Patient empowerment and adherence

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Disclosure

- Nothing to disclose

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Questions – True or False

True	False

Questions – True or False

- 1. Patient empowerment is another term for adherence

- 2. Poor adherence cannot be cured, even not by patient empowerment

Understanding adherence is not that difficult...

'Drugs don't work in patients who don't take them'
CE Koop, MD

'If we have the ball they can't score''
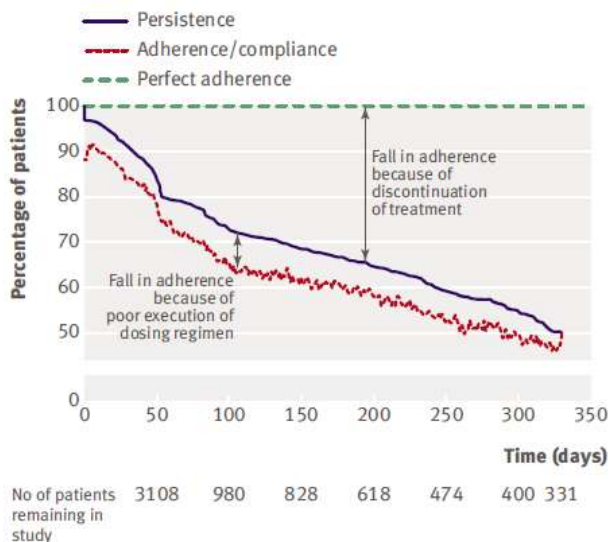J Cruijff, former soccer player and coach

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Hypertension: what's all about

	1976-1980	1988-1991	1991-1994	1999-2000	2011-2012
Awareness (%)	51	73	68	70	82
Treatment (%)	31	55	54	59	75
Control (%)	10	29	27	34	52

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Chobanian AV. 7th report of the JNC 2003, Yoon SS. Hypertension 2015

Fall in adherence because of discontinuation of treatment

Fall in adherence because of poor execution of dosing regimen

No of patients remaining in study: 3108 980 828 618 474 400 331

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Vrijens B, Bmj 2008:1114-7.

Table 2. Association between non-compliance and discontinuation with treatment for patients who used monotherapy

	Cases[a]	Controls[a]	OR crude	OR adjusted[f]
Non-compliant (n = 9111)	1277 (14.0%)	532 (5.8%)	2.86 (2.55–3.20)	2.86 (2.52–3.24)
Stratified on gender				
Males (n = 3764)	485 (12.9%)	218 (5.8%)	2.61 (2.18–3.12)	2.52 (2.05–3.10)
Females (n = 5347)	792 (14.8%)	314 (5.9%)	3.03 (2.62–3.52)	3.06 (2.61–3.59)
Stratified on type of antihypertensive				
Diuretics (n = 2700)	494 (18.3%)	208 (7.7%)	2.96 (2.45–3.57)	3.13 (2.54–3.85)
Beta-blockers (n = 4252)	507 (11.9%)	228 (5.4%)	2.53 (2.13–2.97)	2.54 (2.11–3.06)
Calcium antagonists (n = 739)	100 (13.5%)	32 (4.3%)	3.96 (2.50–6.25)	3.65 (2.16–6.17)
ACE-inhibitors (n = 906)	116 (12.8%)	41 (4.5%)	3.27 (2.22–4.83)	3.33 (2.03–5.46)
Angiotensin II receptor antagonists (n = 435)	45 (10.3%)	14 (3.2%)	4.10 (2.05–8.19)	3.60 (1.71–7.60)
Miscellaneous (n = 79)	15 (19.0%)	9 (11.4%)	2.00 (0.75–5.33)	1.51 (0.51–4.51)
Stratified on age group				
0–19 years (n = 85)	19 (22.4%)	12 (14.1%)	1.78 (0.79–4.02)	1.76 (0.74–4.17)
20–39 years (n = 935)	163 (17.4%)	65 (7.0%)	3.13 (2.25–4.36)	3.30 (2.32–4.69)
40–59 years (n = 3810)	538 (14.1%)	230 (6.0%)	2.74 (2.31–3.26)	2.70 (2.24–3.26)
60–79 years (n = 3467)	455 (13.1%)	168 (4.8%)	3.32 (2.71–4.05)	3.46 (2.73–4.38)
≥80 years (n = 814)	102 (12.5%)	57 (7.0%)	2.00 (1.34–2.86)	1.93 (1.30–2.87)
Stratified on duration of use				
<90 days (n = 7273)	995 (13.7%)	401 (5.5%)	3.02 (2.65–3.45)	3.10 (2.67–3.59)
≥90 days (n = 1838)	282 (15.3%)	130 (7.1%)	2.41 (1.92–3.01)	2.28 (1.79–2.92)

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Van Wijk BL. Pharmacoepidemiol Drug Saf 2006

4

Adherence Within 6 mo After Diagnosis	HR* (95% CI)	P
Model 1†		
Low (PDC <40%)	1.00	<0.001§
Intermediate (PDC, 40% to 79%)	0.87 (0.73–1.03)	0.117
High (PDC ≥80%)	0.50 (0.35–0.69)	<0.001
Model 2†		
Low (PDC <40%)	1.00	<0.001§
Intermediate (PDC, 40% to 79%)	0.86 (0.71–1.03)	0.109
High (PDC ≥80%)	0.62 (0.40–0.96)	0.032

Mazzaglia G. Circulation 2009

	All-cause death		Stroke		Acute myocardial infarction	
	HR (95% CI)	P value	HR (95% CI)	P value	HR (95% CI)	P value
Adherence*		<0.001ᵇ		0.381*		0.877ᵇ
Poor	1.00		1.00		1.00	
Moderate	0.81 (0.66–0.99)	0.038	0.96 (0.69–1.33)	0.799	1.14 (0.71–1.83)	0.592
Good	0.59 (0.48–0.72)	<0.001	0.81 (0.59–1.11)	0.197	0.98 (0.62–1.55)	0.939
Excellent	0.37 (0.31–0.45)	<0.001	0.82 (0.63–1.07)	0.138	0.9% (0.65–1.40)	0.825

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Esposti LD. Clinicoecon Outcomes Res 2011

While knowing that…

Δ15/8 Δ23/13 Δ30/17 Δ24/13
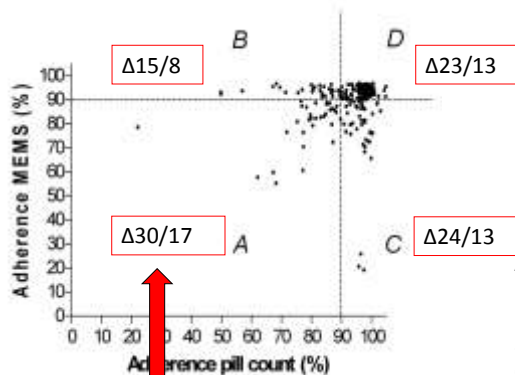
A= not adherent according to MEMS and pill count (14%)
B= adherent according MEMS, not according to pill count (14%)
C= adherent according pill count, not according to MEMS (25%)
D= adherent according MEMS and pill count (47%)

Adherence: 82%

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Van Onzenoort HAW. Am J Hypertens 2010

Table 2. Effect of a clinical trial on adherence to treatment

Adherence measure	Before trial	During trial	After trial	p-value
Mean adherence, overall (% [SD])	90.6 (11)	95.6 (7)	91.8 (10)	<0.001
Mean adherence, per ATC-code* (% [SD])				
A	88.5 (17)	90.8 (16)	86.8 (20)	0.59
B	92.8 (9)	89.8 (13)	96.3 (8)	0.025
C	95.1 (9)	97.9 (7)	95.6 (9)	<0.001
G	82.6 (28)	89.7 (20)	93.3 (15)	0.20
H	90.9 (12)	95.5 (7)	87.1 (27)	0.67
L	99.0 (-)	-	84.2 (22)	0.55
M	65.1 (33)	69.0 (36)	69.9 (33)	0.61
N	74.2 (31)	74.9 (32)	76.4 (28)	0.93
R	26.9 (-)	46.6 (-)	84.0 (24)	0.079

*: Anatomical Therapeutic Code; A=Alimentary tract and metabolism; B=Blood and blood forming organs; C=Cardiovascular system; G=Genito-urinary system and sex hormones; H=Systemic hormonal preparations, excluding sex hormones and insulins; L=Antineoplastic and immunomodulating agents; M=Musculo-skeletal system; N=Nervous system; R=Respiratory system

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Van Onzenoort HAW. Hypertension 2011

Table 1. Extracted data from included studies reporting taking compliance and/or correct dosing

						Taking compliance		Correct dosing	
Study reference	Year	Design	No. of monitored patients	Monitoring period (weeks)	Aware of MEMS	Once-daily regimen	Twice-daily regimen	Once-daily regimen	Twice-daily regimen
Andrejak et al [10]	2000	RCT	133	24	Yes	96.9	97.5	94	78.1
Bovet et al [13]	2002	Observational	50	56	–	–	–	83	–
Burnier et al [13]	2000	Observational	41	8	Yes	–	–	93	–
Choo et al [14]	1999	Observational	286	12	Yes	86	–	–	–
Detry et al [15]	1994	RCT cross-over	320	6	Yes	94.9	91.6	84.5	64
Eisen et al [16]	1990	RCT	68	20	Yes	96	93	–	–
Girvin et al [17]	1999	RCT cross-over	25	4	–	101.2	90.1	92.2	72.6
Kruse et al [19]	1994	Observational	24	30.6*	Yes	88.9	87.9	84.6	79.8
Leenen et al [20]	1997	RCT	177	20	Yes	94	91	90.2	82.2
Mallion et al [24]	1996	Observational	501	4*	Yes	90.5	–	–	–
Mallion et al [23]	1992	RCT cross-over	26	4	–	94.4	–	–	–
Mengden et al [26]	1993	RCT cross-over	18	4*	No	95.7	–	81.4	–
Mounier-Vehier et al [27]	1998	RCT	102	12	–	96.3	87.2	92.5	74.8
Nuesch et al [28]	2001	Observational	100	4	–	93	77	–	–
Rudd et al [30]	1990	RCT	21	10	Yes	–	89.5	–	62.6
Vaur et al [32]	1999	Observational	2173	7*	Yes	–	–	85.4	–
Waeber et al [33]	1999	Observational	35	12	Yes	–	–	80.8	–
Waeber et al [37]	1999	RCT	501	56	Yes	–	–	78.4	–
Studies with no separate compliance data for once- and twice-daily regimens									
Bertholet et al [11]	2000	Observational	69	4–8*	Yes		91.0		
McKenney et al [25]	1992	RCT	34	12	No				

*Average monitoring period. *Compliance with aspirin or placebo was measured in a subset of patients and was assumed to reflect compliance with anti-hypertensive treatment [42]. RCT, Randomized controlled trial.

WHO: 50%

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Wetzels GE. J Hypertension 2004

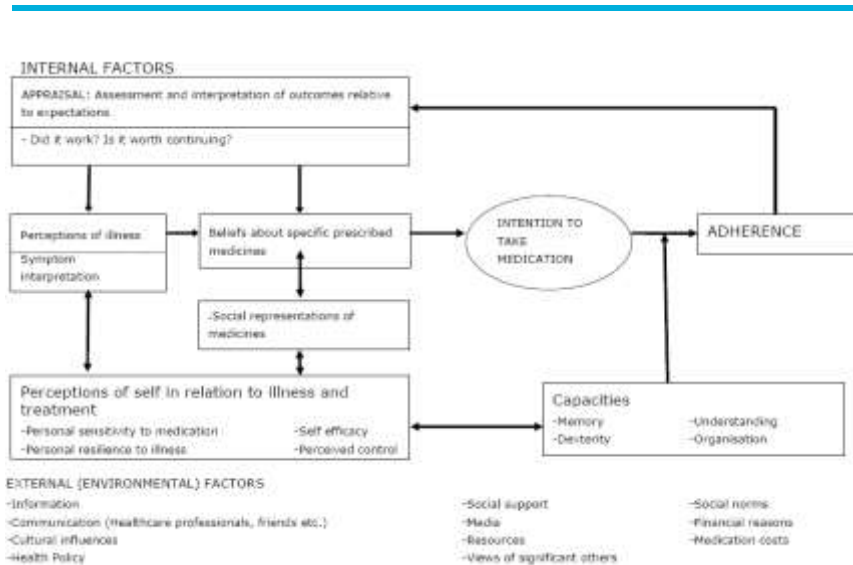# Patient empowerment

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Patient empowerment - adherence

- Patient empowerment
  - Patients are self-determining
  - Some control over their own health(care)
  - Not passive recipients of healthcare

- Adherence
  - Patients voluntarily agree with a healthcare plan
  - Not submitting to their healthcare provider (=compliance)

- Patient empowerment ≈ Adherence

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Horne R. NCCSDO 2005

Interventions

- Of 17 high quality RCT, only 5 improved adherence and clinical outcome[1]
    - Interventions are complex
    - Frequent interactions with patients
    - Limited effective → 'no evidence that low adherence can be cured'

- Studied interventions
    - Education, training, special pill containers, counseling, reminders, self monitoring of adherence and blood pressure, support groups, feedback and reinforcement, bi-weekly contacts: ↑adherence, ↓SBP (at 6 months)[2]
    - Counseling by hospital pharmacist: ↑adherence (questionnaire), ↑ controlled BP[3]
    - SMS service: ↑adherence (questionnaire), ↑viral suppression[4]

[1] Nieuwlaat R. Cochrane 2014
[2] Haynes RB, Lancet 1976
[3] Morgado M. Internation Journal of Clinical Pharmacy 2011
[4] Lester RT. Lancet 2010

What about e-health interventions?

- 16 Studies since 2012: 14 websites, 1 app[1]
  - 10 increased adherence
  - Combination of interventions targeting intentional and non-intentional adherence → creating patient empowerment
  - 7 applied personalized goals, including feed-back
  - 2 studied accessing patient's file
  - 1 studied personalized SMS

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[1]Sieben A. Ned Tijdschr Geneeskd 2014

Other ways to empower patients?

- Patient empowerment has been conducted in the outpatient setting
- Historically limited to inpatient settings

- Systematic review (17 articles)[1]
  - 3 design requirements for inpatient patient engagement
  - Remaining 14, grouped into five categories
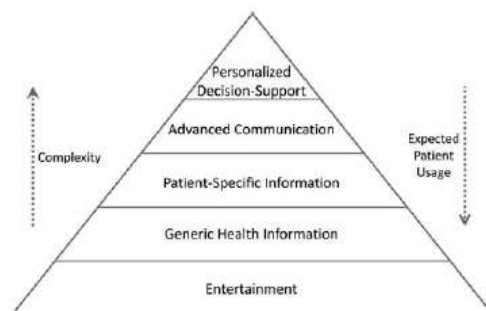
[1]Prey JE, JAMIA 2014

Self-administration of medication

- Self-administration of medication (SAM)
  - 'A 'transfer of responsibility' which should be dependent on a patient's ability to manage the tasks involved, as well as giving their consent to do so'[1]
  - May increase
    - Patient knowledge
    - Patient's adherence
    - Patient satisfaction
  - Role for the hospital pharmacist?!

[1]Royal Pharmaceutical Society, 2005

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Why should we?

- Medication reconciliation errors at discharge[1]
  - 69% no understanding of re-dosed medication
  - 82% no understanding of stopped medication
  - 62% no understanding of new medication

- Adherence[2]
  - 2-4 weeks after discharge: 55% non-adherent
  - 3 months after discharge: 70% non-adherent
  - Approx. 25% understood reasons for medication

[1]Ziaeian B, J Gen Intern Med 2005
[2]Pacina L, Drugs Aging 2014

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Self-administration of medication

- Knowledge on drug name, purpose, appearance, dosage, frequency, and side-effects
  - Limited effect of SAM on patient knowledge
  - Knowledge on side effects was least known

- Adherence (pill count and questionnaire)
  - Limited effect of SAM on adherence

- Patient satisfaction (questionnaire or interview)
  - Positive responses
  - SAM should be continued following its evaluation

- Success
  - Pt who were successful shorter length of stay and fewer re-admissions

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Richardson SJ, PLos One 2014

Conclusion

- Effectiveness of patient empowerment on adherence is limited by
  - Complexity of interventions applied
  - One-size does not fit all

- Self-administration of medication may be a tool to engage patients during hospitalization
  - Effects on adherence after discharge are limited

THE PATIENTS KNOW MORE ABOUT THEIR DISEASES THAN ME. I MUST GET FASTER MODEM, HIGHER SPEED INTERNET ACCESS THAN THEM

www.netquest.com

Answers to the questions

- 1. Patient empowerment is another term for adherence

- 2. Poor adherence cannot be cured, even not by patient empowerment

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