Medication adherence

Medication adherence is defined by the World Health Organization as "the degree to which the person's behaviour corresponds with the agreed recommendations from a health care provider.

Though the terms adherence and compliance are synonymously used adherence differs from compliance. Compliance is the extent to which a patient's behavior matches the prescriber's advice. Whereas adherence signifies that the patient and physician collaborate to improve the patient's health by integrating the physician's medical opinion and the patient's lifestyle, values and preferences for care

The consequence of non adherence is waste of medication, disease progression, reduced functional abilities, a lower quality of life, increased use of medical resources such as nursing homes, hospital visits and hospital admissions

Types of non adherence

- **Primary non adherence:** in which providers write prescription but the medication is never filled or initiated. This type is commonly called non fulfilment adherence
- **Non persistence:** in which patients decide to stop taking a medication after starting it, without being advised by a health professional to do so
- **Non conforming:** this type includes a variety of ways in which medication are not taken as prescribed, this behavior can range from skipping doses, to taking medications at incorrect times or at incorrect doses, to even taking more than prescribed

Methods to improve medication adherence

The effectiveness of a treatment depends on both the efficacy of a medication and patient adherence to the therapeutic regimen. Patients, health care providers, and health care systems, all have a role to improve medication adherence. A single method cannot improve medication adherence, instead a combination of various adherence techniques should be implemented to improve patient's adherence to their prescribed treatment. A systematic approach that could be instituted in improving medication adherence is as follows:

1) Level of prescribing:

• Introduce a collaborative approach with the patient at the level of prescribing whenever possible, involve patients in decision making regarding their medications so that they have a sense of ownership and they are partners in the treatment plan.

• Simplify medication taking Use the most possible simplified regimen based on patient characteristics at the first level of drug use.

2) Communicating with the patient:

- Explain key information when prescribing/ dispensing a medicine. Address the key information about the drugs (what, why, when, how, and how long).

- Inform the common side effects and those that patient should necessarily know (Patients would be more worried and lead to non adherence due to side effects that was not cautioned to them in advance by health care professionals)

- Use medication adherence improving aids Provide medication calendars or schedules that specify the time to take medications, drug cards, medication charts or medicine related information sheets or specific packaging's such as pill boxes, 'unit-of-use' packaging, and special containers indicating the time of dose.

- Provide behavioral support Collaborate with patient to incorporate the medication regimen into his/her daily regimen (essential in those on complex drug regimens, those having unintentional difficulties in adherence e.g. elderly)

3) During follow ups:

- Schedule appropriate follow up Monitoring the medication adherence should also be criteria while scheduling patient follow up

- Assess adherence during consequent follow ups Measure adherence by various methods which may be dependent on patient as well as drug characteristics. Check the effectiveness of medication adherence aids used, if any. This should be done by physicians as well as pharmacists.

- Identify difficulties and barriers related to adherence • Address the problems • Inform the patients accordingly how the problems have been addressed

Patient involvement in decision making is essential in improving medication adherence. It is vital for health care providers to identify the underlying causes of patient non adherence to determine appropriate interventional strategy. One of the major reasons that patients become non adherent is because they forget to take their medications. Forgetfulness can be taken care by reminders i.e. through directly mailed letters, telephone, e-mails, text messages to cellular phones and alarms; even though it may not be practically possible in all work settings. Involving the patient's care givers would be an additional way of combating non adherence due to forgetfulness. Medication non adherence may also occur because patients perceive it to be unnecessary or because of their fears and beliefs related to adverse effects of drugs. Hence, providing clear medication related information to patients is essential to improve adherence that includes addressing the key information of what, why, when, how and how long. Patient medication counselling can be supplemented by providing detailed written information about medications.

written instructions which include drug cards, medication charts or any written material in a plastic sheet or laminated sheet also helps in improving adherence especially for elderly patients who find it difficult to comprehend much of the information which is provided during medication counseling. Patients' fears and concerns about adverse drug reactions can

be alleviated by educating patients regarding common side effects of the drugs which they are taking, how to prevent an adverse drug reaction, if possible, and also convincing the patient of the need for treatment.

Complexity of drug regimen is found to negatively affect medication adherence. Modification will have to be made to medication regimens to reduce the frequency of administration, and/or reduce the number of different medications, and if applicable, to replace with combination products. This method often calls for patient's cooperation, thus highlights patient participation in disease management. Patient-health care professional, especially patient-physician or patient-pharmacist communication is central to optimizing patient adherence.50

Methods to measure adherence

Various methods have been reported and are in use to measure adherence. The methods available for measuring adherence can be broken down into direct and indirect methods of measurement. **Direct methods** include direct observed therapy, measurement of the level of a drug or its metabolite in blood or urine and detection or measurement of a biological marker added to the drug formulation, in the blood. Direct approaches are one of the most accurate methods of measuring adherence but are expensive. Moreover, variations in metabolism and "white coat adherence" can give a false impression of adherence

Indirect methods include patient questionnaires, patient self reports, pill counts, rates of prescription refills, assessment of patient's clinical response, electronic medication monitors, measurement of physiologic markers, as well as patient diaries.

Each method has its own advantages and disadvantages and no method is considered as the gold standard. The simplest way of measuring adherence is from the patient's self report.

Assessing children's adherence can be done by asking the help of a care giver (school nurse or teacher). Among the various methods questioning the patient, patient diaries and assessment of clinical response are all methods that are relatively easy to use, but questioning the patient can be susceptible to misrepresentation and tends to result in the health care provider overestimating the patient's adherence. Pill counts i.e. counting the number of pills that remain in the patient's medication bottles or vials are a common method to measure adherence. Though this method is simple, it has many disadvantages that the patients can switch medicines between bottles and may even discard pills before hospital visits in order to appear to be following the regimen. Hence, this is not an ideal measure of adherence. Furthermore, this method does not provide information on dose timing and drug holidays, where the medication has to be omitted on 3 or more sequential days, both of which help to determine clinical outcomes.

Rates of refilling prescriptions are an accurate measure of overall adherence in a closed pharmacy system (health maintenance organization countries with universal drug coverage) since refills are measured at several points in that time.

Electronic monitors capable of recording and stamping the time of opening bottles, dispensing drops (eye drops) or activating canister (metered dose inhaler for asthma) can also give a measure of adherence. The disadvantage with this method is that the measure of adherence is not accurate as the patients may open the container and not take the medication, take the wrong amount of medication or take multiple doses out of the container at the same time (or place multiple doses in another container).