OBJECTIVE:
The aim was to study whether a workplace-registered frequent short-term sick leave spell pattern was an early indicator of future disability pension or future long-term sick leave among municipal eldercare workers.

CONCLUSION:
- Workplace-registered frequent short-term, mixed and long-term sick leave patterns were early indicators of future long-term sick leave.
- Sick leave length was, however, a better indicator of future reduced workability than sick leave spell frequency.
- The more total sick leave the homecare personnel had, the higher the preventive potential seemed, irrespective of spell frequency.

RESULTS:
During the one-year “wash-out period” 379 (13.7%) of the 2774 employees experienced long-term sick leave, experienced one of the competing risks or emigrated from Denmark and did not return before 1 January 2006.

Disability pension was granted to 80 (3.3%) eldercare workers and long-term sick leave was experienced by 761 (32.2%).

WHAT'S NEW?
A new statistical approach dealing with time-to-event analyses was used:
- In stead of the traditionally used Cox proportional regression model, we used the pseudo values method.
- The pseudo values are a new set of observations computed from the pooled Kaplan-Meier estimate from which the pooled Kaplan-Meier estimate based on all observations but the jth observation is subtracted.
- The cumulative incidence proportion as a function of the number of follow-up weeks was estimated using the Kaplan-Meier curve. The relative cumulative incidence of being granted a disability pension or experiencing long-term sick leave within 352 weeks was analyzed in a generalised linear regression model.
- Competing events are accounted for when using this approach.

MATERIALS & METHODS:
Study design and who participated?
In an observational prospective study with a maximum of 6.75 years of follow-up, all municipal eldercare workers employed and working the entire year of 2004 in Aarhus, Denmark (N=2,774) were included.

Sick leave patterns as exposure variable:
Both employees were identified on a national register on public social transfer payments (including sickness benefit and disability pension) called the Danish Register for Evaluation of Marginalisation (DREAM).

Outcome was defined as incident disability pension and long-term sick leave (≥9 consecutive weeks):
Both outcomes were identified on a national register on public social transfer payments (including sickness benefit and disability pension) called the Danish Register for Evaluation of Marginalisation (DREAM).

Potential confounders:
- One-year “wash-out period” to eliminate the effect of long-term sick leave prior to entry date
- Age (≤40 / >40 years)
- Occupation (care / non-care)
- Number of unfavourable work environment factors (range 0-11)

The independent effect of sick leave spell frequency:
The cumulative incidence (95% CI) of being granted disability pension within 352 weeks among eldercare workers, according to their sick leave pattern.

The risk of being granted a disability pension was approximately twofold when exposed to a frequent short-term, mixed and long-term sick leave pattern compared to the non-frequent short-termed pattern.

The independent effect of the spell frequency became insignificant when total sick leave was entered in the regression model.

The risk of experiencing long-term sick leave was increased by approximately 1.5 when exposed to the three sick leave patterns in comparison with the non-frequent short-term sick leave pattern.

The independent effect of the spell frequency again became insignificant, whereas the independent effect of the sick leave length remained statistically significantly different from one and showed a nice dose-response relationship with the risk of experiencing long-term sick leave.

SICK LEAVE PATTERNS AS PREDICTORS OF DISABILITY PENSION OR LONG-TERM SICK LEAVE:
A 6.75 YEAR FOLLOW-UP STUDY IN MUNICIPAL ELDERCARE WORKERS

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1−5 long spells
2−12 mixed spells
0−2 short spells
2−13 spells of both short and long (>7 days) duration
2−13 short spells
0−1 short spells
2−13 long spells
2−13 long spells

Figure 1: The cumulative incidence (95% CI) of being granted disability pension within 352 weeks among eldercare workers, according to their sick leave pattern.

Figure 2: The cumulative incidence (95% CI) of experiencing long-term sick leave within 352 weeks among eldercare workers, according to their sick leave pattern.