

**Multi-compartment Compliance Aids (MCAs)**

**Background**

**Advantages of MCAs**

MCAS are designed for the convenience of patients rather than the safety or convenience of trained carers.

* They help simplify the drug regimen and provide a convenient way for patients to take their medicines
* They act as a visual reminder to prompt the patient to take medicines
* They may help to promote or maintain independence

**Disadvantages of MCAs**

* They can only be used to store some oral solid medications. A Glasgow study showed that 46% of 264 patients on MCAs were taking additional oral medication outside the MCA.
* Some medicines cannot be packed in compliance aids because they are unstable when exposed to light or moisture (e.g. sodium valproate, olanzapine, fluoxetine, lansoprazole, nifedipine and all dispersible tablets).
* PRN and liquid medicines cannot be packed in a compliance aid.
* Individual drugs are not labelled so inability to identify specific medicines may affect decision making in terms of whether to take or not.
* Disempowers the patient.
* Wastage and increase in cost due to short half-life in MCA. If there are any changes to one medication, all will have to be retrieved and destroyed.
* Restricts patient’s choice
* Devices (eg Nomads) are not tamper proof which could increase the risks of drug errors if drugs are intentionally or non-intentionally moved from one compartment to another.
* They are not child proof and so do not meet the legal requirements regarding child resistant containers
* Process of dispensing takes longer

**Evidence base**

* NICE adherence guideline 2009- emphasises that involving patients in the decision making process (concordance) about medicines and tackling intentional and non-intentional non adherence is the main way to improve medicines taking.
	+ It recommends that specific interventions such as MCAs should only be used where it has been agreed that it would address a specific patient problem
* University of East Anglia report 2005 - there is limited research evidence to show the benefits of MCAs and current assessment techniques may be inadequate for accurately identifying patients who need MCAs
* The Leeds study 2001 - overuse of MCAs in primary care without proper assessments. The initiation and subsequent choice of MCA focus mainly on the needs of carers and professionals. Popularity among patients with majority expressing the need for a system to help them remember to take their medicines although about 39% of patients had difficulties opening the device
* CHUMS project - showed a higher risk of drug errors/incidents in care homes (with nursing) that used the unsealed MCAs compared with the sealed unit dose systems. Also an increase in dispensing errors where MCAs where used compared to standard containers.

**References**

Council Guidance. Monitored dosage systems. Pharmaceutical Journal 1994; 253:881

Nunney et al. how are MCAs used in primary care. PJ 2001; 267:784-789

Campbell A et al. Glasgow pharmacy audit program. Use of multi-compartment compliance aids within a local health care- co-operative

Church C, Smith J. How stable are medicines moved from original packs into compliance aids? Pharmaceutical Journal2006; 276;75-76

Bhattacharya D. indications for multi-compartment compliance aids (MCAs) also known as monitored dosage systems (MDS) provision

School of pharmacy, University of Leeds, University of Surrey. Aldred et al. Care homes use of medicines study 2007.

Assessment of Suitability to initiate MCA.

To be completed by pharmacy team

Patient’s Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Ward/Team: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Pharmacist/Technician name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Please answer the following questions to assess suitability for MCA (circle Yes or No). Generally, if the answer to any of the questions is No, an MCA is unsuitable. (See appendix for further clarification)

1. Is the regimen complex? Yes / No
2. Has medication been reviewed to minimise pill burden? Yes / No
3. Have alternatives to MCA been trialled?
	1. Reminder chart with dosing schedule Yes / No
	2. Medicines Administration Record (MAR) sheets Yes / No
	3. Large print labels Yes / No
	4. Alarms (such as notifications on mobile phones/apps) Yes / No
4. Is the patient oriented in time? Yes / No
5. Have previous problems with compliance been addressed? Yes / No
6. Has future compliance been promoted? Yes / No
7. Is the medication regimen likely to remain unchanged? Yes / No
8. Has the person who will administer the medication demonstrated they can use a compliance aid? Yes / No
9. Will the MCA be the only source of medication? Yes / No
10. Have arrangements been made to fill a compliance aid on an ongoing basis? Yes / No

If patient is assessed suitable to initiate MCA, please state reason below

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Signature:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

This form is valid for 6 months only. Review date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Appendix-

1. Is the regimen complex?

Generally, less than 4 regular medications does not constitute polypharmacy.

1. Has medication been reviewed to minimise pill burden?

Has any attempt been made to reduce the number of different drugs,

number of tablets or frequency of administration?

1. Have alternatives to MCA been trialled?

MCA should not be considered if alternatives have not been explored first.

1. Is the patient oriented in time?

If not, an MCA may not be of benefit. Other prompts, verbal or visual, may be required (e.g. medication reminder card), and may be more effective when used alone.

1. Have previous problems with compliance been addressed?

Patients have a choice about whether to take medicine or not. They may choose not to because they:

* 1. lack insight (do not think they are ill or that medicines are beneficial).
	2. are unwilling to tolerate side effects.
	3. unable to make a reasoned choice because they are disorganised or their psychotic symptoms (e.g. delusion of being poisoned, voices saying negative things about medicines) influence their behaviour.

These patients may not benefit from a compliance aid. A compliance aid will only help if a patient is motivated to take medication.

1. Has future compliance been promoted?

Many reasons for non-compliance cannot be managed by MCA use.

* + 1. Have the patient’s attitudes towards medicines been explored?
		2. Has supervised self medication been attempted on the ward?
		3. Does the patient understand what each medication is for
		4. Is the patient experiencing side effects?
		5. Does the patient have difficulty reading the labels on the containers?
		6. Is the patient (not the staff) motivated to take medication?
		7. Is compliance therapy required?
1. Is the medication regimen likely to remain unchanged?

MCA should not be initiated when medication regimen is changeable.

1. Has the person who will administer the medication demonstrated they can use a compliance aid?

Are the patient’s sight, cognition and manual dexterity up to the task in hand? This should be assessed on the ward with patient or carer if appropriate.

9. Will the MCA be the only source of medication?

Taking additional medications to MCA can cause confusion. What steps are being made to rationalise supply?

10. Have arrangements been made to fill a compliance aid on an ongoing basis?

Will there be an ongoing MCA supply available?

Items that are not considered suitable for MCA due to stability:

* Effervescent, dispersible and soluble medication
* Buccal and mucosal products
* Refrigerated products
* Hygroscopic products, and where original pack contains a dessicant
* Atenolol or Aspirin can’t be placed in the same compartment
* Cytotoxic medication
* Alendronate and Risedronate
* No capsules can be supplied in the same compartment as a MR tablet.
* No soft Gel or Hard gel capsules can be placed in the same compartment.