

# Mortality and causes of death among patients with opioid use disorder receiving opioid maintenance treatment: A national register study

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**There are no conflicts of interest**

# OMT in Norway

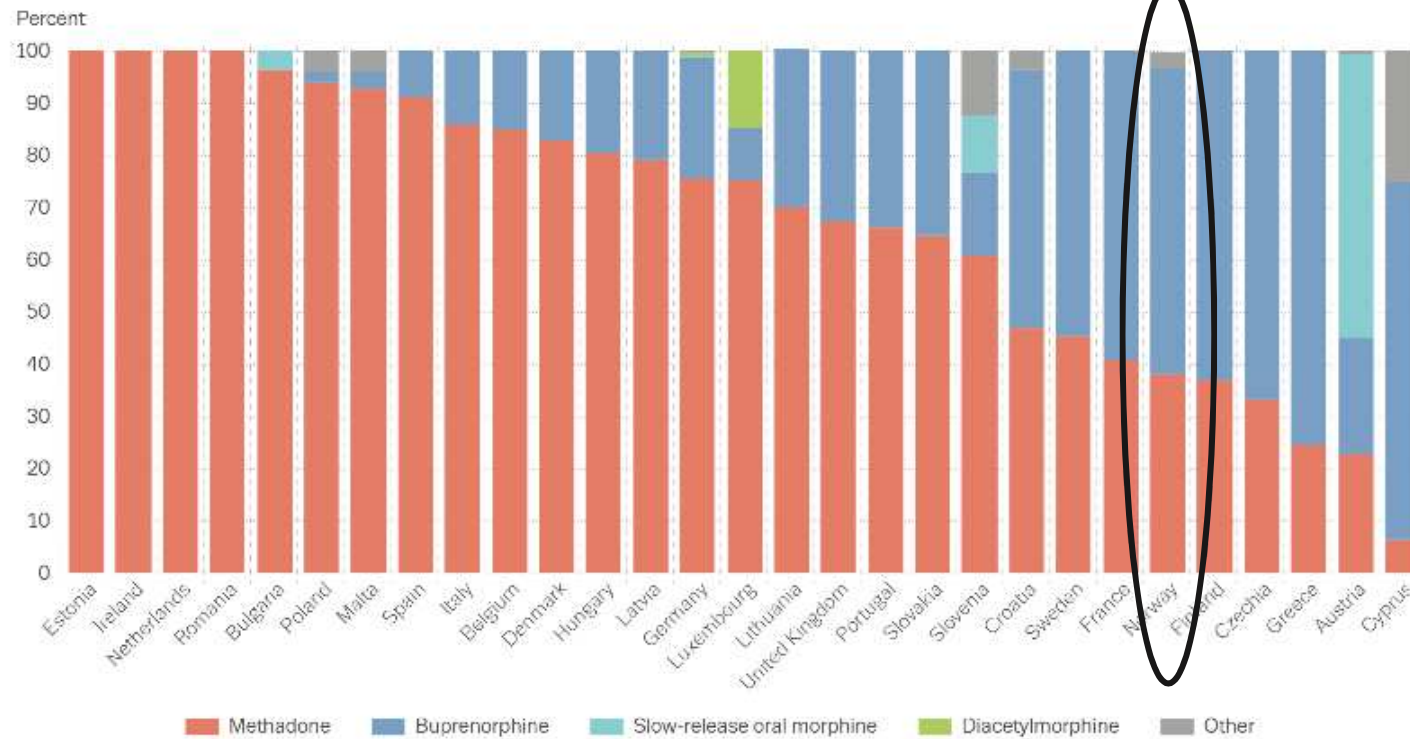
- National, public treatment programme since 1998
- Co-operation between GPs, health and social services and addiction units
- National guidelines
- 7762 patients per 31.12.18<sup>1</sup>
- Mean age 45 years in 2018
- 30 % women

1. Annual OMT status report, 2018



# OMT medication in Europe

Proportion of clients receiving different types of prescribed opioid substitution medication in European countries



Infographic EMCDDA 2019

# OMT patients are ageing

Treatment entrants with opioids as primary drug: shifts in the age structure over time (left) and mean age by country (right)

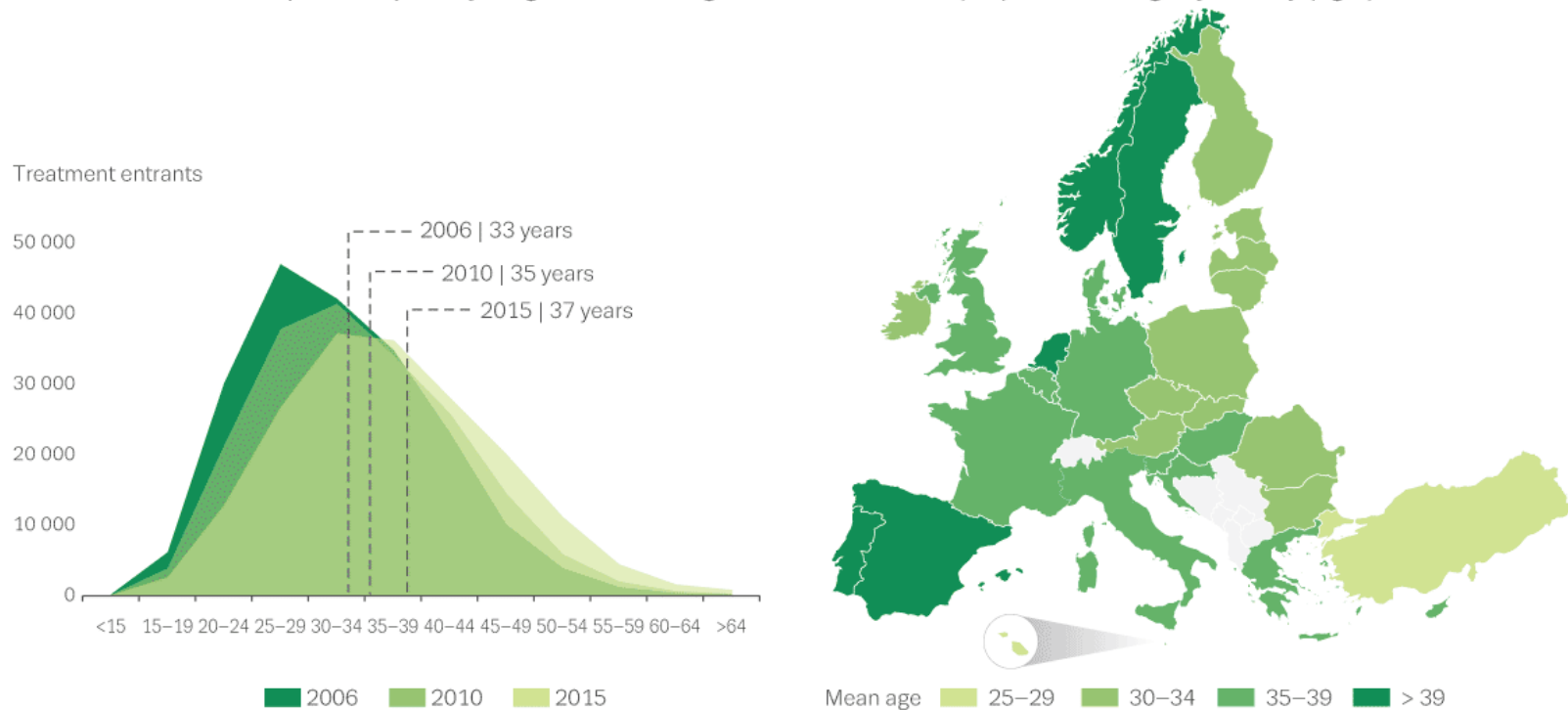
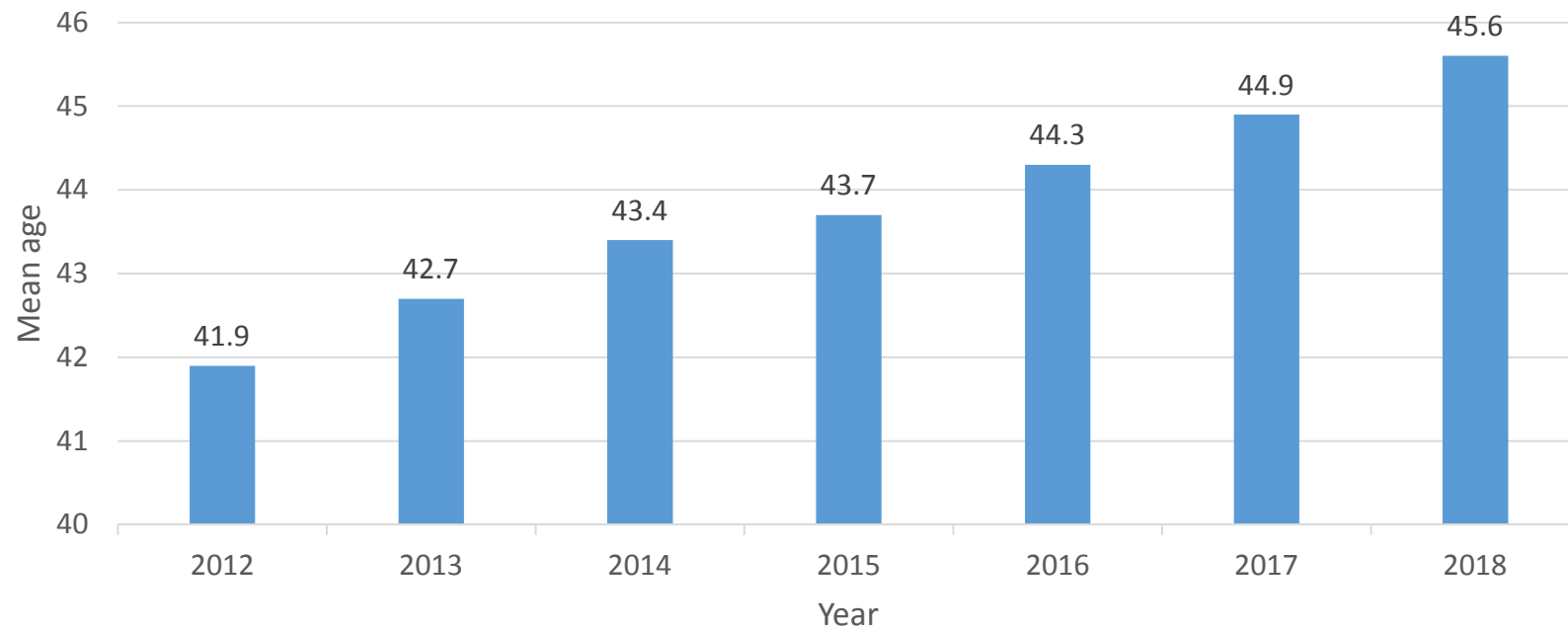


Illustration from EMCDDA

# Norwegian OMT patients among the oldest in Europe



OMT status report 2019

# Background

- Mortality rates and causes of death vary according to several factors
- OMT reduces mortality, but mortality is still high compared with the general population
- Age(ing) affects both mortality and causes of death
- Few, older studies from Norway

# Aims

1. To describe the causes of death among OMT patients in Norway
2. To estimate all-cause and cause-specific crude mortality rates (CMRs) during OMT
3. To explore characteristics associated with drug-induced cause of death compared with other causes of death during OMT



# Methods

- National, observational study
- Combining data from
  - The Norwegian Cause of Death Registry
  - The Norwegian Patient Registry
  - Hospital record data and a questionnaire about the fatality
- Inclusion criteria:
  - Died between 1. January 2014 and 31. December 2015
  - Died during ongoing opioid maintenance treatment,
  - or not more than 5 days after the last reported intake of OMT medication
- 55 did not meet the inclusion criteria and were excluded

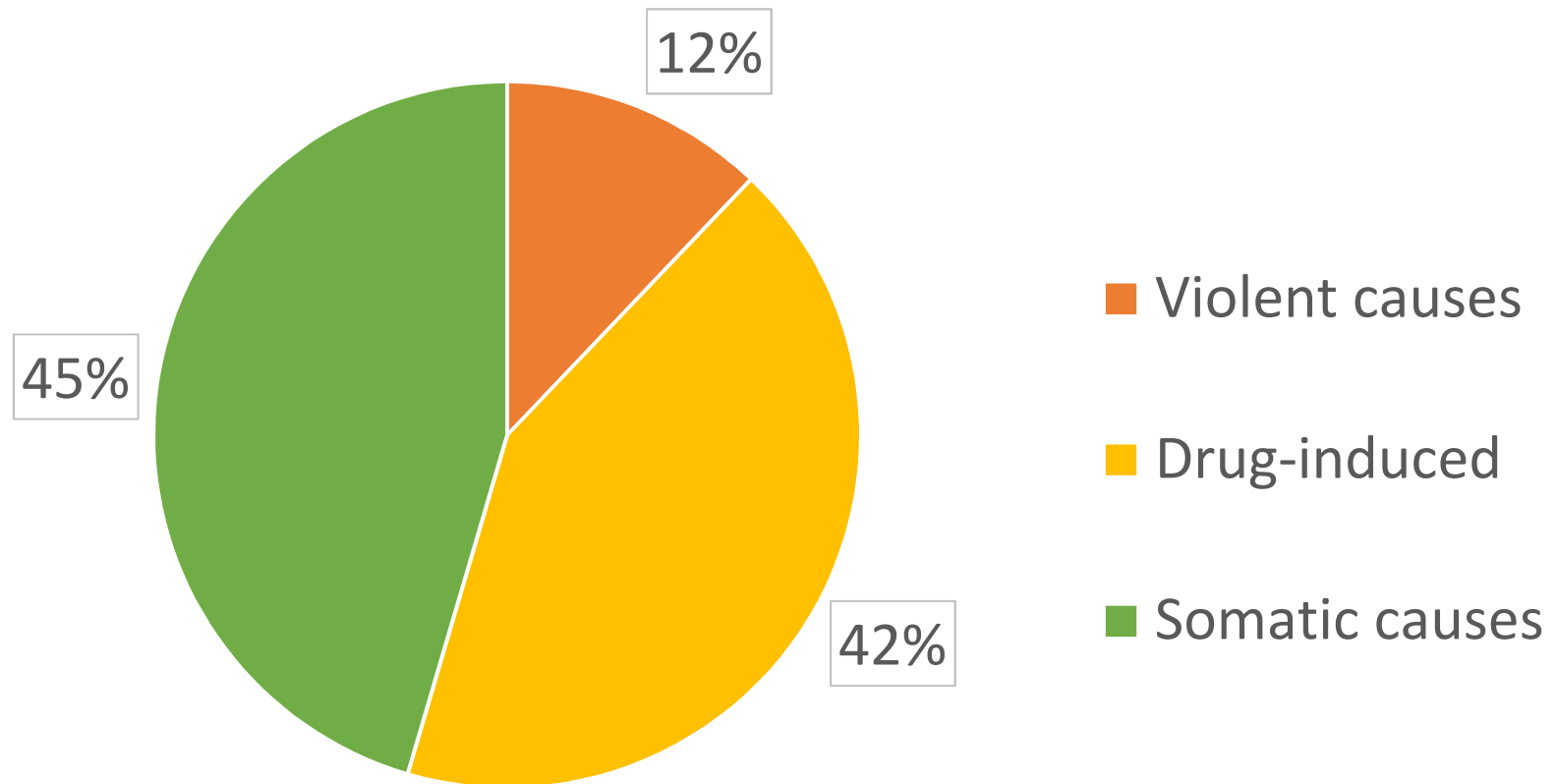
# Results

- 200 patients died during OMT in 2014/2015  
-> All-cause CMR 1.4/100 person-years (PY)
- 63% had an autopsy
- Mean age at the time of death 49 years
- 74% men
- 55% methadone, 41% buprenorphine (4% other)
- Over 80% had been more than 4 years in OMT

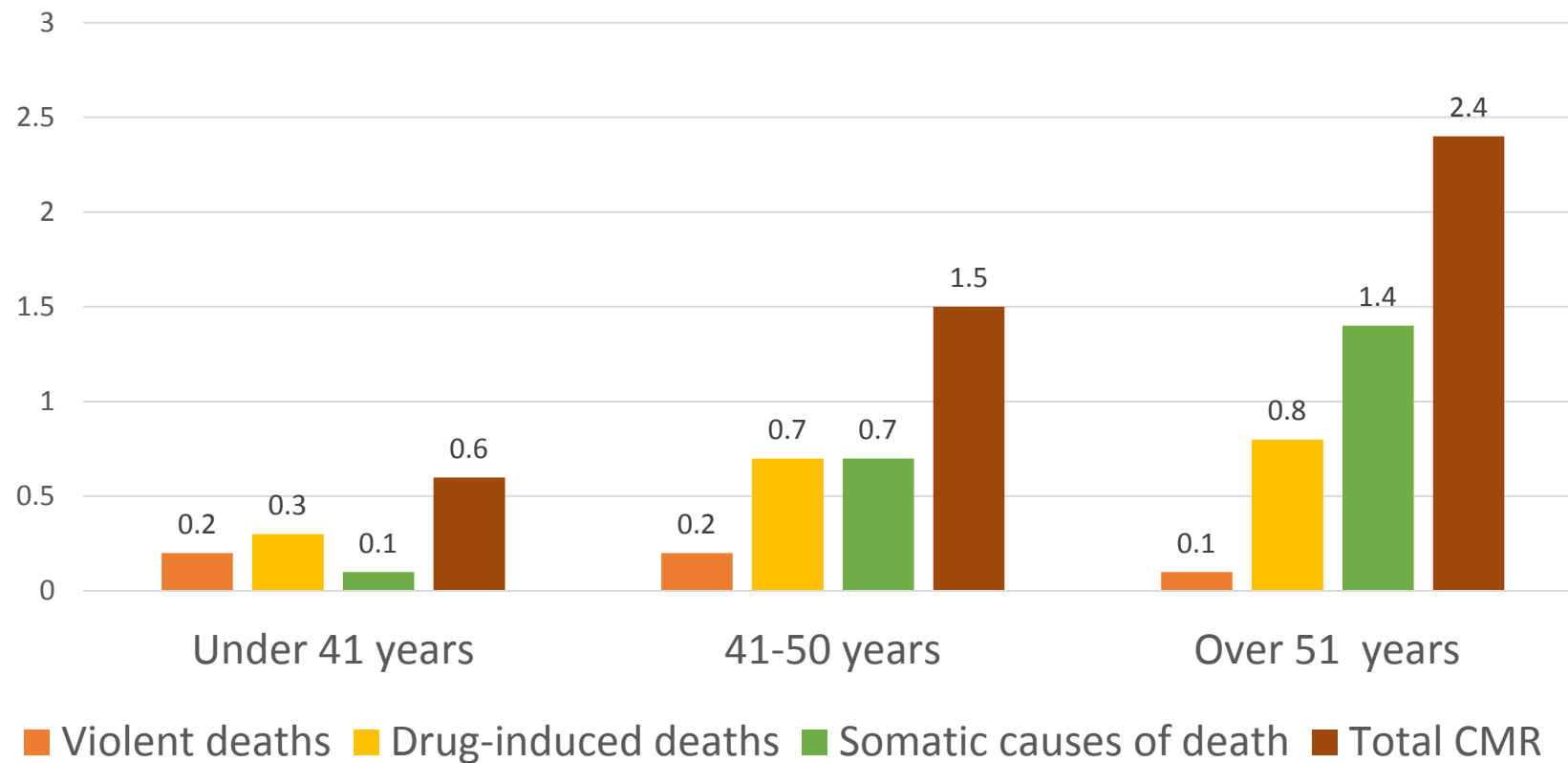
# Multimorbidity, polypharmacy

- Charlson comorbidity index = age above 50 + scores of 17 somatic diseases (ICD-10 diagnosis)
- Charlson comorbidity index median 2 (0-12)
- Liver disease 62%, cardiovascular disease 19%, COPD 19%
- Psychiatric admissions 28%
- Non-fatal overdoses 30%
- BZD/z-hypnotics 43%
- Psychotropic medication 28%

# Causes of death, % (n=198)



# Increasing mortality rates with increasing age (CMR/100 PY)



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Characteristics associated with drug-induced cause of death during OMT (versus other causes of death), n=181

Characteristics	Mivariate models OR (95% CI)	Multiple model OR (95% CI)
Men	1	
Women	1.37 (0.70;2.70)	1.59 (0.77; 3.30)
Age	0.95 (0.92; 0.99)*	0.99 (0.95; 1.04)
Buprenorphine	1	
Methadone	1.24 (0.64; 2.41)	1.25 (0.63; 2.48)
Charlson index	0.73 (0.62; 0.85)**	0.72 (0.61; 0,86)**
Non-fatal overdose no	1	
Non-fatal overdose yes	1.60 (0.83; 3.10)	1.72 (0.82; 3.60)
Psychiatric admissions no	1	
Psychiatric admissions yes	1.35 (0.70; 2.60)	0.91 (0.44; 1.88)
OMT total duration in years	0.97 (0.90; 1.04)	1.0 (0.92; 1.08)

\*p<0.05, \*\*p>0.001.

# Take-home message

- CMRs increased with age
- Both somatic and drug-induced deaths were common
- Somatic comorbidity was associated with reduced odds of a drug-induced cause of death

-> improved treatment and follow-up of chronic diseases

-> continuous measures to reduce overdoses

# Thank you for your attention!

Bech et al. *BMC Health Services Research* (2019) 19:440  
<https://doi.org/10.1186/s12913-019-4282-z>

BMC Health Services Research

RESEARCH ARTICLE

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### Abstract

**Background:** Mortality rates and causes of death among individuals in opioid agonist treatment (OAT) vary according to several factors such as geographical region, age, gender, subpopulations, drug culture and OAT status. Patients in OAT are ageing due to effective OAT as well as demographic changes, which has implications for morbidity and mortality. Norway has one of the oldest OAT populations in Europe. Because of the varying mortality rates and causes of death in different subgroups and countries, research gaps still exist. The aims of this study were to describe the causes of death among OAT patients in Norway, to estimate all-cause and cause-specific crude mortality rates (CMR) during OAT and to explore characteristics associated with drug-induced causes of death.

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