity (ID)	Represents the spread of an indicator's rate in select groups around the total population's rate. It is calculated by dividing the absolute difference in indicator rates between select groups in the population and the overall population by the total rate.[6]

4. Wagstaff, A., Paci, P., & van Doorslaer, E. (1991). On the measurement of inequalities in health. *Social Science & Medicine*, *33*(5), 545–557.
5. Regidor, E. (2004). Measures of health inequalities: part 2. *Journal of Epidemiology & Community Health*, *58*(11), 900–903
6. Pearcy, J. N., & Keppel, K. G. (2002). A Summary Measure of Health Disparity. *Public Health Reports*, *117*(3), 273–280

2020/21 ALTERNATE LEVEL OF CARE (ALC) DAYS EXPRESSED AS A PERCENTAGE OF ALL INPATIENT DAYS IN THE SAME PERIOD BY MATERIAL DEPRIVATION QUINTILE



SLOPE INDEX OF INEQUALITY

$$SII = \frac{Y_1 - Y_0}{X_1 - X_0}$$

$$= \frac{19.08 - 16.59}{1 - 0}$$

$$= 2.49$$

RELATIVE INDEX OF INEQUALITY

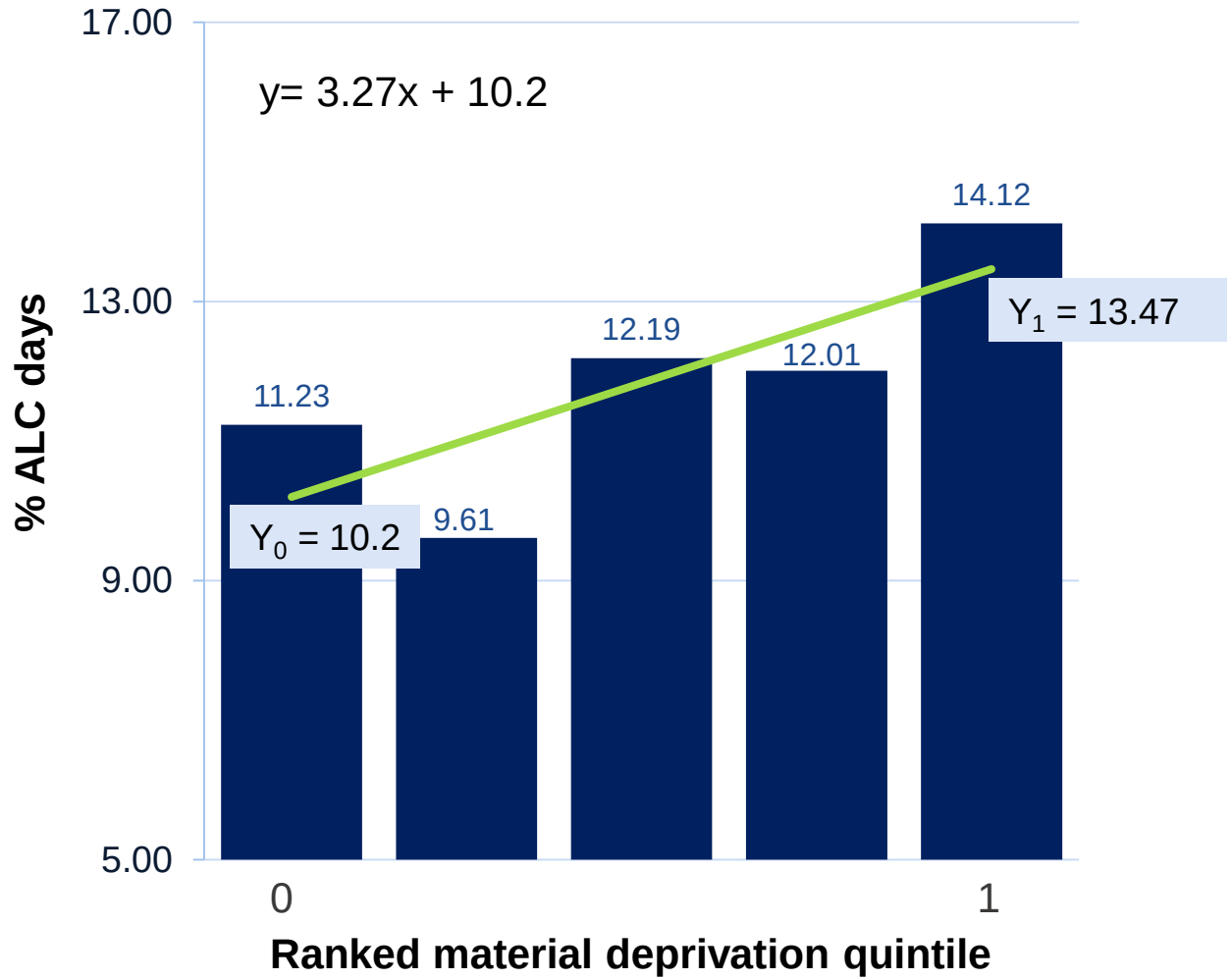
$$RII = \frac{Y_1}{Y_0}$$

$$RII = 1.15$$

Note: the Q5/Q1 ratio = 1.14

Data source: HSPN Evaluation of Ontario Health Teams (OHT): Segmentation Results for FULL OHTAM DATASET using the CIHI POP GROUPER methodology

2020/21 ALTERNATE LEVEL OF CARE (ALC) DAYS EXPRESSED AS A PERCENTAGE OF ALL INPATIENT DAYS IN THE SAME PERIOD BY MATERIAL DEPRIVATION QUINTILE FOR THE MODERATE CHRONIC HEALTH PROFILE GROUP (HPG)



Q5/Q1 RATIO = 1.26

RII = 1.32

SII = 3.27

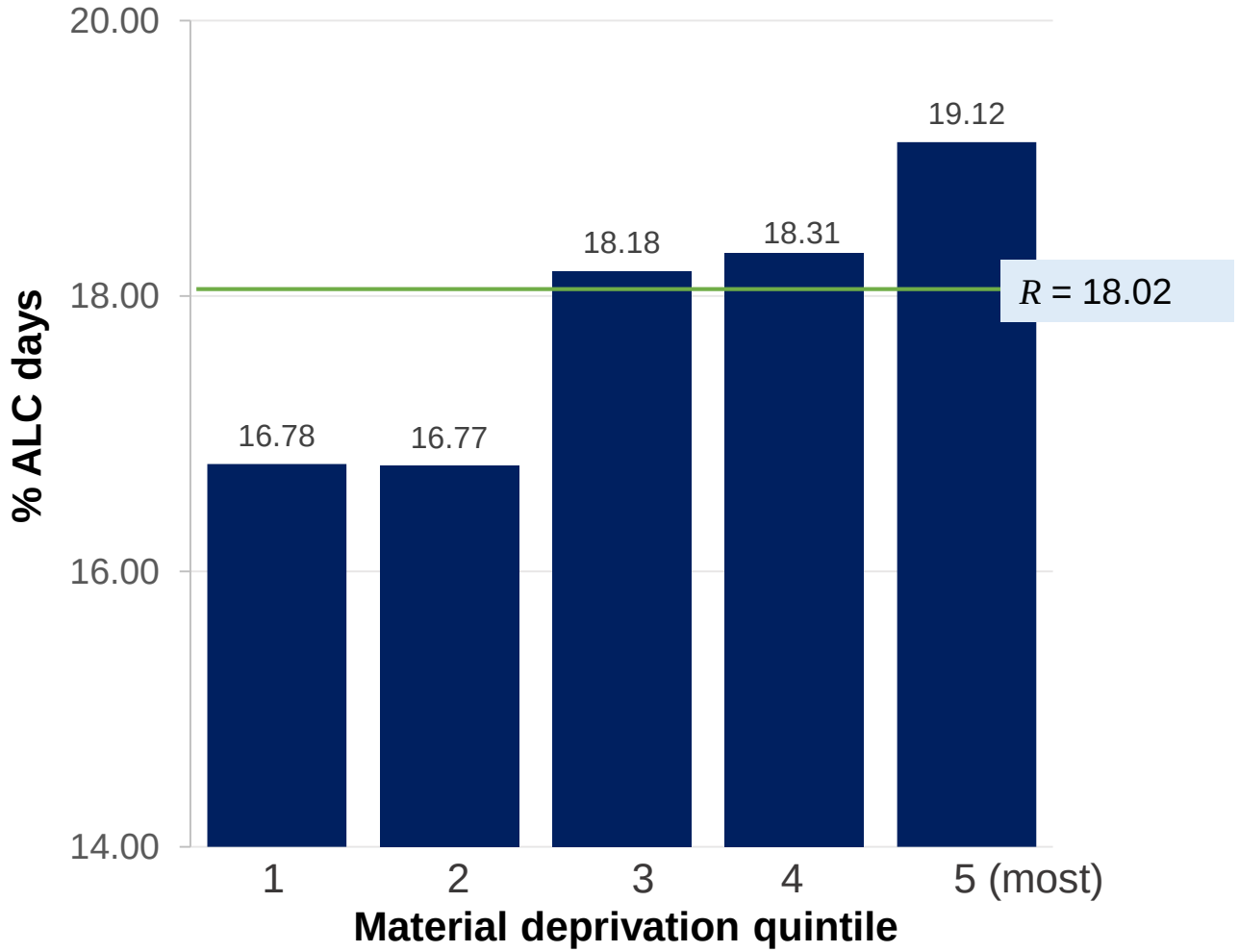
Data source: HSPN Evaluation of Ontario Health Teams (OHT): Segmentation Results for FULL OHTAM DATASET using the CIHI POP GROUPER methodology

Statistical approach

Approach	Definition
Slope index of inequality (SII)	A regression-based measure of the gradient in a variable of interest across fractionally ranked equity stratifiers. It corresponds to the regression coefficient of a population-weighted linear regression equation where groups are given a fractional ranking from most advantaged (rank of 0) to least advantaged (rank of 1) .[4,5]
Relative index of inequality (RII)	The relative counterpart to the SII and is most often calculated by dividing the predicted value of a linear regression (same as SII) for the least advantaged group by the most advantaged group.[4,5]
Index of disparity (ID)	Represents the spread of an indicator's rate in select groups around the total population's rate. It is calculated by dividing the absolute difference in indicator rates between select groups in the population and the overall population by the total rate.[6]

4. Wagstaff, A., Paci, P., & van Doorslaer, E. (1991). On the measurement of inequalities in health. *Social Science & Medicine*, *33*(5), 545–557.
5. Regidor, E. (2004). Measures of health inequalities: part 2. *Journal of Epidemiology & Community Health*, *58*(11), 900–903
6. Pearcy, J. N., & Keppel, K. G. (2002). A Summary Measure of Health Disparity. *Public Health Reports*, *117*(3), 273–280

2020/21 ALTERNATE LEVEL OF CARE (ALC) DAYS EXPRESSED AS A PERCENTAGE OF ALL INPATIENT DAYS IN THE SAME PERIOD



INDEX OF DISPARITY

$ID = (\sum|r_{1-n} - R|/n)/R$

Where r is the group-specific rate, and R is the rate in the overall population.

$$ID = \left(\frac{|16.78-18.02|+|16.77-18.02|+|18.18-18.02|+|18.31-18.02|+|19.12-18.02|}{5}\right)/R$$

$ID = 0.0448$

$= 4.48\%$

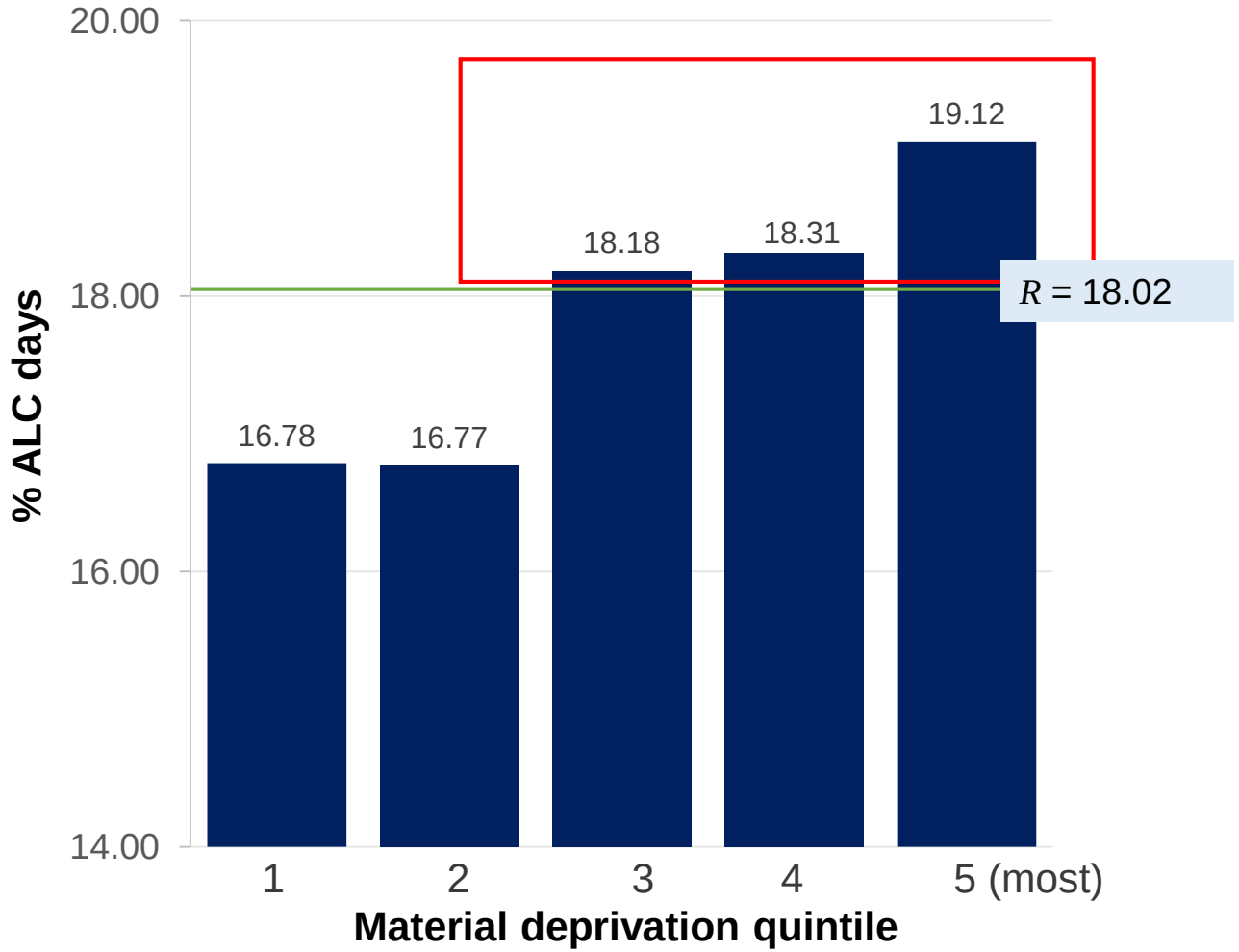
ABSOLUTE INDEX OF DISPARITY

$AID = ID*R$

$AID = 0.808$

Note: Overall % ALC days in Ontario = 18.02%

2020/21 ALTERNATE LEVEL OF CARE (ALC) DAYS EXPRESSED AS A PERCENTAGE OF ALL INPATIENT DAYS IN THE SAME PERIOD



AUGMENTED INDEX OF DISPARITY [7]

$ID = (\sum|r_{1-n} - R|/n)/R$

Where r is the group-specific rate, and R is the rate in the overall population.

$$ID = \left(\frac{|18.18-18.02|+|18.31-18.02|+|19.12-18.02|}{3}\right)/R$$

$ID = 0.0287$

$= 2.87\%$

AUGMENTED ABSOLUTE INDEX OF DISPARITY

$AID = ID*R$

$AID = 0.517$

7. The Strategy Unit - Midlands and Lancashire Commissioning Support Unit. (2021). *Assessing equality of health outcomes across the Black Country and West Birmingham regions*.

INTERPRETATIONS

- The best approach depends on what is most important to your aim. How do you interpret each of the measures? … Here is some language to use:

- **Q5/Q1 ratio:** “The proportion of ALC days in the Moderate Chronic HPG is 1.26 times higher in the neighbourhoods with the highest marginalization compared to the neighbourhoods with the lowest marginalization.”
- **SII:** “The effect of moving across the quintiles of material deprivation, from the least materially deprived neighbourhoods to the most, is a 2.49 percentage point increase in the percent of ALC days.”
- **RII:** “The effect of moving across the quintiles of material deprivation, from the least materially deprived neighbourhoods to the most, is a 1.15 times increase in the proportion of ALC days.”
- **ID/AID:** “The average deviation of the material deprivation quintiles is 4.48 percent relative to the average percent of ALC days across all quintiles. This corresponds to an absolute average deviation (AID) of 0.808 percentage points.”

Statistical approach

Relative versus Absolute measures

- Relative measures are dimensionless, so comparable across time and different indicators.[8,9]
- Absolute measures provide more context.[8,9]

8. King, N. B., Harper, S., & Young, M. E. (2012). Use of relative and absolute effect measures in reporting health inequalities: structured review. *BMJ*, *345*(sep03 1), e5774–e5774.
9. Schneider, M. C., Castillo-Salgado, C., Bacallao, J., Loyola, E., Mujica, O. J., Vidaurre, M., & Roca, A. (2002). Methods for measuring inequalities in health. *Pan American Journal of Public Health*, *12*(6).

HSPN

CONCLUSION

- The best approach depends on what is most important to your aim.

	MEASURES OF EFFECT	MEASURES OF SOCIOECONOMIC DISTRIBUTION
ADVANTAGES	Easy to calculate and interpret. Okay when the aim is to improve health of a specific group.	More inclusive. Considers all groups in the population.
DRAWBACKS	May overlook important differences in intermediate groups.	More computationally intensive.

Discussion

What are some of your thoughts and reactions to the measurement approaches introduced by Jessica ?

- Do we want to be able to identify gaps between extremes, or overall
- How do we want to quantify changes/improvement (number of ALC days avoided) we have made by addressing inequalities?
- Other thoughts … LET US KNOW IN THE CHAT!

Measuring Inequalities in NHS England

Will Manners – North East and Yorkshire Analytics

June 2023

Intro to NHS Structures

Our regional footprints

North east and Yorkshire
1. Cumbria and the North East
2. West Yorkshire and Harrogate
3. Humber, Coast and Vale
4. South Yorkshire and Bassetlaw

North west
5. Lancashire and South Cumbria
6. Greater Manchester
7. Cheshire and Merseyside

East of England
19. Cambridgeshire and Peterborough
20. Norfolk and Waveney
21. Suffolk and North East Essex
22. Bedfordshire, Luton and Milton Keynes
23. Hertfordshire and West Essex
24. Mid and South Essex

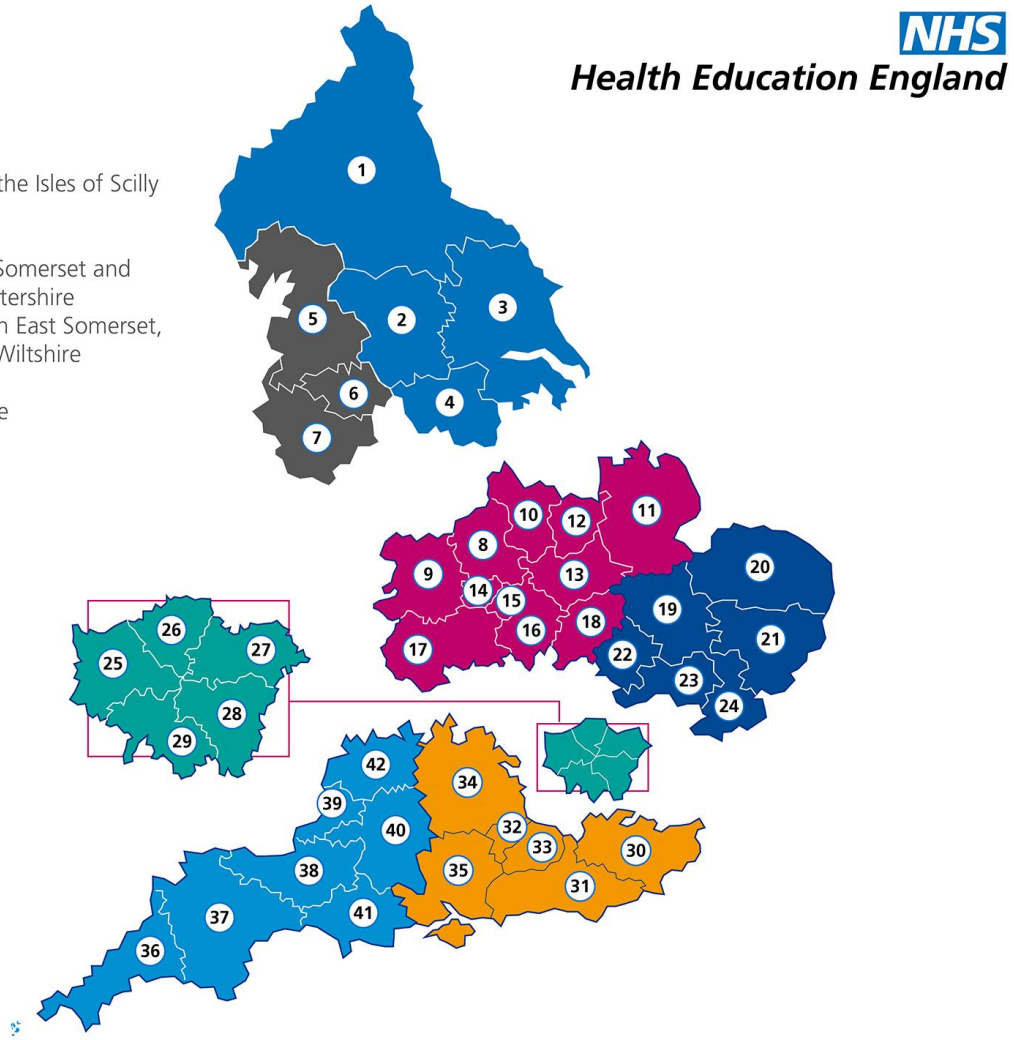
London
25. North West London
26. Central London
27. East London
28. South East London
29. South West London

Midlands
8. Staffordshire and Stoke on Trent
9. Shropshire and Telford and Wrekin
10. Derbyshire
11. Lincolnshire
12. Nottinghamshire
13. Leicester, Leicestershire and Rutland
14. The Black Country
15. Birmingham and Solihull
16. Coventry and Warwickshire
17. Herefordshire and Worcestershire
18. Northamptonshire

South east
30. Kent and Medway
31. Sussex and East Surrey
32. Frimley Health and Care
33. Surrey Heartlands
34. Buckinghamshire, Oxfordshire and Berkshire West
35. Hampshire and Isle of Wight

South west
36. Cornwall and the Isles of Scilly
37. Devon
38. Somerset
39. Bristol, North Somerset and South Gloucestershire
40. Bath and North East Somerset, Swindon and Wiltshire
41. Dorset
42. Gloucestershire

NHS
Health Education England



Regional Team Role

- Regional health inequalities programme team responsible for overseeing delivery of health inequalities agenda across ICBs.

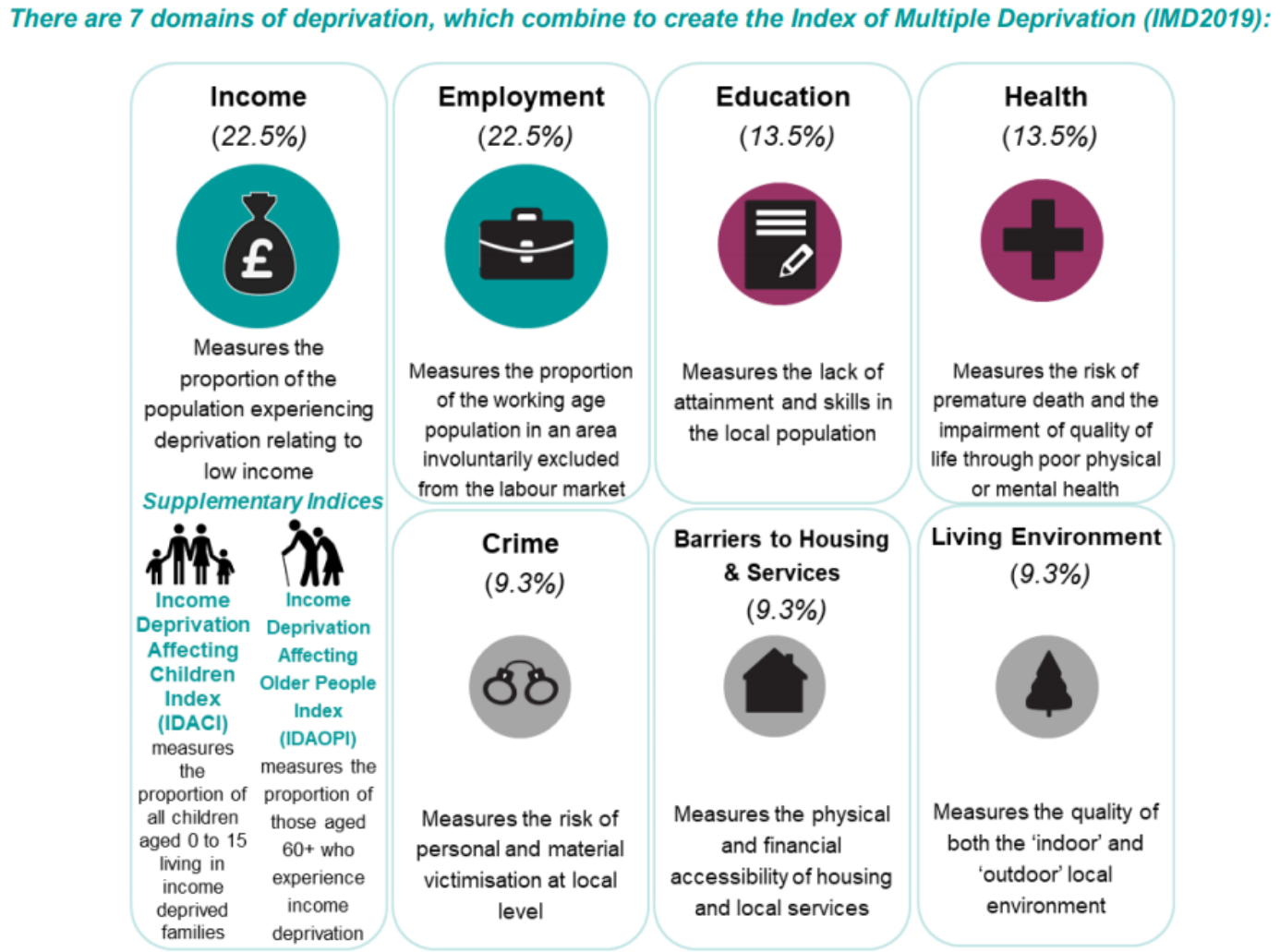
- In reality pretty light-touch – less of an assurance role and more helping identify/spread good practice.

- As an analytical team, we look to provide reports that give our programme team a high-level view of how our ICBs are performing for key metrics, which inform quarterly meetings they have with national colleagues.

- This data is then also shared with ICBs – we may provide support with further analysis, but ICBs will have access to more granular data we cannot access at a region-level (e.g. data extracts direct from GP systems).

Deprivation Scores in England

- To date, the majority of our inequalities analysis has been produced through the lens of deprivation.
- This uses the ‘Index of Multiple Deprivation’ methodology. These look across a range of metrics to assign IMD scores to every small area in England (c.1,500 people).
- As a region, North East and Yorkshire has much higher levels of deprivation than England as a whole – post-industrial towns such as Middlesborough have over 50% of the population living in the most deprived national decile.



Discussion

What are some of your thoughts and reactions to the measurement approaches introduced by Will ?

Is this too much information?

- Other thoughts … LET US KNOW IN THE CHAT!

Translating health equity data into action

July 2023

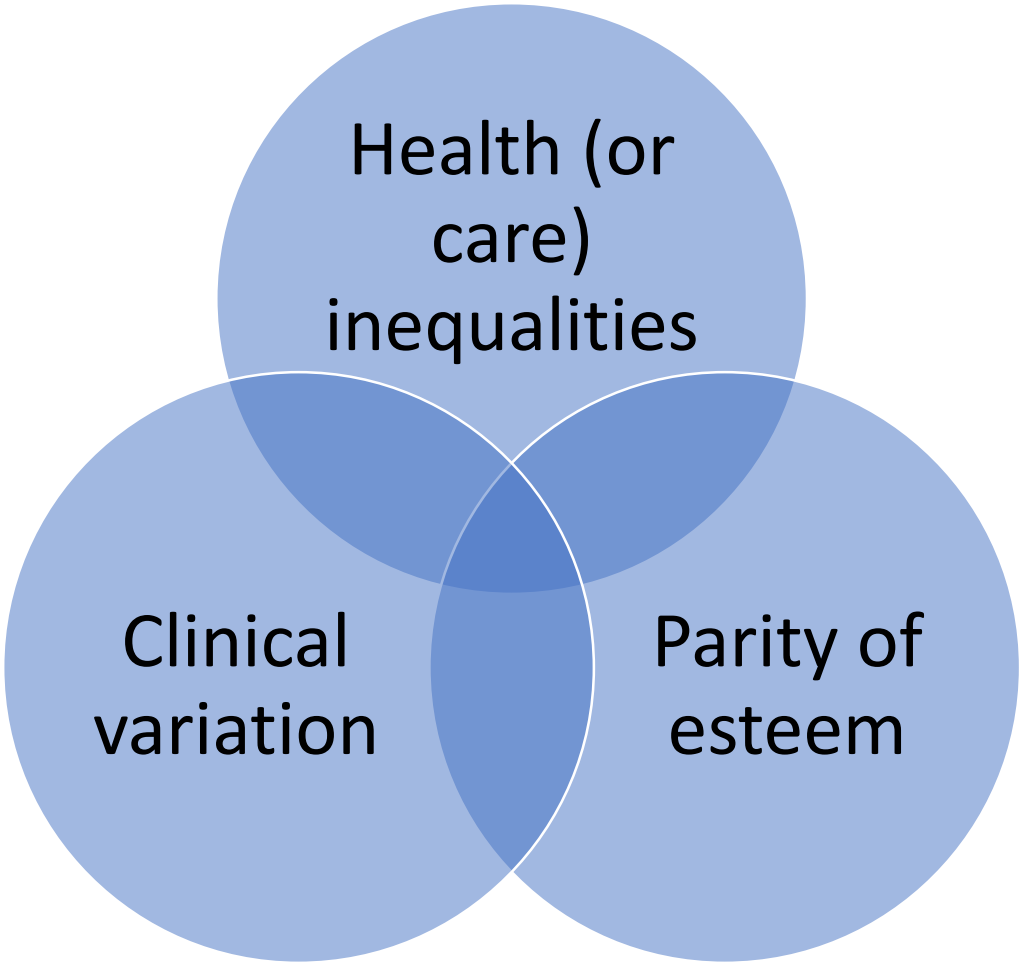
Dr John Ford
Senior Clinical Lecturer in Health Equity
Consultant in Public Health

1. Health Inequalities means different things to different people

NHS England

"Health (and healthcare) inequalities are ***unfair*** and ***avoidable*** differences in health (and healthcare) across the population, and between different groups within society."

1. Health Inequalities means different things to different people



2. Little consensus on health inequalities metrics

Lack of consensus on what health inequalities means leads to difficult in generating metrics

Requires analytical experience and skill

Several decisions to be made

- Gap versus gradient
- National versus local quintiles/deciles

3. Dashboards…

NHS has different dashboards with inequalities data, often siloed

Few attempts to link to data with evidence-based interventions/actions/principles

Some have multiple barriers to access

Often aimed at analysts rather than policy makers or practitioners

What works best

1. Consensus on health equity priorities
2. Short, medium and long term metrics
3. Incorporating key metrics into routine performance reports
4. All data presented by socio-economic status and ethnicity as routine with stop and start criteria
5. Peer support and learning with clear organisational responsibilities
6. Analysis undertaken at level of action
7. Integrating quantitative and qualitative evidence
8. Linked data with evidence-based actions
9. Part of equity-focused quality improvement


Queen Mary
University of London

Poll 4

Poll | 1 question | 45 of 88 (51%) participated

1. Which of the following do you think you see enacted in Ontario ? (Multiple Choice) *

45/45 (100%) answered

HSPN

Key questions for our discussion

- How are you measuring equity in your OHT?
- Who is involved in measuring equity in your OHT?
- What resources do you have to support the measurement of equity of your OHT?

Poll 5

Poll | 1 question | 46 of 80 (57%) participated

1. How knowledgeable are you about health equity measurement? (Single Choice) *

46/46 (100%) answered

HSPN

Up Next

- HSPN webinar series
  - 4th Tuesday of the Month: 12:00 – 1:30 pm

- Equity series
  - July 25 – Addressing Inequities

Can you share some feedback? Scan here! (or click link in chat)

THANK YOU!

@infohspn

hspn@utoronto.ca

The Health System Performance Network

hspn.ca

HSPN