Supplementary file 4: The barriers and facilitators for de-implementation

Supplement to: EW Verkerk, SA van Dulmen, GP Westert, L Hooft, P Heus, RB Kool, To do or not to do programme collaborators. Reducing low-value care. What can we learn from eight de-implementation studies in the Netherlands?

Category	Sub-category	Barriers	Facilitators
Factors related to low-value care.		Uncertainty about care being of low-value (3, 4). A lack of consensus among clinicians (3, 6). A lack of alternatives (8). Conflicting information (5).	Sufficient evidence (1, 6). An alternative available (5).
Individual health professional factors.	Knowledge and skills	A lack of knowledge about the lack of benefit (8), the alternatives (1), and the burden and side effects of lvc (4, 6) . A lack of trust in one's own skills (7). Experience that lvc helps (3, 5).	Knowledge of the burden and side effects of lvc (1, 4, 8). Knowledge of lvc (3, 5).
	Cognitions	Fear of disease (1, 4, 8) and of missing things (6, 8). A discomfort with uncertainty (2, 4, 8). A lack of willingness to adhere to guidelines (3, 4). Lack of priority (1, 4). A belief that the evidence does not apply to their patient population (3, 8). Stopping lvc can increase the burden on the patient (4). A concern that patients will go to other clinics for lvc (3).	Belief in improving patient care by reducing lvc (3, 5, 8). Enthusiasm (6, 8). Motivation to educate junior doctors (6). Focus on quality and safety (6). Agreement with lvc (3). Intellectually challenging to reduce lvc (6). Improved patient examination (1). Motivation to achieve good results (5).
	Routines and characteristics	The persistence of a habit or routine (4, 6, 5).	Usually adhere to guidelines (3, 8).
	Interaction with the patient	The perceived preferences of the patient (7, 8). The desire to offer the patient something (8). The expectation that the patient will keep requesting lvc (8). An inability to reassure the patient (2). An inability to deal with patients with apparently more knowledge of lvc (5). Keeping up a good relationship with the patient (5).	Having a long relationship with the patient(5).
Patient factors.	Knowledge and skills	A lack of knowledge about symptoms (8). Frightening/wrong information on the internet or social media (5, 8). A lack of trust in one's own skills (7).	A reduction in the burden and side effects of lvc (1, 4, 8). A lack of any noticeable benefit of lvc (1). Trust in one's own skills (7). Use of trustworthy sources of information (8). Knowledge of lvc (3).
	Cognitions	A search for reassurance (2, 8). Fear of disease (1, 5, 7, 8). A suspicion that saving cost is a priority (1, 6). A preference for lvc (3, 7). Expectations of receiving lvc(2). A belief in the value of lvc (5). Patients desire for a solution to their symptoms (8).	A preference for receiving as little care as possible (1, 8). A preference for an alternative to lvc (7, 8). Reduction in costs (1, 7).
	Environment	A patient's environment produces pressure(3, 5, 8) . Lvc is requested by an employer (3).	Support from the patient's environment for the lvc alternative (3).
	Routines and characteristics	Immigrants; well-educated patients demand lvc (5). A fear of change (1).	Being elderly (3).
	Interaction with clinician	Having already been referred for lvc by a GP (8). A lack of trust in the clinician (1, 8).	Some patients may ask the clinician if lvc is really necessary (4).

			Having a good conversation with the clinician (2).
Professional interactions.	Team processes and communication	It is unclear which professional has responsibility for reducing lvc (4, 6). A lack of support among colleagues (6, 8). A lack of trust in colleagues (7). The GP's autonomy in decision-making without a specialist (8). Differences in the policies of professionals (3). Multiple clinicians can order lvc (5).	Good collaboration between colleagues (7). Support from clinician organisations (7, 8). The enthusiasm of colleagues (6). Other professions advocating the same message (5).
	Organisational structure and capacity for change	The convenience of standard laboratory packages (6). Easy access to lvc (8). The rapid turnover of junior physicians (6). The difficulties of arranging meetings (3). The presence of temporary doctors (5)	
	Leadership and organisational culture	A fear of questioning a colleague's policy (4). A belief that it is inappropriate to deny patients care (1).	The subject has become a trend among clinicians (1, 3, 7, 8).
Incentives and resources.	The availability of necessary resources	Reducing lvc can lead to more work (4, 6) or a longer admission (6). Not providing lvc costs more time (4, 7, 8). A lack of time for patients or for participating in the project (1, 5, 6, 8).	
	Financial incentives and disincentives	Lvc is reimbursed, therefore reducing it reduces revenue (2, 3, 4, 6, 7, 8). Minimal cost savings by reducing lvc (5, 6). The argument for saving societal costs cannot be used because patients pay for lvc (5).	Reducing lvc creates room for other patients (4). The existence of waiting lists, so space from reducing lvc is filled up (8).
Social, political and legal factors.		Publishing the lvc rate will give the hospital a bad name (2).	

Lvc = low-value care