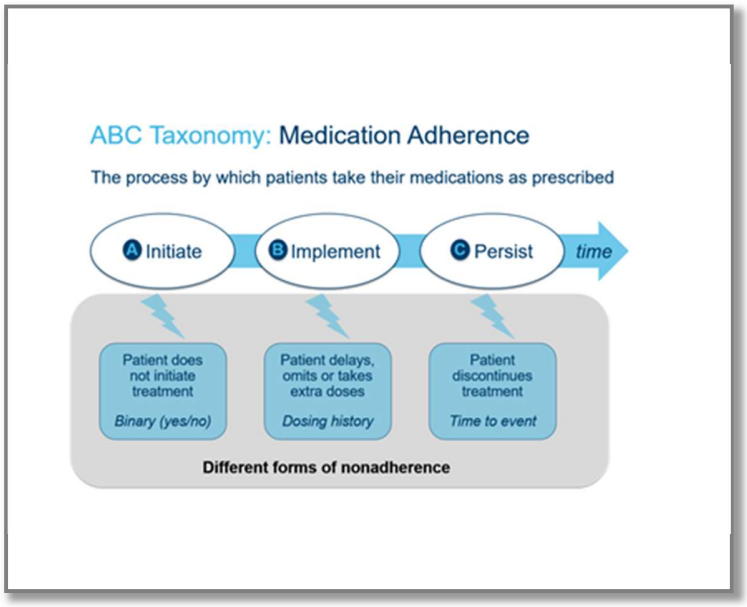
ESPACOMP Medication Adherence Reporting Guidelines (EMERGE)

The **ESPACOMP Medication Adherence Reporting Guidelines (EMERGE)** aim at guiding researchers to report relevant aspects of medication adherence research in a standard manner. EMERGE guidelines are meant to be an addition to the existing guidelines for health research reporting such as STROBE[1], CONSORT[2], CHEERS[3], and TIDier[4] guidelines.

The **ABC taxonomy** of medication adherence[5] was used as the conceptual basis for the guidelines (see figure below). This taxonomy defines **medication adherence** as the process by which patients take their medications as prescribed, composed of (A) **initiation**, (B) **implementation,** and (C) **persistence**. Each phase has its specific characteristics and requires a precise operational definition, adequate measurement, and a suitable approach for data analysis, elements also reflected in the **EMERGE** sections.



A. The process starts with **initiation** of the treatment, when the patient takes the first dose of a prescribed medication.

B. The process continues with the **implementation** of the dosing regimen, defined as the extent to which a patient's actual dosing corresponds to the prescribed dosing regimen, from **initiation** until the last dose is taken.

C. Discontinuation marks the end of therapy, when the next dose to be taken is omitted and no more doses are taken thereafter (without a prescriber's order). **Persistence** is the length of time between initiation and the last dose, which immediately precedes discontinuation.

Non-adherence to medications can thus occur in the following situations or combinations thereof: late or non-initiation of the prescribed treatment, sub-optimal implementation of the dosing regimen or early discontinuation of the treatment.

EMERGE consists of *21 items* organized in 2 sections: the first section includes *4 items* reflecting the conceptualization of medication adherence as put forward by the ABC taxonomy for medication adherence. These items represent the **minimum reporting criteria** that are considered crucial to be reported in each publication, regardless of the format of the publication, in order for medication adherence research to advance benefiting from the conceptualization provided by the ABC taxonomy.

The second section consists of *17 items* specific to medication adherence reporting and organized in a way congruent with the sections of reporting guidelines for observational and experimental study types (i.e. STROBE and CONSORT). Redundancy with existing guidelines has been avoided by only including items that are specific to medication adherence. Authors therefore will need to use the main reporting guidelines for their study type (e.g. STROBE and CONSORT) and combine these with **EMERGE**. Items included in **EMERGE** are thus applicable to different types of methodologies.

We hope that the implementation of the **ESPACOMP Medication Adherence Reporting Guidelines (EMERGE)** will enhance the quality of reporting relevant aspects of medication adherence research in a standard manner and ultimately advance the adherence field towards achieving its ultimate goal of improved outcomes.

The **EMERGE** steering committee:

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Section	Item No	Recommendation	Reported on page No / line No
Minimum reporting criteria			
	1a	**Phases of medication adherence**: State the phase(s) of medication adherence studied (i.e. initiation, implementation, or persistence) and justify, where possible, the reasons the study focuses on the chosen phase(s).	.....
	1b	**Operational definition**: Provide the precise operational/working definition for each (of the) phase(s) of medication adherence studied (i.e., initiation, implementation, or persistence).	.....
	1c	**Measurement**: Specify the method(s) of medication adherence measurement (e.g., self-report, claims data, blood sampling, electronic monitoring). Consider each phase studied (i.e., initiation, implementation, or persistence), with details on the performance of the measure(s) (e.g., validity, reliability, potential bias), where applicable.	.....
	1d	**Results**: Describe the results of the analysis appropriate to each (of the) phase(s) of medication adherence studied (i.e., initiation, implementation, or persistence).	.....
Abstract			
	2a	Present in the abstract, in as much detail as space permits, information on the 4 minimum reporting criteria (i.e., items 1.1 - 1.4).	.....
Background/introduction			
	3a	Summarize what is known about the topic with appropriate reference to the phase(s) of medication	.....

		adherence (i.e., initiation, implementation, and persistence).	
	3b	Describe the rationale and/or framework guiding the medication adherence study (e.g., theoretical framework, implementation science model).	.....
Study objectives or hypotheses			
	4a	State the study objectives or hypotheses with reference to the phase(s) of medication adherence studied and context (patient population and setting).	.....

Methods			
Design & participants	5a	Describe the setting in which the study was conducted. Refer to factors relevant to medication adherence, such as characteristics of the healthcare system, the healthcare organization, and the healthcare team.	.....
	5b	State whether medication adherence was an eligibility criterion (e.g., inclusion/exclusion). If so, define the measures and rules used.	.....
	5c	Describe routine care related to the management of medication adherence (e.g., routine assessment of medication adherence, adherence support programs, provider training), if applicable.	.....
Measurement	*PLEASE REFER TO ITEM 1.C. IN ADDITION TO THE "MEASUREMENT" ITEM BELOW*		
	6a	Measurement methods can themselves impact medication adherence (e.g., questionnaires, blood sampling, electronic monitoring). Address this problem as appropriate.	.....
Intervention (where applicable)	7a	For intervention and comparator groups, describe each relevant level of the medication adherence intervention (e.g., healthcare system, healthcare organization, healthcare provider, patient/caregiver).	.....
	7b	Describe any implementation strategy that contributes to the translation (e.g., uptake, delivery, sustainability) of the medication adherence intervention in clinical practice, if applicable.	.....
Statistical analysis	8a	If medication adherence is an outcome variable, justify the statistical methods, given the characteristics of the variable (e.g., phases of medication adherence, data type, statistical distribution, data censoring, longitudinal dependence).	.....

	8b	If medication adherence is an explanatory variable, describe how it is related to the outcome(s) (e.g., causal pathway, temporal sequence).	……

Results			
	PLEASE REFER TO ITEM 1.D IN ADDITION TO THE "RESULTS" ITEMS BELOW		
	9a	Determine whether non-participation and/or dropout are associated with non-adherence, and provide any relevant data.	……
	9b	Present sample characteristics relevant to medication adherence (e.g., socio-demographic, therapy-related, condition-related, patient-related, caregiver-related, healthcare team/healthcare system-related).	……

Discussion			
	10a	Discuss study strengths and limitations with reference to the phase(s) of medication adherence, where applicable (i.e., initiation, implementation, persistence).	……
	10b	Discuss the study findings in the context of existing medication adherence evidence (e.g., theory, measurement, intervention effects).	……
	10c	Discuss the generalizability (external validity) of the study findings with reference to the phase(s) of medication adherence, where applicable (i.e., initiation, implementation, persistence).	……

1. von Elm E, et al. The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement: guidelines for reporting observational studies. The Lancet. 2007;370(9596):1453-1457.
2. Schulz K, et al. CONSORT 2010 Statement: updated guidelines for reporting parallel group randomised trials. BMC Medicine. 2010;8(1).
3. Husereau D, et al. Consolidated Health Economic Evaluation Reporting Standards (CHEERS)—Explanation and Elaboration: A Report of the ISPOR Health Economic Evaluation Publication Guidelines Good Reporting Practices Task Force. Value in Health. 2013;16(2):231-250.
4. Hoffmann T, et al. Better reporting of interventions: template for intervention description and replication (TIDieR) checklist and guide. BMJ. 2014;348(mar07 3):g1687-g1687.
5. Vrijens B, et al. A new taxonomy for describing and defining adherence to medications. British Journal of Clinical Pharmacology. 2012;73(5):691-705.