Sweden

Discrepancies in patient information about the prescribed drugs -

- risk for interpretation errors, medication errors, and adherence errors, hoarding and unused drugs
EMR

84% of patients (≥5 prescriptions) had ≥1 non-current or a duplicate or a missing prescriptions in the EMR

30% of the prescriptions were non-current (13%), duplicates (10%) or missing (7%)

A significant improvement in validity was achieved if the GP received the drug list with notifications from a short interview with the patient before the follow-up visit.
89% of patients had \( \geq 1 \) non-current or a duplicate or a missing prescription in the NPR.

40% of all prescriptions in the NPR were non-current (10%), duplicates (10%) or missing (20%).

11% of patients had stored prescriptions fully congruent with the current, ongoing prescribed therapy.
Numbers of returned packs vs. Age of the packs (months).

- Obrutna förpackningar

Axes:
- Y-axis: Numbers of returned packs
- X-axis: Age of the packs (months)
Returned unused packs to Swedish pharmacies; cumulative data; (Gini-coeff.=0.58; n=1 022/5 759)
Reasons why the returned medicines hadn’t been used
\( n=1.022/5\ 414 \)

Terminated or changed treatment \( >50\% \)

Expiry date passed \( \sim 20\% \)

Death of patient \( \sim 20\% \)

after Ekedahl -07
Sweden

3 information sources for patients about the prescribed treatment

- a printout from EMR

- a printout of the prescriptions stored in the NPR

- the dispensed packs with pharmacy label and package inserts

Which one should he/she rely on?
Sweden

- Prescribers/Doctors are only allowed to see the prescriptions in the NPR if the patient gives informed consent to her/him;

- Prescribers/Doctors are neither allowed, nor able to institute any changes in the prescriptions in the NPR
Sweden

- only pharmacists are able to make changes in the prescriptions in the NPR – but on patient request only;
Sweden

Consequence:

prescriptions for the current, prescribed treatment in the NPR, BUT

ALSO prescriptions for NON-current treatment, (previously changed or terminated) AND prescription duplicates

Due to the generic substitution – other dispensed brands than listed in the EMR and the NPR

AE/ Maine Oct 2010
What is the occurrence of
- non-current prescriptions,
- prescription duplicates, and
- missing prescriptions
in the NPR and the EMR?
Patients recruited at pharmacies
(3 clusters/cities)

Patients recruited at Health Care Centres
(5 clusters/cities)

Randomized controlled intervention
(1 HCC)
Inclusion criteria:  
- written informed consent  
- ≥18 years of age  
- listed/registered for the NPR  
- ≥5 prescriptions in the EMR and/or the NPR

Exclusion criteria:  
- Representative  
- Multi-dose-dispensed drugs from the pharmacy  
- Cognitive dysfunction  
- Language barrier
218 patients with altogether 2,371 prescriptions recruited at Health Care Centers in Sweden
EMR – distribution of patient age and gender (n=218)
Overall congruence 53%
218 patients
2,371 prescriptions

Stated by patients
(n=1,789)

NPR
(n=1,908)

EMR
(n=2,211)

AE/ Maine Oct 2010
EMR - non-current prescriptions, duplicates and missing prescriptions
(n=218 patients, 2,211/2,371 prescriptions)
EMR - correlation between discrepancies and numbers of prescriptions (r=0.70; 218 patients; 683 discrepancies; 2,211/2,371 prescriptions)
Discrepancies in relation to age and gender
- women (n=76/913) and men (n=74/856)

Kvinnor
Män

AE/ Maine Oct 2010
## EMR - discrepancies (n=2,211/2,371)

<table>
<thead>
<tr>
<th></th>
<th>Non-current prescriptions</th>
<th>Duplicates</th>
<th>Double-medication</th>
<th>Missing prescriptions</th>
<th>Total</th>
<th>Discrepancies</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Common EMR</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EMR</td>
<td>187</td>
<td>165</td>
<td>8</td>
<td>86</td>
<td>446/1,824</td>
<td>24.5 %</td>
</tr>
<tr>
<td><strong>Local EMR</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EMR</td>
<td>51</td>
<td>68</td>
<td>2</td>
<td>72</td>
<td>193/545</td>
<td>35.4 %</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>238</td>
<td>233</td>
<td>10</td>
<td>158</td>
<td>639/2,371</td>
<td>27.0 %</td>
</tr>
</tbody>
</table>
NPR - non-current prescriptions, duplicates and missing prescriptions (n=218 patients, 2,268 prescriptions)
NPR – discrepancies in relation to numbers of prescriptions (r=0.77; 218 patients; 828 discrepancies; 1,789/2,268 prescriptions)
Random sample of patients with diagnoses NIDDM/IDDM; CHF or Arthrosis at one Health Care Center

161 patients were invited to the study with an invitational letter

78 (48%) fulfilling the inclusion criteria gave informed consent to participation (Arthrosis 29 – 58%; IDDM/NIDDM 26 – 52% and CHF 23 – 38%)
Congruence 59%
78 patients
787 prescriptions

Stated by the patients (n=624)

NPR (n=557)

EMR (n=710)

AE/ Maine Oct 2010
IDDM/NIDDM

Congruence 62%
26 patients
254 prescriptions

Stated by patients
(n=220)

RNP
(n=185)

EMR
(n=235)

AE/ Maine Oct 2010
Arthrosis
Congruence 52%
29 patients
247 prescriptions

Stated by patients
(n=168)

NPR
(n=151)

EMR
(n=230)

AE/ Maine Oct 2010
CHF
Congruence 63%
23 patients
286 prescriptions

Stated by patients
(n=236)

NPR
(n=221)

EMR
(n=245)

AE/ Maine Oct 2010
Patients with total congruence between prescriptions in the NPR and current prescribed treatment (n=78)

- 88%: Only unique current prescriptions
- 12%: Non-current prescriptions, duplicates and/or double medication
Congruence for prescriptions in the NPR and statement by patients (n=78)

Recept

Ålder

Kvinnor

Män

AE/ Maine Oct 2010
Congruence for prescriptions in the EMR, NPR and statement by the patient (n=78)

- **Kvinnor**
- **Män**

**Ålder**
- 45-64
- 65-74
- 75-84
- 85+

**Recept**
- 0,0%
- 10,0%
- 20,0%
- 30,0%
- 40,0%
- 50,0%
- 60,0%
- 70,0%
- 80,0%
- 90,0%

AE/ Maine Oct 2010
Randomized controlled intervention
Patients were interviewed at the HCC immediately before the follow-up visit to the GP on the prescriptions listed in the EMR.

Notification on the list – A=Actual, current treatment; I=Non-current; O=unsure/not known; D=Duplicate prescription;

All patients are encouraged to ask the pharmacy to help cleaning the NPR from non-current and duplicate prescriptions.

Intervention group – the patient receives the list and brings it to the GP to discuss.

Control group – the patient does not receive the list.
Intervention – at the follow-up visit
Preliminary results for EMR (n=99/1,031)

Intervention group vs Control group Before: ns; after: p<0.001
84% of patients (≥5 prescriptions) had ≥1 non-current or a duplicate or a missing prescriptions in the EMR

30% of the prescriptions were non-current (13%), duplicates (10%) or missing (7%)

a significant improvement in validity was achieved if the GP received the drug list with notifications from a short interview with the patient before the follow-up visit
NPR

89% of patients had ≥1 non-current or a duplicate or a missing prescription in the NPR

40% of all prescriptions in the NPR were non-current (10%), duplicates (10%) or missing (20%)

11% of patients had stored prescriptions fully congruent with the current, ongoing prescribed therapy
Conclusion:

There are many discrepancies in patients' information on the prescribed current treatment -

- risk for interpretation errors, medication errors, and adherence errors, hoarding and unused drugs
Anders Ekedahl, Medical Products Agency, Sweden

anders.ekedahl@mpa.se

Questions?