5 years follow up nurse lead medical intervention after needle stick injuries - trends

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Disclosure

I have no actual or potential conflict of interest in relation to this program/presentation.
1. Background
2. Aim
3. Design, methods, analysis
4. Results
5. Discussion
6. Conclusion
Post Exposure Profylaxis (PEP) protocol

Protection against hepatitis B, hepatitis C en HIV

Risk and reduction

• HBV: 30% - vaccination > 90% protection
• HCV: 3% - eradication with early treatment
• HIV: 0,3% - post expositie profylaxe > 81%
Post Exposure Profylaxis HIV

- Research with animals show diminished risk in primates

- One single case report shows 81% risk reduction in humans when using zidovudine
  - Cardo et al. NEJM, 1997;337:1485-1490

- Cochrane review: all PEP is being designed on that one single case.
  - Young et al, Cochrane database 2007;DOI: 10.1002/14651858.CD00283'5

- Cochrane advice: PEP: 3 medications. Accept higher possibility of side effects
NURSE
Why shift from physician’s tot nurses?

- Many, many mistakes
- Logistic errors: prescriptions, follow up, etc, etc
- Patients not getting any treatment when indicated
- Patients being overtreated

- Dutch policy to shift tasks and responsibilities

-> 3 specialized nurses in charge of supervising and follow up
1½ jr follow up

- Safety
  - No more logistic errors
  - More structure and communication between ER and Inf Dis team -> better follow-up
  - Min 30x treatment and consequences prevented
  - More knowledge
1 ½ jr follow up

- Client questionnaire
  - Time in ER is shorter.
  - Doctors + ER: direct, clear, educational
  - External partners: idem

- Staff/victims:
  - Injuries are being addressed seriously
1 ½ jr follow up

- Finance:
  30x prevention of overtreatment.
  Costs € 5000,- p.p = €150,000
WHAT? WHY DID YOU ASK THAT?
WHAT DO YOU KNOW
Background -1-

In NI 2 publications:

1997-1999: constant increase PEP

1997-2001: increase of reporting incidents, but bias
Regez et al, NTVG 2002;146:617-621

Several reports on reduction transmission when protocol is being followed.

Gemert Pijnen et al, Journ of Hospital Infection. 2006;62:166-173
Sonder et al. BMJ 2005;330:825-829
Aim

Research question:

What is the trend in the number and character of occupational incidents after implementation of protocol with nurse lead intervention
Design

- Retrospective, observational
- 2008-2013 all reports MUMC
- MUMC vs not-MUMC
- Occupational yes/no
- Demographics victim
- Occupation victim
- Risk evaluation injury
Analysis

- Descriptives; frequency- and crosstabs
- Chi square homogeneity crosstabs
- Trend absolute number of injuries: linear regression
- Trend proportions: logistic regression
Results

• Total reports 1262
• MUMC 983 (78%) – others 279 (22%)
• MUMC: 835 occupational, 148 non-occupational
• MUMC-occupational:
  • 66% female, 34% male
  • Mean age 35 (17-64)
  • 42% nursing staff, 23% medical staff, 10% OR-pers
• Source: 76% no known risk, 7% MSM, 7% (ex-) IVD
Results (MUMC occupational)

Increase reports absolute: 72%. Significant trend.

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<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>Totaal</th>
<th>Lineair regression coëfficiënt (B)</th>
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<tr>
<td>Total</td>
<td>122</td>
<td>149</td>
<td>158</td>
<td>196</td>
<td>210</td>
<td>835</td>
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<td>Number incidents (%)</td>
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<tr>
<td>Internal</td>
<td>95 (78)</td>
<td>119 (80)</td>
<td>121 (77)</td>
<td>158 (81)</td>
<td>180 (86)</td>
<td>673 (81)</td>
<td>20.9*</td>
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<td>External</td>
<td>27 (22)</td>
<td>30 (20)</td>
<td>37 (23)</td>
<td>38 (14)</td>
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<td>162 (19)</td>
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<td>Risk evaluation (%)</td>
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<td></td>
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<td></td>
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<tr>
<td>High</td>
<td>90 (74)</td>
<td>100 (67)</td>
<td>100 (63)</td>
<td>127 (65)</td>
<td>120 (57)</td>
<td>537 (64)</td>
<td>8.7*</td>
<td>1 - 17</td>
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<td>Low</td>
<td>32 (26)</td>
<td>49 (33)</td>
<td>58 (37)</td>
<td>69 (35)</td>
<td>90 (43)</td>
<td>298 (36)</td>
<td>13.6*</td>
<td>10 - 17</td>
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## Results (MUMC- occupational)

No change in classification type injury or profession

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<td>Needle stick</td>
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<td>68</td>
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<td>9</td>
<td>11</td>
<td>13</td>
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<td><strong>Profession victim %</strong></td>
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<td>44</td>
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<td>24</td>
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<td>OR non medical</td>
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<td>5</td>
<td>8</td>
<td>11</td>
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<td>10</td>
<td>0.053</td>
<td>0.536</td>
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<tr>
<td>Other</td>
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<td>21</td>
<td>19</td>
<td>16</td>
<td>14</td>
<td>17</td>
<td>-0.115</td>
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</table>
Results

- Significant increase in total number reports
- In particular MUMC employees (intern)
- In particular low risk incidents
- Increase cannot be related to specific type of incident
- Increase cannot be related to specific profession
Discussion

Methodologie

• MUMC reports: cross check with Infection prevention department: 100%. Not possible for non-MUMC reports

• <2008?
Discussion

• Increase caused by changes in setting?
• Reporting behaviour
  • Medical students, Europa 38-66%
  • Medical students USA 52%
  • Surgeons 33%

Rosenthal et al. JAMA 1999;281:1660
Sharma et al Acad Medicine 2009;84:815-824
Sharma et al, Journ of Hospital infection 2008;70:66-70
Discussion

Reasons for non-reporting

• Time
• Perceived seriousness of disease
• Perceived efficacy of reporting
• General health behaviour

Conclusion

• Increase of low risk (MUMC-) occupational incidents due to better reporting behaviour.
• Reasons:
  • Quick, uniform processing at ER
  • Better confidence employees
• Further research on reasons reporting behaviour
• Further research on source, (type, testing), interventions, outcomes
Questions?