



***THE ARM-ER APPROACH  
TO CARIES MANAGEMENT***

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# THE ARM-ER APPROACH TO CARIES MANAGEMENT

**'ARM-ER' stands for the following:**

ASSESS, REDEFINE

MANAGE with EDUCATION, then either

REVIEW? REPEAT? RESTORE? REHABILITATE? RE-ESTABLISH?

## WHAT IS IT?

ARM-ER Represents and articulates a frontline approach to caries control whereby the caries process is assessed, and the status of the caries is redefined as (active or arrested). This then allows time for a management protocol to be developed which includes appropriate treatment planning for the individual patient.

The use of one of the silver fluoride materials (AgF, AgF/Snf2, or SDF) all of which have re-emerged in recent years is essential. This is the only means of gaining both immediate and ongoing indication of the status of the caries process and therefore provides opportunities to engage currently accepted approaches to conservative caries management. This management strategy could include a variety of appropriate modern-day restorative materials and techniques, the assessment and planning of recommendations which will offer ongoing improvement in the patient's oral health status and patient education and involvement in their future oral care plan.

The importance of the use of silver fluorides in either of the forms:

1. AgF (a water based 40% silver fluoride solution which is used alone or with a 10% stannous fluoride solution) NOTE: The 40%Agf/ 10%SnF2 combination offers a pH 5.6-6.

*or*

2. SDF (an ammonia based 25-38% silver diamine /diamine fluoride solution - Approximate pH 13)

Both are colourless liquids containing silver and fluoride ions in varying concentrations. The silver ions are antimicrobial and serve to denature proteins, break down cell walls, inhibit DNA replication and inhibit plaque bacterial activity. When applied to the tooth

surface an ionic exchange with enamel or dentine is also exhibited, the caries process is as arrested, and bacterial mass formation is inhibited. This means that the caries process is stopped and the ongoing presence of the silver ions in the dentine tubules serve to provide continued protection from bacterial plaque formation on this site indicating a non-active lesion.

If stannous ions are also applied in the form of stannous fluoride, the stannic ions bind to any unreacted silver ions left in the lesion and then react with the proteins and bacterial cell walls in the highly infected surface layer forming a hard black mass (callus). Because of this, the silver fluoride should be applied to carious lesions before any of the dental caries is removed as the callus serves as a reservoir for further activity, and promotes the ongoing uptake of silver and fluoride ions into the dentine. The more demineralised a lesion, the greater the uptake of silver.

There is evidence that the effect of the fluoride ions on affected enamel or dentine (demineralised) by the caries process is remineralisation, and therefore the tooth tissue is strengthened at the site of exposure to the silver fluoride, resulting in a marked decrease in dentinal hypersensitivity.

#### **Expected outcomes from silver fluoride application:**

1. The status of the caries process is detected (the affected part of the tooth will blacken if active caries is present).
2. Direct and indirect bacterial control is obtained.
3. Immediate improvement of oral status is gained.
4. Remineralisation and desensitisation is established.
5. Less invasive treatment planning becomes possible. Remineralisation provides an increased area of 'improved' dentine allowing for a superior adhesion of filling materials.
6. Patient acceptability because of ease of treatment. The young, the anxious, the medically compromised patient can be treated with a level of surety in caries assessment and oral health status improvement within a minimal intervention approach that has not been offered in recent years. There is evidence also that an improved indication of caries status is achieved within a 1-3 week period. The silver enriched and desensitised dentine reduces the transfer of pain/ pressure/ vibration sensations to the pulp (nerve) of the tooth, and so it is far less likely that

local anaesthetic materials will be required for patients (especially children) undergoing follow-up care for the affected lesion.

7. Improvement in quality of care is achieved with relative ease because of caries status indication and fluoride effect on the lesion. The reduction in a requirement to use local anesthetic to enable pain-free dental treatment for children is significant. There is significantly less dental visit anxiety for the patient - and the clinician.
8. Decreased demand for sedation sessions. Those (the very young, anxious or medically compromised patients) who were previously only able to be treated under sedation (either 'in chair' or general anaesthesia) and often with a level of urgency, have the ability to be treated comfortably in the general dental setting when they are older or more accepting when the oral health status is stabilised with initial treatment with silver fluoride.
9. The cost of providing clinical care using silver fluorides and the ARM-ER approach is significantly lower than alternative more comprehensive treatment plans and especially if sedation was required.

## **MANAGEMENT ...WHERE TO FROM HERE?**

Using silver fluoride and the expected outcomes (as outlined above) to address the immediate needs of the dental patient, the future oral health care recommendations can be formulated with consideration given to the individual patient and their particular oral health requirements both present and future.

Clinicians are strongly encouraged to give due consideration to the age, maturity, compliance, general health status, motivation, socio-economic status, ease of access to dental services as well as the status of the affected tooth/teeth before proceeding with any treatment recommendations for a patient.

The ARM-ER approach makes this possible without compromising the ongoing oral or general health of a patient.

# EDUCATION

Patients or their parents/caregivers must 'buy-in' to any treatment plan a clinician or dental care team formulates. Educating the invested parties in the oral landscape is often missed or misunderstood when patients present for treatment. It is not unusual for anxiety levels to be high for all parties and as a result, the level of communication can be somewhat strained. All too often the recommendations for treatment need to be made and accepted on the spot and without due consideration for ongoing or future oral health considerations. In most situations, the ARM-ER approach allows patients and their families to accept/ adjust/ consider all aspects of the proposed treatment plan without compromising their oral health status in the short or longer terms.

Home care regimes can be altered, time bought, anxiety tamed, restorative treatment delayed or negated and finances organised. With the above consideration the patient, dental team and patients/parents have investment in the agreed follow-up recommendations which may include one for more of the following immediate and/or future strategies to:

- Review
- Repeat
- Restore
- Rehabilitate
- Re- establish

The ARM-ER approach to caries management can be applied to any patient who has a caries process exposure, and every clinician can choose to use silver fluoride in their clinical practice. All already possess the necessary skills and equipment to introduce this approach to caries management in their practices, and in many situations, it is possible to begin active caries management before the patient presents to a clinical setting (hospital or nursing homes situations, very remote areas, community settings etc).