

**Discontinuation of anti-cancer drug therapy  
near end of life in patients with advanced  
disease – a retrospective cohort study at a  
single institution in Norway**

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# Background

- Patients with incurable locally advanced or metastatic cancer often receive various lines of palliative anti-cancer drug therapy
- Assumed overtreatment towards the end of life (EOL)
- Treatment in the last month of life is usually futile with the risk of reducing both quality of life and survival time

# Background – General guidelines<sup>1,2</sup>

No chemotherapy if:

- World Health Organization Performance Status (WHO PS) 3 or 4
- Lack of response to 2-3 prior lines

<sup>1</sup> American Society of Clinical Oncology Statement: Toward Individualized Care for Patients With Advanced

*Cancer, Peppercorn et al , Journal of Clinical Oncology 2011*

<sup>2</sup> Palliative Chemotherapy – When Is It Worth It and When Is It Not? *Swetz et al, The Cancer Journal 2010*

# Aims

To investigate how anti-cancer drug therapy is given at the EOL in patients treated at the Dep. of Oncology at Haukeland University Hospital Bergen (HUS), Norway.

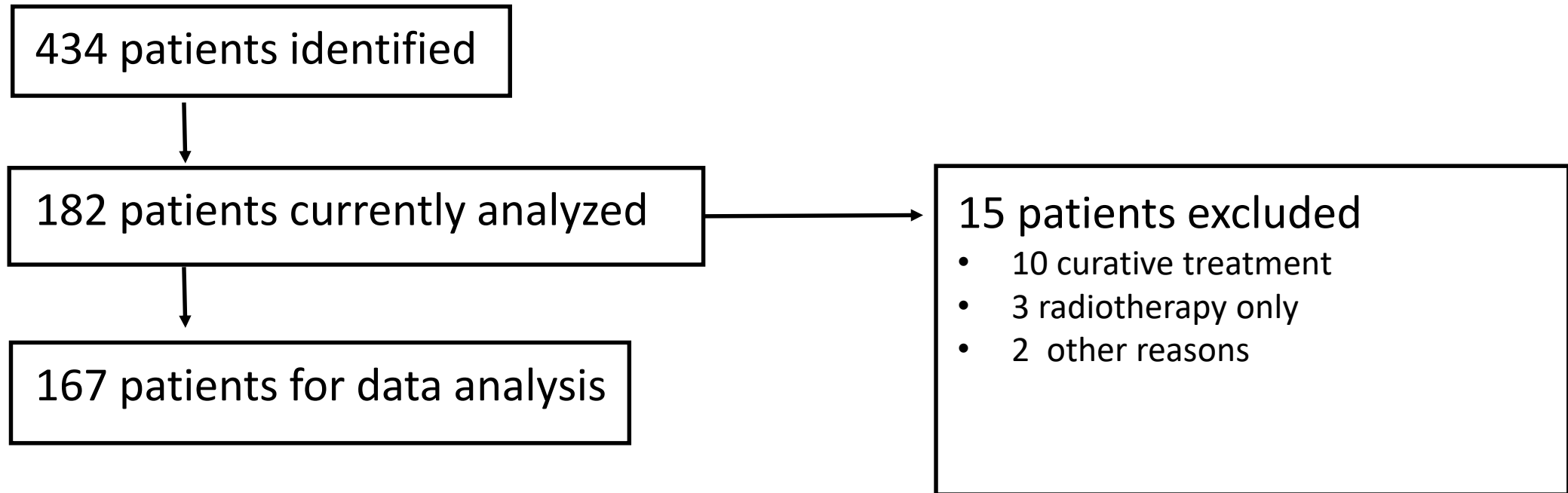
Main questions:

- 1) How often is anti-cancer drug therapy (chemotherapy, endocrine therapy, immunotherapy, targeted therapy) given within the last month of a patient's life?
- 2) Do oncologists at our institution follow guidelines to avoid treatment near EOL?
- 3) Are tumour characteristics, social aspects and inadequate palliative care support associated with more aggressive treatment towards EOL?

# Methods

- Retrospective single centre cohort study
- Patients who had had contact with the Dep. of Oncology HUS between 1 Oct and 31 Dec 2016 with recorded death date up until 31 Dec 2017 were identified (n=434 patients)
- Exclusion criteria:
  - curative treatment intent
  - patients receiving radiotherapy alone while anti-cancer drug therapy was administered at other departments/institutions (i.e. lung cancer, gynecological and hematological malignancies)

# Methods

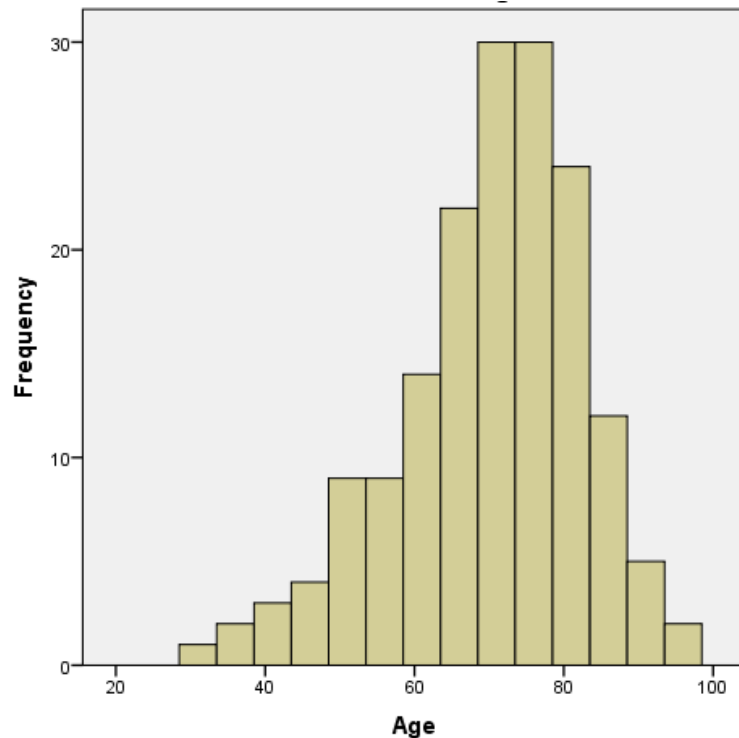


- Statistical program SPSS Version 24 used for evaluation of data
- The study was approved by the Regional Committee for Medical and Health Research Ethics in Western Norway

# Patient characteristics (n=167)

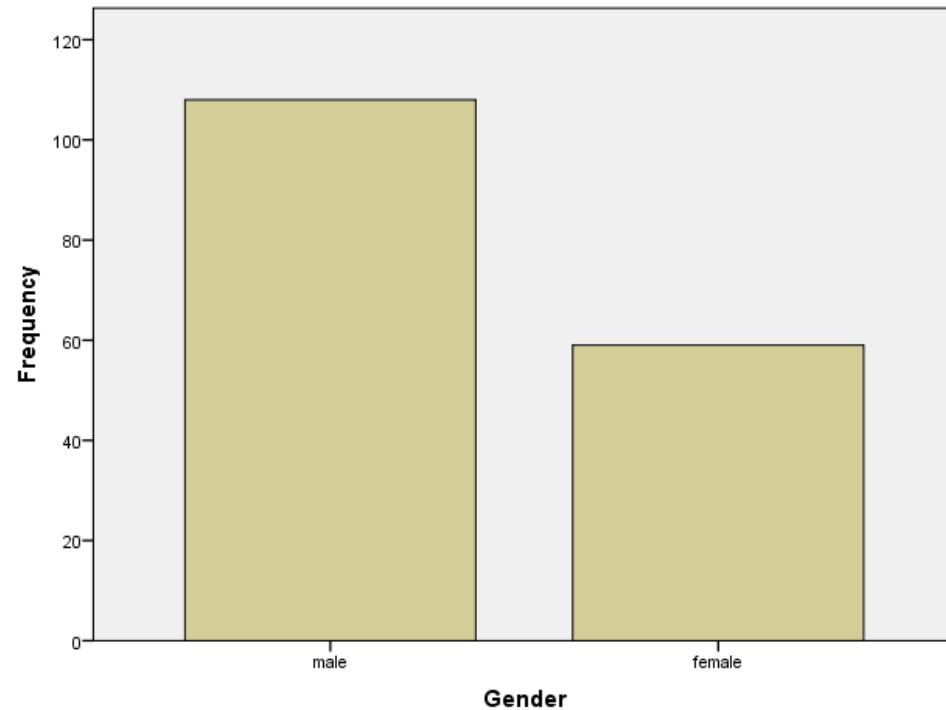
## Age

Median age 72 years  
(range 31-97)

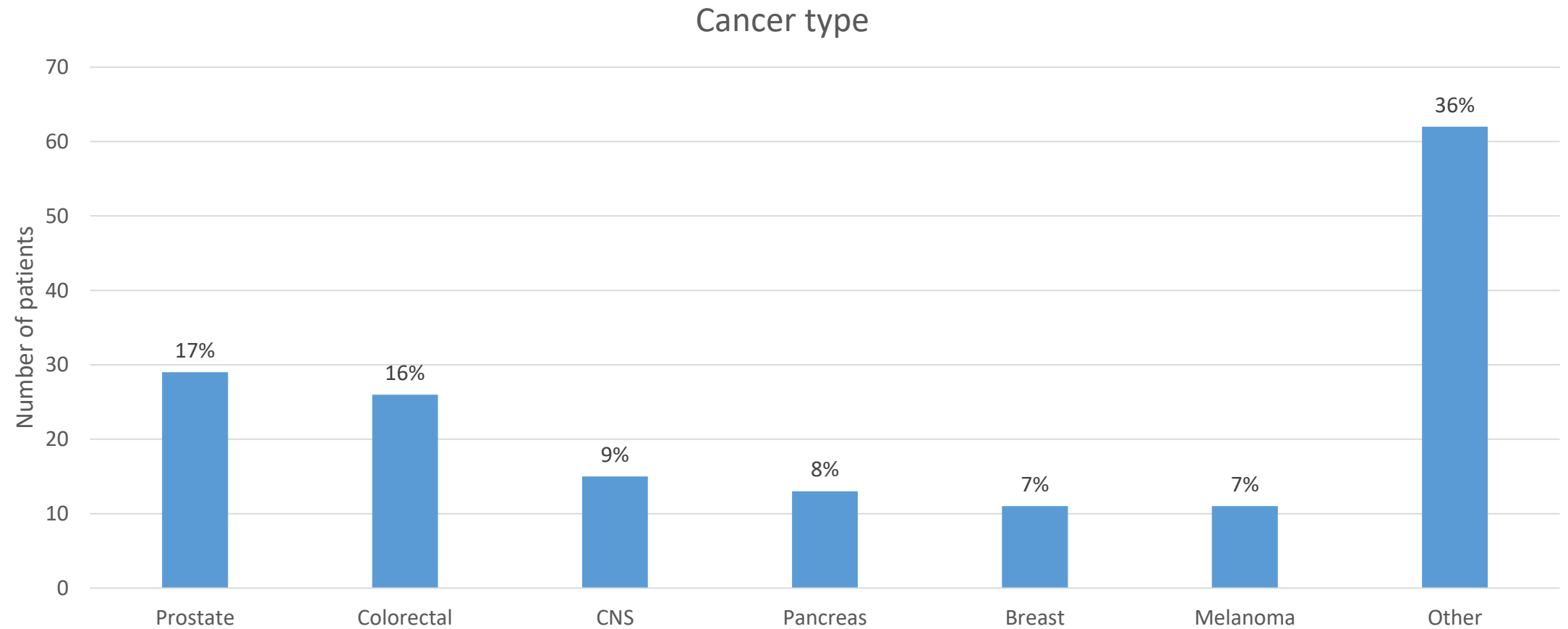


## Gender

Male: 108 patients (65%)  
Female: 59 patients (35%)



# Patient characteristics (n=167)

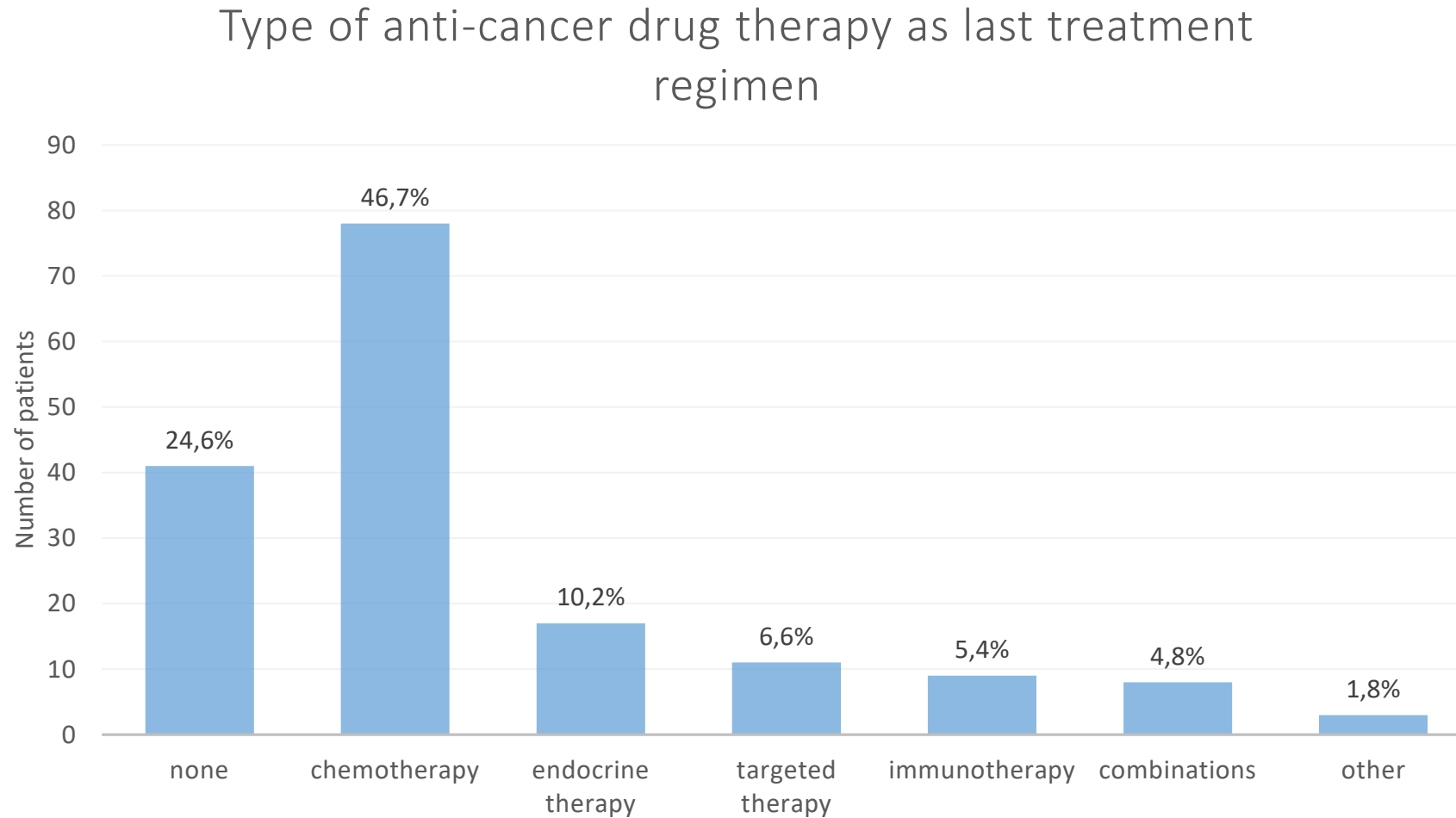




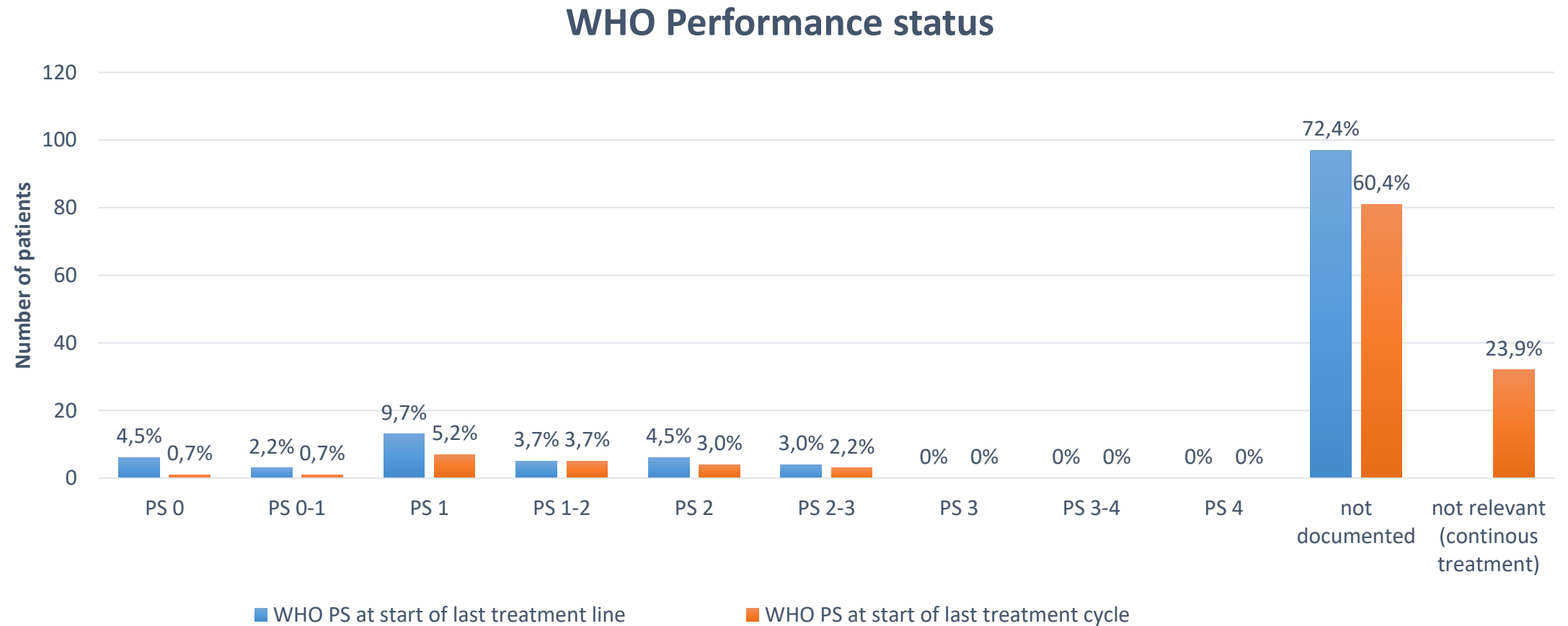
# Results

	Number of patients	Median	Mean	Range
Time between last treatment administration and death		66 days	127 days	2-1033
Number of palliative lines		1	1,7	0-9
Contact with palliative care team	109 (65%)			
Time between 1. contact with palliative care team and death		55 days	132 days	0-1281
Inclusion in clinical study as last treatment regimen	7 (4%)			

# Results – Type of last treatment



# Results – Performance status



# Results – Treatment near EOL

Anti-cancer drug therapy given during patient`s last 30 days of life

	Number of patients (n=162*)
yes	17 (10,5%)
no	145 (89,5%)

\*Missing data for 5 patients

Non-endocrine anti-cancer drug therapy given during patient`s last 30 days of life

	Number of patients (n=167)
yes	13 (7,8%)
no	154 (92,2%)

# Are there factors associated with aggressive treatment?

	Patients receiving anti-cancer drug therapy during last 30 days of life		Total number of patients	
	yes (n=17)	no (n=145)	n=162	p-value
<b>Gender</b>				0,179 ( $\chi^2$ -test)
male	14 (82,4%)	93 (64,1%)	107	
female	3 (17,6%)	52 (35,9%)	55	
<b>Relationship status</b>				0,722 ( $\chi^2$ -test)
in a relationship	12 (70,6%)	98 (67,6%)	110	
divorced	1 (5,9%)	9 (6,2%)	10	
widow(er)	1 (5,9%)	22 (15,2%)	23	
single	3 (17,6%)	14 (9,7%)	17	
unknown	0 (0%)	2 (1,4%)	2	
<b>Children status</b>				0,723 ( $\chi^2$ -test)
children >18 years	12 (70,6%)	116 (80,0%)	128	
children <18 years	2 (11,8%)	9 (6,2%)	11	
no children	3 (17,6%)	20 (13,8%)	28,8	
<b>Contact with a palliative care team</b>				0,594 ( $\chi^2$ -test)
yes	10 (58,8%)	96 (66,2%)	106	
no	7 (41,2%)	49 (33,8%)	56	
<b>Age</b>				0,382 (Ind. Samples T-test)

# Association between cancer type and aggressive treatment

	Patients receiving anti-cancer drug therapy during last 30 days of life		Total number of patients within a cancer type	p-value
	yes (n= 17)	no (n=145)		
<b>Cancer type</b>				0,078 ( $\chi^2$ -test)
breast	2 (28,6%)	5 (71,4%)	7 (100%)	
lower GI	2 (7,1%)	26 (92,9%)	28 (100%)	
upper GI	0 (0%)	34 (100%)	34 (100%)	
prostate	4 (14,3%)	24 (85,7%)	28 (100%)	
urogenital	0 (0%)	12 (100%)	12 (100%)	
melanoma	3 (27,3%)	8 (72,7%)	11 (100%)	
CNS	1 (6,7%)	14 (93,3%)	15 (100%)	
lymphoma	1 (14,3%)	6 (85,7%)	7 (100%)	
other	4 (20%)	16 (80%)	20 (100%)	

## Summary: Association with aggressive treatment

- No statistically significant difference regarding cancer type, age, gender, relationship status, children status and contact with a palliative care team between the patients who had received treatment during their last month of life and those who had not
- Trend towards higher treatment probability in breast cancer and melanoma

# Discussion

- Previous studies <sup>1,2,3</sup> from other institutions:

5-32% of patients receive anti-cancer drug therapy during their last month of life

- Comparison difficult - different inclusion criteria and types of anti-cancer therapy

<sup>1</sup> Treatment decisions and discontinuation of palliative chemotherapy near the end-of-life, in relation to socioeconomic variables, *Randen et al, Acta Oncologica 2013*

<sup>2</sup> Characterization of patients receiving palliative chemo- and radiotherapy during end of life at a regional cancer center in Norway, *Anshushaug et al, Acta Oncologica 2015*

<sup>3</sup> Comparison of Site of Death, Health Care Utilization and Hospital Expenditures for Patients Dying With Cancer in 7 Developed Countries, *Bekelman et al, JAMA 2016*



# Discussion

Main differences in our study:

Patients included

- who did not receive any anti-cancer drug therapy at all
- who received anti-cancer drugs other than traditional chemotherapy
- who were included in a clinical study
- who died of reasons other than cancer

# Conclusion

- Few patients received anti-cancer drug therapy towards EOL at our institution
- WHO PS was rarely documented when starting last treatment regimen/cycle
- Contact with palliative care team did not seem to influence on the aggressiveness of anti-cancer drug therapy towards EOL
- No correlation between patient / tumour characteristics and aggressive treatment