Productivity losses

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Erkki Soini, ESiOR Oy
What we offer?

MARKET ACCESS

New!

HEALTH ECONOMICS AND OUTCOMES RESEARCH

Established
ESiOR Oy – specialist company producing health economic and outcomes research and market access services

Mission: Our mission is to improve the operations, effectiveness, efficiency and market access of social and health care services and products for the client benefit.

KPI: We produce information related to effectiveness, cost-effectiveness and other key performance indicators (KPI). KPIs are in the centre of e.g. Finnish social and health care reform, and decision related to recommendations and reimbursement.

Knowledge: We offer you health economic and outcomes research skills and insight (over 285 public references/awards, multiple data sources, comprehensive consultancy) as well as unique market access services with hands-on experience from the pricing board.

We are independent

From data to competitive advantage
Example of real-world evidence generation process

ESiOR – Current situation and needs

ESiOR – Further development

Stakeholders – Targets and KPIs

ESiOR – Strategy, analytics and reporting

Knowledge user – Draft review and feedback

Knowledge user – Implementation and needed corrections

Stakeholders – Finalization of strategy, analytics and reporting

Stakeholders – Finalization of strategy, analytics and reporting

Stakeholders – Targets and KPIs
Data & experience
- Planning, management, permissions, registration, linkage
- National and quality registries
- Patient and customer, operation and follow-up data
- Isaacus, Biobanks, myData
- Interviews, literature

Modelling & analysis
- Model planning and building
- Description, exploration, visualization
- Statistical and predictive analyses
- Costs, effectiveness, cost-effectiveness, budget impact
- Process and profiling analyses, benchmarking

Competitive advantage

Knowledge management
- Strategies, critical conditions
- KPIs, benchmarking
- Predictive models, target setting, optimization
- Target attainment, need and residual need
- Social and health economic models
- Reporting solutions

Evidence & communication
- Content production
- Publications, conference presentations
- Reports, press releases
- Stakeholder meetings
- Digital solutions, apps, tools, e.g. models and calculators
- Consulting
Case example: Productivity losses
Some sources of productivity loss

Absenteism, individual
• Short-term work disability
• Permanent work disability

Presenteeism, individual
• Decreased ability to work

Multiplier effects, individual and colleagues
• Increasing work burden
• Inhibiting work

Compensation mechanisms, colleagues and employer
Vocational selection, individual
Re-education, individual
Unemployment, individual
Part-time work, individual
Home work, individual and others living there...
Earlier studies of productivity losses in rheumatoid diseases and inflammatory bowel diseases (IBD) in Finland

Annual productivity loss due to rheumatoid arthritis (RA) €4800/patient at national level (Martikainen 2016).

Annual productivity loss due to early RA €1928–8344/patient (Puolakka 2009).

Earlier Finnish studies have not assessed productivity losses related to rheumatoid diseases or IBDs widely or from multiple perspectives.

Let’s think “outside of the box”.


Key questions

1. Are there regional differences in the ability to work?
2. Have the excluded drivers of productivity losses any impact?
3. Do ability to work and well-being impact productivity losses?
The stakeholders:

- Crohn ja Colitis ry
- The Finnish Rheumatism Association
- AbbVie Oy
- Confederation of Finnish Industries (EK)
- The Finnish Medical Association
- The Finnish Innovation Fund Sitra
- The Union of Health and Social Care Professionals in Finland (Tehy)
- Terveystalo
- Occupational Health Helsinki

Stakeholder logos not shown
Paid and unpaid work lost due to illness has considerable impact for the individual, employer and society:

Innovative use of registry, survey and other real-world data to assess illness-related productivity losses in Finland

- Case *rheumatoid diseases and inflammatory bowel diseases (IBD)*

Available [1]:

www.researchgate.net/publication/318420433_Tekemonta_tyota_nakymattomia_kustannuksia

_/Selvitys_tulehdusellisia_suolistosairauksia_ja_reumasairauksia_sairastavien_tyo-ja_toimintakyvyysta_seka_niiden_menetyksesesta_aiheutuvista_kustannuksista_
Multiple data sources

Customer and process data from Terveystalo and Työterveys Helsinki

National register data from Social Insurance Institution and Statistics Finland

Digital patient-reported outcomes (dPRO) questionnaire, 1 week in June 2017

- To complement what is lacking in the national and local registers included
dPRO questionnaire

1. Patient characteristics
2. Location
3. Long-term diseases (LTD)
   • Including patients with IBD or rheumatoid diseases (“inclusion criteria”)
4. Reimbursed treatments
5. Absenteeism due to the LTDs
   • Away from work
6. Presenteeism due to the LTDs
   • Working while ill
7. Benefits due to the LTDs
8. LTD’s impact to
   • Education, re-education
   • Employment, unemployment
   • Full-/part-time work
   • Income, benefits
   • Home work
9. 5-level well-being
10. Work, vigour and energy
Modelling and perspectives

Modelling and visualization was done using MS Excel and R

Model merged different data sources and cost inputs, and synthesized evidence

Human capital approach (HCA) without indirect employer payments was used for valuing

Modelling included relevant costs for different payers
Theses

1. Regional differences in inability to work do exist
2. Excluded drivers of productivity losses do have impact
3. Ability to work and well-being do impact productivity losses
Responders
(N 1057, 28% men)

- Yli 65v: 9%
- 25–64v: 89%
- 18–24v: 2%

[1]

[1]

DM without insulin
DM with insulin
Asthma
Hypertension
Hypothyroidism
Gamma globulin deficiency
Cardiac arrhythmias
Organ transplantation
Glaucoma
Leukemia
MS
Cancer
CHD
Anemia
DM without insulin
DM with insulin
Asthma
Hypertension
Hypothyroidism
Gamma globulin deficiency
Cardiac arrhythmias
Organ transplantation
Glaucoma
Leukemia
MS
Cancer
CHD
Anemia

[1]
Regional differences in work disability index are related to system?

*In addition to permanent inability to work, following were included:
- Illness days
- Unemployment
- Education
- Part-time work; all due to interesting LTDs

[1]
Wider perspective to productivity losses is obtained with dPRO

- **Individual**
  - 72
  - 536
  - 608 €/month

- **Employer**
  - 164
  - 589
  - 753 €/month

- **Society**
  - 380
  - 1190
  - 1570 €/month

[1] Typically included: Costs due to "permanent" inability to work

- Typically excluded: Costs due to e.g. presenteeism, re-education, unemployment etc.
<table>
<thead>
<tr>
<th>Drivers</th>
<th>Total productivity loss per individual with interesting LTD</th>
</tr>
</thead>
<tbody>
<tr>
<td>608 €/month</td>
<td>Yksilön menetys Individual</td>
</tr>
<tr>
<td>182 €/month</td>
<td>Työ Work</td>
</tr>
<tr>
<td>108 €/month</td>
<td>Tuet Benefits</td>
</tr>
<tr>
<td>317 €/month</td>
<td>Kotityö Home work</td>
</tr>
<tr>
<td>589 €/month</td>
<td>Vajaaskuntoisuus Working ill</td>
</tr>
<tr>
<td>164 €/month</td>
<td>Poissaolo Absent from work</td>
</tr>
<tr>
<td>176 €/month</td>
<td>Työn valinta Vocational selection</td>
</tr>
<tr>
<td>317 €/month</td>
<td>Kotityö Home work</td>
</tr>
<tr>
<td>464 €/month</td>
<td>Vajaaskuntoisuus Working ill</td>
</tr>
<tr>
<td>131 €/month</td>
<td>Tuet Benefits</td>
</tr>
<tr>
<td>481 €/month</td>
<td>Menetetyt työ Lost work</td>
</tr>
</tbody>
</table>

| Society | |
|---------| |
| 754 €/month | Työnantajan menetys Employer | |
| 1570 €/month | Yhteiskunnan menetys | |
| 182 €/month | Osa-aiheus |
| 108 €/month | Työllistymättömyys |
| 317 €/month | Työkyvystyymyys Apu |
| 589 €/month | Vajaaskuntoisuus Working ill |
| 164 €/month | Poissaolo ja sairauspäiväraha |
| 176 €/month | Työn valinta Vocational selection |
| 317 €/month | Kotityö Home work |
| 464 €/month | Vajaaskuntoisuus Working ill |
| 131 €/month | Tuet Benefits |
| 481 €/month | Menetetyt työ Lost work |

| Employer | |
|---------| |
| 798 €/month | Education, vocational selection |
| 19 | Part-time work |
| 19 | Unemployment |
| 19 | Inability to work |
| 19 | Assistance |
| 19 | Prevented |
| 19 | Increased |
| 19 | Impact to others |
| 19 | Impact to employee |
| 19 | Impact to others |
| 19 | Absence, illness allowance |
| 19 | Education, vocational selection |
| 19 | Part-time work |
| 19 | Assistance |
| 19 | Prevented |
| 19 | Increased |
| 19 | Prevented others work |
| 19 | Increased others work |
| 19 | Prevented individual’s work |
| 19 | Increased individual’s work |
| 19 | Studies |
| 19 | Unemployment |
| 19 | Inability to work |
| 19 | Absence, prevented others |
| 19 | Absence, increased to others |
| 19 | Absent from work |
| 19 | Studies |
| 19 | Unemployment |
| 19 | Unable to work |
Work ability and well-being

10 questions, 5 dimensions (1=best, 5=worst):
1. Health state
2. Mobility
3. Self-care
4. Usual activities
5. Pain
6. Anxiety or depression
7. Social activities and relationships
8. Mood
9. Vigour and energy
10. Work ability
The sum of (worse) work ability and well-being predicts (higher) productivity losses

Societal productivity loss (€/month) = -0.1924x³ + 18.519x² - 345.26x + 2117.60
R² = 38.7%

10 questions, 5 dimensions (1=best, 5=worst):
• Health state
• Mobility
• Self-care
• Usual activities
• Pain
• Anxiety or depression
• Social activities and relationships
• Mood
• Vigour and energy
• Work ability

Sum of work ability and well-being questions (range 10-50)
The mapped* (worse) quality of life score predicts (higher) productivity losses: Society

Societal productivity loss (€/month) = 6165.80x² - 12077.00x² - 301.29x + 5710.10
R² = 36.6%

5 questions, 5 dimensions:
• Mobility
• Self-care
• Usual activities
• Pain
• Anxiety or depression

The mapped* (worse) quality of life score predicts (higher) productivity losses: Individual

Individual’s productivity loss (€/month) = 797.32x^3 - 3371.20x^2 + 355.50x + 1857.30

R^2 = 23.2%

5 questions, 5 dimensions:
- Mobility
- Self-care
- Usual activities
- Pain
- Anxiety or depression

Crohn ja Colitis ry:
*IBD impacts trough the working age*
*Plans to sustain working ability is needed*

The Finnish Rheumatism Association:
*Regional differences are large*
*Patient’s wellbeing need to be sustained*

Confederation of Finnish Industries (EK):
*Many important cost drivers have been earlier ignored*

The Finnish Medical Association:
*Great to look at the whole picture*

The Finnish Innovation Fund Sitra:
*Good example of large-scale co-operation*

The Union of Health and Social Care Professionals in Finland (Tehy):
*Public perception and willingness is needed*

Terveystalo:
*Return on investment for supporting working ability is beneficial*

[1]

https://yle.fi/uutiset/3-9716843
Why to talk about this? Impact of including productivity losses

Common sense: Exclusion of productivity losses from decisions means that ability to work has no meaning or value for the decision maker? Yet, Finland has somewhat publicly funded social and health care. Thus, both the quality and the quantity of overall service provision and all associated resources are dependent on the level of tax revenues (income tax, value added tax) and co-payments.


Similar findings related to the inclusion of productivity losses:


Maybe productivity losses will be included to a Isaacus pre-production project too: Soini E, et al. Efficient secondary use of representative social and health care data in Finland: Isaacus data lake, analytics and knowledge management pre-production project. European ISPOR 2017.
The impact on ICERs elsewhere

Krol. Productivity costs in economic evaluations. 2012:

Figure 7.2 from the thesis not shown
Yhteistyön hyödyt asiakkaalle

➢ Vaikuttavuuden, laadun ja tehokkuuden kehittäminen > kilpailukyky nousee

➢ Tiedon saaminen hyödynnettävään muotoon > uskottavuus lisääntyy

➢ Laajan kumppaniverkoston käyttäminen > optimointi paranee

➢ Osaamisen hyödyntäminen > paras tieto asiakkaan käytössä

➢ Ajankäytön suunnittelu > maksu ainoastaan tehdystä työstä

Tieto on kilpailuetu

www.esior.fi

Erkki Soini, CEO
erikki.soini@esior.fi
www.linkedin.com/in/erkkisoini
Mobile +358 400 533 971