

Online supplementary material

Effectiveness of the coordinated return to work model after orthopedic surgery for lumbar discectomy and hip and knee arthroplasty: a register-based study

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Supplemental table 1. Definitions for patient groups.

| Patient group | Surgical Procedure Codes (NOMESCO) | Diagnostic Codes (ICD-10) |
|--------------------------|---|--|
| Lumbar discectomy | ABC16, ABC26 | G55.1, M51.1, M54, M54.1, M54.4, M54.5 |
| Hip arthroplasty | NFB30, NFB40, NFB50 | M16, M16.0, M16.1, M16.2, M16.9 |
| Knee arthroplasty | NGB10, NBG20, NBG40 | M17, M17.0, M17.1, M17.9 |

Supplemental table 2. Comparison of the length of sickness absence during one-year before and one-year after the implementation of the CRtW model.

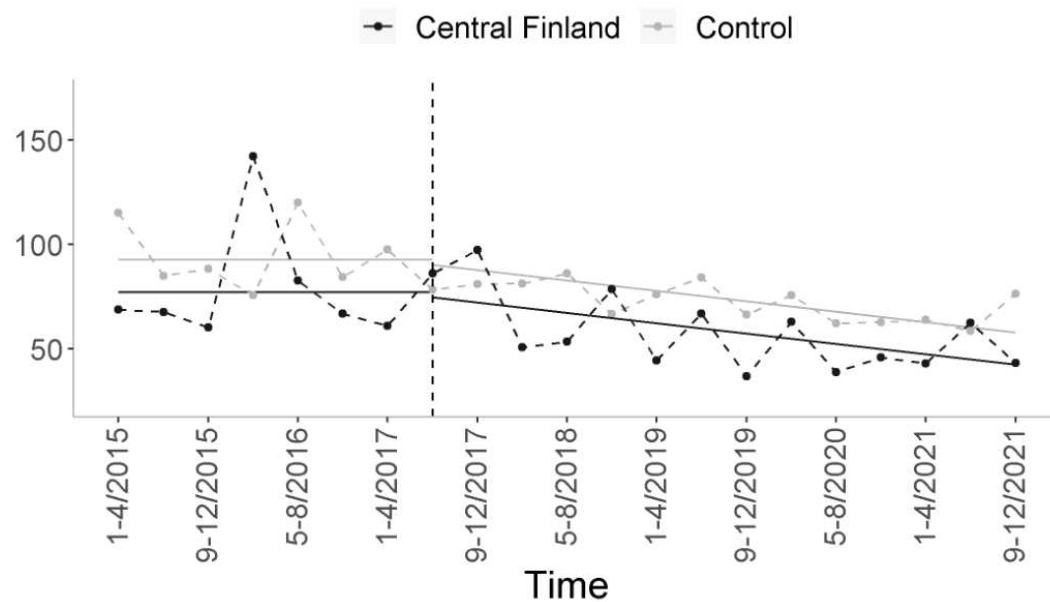
| | One year <u>before</u> the CRtW model implementation | | | | One year <u>after</u> the CRtW model implementation | | | | One year after vs. one year before | |
|--------------------------|--|-----------------|----------------------------|-----------------|---|-----------------|----------------------------|-----------------|------------------------------------|--------------------------------|
| | All sickness absences | | <180-day sickness absences | | All sickness absences | | <180-day sickness absences | | All sickness absences | <180-day sickness absences |
| | N | Mean (SD), days | N | Mean (SD), days | N | Mean (SD), days | N | Mean (SD), days | Mean difference (95% CI), days | Mean difference (95% CI), days |
| Lumbar discectomy | | | | | | | | | | |
| Central Finland | 74 | 73.2 (73.8) | 65 | 50.0 (39.9) | 73 | 74.6 (89.3) | 64 | 43.8 (26.2) | 1.4 (-25.3 to 28.1) | -6.2 (-17.9 to 5.5) |
| South Karelia | 35 | 62.7 (35.6) | 34 | 59.3 (29.6) | 27 | 54.3 (25.7) | 27 | 54.3 (25.7) | -8.5 (-24.7 to 7.8) | -5.0 (-19.1 to 9.1) |
| Hip arthroplasty | | | | | | | | | | |
| Central Finland | 80 | 93.0 (41.0) | 77 | 87.1 (27.4) | 79 | 75.8 (38.0) | 78 | 74.0 (34.8) | -17.3 (-29.6 to -4.9) | -13.1 (-23.0 to -3.2) |
| South Karelia | 28 | 92.2 (45.2) | 26 | 81.2 (20.4) | 35 | 83.3 (31.2) | 35 | 83.3 (31.2) | -9.0 (-28.2 to 10.3) | 2.1 (-11.8 to 15.8) |
| HUS Peijas Hospital | 227 | 83.6 (46.4) | 217 | 75.3 (22.7) | 391 | 81.9 (39.1) | 378 | 77.2 (28.9) | -1.7 (-8.6 to 5.2) | 1.9 (-6.4 to 2.6) |
| North Ostrobothnia | 108 | 97.9 (39.3) | 103 | 92.4 (30.4) | 116 | 77.8 (39.2) | 113 | 74.3 (33.2) | -20.1 (-30.5 to -9.8) | -18.1 (-26.7 to 9.5) |
| Knee arthroplasty | | | | | | | | | | |
| Central Finland | 94 | 117.2 (61.9) | 82 | 97.8 (30.1) | 66 | 102.3 (56.6) | 60 | 88.2 (33.4) | -14.9 (-33.9 to 4.0) | -9.6 (-20.1 to 0.9) |
| South Karelia | 44 | 105.8 (60.2) | 38 | 85.5 (27.2) | 44 | 98.6 (63.0) | 40 | 83.4 (37.8) | -7.2 (-33.3 to 18.9) | -2.1 (-16.8 to 12.6) |
| HUS Peijas Hospital | 224 | 96.8 (51.6) | 212 | 87.3 (29.4) | 230 | 81.8 (43.0) | 221 | 75.6 (29.5) | -15.1 (-23.8 to -6.3) | -11.8 (-17.3 to -6.2) |
| North Ostrobothnia | 119 | 123.9 (67.6) | 99 | 98.7 (28.5) | 114 | 109.4 (59.6) | 102 | 93.4 (33.5) | -14.5 (-31.0 to 2.0) | -5.3 (-13.9 to 3.4) |

Abbreviations: CI, confidence interval; CRtW, Coordinated Return to Work; HUS, hospital district of Helsinki and Uusimaa; SD, standard deviation.

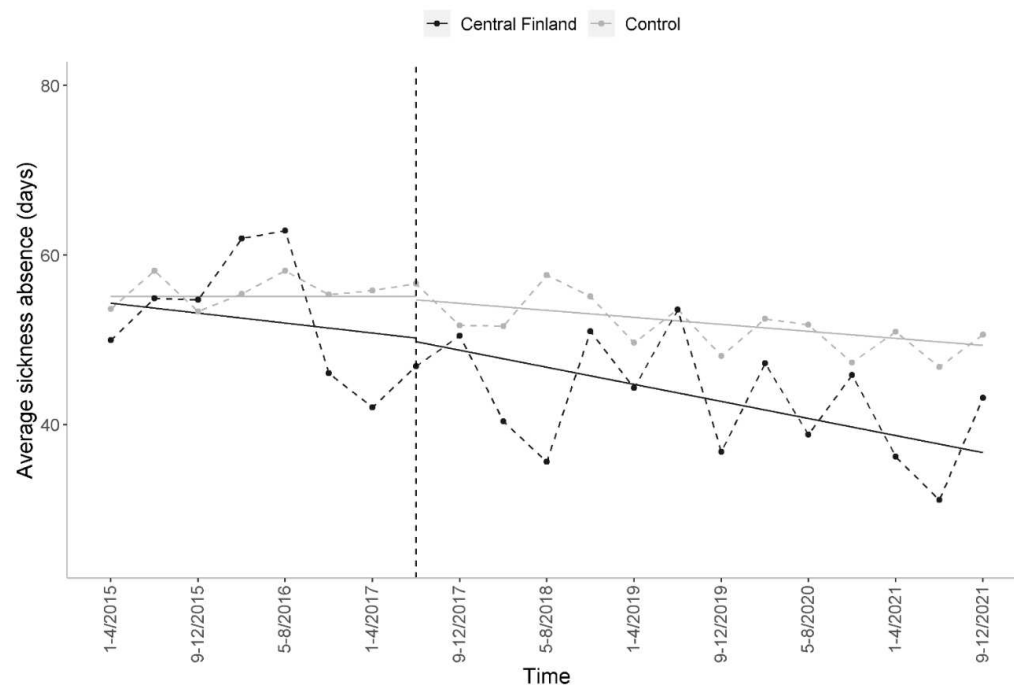
Supplemental table 3. Parameter estimates of the segmented regression models. Only statistically significant parameter estimates were kept in the model. Beta coefficients refer to the equation 1 presented in the manuscript.

| | Control area | | | | CRtW model area | | | |
|--------------------------|----------------|----------------|----------------|----------------|-----------------|----------------|----------------|----------------|
| | β_0 (SE) | β_1 (SE) | β_2 (SE) | β_3 (SE) | β_4 (SE) | β_5 (SE) | β_6 (SE) | β_7 (SE) |
| Lumbar discectomy | | | | | | | | |
| Central Finland | 85.48 (4.94) | -1.22 (0.46) | NS | NS | NS | NS | NS | -1.36 (0.66) |
| Hip arthroplasty | | | | | | | | |
| Central Finland | 95.63 (1.83) | NS | NS | NS | NS | NS | -15.91 (3.57) | NS |
| HUS Peijas Hospital | 92.86 (2.47) | NS | NS | NS | -8.98 (3.50) | NS | NS | NS |
| North Ostrobothnia | 106.04 (2.99) | -0.63 (0.22) | NS | NS | NS | NS | -15.08 (4.34) | NS |
| Knee arthroplasty | | | | | | | | |
| Central Finland | 112.90 (1.98) | NS | NS | NS | NS | NS | -11.54 (3.86) | NS |
| HUS Peijas Hospital | 120.92 (4.31) | -0.72 (0.24) | NS | 1.78 (0.54) | -11.31 (3.64) | NS | -14.32 (5.38) | NS |
| North Ostrobothnia | 117.53 (2.04) | NS | -9.76 (3.46) | NS | NS | NS | NS | NS |

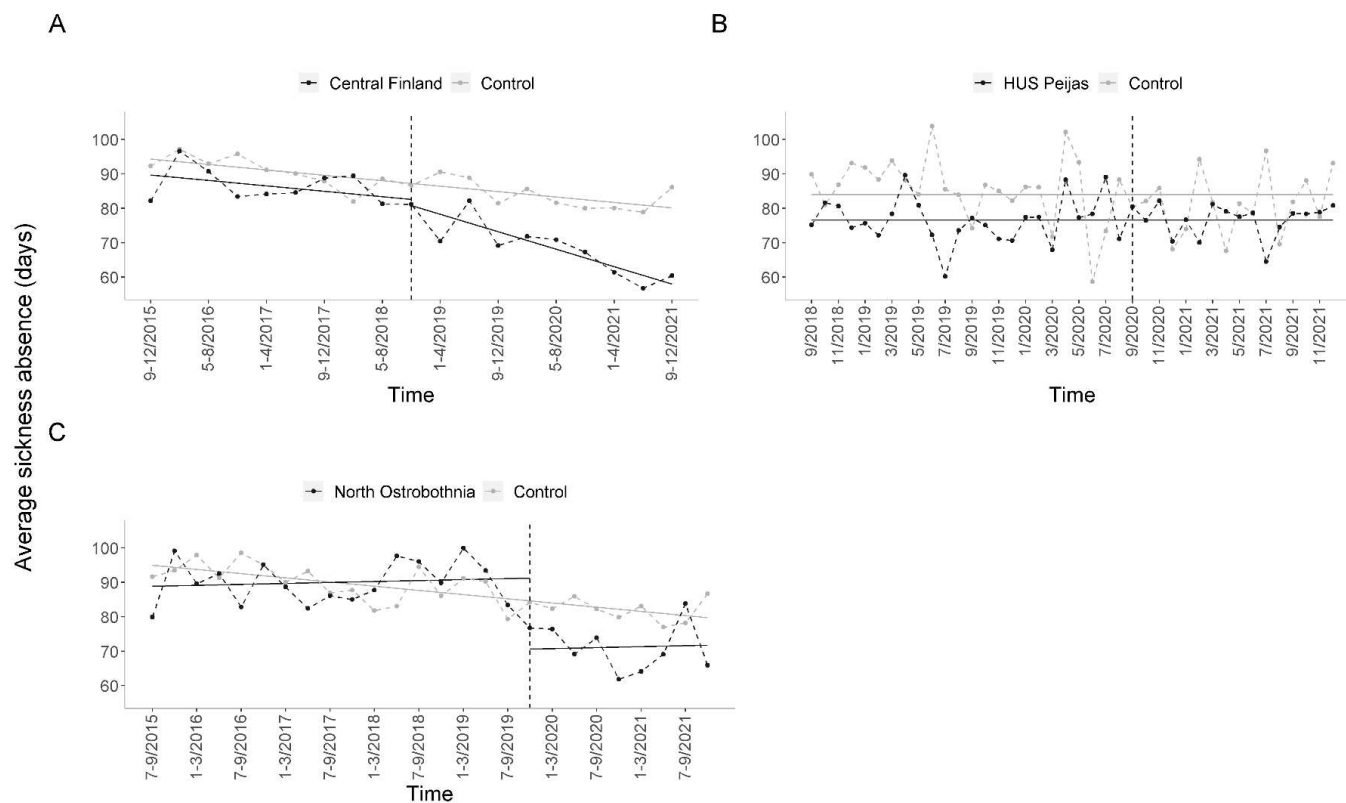
Abbreviations: CRtW, Coordinated Return to Work; HUS, hospital district of Helsinki and Uusimaa; NS, not statistically significant; SE, standard error.



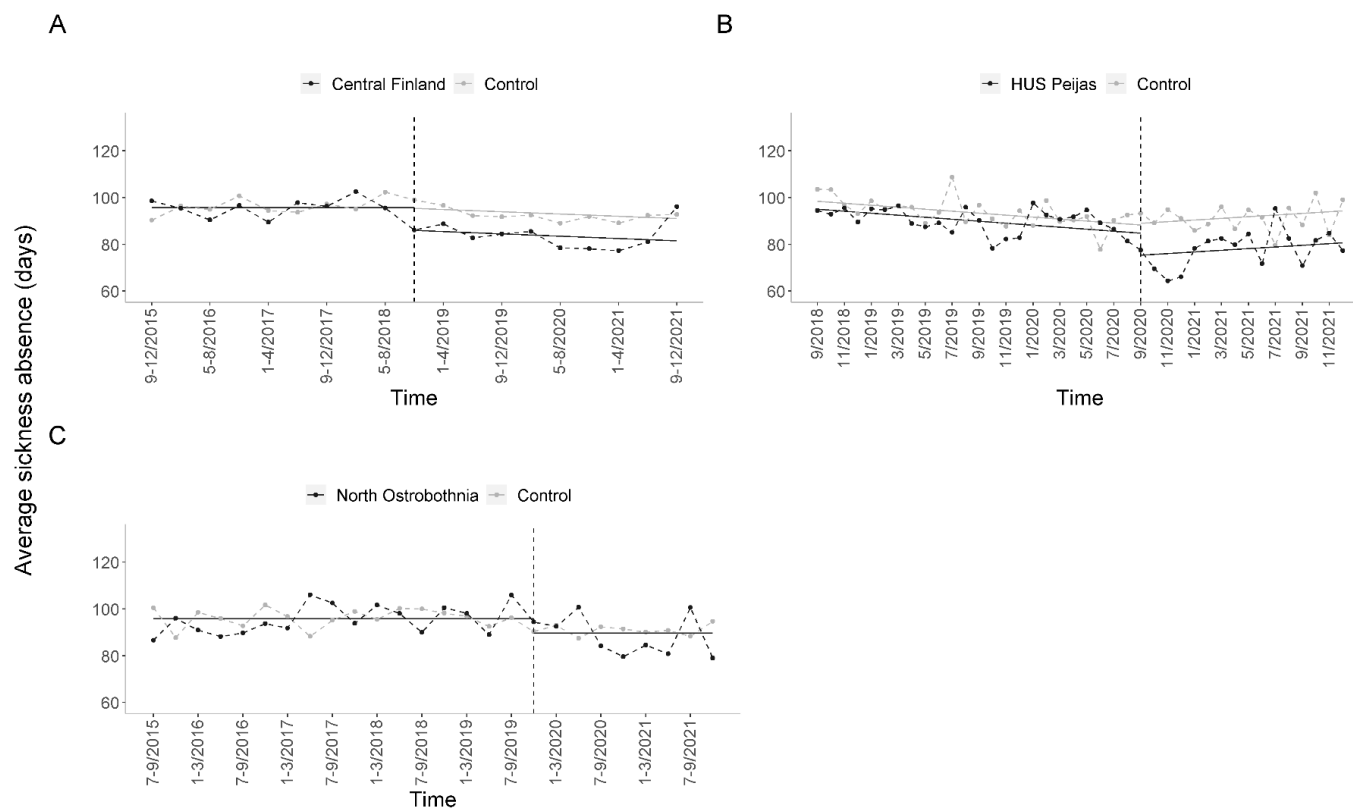
Supplemental figure 1. The effect of the CRtW model implementation on the estimated average length of sickness absence after lumbar discectomy surgery in Central Finland from a **sensitivity analysis excluding HUS from control area**. Solid line indicates estimated trend line and dashed line the observed values. Vertical dashed line indicates the time of the CRtW model implementation. Control area consists of Lapland, North Karelia, North Ostrobothnia, North Savo, and Ostrobothnia which had not implemented the CRtW model at the time of the study. All the presented changes from the baseline level since the start of the follow-up and differences between the areas are statistically significant. Abbreviations: CRtW, Coordinated Return to Work; HUS, hospital district of Helsinki and Uusimaa.



Supplemental figure 2. The effect of the CRtW model implementation on the estimated average length of sickness absence after lumbar discectomy surgery in Central Finland from a **sensitivity analysis restricting the length of sickness absence to <180 days**. Solid line indicates estimated trend line and dashed line the observed values. Vertical dashed line indicates the time of the CRtW model implementation. Control area consists of HUS, Lapland, North Karelia, North Ostrobothnia, North Savo, and Ostrobothnia which had not implemented the CRtW model at the time of the study. All the presented changes from the baseline level since the start of the follow-up and differences between the areas are statistically significant. Abbreviations: CRtW, Coordinated Return to Work; HUS, hospital district of Helsinki and Uusimaa.



Supplemental figure 3. The effect of the CRTW model implementation on the estimated average length of sickness absence after hip arthroplasty in A) Central Finland, B) HUS Peijas Hospital, and C) North Ostrobothnia from a **sensitivity analysis restricting the length of sickness absence to <180 days**. Solid line indicates estimated trend line and dashed line the observed values. Vertical dashed line indicates the time of the CRTW model implementation. In each of the parts A–C, the control area consists of Lapland, North Karelia, and Ostrobothnia which had not implemented the CRTW model at the time of the study. All the presented changes from the baseline level since the start of the follow-up and differences between the areas are statistically significant. Abbreviations: CRTW, Coordinated Return to Work; HUS, hospital district of Helsinki and Uusimaa.



Supplemental figure 4. The effect of the CRTW model implementation on the estimated average length of sickness absence after knee arthroplasty in A) Central Finland, B) HUS Peijas Hospital, and C) North Ostrobothnia from a **sensitivity analysis restricting the length of sickness absence to <180 days**. Solid line indicates estimated trend line and dashed line the observed values. Vertical dashed line indicates the time of the CRTW model implementation. In each of the parts A–C, the control area consists of Lapland, North Karelia, North Savo, and Ostrobothnia which had not implemented the CRTW model at the time of the study. All the presented changes from the baseline level since the start of the follow-up and differences between the areas are statistically significant. Abbreviations: CRTW, Coordinated Return to Work; HUS, hospital district of Helsinki and Uusimaa.