Using automation in preventing using restraints in acutely suicidal patients

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THE 16TH SYMPOSIUM ON SUICIDE AND SUICIDAL BEHAVIOUR
OVIDEO SPAIN

WWW.SUICIDALITEIT.NL

Parnassia Groep
VU UNIVERSITY AMSTERDAM
No Conflict of Interest
Netherlands

- 17.01 million inhabitants
- 7th place happiness population (↓) (WHR)
- High density psychiatrists (1:5600)
- Suicide rate 1:11.06 overall (2015)
  - Since 7 years >38% increase

KCAP The Hague
Suicide rate in Netherlands

between 2007-2015
(male: female = 2.2:1)

2015 : 16 900 726 citizens
11,07:100,000

2007 : peak economy, lowest suiciderate since 1970

http://suicidaliteit.algemeenoverzicht.nl/nuance/suicide_cijfer_2013.html

Centraal Bureau Statistiek (CBS), 2013
Suicidal behaviour in society & MH

- Suicide........ too late for mental health
- 40% suicides treatment in mental health ....(Huisman et al 2010)

Mental health:
- Experts diagnosis & treatment of serious suicidal behaviour!
- Very very very very serious > admission...
  - Last resort
  - And then....?
Admission

- False sense of security?
- Iatrogenic?
- Last resort?

- Possible rapid treatment
- Observation
- Unburden support system
Risk taxation suicidal behaviour & closed wards

- Concentration of serious suicidal behaviour
- Increased risk suicide (>50-80 x)
- No specific guidelines, just general
- Specific Dutch setting?
- ? Open < >closed (Huber et al 2016)
What is serious?

- For example:
  - ♂ 46 years cutting in belly
    - MD and melancolic with psychotic features
    - ECT......
  - Chronically suicidal, acute serious acting out behaviour
    - ♀ 24 years major life event also major depression
    - Time .. SSRI and system interventions...
Serious suicidal behaviour and acting “study design”

- Acting of mental health worker changes outcome
- Randomised trial > serious lethal suicidal behaviour
  - Group 1 admission
  - Group 2 no admission
- Outcome suicide!
Suicidal behaviour and closed admission

- Suicidal behaviour 28.7% (368/1324) (Miedema et al. 2016)

Development Phase plan 2007
- For every patient multidisciplinary risk taxation!
- Daily registration and taxation
- Clarity of taxation for all?
Acute ward, phase plan (de Winter et al 2011)

<table>
<thead>
<tr>
<th>Phase</th>
<th>Color</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase 5</td>
<td>Red</td>
<td>Continuous observation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(seclusion during night)</td>
</tr>
<tr>
<td>Phase 4</td>
<td>Orange</td>
<td>Supervision</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(differentiation)</td>
</tr>
<tr>
<td>Phase 3</td>
<td>Yellow</td>
<td>No freedom outside</td>
</tr>
<tr>
<td>Phase 2</td>
<td>Green</td>
<td>Freedom</td>
</tr>
<tr>
<td>Phase 1</td>
<td>Blue</td>
<td>discharge</td>
</tr>
</tbody>
</table>

Non-suicidal
<table>
<thead>
<tr>
<th>Fase</th>
<th>Risk Level</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fase 5</td>
<td>(very high risk)</td>
<td>3.5%</td>
</tr>
<tr>
<td>Fase 4</td>
<td>(high risk)</td>
<td>7.1%</td>
</tr>
<tr>
<td>Fase 3</td>
<td>(acceptable risk)</td>
<td>“59.5%”</td>
</tr>
<tr>
<td>Fase 2</td>
<td>(acceptable risk)</td>
<td>28.0%</td>
</tr>
<tr>
<td>Fase 1</td>
<td>(acceptable risk)</td>
<td>1.9%</td>
</tr>
</tbody>
</table>
A study of the connection between coercive measures used in a closed acute psychiatric ward and the socio-demographic and clinical characteristics of the patients involved


<table>
<thead>
<tr>
<th>Klinisch kenmerk</th>
<th>Totaal</th>
<th>Dwangmaatregel</th>
<th>Noodmedicatie</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>Ja</td>
</tr>
<tr>
<td>All admissions</td>
<td>1283</td>
<td>100.0</td>
<td>260</td>
</tr>
<tr>
<td>Admissions*</td>
<td>472</td>
<td>36.8</td>
<td>127</td>
</tr>
<tr>
<td>Psychotic decompensation</td>
<td>470</td>
<td>37.8</td>
<td>145</td>
</tr>
<tr>
<td>Suicidality</td>
<td>370</td>
<td>28.8</td>
<td>45</td>
</tr>
<tr>
<td>Aggression</td>
<td>216</td>
<td>16.8</td>
<td>73</td>
</tr>
</tbody>
</table>

\( \chi^2 = 20.385; df = 1; p < 0.001 \)
\( \chi^2 = 20.404; df = 1; p < 0.001 \)
\( \chi^2 = 27.003; df = 1; p < 0.001 \)
\( \chi^2 = 62.697; df = 1; p < 0.001 \)
Alternatives

- Phase 5 permanent observation
  - For 52 patients 4 nurses (23.00 - 7.30)
  - During nights seclusion...........

- Seclusion and suicidal behaviour!

- Seclusion = detrimental (de Winter et al 2011)
Mission!

- No more use of seclusion rooms for suicidal patients!
Finding alternatives

• Since 2010, development of alternatives!

• Patients and staff prefer modern detection systems and separation (Hazewinkel et al. 2014).

• Searching for alternatives with detection?

• Learning detection systems/smart wrist application/smartphone application/rooming in etc..
Alternative for seclusion during nights

- finally

- Development of **Automation rooms**!
Collaberation AVICS

Wij kunnen u de volgende diensten leveren

*De vraag naar nieuwe domotica oplossingen in de zorg wordt steeds groter en de wensen steeds uitgebreider en complexer.*

*De vraag naar nieuwe domotica oplossingen in de zorg wordt steeds groter en de wensen steeds uitgebreider en complexer. Benieuwd naar de mogelijkheden? Wij denken graag met u mee, maak een afspraak: 089 110 911*
1. Smart sensor
2. Movement sensor
3. Movement sensor
4. Acoustic sensor
5. Door sensor
6. Smartglass
Acting after signal

Signal:
1. Sensor detection movement or otherwise in room.
2. Signal notification on handsensor
3. Watching Video fragment on pc
4. Face to face contact patient
Results Automation room

- Experience almost 2 years (end 2014-2016) 3 “rooms”
- All suicidal patients Phase 5 > automation room > night
- Depressive disorder most common
- 82 times usage automation room (67 individuals)
  - 4 patients 3 admissions, 7 patients 2 admission
- Total 714 nights usage automation room
  - 20 nights > finally seclusion
- No suicides
- Several times bugs in system (no figures)
Light in the darkness
Decrease in seclusions

- 97.2% decrease in using seclusion rooms for suicidal patients.

- All seclusions ~ 0.6% primary suicidal behaviour (was 17.3%)

- Still some bugs in the automation system
<table>
<thead>
<tr>
<th></th>
<th>Total (n = 67)</th>
<th>♂ (n = 37)</th>
<th>♀ (n = 30)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (SD)</td>
<td>39.5 (15.05)</td>
<td>36.4 (14.6)</td>
<td>43.4 (14.9)</td>
<td>ns</td>
</tr>
<tr>
<td>Major diagnoses</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comorbidity (%)</td>
<td>20 (29.9%)</td>
<td>13 (35.1%)</td>
<td>7 (23.3%)</td>
<td>ns</td>
</tr>
<tr>
<td>Depressive disorder</td>
<td>24 (35.8%)</td>
<td>14 (37.8%)</td>
<td>10 (33.3%)</td>
<td>ns</td>
</tr>
<tr>
<td>(psychotic depression)</td>
<td>(9(13.4%))</td>
<td>4 (10.8%)</td>
<td>5 (16.7%)</td>
<td>ns</td>
</tr>
<tr>
<td>Primary psychotic</td>
<td>18 (26.9%)</td>
<td>6 (16.2%)</td>
<td>12 (33.3%)</td>
<td>0.029</td>
</tr>
<tr>
<td>Personality disorder</td>
<td>18 (26.8%)</td>
<td>10 (27%)</td>
<td>8 (26.7%)</td>
<td>ns</td>
</tr>
<tr>
<td>Substance/alcohol</td>
<td>8 (11.9%)</td>
<td>4 (10.1%)</td>
<td>4 (13.3%)</td>
<td>ns</td>
</tr>
<tr>
<td>PTSD</td>
<td>7 (10.4%)</td>
<td>5 (13.5%)</td>
<td>2 (6.7%)</td>
<td>ns</td>
</tr>
<tr>
<td>Anxious disorder</td>
<td>5 (7.5%)</td>
<td>3 (8.1%)</td>
<td>2 (6.7%)</td>
<td>ns</td>
</tr>
<tr>
<td>Autism</td>
<td>1 (1.5%)</td>
<td>2 (5.4%)</td>
<td>0 (0%)</td>
<td>ns</td>
</tr>
<tr>
<td>rest</td>
<td>3 (4.5%)</td>
<td>2 (5.4%)</td>
<td>1 (3.3%)</td>
<td>ns</td>
</tr>
<tr>
<td>Unknown</td>
<td>4 (6.0%)</td>
<td>3 (8.1%)</td>
<td>1 (3.3%)</td>
<td>ns</td>
</tr>
<tr>
<td>Automation usage</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>repeated</td>
<td>15</td>
<td>13</td>
<td>2</td>
<td>0.024</td>
</tr>
<tr>
<td>average nights (range)</td>
<td>8.7 (1-138)</td>
<td>10.2 (1-138)</td>
<td>6.4 (1-29)</td>
<td>ns</td>
</tr>
</tbody>
</table>
Experiences of staff
Survey nursing staff N = 24

- Revealed that automation was used mainly at night.
- Automation is seen as an alternative for restraint methods during admission.
- Patients and staff trust the new technology. There is a strong desire for continuing the supplementary method.
limitations

- Naturalistic design
- No control
- Unknown missing data
- Etc........
Conclusions

- Seclusion not anymore last resort for serious suicidality
- Long development over 9 years
- Automation rooms are save, staff is satisfied & hopeful

- Depressive disorder most common

- Male using automation > ↑psychotic disorder
- Female more often readmitted and using automation

- Automation rooms > 97.2% decrease of seclusion!!
Time

• 9 years.....
Personal involvement: development automation rooms (suicidaliteit.nl)

- **2007**: development phasing plan for suicide risk (intern publication 2007, national paper 2011, book chapter 2016, several oral national/international presentations)

- **2010-2014**: adoption phasing plan different Dutch mental health institutes (different national oral presentations)

- **2009-2010**: cohort of 1314 admissions on a closed ward and phasing plan (publication 2016, 2 international poster presentations (ESSSB14 IASP), 1 national poster presentation, several oral national/international presentations, publication in preparation)

- **2010**- starting finding alternatives for seclusion during high suicide risk (Leonardo grant, several oral presentations, collaboration Technical university Delft/University Leiden/IPT telemedicine/AVICS)

- **2011-2013** study: opinion staff and patients for alternatives for seclusion (several oral national presentations, manuscript in review)

- **2015** pilot automation rooms n = 13 (national poster NVvP 2015)

- **2016** extension pilot n = 67 (presentation ESSSB 2016, manuscript....?)
Thank you audience........

- **Always welcome to visit the clinic!**
- [R.dewinter@parnassia.nl](mailto:R.dewinter@parnassia.nl)
- info@suicidaliteit.nl

- **Thanks:**
• [https://youtu.be/05HrZ6YnM10](https://youtu.be/05HrZ6YnM10)
## Suicidal behaviour 2009-2010

<table>
<thead>
<tr>
<th>Category</th>
<th>All (n = 1284)</th>
<th>High risk (n = 137)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suicide</td>
<td>n = 4 (0.3%)</td>
<td>n = 1 (0.7%)</td>
</tr>
<tr>
<td>Suicide attempt (lethal intent)</td>
<td>n = 41 (3.2%)</td>
<td>n = 25 (18.2%) a</td>
</tr>
<tr>
<td>Suicide attempt (non-lethal intent)</td>
<td>n = 78 (6.1%)</td>
<td>n = 33 (24.1%) a</td>
</tr>
<tr>
<td>Suicidal tendencies</td>
<td>n = 82 (6.4%)</td>
<td>n = 21 (15.3%) a</td>
</tr>
<tr>
<td>Suicidal thoughts</td>
<td>n = 213 (16.6%)</td>
<td>n = 28 (20.4%)</td>
</tr>
<tr>
<td></td>
<td>Acceptable N =1147</td>
<td>High risk N =137</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>---------------------</td>
<td>------------------</td>
</tr>
<tr>
<td>CGI</td>
<td>5.2</td>
<td>5.7</td>
</tr>
<tr>
<td>GAF (categorised)</td>
<td>23.4</td>
<td>30.2</td>
</tr>
<tr>
<td>Female</td>
<td>42.6%</td>
<td>60.6%</td>
</tr>
<tr>
<td>Age</td>
<td>39.8</td>
<td>34.8</td>
</tr>
<tr>
<td>Married/living together</td>
<td>30%</td>
<td>39%</td>
</tr>
<tr>
<td>Having children</td>
<td>34.6%</td>
<td>36.5%</td>
</tr>
<tr>
<td>Voluntary</td>
<td>63.2%</td>
<td>49.6%</td>
</tr>
<tr>
<td>First admission (&lt;5 yrs)</td>
<td>42%</td>
<td>68%</td>
</tr>
<tr>
<td>Seclusion</td>
<td>25.3%</td>
<td>17.3%</td>
</tr>
<tr>
<td>jobless</td>
<td>70.5%</td>
<td>56%</td>
</tr>
<tr>
<td>ECT treatment</td>
<td>0.7%</td>
<td>8.7%</td>
</tr>
</tbody>
</table>