

# Health and Energy Efficiency

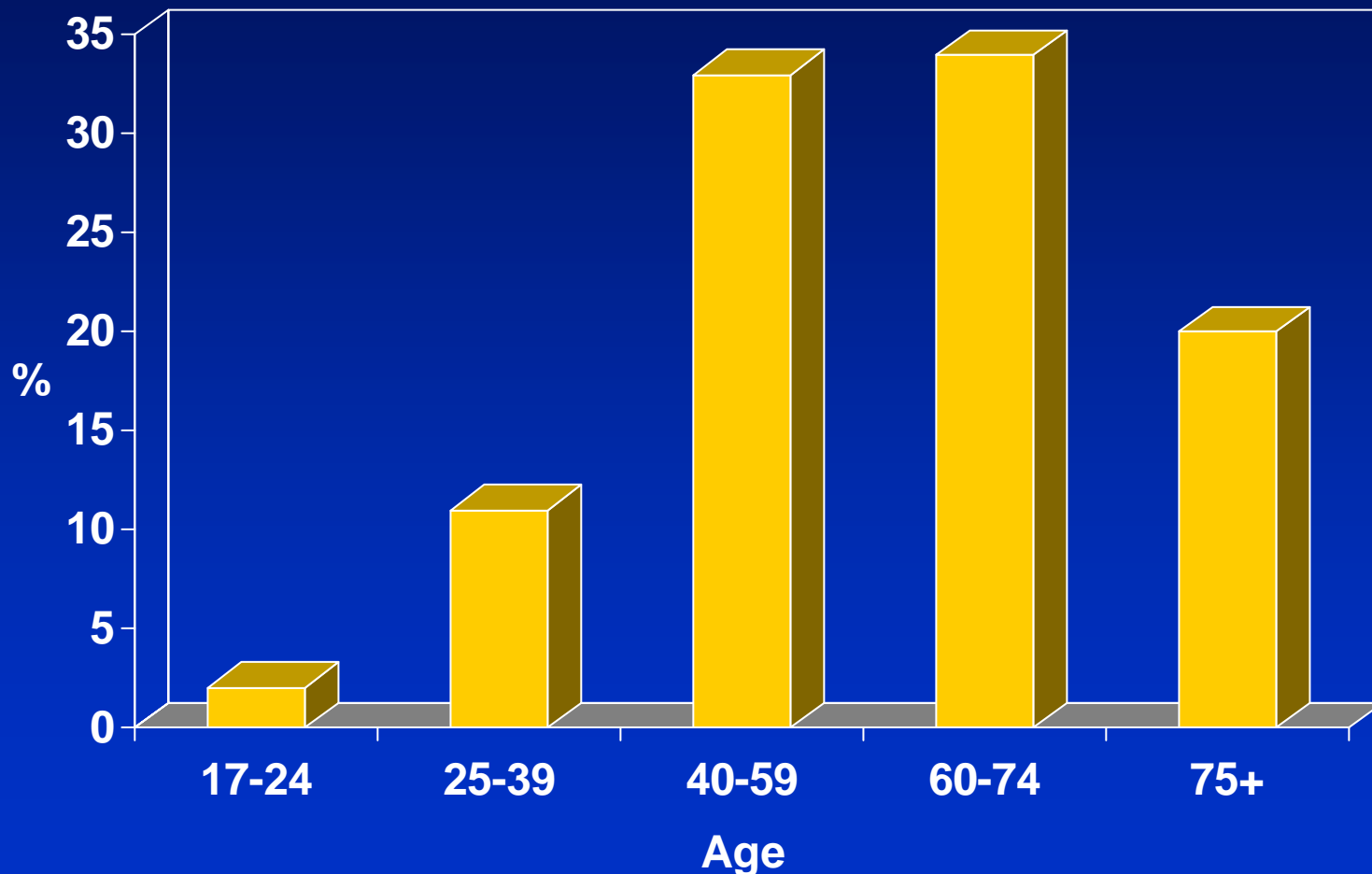
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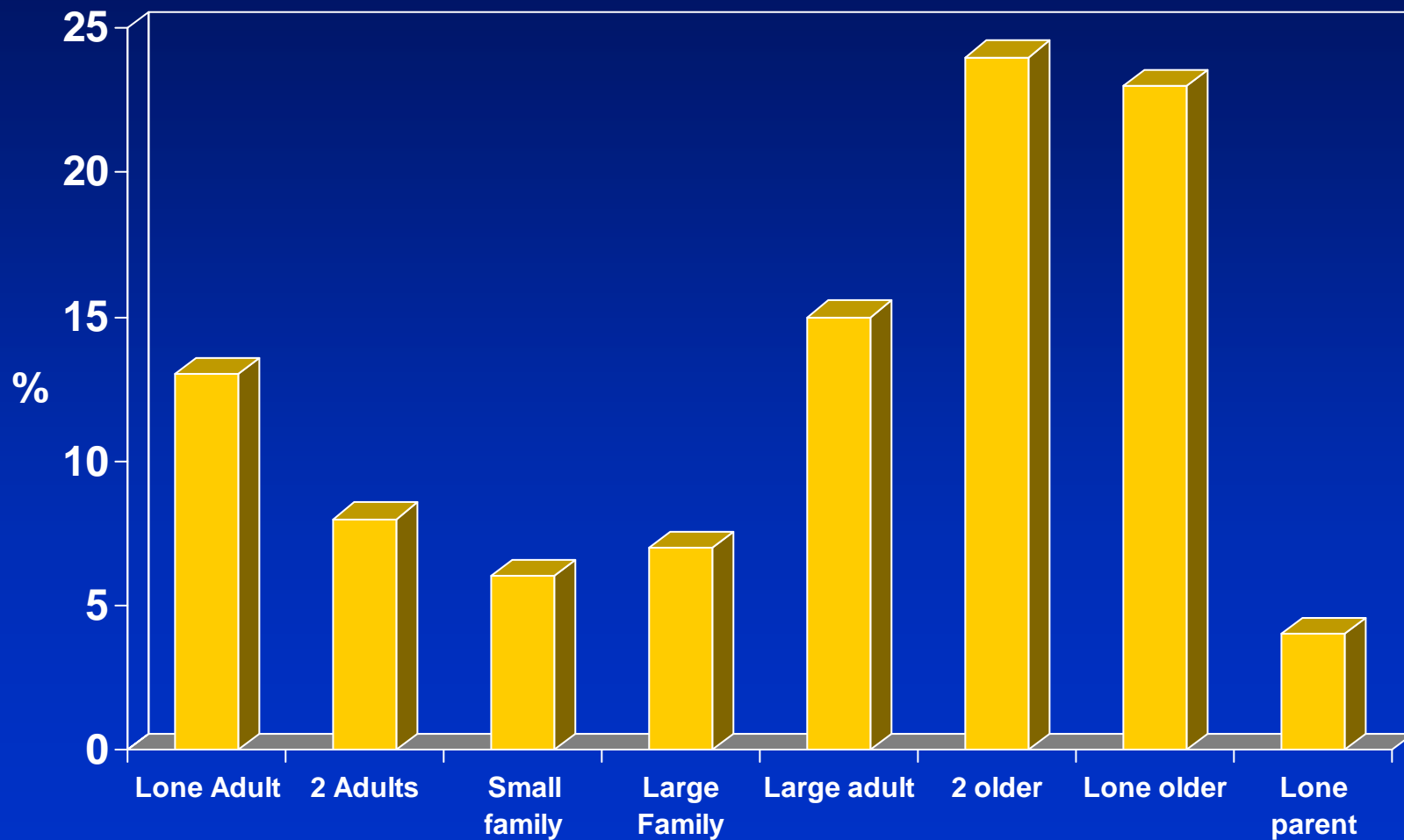
# Content

- Health issues
- Sequelae (Services)
- Detection
- Benefits of improvement
- Future challenges

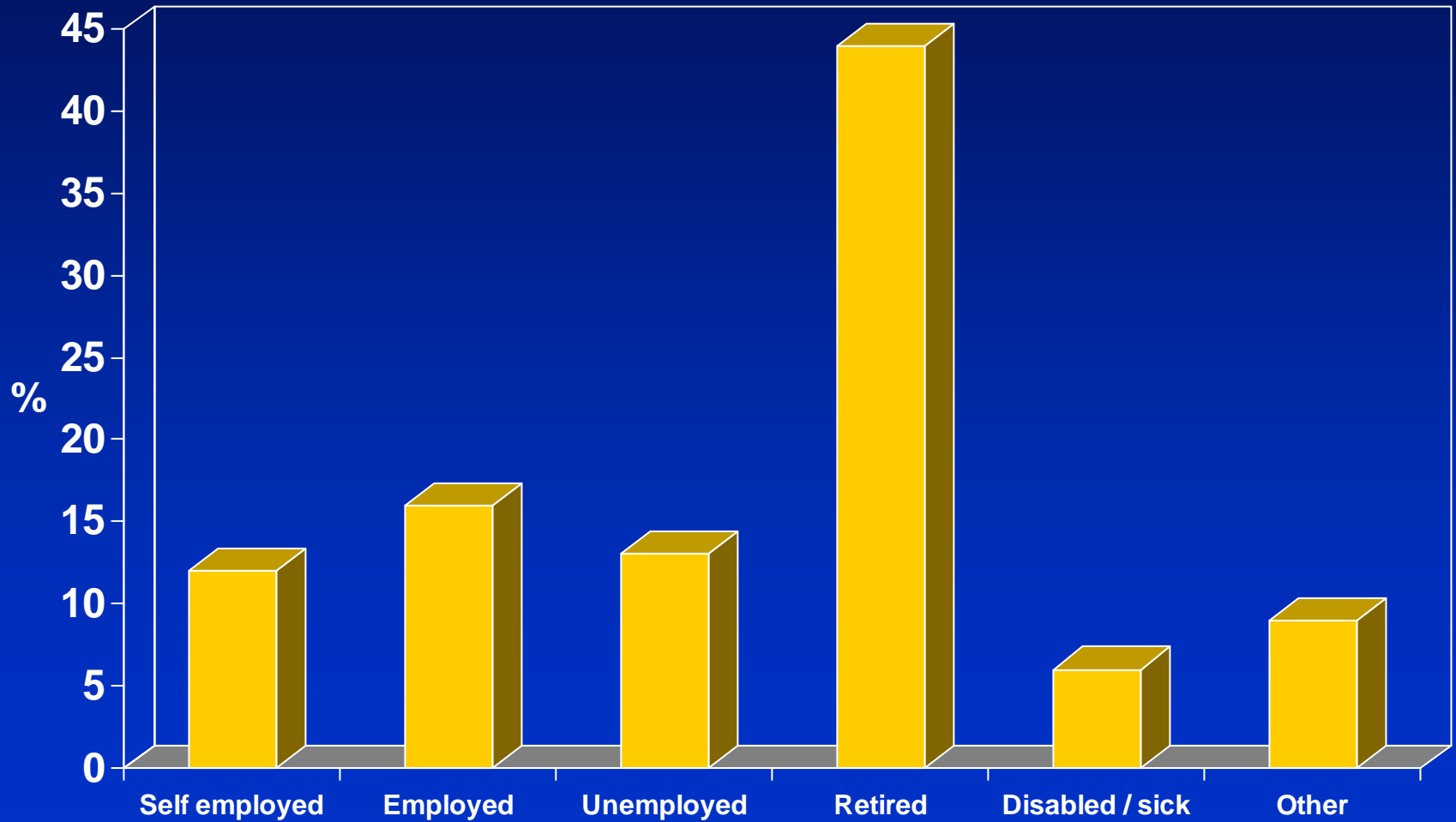
# N Ireland Fuel Poverty: Age of Household Reference Person (2004)



# N Ireland Fuel Poverty: Household Type (2004)



# N Ireland Fuel Poverty: Employment Status (2004)



# **Attempts to Overcome Fuel Poverty**

# Health Issues

- **Respiratory illness**
- Increased blood pressure
- **Cardiovascular diseases**
- Worsening arthritis
- More frequent accidents
- Social isolation
- **Mental health**
- Adverse effects on childrens education and nutrition
- **Winter morbidity and mortality**

# Sequelae

Increased Health (and Social Services) Utilization



- Poor housing costs NHS £2 billion per year (Evans et al. J Epidemiol & Comm health 2000;54:677-86)
- Cold related illness costs NHS in N Ireland £21 million per year (NEA 2004)
- Need to show cost effectiveness of interventions

# Detection

- Doctors
- Social Services
- Home helps / statutory staff
- Voluntary Sector
- Community groups

# **Benefits of Improvement**

**“No tradition of the systematic evaluation of the health impact of housing design or innovation”**

Lowry BMJ 1991

# Gilbertson et al. Grant recipients views of Englands Home Energy Efficiency Scheme. Social Science and Medicine 2006; 63: 946-56

Physical Health	%
Improved comfort	67.3
Easing of chronic conditions	24.5
Less minor illness	20.4

Mental Health	
More relaxed and content	24.5
Feeling better	55.1
Mood and temperature	26.5

# **“Living rather than surviving”**

**Gilbertson et al. Social Science and Medicine 2006; 63: 946-56**

**“the walls were so damp and cold” fuel  
poverty and ill health in Northern  
Ireland: results from a housing  
intervention**

Shortt & Rugkasa Health and Place 2007;13:99-

110

- 2000-2002
- Central heating installation
- Pre and post intervention surveys



# Rooms suffering from Condensation, Mould or Damp

	Pre	Post
Non-intervention	1.51	1.09 (NS)
Total Intervention	2.13	0.65 (p<0.001)
> 65 yrs	2.39	0.43 (p<0.001)
< 65yrs	1.87	0.87 (p<0.05)

Prevalence of specific illnesses, pre and post intervention

	Total intervention			No intervention		
	Pre (%)	Post (%)		Pre (%)	Post (%)	
Angina	17.4	4.3	ns	0.0	1.8	ns
Arthritis/rheumatism	34.8	8.7	$p < 0.05^*$	10.9	5.5	ns
Asthma	15.1	4.3	ns	10.9	6.5	ns
Chest infections/ bronchitis	26.0	13.0	ns	1.8	7.3	ns
Pneumonia/hypothermia	2.1	2.1	ns	0.0	0.0	ns
Stress/mental illness	10.8	4.3	ns	1.8	14.5	$p < 0.05^*$
Other	28.2	4.3	$p < 0.05^*$	3.6	7.2	ns
Mean number of illnesses per head	1.43	0.91	$p < 0.05^{**}$	0.17	0.23	ns

# Health Service Utilization

- Visits to GP, A & E, other hospital services
- Total intervention 2.5/head to 1.3 /head
- No difference in non intervention group

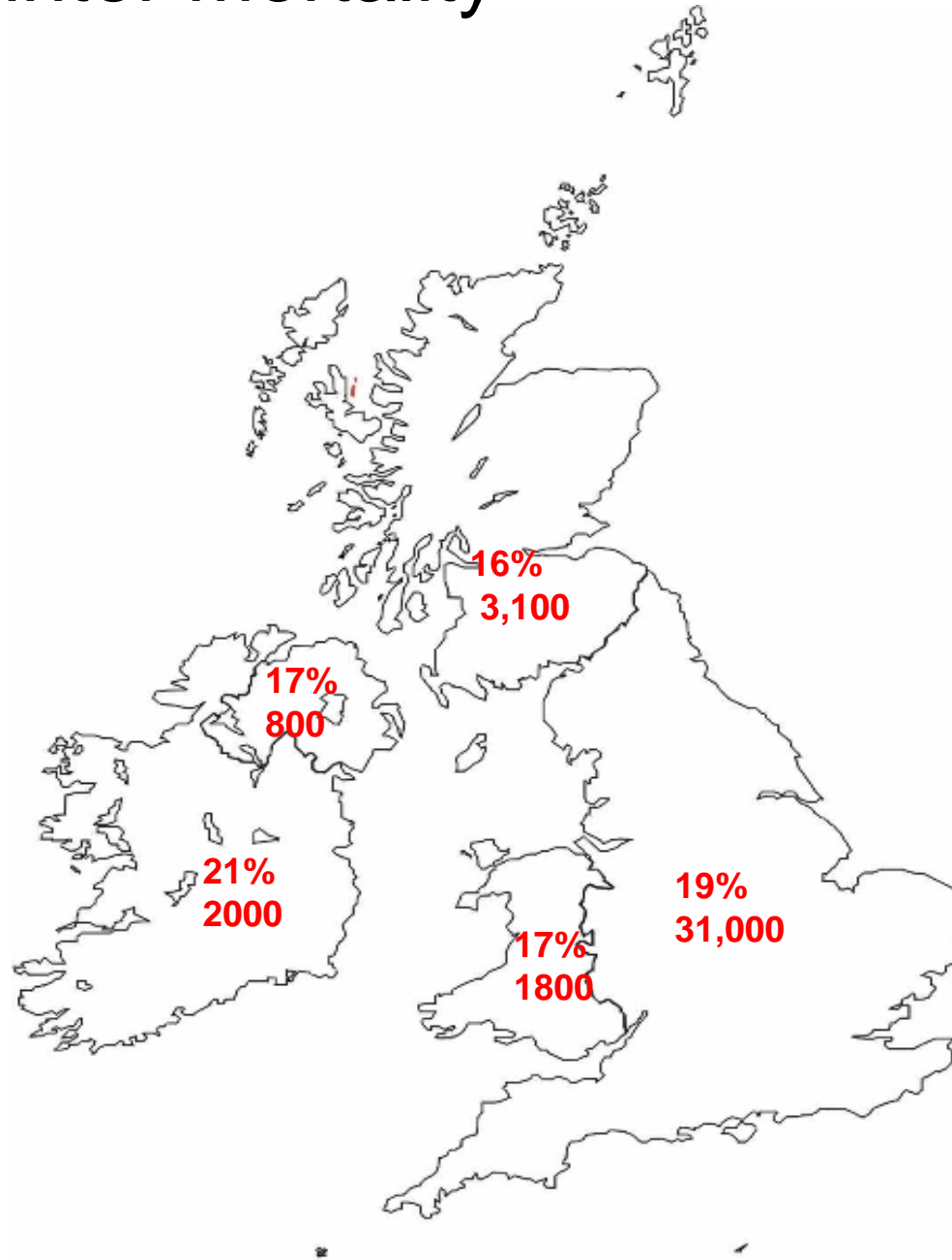
# Winter Morbidity

- 25,000 people, > 65 years, Newham 1993-97
- Emergency hospital episodes for all respiratory diagnoses
- Fuel poverty index
- Supporting evidence for a relationship between energy inefficient housing and winter respiratory disease among older people
- Rather than general poverty, buildings likely to produce cold indoor temperatures are key to ill health when combined with a poor ability to afford heating.

# **Excess Winter Mortality**

William Farr 1838-1841

# Excess Winter Mortality



# Temperature, Deprivation and Winter Mortality

Coronary, stroke and all cause winter mortality linked to:

- Households with no central heating and one or more residents of pensionable age

Not:

- Economically active
- Limiting long term illness
- One or more residents of pensionable age
- Private rented and one or more residents of pensionable age
- Deprivation index (Carstairs)

# Healy JD. J epidemiol Community Health 2003;57:784-9

**Table 5** Coefficient of seasonal variation in mortality and domestic thermal efficiency in EU-13

	CSVM	* Cavity wall insulation (% houses)	Roof insulation (% houses)	* Floor insulation (% houses)	* Double glazing (% houses)
Austria	0.14	26	37	11	53
Belgium	0.13	42	43	12	62
Denmark	0.12	65	76	63	91
Finland	0.10	100	100	100	100
France	0.13	68	71	24	52
Germany	0.11	24	42	15	88
Greece	0.18	12	16	6	8
Ireland	0.21	42	72	22	33
Netherlands	0.11	47	53	27	78
Norway	0.12	85	77	88	98
Portugal	0.28	6	6	2	3
Sweden	0.12	100	100	100	100
UK	0.18	25	90	4	61

1988-1997



“High seasonal mortality could be reduced through improved protection from the cold indoors, increased public spending on healthcare and improved socioeconomic circumstances “

**Healy JD. J Epidemiol Community Health 2003;57:784-9**

# Health and Energy Efficiency

- Not all Fuel Poverty / Energy Insufficiency
- Health service / delivery related factors
- Socioeconomic factors

# Future Challenges

# Awareness

Health and Social Care Staff

Single Assessment Process?

# Mahewaran et al. Public Health 2004;118:167-176

- South Yorkshire Coalfields HAZ
- Deaths 1981-1999
- Emergency hospital admissions 1990-1999
- Excess mortality ratios:
  - Respiratory disease 1.64
  - Cardiovascular disease 1.23
  - Other diseases 1.09
  - Excess winter hospital admission ratio 1.69
- Increases with age
- No link with social deprivation

Stewart et al. heart Failure in a cold climate. JACC  
2002;39:760-6

- > 75 years 15-18% higher than average admissions
- 20% due to respiratory disease