

How to measure non-adherence?

November 18, 2019



Job van Boven – Founder MAECON

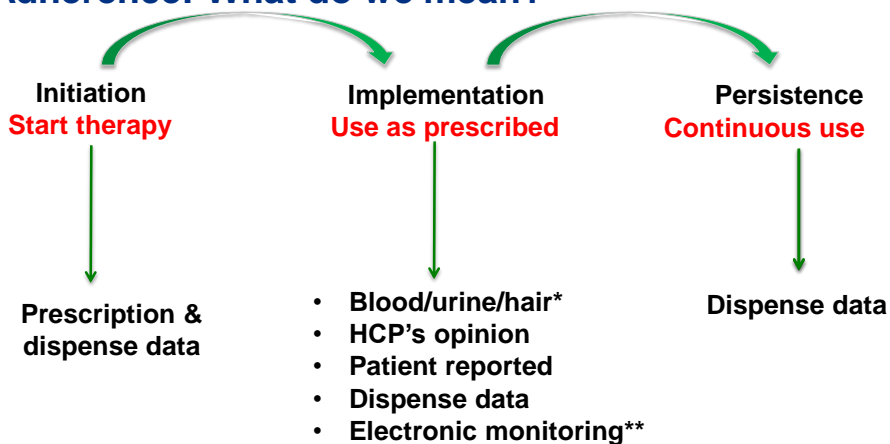


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Adherence: What do we mean?



*gold standard-snapshot

**gold-standard-continuous

Vrijens et al. JAClinP 2016

Methods to measure

Table 1. Characteristics of current asthma medication adherence measurement tools

	Direct self-report	Indirect self-report	Patient observation	Secret monitoring	Electronic monitoring devices
Continuous measure of adherence	☹️	☹️	☹️	☹️	😊
Objective/biased	😊	☹️	☹️	😊	😊
Cost	☹️	😊	😊	😊	☹️
Continuation of use	😊	☹️	☹️	☹️	☹️
Detects acute non-adherence	☹️	☹️	☹️	☹️	😊
Detects subacute non-adherence	☹️	☹️	☹️	☹️	😊
Detects evening non-adherence	☹️	☹️	☹️	☹️	😊
Relates non-adherence to asthma control	☹️	☹️	☹️	☹️	☹️

Green: positive; orange: medium; red: negative.

Van Boven et al. PCRM 2015



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Patient reported

TAI[®] Test of Adherence to Inhalers

1. I sometimes forget to use my inhaler medication when I feel better. (1-5 scale)

2. I sometimes forget to use my inhaler medication when I feel worse. (1-5 scale)

3. I sometimes forget to use my inhaler medication when I feel like I don't need it. (1-5 scale)

4. I sometimes forget to use my inhaler medication when I feel like I don't want to. (1-5 scale)

5. I sometimes forget to use my inhaler medication when I feel like I don't have time. (1-5 scale)

6. I sometimes forget to use my inhaler medication when I feel like I don't have energy. (1-5 scale)

7. I sometimes forget to use my inhaler medication when I feel like I don't have money. (1-5 scale)

8. I sometimes forget to use my inhaler medication when I feel like I don't have a doctor. (1-5 scale)

9. I sometimes forget to use my inhaler medication when I feel like I don't have a pharmacist. (1-5 scale)

10. I sometimes forget to use my inhaler medication when I feel like I don't have a nurse. (1-5 scale)

11. I sometimes forget to use my inhaler medication when I feel like I don't have a friend. (1-5 scale)

12. I sometimes forget to use my inhaler medication when I feel like I don't have a family. (1-5 scale)

13. I sometimes forget to use my inhaler medication when I feel like I don't have a job. (1-5 scale)

14. I sometimes forget to use my inhaler medication when I feel like I don't have a hobby. (1-5 scale)

15. I sometimes forget to use my inhaler medication when I feel like I don't have a pet. (1-5 scale)

16. I sometimes forget to use my inhaler medication when I feel like I don't have a car. (1-5 scale)

17. I sometimes forget to use my inhaler medication when I feel like I don't have a house. (1-5 scale)

18. I sometimes forget to use my inhaler medication when I feel like I don't have a country. (1-5 scale)

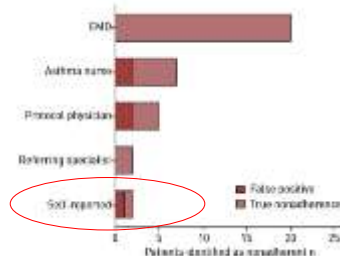
19. I sometimes forget to use my inhaler medication when I feel like I don't have a world. (1-5 scale)

20. I sometimes forget to use my inhaler medication when I feel like I don't have a life. (1-5 scale)

Item 1: "I forget to take my inhalation medication"
 Item 2: "I change the dosage of my inhalation medication"
 Item 3: "I stop taking my inhalation medication for a while"
 Item 4: "I decide to skip one of my inhalation medication dosages"
 Item 5: "I use my inhalation medication less than is prescribed"
 Semi score MARS-5[®] (range = 0-25)

The MARS-5 sum score was calculated by summing scores from each individual question

+ : snel, goedkoop & helpt in "phenotyping" therapietrouw
 - : self-report kan overschatting geven



NOTE: do NOT use Morisky (MMAS)!

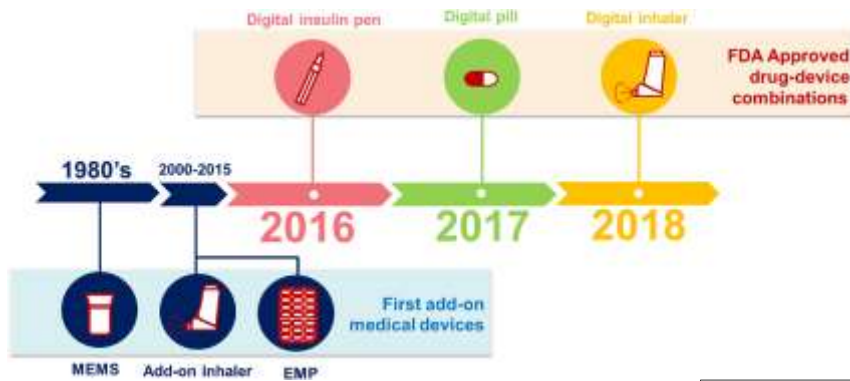
Plaza et al. J Aerosol Med Pulm Drug Deliv. 2016
 Lee J et al. Eur Respir J 2018



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Electronic adherence monitoring



Zijp et al. EClinMed 2019



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Smart bottles, blisters & pills

- Smart bottle (trial)
- Smart blister
- Smart pill



- Technical validation
- Usability

Zijp et al. To be submitted



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Smart inhalers



Chan JAClinPract 2015



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Smart inhalers: Turbuplus trial



- Pragmatic RCT (UMCG/LUMC/GPRI)
- Effectiveness
- Cost-effectiveness
- Implementation

Van de Hei et al. In preparation



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