

Evaluation of 60 continuous quality improvement projects in French hospitals

GEORGES MAGUEREZ, MARIE ERBAULT, JEAN LOUIS TERRA, HERVE MAISONNEUVE AND YVES MATILLON

Agence Nationale d'Accréditation et d'Evaluation en Santé (ANAES), Paris, France

Abstract

Objective. To evaluate the feasibility of implementing continuous quality improvement (CQI) projects in French health care organizations.

Design. The French Ministry of Health issued two calls for CQI projects (in 1995 and 1996). ANAES was commissioned to monitor and evaluate the projects, and to provide advice.

Setting. ANAES in collaboration with French public hospitals.

Study participants. A jury selected 64 projects from 483 submissions. The first series of projects related to safety issues (e.g. blood transfusions), the second related chiefly to patient management.

Interventions. ANAES instructed project leaders in process analysis (modified four-step FOCUS-PDCA model), convened regular meetings between leaders and performed on-site visits.

Main outcome measurements. Objective outcomes: goal achievement, extension of projects to other topics and departments, allocation of resources. Subjective outcomes: changes in attitudes. Statistics were obtained from two questionnaires completed by project leaders.

Results. Four projects were discontinued; 82% (49 out of 60) met more than half their objectives. The CQI method was adopted by other departments in 65% and 50% (1st and 2nd series respectively) of cases. Hospital management often chose to provide continued support (81%/88%), offer training (59%/80%), create a CQI unit (62%/73%), and allocate a budget (61%/65%). A positive impact on staff attitudes was noted in over 75% of projects.

Conclusion. ANAES' co-ordinated initiative to acquaint a hard core of French public hospitals with CQI proved successful. Identification of the factors for success and of potential hurdles helped pave the way for the national hospital accreditation procedure currently underway.

Keywords: attitude of health personnel, continuous quality improvement, implementation, process assessment (health care), quality systems

The notion of continuous quality improvement (CQI) was transposed from industry [1,2] into the health care sector toward the end of the 1980s [3]. Ever since, its application has been on the increase in this sector although it is apparently on the decline in industry [4]. Unlike quality assurance, CQI is based on the prevention of inadequacies rather than the correction of errors after the event. Because it is very demanding both on individuals and on organizations as a whole [5], it is often limited to a well-defined project involving a team working on just a single, highly specific process.

In France, concerns about quality led to the creation, in 1991, of a national agency for the promotion of quality in health care, ANDEM (*Agence Nationale pour le Développement de l'Evaluation Médicale*). In 1997, ANDEM became the ANAES¹ (*Agence Nationale pour l'Accréditation et l'Evaluation en Santé*) which was set the additional task of devising and implementing a standard accreditation procedure for all French hospitals (Decree of April 24, 1996) [6]. There were at the time 1071 public and 3011 private hospitals in France (Figures for January 1, 1996) [7]. In between, from 1995 to 1998, ANAES'

¹ Throughout this article the Agency will be referred to as ANAES.

Address reprint requests to Y. Matillon, ANAES, 159 rue Nationale, 75640 Paris cedex 13, France. E-mail: y.matillon@anaes.fr

remit was to increase management's awareness of CQI, which is a key feature of the accreditation procedure, and to study the feasibility of implementing CQI in public hospitals. Practice being preferable to theory, the French Ministry of Health decided to help fund selected CQI projects. Two calls for projects were issued, the first in January 1995, the second in May 1996. The topics for the first series of projects were predefined and reflected current safety concerns after recorded incidents in one or more hospitals (nosocomial infections, incidents after anesthesia, after blood transfusions). The second call was open. ANAES was officially commissioned to provide advice and training, and to monitor the projects closely.

Factors known to favour successful CQI implementation are good leadership [8], committed staff, a receptive organization, newly defined rules and regulations, as well as training and support [9], but evaluation of CQI projects is still in its infancy. There are few studies establishing that CQI has a real and lasting impact on work methods [9,10]. Although ANAES monitored each project closely, it was less concerned with the detailed results of each project (one hospital team has published their results in this journal [11]) than with the global issue: did the Agency's intervention work and was it worthwhile? Impact was thus measured using aggregate statistics and gross indicators (initiation of further CQI projects by the hospitals, creation of quality units, allocation of budgets) that were unrelated to project topics. ANAES monitored and evaluated a total of 60 CQI projects. A brief introduction to the French government's initiative has been published [12,13] but this is the first overview of the results.

Methods

Project selection

Two calls for CQI projects were issued by the French Ministry of Health (*Direction des Hôpitaux*) and sent out to all public and non-profit-making hospitals in France. The focus was on topics relating to patient safety in the first call (January 1995) and to patient management in the second (May 1996). Projects were selected in two steps: in the first step, ANAES and the *Direction des Hôpitaux* sorted out all projects that met official administrative requirements; in the second step, a jury selected those most likely to succeed. The main selection criteria were: clarity of aims, appropriate methodology, availability of indicators to evaluate project performance, time required (< 18 months), previous experience in quality improvement, rallying power, conformity with hospital policy, and approval by the management. The two juries (one for each call) were composed of 12–14 professionals from the public health care sector or from industry. All had expertise in quality issues. The juries met three times to harmonize their views on quality and to select projects. Selected projects received a financial incentive of 50 000–400 000 French francs (US\$ 10 000–80 000) depending upon the amount requested in their application.

Project implementation

ANAES' approach to CQI laid strong emphasis on process analysis for three time-related reasons: (i) it takes time for people to 'break the ice', to get to know each other and to overthrow barriers between individuals and units; (ii) it takes time to abandon 'false assumptions', to analyse a process as it is and not as one thinks it is; (iii) it leaves time and leeway for minor improvements and for the correction of obvious inadequacies that go unrecorded because, at first sight, they do not seem to have any logical explanation. Awareness of inexplicable, manifest malfunctions is the first step toward admitting that errors do occur and a first sign of a change in mentality.

The CQI method implemented in the projects was the FOCUS-PDCA model [3,14] adapted by ANAES to French culture. It comprised four main steps with a fixed schedule: (i) choice of a process in line with each hospital's strategy for detailed study (1 month). The hospital teams defined clear, precise objectives and nominated a working group and steering committee. This step had in fact been partly taken before submission of their application; (ii) critical appraisal and description of the process (5–6 months): all those involved had to describe their work, pinpoint inadequacies and indicate possible areas of interference between sequential actions; (iii) design of a new process and definition of evaluation criteria for each stage of the process (3 months): the team ranked possible improvements and solutions, analysed the experience of others and legal constraints, and drafted an action plan for submission to the organizing committee and hospital management; (iv) short- and/or long-term actions according to plan (> 5 months). A general meeting took place at ANAES at the end of each step. At these meetings, hand-outs (in French; available from the authors upon request) explaining the next step were distributed. More importantly, the participants had to bring to each meeting a story board indicating the progress that had been made. These were the basis of formal presentations and group discussions.

The projects were run in the hospitals by a project leader who reported to a steering committee which included at least one member of the hospital management, a representative of the '*Commission Médicale d'Établissement*' (Medical Committee), the Head of Nursing, and the head(s) of the departments involved in the project. A typical steering committee comprised six to 10 persons. On average, the working groups were made up of 15 persons and were often broken down into smaller task forces.

ANAES staff assisted the hospital teams throughout the projects and visited each hospital at least once. The projects were grouped into main themes and an advisor was appointed for each theme.

Project evaluation

Between June and September 1998, ANAES staff visited all the hospitals selected in the second round (i.e. the 1996 projects) for a final evaluation (i.e. after 20 months). This 1-day site visit was centred around two questionnaires (available

Table 1 Response to calls for CQI projects issued by the French Ministry of Health

Projects	1995 call	1996 call	Total
Number of projects received	260	223	483
Number of hospitals	164	144	ND ¹
Number of projects admissible	73	90	163
Number of projects selected	29	35	64
Number from teaching hospitals	16	18	ND ¹
Average number of beds per hospital ²	758	635	690
Number of projects evaluated	26	34	60

¹ ND, Not determined because the same hospital could have replied to both calls. ² Teaching and other hospitals.

in French from the authors) which were specially designed by ANAES. They were completed by the hospital project managers either alone or together with the working group and/or steering committee. During this period, the same questionnaires were also sent by mail to the hospitals that had taken part in the first round (i.e. to the 1995 project leaders 38 months after the start of their project). If there was no reply by the end of 4 weeks, they were sent a reminder.

The questionnaires were devised on the basis of the literature on CQI evaluation and our own past experience. The first questionnaire comprised four open questions: (i) Why did you decide to set up a CQI project? (ii) What improvements have you brought about? (iii) How do you know that your project has been effective? (iv) What impact has your project had on quality issues and hospital strategy? Illustrative examples were provided to help the project leaders complete the questionnaire. The second questionnaire addressed: (i) the aims, progress and results of each project (11 questions); (ii) the dissemination of quality issues within the hospital (12 questions); and (iii) the impact of the project within the hospital (five questions). Of the 28 questions, 23 had to be answered by either 'yes' or 'no'. The number of yeses and nos were counted and converted into percentage 'yes' or 'no' responses. The answers to the remaining questions were percentage estimates, for instance: How far along completion is your project? The number of projects falling into different percentage ranges was counted. All data were analysed by ANAES staff with the help of a social scientist.

Results

Project description

A total of 483 projects were received of which 64 were selected by the juries and 60 evaluated by ANAES (Table 1). The four unevaluated projects were discontinued because of the early departure of key figures involved in the projects (hospital manager, project leader or active member). Most of the evaluated projects were from university teaching hospitals (Table 1); eight projects were from private non-profit-making hospitals and five were from psychiatric hospitals. The mean number of beds per hospital was 690 (range 104 to > 2000).

The 1995 call related to set topics reflecting current safety

concerns. The 1996 call was open; selected projects dealt with topics relating to patient management rather than safety (Table 2). The jury's selection was, however, unbiased; the chosen topics were a representative sample of those submitted. The lion's share of the hospital grants went on temporary staff (replacing staff whilst they were working on a project, employing extra staff for a project), training, and benchmarking/study trips. The grant was an incentive to get the projects going and was not meant to be a means of financing projects in the long term. In the main, it proved adequate for its purpose.

Project outcomes

The performance of all the projects was evaluated over 4 months starting 38 months after initiation of the 1995 projects and 20 months after initiation of the 1996 projects. In theory, each project was to take 18 months but several were still ongoing at evaluation, mainly because the time needed to meet objectives had been estimated incorrectly in the grant applications. This occurred despite early reassessment of objectives in several projects. About half of the teams undertook to revise their objectives or set new ones with increasing knowledge of CQI and awareness of hurdles to be overcome (see line 1, Table 3). Project continuation was, however, consistent with ANAES' intention that efforts in CQI and staff involvement should not end abruptly when the pilot tests came to a close. Efforts were to be pursued over several years. Figure 1 (panel a) illustrates project advancement at evaluation. Overall, 53 out of 60 (88%) of the projects were past the half-way stage and 41 out of 60 (68%) were more than two-thirds of the way to completion.

Goal achievement at evaluation is shown in panel (b) of Figure 1. The slight shift toward the left with respect to panel (a) is due to the time needed for the effects of actions to become visible. At evaluation, 61% of the 1995 projects and 41% of the 1996 projects had met their objectives (Table 3). The higher percentage for the 1995 projects may be due partly to the longer interval between project initiation and evaluation (38 versus 20 months, respectively). This extra time might also explain why more teams in the first series of projects had reached the stage of monitoring their performance indicators (88% versus 73%) or had already introduced the proposed improvements into their daily routine

Table 2 Topics of selected CQI projects

1995 topics ¹	Number	1996 topics ²	Number
Preventing nosocomial infections	9	Improving admission procedures	8
Medical record management	5	Improving co-ordination of care	5
Safety issues:	Anesthesia	Medical record management	4
	Blood transfusions	Managing pain	4
	Drug dispensing	Safety of medical devices	3
Controlling violence (psychiatric units)	2	Preventing falls	3
		Dealing with alcoholic patients	2
		Drug dispensing safety	2
		Improving laboratory procedures	2
		Patient management in the operating theatre	1
		Anaesthesia safety	1

¹ Topics set by the French Ministry of Health. ² Topics proposed by the applicants.

Table 3 Outcomes of CQI projects at evaluation

		1995 projects (<i>n</i> = 26)	1996 projects (<i>n</i> = 34)
Objectives re-assessed (during early stages of project)	Yes	15 (58%)	15 (44%)
	No	11 (42%)	19 (56%)
Objectives met	Yes	16 (61%)	14 (41%)
	No	10 (39%)	20 (59%)
Monitoring of performance indicators ongoing	Yes	23 (88%)	25 (73%)
	No	3 (12%)	6 (18%)
	No answer	0	3 (9%)
New procedures already part of daily routine	Yes	16 (61%)	18 (53%)
	No	10 (39%)	13 (38%)
	No answer	0	3 (9%)

(61% versus 53%). Nevertheless, a direct, strict comparison between the two sets of results should be avoided because of the many differences in confounding variables: different environments, different topics etc.

Project extension and impact

The aim of the ANAES initiative was not just to help a number of teams to bring about improvements in specific processes but, indirectly, to induce interest in CQI and changes in mentality throughout the hospitals. Did the funded projects serve their purpose? Were the teams sufficiently convinced to initiate new projects, and was their experience a successful example to be imitated by other teams? At evaluation, half of the teams had already set themselves new objectives related to the same topic (line 1, Table 4), half of the first set of projects had been 'copied' by other departments within the hospital (line 2, Table 4), and the CQI method had been adopted for projects on other topics in over half the hospitals (line 3, Table 4).

Few strategies can be successful if they are not applied in the right context, implying a need for managerial approval,

qualified staff, and finance. The management supported the extension of the CQI initiative in 81% and 88% (1st and 2nd series respectively) of the hospitals, created an *ad hoc* unit for CQI in 62%/73%, offered training opportunities in 59%/80%, and provided a budget in 61%/65% (Table 5). Clearly, there was more intellectual than material support. Reasons for the higher percentages in the first than second set of projects in Tables 4 and 5 may be more time to make formal decisions on desirable courses of action (e.g. training) and greater background knowledge and experience in quality issues. Those who came in first had the greatest awareness of CQI. Exceptions were the allocation of resources – more time did not mean greater willingness to put money into quality – and the highly positive response from the management for the second set of projects (88%). The French Ministry of Health's 1997 decision to accredit all public and private hospitals, making quality a compulsory issue, might explain this high response rate.

As noted above, the projects progressed at different rates. Their evaluation should thus include not only objective, but also subjective, measures. Whether a particular project was

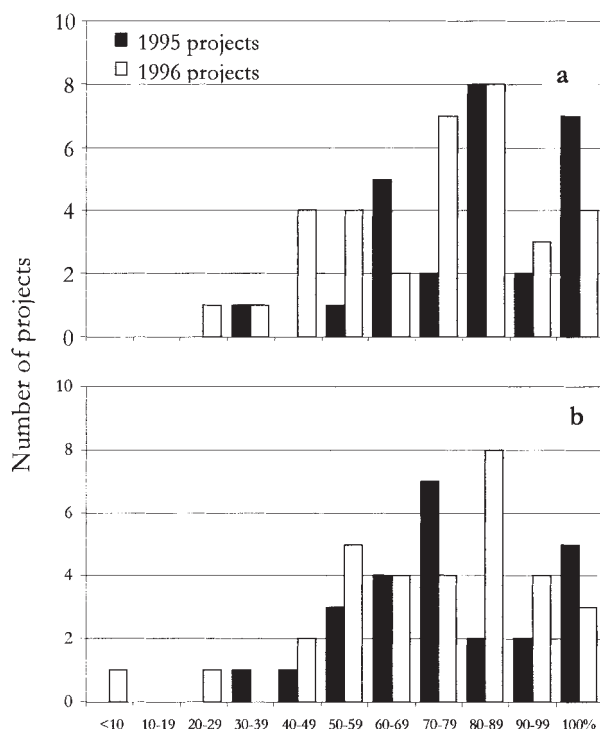


Figure 1 Distribution of the projects according to (a) per cent progress (b) per cent success at evaluation.

successful or not, whether the CQI initiative was, or was not, officially adopted by hospital management and staff, were less crucial from ANAES' viewpoint than whether individual attitudes underwent positive changes. CQI aims to instill attitudes of positive criticism, greater humility and tighter collaboration. The questionnaires for completion by the project leaders with their colleagues included items on changes in ways of tackling issues, in work methods and attitudes. The answers were highly subjective, of course, but reflect the opinions of closely knit teams educated in self-criticism. The psychosocial impact of CQI was deemed positive in over 75% of projects irrespective of item (Table 6). Bias in this encouraging response may be due less to a

wish to provide socially acceptable answers to ANAES than to a deep-rooted belief in CQI. Having monitored the projects closely, ANAES could not be expected to believe answers too far off from the truth. If the positive responses are trustworthy, they may be attributable to several factors including the leadership qualities of the project manager, the enthusiasm of the team, but also to the strategy employed. Each person involved in the process under study was implicated in the CQI initiative regardless of their role or position in the hierarchy. Moreover, their work, together with that of others, was placed into context and discussed by the whole group. This type of situation is still relatively rare in many French hospitals where the hierarchical system still has a very strong hold.

The improvements brought about by the CQI projects were felt by 23% of the patients in the first set of projects and 47% in the second. These responses depend on the nature of the projects under study. It is hardly surprising that a higher percentage was recorded in projects dealing predominantly with patient management rather than with safety.

Discussion

The meetings organized at ANAES headquarters, the on-site visits performed by ANAES, and the answers to the questionnaires obtained either on the spot or by mail, all indicated that the CQI initiative met with substantial success despite some difficulties, especially during the initial stages. An 18-month period may seem a long time to improve a procedure and could be shortened but, in fact, it is the initial phase that is long and incompressible. During this phase, the participants identify the key issues, learn to judge their own work within a defined context and also learn to collaborate. Besides, a baptismal CQI project is only the first foothold in a long climb toward full change during which both individuals and organization come to grips with a variety of issues. The individuals undergo a learning process that challenges the organization and results, in the long run, in a re-engineered management structure [15,16].

Table 4 Extension of CQI projects

		1995 projects (n = 26)	1996 projects (n = 34)
New objectives set at close of project (same topic)	Yes	14 (54%)	17 (50%)
	No	10 (38%)	17 (50%)
	No answer	2 (8%)	0
CQI project (same topic) adopted by other departments	Yes	14 (54%)	13 (38%)
	No	8 (31%)	21 (62%)
	NA	4 (15%)	0
CQI method adopted for other topic(s) by same or other departments	Yes	17 (65%)	17 (50%)
	No	8 (31%)	17 (50%)
	No answer	1 (4%)	0

NA, Not applicable.

Table 5 Managerial involvement and resources allocated in the wake of the projects

		1995 projects (<i>n</i> = 26)	1996 projects (<i>n</i> = 34)
CQI introduced into hospital management strategy	Yes	21 (81%)	30 (88%)
	No	5 (19%)	4 (12%)
CQI unit created	Yes	19 (73%)	21 (62%)
	No	7 (27%)	13 (38%)
Units staffed by project participant(s)	Yes	17 (65%)	18 (53%)
	No	6 (23%)	4 (12%)
	No answer	3 (12%)	12 (35%)
Training opportunities offered in QCI	Yes	21 (80%)	20 (59%)
	No	4 (16%)	13 (38%)
	No answer	1 (4%)	1 (3%)
Training offer taken up by hospital managers	Yes	16 (61%)	19 (56%)
	No	5 (19.5%)	10 (29%)
	No answer	5 (19.5%)	5 (15%)
Provisional budget allocated (staff and logistics)	Yes	16 (61%)	22 (65%)
	No	10 (39%)	11 (32%)
	No answer	0	1 (3%)

NA, Not applicable.

Table 6 Impact of the CQI projects on the health care organization according to project leaders and/or project group members

		1995 projects (<i>n</i> = 26)	1996 projects (<i>n</i> = 34)
Changes in ways of tackling issues	Yes	20 (76%)	29 (85%)
	No	3 (12%)	4 (12%)
	No answer	3 (12%)	1 (3%)
Changes in work methods	Yes	21 (80%)	29 (85%)
	No	4 (16%)	3 (9%)
	No answer	1 (4%)	2 (6%)
Changes in attitudes	Yes	22 (84%)	32 (94%)
	No	2 (8%)	1 (3%)
	No answer	2 (8%)	1 (3%)
Changes felt by patients	Yes	6 (23%)	16 (47%)
	No	17 (65%)	14 (41%)
	No answer	3 (12%)	4 (12%)

Several reasons could have contributed toward the success of this CQI initiative: (i) coherence (overall management by a single team commissioned by the state); (ii) a simple rigorous method (compulsory story board presentations of progress, strict deadlines); (iii) voluntary participation and effective incentives (to be selected is to be distinguished from among others and to be rewarded); (iv) good communication (within the hospital, between ANAES and project participants, and among participants of different projects); (v) the leadership qualities of those who ran the projects; (vi) multidisciplinary teams (the selected projects tended to involve individuals with different qualifications and backgrounds; those in which opinion leaders (e.g. physicians) participated actively tended to be the most successful; (vii) the backing of the hospital

management; (viii) up-front resources; (ix) the required support services. ANAES has issued a list of the key factors for success on the basis of this experience [17]; they confirm those already identified elsewhere [18].

Most of the difficulties encountered were related to a question of time: (i) time taken for the message to be clearly understood by all; (ii) time to instruct participants in CQI implementation; (iii) time for them to accept the method, adopt it and apply it to their particular context; (iv) time needed to accompany the project; (v) time needed for lasting and in-depth changes in attitudes; in brief, the time taken to introduce new ideas and move from a culture that is predominantly 'solution oriented' to one that is 'observer oriented'. This time is incompressible but is essential for the

successful deployment of CQI. Other related and partly unsolved difficulties were the training and availability of qualified personnel to counsel and support the project participants during the project and, more importantly, after its official close. An additional handicap was that the CQI initiative was more likely to be espoused by those who already had some knowledge or experience in the field rather than by those who might have been in greatest need of participating and who might have benefited most.

Methodologically speaking, we performed an open, non-comparative study managed by highly motivated individuals. Any conclusions we draw are therefore subject to bias. The CQI projects were evaluated by the project leaders either alone or together with the working group and/or steering committee. ANAES did not police the projects but acted as a permanent reminder of the need for rigor and objectivity. The scientific evaluation of CQI is complex [19,20] for several reasons: (i) an effect may not be attributable to an intervention that is part of a specific project but to changes that might have occurred on a routine basis; (ii) processes under close scrutiny are constantly made to adapt to environmental changes; (iii) internal and external factors impinge upon interventions which, therefore, do not remain stable throughout a project; (iv) the dynamics of the results are as important as the results themselves. Assessing results at a single, and often early, time-point does not tell us how successful the intervention will be in the long term; (v) there are no established indicators for evaluating CQI.

Half of the project leaders of the 1995 projects considered that, at the time of final evaluation, their main performance indicator (e.g. number of falls, of nosocomial infections) had begun to evolve satisfactorily. Although this indicator was, no doubt, suitable to judge project outcome in the long term (i.e. measurable improvements), it was often of little practical use to assess progress made. A number of falls is no indicator for changes in attitudes and work methods that precede improvements. Paradoxically, the number of recorded falls often increased as staff focussed on the issue and developed less reticence in reporting incidents. This does not mean that suitable indicators could not be devised for the early stages of a project. Too many health care professionals active today in France have been educated to believe that only measurements are reliable and forget that qualitative parameters can be scored or counted, that is converted into numbers amenable to statistical analysis. Qualitative approaches are making a come-back and gaining visibility in health care. We trust that, in future, project leaders will choose appropriate time-sensitive indicators to monitor not only project outcome but also progress.

The lack of a sophisticated study design (e.g. a comparative randomized controlled trial [19]) detracts little from ANAES' main objective which was to test the feasibility of implementing CQI projects in French hospitals; on the contrary, it may have been an advantage. Moreover, although 60 projects is a large sample compared to the sizes of published CQI studies, it is hardly large enough to exert a leverage effect on the French health care system. These projects, each of which has now been left to its own fate, were pilot tests

useful to the hospitals concerned and also to ANAES in regard to the preparation of the accreditation system now in force. The goals of accreditation are evaluation and improvement. Primary objectives are to assess the quality and safety of care, to assess an institution's ability to undertake CQI using a recognized quality management tool, and to foster acceptance of change by involving participants throughout the quality process. Ultimately, the public will thus gain better understanding of – and greater confidence in – quality of care.

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B. Audibert (C.H. de Brumath); V. Barre (C.H. La Palmosa, Menton); B. Bassoul (Clinique Beausoleil, Montpellier); J.F. Bec (C.H. Lucien Hussen, Vienne); A. Bellou (Hôpital Central C.H.U. de Nancy); M. Besneux (Hôpital Charles Nicolle, C.H.U. de Rouen); G. Bilard-Prost (C.H. de Longjumeau); R. Billet (C.H. Le Vinatier, Bron); Y. Bloch (C.H.U. de Rouen); R. Bouet (C.H. Henri Laborit, Poitiers); F. Boureau (Hôpital Saint Antoine – AP-HP); A. Bruat (Hôpital d'Enfants, C.H.U. de Nancy); S. Callaert (C.H. Intercommunal de Créteil); O. de Canteloube (Hôpital Central, C.H.U. de Nancy); R. Castellana (C.H. de Brumath); J. Chaperon (Hôpital Sud, C.H.U. de Rennes); G. Chauvin (C.H. de Mont de Marsan); C. Chouaid (C.H.I. de Créteil); J.L. Christophe (Hôpital Jean Minjoz, C.H.U. de Besançon); F. Clergue (Hôpital Tenon, AP-HP); G. Colas (C.H. du Havre); P. Collet (C.H.S. de la Savoie, Chambéry); Y. Costa (Hôpital de Bicêtre, AP-HP); A.J. Coudert (Centre Médico-Psychologique, C.H.U. de Clermont-Ferrand); X. Courtois

(C.H. de la Région Annecienne); A. Cozeret (C.H. de Martignes); C. Cozon (C.H. Le Vinatier, Bron); A. Davy (C.H.U. de Caen); V. Dissait (C.H. d'Issoire); O. Dizien (Hôpital Raymond Poincaré Garches, AP-HP); C. Ducerf (Hôpital de la Croix-Rousse, HCL); A. Durocher (C.H.U. de Lille); M. Elles (C.H.U. de Strasbourg); M. Elsener (Clinique Mutualiste des Eaux-Claires, Grenoble); B. Eon (Hôpital Sainte-Marguerite, AP-HM); M. Erb (C.H.U. de Lille); S. Estanove (Hôpital Louis Pradel, HCL); C. Fargeot (Groupe Hospitalier Bichat-Claude Bernard, AP-HP); R. Farinotti (Groupe Hospitalier Bichat-Claude Bernard, Paris); A. Fontaine (Hôpital Louis Mourier, Colombes – AP-HP); A. Fourcade (AP-HP); P. François (Hôpital Albert Michalon, C.H.U. de Grenoble); P. Fuertes (C.H. de Pau); J.P. Gachie (C.H.U. de Bordeaux, Talence); J. Gaillat (C.H. de la Région Annecienne); P. Garnerin (Hôpital Tenon, AP-HP); L. Gerbaud (C.H.U. de Clermont Ferrand); L. Giusti (Hôpital de Jour pour Enfants, La Tour du Pin); Y. Glanddier (C.H.U. de Clermont Ferrand); M. Gomez (C.H. de Brumath); F. Gouin (Hôpital d'adultes de la Timone, AP-HM); B. Guillot (Maison de Santé Spécialisée, Vaugneray); P. Guion (Maison de Santé Spécialisée, Vaugneray); M. Henry (Hôpital de Bicêtre, AP-HP); J.B. Homs (Hôpital St Camille, Bry sur Marne); P. Hontebeyrie (Institut Curie, Paris); A. Jacob (C.H.U. de Dijon); M. Jacquet (Hôpital Jean Minjoz, C.H.U. de Besançon); M.C. Jars-Guinestre (Hôpital Raymond Poincaré, Garches – AP-HP); C. Jeny-Loeper (Hôpital National de Saint-Maurice); J. Joubert (Hôpital Saint Louis, AP-HP); E. Kiledjian (C.H. Lucien Hussel, Vienne); M.B. Lareng (Hôpital de Purpan, C.H.U. de Toulouse); D. L'Azou (Hôpital Auguste Morvan, C.H.U. de Brest); B. Leclercq (Institut Gustave Roussy, Villejuif); B. Lejeune (Hôpital Auguste Morvan, C.H.U. de Brest); D.J. Lepaux (C.H.S. de Jury-Les-Metz, Metz); J.P. Lethor (Hôpital d'Enfants, C.H.U. de Nancy); I. Lombard (Hôpital National de Saint-Maurice); J.F. Loriferne (Hôpital St Camille, Bry sur Marne); J. Manfredi (C.H. d'Avignon); A. Marey (C.H.U. de Lille); T. Marmet (Hôpital Joseph-Ducuing-Varsovie, Toulouse); J.P. Marot (C.H. de Saint Nazaire); G. Martin (C.H.U. de Lille); N. Marty (Hôpital de Ranguéil, C.H.U. de Toulouse); P. Michel (Hôpital Pellegrin Tripode, C.H.U. de Bordeaux); M. Milochau (C.H. des Pays de Morlaix, Morlaix); Y. Nivoche (Hôpital Robert Debré, AP-HP); A.F. Pauchet Traversat (Hôpital Louis Mourier, Colombes – AP-HP); J.C. Penochet (Hôpital La Colombière, C.H.U. de Montpellier); J. Petit (Hôpital Charles Nicolle, C.H.U. de Rouen); M.P. Pomey (Hôpital Auguste Morvan, C.H.U. de Brest); C. Protin (Hôpital de Bicêtre, AP-HP); M. Pultier (AP-HM); J.F. Quaranta (Hôpital Pasteur, C.H.U. de Nice); F. Racoupeau (C.H. Le Vinatier, Bron); P. Rebuffel (C.H. d'Aubagne); J.L. Renaud-Salis (Institut Bergonié, Bordeaux); N. Ribet-Reinhart (Hôpital National de Saint-Maurice); L. Ricour (AP-HP); N. Salvador (C.H. de St Laurent du Pont); J.L. Scheydeker (Hôpital Auguste Morvan, C.H.U. de Brest); V. Serra-Maudet (C.H. du Mans); J.F. Sicard (Hôpital Tenon, AP-HP); D. Sigler (Hôpital Paul Brousse, Villejuif – AP-HP); N. Smolski (Hôpital de la

Croix-Rousse, HCL); X. Verdeil (Hôpital de Purpan, C.H.U. de Toulouse); B. Walter (Clinique Mutualiste des Eaux-Claires, Grenoble); A. Zabé (C.H. de St Dié); M.A. Zimmermann (C.H.U. de Strasbourg).

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