

### Reasons for bad compliance

Several factors may influence compliance: the experience and subjective understanding of illness, the treatment, the environment of the patient and the doctor-patient-team relationship. Typical causes of poor motivation for diabetic patients are absence of clinical signs, incomplete acceptance of the disease or a state of depression [2]. In case of demotivation the clinician has to find out the reason, otherwise further education is lost time! To succeed, the education team needs, as we have already said, profound knowledge about: specific characteristics of disease and therapy, the education process with precise objectives, behaviour and motivation of the diabetic patients and their own restrictions as professionals [4].

### Discussion

We have tried to describe the different elements necessary for good diabetic educational programmes. A lot of similarities can be found with education programmes for asthma and COPD-patients. These are also chronic diseases with typical psychological sequelae. Some identical objectives of education can be found such as diet control to avoid additives, specific treatment in asymptomatic periods, breathing exercises and provision of self-monitoring (peak flow

meter). Motivation for routine check-ups is also necessary.

As always, an enthusiastic team is a must to receive good compliance. Just like in diabetes, bad compliance can be based on moments of absence of clinical signs. Indeed, diabetologists and chest physicians can learn from each other.

I would like to conclude with the words of a Belgian diabetologist who gives some advice to young colleagues: "Listen to your patient. The key of problems is more often found by talking than in lab tests" (Jean Pirart).

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## Compliance: stimulating patient cooperation

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It is a truism that the degree to which patients adhere to medical advice is worryingly low. In patients with respiratory illness, non-compliance with medication can have quite disastrous consequences. Kinsman and colleagues, for example, have shown that hospitalization and rehospitalization in patients with asthma are co-determined by inadequate illness behaviour, where erratic use of medication was a major cause of poor medical outcome [1]. Other researchers have demonstrated that in patients with asthma, rates of compliance vary between 11% and 60% [2, 3]. A starting point of this paper, therefore, is that compliance with medication in patients with respiratory illness is low and leads to negative effects. I will try and give a concise overview of theoretical models of compliance, and suggest ways by which the physician, in cooperation with the patient, can help improve compliance.

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### Theoretical models

The impressive theoretical and empirical work that has been done on compliance in the last three decades can be conceptualised in five approaches [4, 5].

*The biomedical approach.* In this approach, which dominated research in the fifties, compliance was viewed as a disposition (a stable personality characteristic) of the patient. Age, sex, occupation, socio-economic status were studied as potential determinants of non-compliance. Next, characteristics of the medical regimen, with an emphasis on aspects of the structure of the treatment (e.g. waiting time, duration, complexity, costs) were added to the research models. However, low correlations were observed. Interventions that aimed at improving compliance (for instance *via* written reminders) resulted in marginal improvements [6]. Psychological and social determinants of compliance were not yet included in the research models.



*The behaviouristic approach.* In the sixties, learning theories dominated psychological research. Rewarding desired behaviour and punishing undesirable behaviour formed the essence of this approach. In the field of compliance, pill-boxes with a sound signal that reminded a person to take a tablet, techniques from the token economy approach and social learning principles were applied. Again, the effects of these applications on degree of compliance were not very substantial.

*Patient-physician communication approach.* LEY is the researcher who developed the theory that compliance is the product of ideal communication between the provider of care and the patient [7]. Many studies demonstrated that patients did not remember the information that was given to them by health professionals. Improving communication skills of physicians did not result in substantial improvements of compliance [8]. It appeared that in this approach inadequate attention was given to motivational factors in the patient, and the degree in which the social environment of the patient (partner, family members, colleagues) was supportive in maintaining compliance.

*The cognitive approach.* Whether physicians or psychologists like it or not, patients often have thoughts, ideas and perceptions - cognitions, in short - of an illness, its causes, remedies and ways to cope with an illness, including compliance, that are widely different from the 'true or official' views on an illness. These cognitions are the driving forces behind visiting a physician, perceiving bodily symptoms, and dealing with an illness and its treatment. The so-called Health Belief Model incorporated these cognitions in trying to predict and improve compliance. The model was somewhat successful (e.g. [9]). Again, however, the model only explained some of the variance in compliance.

*Self-management approach.* In recent years, a substantial number of studies have demonstrated that in patients with a chronic illness, the sharing of the responsibilities for the treatment of an illness between health professional and patient leads to more adequate illness behaviour and thereby to a better medical outcome [10]. In psoriasis, diabetes, asthma and COPD, self-management training was shown to result in reductions in skin lesions, hospital admissions, days lost from school and feelings of depression (e.g. [11-13]). Compliance almost always is a topic in self-management training. It seems fair to conclude that the self-management approach offers the best results in helping patients cope with a chronic illness [14].

In their book 'Facilitating treatment adherence', MEICHENBAUM and TURK [14] stress the importance of trying to achieve a good cooperation between health professionals and patients ('therapeutic alliance'). Replacing the word 'compliance' (with its authoritarian undertones) by 'adherence' reflects this approach. Further empirical work is needed to study which characteristics of health professionals, patients, illnesses and treatments exactly determine compliance and how compliance or adherence can be improved.

### Determinants of compliance

In a review, GRIFFITH [15] summarises factors that are associated, to a certain extent, with compliance. Her results in a nut shell:

1. Demographic factors: age, sex, race, socio-economic status are not associated with compliance,
2. Type of illness: hardly any association.
3. Psychological factors: high anxiety reduces compliance; perceived vulnerability and effectiveness are associated with compliance.
4. Setting: patients in general practice do worse than those in a clinical setting.
5. Treatment regimen: the simpler the better, the shorter the better.
6. Doctor-patient relationship: a physician who is perceived as being friendly and supportive elicits high levels of compliance in his patients.

### Improving compliance

A recent analysis [15] reviews the steps that may help in improving compliance. These steps contain elements from the five theoretical approaches that have been described here before, and the factors that were presented by Griffith. The nine steps, formulated by Carr [16], are summed up here:

1. Develop an appointment system which ensures minimum patient waiting time.
2. Adopt a friendly and informal conversational style which encourages patients to provide information.
3. Assess patients' beliefs about the aetiology of their complaints and their expectations concerning treatment.
4. Clarify how much information patients would like about their condition.
5. Offer an explanation of the patient's condition and the rationale for treatment.
6. Present the treatment regimen and the rationale upon which it is based in language that patients can understand and which allows them to remember what has been said.
7. Help the patient appreciate the costs and benefits of compliance and non-compliance, enlist the aid of the patient's family or friends in helping the patient comply with medical advice.
8. Review compliance at each follow-up consultation.

Of course, these steps represent a rather idealistic situation. Anybody who has ever been prescribed a ten-day course of antibiotics knows perfectly well how hard it is to exhibit perfect compliance. Perfect compliance probably is an unattainable goal. Improving compliance to acceptable levels, however, does seem a realistic goal.

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## Consequences of poor compliance in chronic respiratory diseases

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Undoubtedly, patient compliance to treatment is a very important issue in the management of chronic respiratory diseases. Reviewing the literature, we found that the majority of studies are dealing with the magnitude of the problem of poor-compliance, with methods trying to identify the non-compliant patient and with ways to enhance compliance. Very few studies are directly addressing the issue of consequences of poor compliance. It is obvious that, regarding the complexity of the problem, it is difficult to estimate the kind and the significance of consequences of poor compliance.

First, we have to identify with accuracy the non-compliant patient (a topic that has been discussed by others during this symposium) and secondly to apply scientific methods to relate poor compliance to potential consequences. Thus, it was not apparent that a number of reported consequences were, with sufficient evidence, the result of poor compliance.

However, in this short report, we are going to review reported consequences of poor compliance in tuberculosis, in chronic bronchial asthma and in patients with chronic obstructive pulmonary diseases (COPD).

### Consequences of poor compliance in tuberculosis

It is well known that even the short-courses of treatment in tuberculosis are long enough to affect patient's compliance. A variety of consequences have been reported to be due to poor compliance with prescribed

treatment for tuberculosis and these could affect either the patients or public health. In table 1 the common consequences to poor-compliance concerning both patient's and public's health problems are shown. It was reported that poor compliance leads to treatment failure with relapses, additional treatment and increased resistance of mycobacteria to antituberculous drugs [1]. In a well designed study COMBS *et al.* [2] showed that the rate of failure to convert to negative sputum by the 16th week of treatment, was 15-20% for the non-compliant patients and only 1-6% for the compliant group of patients. This report is in agreement with other studies reporting increased transmission and morbidity of the disease, especially when it was related to alcoholism. Drug toxicity due to overdose has been attributed to poor-compliance; furthermore there have been reports of increased mortality of the disease [3]. It is worth mentioning that poor compliance was reported in patients on preventive therapy with isoniazid but no study was found on its relationship to mycobacterial resistance to the drug [4].

Table 1. - Consequences of poor compliance in tuberculosis

Patient's health	Public health
1. Treatment failure	1. Failure to eliminate the disease
2. Replace	2. Additional expenses (Public)
3. Additional treatment	3. Increased drug resistance
4. Additional expenses	4. Additional hospital treatment
5. Drug toxicity	5. Prolonged communicability
6. Drug resistance	6. Effects on high risk populations (AIDS)

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