IMPACT OF A DISEASE MANAGEMENT PROGRAM ON CONTROL OF ASTHMA IN NORMANDY : THE 36 MONTHS RESALIS EXPERIMENT

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INTRODUCTION : Current reforms in the French healthcare aim at improving the quality of care and reducing overall cost. I n 1996, they permitted the establishment of experimental healthcare networks, but placed the onus on independant sponsors to provide evidence that such systems improved quality of care and reduced costs. Asthma is a prevalent and costly disease, in which care is often inadequate in spite of the existence of consensus guidelines. That is why it has been chosen for the experiment of a co-ordinated care network.

OBJECTIVES : To assess whether a disease management programm of asthma improves the quality of care and reduces costs compared to standard care.

METHODS

FIVE HEALTH PROGRAMS
- Computerisation of the consulting clinics
- Exchange of medical and paramedical records
- Introduction of medical guidelines
- Medical training for doctors
- Patient education

INCLUSION CRITERIA
- Adults and children over 10 years old
- Asthmatic patients regardless of grade, who have given their informed consent and are prepared to attend the educational sessions offered
- Patients who reside in the region of Eure and who do not intent to leave the region within a period of 18 months

STUDY DESIGN
The study design should interfere as little as possible with daily practice. The best suited model is a pragmatic quasi-experimental before-after study with a control group.
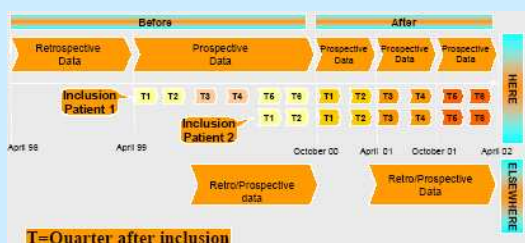
PARALLEL SURVEY
A parallel survey was conducted to examine spontaneous changes in costs without an intervention in three contiguous regions. 1 cross section has been realised in both phases

END POINTS
- Clinical end point : (i) number of follow ups with control during 3 months
  (ii) median time to non control
- Quality of life end point : asthma quality of life questionnaire
- Financial end point : (i) mean cost of a 3 months follow up with control and without control
  (ii) mean cost of a 3 months follow up, all combined
- Economic end point : incremental cost-effectiveness ratio of standard care 3 months follow up and follow up by the network

THRESHOLDS FOR NON-CONTROL OF ASTHMA
The definition of control is based on the 6 criteria and thresholds from the Canadian asthma consensus report

Criteria	Canadian Consensus
Day-time symptoms	> 6d /7 d
Night-time symptoms	> 1 night/week
Exacerbations	1 since the last consultation or causing the consultation on the day
B_2SA	> 6d /7 d
FEV1	< 80 %
Loss of work	Yes

VALUATION OF DIRECT AND INDIRECT COSTS
Medical, paramedical, hospital, drug and examination costs were attributed using French Health Ministry reference prices in 1999, 2000 and 2001 (NGAP and NABM nomenclatures, PMSI). Lost productivity was calculated from the number of days off work and the annual French daily wage INSEE 1999, 2000).

STATISTICAL ANALYSIS
- Efficacy : (i) mean control rate per patient per quater (Wilcoxon paired test)
  (ii) median time before non control (Logrank and Cox tests, independant groups)
- Cost : means cost per patient per quarter of follow up (Wilcoxon paired test)
- Quality of life : median scores per dimension per patients (Wilcoxon paired test)

RESULTS

PATIENT INCLUSION AND FOLLOW UP
32 doctors downloaded informations about 313 asthmatic patients.
- *Before phase* : 219 patients had at least 1 consultation before intervention
- *After pahse* : 186 patients followed up for 18 months after intervention
$\Rightarrow$145 patients followed up during the 2 phases

CLINICAL IMPACT
- Improvement of the mean quatrely control rate per patient : 54 % of patients controled (before pahse) vs 65 % (after phase) $\Rightarrow$ a gain in patients controlled per quarter of 11 %
- Comparison of time spent with controlled asthma before and after intervention :
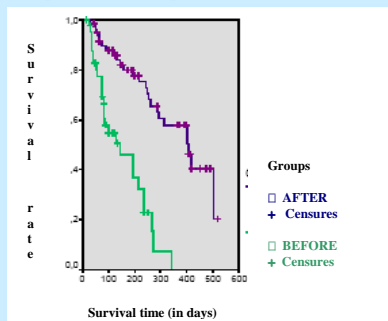
$\Rightarrow$ At a t time, the probability of keeping a controlled asthma is higher after the intervention than before (p < 0.0001)

$\Rightarrow$ At a t time, the risk of being non controlled is 4.7 times less important after the intervention than before (Cox model, p < 0.0001)

QUALITY OF LIFE IMPACT
Management in a network significantly improved the patient's quality of life

Dimension	p	Clinical signification
Activities	0.030	NS
Symptoms	0.002	YES
Emotion	0.027	NS
Environment	0.066	NS
Global QOL	0.006	NS

FINANCIAL IMPACT
$\triangleright$ Quantity consumed by the 145 patients followed during the 2 phases :

Nature of consumption	Before	After
GPs of the network	577	616
Other GPs	33	58
Specialists	27	28
Mesures of PEF	152	236
Lignes of prescription of anti-asthma drugs	901	1214
Number of hospitalisation stays	17	3

$\triangleright$ A significant decrease of total quatrely cost per patient and a restructured consumption

Nature of consumption	Before (N=145)	After (N=145)
Total costs (€2001)	246.7	187.4
Direct costs	235.6	178.1
Medical costs	71.6	66
Drug costs (all)	105.8	93.3
Anti-asthma drug costs	98.3	88.2
Hospital costs	58.3	18.8
Indirect costs	11.1	9.3

$\Rightarrow$ Significant decrease of total quarerly cost per patient of 24 % (p < 0.0001)

$\Rightarrow$ No statistically signicant diffrerence on the drug costs
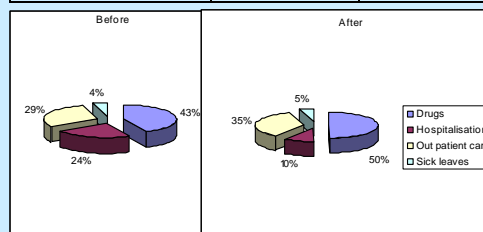
$\Rightarrow$ More drug prescriptions and less hospitalisation stays in proportion after the intervention

PARALLEL SURVEY
No statistically significant differences were found between the mean quaterly costs per patient at experimental and standard care sites when observed during the before phase (343 vs 246.7 : NS), whereas during the after phase, this difference was significant (387.5 vs 187.4 : p=0.05)

CONCLUSION : This study demonstarted a significant improvement in the state of health and quality of life of patients, together with a significant reduction in costs following implementation of a co-ordinated network for the treatment of asthma. The reduction in costs is not due to spontaneous national changes in management practice for asthmatic patients, as demonstarted by cost evolution on the parallel survey, and is thus likely to be explained by the intervention progam. This initiative is the first attempt to implement a desease management program in France.It is a very promising and enriching experiment, which open a new road for pragmatic evaluation of the management of asthma in primary care with "trickle" inclusions and follow ups.