

Social Economic Inequality in the PICU?

admission rates & risk adjusted mortality
for patients from deprived areas

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Caring without Borders

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Inequalities in public health

Mortality at a global level: [WHO-2011](#)

Age standardized death rates (per 100,000 population)
divided over continents

Mortality in Europe: [The European health report 2012](#)

Age standardized death rates (per 100,000 population)
east-west divide

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Persistent social economic- and health inequalities

WHO Commission on social determinants of health

'Closing the gap in a generation' 2008:

- “The poorest of the poor have high levels of illness and premature mortality
- But poor health is not confined to those worst off
- In countries at all levels of income, health and illness follow a social gradient: the lower the socioeconomic position, the worse the health

Dutch PICE: Social inequality at the PICU?

“Do social economic- and health inequalities persist even into Pediatric Intensive Care?”

- “What is the PICU admission rate from deprived areas?”
- “Is there a difference in PICU mortality related to deprived areas?”

“Deprived areas” are defined by (4-digit) postal codes

And used to differentiate on socioeconomic position

[Definition taken from The Netherlands Institute for Social Research (SCP)]

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Distribution of wealth and health Netherlands 2007-2010

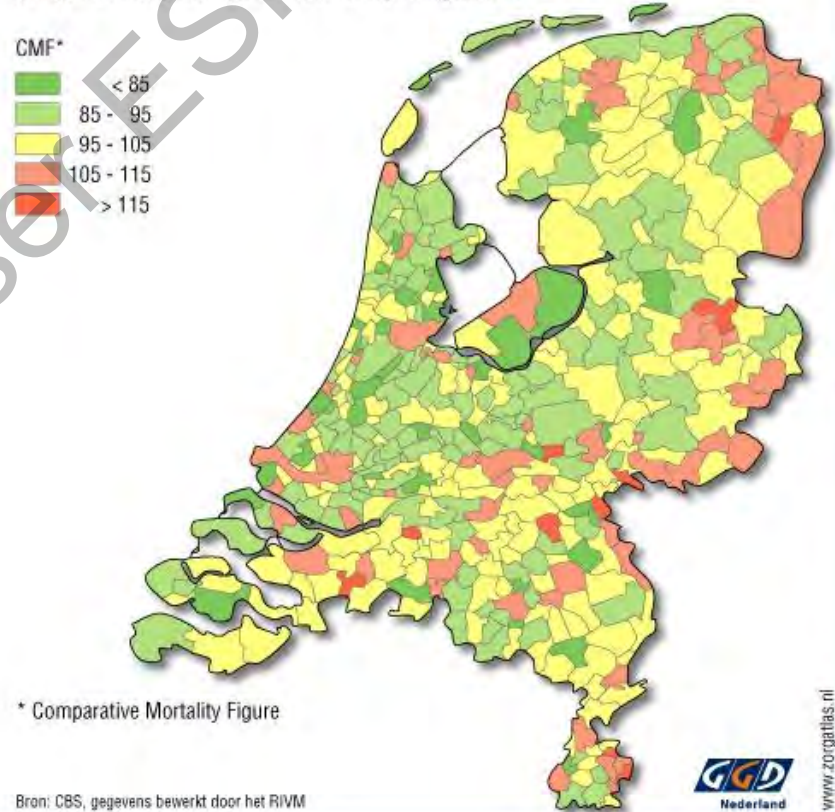
Deprived areas (left)

- Adjusted total mortality (right)

Achterstandsgebieden 2008
op buurtniveau



Totale sterfte 2007-2010
per gemeente, gecorrigeerd voor leeftijd en geslacht



Bron: Nivel

www.zorgatlas.nl

Bron: CBS, gegevens bewerkt door het RIVM



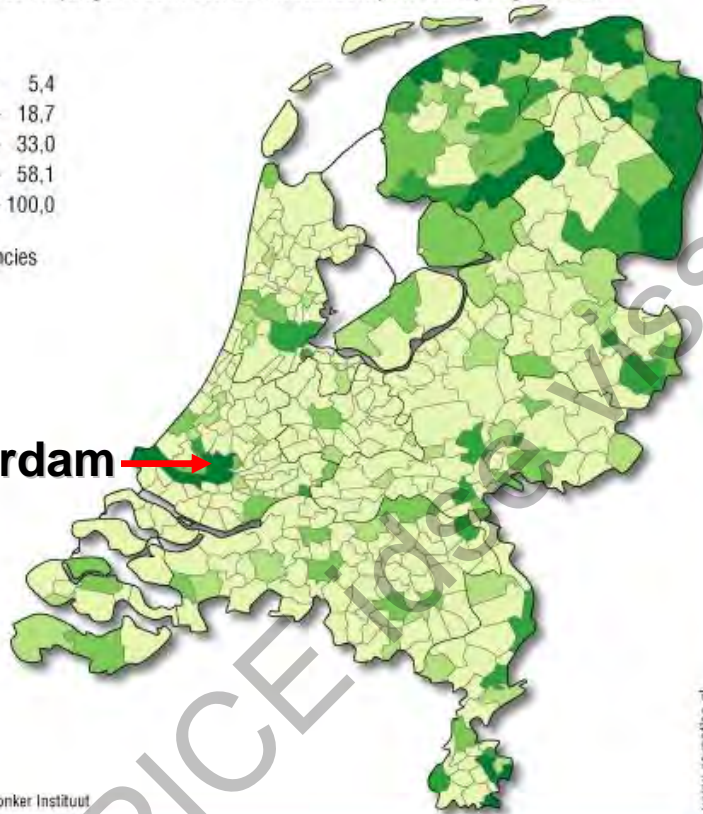
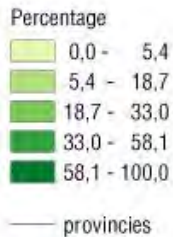
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Children and deprived areas Netherlands around 2010

Children in deprived areas (left)

Kinderen in achterstandswijken 2010
0- tot en met 17-jarigen dat in een achterstandswijk woont, per gemeente

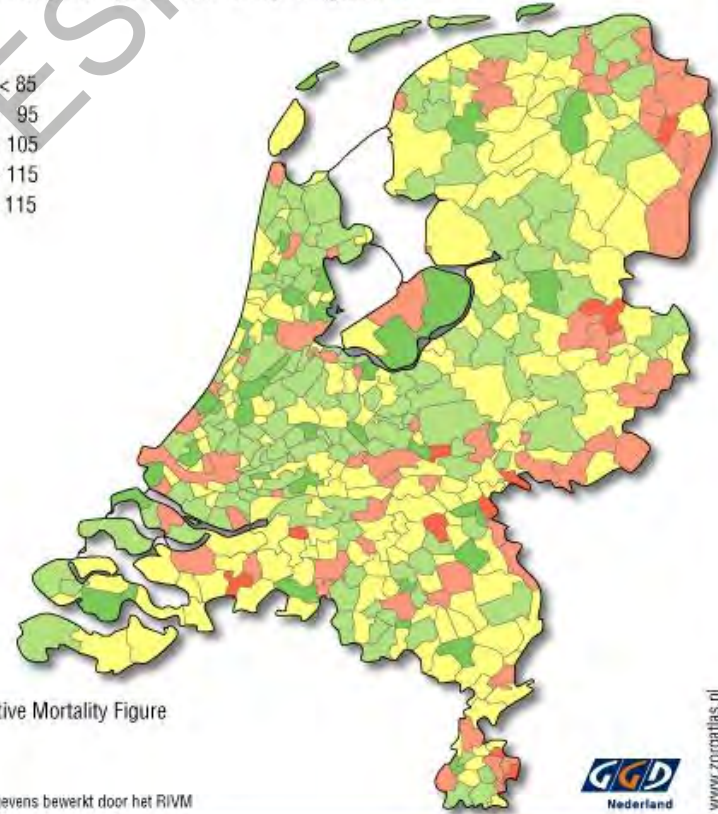
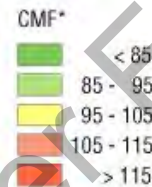


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Bron: Verwey-Jonker Instituut

- Adjusted total mortality (right)

Totale sterfte 2007-2010
per gemeente, gecorrigeerd voor leeftijd en geslacht



* Comparative Mortality Figure

Bron: CBS, gegevens bewerkt door het RIVM

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National data: children 0-17yrs in the Netherlands:

–16.6% (583,141) live in deprived areas (2010)

Dutch PICUs (study cohort 2006-2009; ICM2013):

–11,380 Admissions 0-15years of age

•383 deaths = 3.4%

(risk adjustment: PIM2NL and PRISM3-24NL)

– 2,304 = 20.0% Admissions from deprived areas

•More admissions to PICUs from deprived areas

RR=1.17(1.11-1.24)

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- PICU mortality rate from deprived areas (4.4%) higher than admissions non-deprived areas (3.1%)
RR=1.41(1.13;1.76), unadjusted SMR:1.30 (1.06-1.58)
 - Also higher risk of mortality:
PRISM3-24NL:3.8% and PIM2-NL:3.9% for deprived areas
both PRISM3-24NL and PIM2-NL: 3.3% for non-deprived areas
- No significant higher or lower mortality after risk adjustment:
- From deprived areas: SMR PRISM3-24NL:1.14 (0.93-1.39)
and SMR PIM2-NL: 1.12 (0.92-1.37)
 - Non-deprived areas: SMR PRISM3-24NL: 0.94 (0.84-1.06)
and SMR PIM2-NL: 0.93 (0.83-1.05)

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Discussion

- **Global social economic inequality in health is reflected in patients from deprived areas at the PICU in:**
 - higher admission rates
 - higher crude mortality rates
 - higher risk profiles
- **In accordance with study in England & Wales**
(Parslow et al. ADC 2009)
 - Higher admission rates but not significantly higher adjusted SMR from deprived areas.

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limitations

- **PICU and National Data Figures not exactly the same**
 - fluctuations between years at national level are small, 16-17yrs small proportion of admissions (2009: 3.6%)
- **Proxy is used for social economic status**
 - Also used in other studies and national statistics
- **Data on areas not completed in this sample**
 - Missing area info on 660 admissions (83 deaths=5.6%)
- **Only focus on mortality in PICU**
 - possible include length of stay, readmissions, refine deprivation

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Conclusions

- Dutch Children from deprived areas are more frequently admitted to the PICU
- Children from deprived areas have higher risk profiles
- These higher risk profiles largely explain their higher mortality rates than observed for children from non-deprived areas.



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