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Title: 15-year temporal asthma patterns in a large French cohort of elderly women

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Body: The use of repeated measurements to assess asthma has been little investigated, despite its relevance regarding temporal phenotypes. Using repeated answers to a single question asked 7 times over 15 yrs, 3 asthma patterns were a priori defined. The aim was to compare these patterns to prescription data to evaluate their validity. Asthma answers (have you ever had asthma attacks?) were collected from 7 questionnaires in the French E3N study (70,428 women, 55-82 yrs). The first pattern "never asthma" included women who never answered yes (n=64,061, 91%). The second pattern "consistent asthma" included women who answered yes at least once, never followed by a no in subsequent questionnaire (n=2,853, 4%). The third pattern "inconsistent asthma" included women who answered yes followed by at least one no (n=3,514, 5%). Using prescription database, we identified inhaled corticosteroids (ICS) and bronchodilators (IBD) dispensed (2004-2009) "Consistent asthma" claimed back more anti-asthma drugs than "never asthma"; "inconsistent asthma" had intermediate means of reimbursements (yearly means ICS/IBD: 2.24/1.17, 0.10/0.04, 1.23/0.73 resp.). Both "consistent" and "inconsistent" patterns had increasing reimbursements of ICS and IBD according to the number of positive answers to the question through the 7 questionnaires.

Total number of positive answers through 7 questionnaires	1	2	3	4	5	6	7
Consistent asthma							
ICS, mean/yr	1.53	1.51	2.88	3.41	3.65	4.01	4.64
IBD	0.39	0.70	1.59	2.14	2.29	2.75	3.22
Inconsistent asthma							

		0.39	0.69	0.88	1.63	2.28	3.29	
ICS								
IBD		0.16	0.36	0.65	0.89	1.38	1.91	

Our results showed a good reliability of our a priori asthma patterns, underlying the importance of temporal variations in asthma.