



# Fracture Liaison Service in Denmark

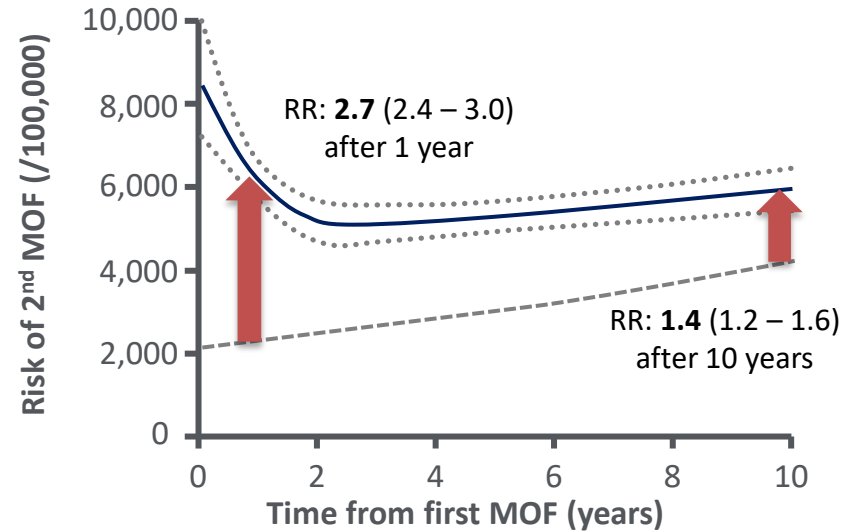
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# Fracture Liaison services

**Fracture Liaison Service**, commonly known as FLS, is a coordinator-based, multidisciplinary model of care for secondary **fracture** prevention

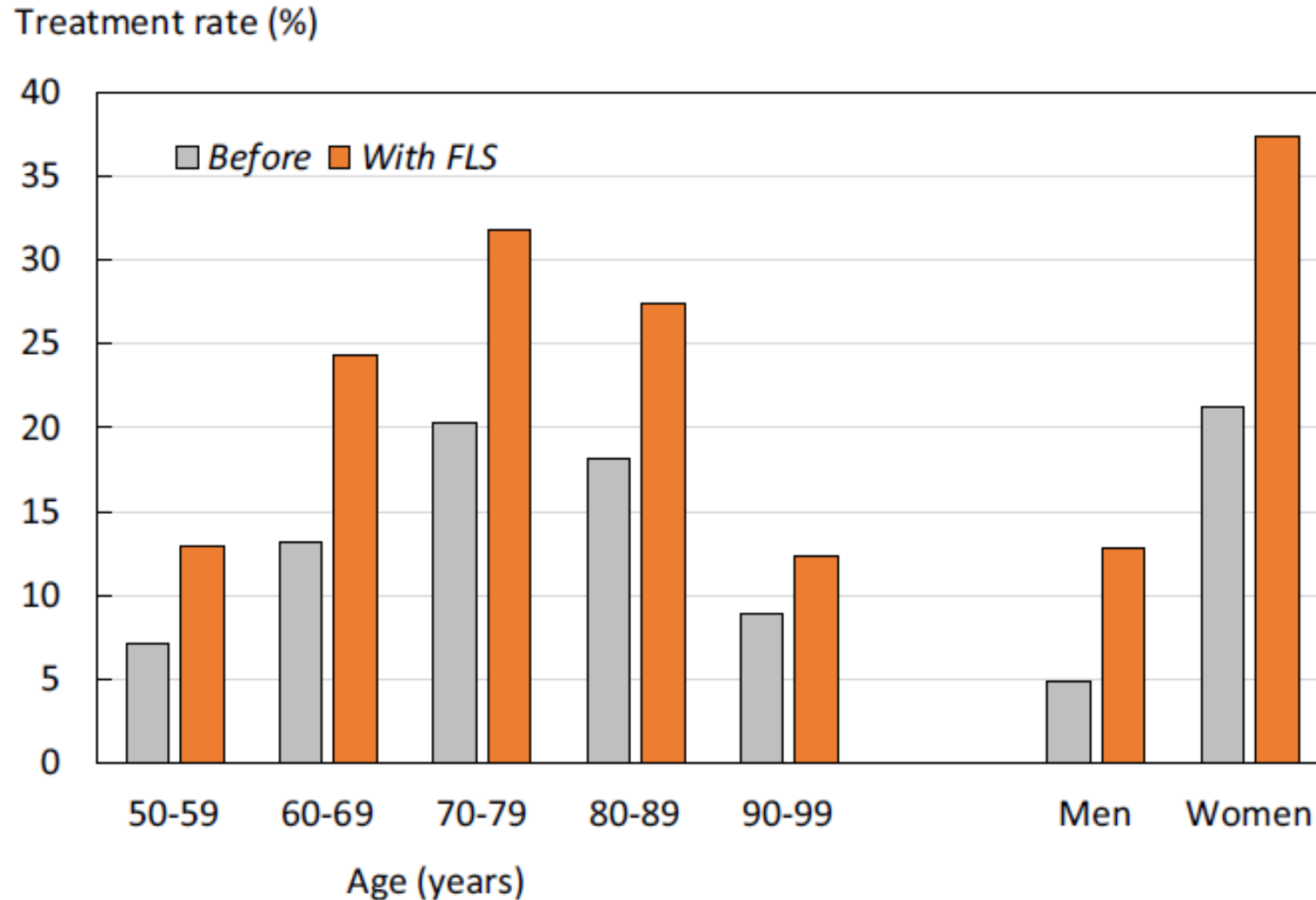
# Imminent fracture risk



The risk of a 2<sup>nd</sup> fracture remains above the risk of a 1<sup>st</sup> fracture

# Identification of patients at high risk

## Experience with FLS from Sweden



# Identification of patients at high risk Experience with FLS from UK



RESEARCH ARTICLE

Reduced mortality and subsequent fracture risk associated with oral bisphosphonate recommendation in a fracture liaison service setting: A prospective cohort study

Tineke A. C. M. van Geel<sup>1\*</sup>, Dana Bliuc<sup>2</sup>, Piet P. M. Geusens<sup>3,4</sup>, Jacqueline R. Center<sup>2,5,6</sup>, Geert-Jan Dinant<sup>1</sup>, Thach Tran<sup>2</sup>, Joop P. W. van den Bergh<sup>4,7,8</sup>, Alastair R. McLellan<sup>9</sup>, John A. Eisman<sup>1,2,5,6,10,11</sup>

# Identification of patients at high risk Cost-effectiveness of FLS in the UK

Osteoporos Int (2011) 22:2083–2098  
DOI 10.1007/s00198-011-1534-0

ORIGINAL ARTICLE

## **Fracture liaison services for the evaluation and management of patients with osteoporotic fracture: a cost-effectiveness evaluation based on data collected over 8 years of service provision**

A. R. McLellan • S. E. Wolowacz • E. A. Zimovetz •  
S. M. Beard • S. Lock • L. McCrink • F. Adekunle •  
D. Roberts

*Conclusions* FLSs are cost-effective for the prevention of further fractures in fragility-fracture patients. The cost of widespread adoption of FLS across the UK is small in comparison with other service provision and would be expected to result in important benefits in fractures avoided and reduced hospital bed occupancy.

# Fracture Liaison Service in Denmark



- ★ Hospitals with Capture the Fracture silver
- ★ Hospitals with Capture the Fracture bronze
- ★ Hospitals with FLS
- ★ Hospitals in the process of getting FLS

# Fracture Liaison Service

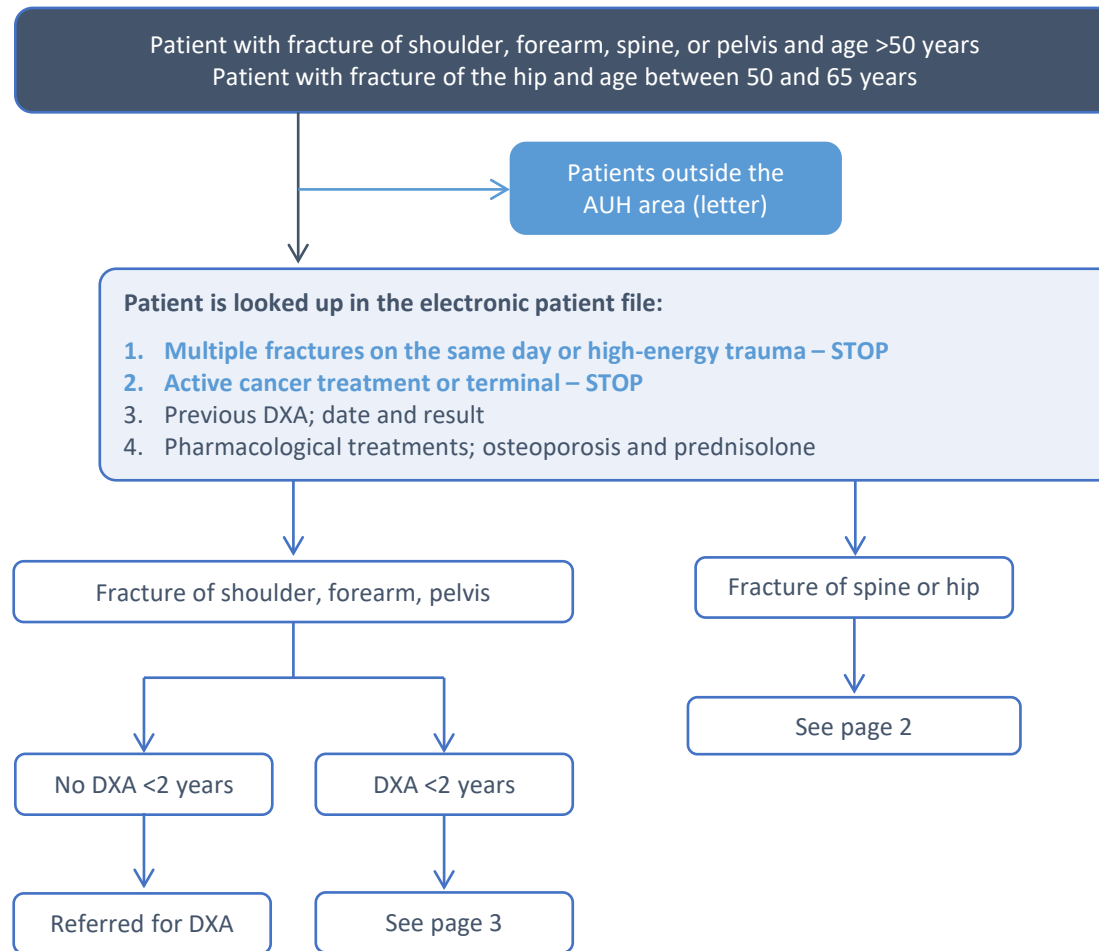
## The Aarhus model

- Context
  - 2000: First meetings with ortopedic surgeons
  - 2015-18: PhD project<sup>1</sup>
  - 2021: Political decision: FLS should be implemented at all hospitals in Region Midt, however, no budget
- Aarhus University Hospital
  - 2021: Dept of Endocrinology allocated 1 full time nurse and 1 part time bone specialist to FLS
  - Embedded in the outpatient bone clinic (2 professors, 3 consultants, 4 nurses, secretaries)
  - Focus: Patients that potentially would fulfill criteria for romosozumab or teriparatide
  - Note: Patients 65+ with hip fracture are managed by the dept of geriatrics



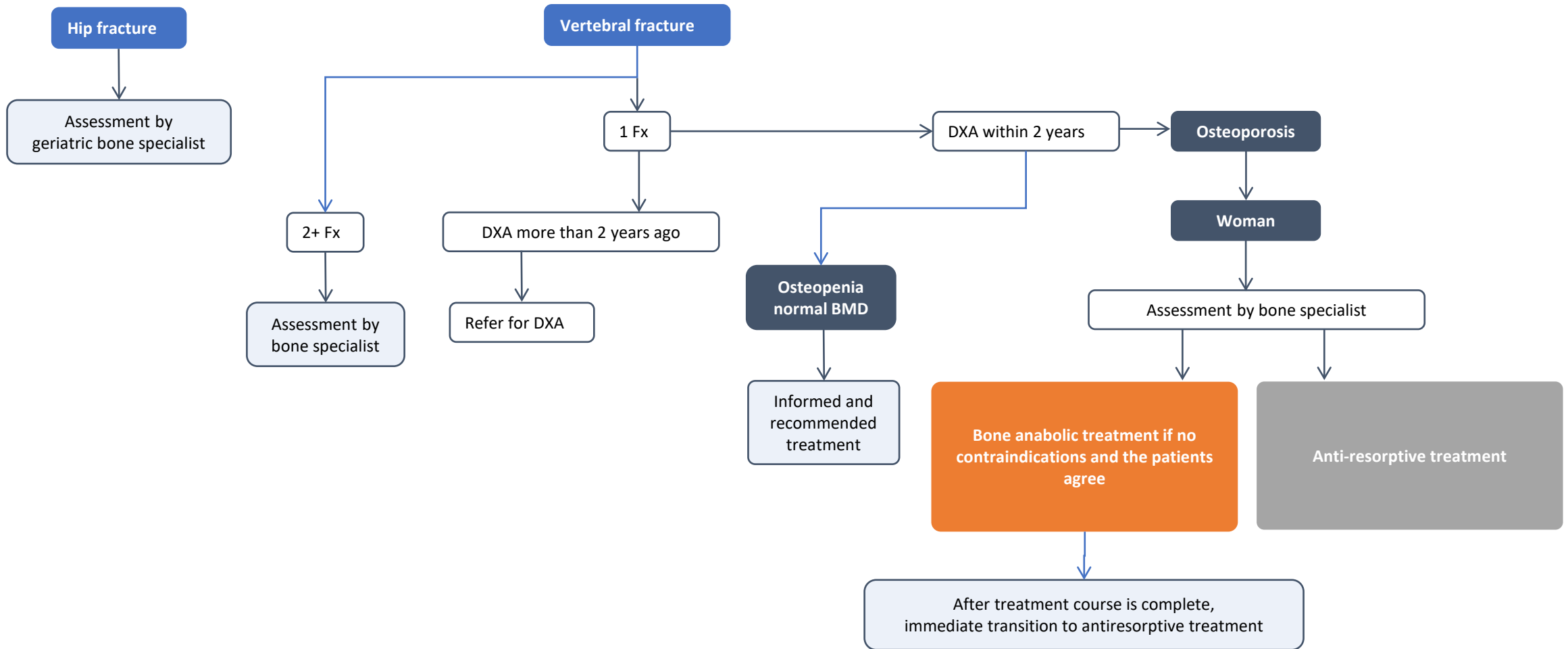
# Fracture Liaison Service

## The Aarhus model



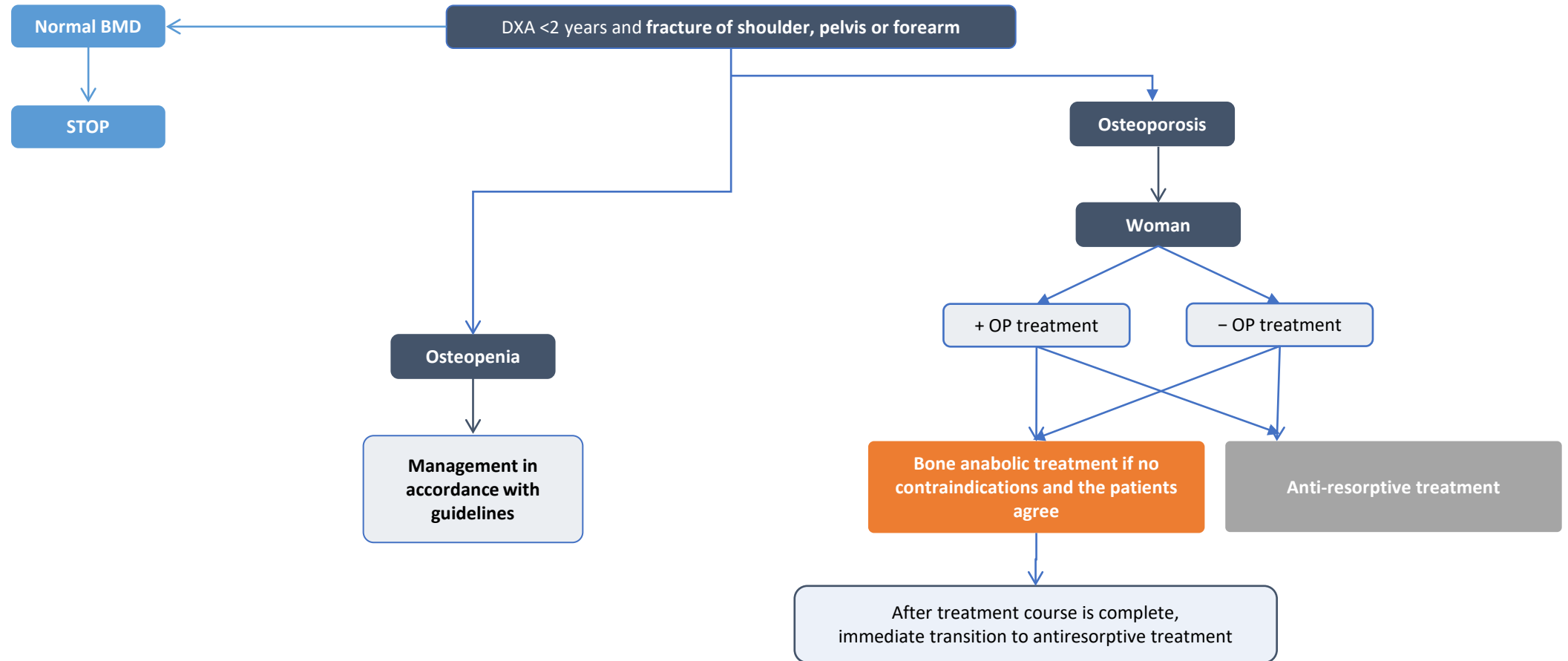
# Fracture Liaison Service

## The Aarhus model – hip and vertebral fractures



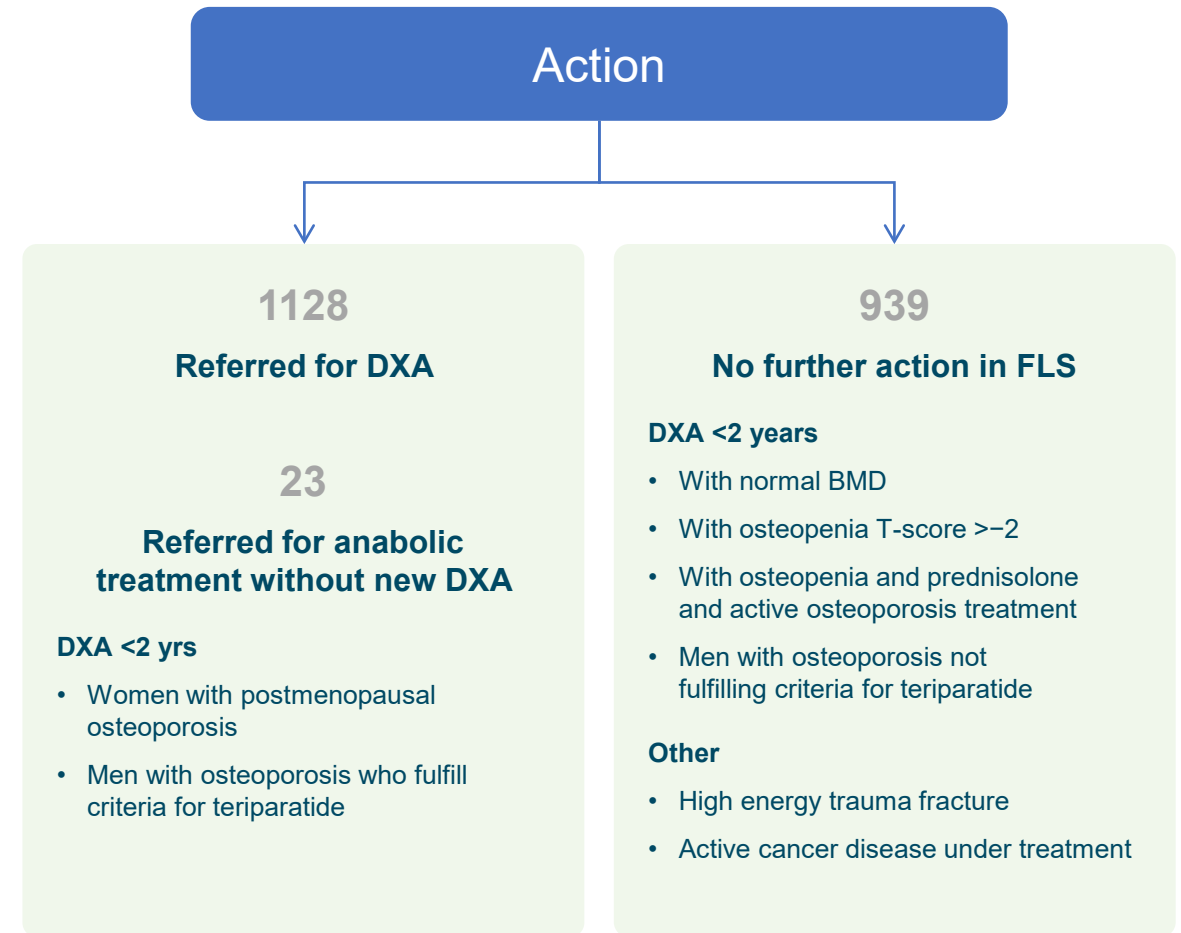
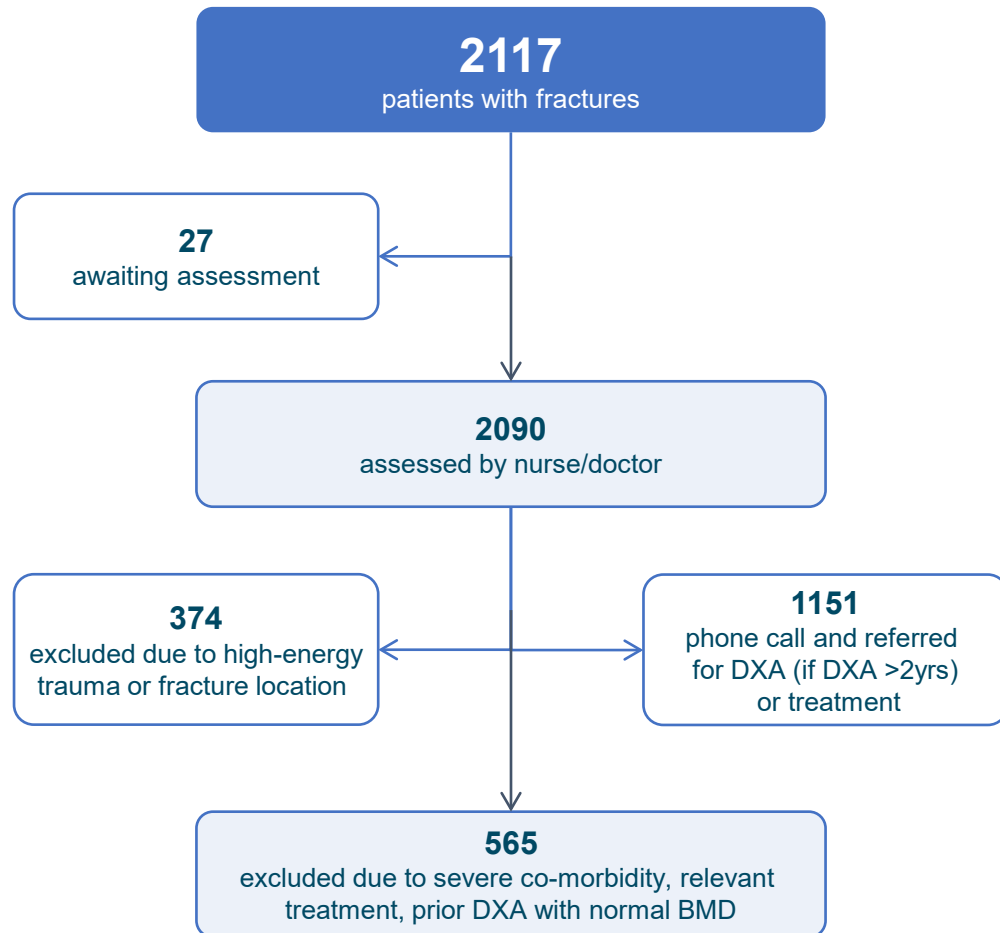
# Fracture Liaison Service

## The Aarhus model – non-vertebral fractures



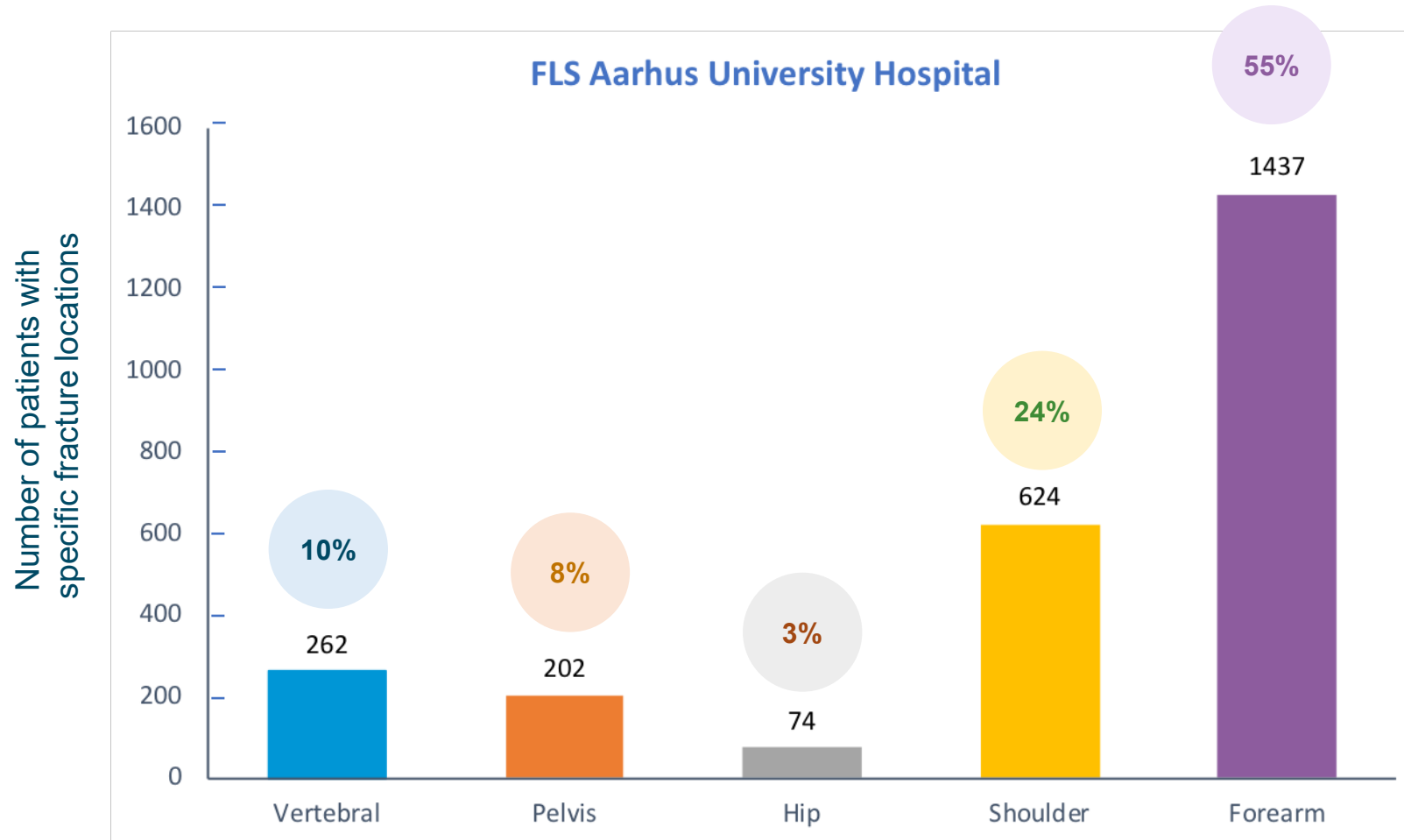
# Fracture Liaison Service

## The Aarhus model – outcome after 22 months



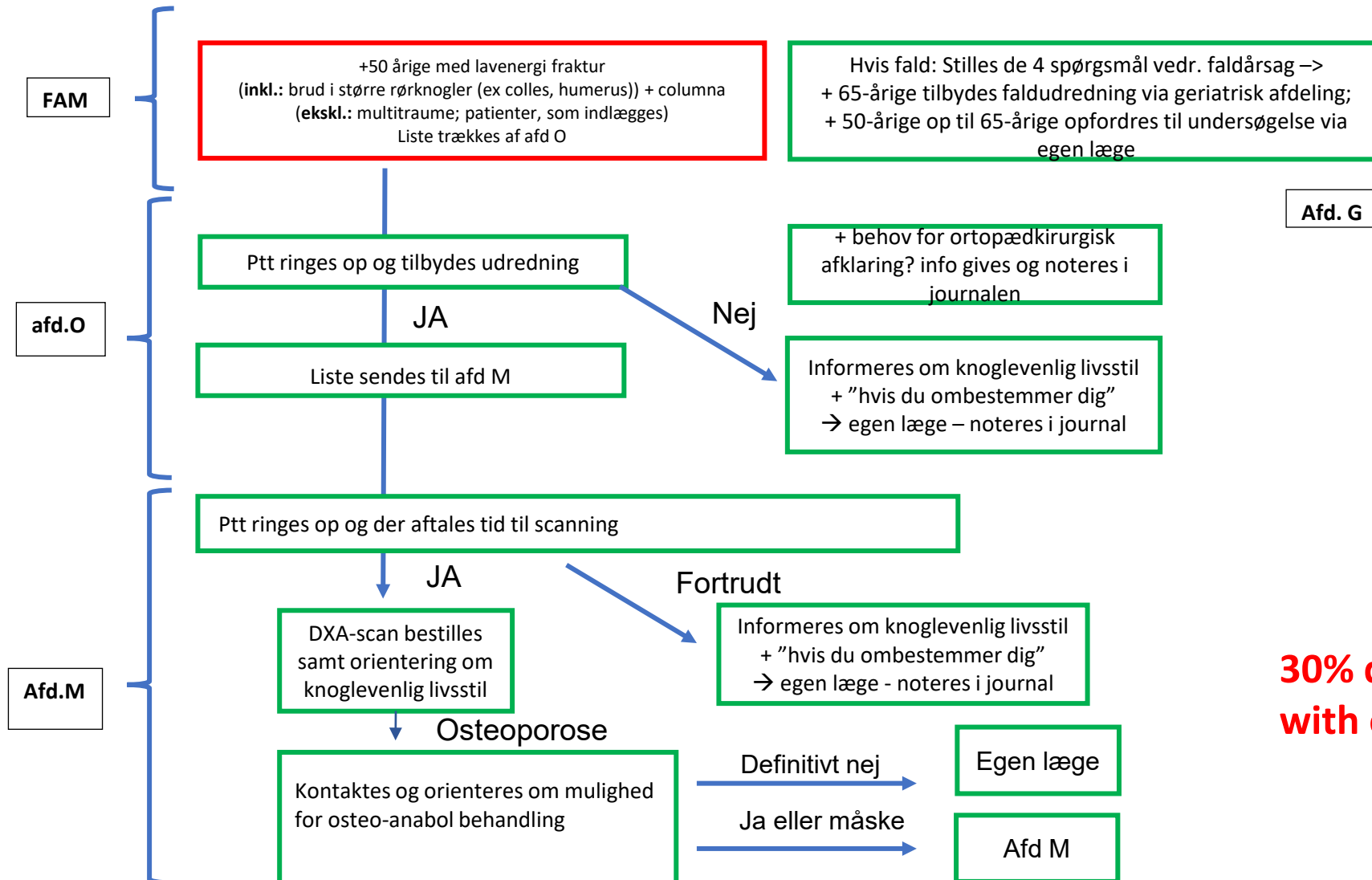
# Fracture Liaison Service

## The Aarhus model – outcome after 22 months



# Fracture Liaison Service

## The OUH (Odense and Svendborg) model



**30% diagnosed  
with osteoporosis**

# Fracture Liaison Service – Aalborg Universitetshospital

- Systematisk opsporing af alle 50+ år med fgl. brud
  - Overarm
  - Underarm
  - Ryg
  - Hofte
  - Bækken
- Der er ca. 3.300 sådanne brud i Region Nord per år – hidtil er ca. 700 per år blevet henvist til DXA, dvs. 2.600 ekstra skal tilbydes scanning (1.800 i Aalborg UH's område og ca. 800 i Regionshospitalets område)
- [https://rn.dk/om-region-nordjylland/budget-og-regnskab/budget/-/media/Rn\\_dk/Om-Region-Nordjylland/Budget-og-regnskab/Budget-2023/1-Budgetkatalog.ashx](https://rn.dk/om-region-nordjylland/budget-og-regnskab/budget/-/media/Rn_dk/Om-Region-Nordjylland/Budget-og-regnskab/Budget-2023/1-Budgetkatalog.ashx)

# Fracture Liaison Service – Aalborg Universitetshospital

- Alle med disse brud identificeres automatisk via koder fra skadestuerne
- De relevante ptt. tilbydes DXA scanning
- Svar på dette til e.l. med råd om behandling
- Følgende vurderes individuelt
  - DXA indenfor 2 år (skal behandlingsvalg ændres)
  - Cancer (terminale patienter indkaldes ikke)
  - Demens (svært demente patienter, der ikke kan kooperere indkaldes ikke, ved tvivl brev til e.l.)





**Evaluation of a FLS with osteoporosis-nurses  
screening hospitalized hip fracture patients for  
later follow-up in the osteoporosis outpt-clinic**

**Jens-Erik Beck Jensen, Jette Nielsen, Dorthe  
Sørensen, Lars Hylstrup, Henrik Palm.**

**Osteoporosis Clinic & Hip Fracture Care Unit**

**Copenhagen University Hospital Hvidovre, Denmark**

# Methods: Osteoporosis Clinic

## FLS during hospitalization in the Hip Fracture Unit:

- \* Blood-tests (D-vit, Ca<sup>++</sup>, PTH, etc.)
- \* Interview / conversation bedside by FLS-nurse

3-6 months

## Osteoporosis Out-Patient Clinic:

- \* Blood-tests and DXA-scan
- \* Interview / conversation with physician
- \* Medical treatment (Start – Continued – Changed)



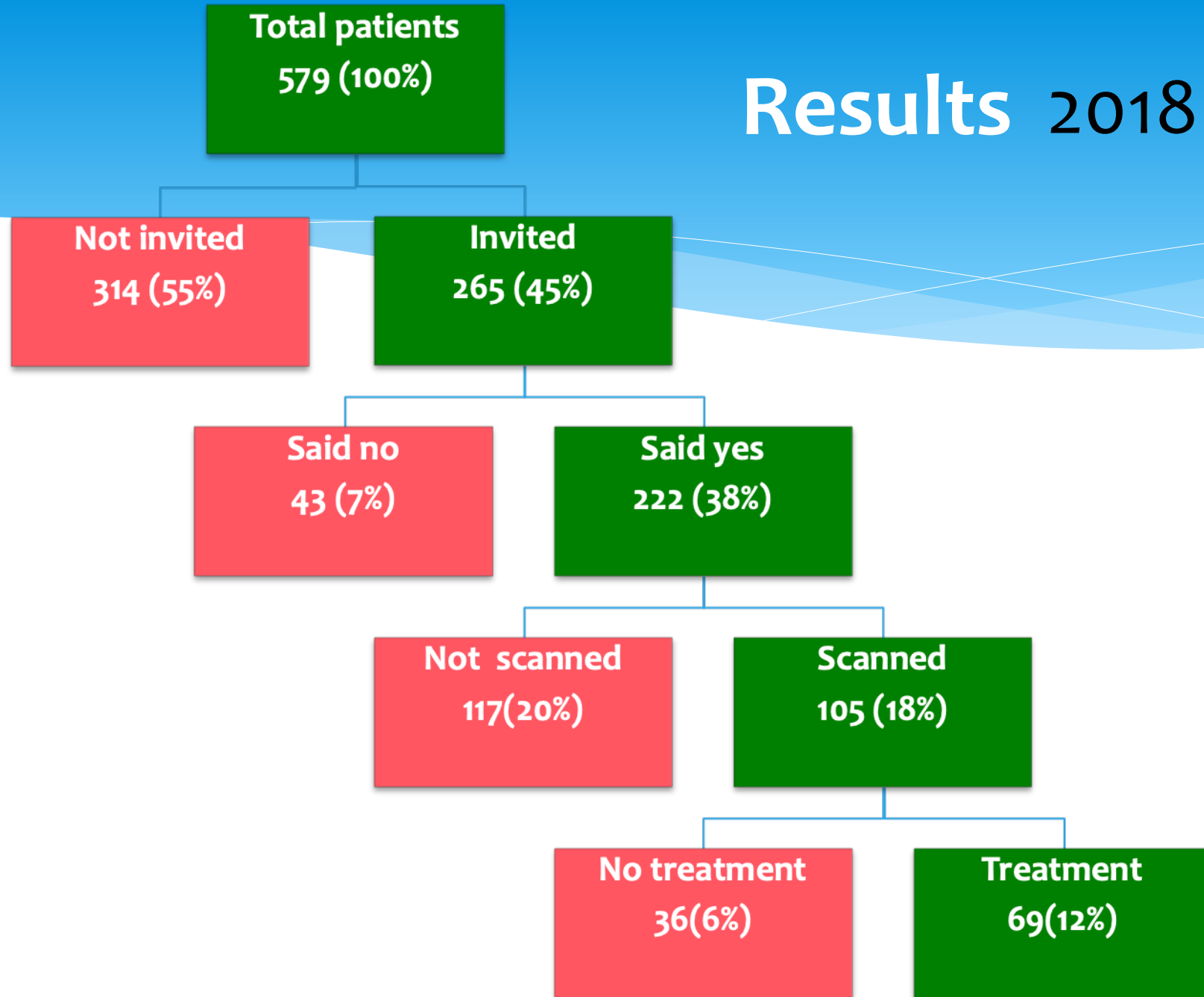
# FLS-algorithm for **not** inviting

## Evaluating mental status, age and co-morbidities:

- \* Dementia + age >90 years
- \* Dementia + low mobility (NMS  $\leq$  1)
- \* Dementia + Apoplexy / Parkinson's disease
- \* Not motivated for training, food or oral fluids
- \* Reject of all treatment
- \* Poor general condition / expected lifetime < 1 year



# Results 2018



# Conclusion

- \* This FLS model reached about 20% to treatment
- \* Patients could be selected for invitation
- \* Invited patients not showing up is challenging
- \* 65% of the patients have vertebral fractures
- \* Osteoporosis treatment increases T-score
- \* 94% of the patients fulfill the criteria for osteoporosis

**New actions required to further increase the rate of secondary osteoporosis prevention**



# Fracture Liaison Service in Denmark

- Status
  - Very slow uptake
  - Little political interest
  - No national database – yet
- Patients are surprised and impressed by the service
- FLS nurses find FLS very interesting and meaningful
- More statistical analyses
- Long-term data

Thank you for your attention

