

CHAPTER 6

6.0. STRATEGIES TO COMBAT NON-COMPLIANCE

A meta-analysis was done by Roter, Hall, Merisca, Nordstrom, Cretin and Svarstad (1998) summarizing the results of 153 studies published between 1977 and 1994 that evaluated the effectiveness of interventions to improve patient compliance with medical regimens. No single strategy or programmatic focus showed any clear advantage compared with any other. However comprehensive interventions combining cognitive, behavioral, and affective components were more effective than single-focus interventions.

A previous systematic review of 1,553 relevant citations and abstracts of treatment outcomes was updated by Haynes, McKibbin and Kanani (1996). The interventions that were effective for long-term care were complex, including various combinations of more convenient care, information, counseling, reminders, self-monitoring, reinforcement, family therapy, and other forms of additional supervision or attention. Haynes et.al.(1996) concluded that even the most effective interventions did not lead to substantial improvements in adherence. They commented that although adherence and treatment outcomes could be improved by certain usually complex interventions, full benefits of medications cannot be realised at currently achievable levels of adherence. They suggested that it is time that additional efforts be directed towards developing and testing innovative approaches to assist patients to follow treatment prescriptions, and it is one of the purposes of this study to work out a meaningful and effective intervention model.

Awad (2004) stresses the urgent need for the development of creative strategies that are practical, less complex, not resource-intensive and which can be integrated into treatment approaches in various clinical settings, to enhance adherence.

6.1 The Urgent Need for Effective Interventions

A new and compelling urgency is emerging in the requests for intervention to combat non-compliance especially with HIV/AIDS, where the most recent medical treatments require almost perfect adherence levels.

Stone (2001) points out that successful treatment of human immunodeficiency virus infection/acquired immunodeficiency syndrome (HIV/AIDS) with highly active antiretroviral therapy (HAART) require that patients maintain nearly perfect adherence to the prescribed regimen. It is stated that sub-optimal adherence to antiretroviral therapy is clearly the most common cause of virologic failure of HAART regimens. Given the critical role of adherence in successful antiretroviral therapy, it is essential that providers of care for patients with HIV infection have a strategy that proactively assists and supports their patients' efforts to adhere to medication regimens (Stone, 2001). Brigido, Rodrigues, Casseb, Oliveira, Rossetti, Menezes and Duarte (2001) state that mechanisms to improve adherence should be considered an integral part of antiretroviral therapy. Similar statements are given by Spire, Duran, Souville, Leport, Raffi and Moatti (2002) and Cummins, Trotter and Millar (2003).

The need for urgency is also stressed by Reynolds (2003) who notes that few research findings

are reported of interventions that effectively promote adherence and improve health outcomes in HIV/AIDS and that maximizing adherence and achieving the full potential of the antiretroviral therapies demand multidimensional initiatives that address complex behavioural and biomedical issues. "It has become increasingly clear that HIV medication adherence is exceeding complex and effective interventions to improve adherence can be developed only to the extent that we understand mechanisms underlying behaviour..." (Reynolds, 2003, p.121). Reynolds (2003) proposes a model drawn from self-regulation theory and empirical data to explain antiretroviral medication adherence. Walsh and Sherr (2002) cite a range of initiatives that have been deployed in the USA in response to the urgent need to attempt to prevent treatment failure. These have included the use of 'facilitators ' (who keep in regular contact with patients to ensure understanding of the regimen, aid integration of the regimen into daily life, aid communication with clinic staff and guide patients in designing solutions to scenarios where adherence problems may arise), health care workers to fill dosette boxes and trouble shoot adherence problems and community based counseling services.

6.2 Acute vs. Long Term Compliance

The effectiveness of interventions may decay over time, and Melnikow and Kiefe (1994) feel that differences in effectiveness in acute versus long-term settings are worthy of receiving further attention. Haynes (1979) gives suggestions of strategies to improve compliance with referrals and appointments and he, too, distinguishes between long term and short term programs: For short-term medical regimens, he suggests that high compliance can be achieved by providing explicit verbal and written instructions with the medication.

Alternatives (more complicated or less available but at least effective) include special pill packages and calendars to inform and to remind patients, and extended-role nurses to supervise care and instruct patients. Haynes (1979) sees compliance with long-term medical regimens as more difficult to achieve, and suggests improvements that can be attained by a variety of methods. Depending on the clinical situation and therapy, the most efficient and effective of these are the monitoring of drug levels and the use of parenteral long-acting medications. A somewhat expensive way to improve compliance is to increase supervision, such as by increasing the frequency of appointments, providing home visits, or, if all else fails and the disorder warrants, hospitalizing the patient for a brief period. Haynes (1979) feels that certain behaviour modifications can be used such as setting explicit goals for patients to achieve and rewarding each improvement by encouragement and praise by which compliance can be substantially improved. Also, tailoring the treatment to the patient's daily behaviours may also help to cue compliance. Finally, he suggests that instructing therapists in the nature of the compliance problem and providing them with simple strategies for the detection and improvement of compliance may permit them to deal with the problem in their usual clinical settings, obviating the need for a compliance expert-yet another member of the already crowded medical care team.

6.3 Individualized Intervention

Di Matteo and Di Nicola (1982) note that many patients seem to look back with longing to the family physician of years ago. He feels that the lure of the old-time physician is probably related to people's yearning for care as individuals and not as mere medical cases. In earlier

times, physicians knew their patients well, having had a long acquaintance with them and their families. Typically, a doctor lived and practiced in one town or county all his life, and his patients and their families were likewise geographically stable. These doctors could place the potential effect of a particular regimen in the context of the patient's family life, how it would fit in with their patient's beliefs, resources, and hopes for the future. Regimens and treatments were chosen after consideration of the issues relevant to each patient as an individual.

Safran, Taira, Rogers, Kosinski, Ware and Tarlov (1998) found that physicians' comprehensive (seeing the person as a whole) knowledge of patients and patients' trust in their physician were the variables most strongly associated with adherence, and trust was the variable most strongly associated with patients' satisfaction with their physician.

However, the practice of medicine has changed over the years in many ways and patients are attending a whole host of doctors specializing in various conditions, but the patient still needs interventions that are geared to themselves as individuals, taking into account their unique problems, beliefs and ways of life. In this way, the patient has not changed. It is essential that the health profession work out how to recreate this sense of personal interest to be incorporated in a modern day setting (Di Matteo and Di Nicola ,1982).

A large body of research is being built up in the field of combating non-compliance, and researchers and workers in this field are discovering that besides the personal touch of the doctor, successful interventions need to be individualized to suit the particular patient (Hussey, 1994; Kelly, 1995; Kern, Penick and Hamby, 1996). Deenen and Klip (1993) found

that, on investigation into the relation between coping and disease, it was important that one should not only focus on the disease and the treatment, but particularly on the relation between the patient, his immediate environment and society.

Rudd (1995) notes that a growing body of literature offers empirical support for focused and personalized interventions. The patient's perspective (Morris and Schulz, 1992) and psychological characteristics (Holloway, Rogers and Gershenhorn, 1992) should be examined. Clarence (1992) states that a sensitive understanding of patients' individual difficulties by health care staff is an essential precursor to successful compliance behaviour with prescribed drug regimens.

Knobel, Carmona, Lopez, Gimeno, Saballs, Gonzalez, Guelar and Diez (1999) found individual advice and assessment to be successful in promoting adherence to very active antiretroviral treatment, as did Sorensen, Mascovich, Wall, De Philippis, Batki, Chesney (1998). There is an increased emphasis on treating the patient, not just the number (Alexander 1998).

Successfully dealing with hypertension requires a behaviour change process which demands serious learning efforts from all parties involved, patients, health practitioners and health care administrators alike (Grueninger, 1995). Feldman et. al., (1998) found that measurable improvements in adherence to pharmacologic therapy in hypertension could be obtained from simplified medication regimens and a combination of behaviour strategies, including the tailoring of pill-taking to patients' daily habits and rituals, the advocacy of self-monitoring of

pills and blood pressure, and the institution of reward systems. With such an extensive armamentarium available, all patients, regardless of coexisting medical conditions, should be able to be given effective, individualized antihypertensive therapy (Bittar, 1995).

Charlton (1993) developed the Cardiac Rehabilitation Compliance Assessment (CRCA) tool to facilitate compliance among cardiac rehabilitation patients with their exercise and medical regimen. Individualized motivational care plans can then be formulated based on the CRCA assessment data as to the risk of non-compliance. Jensen and Lorig (1994) suggest that the cooperation with an exercise regimen is mediated by the patient's belief system and requires a therapeutic process of mutual inquiry, problem solving, and negotiation between the therapist and patient.

A very insightful program was put forward by Randolph and Fraser (1999) for compliance with asthma treatment in adolescence: They felt that by understanding adolescent development, behaviour and peer group impact, with its spectrum from early to late adolescence, clinicians could target their educational interventions more successfully in asthma. Medications should be prescribed no more than twice a day, whenever possible, in conjunction with an action plan on the basis of peak flow readings to warn the adolescent when to use more medication and when to call the clinician. The plan should empower adolescents by recognizing their need for autonomy with self-management, enabling them to have a safe and comfortable lifestyle, and being physically and mentally at ease with their peers, family, school, and work environments. They are here making a key point. Management plans need to take cognizance of the developmental level, with the need for responsibility and

autonomy, also ultimately socioeconomic level, cultural and religious differences.

An interesting model of self-regulatory development was tested by Zimmerman et. al. (1999), in which families' cognitive beliefs and behavioral skills for managing asthma symptoms emerge in four successive phases: asthma symptom avoidance, asthma acceptance, asthma compliance, and asthma self-regulation. The phase model of asthma self-regulatory development offers a qualitative approach for investigating the psychological determinants of asthma self-regulatory behaviour.

Workers in the field of diabetes have for many years been aware of the need for individualised intervention: Kamiya et.al. (1995) did a clinical survey on the compliance of exercise therapy for diabetic outpatients. Their findings indicated that the patients should be motivated adequately when they are diagnosed as having diabetes and subsequently encouraged to reinforce their intentions by the physician and co-medical staff. Furthermore, they showed that specific approaches suitable for each individual patient and not standardized guidelines should be devised. Schlundt et.al. (1994) discuss situational obstacles to adherence for adolescents with diabetes. They suggest that dietary intervention then can be personalized to address specific situational obstacles. Golay, Nicolet, Lacroix and Assal (1993), noting the fact that the compliance of diabetic patients is very poor, feels that in addition to the knowledge of the various stages of acceptance of the disease, it is necessary to learn more about the patient's personality. In their article, four different personality types are proposed, in order to have the correct choice of therapy, corresponding to the personality. The key to success is to realize that every person with diabetes has individual needs and that these must

be assessed, addressed, and accommodated (Bashoff and Beaser, 1995). An understanding of patients' attitudes can help diabetes educators and patients develop realistic and relevant self-care plans (Anderson et. al., 1993).

Tuberculosis is another condition where workers are finding that both individual and cultural factors are important. Pozsik (1993) felt that if the patient was made to feel that the provider cared for him/her as a person, a meaningful relationship could develop and could have a positive influence on the patient's behaviour in taking medications and perhaps even in the direction of his/her life. Various factors need to be taken into account such as social stigmatization and the patient with tuberculosis feeling 'less respected' by others (Johansson et.al., 1996), and cultural factors (Rideout and Menzies 1994). Rubel and Garro (1992) feel that socio-cultural factors have not been adequately explored. They talk about the health culture of the patients, the understanding and information people have from family, friends, and neighbours as to the nature of a health problem, its cause, and its implications. They recommend an intensive study of these factors using them as a critical tool in combating non-compliance. This would be of importance in oncology.

Blinkhorn (1993) discusses factors affecting the compliance of patients with preventive dental regimens. He suggests two key influences on the patient, the 'macro environment' whereby behaviour is shaped by the norms on lifestyle which exist in a patient's social environment, and the 'micro environment' in the dental office. All too often patient education is unplanned, haphazard, not relevant to a particular patient and difficult to understand.

de Weerd, Kamphuisen, Schimsheimer and Komp (1998) look at the continued driving habits of patients diagnosed with excessive daytime sleepiness (EDS). Patients with EDS often participate as drivers in modern traffic. Legal guidelines and advice given by physicians have only minor influence on this behaviour. As general measures seem to be ineffective, approaches tailored to the individual patient may lead to more acceptable results. However they feel that this involves a major curtailment of independence and social acceptance might not be well received.

A interesting study was done by Nielsen , Nielsen and Wraae (1998) who worked with alcohol dependant patients in outpatient treatment. They found that correct matching of a patient and a treatment structure resulted in a compliance rate of 63% as opposed to 38% compliance among mismatched or haphazardly matched patients.

Carmen, Luciano and Herruzo (1992) analyzed adherence to medical or psychological prescriptions as a type of rule and self-rule following behaviour. They suggest that some of the variables that increase the likelihood of compliance are understanding the complexity of the prescription, and compatibility between daily activities and the behaviours described in the prescription: response cost and self-control behaviour when several behaviours are possible and probable.

6.4 Assessment of Beliefs

Di Matteo and Di Nicola (1982) suggest that the health worker consider the patient who has

made a personal commitment to seriously undertake a medical regimen. They stress that despite this commitment, his/her co-operation is likely to be pre-empted if the regimen is hotly opposed by his/her social group or culture, as has been mentioned previously. To label the patient who passes up a socially or culturally condemned regimen is irresponsible about his/her health most certainly represents insensitivity to the patient as a person and undermines the goal of helping the patient to internalize the health regimen. The family is central to compliance and health behaviour, as is the intimate social context of each patient. This has profound implications for South Africa where, in a major section of the population, the traditional healer has at least as much if not more influence on the patient's health beliefs and practices.

Di Matteo and Di Nicola (1982) recommend that health professionals need to develop openness to each patient's own 'explanatory model' of illness. Practitioners must question and explore with each patient the various aspects of his or her conception of illness because it is likely that this conception will be both different from that of the practitioner and influenced by the patient's ethnic identity. Patients often hesitate to disclose their models to doctors. Clinicians need to be persistent in order to show patients that their ideas are of genuine interest and importance for clinical management. Then comes the difficult task of changing beliefs, where the health professional would thoroughly discuss the new beliefs with the patient so that they would become integrated into the patient's total system of beliefs. They bring out another factor that despite their stated intentions, patients, often experience considerable difficulty carrying out specific health-related behaviours largely because of the powerful force of habit which requires, often, a great deal of hard work to change. Di Matteo

and Di Nicola (1982) note that unfortunately, in today's world, with the pressure of patient numbers, there is little time to do this.

Haisch (1995) discusses attribution-changing measures in psychotherapy and medicine. The treatment of eating disorders, diabetes, smoking and hypokinesia is closely related to patients' attributions. Non-supporting attributions frequently excuse patients' lack of motivation to change risk behaviours and sometimes, they even undermine the patients' power to control their behaviour. Critical experiences leading to patients' non-supporting attributions are reconstructed on the basis of Kelley's (1967) attribution theory i.e. the study of the processes by which people ascribe motives to their own and others' behaviour. After defining supporting attributions for various diseases and health risks the critical information resulting in these attributions is defined. Corresponding changes in patients' attribution will reduce patients' non-compliance and support success in therapy.

Wooldridge, Wallston, Graber, Brown and Davidson (1992) conducted a very significant study, the purpose of which was to determine whether health beliefs in persons with diabetes could be modified during a clinical education program and whether the health beliefs were related to adherence to self-care instructions and metabolic control of diabetes. They found that following these health behaviours improved significantly in a subgroup of patients, but that it was not clear if simple education could in fact modify health behaviours permanently in an illness which is chronic, without paying attention to underlying psychological factors and needs, and the improvement could have been simply an increase in individualised attention.

6.4.1 The Health Belief Model and Locus of Control

According to the health belief model designed by Becker (1974), a patient will comply when he believes that the diagnosis is correct, the illness can result in serious harm or injury, or the recommended therapy reduces risk. In other words, the vulnerability to disease is recognised by the patient who knowledgeably weighs the cost of complying (i.e. financial cost, time, discomfort, inconvenience, and so on) against the potential cost of risk taking (Anderson and Kirk, 1982). The Health Belief Model (Rosenstock, 1966; Becker, 1974) hypothesizes that people seek and comply with health-care regimens (preventive regimens, such as health screening, or rehabilitative regimens such as treatment for a diagnosed disease) only under certain specific conditions. They must possess some minimal level of health knowledge and motivation toward health. They must also believe that they are vulnerable to a threatening illness condition (Di Matteo and Di Nicola 1982). An important component of the Health Belief Model involves the individual's belief in the efficacy of health-oriented actions. The success of a program of preventive health behaviour, and the achievement of compliance with a treatment regimen depend, to a significant degree, on the target individual's belief that his or her state of health is within the realm of control (be it the individual's control, or that of the practitioner). Hawe, McKenzie and Scurry (1998) reworded postal reminder cards according to the "health belief model", finding a modest but important improvement in measles vaccination rates.

The belief in a certain degree of correlation between one's behaviour and its outcomes is the basis of the notion of locus of control, derived from the social-learning theory (Rotter, 1954).

Rotter's theory states that a person's potential for enacting a specific behaviour. For example, his intention to take medication is jointly affected by his expectancy that the behaviour will lead to a particular outcome e.g. that will control hypertension and prevent stroke, and the value of that outcome. The value of an outcome such as controlling hypertension and preventing stroke is likely to be at least partially dependent upon the person's belief in the severity of the disease and his own susceptibility to it (Becker 1979). The value is also dependent upon the person's motivation toward and concern for health, as well as on his/her belief in the degree to which benefits of the health behaviour, for example, peace of mind; outweigh the costs (e.g. remembering to take the medication). As Becker (1979) noted, however, one aspect of perceived benefits does involve a belief in the efficacy of treatment and as one sees with some of the literature on Alternative Medicine to which the patient is exposed, for example on the Internet and in contact with traditional healers (or even the neighbours) treatment prescribed is often grossly maligned (Di Matteo and Di Nicola 1982).

"Locus of control is a complex psychological construct that has been well studied both generally and as it relates to health specifically. The concept is important because in order to understand fully the importance of beliefs in the efficacy of care, we must first examine the notion of generalised expectancy. This involves the expectation that reinforcement is under one's own individual control, i.e. internal locus of control, or, in contrast, the expectation that reinforcement is under the control of outside forces such as fate, chance, or powerful others, i.e. external locus of control. If an individual's locus of control is considered along with his or her health values and is combined with social-normative factors, it is likely to result in an accurate prediction of behavioural intentions." (Di Matteo and Di Nicola, 1982, p.140).

Di Matteo and Di Nicola (1982), also give over the concept, gleaned from research, that belief in an internal health locus of control may require interventions for health behaviour change that involves self direction, while those with a 'powerful others' locus of control may require emphasis in decision making by health professionals. They note that obviously those who believe that health is merely a matter of chance might fail to comply with any approach.

Just as practitioners' positive expectations about their patients' capacity to change attitudes, beliefs, and behaviour may be communicated to patients and thus serve to enhance the capabilities, Di Matteo and Di Nicola, (1982), note, so too might practitioners' pessimism about patients' abilities to change be translated into barriers to patient compliance.

6.5 Education

Despite any personality or psychological or social factors, there is no question that in all medical conditions, improved patient education results in improved compliance. Elliott (1994) found that factors that improved compliance included culturally sensitive patient education.

Bone (1996) reports this in all phases of treatment for asthma, and Hoy, Vennelle, Kingshott, Engleman and Douglas (1999) with continuous positive airway pressure use in patients with the sleep apnoea/hypopnoea syndrome.

Lopez Siguero, Martinez Aedo, Lopez Moreno and Martinez Valverde, (1995) found a clear

relationship between the knowledge and understanding a child has of the treatment and the degree of compliance and acceptance in the treatment with growth hormone. Racelis, Lombardo and Verdin (1998) working with peripheral arterial disease found that standardized teaching improved diet scores. Goodyer, Miskelly and Milligan (1995) found that improved compliance due to intensive medication counseling had a small but measurable beneficial effect on objective measures of heart failure.

Butler et.al. (1999) found that hypertension control rates improved when physicians increased their emphasis on patient education. Schaub, Steiner and Vetter, (1993) found that additional blood pressure self-measurement and profound instruction were essential to optimize hypertension management in terms of compliance to treatment. In fact, Devine and Reifschneider (1995) did a meta-analysis of 102 studies to determine the effects of psycho-educational care on blood pressure. Statistically significant large treatment effects were obtained on knowledge, medication compliance, and compliance with health care appointments.

Adamolekun, Mielke and Ball (1999) evaluated the impact of health worker and patient education on the care and compliance of patients with epilepsy in Zimbabwe. They concluded that the benefits of these simple and inexpensive interventions make a strong case for their widespread implementation for improved epilepsy care not only in Zimbabwe, but also in other developing countries. Opdycke, Ascione, Shimp and Rosen (1992) found that the elderly patients who had complex medical treatment were overwhelmingly positive about the education session they had had with pharmacists and saw this as a valuable tool in

compliance.

Kelley (1979) suggests that the media may have an important influence on what people think and do and that it further follows that this influence can be harnessed in the interest of improving public health? What is needed is for the patient to internalize a program.

Arguments should be presented that fit the person's belief system and norms." (Merrill, 1994; Green, 1979)

The National Tuberculosis Research Programme in South Africa developed a health education booklet to enhance adherence to tuberculosis treatment (Dick, Van der Walt, Hoogendoorn, Tobias, 1996). Information obtained from the qualitative research process was used to develop a photo-novel which can be used to supplement the education given to newly diagnosed tuberculosis patients. Delp and Jones (1996) found cartoon illustrations to be an effective strategy for conveying information which may improve patient compliance.

Mahler and Kulik (1998) did an interesting study on the effects of preparatory videotapes on self-efficacy beliefs and recovery from coronary bypass surgery. Lopez Siguero et.al. (1995) mention an educational camp, with children receiving growth hormone treatment, where the children were given lectures and discussions at the same time as they had a very enjoyable time. The peer group is extremely important and a camp like this does a lot to encourage compliance. Denis (1998) reports on a partially successful health education intervention for malaria in Cambodian villages using posters and videos.

McDermott (1995) gives guidelines on patient education and compliance issues associated with access devices. Patients have the inherent right to be informed about all available options, significant risks and treatment options. He states that nurses must be aware of factors that can affect learning, such as the patient's age, physical and emotional status, educational level, and current stress level.

In a study by Williford and Johnson (1995) it is suggested that additional pharmacist counselling would likely prove beneficial to acute care patients discharged on multiple medications.

The aspect of having a family member present in the educational session is extremely important, as found by Serrano-Ikkos, Lask, Whitehead and Eisler (1998) who found a need for more intensive psycho educational family counselling in the 12 months after paediatric heart and heart-lung transplantation. Similar findings were reported by Azrin and Teichner (1998) who evaluated an instructional program for improving medication compliance for chronically mentally ill outpatients. The results showed that adherence increased to about 94% after the guidelines were given for both the individual and family guideline procedure, whereas adherence remained unchanged at 73% after the medication information procedure. McDermott (1995) also substantiates this.

Patient education has often consisted of a one-way communication of provider to patient. Wilson (1995) advocates a multifaceted approach to compliance issues in which patients and health care providers set mutually agreed upon treatment goals. These goals must be

consistent with patients' priorities and lifestyles. For instance, Halm et.al. (1999) felt that continued education was essential in teaching women the importance of cardiac rehabilitation to overall recovery and adaptation to an acute cardiac event. In addition, they felt that cardiac rehabilitation programmes should be structured to meet the unique needs of women, thereby removing obstacles that have prevented higher participation rates by women in the past.

There is also the need for more individualised teaching, taking into account the particular needs and beliefs of the individual. For example, Gupta et.al. (1998) discuss a patient education programme in bronchial asthma in India, using the questions: why, how, what and where to communicate? They suggested that various aspects of this programme should be discussed during each visit. They also indicate that the presence of superstition, misconceptions, ignorance and strong bias against the use of metered-dose inhalers should be removed during the Patient Education Programme. This would obviously be useful in other medical conditions. Edwards (1995) points out that many elderly people have difficulty in taking their drugs correctly after discharge home from hospital. Individualised teaching can improve their compliance and quality of life.

It is important to take into account the particular needs of patients. Taal et.al. (1993) worked with patients with rheumatoid arthritis. Their conclusion was that to improve the self-management of disability and pain as well as adherence to health recommendations. Patient education should be aimed at strengthening self-efficacy expectations in which social and emotional support might be a motivating factor.

Litchfield and Ramkissoon (1996) studied foot-care education in patients with diabetes who are at risk. They point out that patient education needs to be continued long after diagnosis and initial education. The risk of complacency must be recognised, especially when there is a high rate of co-existing conditions. Complacency is perhaps one of the greatest dangers in handling a chronic disease.

Sanmarti, Megias, Gomez, Soler, Alcala, Puigbo and Majem (1993) evaluated the efficacy of health education on the compliance with anti-tuberculosis chemoprophylaxis in school children, finding the best results where the education was performed by nursing personnel at the patient's home, followed by that performed by the same health professionals by telephone.

A particularly South African intervention for all medical conditions is the Phelophepa Train which travels to various , medically isolated parts of the country, educating and treating patients. This has various health professionals on board and makes health care accessible to rural populations who have restricted access to medical resources (Florkow 2004).

6.5.1 Assess limitations of patients

Fitten, Coleman, Siembieda and Ganzell (1995) suggests that an older medical patient's cognitive and functional capacity to comply with medication regimens of differing complexity could be specifically assessed before the start of the regimen and probably should be assessed in patients whose compliance capacity is in question.

6.6 Strengthening the belief in control or cure

To many, certain illnesses mean death, and no matter what others say, the person feels he is slowly, or more rapidly dying. In a study such as the present one it is essential to challenge this belief in the patient with a good prognosis.

Salomon, Perlman, Friedmann, Perkins, Ziluck, Jarlais and Paone (1999) found that those who knew that HIV-related Tuberculosis was curable were more likely to return for follow up visits. Too often a person with HIV or cancer 'gives up' on treatment for other illnesses.

Kihlstrom (1998) talks about "disease management" (DM), an emerging trend within managed care. Central to DM programmes is the idea that particular diseases, especially chronic illnesses (including depression), can be managed. Johnson et.al. (1994) in discussing compliance with pressure garment use in burn rehabilitation found that the primary strategies patients believed would enhance compliance were seeing outcome pictures of scars and having contact with other survivors. To know and believe that there is 'life after illness' is often a vital part of recovery.

6.7 Quality of Life

It is essential that clinicians implement pharmacologic therapy that balances biophysiologic needs with quality-of-life considerations to achieve the most successful and viable patient outcomes. (Williams, 1998)

6.8 Practical Ways of Improving Compliance

As has been seen in the chapter on reasons for non-compliance, there are many very practical reasons which makes compliance difficult. These have been addressed by researchers with rewarding results.

Finnerty et. al. (1973) improved patient access, decreased waiting periods, and provided continuity and comprehensiveness, and thereby notably improved compliance for appointment keeping from 50% to 84% in an inner-city, black population of patients with hypertension. Similar very practical efforts were used by Wilson, Hale and Temple (1993) to improve compliance in a private periodontal practice included attempts at simplifying compliance, maintaining records of compliance, informing patients of the consequences of non-compliance, and attempting to identify non-compliers before active periodontal therapy was initiated. Fallab-Stubi, Zellweger, Sauty, Uldry, Iorillo and Burnier (1998) found electronic monitoring to be a useful approach for monitoring and improving compliance with preventive chemotherapy for tuberculosis, while Kimerling and Petri's (1995) results support tracing as an effective means to improve patient adherence in rural Cambodia, thereby strengthening tuberculosis control programs at district level. Onieva, Morales and Heras (1993) found that the prescription form can be a good way of improving the efficacy of staff intervention.

Reuben, Frank, Hirsch, McGuigan and Maly (1999) found that a single outpatient comprehensive geriatric assessment coupled with an adherence intervention could prevent functional and health-related quality-of-life decline among community-dwelling older persons

who have specific geriatric conditions. Dick et. al. (1996) worked with a volunteer health worker programme to enhance adherence to anti-tuberculosis treatment. Tinkelman et. al. (1995) did a study which suggested that to ensure better compliance with an allergen immunotherapy regime, individuals should either be encouraged to receive their injections at the allergist's office, or better communications should be established between the referring allergist and the non-allergy physicians who are administering the injections. Perhaps the most practical suggestion is given by Sugarman et. al. (1993) who suggests that interventions to increase the proportion of Navajo Indians with diabetic retinopathy who receive appropriate ophthalmologic care must address the issue of transportation.

6.8.1 Interactive and non-interactive interventions

Velicer, Prochaska, Fava, Laforge and Rossi (1999) studied interactive versus non-interactive interventions. The interactive intervention for smoking cessation was stage-matched expert-system reports plus manuals (involving facilitators directly); the non-interactive intervention was stage-matched manuals. The expert system outperformed the stage-matched manuals without facilitators.

To enhance compliance to physician referral as well as dietary and other lifestyle recommendations given at blood cholesterol screening programs, Gans, Lapane, Lasater and Carleton (1994) placed patients with elevated blood cholesterol levels into one of four groups, with various levels of interactive and non-interactive interventions. However, despite a great

deal of work on the many interventions, not much difference was made to compliance levels, a disappointing result on all levels.

6.8.2 Monitoring and supervision

Follow up is extremely important in certain medical conditions and where there is a chronic or long term condition monitoring supervision, is often essential.

Ouimette, Moos and Finney (1998) studied the influence of outpatient treatment and 12-step group involvement on one-year substance abuse treatment outcomes. They found that patients who did not obtain aftercare had the poorest outcomes. Agius, Reid and Hamilton (1994) found that even with short-term topical oral antibiotic therapy, compliance was significantly increased when someone other than the patient administered the preparation. Adherence, as measured by empty vial counts, was positively reinforced by careful monitoring and behavioral reward system in patients with thalassaemia (Koch, Giardina, Ryan, MacQueen and Hilgartner, 1993).

Meyers, Thomson and Weiland (1996), in their study of non-compliance in children and adolescents after renal transplantation, found that patients and their families required ongoing education, support, medication evaluation, and compliance surveillance. They stated that patients at high risk of non-compliance required directed additional intervention. Waeber, Vetter, Darioli, Keller and Brunner (1999) found that discussing with the patient about compliance with the prescribed drug regimen and monitoring compliance for a few months

allows better control of blood pressure.

6.8.3 Directly Observed Therapy (DOT) and Tuberculosis

Jin, Kim, Mori and Shimao (1993) of the Korean Institute of Tuberculosis reported on a study of the impact of intensified supervisory activities on tuberculosis treatment. They found the study results to indicate clearly the importance of motivating personnel in the field to attain better case management.

Similarly, el-Sadr, Medard and Barthaud (1996) reported on a directly observed therapy program, established at Harlem Hospital, New York, to promote high tuberculosis treatment completion rates. High rates of treatment completion and visit adherence were achieved because of the unique program characteristics. This directly observed therapy (DOT) was advocated as a means of ensuring treatment completion and was becoming widely used. In that same year Kohn, Arden, Vasilakis and Shenker (1996) reported on their findings that in a school-based tuberculosis clinic in the inner-city New York, completion of therapy in the directly observed preventive therapy group was significantly greater than that in the daily therapy group.

At the same time, Wilkinson, Davis and Connolly (1996) studied directly observed therapy for tuberculosis in rural South Africa. A program audit of 2,473 consecutive tuberculosis patients in Hlabisa Health District, KwaZulu Natal, South Africa, was conducted between 1991 and

1994. It was found that community-based directly observed therapy that uses an intermittent drug regime and volunteers as supervisors could achieve high treatment completion rates for tuberculosis, even in resource-poor settings.

In a later article, Wilkinson and Davies (1998) reported the value of directly observed therapy in paediatric tuberculosis in rural South Africa, again mentioning that this community-based therapy has been employed since 1991. They found that most children (75%) diagnosed with tuberculosis were treated in the community and most of them (85%) completed treatment.

Moulding (1999) pointed out that the use of directly observed therapy (DOT) for nearly all cases of pulmonary tuberculosis (TB) was being widely promoted by the Centers for Disease Control, but its implementation is being resisted by many health professionals. However Zwarenstein, Schoeman, Vundule, Lombard and Tatley (1998) differed somewhat in their perception of the value of DOT. They did a randomised controlled trial of self-supervised and directly observed treatment of tuberculosis in South Africa. They found that treatment for tuberculosis was more successful among self-supervised patients (60%) than among those on directly observed therapy (54%). They felt that supportive patient-carer relations, rather than the authoritarian surveillance implicit in the directly observed therapy group, may improve treatment outcomes and help to control tuberculosis.

Davidson (1998), working in the urban United States with patients with active tuberculosis, found that patients receiving directly observed therapy (DOT) were much more likely to

complete treatment earlier than those receiving self-administered therapy (SAT). However, even with directly observed therapy, only 52% of patients had completed treatment by 8 months. Was it becoming less effective or were patients becoming more resistant to such direct supervision?

Nuwaha (1999) discusses high compliance in an ambulatory tuberculosis treatment programme in a rural community of Uganda. They found that of a total of 1,659 Tuberculosis patients, 92% of those surviving completed the prescribed treatment. Reasons for this high completion rate included: treating patients at one health unit, treating patients near their homes, training and supervision of health workers, and progressive use of short-course chemotherapy.

6.8.4 The role of cues and reminders in medical compliance

Cramer (1995) names the key elements for enhancing patient compliance when prescribing. These are selecting the fewest number of daily doses (taking patient's other medications into consideration), scheduling when doses are to be taken, and helping the patient select an appropriate reminder or "cue." Developing reminder cues, such as clock time, meal time, or bathroom ritual, requires only a few minutes of careful planning to mesh with the patient's lifestyle. If one type of cue is not successful, another or combinations of cues are tried over time. They feel that asking about their patients about their cues at each visit not only helps patients develop personalized cuing systems, but also reminds them that their physician has a

consistent interest in the way they take their medication.

It seems that patients often instinctively use cues to remind themselves when to take their medicine even without prompting. Reynolds et. al. (1999) in studying HIV found that mental tricks, systematic restructuring of daily routines and environment, and dietary schemes were among the strategies devised by patients through trial and error to self-promote their adherence. Spiers and Kutzik (1995) studied self-reported memory of medication use by the elderly. They found that most of the subjects reported using strategies for remembering that were based on external cues, such as bedtime and meals. There was no association, though, between the presence or type of such a strategy and self-reported success in medication adherence. Most independently living elderly persons believed they were remembering to take their medications as directed and described strategies for doing so.

Hussey (1994) used a colour coded method to try to minimize the effects of low literacy on medication knowledge and compliance among the elderly. This was designed to tailor the medication regimen to the person's daily schedule.

One of the interventions of Safren, Otto and Worth (1999) in their "Life-Steps" programme was cues for pill taking and review of successful adherence connected to cues. As a standard part of this intervention, patients received coloured adhesive dots and were instructed to place the coloured dots in various places in their environment where they would see them regularly, such as near the doorknob inside of their house, near the lock outside of their door, on the

bathroom mirror, on their computer at work, or on the receiver of a telephone. These dots were used as a cue for both pill taking, and to provide an opportunity for rehearsal of adaptive cognitions for adherence.

Murray and LeBlanc (1996) found their compliance rate with follow-up from the emergency department to be higher than any found in studies of similar American hospitals. Apart from the financial factor (free), one of the main explanations for this was that the emergency department clerk makes the outpatient clinic appointment before the patient leaves the emergency department and gives the patient a computer printout of the date and time of the appointment and a map with the location of the appointment circled.

Friedman, Kazis, Jette, Smith, Stollerman, Torgerson and Carey (1996) worked with a telecommunications system for monitoring and counseling patients with hypertension. They found that weekly use of an automated telephone system improved medication adherence and blood pressure control in hypertension patients.

O'Brien and Lazebnik (1998) found telephone reminders to be a very effective method of increasing attendance in a hospital-based adolescent clinic, whether the message was delivered to the patient, to the parent or other family member, or to a telephone answering machine.

In South Africa it has been proposed that HIV patients could be encouraged to comply with treatment and keep their follow up appointments by leaving an SMS (Short Message Service) on their cellphones. People who have previously not had access to telephones are now able to

have cellphones and this and the full and frequent use of the SMS service has become an integral part of communication in the emerging culture (Smith, 2003).

"Behavioural programmes designed to remind less educated and/or rurally placed HIV positive AIDS patients to take their medications via regular mobile phone prompts, could be useful in communities with limited access to clinics but some access to mobile phones."
(Smith, 2003 pg.14)

Milch, Ziv, Evans and Hillebrand (1996) studied the effect of an alphanumeric paging system on patient compliance with medicinal regimens, using a population of hospice patients. They found that compliance rose from a mean of 56 percent to 96 percent when the system was used. Similarly, a computer generated reminder chart is a practical and cost effective aid to compliance with drug regimens (Raynor, Booth and Blenkinsopp, 1993). Skaer et. al. (1993) in their study of patients with non-insulin-dependent diabetes mellitus found improvement in compliance in patients receiving mailed prescription-refill reminders, unit-of-use packaging, or a combination of both interventions. Hellerstedt et. al. (1999)'s survey data showed that, overall, enrollees were more likely than non-enrollees to have access to infant immunization reminder cards indicating timely reminders contribute to compliance. Hawe, McKenzie and Scurry (1998) reworded postal reminder cards according to the "health belief model", finding a modest but important improvement in measles vaccination rates.

6.8.5 Appointment scheduling

Pinsker, Phillips, Davis and Iezzoni (1995) found that the most important step a provider could take to improve compliance with follow-up referral was to schedule appointments before patients were sent home. Computerized discharge instructions were associated with improved compliance with emergency department referral recommendations (Vukmir, Kremen, Ellis, DeHart, Plewa and Menegazzi, 1993). Ross, Friman and Christophersen (1993) felt that to increase appointment keeping, reduced lag time might be necessary. Sometimes a patient needs to be encouraged on a practical level. Spooren, Van Heeringen and Jannes (1998) found that helping the psychiatric emergency department patient to attend an initial appointment could be achieved by a combination of practical and organizational arrangements.

6.8.6 Uniting Clinics

There are certain clinics which young people attend regularly such as birth-control clinics. However their attendance can be poor with, for instance, the genitourinary clinic. Bloxham, Capstick and Greenwood (1999) in combining genitourinary medicine and contraceptive services for young people found a 66% follow-up rate. Eleven percent of clients had crossed over from one service to the other on succeeding visits.

6.8.7 Changes in life style

Molassiotis, Nahas-Lopez, Chung, Lam, Li and Law (2002) suggested that as adherence to HIV medication was mostly an issue of lifestyle adjustments, much could be learned from the diabetes model of care. They also state that culturally sensitive interventions are necessary, tailored to meet culturally relevant adherence barriers. The effects of a behavioural medication management intervention on adherence with antiretroviral drugs were investigated using a pilot study by Molassiotis, Lopez, Chung and Lam (2003). Adherence was measured using 2 self-reports. The intervention was a behaviourally-based programme that lasted for three months and included individualized education about antiretroviral medication and their side effects; positive reinforcement and encouragement; individualized counseling weekly; follow-up calls; and lifestyle assessment and the identification of adherence barriers. Though a small sample was used, their results proved very promising.

Smith, Rublein, Marcus, Brock and Chesney (2003) worked with a self-management intervention based on feedback of adherence performance and principles of social cognitive theory. The self-management program included skills development exercises, three monthly visits for medication consultations, and monthly feedback of adherence performance using electronic monitors on medication bottles. Participants also completed a 40-item questionnaire that measured self-efficacy to take medications, on schedule, in a variety of situations. They found that individuals in the self-management group were significantly more likely to take 80% or more of their doses each week than individuals in the control group. Motivational interventions based on self-efficacy may also be useful for increasing treatment adherence

(Pinheiro , de-Carvalho-Leite , Drachler and Silveira (2002).

6.8.8 Reducing the number of doses

An additional method for improving medication compliance has been suggested by Rudd (1995) who feels that once-daily dosing may be an important part of enhancing compliance, patient convenience, and regimen simplification. In support of this claim, Hedner and Himmelmann (1999) mention the importance of the simplicity of a single daily dose. Further evidence is supplied by Cohen et. al. (1999) who indicate that the reduction in the number and frequency of drug doses and better knowledge about drugs may improve compliance.

Harrison (1995) reports similar findings in the treatment of paediatric upper respiratory infections. He found that infrequent dosing, palatable taste or form, minimal side effects or lower cost may dictate choosing lower potency or narrower spectrum drugs to gain patient acceptance and thereby reasonable compliance. Further evidence for reducing dosage is supplied by Hosie and Wiklund's (1995) studies which argued for effective, well-tolerated antihypertensive drugs that could be taken once daily, enabling quality of life to be maintained throughout treatment.

Besides reducing dosage, Mancina (1995) felt that poor patient compliance in hypertension could be improved with less complex treatment regimens. In a similar vein, Sanson-Fisher and Clover (1995) in their study of compliance in the treatment of hypertension, consider aspects of the literature concerning non-compliance with antihypertensive medications and presents a

number of strategies that practitioners can use to increase compliance. These include strategies for increasing patient recall of information and for implementing reminder systems. The importance of prescribing the simplest possible dosage regimen is emphasized.

Taking into account the dangers of missed doses, Urquhart (1992) puts across another side of compliance with outpatient antibiotic regimens. Continuity of action is more likely when the prescribed interval between doses is considerably shorter, preferably half or less, than the drug's duration of action, allowing doses occasionally to be delayed or omitted without a gap in drug action. Thus, a twice-daily regimen may be expected to maintain crucial continuity of drug action better than a once-daily regimen, even if more doses are missed. In support of this, Pushpangadan and Feely (1998) also find that their investigations do not justify the widely held view that 'once a day is best', particularly when compared with twice daily regimens.

On another level, depot medication has advantages over oral medication in the more ill, less compliant patients. Side effects may, however, be more marked (Lader, 1998).

6.8.9 Devices

Several devices have been produced to help with adherence to medications. For example, Mackowiak, O'Connor, Thomason, Nighswander, Smith, Vogenberg, Weissberger and Wilkes (1994) studied elderly patients' preferences among four devices designed to make compliance with several medications easier: rub-off reminder labels, medication organizer trays, a container cap with a modified alarm clock, and a digital elapsed timer. The patients showed a

strong preference for the medication organizer tray and generally preferred less-complex devices to those that were more difficult to learn to use.

Insulin pen-cartridge devices have evolved in order to increase patient compliance and convenience of use in a portable, multiple dosage device (Shnek, Hostettler, Bell, Olinger and Frank, 1998). Similarly, Houts, Bachrach, Witmer, Tringali, Bucher and Localio (1998) found that pictographs could enhance memory of spoken medical instruction, often to a very high level. They point out that pictographs have been used in non-literate societies to help people remember spoken instructions.

6.8.10 Financial rewards as reinforcers

Giuffrida and Gravelle (1998) examine the circumstances in which patients should be paid to comply with treatment, a practice that can obviously not be used where the medical services are already financially strained. Fitzgerald, Patrick, Strathdee, Rekart, Elwood, Schechter, Montaner and O'Shaughnessy (1999) suggested that the use of financial incentives could increase the return of intravenous drug users to have their skin tests read for tuberculosis screening. Kamb, Rhodes, Hoxworth, Rogers, Lentz, Kent, MacGowen and Peterman (1998) also studied the effect of small monetary incentives on enrolment, retention, and motivation to change behaviour in an HIV/STD prevention counseling intervention. They found that of the 198 participants offered money, 109 (55%) completed all sessions compared with 59 of the participants offered other incentives.

Malotte, Hollingshead and Rhodes (1999) studied monetary versus non-monetary incentives

for tuberculosis skin test reading among drug users. They found that ninety-five percent of those who received \$10 returned for skin test reading compared to 86% of those who received grocery store coupons and 83% of those who received either bus tokens or fast-food coupons. In contrast, only 47% of those who received the educational session and only 49% of those who received usual encouragement returned for skin test reading.

Jeffery, Wing, Thorson and Burton (1998) found that the combination of the use the combination of personal trainers and financial incentives to increase exercise in a behavioral weight-loss program produced the best results. Although this research had very positive results, the use of this is somewhat controversial and is not a broad based option for most clinics, hospitals and centres.

6.8.11 Drug packaging

A study conducted in 1994 showed that the use of blister packs containing antimalarial drugs significantly increased patients' compliance, compared with traditional means of dispensing drugs in a paper envelope (Qingjun, Jihui, Laiyi, Xiangjun, Jun, Hay, Shires and Navaratnam, 1998).

6.9 Social and Family Support

Effective treatment, especially for chronic illness, often requires strict medication compliance as well as life changes, such as changes in diet and exercise. It is often extremely difficult for the patient to adhere to this without the support and understanding of relatives and friends. As

has been discussed, the patient has to be seen in the context of his/her environment and treated as such. There has already been a note about the family as well as the patient needing to be educated about the patient's condition in order to enhance compliance (Serrano-Ikkos et.al, 1998).

Davidhizar and Rexroth (1994) go further as they discuss 'triad communication' which can be used by the nurse to facilitate communication with a patient and a caregiver in home health care, and potentially increase compliance. The family members may be involved as listeners or in discussion with the patient, the nurse, or both. The caregiver is selected based on specific communication objectives and the third person's ability to assist in meeting these objectives.

Fishman (1995) presented an innovative approach to compliance based on general systems theory and its applications in family therapy: The "90-Second Intervention" ("90 SI") incorporates the use of family and friends; it utilizes the therapeutic relationship or alliance of the physician-patient; and it embraces the well-established fact that social support plays a key role in promoting health, decreasing susceptibility to disease, and facilitating recovery from illness. The physician asks the patients to identify who in their life loves or cares for them and would help them adhere to the treatment protocol. To implement the "90 SI," the physician instructs the patient to telephone, in his or her presence, the identified helper(s) who then agree to support the patients' medical regimen. Specifically, the "90 SI" seeks to create a context to support the patients in a regimen of low to moderate intensity exercise, which is proven to be a powerful, cost-effective, and safe treatment.

Social support has also been found to facilitate medication compliance in: the elderly (Kruse and Brandenburg 1994); in weight loss and maintenance (Wing and Jeffery 1999); diabetes and renal function (Hanson et. al. 1995, Kopp, 1992, Brownbridge and Fielding, 1994); and with children with chronic illness (Tubiana-Rufi, Moret, Czernichow and Chwalow, 1998, Meijer and Oppenheimer, 1995).

Johansson et. al. (1996) points out that factors, such as the social stigmatization and the patient with tuberculosis feeling 'less respected' by others, needs to be taken into consideration in tuberculosis control in Vietnam with some kind of social intervention.

6.10 Psychiatric and Psychological Interventions

Starace, Ammassari, Trotta, Murri, De Longis, Izzo, Scalzini, d'Arminio Monforte, Wu and Antinori (2003) point out that depression has been reported as one of the main causes of poor adherence with antiretroviral regimens. They feel that early recognition and proper management of depressive co-morbidity could be an effective intervention strategy to improve adherence and may make a difference in the quality of life, social functioning, and disease course of people with HIV.

Ricart, Cohen, Alfonso, Hoffman, Quiones, Cohen and Indyk (2002) presented medical-psychiatric case discussion to illustrate the psychodynamic aspects of non-adherence in a woman with AIDS. The patient sustained severe, repeated abandonment and brutal emotional, physical and sexual trauma throughout her early and later childhood and adult life.

As a result of this she also had difficulties with trust, posttraumatic stress disorder, as well as the additional problem of HIV dementia which compounded the patient's non-adherence to treatment. They used a multidisciplinary bio-psycho-social approach that enabled the patient to engage in both medical and psychiatric care.

There is also the concept of active coping (i.e. belief in influencing the disease and its process or internal health locus of control) may be indirectly related with better adherence as patients take control over the management of their disease. Active coping techniques should be taught to patients that exhibit less effective coping mechanisms with their illness, partly empowering patients (Molassiotis, Nahas-Lopez, Chung, Lam, Li and Law (2002).

Marquez Contreras et. al.(1998) found that a group session and postal back-up is an effective way of improving therapeutic compliance in cases of hypercholesterolaemia.

6.10.1 Post Traumatic Stress and trauma debriefing

As has been mentioned, medical PTSD is a relatively new concept, and has only been made possible after its inclusion into the DSM 1V (American Psychiatric Association , 1994)

Shemesh et.al. (2000) did a pilot study of posttraumatic stress and non-adherence in paediatric liver transplant recipients, finding that all the patients who were clinically non-adherent were classified as "full PTSD" seeming to suggest that only patients who suffered from symptoms of PTSD are non-adherent. However they felt that this striking result was probably an artifact of the small sample size, and they hypothesized that some, not all cases of non-adherence may

be related to symptoms of PTSD. Non-adherence had been found to be especially related to the avoidance score. A cognitive-behavioral approach to the treatment of transplant-related PTSD was discussed in three patients with successful results.

"In the first instance the patient and his family were seen for ten consecutive weekly sessions. Individual sessions with the child focused on cognitive remodeling of his beliefs regarding the transplant (including his feelings of lack of mastery over his medical illness). Further, the patient was asked to talk about his fears to a video camera, and the recorded interview was played to him in sessions and eventually shown to his mother , providing a way of controlled re-exposure to the stress as delineated in the patient's own words. Finally, the patient was escorted by the therapist to a visit of the pediatric in patient floor, where he spent his first few days following the transplant" (Shemesh et.al., 2000 , pg. 4).

The patient had originally been referred because of severe non-adherence which improved during the sessions, even though it was not directly addressed.

The second patient had PTSD with a co-morbid mood disorder and her treatment was modeling through play with the slow introduction of stressful themes in sessions (e.g. introduction of a doctor puppet in play). She also needed medication for her mood swings. The third patient was consciously avoiding any reminder of her illness, especially of nurses and medication. The treatment in this case consisted of challenging her sense of low mastery over her disease, and a gradual exposure to the hospital environment, including allowing relatives to decorate her room to look less like a hospital ward. Family support was tightened.

In this instance too, treatment was effective.

In a later study, Shemesh et.al. (2001) found significant results with posttraumatic stress symptoms and non-adherence in survivors of myocardial infarction. They suggested that treatment of PTSD may prove to be a useful approach for improving adherence. However this would be very much a treatment which would be in response to the actual symptoms of PTSD, as was used in their earlier study.

6.10.2 Cognitive behaviour therapy and other forms of behaviour therapy.

Successful results have been found using pure behaviour techniques. Kehoe and Katz, (1998) felt that because adherence to treatment recommendations depends on a complex interplay of many psychological variables, behavioral techniques could be used to improve adherence. Weinstein, Tosolin, Ghilardi and Zanardelli (1996) did a study that examined the effect of the periodontist's use of behaviour modification techniques on patient compliance in four treatment maintenance conditions. They concluded that this increased patient compliance significantly.

Kroll, Barlow and Shaw (1999) in reviewing treatment adherence in juvenile rheumatoid arthritis, found that child-centred information, therapy management, behaviour modification, and parental monitoring were described as adherence facilitating strategies for clinical and non-clinical settings. Milas, Nowalk, Akpele, Castaldo, Coyne, Doroshenko, Kigawa, Korzec-Ramirez, Scherch and Snetselaar (1995) suggested that nutrition interventions for

patients with renal disease should focus on psychosocial factors and behavioral approaches.

They felt that such approaches could be successfully incorporated into treatment programs and would assist the dietitian in promoting adherence to usual, low, and very-low-protein eating patterns.

However, as Di Matteo and Di Nicola, (1982) point out,

"Behavioural intervention alone may not be sufficient. What people think tends to influence their achievement and maintenance of behaviour change. Cognitive factors are therefore very important to health behaviour. In fact, research has recently begun to suggest that the most effective methods for health-behaviour change involve a combination of cognitive and behaviour modification." (pg 236)

Robinson, Bush, von Korff, Katon, Lin, Simon and Walker (1995) worked on primary care physician use of cognitive behavioral techniques with depressed patients. They found that primary care physicians' suggestion of CBT strategies was associated with both patient use of CBT strategies in the months following the visit and better adherence to recommended medication therapy during the first month of treatment.

Foreyt and Poston (1998) discuss the role of the behavioral health professional in obesity treatment. These strategies include self-monitoring, stimulus control, cognitive restructuring, stress management, social support, physical activity, and relapse prevention. They found that interventions that incorporated these strategies were effective in producing gradual and

moderate weight loss in persons with obesity. Sommaruga, Spanevello, Migliori, NeriCallegari and Majani (1995), working in Italy, described an effective cognitive behavioural intervention in asthmatic patients. Kemp, Hayward, Applewhaite, Everitt and David (1996) did a randomised controlled trial on cognitive-behavioural compliance therapy, in psychotic patients, which proved to be effective. Lecompte, (1995) also mention this with schizophrenic patients. Murphy, Lu, Martin, Hoffman and Marelich (2002) reported on a small pilot trial of a multi-component (behavioral strategies, simplified patient information, and social support) and multidisciplinary (cognitive-behavioral therapy and nursing) medication adherence intervention which was conducted for HIV-infected adults prescribed anti-retrovirals. Though there was improvement on many levels, the intervention did not appear to affect health-related anxiety or to significantly improve adherence to dose.

Kelly, Otto-Salaj, Sikkema, Pinkerton and Bloom (1998) state that one of the key behavioral research areas in AIDS is the development of interventions to promote treatment adherence. New medication treatments for HIV have recently improved so that survival over long periods of time is now possible, but these treatment gains are wholly dependent on proper use of the medications. Improper use of medications, missed or delayed doses, or drug holidays from part of the treatment regimen may be as deleterious as no medications at all. This is also obviously true in the treatment of the oncology patient.

Smith (2003) suggests cognitive behaviour strategies to address negative automatic thoughts with regard to avoidance, irrational fears and suspicions regarding AIDS/HIV transmission, or the value of antiretroviral drugs.

Safren et.al. (1999) applied cognitive behavioral therapy to HIV medication adherence with their Life-Steps Program. They pointed out that adherence to HIV medication treatment is a difficult undertaking. Antiretroviral medication therapy typically involves three or more medications which may require 30 to 60 pills per day. Furthermore, the dosing regimen is such that restrictions in food intake, refrigeration requirements, and, at times, interrupted sleep, to maintain uniform dosing, makes adherence to multi-dosing medication regimens quite complex. Moreover, HIV medications tend to be difficult to tolerate with common side effects including headaches, nausea, diarrhoea, vomiting, dizziness, peripheral neuropathy, fever/chills, flu-like symptoms, fatigue, and nasal congestion. Given that HIV medications are taken to reduce the occurrence of symptoms, patients with HIV sometimes face the extraordinary challenge of the emergence or worsening of symptoms contingent upon proper adherence with medication treatment. This is similar with chemotherapy with oncology patients where the patient might feel far more ill with treatment than without it.

In order to help patients identify and solve problems with adherence, Life-Steps is based on techniques and principles of problem-solving therapy as well as more general principles of cognitive-behavioral therapy. Briefly, problem solving therapy refers to a general approach to training individuals to cope with stressful or seemingly overwhelming problems. One important component of problem-solving therapy involves teaching individuals to address issues by defining the problem and breaking down a solution into viable steps (Safren et.al., (1999) .

In the Life-Steps program, eleven informational, problem-solving, and cognitive-behavioral

steps are targeted: (1) psychoeducation, (2) transportation to appointments, (3) obtaining medications, (4) communication with providers, (5) coping with side-effects, (6) formulating a daily medication schedule, (7) storage of medications, (8) cues for pill-taking, (9) guided imagery review of successful adherence in response to daily cues, (10) responses to slips in adherence, and (11) review of procedures. In each step, patients and the clinician define the problem, generate alternative solutions, make decisions about the alternatives, and make a plan about how to implement solutions (Safren et.al.,1999).

Cognitive behaviour therapy appears to have had some success in promoting compliance and aspects of this, also were included in the intervention used in this study.

6.11 Nurse-patient Relationship

The nursing profession has a key role to play in patient adherence, the nurse often seeing the patient for more frequent and extensive periods than the treating doctor.

Pfister-Minogue (1993) feels that some impact on compliance can be made by nurses no matter what the setting. She feels that hospital nurses, home health nurses, clinic nurses, and nurses practicing in advanced practice, such as clinical specialists and nurse practitioners, would be ideal to facilitate long-term follow-up. She cites cases which demonstrate that an interactive patient education approach, incorporating many of the factors that influence compliance, is successful in influencing patients to follow health care advice. This approach, (in fact, an approach which could well be adopted by any health worker) she feels, requires a

consistent, concerned, non-judgmental, supportive relationship with the patient. Assessing each area of health behaviour the patient is being asked to change, and the effects of these changes, is an essential first step. Self-care deficits, such as low self-esteem and denial, are obstacles to compliance and thus require nursing intervention. It is pointed out that nursing expertise in providing specific individualized information and a step-by-step plan with ample reinforcement and support is critical. Behavioral strategies are helpful for those who are unable to change with information alone. Finally, long-term nursing follow-up is essential for patient compliance. In effect they are alluding to CBT principles in a multi disciplinary team.

Wills (1996) discusses the more specific situation of the nurse-client alliance as a pattern of home health caring. Developing an alliance between nurse and client calls for contracting toward mutually agreed upon goals, a practice that can be satisfying to both. Currier (1993) views compliance as a partnership between nurse and patient using strategies such as joint decision making to facilitate this process. In a study of compliance with short-term antibiotic therapy among patients attending primary health centres in Riyadh, Saudi Arabia, al-Shammari et.al. (1995) found that approximately three quarters of patients were not compliant for reasons which could be minimised or removed by good patient counselling and effective communication with patients, which could be done by nurses. The importance of the encouragement and support of nurses in combatting non-compliance has been found in hypertension (Allen 1998), asthma (Tettersell 1993), and antiretroviral therapy (Williams 1999).

6.12 Pharmacist - Patient Relationship

The pharmacist is in an important position to encourage compliance and his/her services are greatly undermined in this direction.

On a very basic level, workers in pharmacies need to use simple practical means of giving prescription instructions, especially to illiterate patients (Osei and Commey, 1994). McKenny (1979) points out that studies have shown repeatedly that labels are often incomplete and misinterpreted by patients and it is the pharmacist who can assist with advice and education. Fisher (1992) discusses the increasing role pharmacists are playing in compliance where essential knowledge and skills can be communicated to the patient that will maximize compliance. Monitoring medication refills is the most accessible method for pharmacists to identify non-compliant behaviour. He feels that determining patient non-compliance and making adjustments with patient education tactics will enable pharmacists to expand their professional role while improving patient outcomes.

Opdycke et. al. (1992) worked on a systematic approach to educating elderly patients about their medications. This was to be a pharmacist-initiated, total package, patient education program. Patient satisfaction with the education session was overwhelmingly positive. Given the findings of this study, it was apparent that a patient education program based on this model could be used successfully by pharmacists to prepare education plans that would benefit the therapeutically complex elderly patient.

6.13 Doctor-patient Relationship

The doctor-patient relationship is crucial to the patient's successful treatment. The patient and usually his/her close family looks to the doctor for far more than just medical treatment. They seek as well, reassurance, understanding and caring. The doctor is not always aware of this and/or equipped to meet these expectations. As Lieberman (1996) points out, physicians exit the educational system with a predisposition to deal with problems from a biomedical perspective. They may be unaware that, by the very nature of the doctor/patient relationship, they possess considerable ability to effectively intervene in the psychosocial area.

It is suggested by Holloway et.al. (1992) that one approach to improving patient compliance is for physicians to adapt their behaviour to fit patients' psychological characteristics. Roberts (2002)'s findings suggested that strengthening and promoting the bonds between physicians and HIV/acquired immunodeficiency syndrome (AIDS) patients should be an absolute priority.

Comolet and Rakotomalala (1995) also stress the importance of good mutual comprehension. If the patient is made to feel that the provider cares for him as a person, a meaningful relationship can develop and can have a positive influence on the patient's behaviour in taking medications and perhaps even in the direction of his/her life. For example, caring and knowledgeable staff members who support the patient-centred approach can make tuberculosis treatment a positive experience for both the patient and themselves (Pozsik, 1993).

Physician attributes, e.g. comprehensiveness, accessibility, empathy, concern, specificity and clarity of communications, enthusiastic recommendations, and the giving of positive reinforcements for achieved goals, are highly valued by patients (Anderson and Kirk, 1982). Physicians' comprehensive ("whole person") knowledge of patients and patients' trust in their physician were the variables most strongly associated with adherence, and trust was the variable most strongly associated with patients' satisfaction with their physician (Safran et. al. 1998). Thom, Bloch and Segal (1999) found that baseline trust predicted continuity with the physician, and self-reported adherence to medication. In addition, Cederfjaell, Langius-Ekloef, Lidman and Wredling (2002) stress that a caring patient-provider relationship should be developed to minimize non-adherent behaviour in HIV patients.

Bebbington (1995), in discussing schizophrenia and looking at several techniques for increasing compliance, finds they contain common elements. These included the provision of information within the context of a warm and equitable therapeutic relationship, preferably maintained over some time, and the use of the relationship to encourage and prompt compliance and to establish more productive views of the illness and medication. Instilment of a good patient-physician relation is one of the most important prerequisites for good compliance (Steiner and Vetter (1995).

Though the patient may need the doctor to be "all powerful" in a crisis, as the disease progresses, a certain complacency and resistance may set in and if the initial shock has not produced an outright rejection of treatment, non compliance can develop over time and doctors can find this unexpected and confusing (Di Matteo and Di Nicola 1982).

Non-compliance is a challenge for the doctor, and may be difficult and complex to solve. It depends not only on the patient-doctor relationship, but also on the patient's perception of his/her own health and the side effect profile of the drugs. A good physician-patient relationship is vital, and education of the patient is crucial for obtaining better adherence to the medication (Os, Eide, Westheim and Kjeldsen, 1995). Costa (1996) in discussing compliance with antihypertensive treatment has several suggestions as to the role of the physician in determining patient's compliance. He suggests that physicians should give clear information about the risks of the disease, the advantages of therapy and how to take medicines. The physician should also prescribe a therapeutic scheme as simple as possible avoiding multiple drug administrations and informing patients about possible side-effects. Subjects at particular risk of poor compliance (middle aged males, still active in work, without previous cardiovascular diseases) must be particularly monitored.

Because of non-compliance, doctors are obliged to become more caring and aware of emotional needs. Rozenberg, Vandromme, Kroll and Vasquez (1999) find that simple strategies may be among the most effective ways of encouraging compliance with hormone replacement therapy. These include listening to patients' fears, complaints and questions, and taking the time to answer them. They often have to change their perception of the patient.

Davis (1966), in discussing the causes as to why practitioners are, as he found, so unaware of their patients' compliance, has suggested a psychological explanation. He argues that the primary cause is the practitioner's ego involvement. The physician is particularly invested in the success of his/her treatment, and in his/her authority, status, and sense of importance. This

investment prevents the physician from recognizing that patients are not following the prescribed treatment.

Some doctors often feel, too, that patients approach them under conditions of such distress and disorientation that they are not, all in all, capable of making responsible decisions concerning their own care, even if they have the information to do so. They feel that patients are weak and overwhelmed by their illnesses, lacking medical knowledge and skill, lacking objectivity about their predicament, and are dependent, passive and obedient (Di Matteo and DiNikola, 1982).

"Therefore we have the concept of the good patient (in contrast to the problem patient,) as one who is conforming, co-operative, generally uncomplaining, not demanding, who does not interrupt medical routines." (Pratt, 1978; p. 212)

However, Stimson and Web (1975), point out that the patient actually does not relinquish control and decision-making power to the clinician but only uses the illusion of dependency on the practitioner as a self-presentation strategy in order to fulfill the practitioner's expectations and manipulate his or her sentiments and behaviours. It is hypothesized by Brehm (1966) that patients resist medical advice in an attempt to achieve control in a situation in which they have lost control. They may engage in an active search to restore lost freedom or they may try to avoid developing a dependency to which past experience has shown them they are prone (Blane, 1968).

Clear directions from a doctor with a good relationship with a patient, has a strong influence on compliance. Dajani (1996) studied adherence to physicians' instructions as a factor in managing streptococcal pharyngitis. He felt that adherence is dependent on the physician, the patient, the illness, and the medication. Proper communication by the physician and prescribing inexpensive medications that can be taken once or twice daily are simple, yet important actions that improve adherence.

Jones-Webb et. al. (1999) found that women who received advice from a physician to abstain from alcohol reported a lower risk of smoking and drinking during pregnancy than women who did not receive such advice.

Likewise, physician recommendation was reported to be the most important factor influencing both women's and men's decisions to participate in cardiac rehabilitation programs, followed by encouragement from family members (Lieberman et.al. 1998). Equally, Grob (1992), in looking at compliance with antibiotic therapy finds that careful counselling of the patient by the physician and educational information about therapy are some of the methods successfully employed to improve compliance.

Sbarbaro and Sbarbaro (1994) point out something further, that in accepting responsibility for the treatment of clinically active tuberculosis (and this would apply to other serious illnesses such as in the oncology field), a physician assumes the additional duty of insuring that the patient completes a full course of treatment. However they also contend that the extent to which patients will go to mislead their physician is just becoming known. They feel that

traditional health education and medication labeling methods appear to be ineffective in changing behaviour. Cultural influences are significant and must be understood by the treating physician. They felt that when incentives, enablers, medication monitors, and chemotherapeutic regimens that permit the direct administration of medication are combined with an effective patient-physician relationship, a wide range of opportunities become available for maximizing patient compliance with treatment.

It is now becoming necessary to train physicians in adherence issues especially with the strict regimens of HIV/AIDS. Walsh and Sherr (2002) found that three-quarters of the physicians they interviewed had received no training on adherence issues.

Schlundt et.al.(1994) developed and evaluated a workshop for improving the adherence counseling skills of health professionals. Four categories of skills were taught: relationship building, interviewing, problem diagnosis, and behavioral intervention.

6.14 The Judgemental Nature of the Term "Compliance"

Since 1900, such adjectives as "ignorant", "vicious", and "recalcitrant", have been used to describe patients who do not follow medical advice (Lerner, Gulick and Dubler 1998). They concede that today less judgmental terms, such as non-adherent and noncompliant, are now used, but that it is contended that these terms still imply that patients should obey physician-imposed regimens.

The term "compliance" and its traditional definitions frequently are criticized in the literature (Baril, 1998, Lutfey and Wishner, 1999). In his very interesting and somewhat controversial paper, Holm (1993), questions the concept of compliance. He analyses the notion of compliance, and tries to show that this notion is inextricably bound to a paternalistic conception of the doctor-patient relationship. Similarly, Wright (1993) feels that compliance rates can be improved upon, but not by treating failure to comply as a deplorably aberrant behaviour. Lutfey and Wishner (1999) in their study evaluated existing research in the area of patient 'compliance,' and suggest re-conceptualizing 'compliance' in terms of 'adherence'. They also discuss the benefits of such a change for medical practitioners. They feel that the term 'compliance' suggests a restricted medical-centred model of behaviour, while the alternative term, 'adherence' implies that patients have more autonomy in defining and following their medical treatments. Historically the literature shows a gradual trend towards a realization by professionals that increased patient autonomy and involvement relates to improved compliance. This change in thinking is reflected in the new name 'adherence', which has begun to replace the term 'compliance' (Marland, 1999).

6.15 Patient as Partner

The contractual model of the practitioner-patient relationship was first described in 1956 by Szasz and Hollender. They called it the 'mutual participation model'. In this model, patients participated in major decisions regarding their own health care and they contributed crucial information for the development of the most appropriate format for their care. Szasz and Hollender (1956), at that time, proposed this model as most effective for the care of the

chronically ill patient. Although the extent and seriousness of the problem of non-compliance was hardly recognised at the time, these authors noted the usefulness of this model for enhancing patient compliance. They noted also at that time that the mutual participation approach was rarely used in medicine. The goal of the model was basically for the practitioner to help the patient to take more responsibility for his/her own treatment. They felt that the more open and honest the practitioner and patient are with one another regarding their expectations, desires, and beliefs, the more likely it is that trust would be developed.

In a similar vein, Di Matteo and Di Nicola (1982) discuss their model of health care, which at that time was different from traditional medical care because it was based on a contract that assumes an underlying equality between the practitioner and the patient. The contract preserves the ideals of freedom for both parties, mutual understanding, and mutual responsibility. Both patient and doctor 'win' when compliance occurs because compliance is a mutually satisfactory outcome (Marsh, 1976, p. 133).

Stone (1979) has also addressed this issue, arguing that the concept of patient as partner has been a difficult one to accept. It goes against an authoritarian attitude often exhibited by the physician who feels his advice is to be obeyed to the letter. The patient who ignores this is seen as unwise, irresponsible, or morally culpable. Understandably, patients have felt a certain discontent at the autocratic role of the doctor.

"The educated and responsible patient wants to base his trust in a firm conviction that the physician's capabilities are being used with full respect for the integrity of his own intellect

and will. He wants to understand what the doctor is doing, why he is doing it, what the alternatives may be, and what the future will mean for the things he values most." (Pellegrino, 1975; p.399)

Demyttenaere (1998), in discussing non-compliance with antidepressants, notes that compliance with medical advice has always been a problem and there has always been discussion on who is to blame for non-compliance: the illness, the physician, the patient or the drug? He finds that in particular, a physician-patient consensus about the emotional meaning of the illness is essential and that patients should be given the opportunity to express their feelings about the illness. Within this context of dialogue, patients may signal their resistance to and potential non-compliance with the physician's views.

Langer (1999) maintains that patient participation is necessary for compliance and that a naturally occurring therapeutic alliance between physician and patient incorporates factors such as lifestyle, family, and living circumstances and an awareness of the culturally unique needs of minority patients. It is felt that integration of these factors into professional decision making and practical management plans will enhance patient compliance. In discussing compliance in this context, Lieberman (1996), sees primary care medical practice as a broadly based medical discipline, and emphasizes continuity of care in both sickness and health, effective doctor/patient communication and the involvement the patient as a partner in the provision of health care services.

Wilson's (1995) article advocates a multifaceted approach to compliance issues in which

patients and health care providers set mutually agreed upon treatment goals. These goals must be consistent with patients' priorities and lifestyles. Heinssen, Levendusky and Hunter (1995) discuss the client as a colleague, and go into therapeutic contracting with the seriously mentally ill. Grefberg (1998) in discussing non-compliance with dialysis felt that the aim should be to make the patient feel that he or she is a valuable member of the caring team. Williams, Freedman and Deci's (1998) findings support the prediction of the self-determination theory that patients with diabetes whose health care providers are autonomy supportive (i.e., patient centeredness) will become more motivated to regulate their glucose levels.

Another aspect of this is the patient taking a certain amount of responsibility for treatment care and decisions. Billault, Degoulet, Devries, Plouin, Chatellier and Menard (1995) did research to see whether patients with hypertension could manage their own clinical records and whether their doing so would affect the quality of their care. Their results showed that patients who completed the personal record also had fewer compliance problems. Pereles, Romonko, Murzyn, Hogan, Silvius, Stokes, Long and Fung (1996) and Lowe, Raynor, Courtney, Purvis and Teale (1995), found that a self-medication program can improve compliance in geriatric patients who are discharged to the community.

Since the late 1970's, diabetes therapy has been revolutionized and, in fact, new treatment strategies have been initiated by patient education and the resulting self-monitoring of the patient. It is the diabetic him/herself who ultimately has to secure the treatment as given by the physician in daily life and, in so doing, has to provide a great deal of self-care and

self-control. Meeting the individual treatment goal is largely dependent upon the cooperation and motivation of the patient, with the physician as both the sympathetic and critical counterpart (Standl and Hillebrand, 1993). Florian and Elad (1998) found that the mothers' sense of empowerment contributed significantly to their diabetic children's adherence to treatment.

Randolph and Fraser (1998) discuss non-adherence in teen asthma. They stress that the adept provider should negotiate treatment plans in consultation with the adolescent with mutual respect. Blair and Bowes (1995) also felt that successful outcomes could be achieved by approaching adolescents with respect and negotiating with them shared treatment goals.

Cochrane, (1993) felt that modifying behaviour and improving asthma control may be achieved with specific instruction, such as a self-management plan where the patient has greater control of his or her own condition. Lerner et. al. (1998) felt that clinicians should encourage all HIV-positive patients to devise individualized treatment plans that can facilitate reliable ingestion of medication. They suggested that encouraging the active participation of HIV-positive persons in their own treatment will help avoid judgmental and inaccurate assessments of patient behaviour and may help patients with adherence

To the health professional it may seem astonishing that the patient does not comply with the treatment and accept the good advice that is given, but these reactions can often be understood in the light of the emotional adjustments that are taking place. Knowledge alone is not enough. Although health professionals need to give patients information and advice, they also

need to help them express their feelings and provide emotional support during the adjustment process (Cox, 1994).

Non-compliance is a challenge for the health professionals, and may be difficult to solve (Os et. al.1995). Schlapfer (1996) puts forward an interesting concept. He points out that it is a great chance for the general practitioner to encounter the entire ill human being as it lives and suffers, in an integrative manner. He sees difficulties in the patient-physician relationship as arising when physician and patient value psychic and somatic aspects of the disease differently and when they disagree on therapeutic goals. He feels that when the physician rejects the patient's passive consumer attitude and when he demands active cooperation from the patient to carry a part of the responsibility for diagnosis and therapy, he develops into a 'difficult' physician. The physician is then perceived to have changed his role.

Important problems arise from this emphasis on personal responsibility for health and illness, however. One is the extreme view sometimes taken in which people totally reject the medical establishment. They may assume that since they are solely responsible for and in control of their own health, medical professionals have no expertise of any particular value to them. (Di Matteo and Nicola, 1982) We are seeing this more frequently as desperate patients are being drawn into treatments claimed effective by the proponents of alternative medicine.

At times non-compliance might be viewed as a type of patient triumph if it is seen to represent the adult patient's overthrow of the practitioner's inappropriately exerted authority (Marshall, 1981). By exhibiting non-compliance, the patient is seen to re-assert his or her right to self-

determination.

Di Matteo and DiNicola (1982) empirically derived an assertion that the patient retains both the right and the responsibility to determine the course of his or her own life in medical matters that affect him or her directly. In a similar vein, Donovan, (1995) argues that for patients, particularly those with chronic illnesses, compliance is not an issue: they make their own reasoned decisions about treatments based on their own beliefs, personal circumstances, and the information available to them. The traditional concept of compliance is thus outmoded in modern health care systems, where chronic illness and questioning patients predominate.

Day (1995), points out that many factors contribute to patients' self-management success, such as their own attitudes, beliefs or perceptions. Patients do need not only to acquire knowledge and self-management abilities, but also the desire to apply them on a life-long basis. They require understanding and support.

Patients often find themselves faced with a dilemma. In the past, as has been shown, health professionals saw themselves in a dominant, paternalistic role, with patients having to obey their instructions, often without having been given the reasons for them. In response to this, patients rebelled in various ways (even Hippocrates pointed this out) and refused to take their treatment, while pretending to the physician that they had been totally compliant. It was possible this was a resistance to perceived domination on the doctor's part. Alternatively, patients may perceive control of their treatment as a defense against feeling helpless in the

face of a life threatening illness (Di Matteo and Di Nicola, 1982).

In addition, alternative medicine has encouraged patients to take their health into their own hands and be in control of their treatment. However, it could be argued that patients do not seem to want their 'freedom' either. They may know that doctors, having spent so many years at medical school at least know more than they do about medical diseases and conditions. They do not want to be in complete control and make their own decisions. This is also complicated by the fact that at times the patient needs the doctor to be in control especially at times when life and death are in the balance (Di Matteo and Di Nicola, 1982).

The patient as equal and responsible partner in his/her treatment is ultimately the optimal relationship desired between patient and doctor/health professional. In this way the patient him/herself becomes an integral part of the treatment (Melnikow and Kief, 1994).

6.16 Summary

For many years, health professionals have tried to work out strategies for improving compliance with treatment. These range from educational handouts, posters and videos to sophisticated cognitive therapy and other therapeutic techniques. The doctor-patient relationship occupies a central place in the study of strategies to improve compliance and the patient moves from being subservient to being a partner in his/her own treatment.

Though some improvement has been made with some of these, or at times a combination of

these, there is still no completely successful intervention that can eliminate non compliance.

With the strict compliance that is necessary for the new anti-retrovirals, this has become a matter of urgency.

With the advent of the HIV\AIDS pandemic, where the new anti-retrovirals demand almost 100% compliance, this problem has surfaced as an emergency.