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**Lower rate of invasive revascularisation after coronary angiography, following acute coronary syndrome, the longer distance you live from an invasive centres**

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# Less chance of revascularisation after CAG following ACS if you live far from an invasive centre

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## Purpose

We investigated if there was a difference in the rate of invasive revascularisation (PCI and CABG) after coronary angiography (CAG) following first acute coronary syndrome (ACS) depending on distance between place of residence and invasive centre.

## Methods

### Background:

Denmark (population 5.5 million) has a universal health insurance coverage system and uniform national guidelines for the treatment of ACS. Invasive treatment of cardiac patients has been centralized to a few highly specialized units.

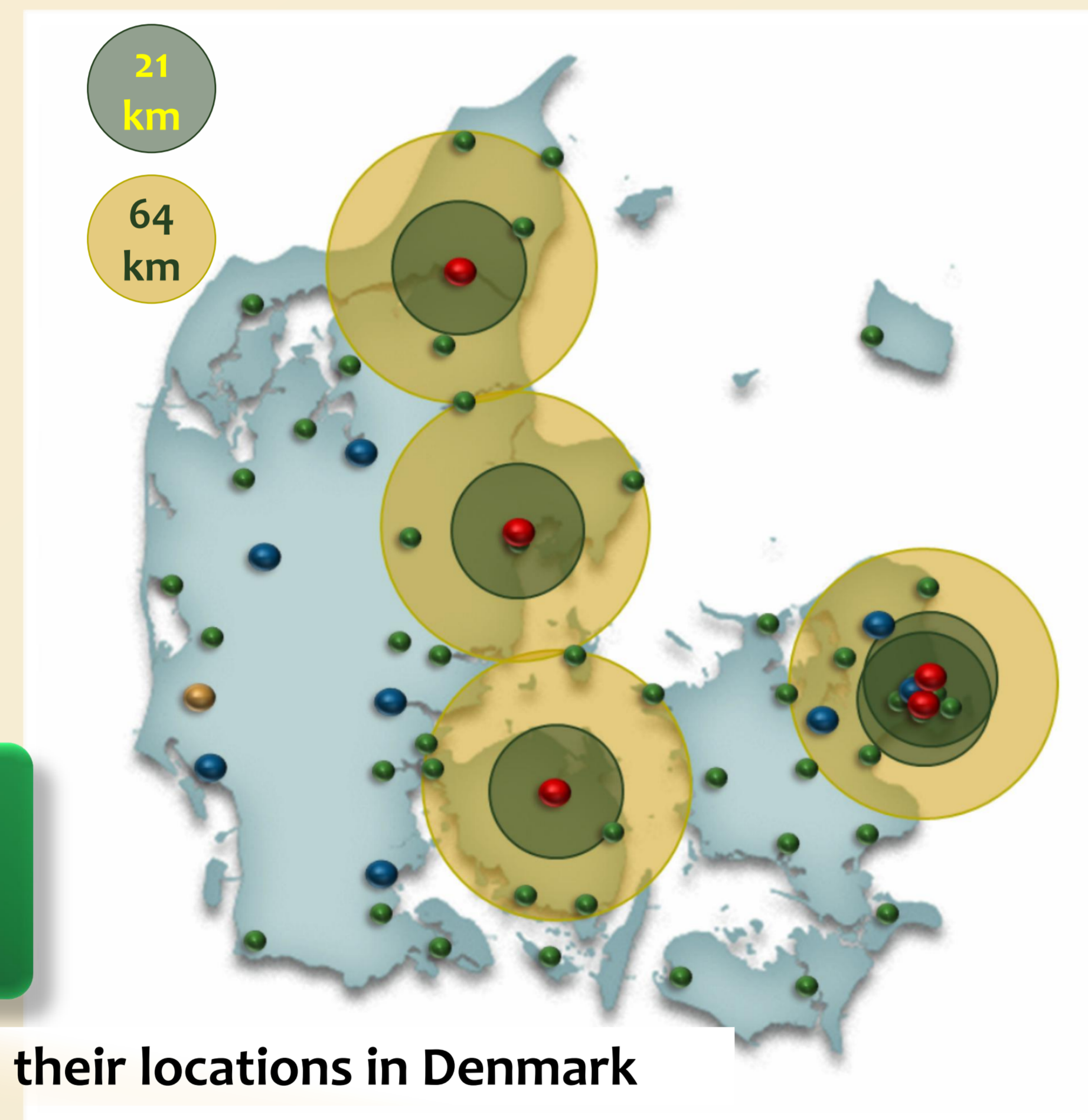


Figure 1. Hospitals admitting ACS patients and their locations in Denmark

- We identified, from the National Patient Registry, all patients hospitalized with ACS (both STEMI, non-STEMI and UAP) for the first time in 2005-2007. We included those patients examined with CAG. Patients were followed for 60 days.
- Information on distance from the patients place of residence to nearest invasive centre travelling on normal road was obtained from Statistics Denmark. Patients were grouped in tertiles according to distance from home to centre.
- From the Danish Heart Registry procedures (CAG, PCI and CABG) were identified.
- Information on comorbidity, medicine use, socioeconomic status and vital status was available on each patient.
- Cox proportional-hazard models were used to estimate the difference in the rate of revascularisation within 60 days of the admission adjusting for explanatory variables.

## Results

We identified 24 910 patients With ACS (83.5% with myocardial infarction).

Of those patients 1/3 lived less than 21 kilometres from an invasive centre and 1/3 lived more than 64 kilometres away.

We included the 18 236 patients who were examined with CAG. In all 13 964 (73%) were revascularised.

The cumulative incidence of revascularisation after two months was 79% for the third living closest to a centre vs 74% for those living furthest away.

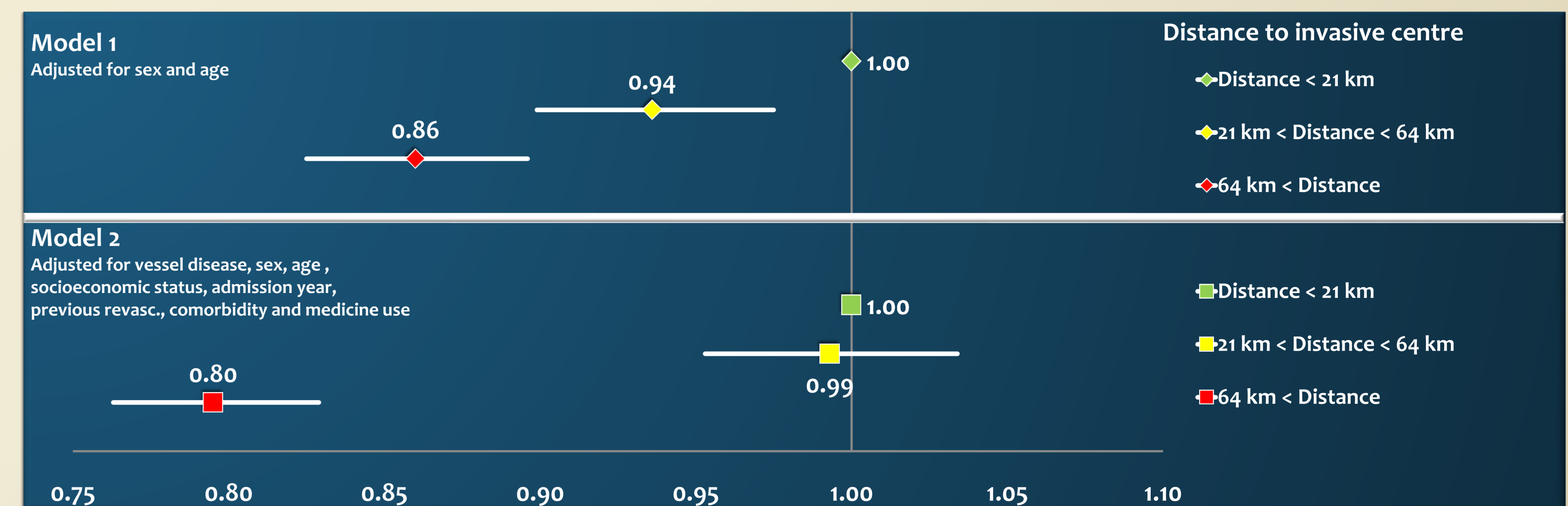
Distance to invasive centre was associated with less invasive revascularisation after the event.

Even after adjusting for other known risk factors such as vessel disease, gender, age, income, education, admission year, previous revasc., comorbidity and medicine use, there was a highly significant hazard ratio of 0.80 (95% CI 0.73-0.85,  $p < 0.0001$ ) of receiving revascularisation for the patients living far away in comparison to those living closest. CAG was performed at a tertiary centre in 68% among those living farthest away vs. 90% among those living closest to a centre.

Table 1

	Distance to invasive centre		
	Distance < 21 km	21km < Distance < 64km	64 km < Distance
ACS-population	8221	8220	8469
Cum inc CAG in % (95 CI)	76.7 (75.6-77.7)	74.9 (73.8-75.9)	68.3 (67.2-69.3)
CAG-population (%)	6218 (34%)	6130 (34%)	5888 (32%)
Median age P=0.08	64	65	64
Male gender in % P=0.01	67.1	67.4	69.4
Cum. Inc. revascularisation in % (95 CI)	78.6 (77.4-79.9)	76.4 (75.3-77.7)	74.2 (73.0-75.5)
Significant stenosis on CAG P<0.0001	83.9%	77.4%	81.8%
CAG performed in an invasive centre P<0.0001	89.9%	83.6%	67.9%

Figure 2. Association between distance to an invasive centre and the chance of receiving revascularisation



## Conclusion

Patients hospitalized with a first acute coronary syndrome and examined with CAG are receiving a less aggressive invasive treatment the further away they live from an invasive centre