Development of smart inpatient rooms using **automation** and **preventing using restraints** in suicidal patients

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No Conflict of Interest

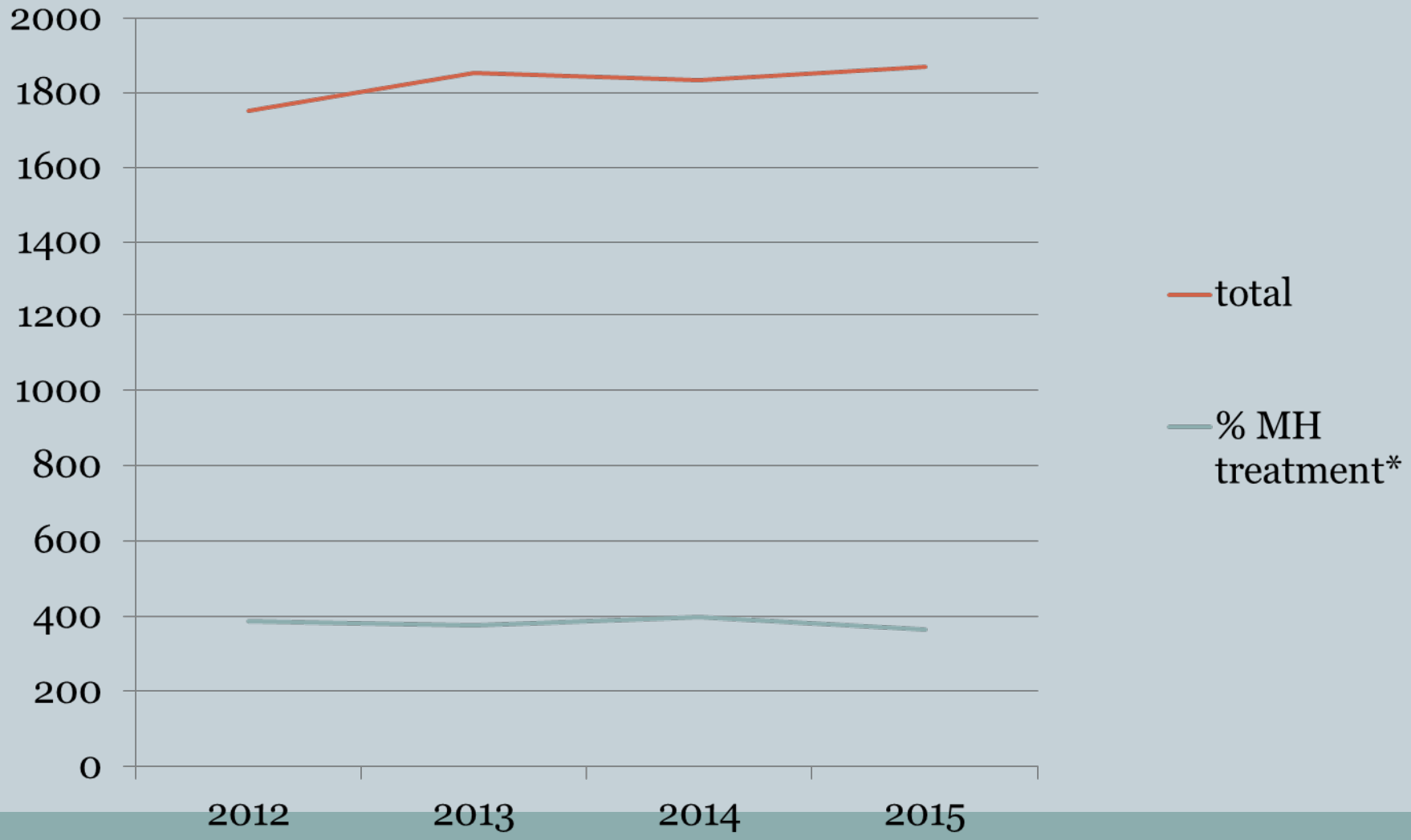
Suicidal behaviour in society & MH

- 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 serious…taxation & situation
- **> admission…**
  - **Last resort….**
  - **And then….?**

Suicides total, proportion suicides mental health

(IGZ 2017)
* x 0,1 %



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 for inpatients
- Specific Dutch setting?
- ? Open < >closed (Huber et al 2016)

Serious suicidal behaviour and acting

"study design"

- Acting of mental healthworker changes outcome.....
- Randomised trial > serious lethal suicidal behaviour
  - Group 1 admission
  - Group 2 no admission

- Outcome suicide!

Suicidal behaviour and closed admission

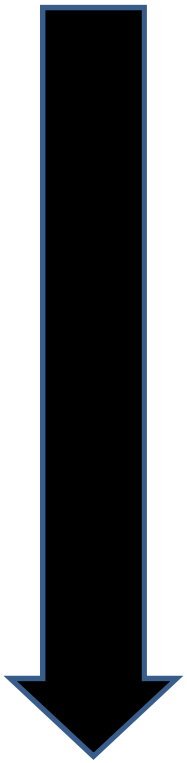
- Suicidal behaviour 28.8% (368/1324) (Miedema ea 2016)

Development Phase plan 2007

- For every patient multidisciplinary risk taxation!
- Daily registration and taxation
- registration monitored on digiboard
- Clarity of taxation for all!

Acute ward,phase plan (de Winter et al 2011)

Phase 5 (Red)	**Continuous observation (seclusion during night)**	**Serious suicidal**
Phase 4 (Orange)	**Supervision (differentation)**	
Phase 3 (yellow)	**No freedom outside**	
Phase 2 (Green)	**Freedom**	
Phase 1 (Blue)	**discharge**	**Non-suicidal**



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

TIJDSCHRIFT VOOR PSYCHIATRIE 58(2016)6, 434-445

N. MIEDEMA, M.C. HAZEWINKEL, D. VAN HOEKEN, A.S VAN AMERONGEN, R.F.P. DE WINTER

suicidal

seclusion

TABEL 2 Klinische kenmerken in relatie tot dwangmaatregelen

Klinisch kenmerk	Totaal		Dwangmaatregel					
			Separatie			Noodmedicatie		
	N	%	Ja	% Ja	χ^2-toets**	Ja	% Ja	χ^2-toets**
Alle opnames	1283	100,0%	260	20,3%		182	14,2%	
Opnamereden*								
Psychotische decompensatie	472	36,8%	127	48,8%	$\chi^2 = 20{,}385$; df = 1; p < 0,001	94	51,6%	$\chi^2 = 20{,}404$; df = 1; p < 0,001
Suïcidaliteit	370	28,8%	64	17,3%	$\chi^2 = 21{,}127$; df = 1; p < 0,001	23	12,6%	$\chi^2 = 27{,}003$; df = 1; p < 0,001
Agressie	216	16,8%	78	30%	$\chi^2 = 40{,}681$; df = 1; p < 0,001	68	37,4%	$\chi^2 = 62{,}697$; df = 1; p < 0,001

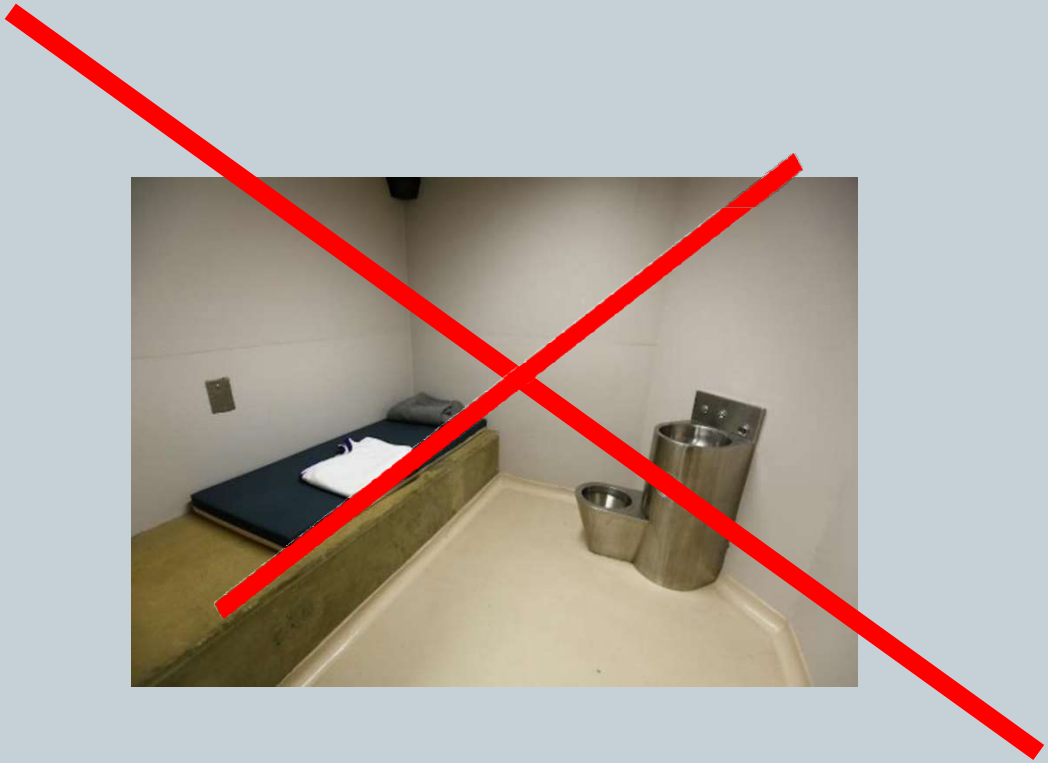
OPNAMEAFDELING

Alternatives

- Phase 5 permanent observation
  - For 52 patiens 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!**



ZERO Suicide

IN HEALTH AND BEHAVIORAL HEALTH CARE

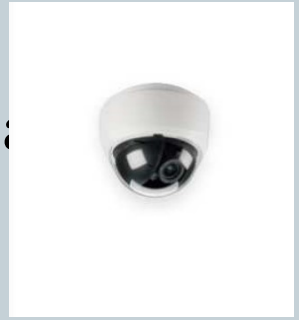
ZERO strategies: From dream to reality

International conference on Crisis, Coercion and Intensive Treatment in Psychiatry

Finding alternatives

- Since 2007, development of alternatives!

- Patients and staff prefer modern detection systems a 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!**

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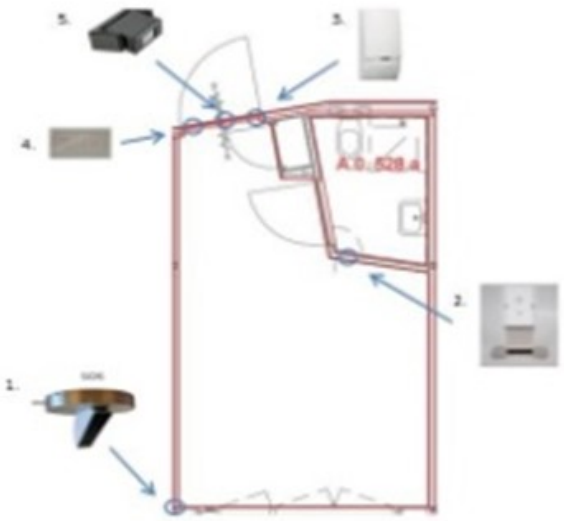
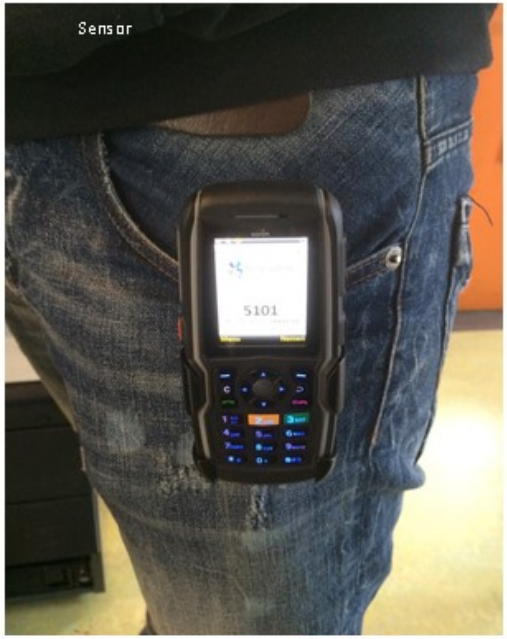
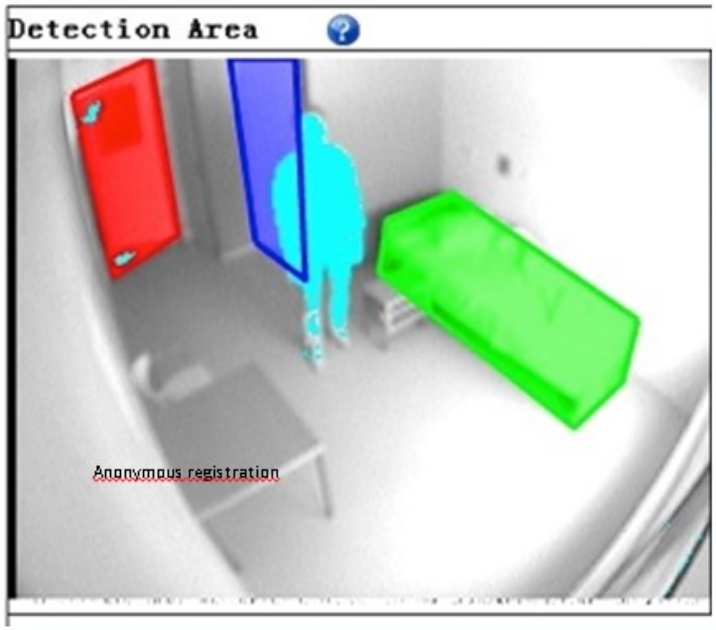


Automati

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

Questions

- Is there decrease in seclusion for serious suicidal patients in Phase 5?
- Characterics for suicidal patients and still urgence for seclusion?

Automation room Results

- Experience almost 3 years (end 2014-2017) 3 “rooms”
- All suicidal patients high risk > automation room > (*night and hours with less observation*)
- Depressive disorder most common

- 124 times usage automation room (96 individuals)
  - 7 patients 3 admissions, 14 patients 2 admission

- Total 1071 nights usage automation room
  - 255 nights > finally seclusion

But also.....

- **One suicide.....**
  - **Notification Inspectorate**
- Several times bugs in system (no figures)

Light in the darkness

Decrease in seclusions

- **76.2 %** ↓
  - in using seclusion rooms for suicidal patients.

- All seclusions < 4 % primary suicidal behaviour (was 17.3%!)

Failing usage of automation.....

primary diagnosis	Total, N	χ2-test	% Seclusion
Depression	*47 (37.9)*	*χ2=7,078;* ***p=0,008***	*17,0%*
Axis-II	*38 (30.6)*	*χ2 =4,098;* ***p=0,043***	*36,4%*
"Psychotic" disorder (all)	*34 (27.4)*	*χ2=2,647;* *p=0,104*	*27,3%*
(Psychotic depression)	*(16) (12.9)*	*(χ2=,383; p=0,759)*	*(18,7%)*
other	*5 (4.0)*	*χ2 =1,678; p=0,439*	*20,1 %*
	124		

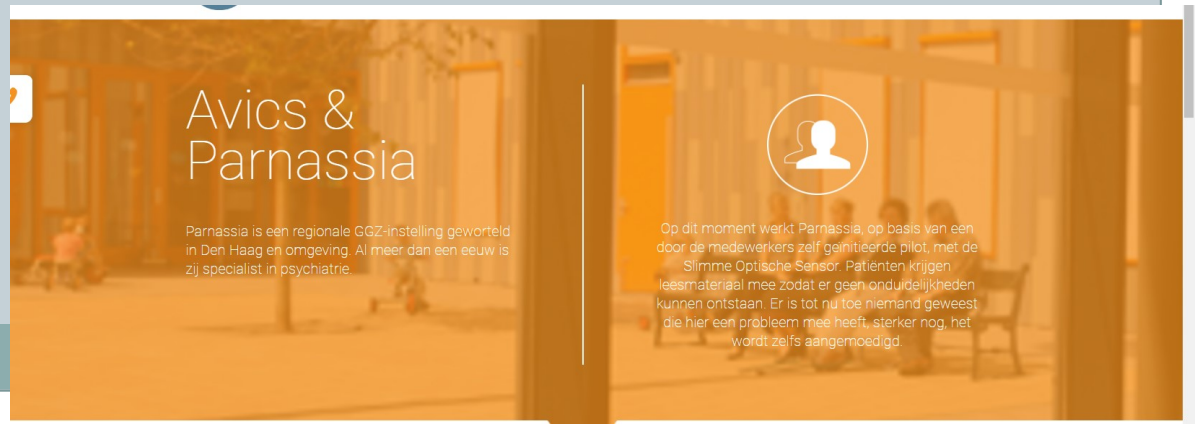
Factors for failing usage of automation

- No relation with seclusion:
  - Gender
  - Age
- Relation with seclusion
  - Duration of admission $t = 2{,}207$; $df = 122$; $p = 0, 029$
  - Unvoluntary admission $\chi 2 = 9{,}337$; $df=1$; $p= ,003$

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
  - All automation rooms used?
  - Phase 5 <> differentiation of additional seclusion reasons
  - etc
- Etc……

Good clinical practice?

- No other studies?
  - No Pubmed/Google scholar findings
- Real life…….
- Far away from academic reality??

Conclusions I

- Seclusion not anymore last resort for serious suicidality
- Long development over 11 years
- Automation rooms are save, staff is satisfied & hopefull
- Depressive disorder most common: **less seclusion**
- **Axis 2: most failing of usage automation** countertransferance

Conclusions II

- Seclusion more often longer admission duration/unvoluntary stay
- *Male using automation > ↑psychotic disorder*
- *Female more often readmitted*
- **Automation rooms: 76.2% decrease of seclusion!**

More clinical automation?

- Rotterdam
- Nijmegen
- Monster
- …?

But not .....

0

Thank you audience.....

- **Always welcome to visit the clinic!**
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- Thanks:
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Questions

- https://youtu.be/05HrZ6YnM10


CAT

Suicidal behaviour 2009-2010

	All (n = 1284)	High risk (n =137)
Suicide	n = 4 (0,3%)	*n = 1 (0.7%)*
Suicide attempt (lethal intent)	n = 41 (3.2%)	*n = 25 (18.2%)* [a]
Suicide attempt (non-lethal intent)	n = 78(6,1%)	*n = 33 (24.1%)* [a]
Suicidal tendencies	n= 82 (6,4%)	*n = 21 (15.3%)* [a]
Suicidal thoughts	n= 213 (16.6%)	*n = 28 (20.4%)*

	Acceptable N =1147	High risk N =137	**Sign.**
CGI	5.2	5.7	p <.001
GAF (categorised)	23.4	30.2	p <.001
Female	42.6%	60.6%	p <.001
Age	39.8	34.8	p <.001
Married/living together	30%	39%	ns
Having children	34.6%	36.5%	ns
Voluntary	63.2%	49.6%	P = .007
First admission (<5 yrs)	42%	68%	p < .001
Seclusion	25.3%	17.3%	p < .001
jobless	70.5%	56%	p < .001
ECT treatment	0.7%	8.7%	p < .001