SEDATION - THE DIGITAL AGE?

JANET PICKLES - R A MEDICAL SERVICES
Nitrous Oxide Conscious Sedation
A valuable aid to patient management and treatment success
‘Dedicated purpose-designed machines for the administration of inhalation sedation (formerly termed relative analgesia) for dentistry should be used. Such machines should conform to British Standards and be maintained according to manufacturers guidance with regular, documented servicing.’

Reference: Conscious Sedation in the Provision of Dental Care


Department of Health 2003
The Beginning......

Keighley, West Yorkshire - 5th August 1948
Cyprane founded by three men; Bill Edmondson, Wilf Jones and Lord George Wellesley (a sleeping partner)
Keighley, West Yorkshire - 1964
Cyprane start manufacturing of the Quantiflex range
QUANTIFLEX ANALOGUE
MDM 2019

• Remains the most popular flowmeter

• No major changes to external appearance

• Technically, the name ‘Quantiflex’ was discontinued by the Manufacturer in 2015 - although use of the term still persists in the UK
First Generation of Digital Flowmeters - The Centurion

► In 1990, MDS Matrix based at Buffalo NYS released the first type of Digital Sedation Flowmeter - the Centurion.

► This was a large, bulky flowmeter, appearing top heavy when mounted on the then available type of 4-cylinder stand - the Fraser Harlake.

► The Centurion was only available for a short period of time before being withdrawn.
CENTURION REPLACED BY FIRST GENERATION OF Digital MDM - BLACK FACE

MDS Matrix Centurion Mixer 1990

Matrix Midmark Digital MDM 2001
3rd Generation - White Faced Digital MDM

From 2007, Matrx Midmark revised the Digital MDM, replacing the black faced display with white.
What happened next?

- **2007** - Matrix Midmark discontinues production of the black faced Digital MDM - replacing it with the white faced MDM
- **2008** - Midmark place the Matrix Nitrous Oxide Division up for sale - purchased by Porter Instruments
- **2009** - All production of the MDM & DMDM moved from Buffalo, NYS to Hatfield, Pennsylvania
- **2009** - Porter announce they are withdrawing support for the black faced DMDM with immediate effect
2017 - A new Digital Flowmeter type

Accutron based in Phoenix, Arizona develop a new type of flowmeter - the Digital Ultra
Robust Metal Case

Audible & Visual Alarm

Nitrous Oxide Ratio Control

Excellent Infection Control Properties
Various Mountings Available

► Most popular type of Bracket mounting:

16” Bi-Fold Wall Arm Bracket
4-Cylinder Stand Mount
Optional tethered remote
Printer (Optional)

- robust, compact design
- Large paper capacity
- Thermal printer with good quality text & graphics
- Fast print speed
- Weight: 466 grams
Matrx Digital MDM & MDM 4-Cylinder Stand mounted
Porter MXR & Accutron Ultra Flowmeters
FAQ’S

i. “Do I really need to scavenge?”

ii. “What is Dental Scavenging and what do I need?”

iii. “Difficult to install and expensive”

iv. “Noisy!”
COSHH and HSE Requirements

- COSHH: UK permitted exposure of 100 PPM (Parts Per Million over an 8-Hour TWA (Time Weighted Average))

- Health & Safety: Employers have a Duty of Care i.e. ‘Employers should regard a substance as hazardous to health if it is hazardous in the form in which it may occur in the work activity’

Ref: HSE Control of Substances Hazardous to Health 2002
Chapter 10 10.5 Active dental scavenging for dental installations is an entirely different concept. An active system is one in which there is a flow generated through the patient’s nasal mask and this carries away the waste gases exhaled by the patient. This flow is in the order of 45 L/min and is achieved by connection of the mask (via a suitable flow-limiting adaptor) to either a dental vacuum system or directly to an active scavenging system (BS/EN) wall terminal unit.

Ref: Health Technical Memorandum 02-01: Medical Gas Pipeline Systems Part A: Design, installation, validation and verification Department of Health 2006
Section 8  Active AGS (dental)

Active AGS Systems for use with dental nasal scavenging masks operate by maintaining a flow of air through the outer layer of a specially designed concentric nose mask. Waste gases from the patient pass from inner to outer layers of the mask and are carried away to the exhaust termination by this air stream.
What exactly is Active Dental Scavenging?

Part 1:
Active Breathing System and Nasal Masks

Part 2:
Method of achieving a suitable active draw - now in the region of 40-45 L/min. 3 choices:
- Dental Vacuum System
- Active Medical AGS System (no air break) with direct adaptor connection
- Miniscav
Porter brown Double Mask Breathing System

- Latex Free
- System comes complete with one size of outer mask, three liners and pair of hood-hose connectors
- Robust - capable of lasting for 18 months - two years
- All individual components should be regularly inspected
Pb System can be used with variety of masks
2nd Generation Active Dental Scavenger - ANS (Autoclavable Nitrous Scavenger)

Original Matrx ANS System launched in the 1990's at same time as the Centurion Mixer. Had corrugated hose and much larger scavenger hub. Replaced quite rapidly with the white tubing and smaller scavenger hub. Not popular in the UK – widely used in Europe, especially in Italy. Can only use a single nasal mask type.
Matrix Nasal Masks - Single type only available in autoclavable or disposable

- Autoclavable (Blue only)
  Small, Medium & large

- Single Patient Use Disposable
  - Scented Stickers. 3 sizes
Accutron Nasal Masks – Autoclavable & Disposable – Single mask type
Accutron Breathing Systems - for PIP and Clearview masks
New Mask/Breathing System Developments

Porter Silhouette

Accutron Axess
Radical difference from previous mask/tubing types

Porter Silhouette

Accutron Axess
Obsolete System - Matrix Passive
MINISCAV

➤ Stand alone Scavenger Unit
➤ Only requires a 240v power socket and 15mm fixed external vent
➤ Can be used in multiple surgeries
➤ Easy & cost effective to install and maintain
Anaesthetic Gas Scavenging System - AGSS

► Small Adaptor used in surgeries where an AGS System is installed.
► No air break required in-line (only used for GA systems)
► Must be used with a breathing system with ‘flow-limiter’ in circuit as an AGSS has a draw rate of 80 - 130 L/min
Dental Vacuum

- Only use the High Volume Port
- Must be externally vented
- Has to be capable of giving a sustained draw on the breathing system through the length of the sedation procedure - without any fluctuation or variation
ANY QUESTIONS?