Public Health (Informatics) Needs
Local-ownership & Citizen-connectivity

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Signals we miss from routinely-collected data

The case for locally-owned PHI
Situational Awareness of Rising Child-BMI: Example Wirral 3-yr-olds from 1988 to 2004

Three-monthly rolling average BMI SDS

Month of measurement by Health Visitor

SDS = standard deviation score from 1990 British Growth Reference charts – adjusts for age and sex of the child
Wirral (0.3M), UK

Child poverty map
(households with children: % on benefits in 2001-3)

Fifths of IDAC 2004
Red (light) = most deprived
Red (dark)
Purple
Blue (dark)
Blue (light) = most affluent
Fifths of BMI
SDS BMI fifth
Red (light) = fattest
Red (dark)
Purple
Blue (dark)
Blue (light) = thinnest
BMI of 3 yr olds
1990 - 1991

Fifths of BMI
SDS BMI fifth
- Red (light) = fattest
- Red (dark)
- Purple
- Blue (dark)
- Blue (light) = thinnest
BMI of 3 yr olds
1992 - 1993

Fifths of BMI
SDS BMI fifth
Red (light) = fattest
Red (dark)
Purple
Blue (dark)
Blue (light) = thinnest
BMI of 3 yr olds
1994 - 1995

Fifths of BMI
SDS BMI fifth
Red (light) = fattest
Red (dark)
Purple
Blue (dark)
Blue (light) = thinnest
BMI of 3 yr olds
1996 - 1997

Fifths of BMI
SDS BMI fifth

Red (light) = fattest
Red (dark)
Purple
Blue (dark)
Blue (light) = thinnest
BMI of 3 yr olds
1998 - 1999

Fifths of BMI
SDS BMI fifth
Red (light) = fattest
Red (dark)
Purple
Blue (dark)
Blue (light) = thinnest
BMI of 3 yr olds
2000 – 2001

Fifths of BMI
SDS BMI fifth
Red (light) = fattest
Red (dark)
Purple
Blue (dark)
Blue (light) = thinnest
Signals: Rise in BMI at 2 & 3 years and infant length for children born on Wirral between 1990 and 2000
Secular trend to increasing BMI is much greater in taller children

Source: Buchan et al. 2006
Rise in BMI and fall in cardio-respiratory endurance of Liverpool 10 year olds from 1998 to 2004

Data from G Stratton, Liverpool Sportlinx
Cardio-respiratory endurance levels of Liverpool 10-yr-olds fell in all BMI groups.
Type 2 diabetes incidence in a typical health economy
...these were all signals from routinely-collected NHS data

Beware ‘data-tombs’...
Digital Dust (data deposit > use)

Regional Healthcare Data Tomb

Deposit

Use

Finance

Clinical

Public Health

Research
Cloud of millions of care messages in the local health economy

Organise

Structured Data

Transform & Examine

Structured Data & Metadata
Anaemia at lower levels of kidney impairment than commonly thought

Clinical (audit) questions leading to scientific findings: supporting sustainable healthcare-academic partnership

Anaemia at lower levels of kidney impairment than commonly thought
Pre-Clinical Signals

The case for citizen-connected PHI
UK Health Systems Dilemma

Society’s Health-Needs

- healthy choices opportunity & responsibility
- prevention or bust
- early intervention
- Self-care opportunity & responsibility
- “world class” commissioning
- personalised care & access
- reducing inequalities

Long-term

Strategy for sustainability

Short-term
Do we choose health?
Developing models and software to make complex scenarios easy to explore → democratise commissioning?

Outputs: Population-based incidence, prevalence; Deaths prevented; Life-Years; Life expectancy; Costs; Cost-effectiveness ratios
PHI: Smart Glue

Sense-Making

Health and Social Care

Wellbeing

Global Creativity & Understanding (motivation/ownership)

Open-Source Integration & Analytics (state-of-the-art) +
Public eHealth architectures

Public Funds
Conclusion

• The digital economy will provide new public health signals, interventions and citizen-expectations

• Global open-source PHI could create a federation of locally-useful e-Labs (details in tomorrow’s talk...