1. TITLE PAGE

FAST TRACK ASSESSMENT OF THE CONSCIOUS SEDATION PATIENT AT THE PRE TREATMENT CONSULTATION IN A DENTAL DAY CLINIC

HENDRIK NAGTEGAAL

A full thesis submitted in fulfilment of requirements for the degree of Magister in Scientiae (Anaesthesiology and Sedation) in the discipline of Anaesthesiology and Sedation, University of the Western Cape.

Supervisor: Professor. J.A. Roelofse, University of the Western Cape and visiting professor at Eastman Dental Institute/University College of London.

April 2005

2. KEYWORDS

FAST TRACK ASSESSMENT OF THE CONSCIOUS SEDATION PATIENT AT THE PRE TREATMENT CONSULTATION IN A DENTAL DAY CLINIC

KEYWORDS

Patient information

Medical

Anatomical

Workload

Phobic aspects

Patient's expectation

Point scoring

3. ABSTRACT

1. TITLE

FAST TRACK ASSESSMENT OF THE CONSCIOUS SEDATION PATIENT AT THE PRE TREATMENT CONSULTATION IN A DENTAL DAY CLINIC.

2. NAME

H. NAGTEGAAL.

3. DEGREE

MSc. (Dent Sedation and Pain Control) in the department of Anaesthesiology and Sedation, University of the Western Cape.

4. TEXT

Fast track assessment of the referred dental patient for conscious sedation in a day clinic. The assessment will take in consideration; patient information, medical history, anatomical observations, treatment required, phobic aspects and patients expectations.

Developing a point scoring system, where total point will determine if a patient is suitable for conscious sedation. A patient will be acceptable for sedation if the patient accumulates a total of less than 10 points.

The design of a form for the point scores system.

This form will help to standardize the criteria on accepting a patient for conscious sedation or not.

5. DATE

April 2005

4. DECLARATION

I declare that FAST TRACK ASSESSMENT OF THE CONSCIOUS SEDATION PATIENT AT THE PRE TREATMENT CONSULTATION IN A DENTAL DAY CLINIC is my own work, that it has not been submitted for any degree or examination in any other university, and that all the sources I have used or quoted have been indicated and acknowledged by complete references.

Full name Hendrik Nagtegaal

Date …..…../…..…./2005

Signed ……..

5. Preface

The research has been carried out during the consultation appointment of a referred patient for dental treatment under conscious sedation at a dental day clinic. The patient was invited to participate in the research.

Each patient has been explained to the nature of the research, and that by taking part or not, will have no effect on their treatment. The identity of the patient is protected by the use of an alternative clinic reference number. The patient can change his mind and withdraw from the research at any time

The patient had time to ask questions prior to decision making.

To take part in this research, were the patients or parent's decision only. Those patients, who volunteered to participate in the research, had to sign a consent form, by both the researcher and the participant with a witness to each signature.

Research has been carried out on the 250 patients. Included into this research are adults and children of both genders at random. All the information was gathered during the consultation between me and the patient. A dental nurse was present during the consultation and acted as witness.

Some part of the research involved questions and answers, on a one to one basis, and anther section involved my own personal observation and interpretation, from the first moment as the patient enter the surgery until the patient departs. I have tried to be consequent and objective at all times.

Al the data I have collected, have been recorded in data tables on a spread sheet. The numbers on the spread sheet correlates with the numbers in brackets of the frame work and refers to that specific entry to collect data from the patients for each chapter.

5.1 PATIENT INFORMATION AND INFORMED CONSENT

A research in pre sedation assessment is being carried out at the Nightingale Clinic
This research will be carried out by **H NAGTEGAAL**
I the under signed, _____

The patient or mother/father of child (name)_____

Address_____

_____

A. I confirm that:

1. I/my child were invited by **H Nagtegaal** to participate in this research study.
2. It has been explained to me that:
   a. This research will only involve clinical observation and physical data of the participants.
   b. Participating, or not in the research, will have no effect on your treatment.
   c. It may help to streamline the pre consultation, for a faster and more effective procedure.
   d. The information will be kept in strict confidence.
   e. Their will be no link between the clinical information and participants identity.
   f. The result will be published for the benefit of other researchers.
   g. If I change my mind I can withdraw from the research project at any time with no adverse effects.
   h. I have been given a chance to ask questions and they have been explained to me.
   i. I have not been forced to participate, and this project will mean no extra cost to me.

B. I hereby declare that I volunteer to participate in this study
Signed at The Nightingale Clinic on ____/_____/2004

_____ _____
PATIENT/PARENT WITNESS

RESEARCHER
I **H Nagtegaal** declare that:
1. The information in this document has been explained to the patient/parent
2. The patient/parent has been encouraged to ask questions if anything is unclear

Signed at The Nightingale Clinic on_____/_____/2004

_____ _____
H Nagtegaal/researcher WITNESS

IMPORTANT INFORMATION
Dear patient/parent.
Thank you for participating in this study, if you need any additional information please contact The Nightingale Clinic at 020 85481288

6 CONTENTS

A. Preliminary section page

B. Main text

CHAPTER 1

PATIENT INFORMATION

I. INTRODUCTION

I have gathered physical information from the patients, recorded it on a spread sheet with reference to the following patient information:

1.1 Clinic reference number

1.2 Date of birth

1.3 Age

1.4 Sex

- 1.4.1 Male (1)
- 1.4.2 Female (2)

1.5 Race

- 1.5.1 Caucaition (1)
- 1.5.2 Afro/Caribbean (2)
- 1.5.3 Asian (3)
- 1.5.4 Oriental (4)
- 1.5.5 Mix race (3)
- 1.5.6 Others (6) (mainly eastern Europeans)

1.6 Body data

- 1.6.1 Mass in Kg
- 1.6.2 Height in M
- 1.6.3 Body mass index
- 1.6.4 BMI grade

II. DATA TABLES

Table 1

NR	1. PATIENT INFORMATION								
	1.1	1.2	1.3	1.4	1.5	1.6			
	REF. NR	DOB	AGE	SEX	RACE	BODY DATA			
						MASS	HEIGHT	BMI	GRADE
1	41151	18/02/1998	6	2	4	29	113	23	0
2	9304	02/07/1964	40	2	2	119	172	39	2
3	41060	21/06/1979	25	1	1	100	190	28	1
4	41067	14/07/1998	6	1	3	19	116	14	0
5	32862	16/08/1977	26	2	1	79	163	29	1
6	40971	09/02/1972	32	2	1	73	157	29	1
7	41047	25/11/1997	6	2	2	21	116	15	0
8	40816	27/03/1967	37	1	2	70	174	23	0
9	41055	12/08/1979	25	2	1	80	157	33	2
10	40827	15/02/1995	9	2	2	35	130	21	0
11	22238	29/10/1963	40	2	2	65	157	26	1
12	41001	23/02/1971	33	1	1	94	166	34	2
13	41015	03/08/1980	23	2	5	73	163	26	1
14	40962	19/02/1996	8	2	1	52	132	30	2
15	41081	06/03/1990	14	1	3	60	169	21	0
16	41052	21/01/1986	18	2	1	51	164	19	0
17	25049	24/08/1993	10	1	1	45	147	21	0
18	41179	08/09/1975	28	1	1	120	179	37	2
19	9628	14/07/1988	16	2	6	55	150	24	0
20	41162	09/07/1992	12	2	6	84	164	31	1
21	17830	20/08/1974	29	1	2	74	174	24	0
22	40881	09/01/1995	9	2	4	39	142	19	0
23	41086	05/09/1970	33	1	6	70	138	36	2
24	41097	28/10/1997	6	2	3	20	111	16	0
25	41247	22/05/1976	28	1	1	61	178	19	0
26	41107	20/11/1990	13	2	1	85	163	31	2
27	41170	27/05/1952	62	2	2	63	155	29	1
28	41130	18/06/1980	24	1	1	84	185	19	0
29	41158	24/12/1981	22	1	2	55	163	21	0
30	41133	17/03/1974	30	2	2	69	165	25	1
31	41141	09/12/1998	5	2	3	20	117	15	0
32	35500	03/12/1948	55	2	2	84	160	34	2
33	12038	23/03/1977	27	1	3	78	180	23	0
34	39454	15/06/1975	29	2	1	93	169	34	2
35	41122	21/03/1978	26	2	6	67	158	27	1

NR	1. PATIENT INFORMATION								
	1.1	1.2	1.3	1.4	1.5	1.6			
	REF. NR	DOB	AGE	SEX	RACE	BODY DATA			
						MASS	HEIGHT	BMI	GRADE
36	41187	03/03/1984	20	1	2	85	170	29	1
37	41261	30/07/1998	5	2	2	30	131	18	0
38	41364	21/12/1965	38	2	2	72	163	21	0
39	41226	12/10/1988	18	2	2	52	165	19	0
40	41199	10/04/1946	58	2	1	58	153	25	1
41	41206	13/09/1957	46	1	2	71	179	22	0
42	41244	28/12/1988	15	1	1	75	177	24	0
43	19836	04/02/1996	8	2	2	20	127	13	0
44	40664	11/01/1972	32	1	6	65	195	18	0
45	41289	22/03/1987	17	2	3	39	155	16	0
46	7670	31/12/1997	6	2	1	22	118	16	0
47	41139	01/11/1992	11	2	2	53	156	22	0
48	41365	20/07/1988	16	2	3	42	152	19	0
49	15021	02/07/1995	9	1	2	36	134	20	0
50	41204	31/01/1971	33	1	1	82	178	26	1
51	41183	09/08/1970	33	1	1	100	174	33	2
52	29571	12/11/1997	6	1	4	23	124	15	0
53	41283	13/08/1998	5	2	6	26	122	18	0
54	40016	25/11/1958	45	2	2	92	152	40	2
55	41256	28/09/1977	26	2	2	53	162	20	0
56	41131	10/06/1959	45	2	2	74	165	27	1
57	41211	09/09/1997	6	1	3	18	118	13	0
58	41087	22/01/1994	10	1	1	36	151	16	0
59	41236	29/11/1954	49	2	1	62	161	24	0
60	41246	17/12/1973	30	1	1	85	178	27	1
61	17678	01/11/1993	9	1	3	30	136	20	0
62	41359	16/03/1991	13	2	1	50	168	19	0
63	41134	27/09/1963	40	2	1	85	153	36	2
64	41262	10/03/1995	9	2	3	25	122	17	0
65	41172	07/11/1961	36	2	1	60	158	24	0
66	29812	21/05/1952	52	1	2	79	176	25	1
67	41317	18/04/1980	24	2	1	60	164	22	0
68	41249	13/09/1970	33	2	1	64	162	24	0
69	14082	16/02/1989	15	2	5	83	161	32	2
70	41381	25/09/1952	51	2	1	51	153	22	0

NR	1. PATIENT INFORMATION								
	1.1	1.2	1.3	1.4	1.5	1.6			
	REF. NR	DOB	AGE	SEX	RACE	BODY DATA			
						MASS	HEIGHT	BMI	GRADE
71	41181	18/02/1973	31	2	2	98	176	31	1
72	41287	2/22/86	17	2	3	54	163	20	0
73	41402	19/11/1978	25	2	1	65	168	23	0
74	41173	30/11/1974	29	2	1	45	155	19	0
75	41477	16/10/1996	7	2	4	38	138	15	0
76	41494	17/03/1982	22	2	1	62	170	21	0
77	34243	12/12/1960	43	2	3	58	153	24	0
78	41468	12/06/1994	9	1	3	30	145	14	0
79	41559	13/09/1998	5	2	2	24	123	19	0
80	41425	18/02/1996	8	2	3	30	135	16	0
81	41353	12/12/1962	30	2	1	46	162	17	0
82	40056	10/07/1977	27	1	1	69	180	21	0
83	41441	10/02/1942	62	2	3	60	151	26	1
84	41442	03/08/1974	29	2	2	49	164	18	0
85	32472	25/03/1986	18	2	4	30	167	10	0
86	41487	17/04/1979	25	2	2	89	180	27	1
87	41403	29/07/1992	12	2	3	45	151	20	0
88	40758	26/11/1988	15	2	1	52	163	19	0
89	41202	25/02/1959	45	2	1	67	167	24	0
90	41427	23/04/1996	8	2	3	20	123	13	0
91	41362	02/08/1993	10	2	1	54	149	24	0
92	41454	22/10/1979	24	2	1	50	172	17	0
93	41387	23/09/1993	9	2	3	29	137	15	0
94	41469	26/08/1995	8	1	1	30	131	18	0
95	41231	11/09/1981	22	1	2	48	170	17	0
96	39247	20/10/1979	24	2	2	55	153	23	0
97	41457	15/10/1974	29	2	1	70	163	26	1
98	39101	01/02/1996	8	2	3	40	142	20	0
99	36733	20/02/1974	30	1	3	73	175	23	0
100	41190	09/09/1994	9	1	2	26	133	15	0
101	41479	17/05/1936	68	2	1	50	150	22	0
102	41594	04/02/1998	6	1	2	23	117	17	0
103	41449	25/06/1996	8	1	1	26	126	16	0
104	33803	30/12/1996	7	1	1	23	124	15	0
105	41347	19/04/1979	25	1	1	63	162	24	0

NR	1. PATIENT INFORMATION								
	1.1	1.2	1.3	1.4	1.5	1.6			
	REF. NR	DOB	AGE	SEX	RACE	BODY DATA			
						MASS	HEIGHT	BMI	GRADE
106	12527	12/12/1944	59	2	1	64	162	24	0
107	41418	04/06/1967	37	1	1	130	138	68	3
108	25835	19/10/1990	13	2	2	58	170	20	0
109	41593	19/10/1969	34	2	6	93	180	29	1
110	410773	15/05/1995	9	1	2	35	140	18	0
111	36634	27/11/1987	16	2	1	58	174	19	0
112	2250	05/05/1988	16	1	1	75	169	26	1
113	41591	22/10/1971	26	2	1	67	161	26	1
114	41706	03/01/1998	6	1	6	19	106	17	0
115	41507	01/11/1937	66	1	1	70	165	26	1
116	41300	24/09/1999	4	2	1	22	107	19	0
117	41598	03/03/1947	57	1	1	83	163	31	2
118	40603	07/09/1999	4	2	3	19	110	16	0
119	41778	31/05/1981	23	2	3	95	178	29	1
120	41702	18/10/1981	22	1	2	81	186	23	0
121	41700	17/08/1980	24	2	1	91	166	33	2
122	41780	23/01/1984	20	2	1	71	170	24	0
123	41690	09/03/1959	45	1	2	71	174	23	0
124	39506	14/06/1987	17	1	6	60	169	21	0
125	21049	20/06/1996	8	2	1	43	134	24	0
126	41605	06/09/1986	17	2	2	80	178	25	1
127	37839	03/06/1971	33	1	3	80	182	24	0
128	41726	25/05/1964	40	1	1	120	180	37	2
129	41572	27/02/1993	11	1	3	28	142	14	0
130	41818	02/01/1983	21	2	1	65	172	22	0
131	41735	30/11/1997	6	2	3	20	119	14	0
132	41562	27/10/1980	23	2	3	42	149	19	0
133	41746	08/11/1995	8	1	2	30	121	20	0
134	41534	18/12/1993	11	2	1	60	155	24	0
135	18881	20/03/1995	9	2	1	21	121	14	0
136	15440	31/03/1962	42	1	1	62	172	21	0
137	4663	28/10/1982	21	1	2	65	172	22	0
138	41743	05/09/1976	22	1	2	78	175	25	1
139	41803	18/09/1997	6	1	1	38	127	24	0
140	41349	10/12/1960	43	1	6	90	167	32	2

NR	1. PATIENT INFORMATION								
	1.1	1.2	1.3	1.4	1.5	1.6			
	REF. NR	DOB	AGE	SEX	RACE	BODY DATA			
						MASS	HEIGHT	BMI	GRADE
141	41810	21/01/1986	18	1	3	74	175	24	0
142	38216	04/09/1965	38	2	3	79	156	32	2
143	41708	14/05/1981	23	2	3	54	165	20	0
144	41807	03/03/1961	43	2	3	81	168	29	1
145	41886	15/12/1954	49	1	1	71	175	24	0
146	41658	06/03/1994	10	1	3	23	132	13	0
147	41894	21/02/1983	21	1	2	60	170	21	0
148	42002	18/06/1985	19	1	3	62	173	20	0
149	41877	07/07/1980	24	2	1	68	162	26	1
150	42017	08/04/1977	27	1	1	83	177	29	1
149	41877	07/07/1980	24	2	1	68	162	26	1
150	42017	08/04/1977	27	1	1	83	177	29	1
151	41921	30/03/1994	10	2	2	29	139	15	0
152	41904	25/12/2027	76	2	1	76	160	29	1
153	42615	01/08/1959	45	2	3	66	158	28	1
154	41906	10/06/1998	6	1	1	20	115	15	0
155	41889	31/03/1961	43	2	1	80	155	33	2
156	41978	18/08/1975	25	1	6	58	170	20	0
157	41707	08/11/1996	7	1	6	29	130	17	0
158	19303	13/08/1986	18	2	1	87	155	36	2
159	41916	18/06/1976	28	1	6	70	171	24	0
160	42061	01/12/1966	37	1	4	87	175	28	1
161	42034	18/06/1979	25	2	2	115	166	41	3
162	42014	31/05/1985	19	1	2	68	185	20	0
163	42157	10/10/1977	26	1	1	74	184	22	0
164	41879	07/06/1986	18	2	1	54	160	21	0
165	42102	05/09/1979	24	1	3	93	175	31	2
166	41952	27/04/1948	56	1	1	68	161	26	1
167	42003	08/12/1957	46	1	3	79	171	27	1
168	42106	24/11/1969	34	1	1	60	168	21	0
169	42119	10/05/1997	7	2	2	22	122	15	0
170	42051	01/04/1981	23	2	3	56	150	24	0
171	42192	07/07/1998	8	2	3	18	112	14	0
172	42170	11/12/1998	8	2	1	21	121	14	0
173	42077	29/01/1997	7	2	1	38	128	23	0
174	41315	25/07/1991	13	2	5	40	158	16	0
175	41920	29/10/1996	7	1	3	24	125	15	0

NR	1. PATIENT INFORMATION								
	1.1	1.2	1.3	1.4	1.5	1.6			
	REF. NR	DOB	AGE	SEX	RACE	BODY DATA			
						MASS	HEIGHT	BMI	GRADE
176	42041	17/05/1998	6	1	3	18	118	13	0
177	42099	13/01/1994	10	2	2	36	145	17	0
178	42118	01/03/1984	15	2	1	61	158	24	0
179	42147	17/07/1979	25	2	1	93	171	32	2
180	41152	17/11/1997	6	2	3	23	117	17	0
181	42129	03/03/1990	14	2	1	38	160	15	0
182	24751	17/03/1997	7	2	1	20	119	14	0
183	4174	14/01/1998	15	1	3	52	157	21	0
184	41955	26/04/1984	20	2	2	56	156	23	0
185	31511	12/11/1963	40	2	1	77	157	31	2
186	42205	30/05/1997	7	2	6	24	121	16	0
187	42146	21/08/1967	37	2	6	51	156	22	0
188	42325	12/04/1934	70	1	3	74	160	29	1
189	42368	28/07/1941	63	1	1	98	182	29	1
190	42093	28/05/1974	30	2	1	55	158	22	0
191	42241	05/07/1968	38	2	2	57	160	22	0
192	42243	04/12/1993	10	2	1	27	135	15	0
193	42284	22/10/1975	29	1	2	120	174	39	2
194	42166	25/02/1997	7	2	3	18	110	15	0
195	42167	17/07/1999	5	2	3	15	110	12	0
196	42186	10/08/1976	28	2	1	65	159	25	1
197	42193	14/12/1992	11	2	3	53	152	23	0
198	29714	19/07/1995	9	1	3	35	143	18	0
199	42389	08/09/1977	26	1	2	68	173	22	0
200	42201	10/11/1971	32	2	3	42	152	19	0
201	42092	20/03/1989	15	2	6	55	165	20	0
202	42334	09/11/1954	58	2	1	68	160	26	1
203	42333	12/12/1985	18	1	1	94	184	27	1
204	42469	01/11/1976	27	1	1	68	176	22	0
205	42139	13/10/1997	6	2	1	43	129	26	1
206	42395	01/12/1976	27	2	3	80	162	30	2
207	42329	19/01/1997	7	2	2	48	140	24	0
208	42491	09/09/1998	5	1	1	22	110	18	0
209	42256	04/03/1970	34	2	1	78	170	27	1
210	42155	14/08/1994	10	2	4	30	129	18	0
211	42326	09/03/1953	51	2	1	67	163	24	0
212	42335	04/07/1997	7	1	3	32	126	20	0

NR	1. PATIENT INFORMATION								
	1.1	1.2	1.3	1.4	1.5	1.6			
	REF. NR	DOB	AGE	SEX	RACE	BODY DATA			
						MASS	HEIGHT	BMI	GRADE
213	42429	17/11/1997	4	1	6	20	116	15	0
214	42463	15/06/1959	45	2	6	75	165	27	1
215	42517	07/04/1960	44	1	1	78	172	26	1
216	42407	02/09/1990	14	1	2	37	151	16	0
217	15841	21/03/1988	16	1	2	50	178	16	0
218	42410	18/12/1972	32	2	3	60	153	25	1
219	42472	01/06/1963	41	1	3	65	160	25	1
220	42652	13/08/1976	28	2	1	62	145	29	1
221	42804	06/12/1969	35	2	2	88	156	36	2
222	42459	28/01/1980	24	2	2	51	147	23	0
223	42466	29/11/1967	36	2	1	52	159	20	0
224	42508	08/02/1997	7	1	2	17	115	13	0
225	42809	07/02/1996	8	2	2	26	131	15	0
226	42510	24/08/1994	10	2	2	23	125	15	0
227	42481	14/06/2000	4	1	2	19	104	15	0
228	28770	17/07/1972	32	2	2	80	163	30	2
229	28081	26/04/1991	7	1	2	24	124	16	0
230	42398	11/09/1986	17	2	4	45	155	20	0
231	42450	09/01/1985	19	1	6	60	179	19	0
232	22254	01/08/1996	8	2	2	30	126	19	0
233	36074	20/05/1981	23	2	1	54	152	23	0
234	42569	08/09/1998	6	1	1	22	113	17	0
235	42608	29/03/1998	6	2	2	29	119	20	0
236	42246	05/02/2026	78	1	1	97	175	32	2
237	42574	07/01/1998	6	2	3	27	121	19	0
238	42708	31/03/1973	31	1	5	78	172	26	1
239	42560	10/11/1995	8	1	2	30	140	15	0
240	36338	14/03/1997	7	1	1	23	117	17	0
241	42543	05/01/1966	38	2	3	73	165	27	1
242	42557	02/06/1997	7	2	3	20	115	15	0
243	42553	25/04/1986	24	2	1	59	154	24	0
244	42595	25/01/1974	30	2	3	48	157	19	0
245	42340	26/05/1982	22	2	3	61	160	23	0
246	42622	18/10/1996	7	1	2	28	131	16	0
247	23541	23/06/1977	27	1	2	78	172	26	1
248	26902	30/11/1995	8	2	3	24	131	14	0
249	42554	17/08/1999	5	1	3	19	108	16	0
250	42376	18/09/1997	6	2	3	20	117	15	0

III. DISCUSSION

1.1 CLINICAL REFERENCE NUMBER

The clinic reference number, is the number which I have allocated to the participating patients in my research, to protect their identity and to separate the link between clinical information and patient's identity.

1.2 DATE OF BIRTH1

The patient's age information was obtained by their date of birth, on their records, thus I had no need to ask for it directly.

1.3 **AGE**

The age of the referred patient fluctuate between 4 years young, to 79 years old. The numbers in each age group are different, with peaks in the 6 to 10 year age group, which are very expectable and acceptable, due to rapid decay associated with poor oral hygiene, there is a peak in the late teens to early twenties which is expected with patients suffering from wisdom teeth, problems. The dental phobic and nervous patients keep the numbers constant over the age spectrum.

From the chard it is obvious that dental sedation is in big demand over a wide age group, up to the fifties and gradually decline as the patients get older. This is probably due to the fact that older patients have fewer teeth present in their mouths and also their diet is less sugar orientated compare to children. The older generation have got more periodontal problems in relation to conservation.

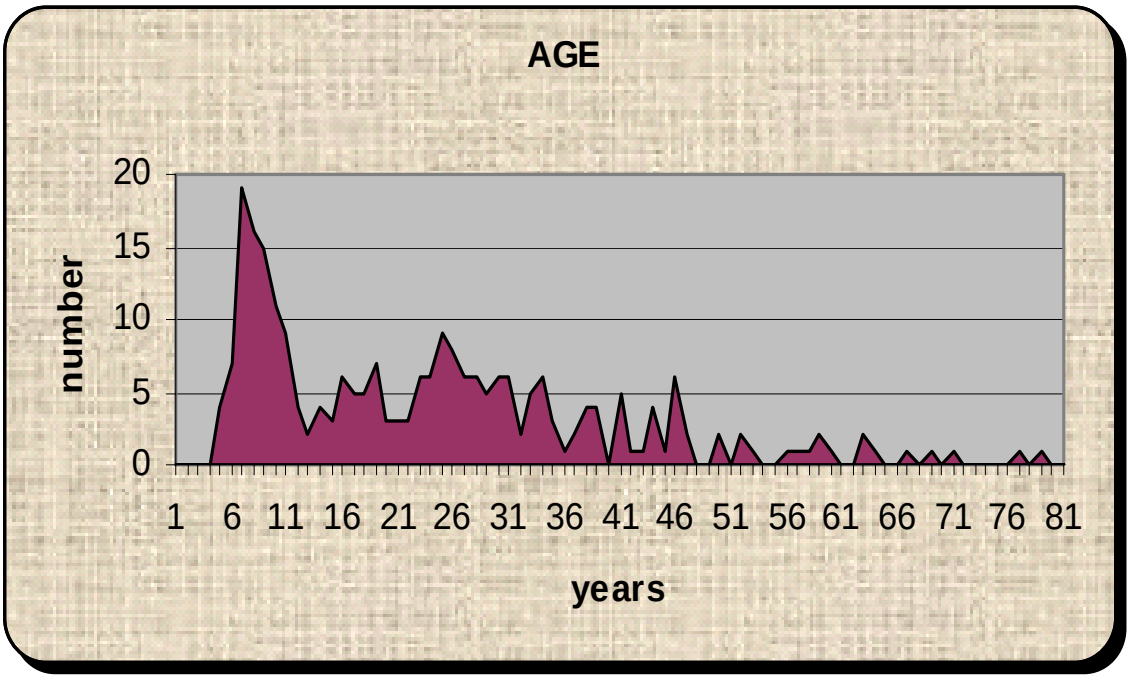


Fig. 1 Age.

The ratio between children of age 16 and under is a total of 100 or 40% and the adults are 150 or 60% of the research total of 250 patient.

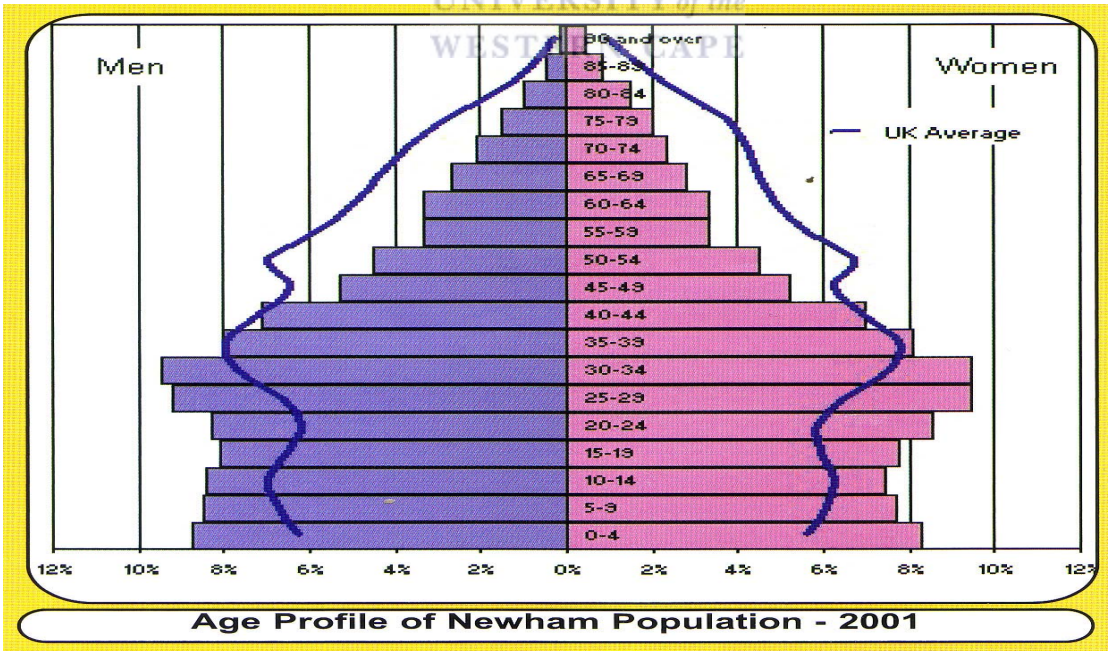


Fig. 2 Age profile.

The age profile of Newham population in the census of 2001, one can observe that the populating is relatively young, with the majority under 40 and the age breakdown, show a steady decline in percentage of the population as age increase(1)

1.4 SEX.

Census of 2001 demonstrates that the population up to age 24, have got more males in than females. The age group from 25 to 64, the male and females are about equal and above age 65 the females out number the males.

The male gender was in the minority of 100 patients to 150 female patients, the ratio is 40% males to 60% females.

The conclusion is that the demand for sedation under the female gender, is greater than, that for the male counter part by 20%. This difference is mainly made up by the age group between 25 to 50 years old females.

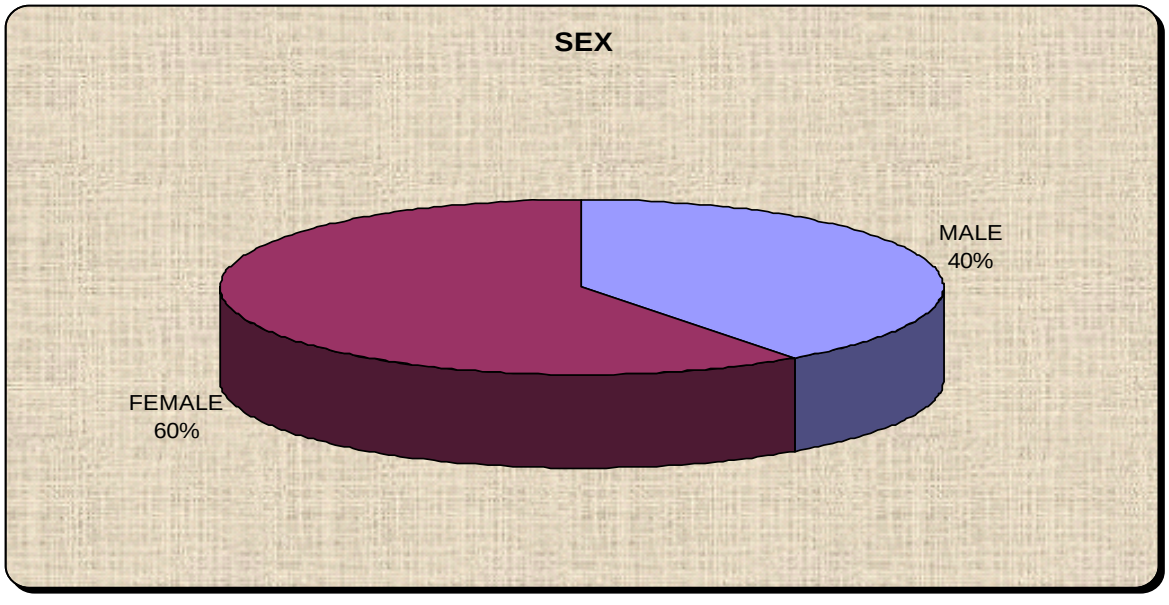


Fig.3 Sex.

1.5 RACE

Newham has the most ethnically diverse population in England at the census of 2001. See insert chart below of diversity in the population. The biggest single group is the whites (40%), followed by Asians (32%), blacks (21%), Chinese (1%) and others (6%). The ethnic diversity is made up of cultures all over the world, but mainly from the countries the British has occupied during the colonial days, and in the last decade more eastern Europeans have made the move. (2)

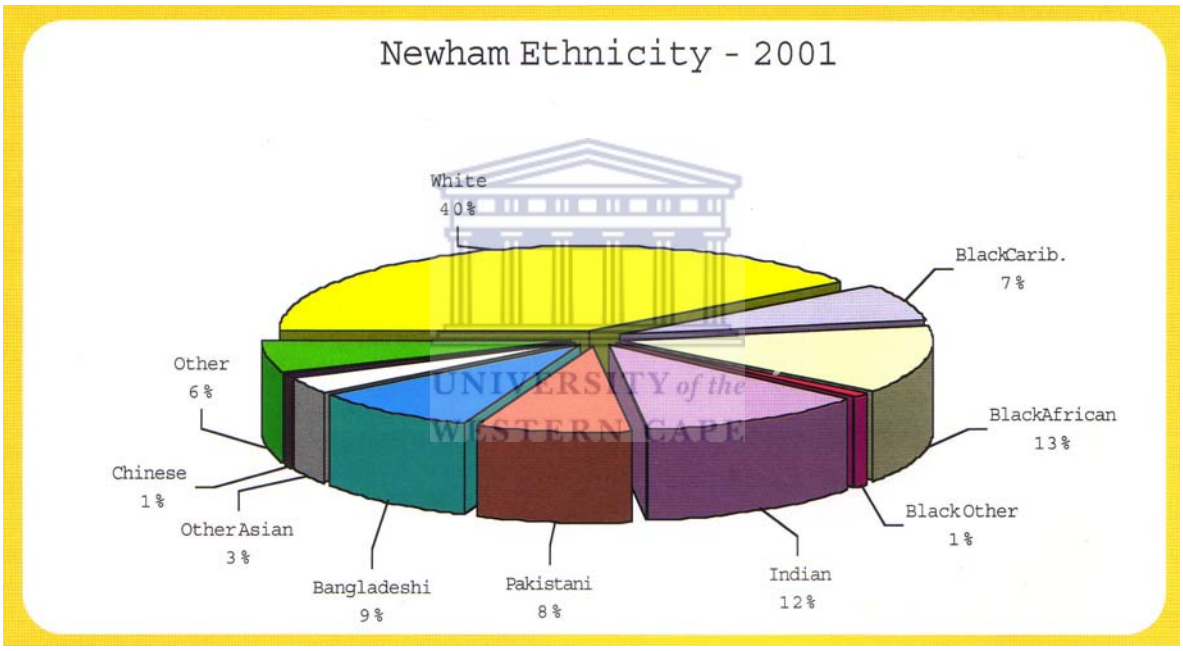


Fig. 4 Ethnicity.

I found that the proportional representative of race in the research were 37% Caucasians (1) a total of 95 patients. Afro/Caribbean 26% a total of 64 patients. Asian 24% a total of 59 patients. Orientals 3% a total of 8 patients. Mix race 2% a total of 4 patients and the rest are mainly eastern Europeans 8% a total of 19 patients

Geographically Newham is located in the eastern side of London on the north side of the Themes River in the United Kingdom. Newham's population is cosmopolitan.

Comparing the national statistics and the research group, I have found that the greatest demand for sedation occurs in the Afro/Caribbean, others and Chinese population, where the demand for sedation is higher than their proportional representation in the national statistics. The whites are just lower, with the Asians demand for sedation the least.

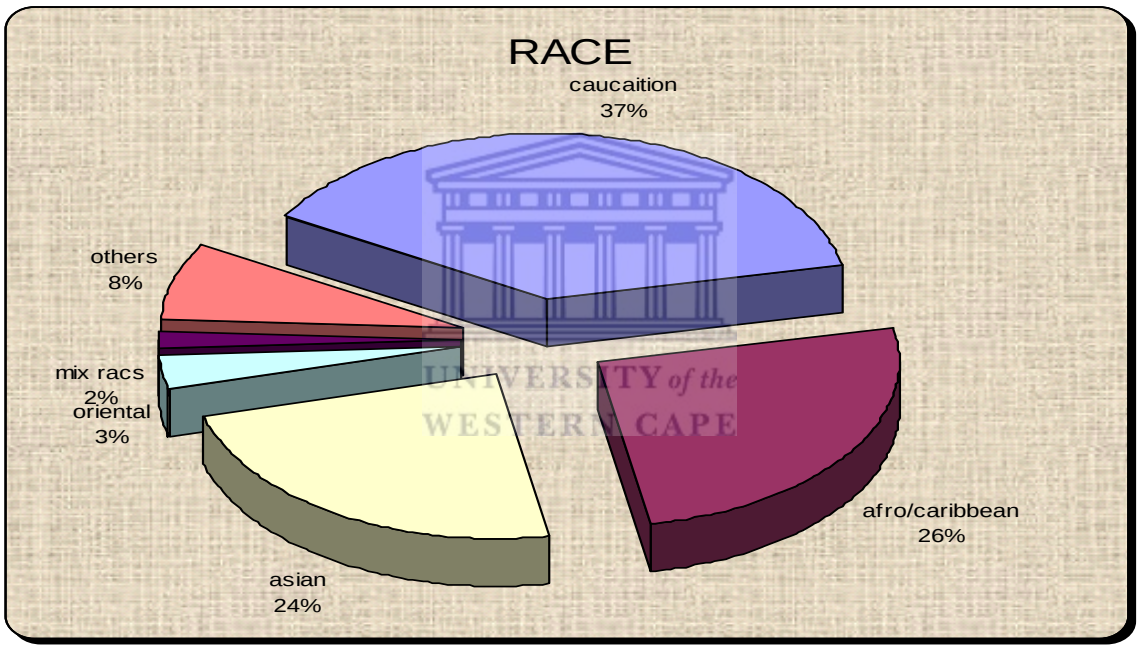


Fig. 5 Race.

1.6 BODY DATA

The body data is a combination of the patient's weight in kilograms and height in meters. Patients body mass index (BMI) can be calculate by the following formula:

BMI =Weight (kg) divided by Height (m) times Height (m)

1.6.1 MASS

The weight of the patients participating in the research varied between, as little as 15 kg for children, to as much as 130 kg, for adults.

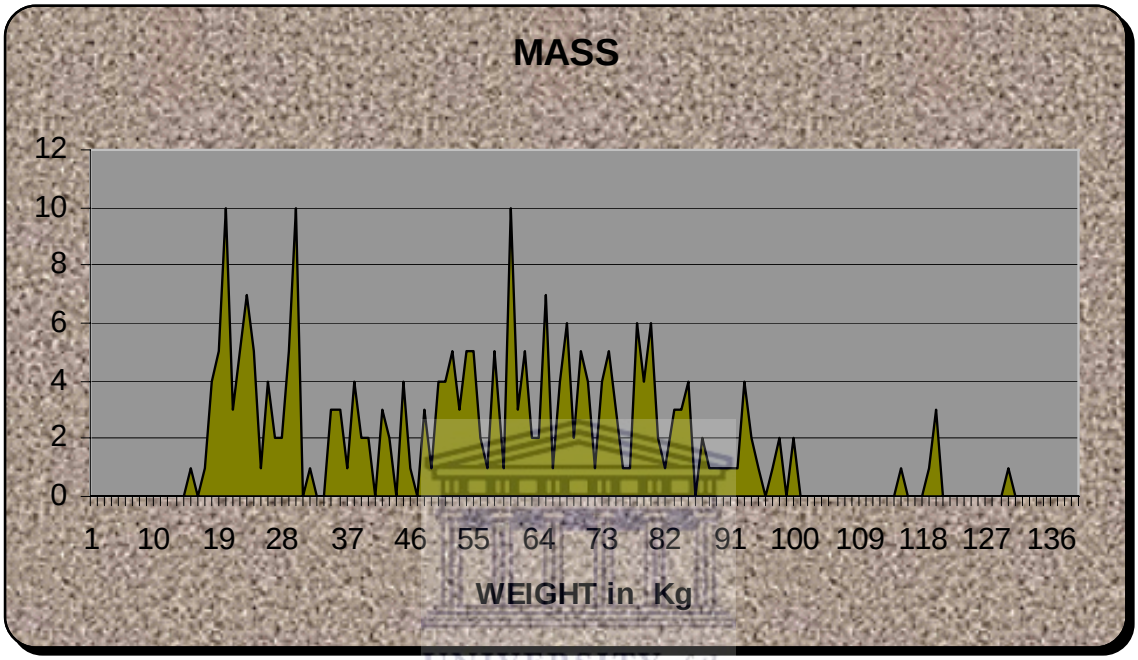


Fig. 6 Mass.

The average weight for children is between 20-39 kg, the teenagers peak around 50 kg and the adults mainly between 60-85 kg. The obese patients in each category must receive special attention in conjunction with their height, in working out their body mass index and grade.

For the patient under 6 years old, it is important to take the weight into consideration and for the older patients the BMI and BMI-grade must also be taken in consideration.

Obesity is present in average of 15 % in 6-19 years olds and an additional 15% is at risk.

1.6.2 HEIGHT

The small children is between 110 - 130 cm, the adults is between 150 -180 cm and teenagers, fill in the space between, the kids and adults.

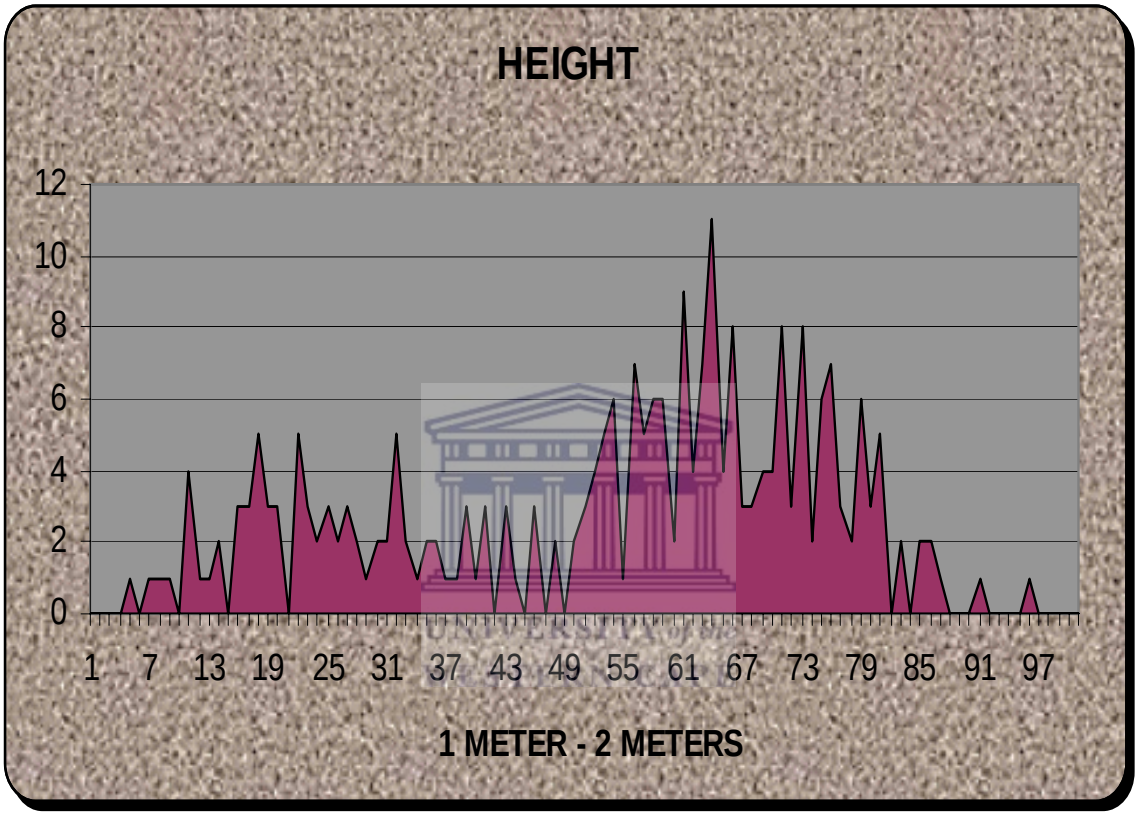


Fig.7 Height

Children less than 1 meter, are difficult to treat under sedation in a dental chair. Most dental chairs are not designed to accommodate very small children for sedation. The height of the patients is only of use to calculate the BMI.

Adult height weight chart

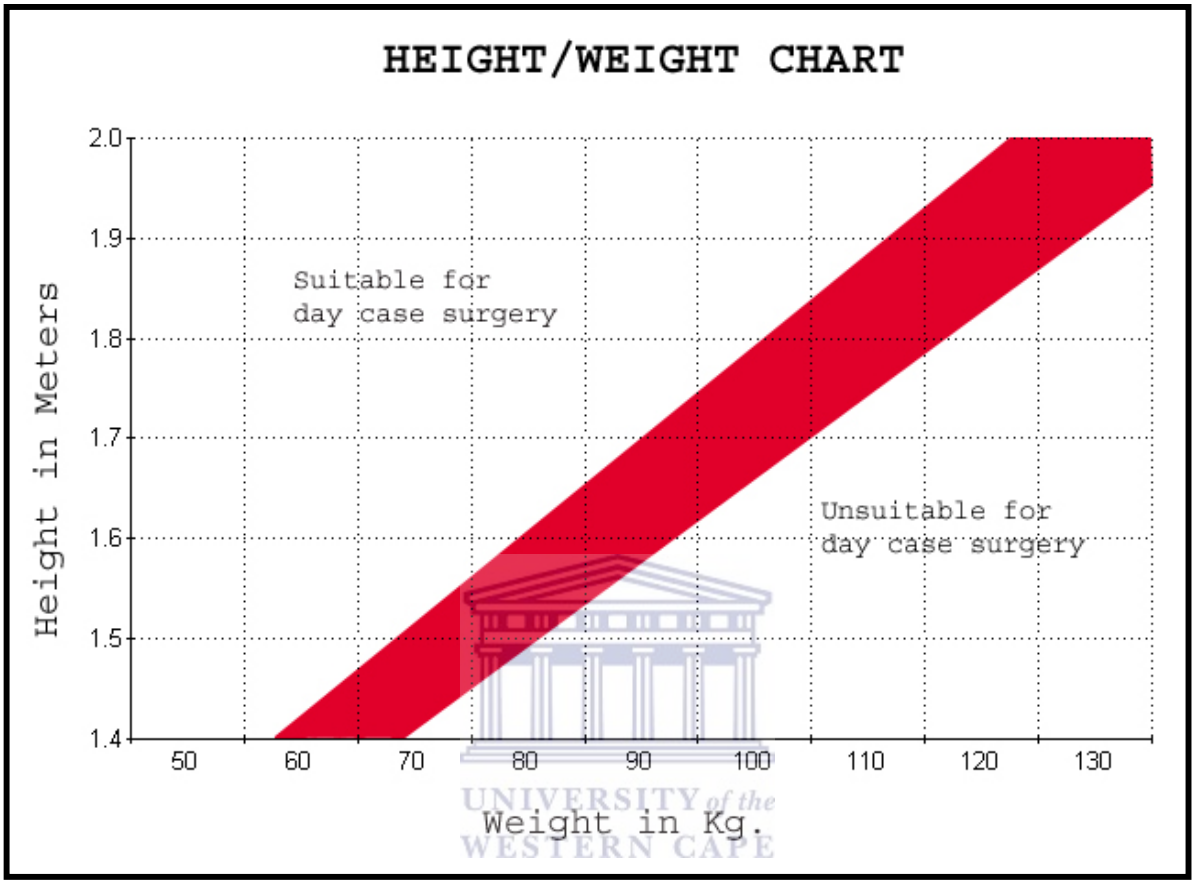


Fig. 8 Height/Weight.

The height /weight chart is the quickest way to evaluate patients, whether they are suitable or not. This is not an exact method. As the red area is rather large, the BMI seems to be a better indication. (3)

Children and teenagers can not be measured on adult charts and there is a difference between boys and girls. For them I have used the Stature-for-age and Weight-for-age percentiles for boys between 2 to 19 years old. Stature-for-age and Weight-for-age percentiles for girls between 2 to 19 years old. See charts (4)

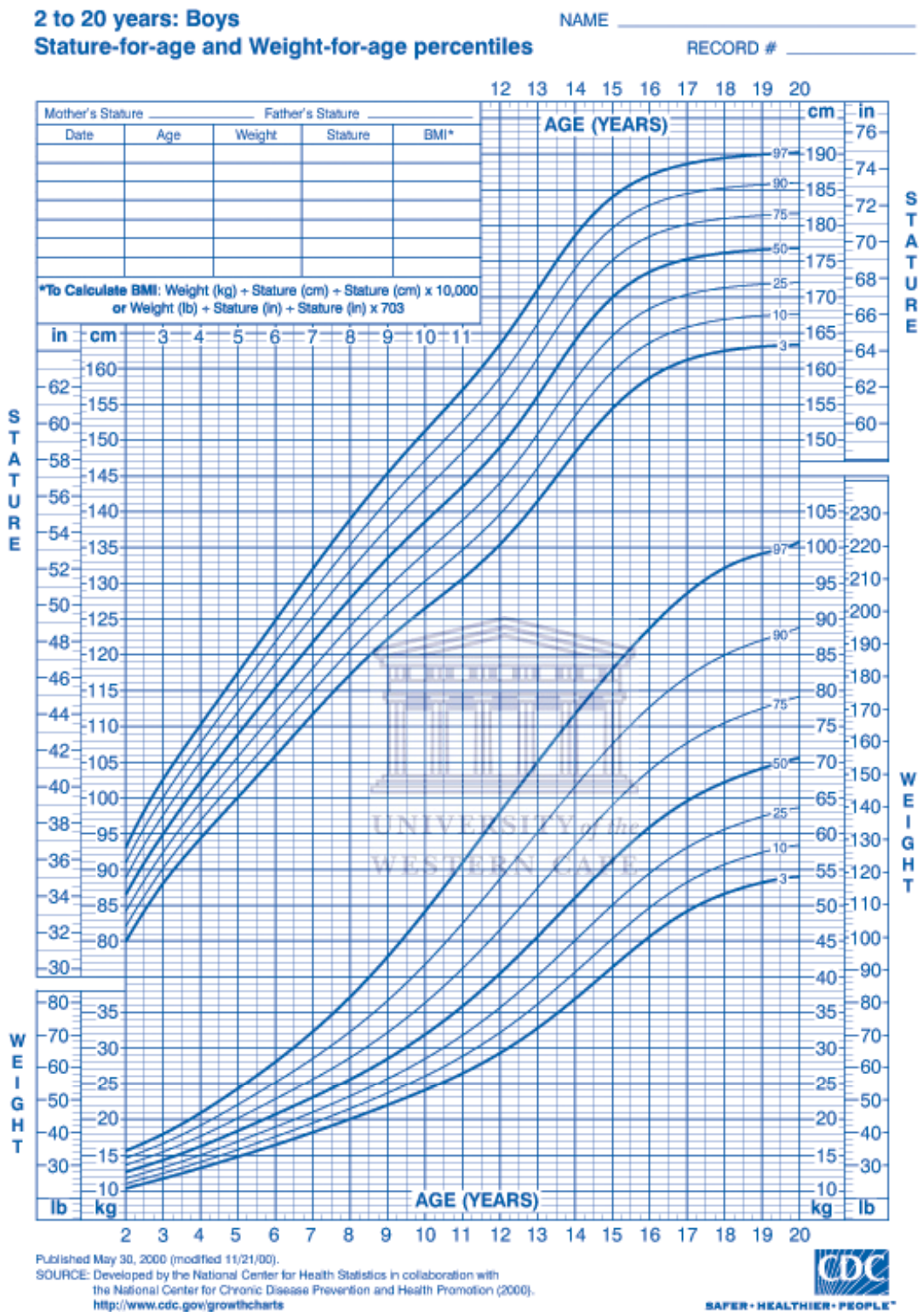


Fig. 9 Boys, Stature-for-age and Weight-for-age percentiles.

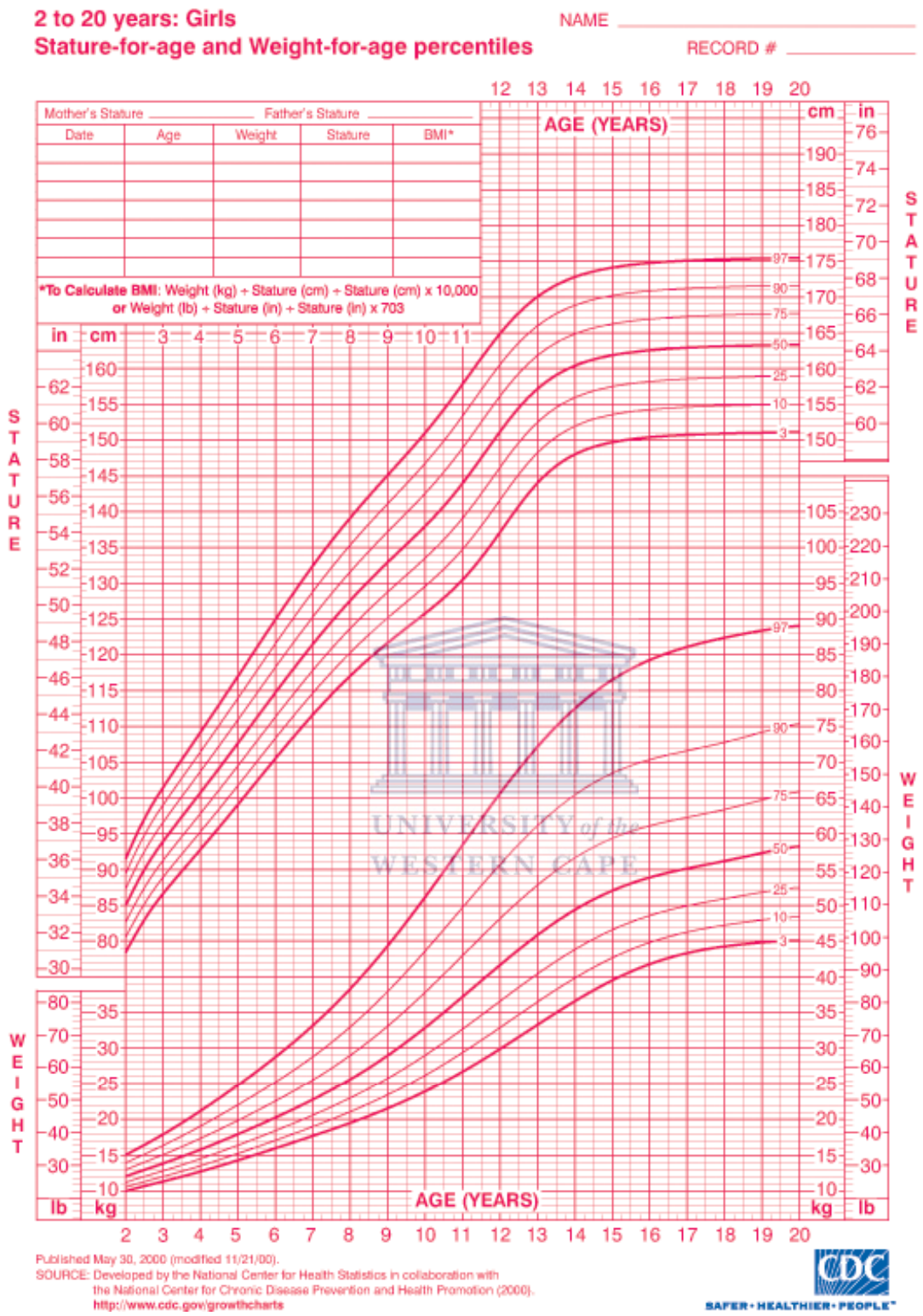


Fig. 10 Girls, Stature-for-age and Weight-for-age percentiles.

1.6.3 BODY MASS INDEX

The body mass index (BMI) is a tool for indicating weight status in adults. It is a measure of weight for height. For adults over 20 years old BMI falls into one of these categories.

1. BMI/WEIGHT STATUS

Table 2

BMI	Weight Status
Below 18.5	Underweight
18.5 - 24.9	Normal
25.0 - 29.9	Overweight / Pre-obese
30 - 34.9	Obese I
35 - 39.9	Obese II
40 and Above	Obese III

The body mass index can be calculated by the following formula:

BMI = weight (k) / height (m) x height (m)

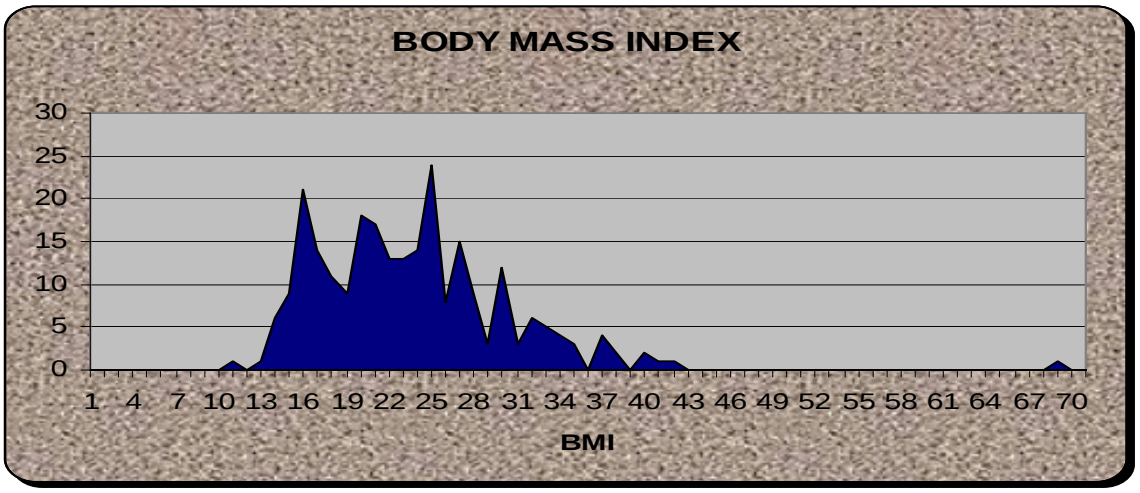


Fig. 11 Body Mass Index.

BMI has been define by the medical standard for obesity measurement in several countries since early 1980's and is the measure employed in, World Health Organizations.

BMI can also measured by a variety of devices such as linear tables or dial supplied by medical companies for e.g.

XENICAL ORLISTAL

Fig. 12 Orlistat.

By Xenical orlistat where you line the height and weight up on the top scale and then reed the BMI off on the bottom scale.

The BMI can also be calculated by accessing the internet at various sites, as the http:// www. halls.md/body-mass-index/bmi.htm.

BMI correlates with the body fat. The relation between fatness and BMI differs with age and gender. For example, women are more likely to have a higher percent of body fat than men for the same BMI. On average, older people may have more body fat than younger adults with the same BMI.

BMI for children and teens is some times referred to as BMI-for-age. BMI is used differently with children than it is with adults. In children and teens, BMI is used to assess underweight, overweight and risk for overweight. Children body fatness, changes over the growing years.

Also, boys and girls differ in body fatness as they mature. This is why BMI-for-age is gender and age specific, these are plotted on gender specific charts. Each of the charts contains a series of curved lines indicating specific percentiles and the following establish cut off points to identify underweight and overweight. Underweight = BMI-for-age equal or less than 5^{th} percentile. At risk of overweight = BMI-for-age 85^{th} percentile to less than 95^{th} percentile.

Overweight = BMI-for-age equal or greater than 95^{th} percentile. BMI decreases during preschool years, then increase into adulthood.

What does it mean if a child is in the 60^{th} percentile? The 60^{th} percentile means that compared to children of the same gender and age, 60% have a lower BMI than the child in question. It is only an indication as where the child stands in relation to the same age and gender group.

BMI-for-age percentile for boy's age 2 to 20 years (4)

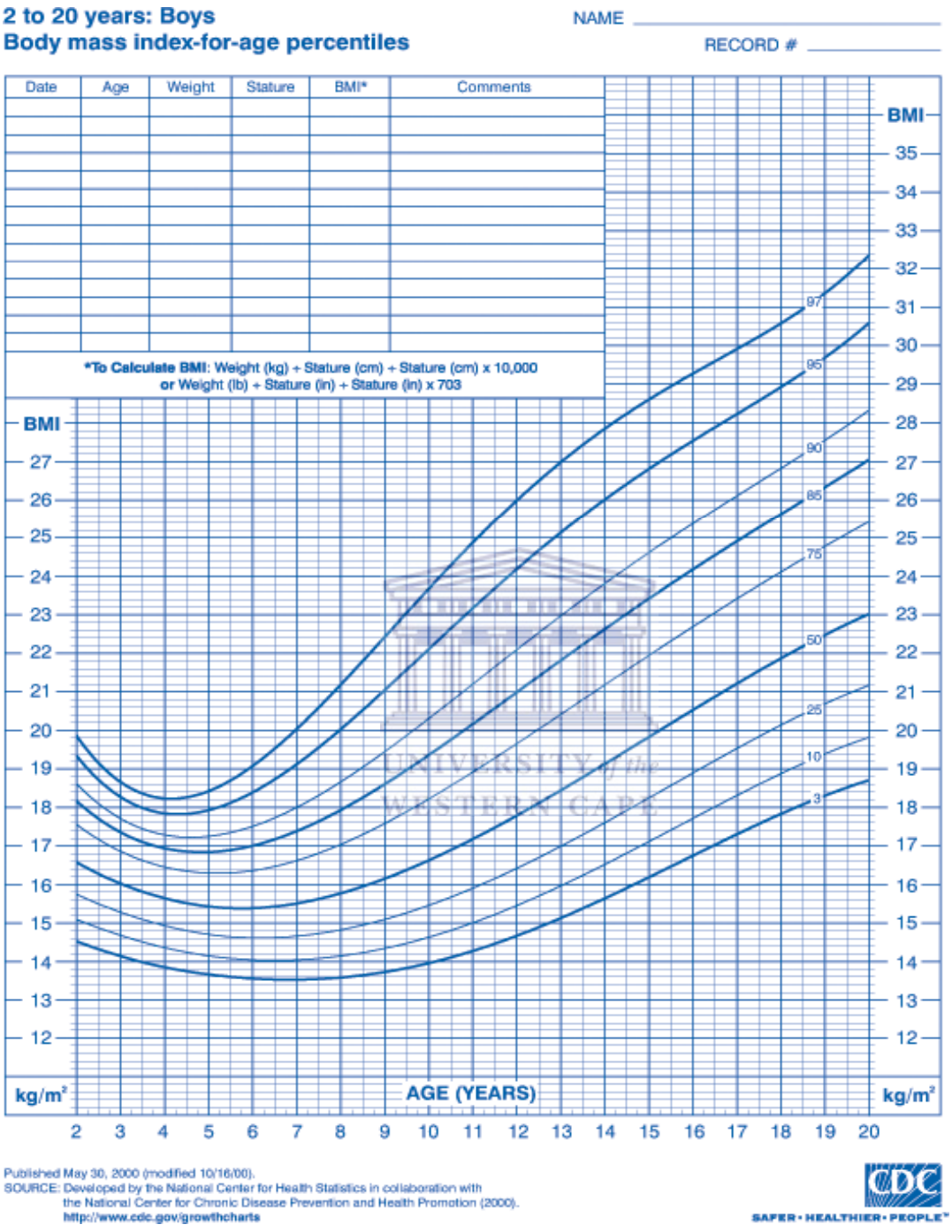


Fig. 13 BMI-for-age percentile for boy's age 2 to 20.

For girls the BMI-for-age is different than boys (4)

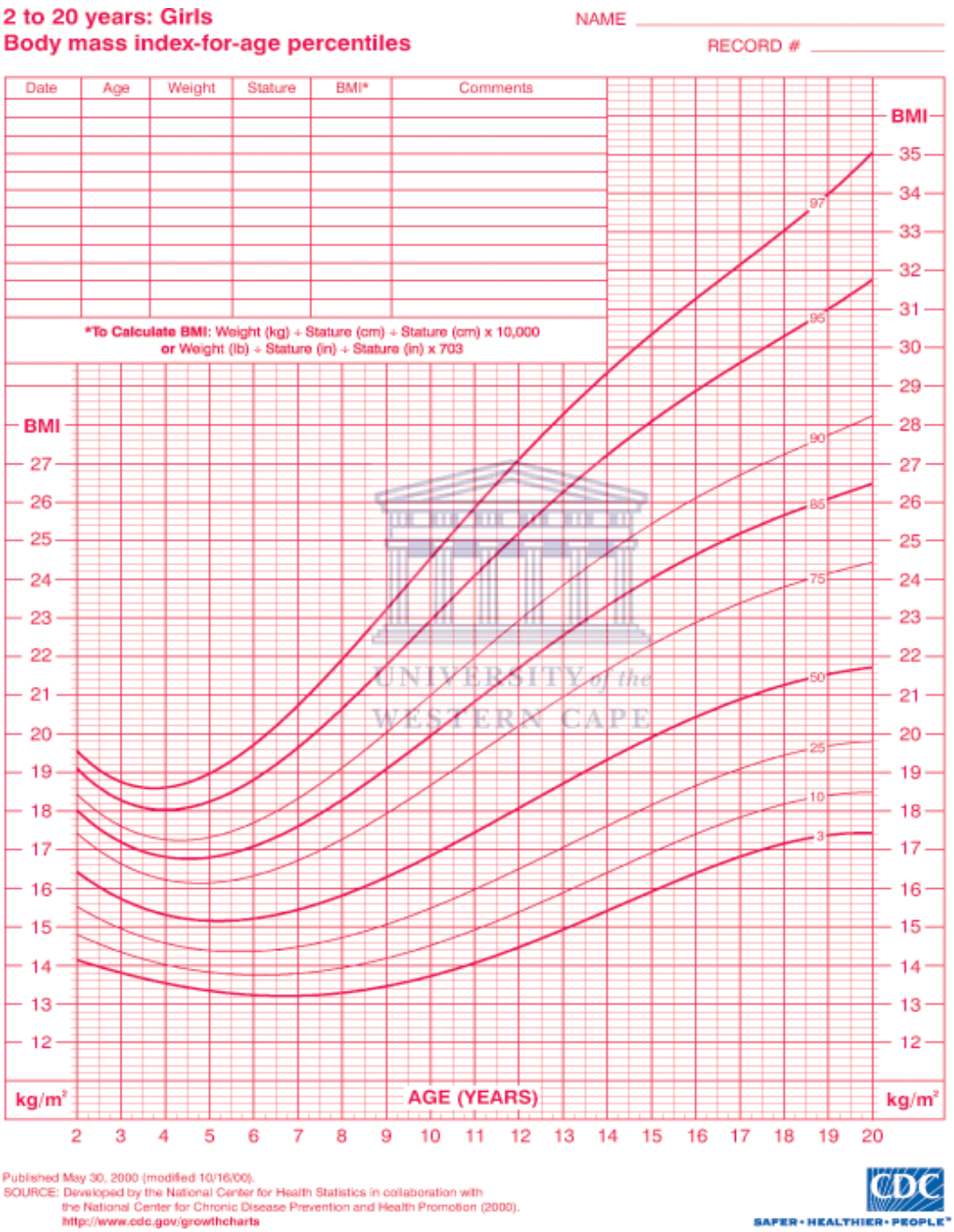


Fig. 14 BMI-for-age percentile for girls age 2 to 20.

Let's look at the BMI for a boy as he grows. While his BMI changes, he remains at the 95th percentile BMI-for-age.

Table 4.

Age	BMI	Percentile
2 years	19.3	95th
4 years	17.8	95th
9 years	21.0	95th
13 years	25.1	95th

AGE/BMI/PERCENTILE

We see how the boy's BMI declines during his preschool years and increases as he gets older.

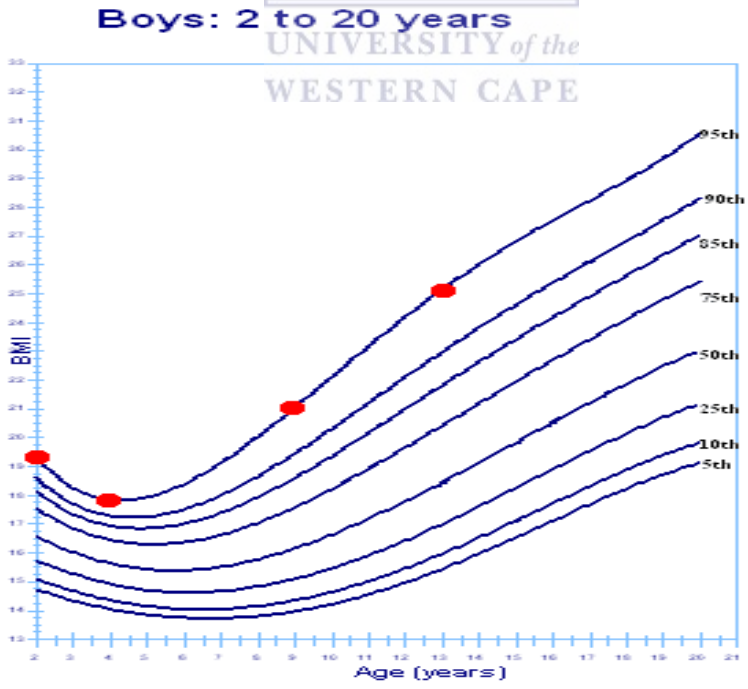


Fig. 15 Age/BMI/Percentile.

BMI for the Participating patient, the BMI was generally 18 to 30 with a few exceptions on either side of the scale.

The importance for us in sedation is the BMI of the patient, which is an indication of the patient's body fat. As the BMI increases, so does the risk for some disease, increases. The more obese the patient is, the greater the risk is during sedation. The sedation drugs distribution and absorption are influence by the body's fatty tissue.

Children and teenagers BMI must cross check with the percentile charts before a decision can be made of obesity.

BODY MASS INDEX for men and women in UK measurements (just for example how confusing it can be with different scales of measurements)(5).

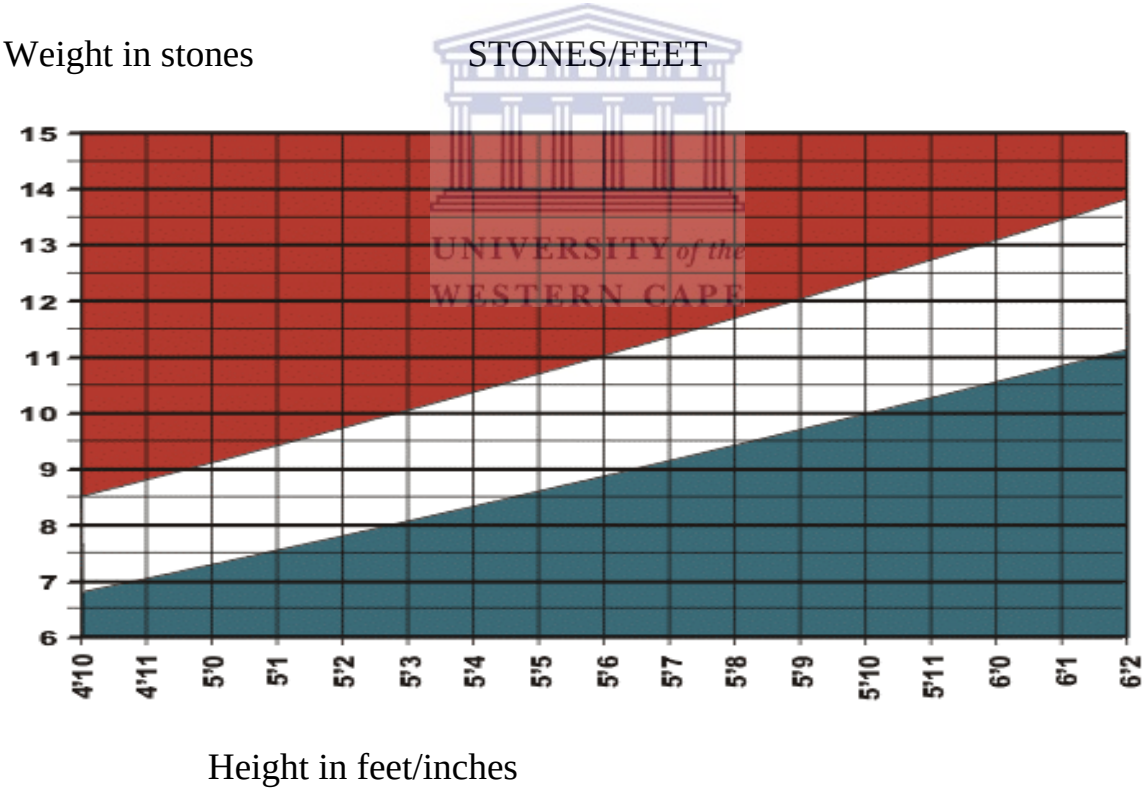


Fig. 16 Stones/Feet.

underweight(bmi<20) normal weight(bmi 20-25) overweight(bmi>25)

1.6.4 BMI GRADE OR GRADE OF OBESITY

Obesity occurs when caloric intake exceeds caloric expenditure. In an adult with an average daily intake of 2300 kcals (9700 kilojoules) basal metabolism will account for 60–70% energy expenditure, dietary and obligatory thermo genesis for 5–15% and spontaneous activity for 20–30%. Additional energy may be used for physical work and exercise. Thus:

Total energy expenditure = basal (resting) metabolic rate + thermo genesis + physical activity.

For any person to gain weight, food intake (energy) must exceed energy expenditure. The opposite to lose weight, the energy expenditure must exceed the food intake.

The factors that control food intake are complex and not only involve physiological control mechanisms but also social, cultural and cognitive aspects to eating as well as physical activity (7).

Grading obesity is a quick reference to determine the patient's relation between size (height) and weight:
Grade 0 is patients of a BMI under 25.
Grade I is patients of a BMI from 25 to 29.9.
Grade II is patients of a BMI from 30 to 40.
Grade III is patients of a BMI over 40.
Grading obesity on BMI .Grade II should be regarded as at least ASA 2 or 3 risks, depending on severity of concomitant condition Grade III are morbidly obese and should be considered as ASA 4.

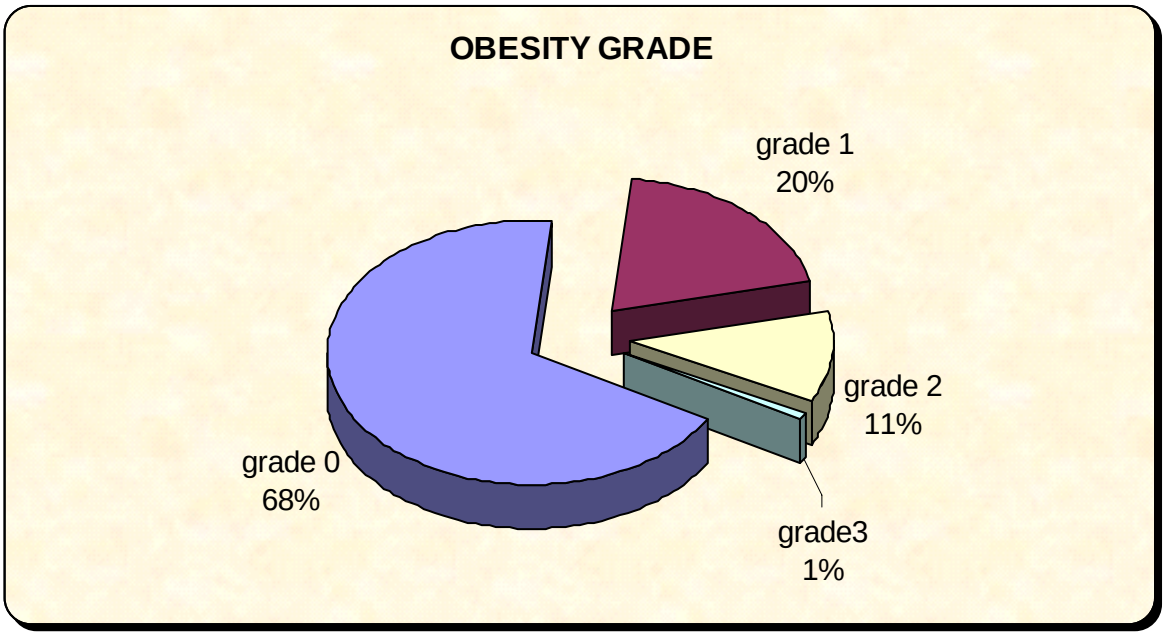


Fig. 17 Obesity Grade.

Sub dividing the grades, give us a better understanding BMI weight status. By subdividing grade 0 into 3 subdivisions;

A. BMI under 25 into severe under weight BMI of under 15 for adults can be considered to be near starvation.
B. BMI below 18.5 is underweight.
C. BMI from 18.5 to 24.9 is considered normal and in the optimum weight for the individual.

Grade I patients. Pre-obese is a world health organization terminology, the Americans use the terminology of overweight. BMI 25 to 29.9 can be regarded as ASA 1.

Grade II can be sub divided into BMI 30 to 34.9 as obese I and is ASA 2 and the obese II, BMI 35 to 39.9 is ASA 3.

Grade III is morbidly obese and their BMI is over 40 and they are ASA 4.

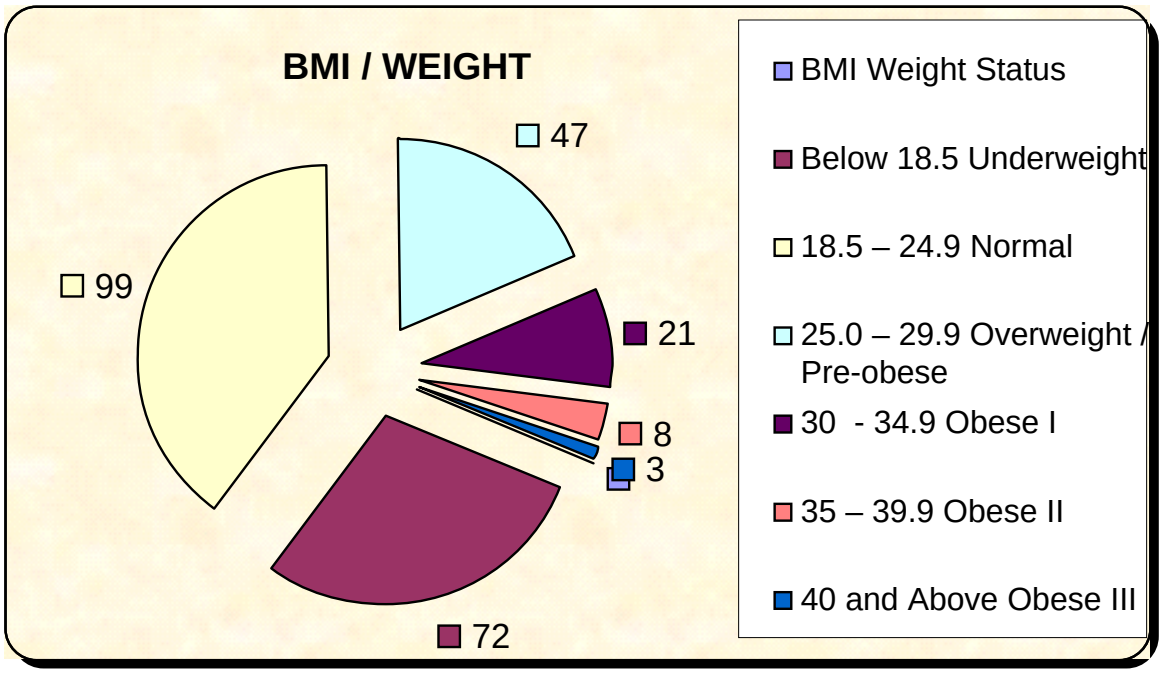


Fig. 18 BMI/Weight.

IV. POINT SCORE

1.3 Age point score:

- Age under 4 years = 10 points.
- Age form 4 years to 4 years 6 months = 8 points.
- Age form 4 years 6 months to 5 years = 6 points.
- Age form 5 years to 5 years 6 months = 4 points.
- Age form 5 years 6 months to 6 years = 2 points.
- Age form 6 years to 55 years = 0 points.
- Age form 55 years to 60 years = 2 points.
- Age form 60 years to 65 years = 4 points.
- Age form 65 years to 70 years = 6 points.
- Age form 70 years to 75 years = 8 points.
- Age form 75 years and older =9 points.

1.4 Sex or gender has got no point score.

1.5 Race has no point score.

1.6 Point scoring body data:

Points score for height:

- Over 100 cm = 0 points.
- Under 100 cm = 10 points.

Points score for weight in children only:

- Over 20 kg = 0 points.
- 18 +19 kg = 2 point.
- 17 kg = 4 points.
- 16 kg = 6 points.
- 15 kg = 8 points.
- 14 kg and under = 10 points.

BMI point scoring for adults:

- BMI 18.5 and under = 6 points.
- BMI 18.5 to 24.9 = 0 points.
- BMI 25 to 29.9 = 2 points.
- BMI 30 to 34.9 = 6 points.
- BMI 35 to 39.9 = 8 points.
- BMI 40 and higher = 10 points.

BMI point scoring for children and teenagers:

- BMI-for-age equal or smaller than 5th percentile = 10 points.
- BMI-for-age greater than the 5th percentile but smaller than the 15th percentile = 6 points.
- BMI-for-age greater than the 15th percentile but smaller than the 85th percentile = 0 points.
- BMI-for-age greater than the 85th percentile but smaller than the 95th percentile = 6 points.
- BMI-for-age equal or greater than the 95th percentile = 10 points.

Point scoring system for obesity grade:

- Grade 0 = 0 points.
- Grade I = 0 points.
- Grade II = 6 points.
- Grade III = 10 points.

Or use BMI Weight Status for point scoring, which is more accurate:

- BMI below 15 = 8 points.
- BMI 15 to 18.4 = 6 points.
- BMI 18.5 to 24.9 = 0 points.
- BMI 25 to 29.9 = 1 point.
- BMI 30 to 34.9 = 4 points.
- BMI 35 to 39.9 = 7 points.
- BMI over 40 = 10 points.

CHAPTER 2

MEDICAL

I. Introduction.

I have taken the patients medical condition and habits into consideration and use the following framework to assess the patient:

2.1 ASA classification

2.1.1 ASA I (1)
2.1.2 ASA II (2)
2.1.3 ASA III (3)
2.1.4 ASA IV (4)
2.1.5 ASA V (5)
2.1.6 ASA VI (6)

2.2 Attention deficit syndrome

2.2.1 Normal/absent (1)
2.2.2 Hyperactive children, on treatment (2)
2.2.3 Hyperactive children, not on any treatment (3)

2.3 Smoking

2.3.1 Non Smoker (1)
2.3.2 1-10 per day (2)
2.3.3 11-20 per day (3)

2.3.4 21-30 per day (4)

2.3.5 More than 31 per day (5)

2.3.6 X- smoker (6)

2.4 Substance abuse

2.4.1 None (1)

2.4.2 Smoking drugs e.g. marijuana (2)

2.4.3 IV drugs (3)

2.4.4 Oral drugs (4)

2.4.5 Alcohol abuse (5)

2.4.6 Herbal drug abuse (6)

2.4.7 Rehabilitation drugs (7)

2.4.8 Recreational Drugs (8)

2.5 Previous

2.5.1 IV (1)

2.5.2 GA (2)

2.5.3 None (3)

2.6 Adverse reactions

2.6.1 Local anaesthetics (1)

2.6.2 IV (2)

2.6.3 None (3)

II. Data tables.

Table 5.

NR	2. MEDICAL					
	2.1	2.2	2.3	2.4	2.5	2.6
	ASA	ADS	SMOKING	SUB.ABUSE	PREVIOUS	ADV.REACT.
1	1	1	1	1	3	3
2	2	1	1	1	2	3
3	1	1	3	1	1	3
4	1	1	1	1	3	3
5	1	1	4	2	2	3
6	1	1	3	1	3	3
7	1	1	1	1	1	3
8	1	1	2	1	3	3
9	2	1	2	1	1	3
10	1	1	1	1	1	3
11	1	1	1	1	2	3
12	2	1	3	1	2	3
13	1	1	2	1	3	3
14	3	1	1	1	3	3
15	1	1	1	1	1	3
16	1	1	1	1	3	3
17	1	1	1	1	2	3
18	2	1	1	1	3	3
19	1	1	3	2	2	3
20	1	1	1	1	1	3
21	1	1	1	1	2	3
22	1	1	1	1	1	3
23	1	1	3	1	3	3
24	1	1	1	1	1	3
25	1	1	4	2	3	3
26	2	1	1	1	3	3
27	3	1	1	1	1	3
28	1	1	2	1	3	3
29	1	1	3	1	3	3
30	1	1	3	6	3	3
31	1	1	1	1	1	3
32	2	1	1	1	1	3
33	1	1	1	1	3	3
34	2	1	1	1	1	3
35	1	1	4	4	3	3

NR	2. MEDICAL					
	2.1	2.2	2.3	2.4	2.5	2.6
	ASA	ADS	SMOKING	SUB.ABUSE	PREVIOUS	ADV.REACT.
36	1	1	3	2	3	3
37	1	1	1	1	3	3
38	1	1	1	1	1	3
39	1	1	1	1	3	3
40	1	1	1	1	1	3
41	1	1	2	2	3	3
42	1	1	2	1	3	3
43	1	1	1	1	3	3
44	1	1	1	1	3	3
45	1	1	1	1	3	3
46	1	1	1	1	2	3
47	1	1	1	1	1	3
48	1	1	1	6	1	3
49	1	1	1	1	1	3
50	1	1	6	2+4	1	3
51	1	1	6	1	1	3
52	1	1	1	1	2	3
53	1	1	1	1	3	3
54	2	1	1	1	1	3
55	1	1	2	1	3	3
56	1	1	1	1	2	3
57	1	1	1	1	1	3
58	2	1	1	1	1	3
59	1	1	1	1	2	3
60	3	1	3	1	1	3
61	1	1	1	1	1+2	3
62	1	1	1	1	1	3
63	2	1	4	1	1	3
64	1	1	1	1	1	3
65	3	1	4	8	1	3
66	1	1	2	2	2	3
67	1	1	1	8	3	3
68	1	1	1	1	1	3
69	2	1	2	1	3	3
70	1	1	1	1	2	3

NR	2. MEDICAL					
	2.1	2.2	2.3	2.4	2.5	2.6
	ASA	ADS	SMOKING	SUB.ABUSE	PREVIOUS	ADV.REACT.
71	2	1	1	1	1	3
72	1	1	1	1	3	3
73	1	1	2	1	1	3
74	1	1	3	1	3	3
75	1	1	1	1	3	3
76	1	1	3	8	1	3
77	1	1	1	1	2	3
78	1	1	1	1	3	3
79	1	1	1	1	3	3
80	1	1	1	1	1	3
81	1	1	2	1	1	3
82	2	1	1	6	2	3
83	1	1	1	6	3	3
84	1	1	1	1	3	3
85	1	1	1	1	2	3
86	1	1	1	1	3	3
87	1	1	1	1	3	3
88	1	1	2	1	3	3
89	1	1	3	8	1	3
90	1	1	1	1	3	3
91	1	1	1	1	3	3
92	1	1	2	1	3	3
93	1	1	1	1	2	3
94	1	1	1	1	1	3
95	1	1	4	2	1	3
96	1	1	1	1	3	3
97	1	1	2	1	1	3
98	1	1	1	1	2	3
99	1	1	2	6	3	3
100	1	1	1	1	3	3
101	2	1	3	1	2	3
102	1	1	1	1	3	3
103	1	1	1	1	3	3
104	1	1	1	1	2	3
105	1	1	4	2+7	1	2

NR	2. MEDICAL					
	2.1	2.2	2.3	2.4	2.5	2.6
	ASA	ADS	SMOKING	SUB.ABUSE	PREVIOUS	ADV.REACT.
106	1	1	2	1	2	3
107	2	1	1	1	3	3
108	1	1	1	1	2	3
109	1	1	1	1	1	3
110	1	1	1	1	2	3
111	1	1	2	1	3	3
112	1	1	1	1	2	3
113	1	1	2	1	3	3
114	1	1	1	1	3	3
115	2	1	3	1	1	3
116	1	1	1	1	3	3
117	1	1	1	1	1	3
118	1	1	1	1	3	3
119	1	1	1	6	3	3
120	1	1	3	2	1	3
121	1	1	2	1	3	3
122	3	1	2	1	1	3
123	1	1	1	1	3	3
124	1	1	2	2	2	3
125	2	1	1	1	2	3
126	1	1	1	1	3	3
127	1	1	3	2+4	2	3
128	2	1	2	1	1	3
129	1	1	1	1	3	3
130	1	1	1	1	3	3
131	1	1	1	1	3	3
132	1	1	1	1	3	3
133	2	1	1	1	3	3
134	1	1	1	1	3	3
135	1	2	1	1	3	3
136	1	1	3	2	2	3
137	1	1	2	2	2	3
138	1	1	1	1	3	3
139	1	1	1	1	1	3
140	1	1	2	1	3	3

NR	2. MEDICAL					
	2.1	2.2	2.3	2.4	2.5	2.6
	ASA	ADS	SMOKING	SUB.ABUSE	PREVIOUS	ADV.REACT.
141	1	1	1	1	1	3
142	1	1	1	1	2	3
143	1	1	1	1	3	3
144	2	1	1	1	1	3
145	3	1	6	1	1+2	3
146	1	1	1	1	1+2	3
147	1	1	1	1	3	3
148	1	1	3	1	3	3
149	1	1	1	1	3	3
150	1	1	3	3	1	3
151	1	1	1	1	1	3
152	2	1	1	1	1+2	3
153	1	1	3	1	1	3
154	1	1	1	1	3	3
155	1	1	1	1	1	3
156	1	1	4	1	2	3
157	1	1	1	1	3	3
158	1	1	2	1	2	3
159	1	1	5	2	3	3
160	1	1	1	1	3	3
161	2	1	1	1	3	3
162	1	1	2	4	3	3
163	1	1	1	1	3	3
164	1	1	2	7	3	3
165	1	1	2	1	1	3
166	1	1	2	1	1	3
167	1	1	1	1	3	3
168	1	1	3	1	2	3
169	1	1	1	1	3	3
170	1	1	1	6	3	3
171	1	1	1	1	3	3
172	1	1	1	1	3	3
173	1	1	1	1	3	3
174	1	1	1	1	1	3
175	1	1	1	1	3	3

NR	2. MEDICAL					
	2.1	2.2	2.3	2.4	2.5	2.6
	ASA	ADS	SMOKING	SUB.ABUSE	PREVIOUS	ADV.REACT.
176	1	1	1	1	3	3
177	1	1	1	1	3	3
178	1	1	1	1	3	3
179	1	1	3	1	3	3
180	1	1	1	1	3	3
181	1	1	1	1	1	3
182	1	1	1	1	2	3
183	1	1	1	1	1	3
184	1	1	1	1	1	3
185	1	1	2	1	2	3
186	1	1	1	1	2	3
187	1	1	1	1	1	3
188	2	1	6	1	1	3
189	2	1	6	1	1	3
190	1	1	1	1	1	3
191	1	1	3	1	1	3
192	1	1	1	1	3	3
193	2	1	6	1	3	3
194	1	1	1	1	3	3
195	1	1	1	1	3	3
196	2	1	2	1	1	3
197	1	1	1	1	1	3
198	1	1	1	1	2	3
199	1	1	2	1	1	3
200	1	1	1	6	3	3
201	1	1	1	1	2	3
202	1	1	1	1	1	3
203	1	1	2	1	1	3
204	2	1	1	1	1	3
205	2	1	1	1	1	3
206	1	1	1	1	3	3
207	1	1	1	1	3	3
208	1	1	1	1	3	3
209	1	1	2	1	1+2	3
210	1	1	1	1	1	3
211	2	1	2	1	1+2	3
212	1	1	1	1	3	3

NR	2. MEDICAL					
	2.1	2.2	2.3	2.4	2.5	2.6
	ASA	ADS	SMOKING	SUB.ABUSE	PREVIOUS	ADV.REACT.
213	1	1	1	1	3	3
214	1	1	1	1	3	3
215	1	1	6	1	1	3
216	1	1	1	1	2	3
217	1	1	1	1	2	3
218	1	1	1	1	3	3
219	1	1	1	1	1	3
220	1	1	3	1	1+2	3
221	1	1	1	1	1	3
222	1	1	1	1	3	3
223	1	1	3	1	1	3
224	1	1	1	1	3	3
225	1	1	1	1	3	3
226	1	1	1	1	3	3
227	1	1	1	1	3	3
228	1	1	1	1	2	3
229	1	1	1	1	2	3
230	1	1	1	1	3	3
231	1	1	2	4	1	3
232	1	1	1	1	3	3
233	1	1	2	1	1	3
234	1	1	1	1	1	3
235	1	1	1	1	3	3
236	2	1	6	1	1	3
237	1	1	1	1	1	3
238	1	1	2	2	1	3
239	1	1	1	1	3	3
240	1	1	1	1	2	3
241	1	1	1	1	3	3
242	1	1	1	1	3	3
243	1	1	3	1	1	3
244	1	1	1	1	3	3
245	1	1	1	1	3	3
246	1	1	1	1	3	3
247	1	1	3	1	2	3
248	1	1	1	1	2	3
249	1	1	1	1	3	3
250	1	1	1	1	3	3

III. Discussion.

2.1 ASA Classification.

The American Society of Anaesthesiologists (ASA) has developed a classification system relating to the risk for GA and IV sedation based on how healthy the patients are:

American Society of Anaesthesiologists (ASA) Classification System (8):
Table 6.

ASA I	The patient is normal and healthy.
ASA II	The patient has mild systemic disease that does not limit their activities.
ASA III	The patient has moderate or severe systemic disease, which does limit their activities.
ASA IV	The patient has severe systemic disease that is a constant potential threat to life.
ASA V	The patient is morbid and is at substantial risk of death within 24 hours, with or without intervention.
ASA VI	A declared brain-dead patient whose organs are being removed for donor purposes.

An “e” is added to the status number to designate an emergency operation.

I have designed a risk assessment for ASA classification mainly out of the British Dental Journal (9) to be use as a quick question and answer method to establish ASA classification, at the day clinic.

I only do ASA I, ASA II and mild ASA III at the clinic. These patients will be treated under conscious sedation.

ASA III + and above, were referred to a hospital setting, as they might require more post operative care and longer observation after sedation.

Guideline on completion of risk assessment form:

a. Each question is subdivided into a main question in bold type on the left side of the page and one or more sub questions in ordinary type on the right of the page.
b. Patients or parents should be asked to answer the sub questions only where the answer to the main (bold type) question is “yes”.
c. If the answer to the question in bold type is “no”, the patient will be ASA 1 and should ignore the sub questions in the corresponding box on the right side of the page.
d. If the answer is “yes”, generally the patient will be ASA II, and should answer the sub questions on the right side of the page.
e. If the answer to any sub question is “yes”, will generally bring the score to ASA III/IV.
f. The highest score for any answer determines the overall ASA score for the entire questionnaire.
g. Please note that certain conditions such as obesity or limited mouth opening etc. are not included in the ASA scoring system.

Table 7.

RISK ASSESSMENT FOR ASA CLASSIFICATION

	No	Yes		No	Yes	ASA		No	Yes	ASA
Heart Problems	☐	☐	**Do you experience chest pain upon exertion (angina pectoris) If so,**	☐	☐	II	Have you had to reduce your activities?	☐	☐	III
							Have the complaints increased recently?	☐	☐	IV
							Do you have chest pains at rest?	☐	☐	IV
			Have you ever had a heart attack? If so	☐	☐	II	Do you still have complaints?	☐	☐	III
							Have you had the attack in the last 6 months?	☐	☐	IV
			Do you have a heart murmer or heart valve dysfunction, or an artificial heart valve?	☐	☐	II				
			Hole in the heart?	☐	☐	III	Have you ever had rheumatic fever?	☐	☐	II
							Do you have complaints connected with your heart?	☐	☐	III
			Have you had heart or vascular surgery within the last 6 months?	☐	☐	IV	Which complaints.....			IV
			Do you have heart palpitations without exertion. If so,	☐	☐	II	Do you have to rest, sit down or lie down during palpitations	☐	☐	III
							Are you short of breath, or pale or dizzy at these times?	☐	☐	IV
			Do you have problems lying flat? If so,	☐	☐	II	Do you need more than 2 pillows at night due to shortness of breath	☐	☐	III
							Are you short of breath at night lying down?	☐	☐	IV
			Have you ever had high blood pressure?	☐	☐	II				
Lung Problems	☐	☐	**Do you suffer from asthma? If so,**	☐	☐	II	Do you use inhalants only?	☐	☐	II
							Do you use oral steroids	☐	☐	III
							Is your breathing difficult today?	☐	☐	IV
			Do you have any other lung problems?	☐	☐	II	Are you short of breath after climbing 20 steps?	☐	☐	III
							Are you short of breath getting dressed?	☐	☐	IV
Medical Problems	☐	☐	**Do you have a tendency to bleed, If so,**	☐	☐	II	Do you bleed for more than one hour following injury or surgery?	☐	☐	III
							Do you suffer from spontaneous bruising	☐	☐	IV
			Do you have anaemia? Do you have sickle cell?	☐	☐	II	Trait ☐ or Positive ☐			
			Do you have epilepsy? If so,	☐	☐	II	Is your condition getting worse?	☐	☐	III
							Do you continue to have attacks?	☐	☐	IV
			Do you have diabetes? If so, are you on Insulin?	☐	☐	II	Is your diabetes poorly controlled at present?	☐	☐	III
				☐	☐	III				
			Do you suffer from thyroid disease? If so,	☐	☐	II	Is your thyroid under active?	☐	☐	III
							Is your thyroid gland overactive?	☐	☐	III
			Do you suffer from liver disease? Jaundice / Hepatitis?	☐	☐	II	Do you require hospital treatment for your disease?	☐	☐	III
			Do you have kidney disease? If so,	☐	☐	II	Are you undergoing haemodialysis?	☐	☐	III
							Have you had a kidney transplant?	☐	☐	III
			Have you ever had malignant disease or leukemia?	☐	☐	II	Have you ever had drug therapy or bone marrow transplant?	☐	☐	III
							Have you ever had X-Ray treatment for a tumour or growth in the head or neck?	☐	☐	IV
			Are you suffering from an infectious disease at this moment	☐	☐	II				
General	☐	☐	**Have you ever had an allergic reaction or an adverse reaction to dental or medical materials or drugs? If so,**	☐	☐	II	Was it during a dental visit?	☐	☐	III
							What are you allergic to.....			
			Do you need antibiotic prophylaxis before dental treatment?	☐	☐	II				
			Are you on medication at present?	☐	☐	II	for a heart complaint	☐	☐	
							anticoagulants	☐	☐	
							for high blood pressure	☐	☐	
							aspirin or other pain killers	☐	☐	
							for an allergyfor diabetes	☐	☐	
							prednisone or corticosteroids (systemic or topical)	☐	☐	
							drugs against transplant rejection	☐	☐	
							drugs against skin, bowel, or rheumatic diseases	☐	☐	
							for cancer or blood disease	☐	☐	
							penicillin, antibiotics or antimicrobials	☐	☐	
							for sleeping disorder, depressive condition or anxiety state	☐	☐	
							have you ever used recreational drugs	☐	☐	
							other drugs (Prescribed or otherwise)	☐	☐	
			Are you pregnant?	☐	☐	II				
			Have you had any problems with general anaesthetics?	☐	☐	III				
			Is ther eany family history of Suden Infant Death Syndrome?	☐	☐	II				

Are you suffering from cold, flu, fever at present? Your General Anaesthesia may be postponed for two weeks.

The majority of 86 % referred dental patients were fit and healthy, as shown in the ASA I category. ASA II was 12% of the referred patients and only 2% was ASA III.

The reason for this proportional fragmentation of the ASA categories is that the referring dentist has been educated. The ASA III + IV category patients must be referred to a hospital setting.

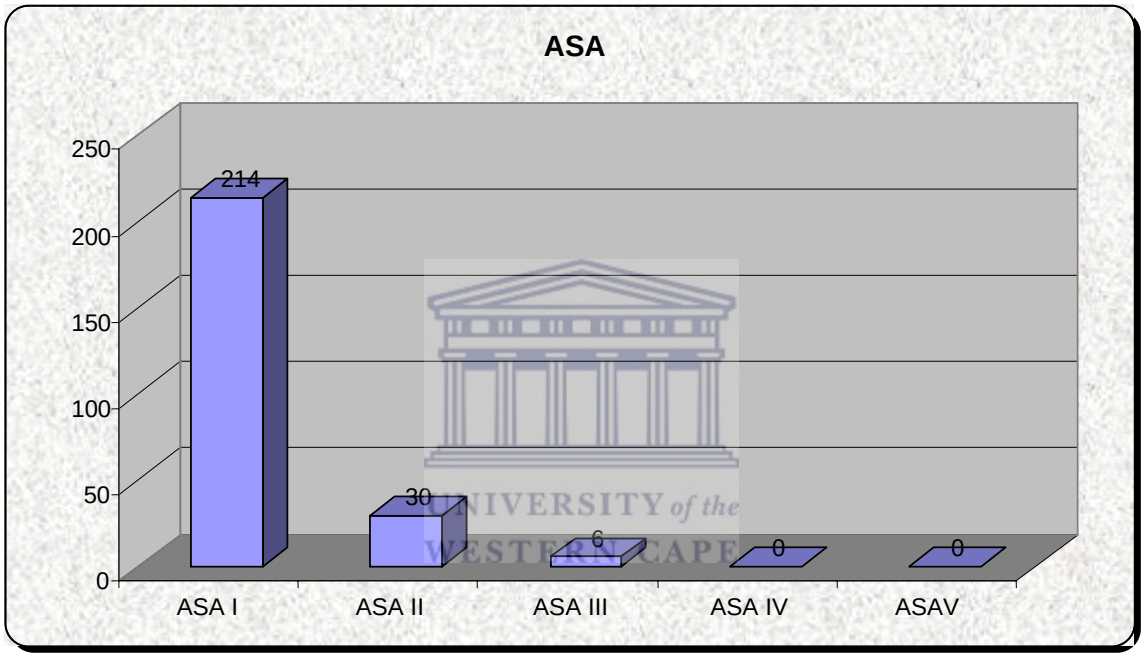


Fig. 19 ASA.

2.2 Attention deficit syndrome

The vast majority of patients were normal regarding ADS, but only one was confirm as ADS and under treatment and the patient was well controlled. The untreated and uncontrolled ADS patients on medication are not suitable for conscious sedation, because the sedation agents are unpredictable in these patients and can even have the opposite's affect on patients by making

them hyper active and uncontrollable in the dental chair. Snoring is common in children with ADS. There is a group of professionals whom are of the opinion that if you can treat the snoring cum sleeping problem, it could help eliminate ADS.

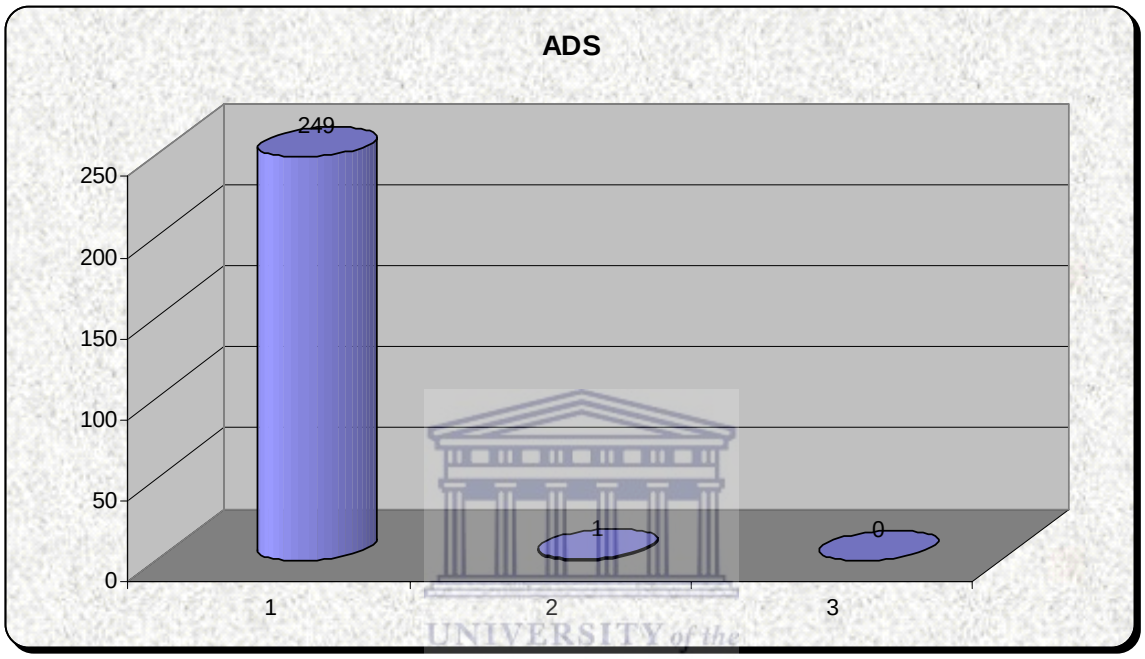


Fig. 20 ADS.

2.3 Smoking

Tobacco comprises the dried leaves of plants from the genus Nicotiana that grows in many parts of the world. These leaves contain nicotine, an addictive drug that exerts a mild stimulant effect.

Fig. 21 Cigarette.

IN the research, the non-smokers are 71% and the smokers make up the balance of 29%. Comparing these statistics with the national statistics and bring into the equation the ethnic

populating, we have a very favourable comparison. For sedation purposes, smoking is relevant in the heavy smoking group, which have additional smoking related complications. It is advisable to stop smoking a day or two before sedation but it is very unlikely that the patients will follow the instructions.

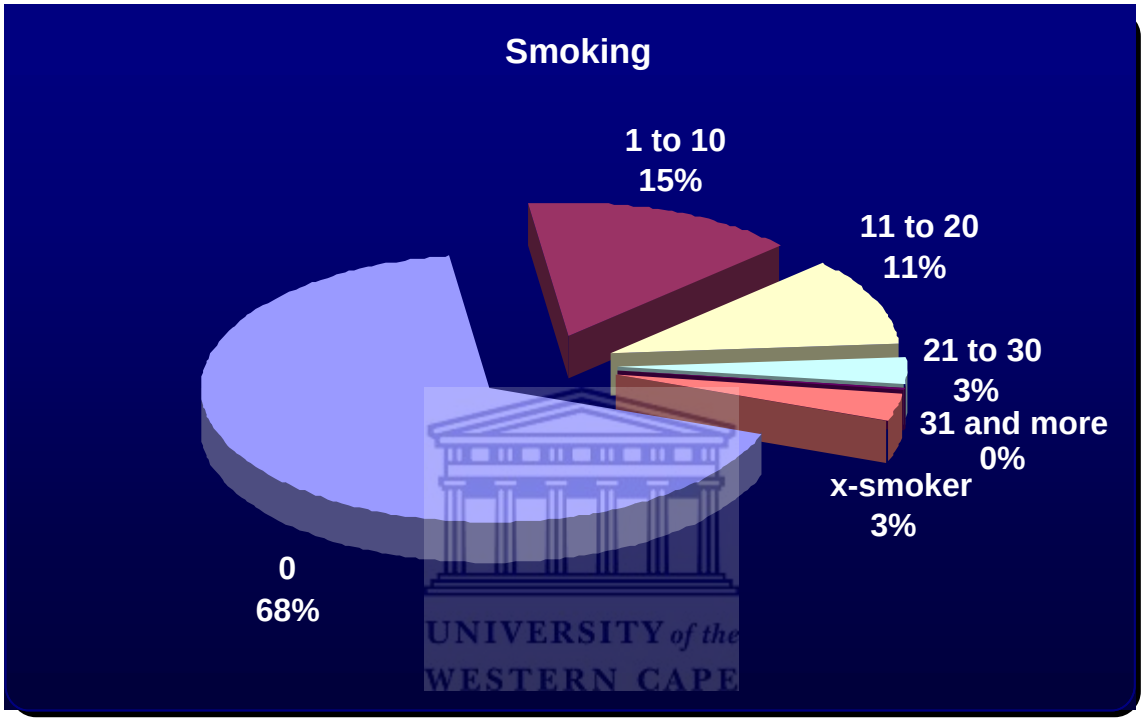


Fig. 22 Smoking.

The national statistics in the UK, some extracts (10):

The overall prevalence of cigarette smokers in Great Britain in 2001 was 27% of the population above 16 years old.

Male smokers are 28 % and female smokers are 26% of population.

The prevalence of cigarette smoking has been higher among 20 -24 years old than in other age groups. The over 60 are less likely to have smoked, in comparison to the younger generation and also more likely to have given up

smoking than any other age group. Only 15% of the older age group smokes.

Table 8.

AGE/PERCENTAGE

	age 16-19	age 20-24	Age 25-34	age 35-49	age 50-59	age 60 +
2003	26	36	34	30	25	15

Prevalence of cigarette smoking by age–percentage of adult UK population

In 2002 10% of school children aged 11-15 in England were smokers. The proportion of smokers rose from age 11 at 1% to age 23 at 15% and girls (11%) are more likely to smoke than boys. The age group of 35 to 59 smoke the most and the males smoke on average of 18 cigarettes per day and the women 15 per day. The majority of smokers feel that they can not go without smoking for a day:

Table 9.

MEN/WOMEN

	Men %	Women %	All Smokers %
20 or more	78	83	80
10-19	53	64	58
0-9	19	22	21
All smokers	53	56	55

Proportion of smokers who would find it difficult to go without smoking for a day, by sex and number of cigarettes smoked per day – Great Britain 2003

To stop smoking for 24 hours before sedation is advisable, but not as crucial as in GA.

Current cigarette smoking: by ethnic group and sex, 1999, England, Percentages:

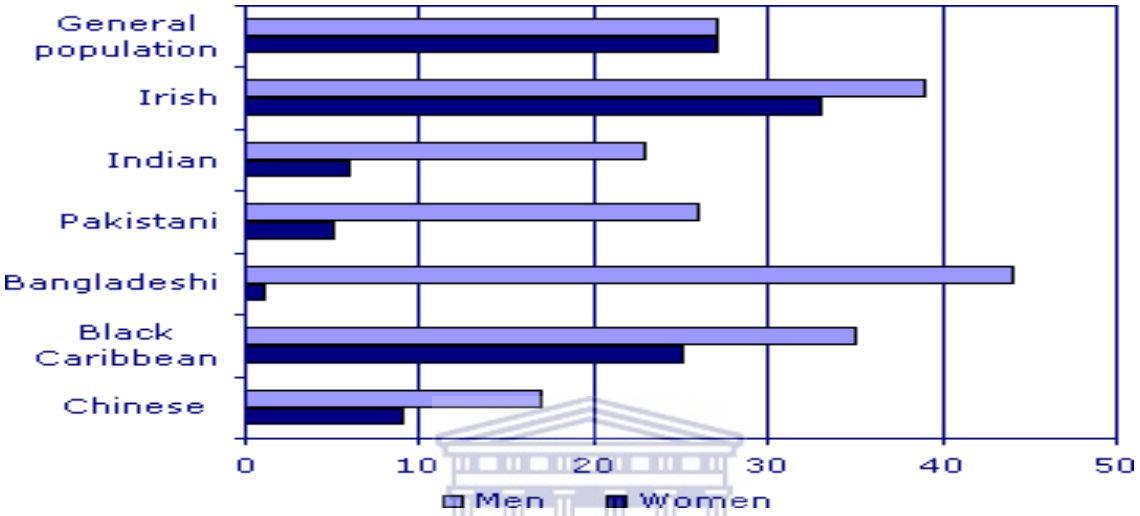


Fig. 23 Smoking/Ethnic group/Sex.

There is a strong link between cigarette smoking and socio-economic group. In 2003, 35% of men and 31% of women in routine and manual occupations smoked, compared to 20% of men and 17% of women in managerial and professional occupations.

Table 10.

MEN/WOMEN

	Large Employers & Higher managerial	Higher professional	Lower managerial & professional	Intermediate	Small employers /own account	Lower supervisory and technical	Semi-routine	Routine
Men	15	16	24	29	28	30	34	39
Women	14	13	19	22	24	27	32	34

Prevalence of cigarette smoking by socio-economic classification. It is based on the current or last job, of the reference person. Persons aged 16 and over. Great Britain: 2003 (11).

Addiction to nicotine can be measured in a number of ways. One method is to note, how long after waking up, they are lighting up their first cigarette of the day. In 2003, 15% of smokers had their first cigarette within 5 minutes of waking. Among smokers of 20 or more cigarettes a day, 31% smoked their first cigarette of the day, within 5 minutes of waking (11).

Table 11. CIGARETTES/DAILY

Time	Number of cigarettes smoked per day			
	20 or more	10 – 19	0 – 9	Total
Less than 5 minutes	31	11	3	15
5 - 14 minutes	29	18	3	17
15 - 29 minutes	17	18	5	14
30 mins to 1 hour	15	25	11	18
1 – 2 hours	6	15	15	12
More than 2 hours	2	13	62	24

Time between waking and first cigarette - percentage of smokers by their daily consumption – 2003. Fig. 24.

Nicotine and tobacco use, present medical management problems in patients, which may include chronic obstructive airway disease, ischemic heart disease and resistance to sedation.

2.4 Substance Abuse

As a race, we human beings seem never to be able to get enough of a good thing. So strong is our desire to revisit a pleasant or exciting experience that we often strive to return again and again to its source. This very nature has probably been a vital element in our evolution, driving us to seek good sensations in order to fuel and nourish us in body and spirit. However, good things are not always what they seem to be.

What are drug or substance abuse and addiction?

Drug abuse refers to the use of drugs for purpose of which it was not attended to, or using a drug in excessive quantities. It is the compulsive administration of drugs that deviates from accepted medical or social use, which if sustained, can lead to physical and psychological dependence.

Drug addiction or dependence, is a state of physical or psychological dependence on a drug. Physical addiction is characterized by the presence of tolerance, needing more and more of the drug to achieve the same effect. Taken drugs in larger than normal doses and for longer periods than intended. An indication of an addict is clear when unsuccessful attempt to decrease the drug use, fail, and the frequent withdrawal symptoms which appear, disappear when further medication is taken.

All sorts of different drugs can be abused, including illegal drugs (such as cannabis), prescription medicines (such as tranquilizers or painkillers), and other medicines that can be bought off the supermarket shelf (such as cough mixtures or herbal remedies).Drug dependence can have a restriction on social and work activities.

What causes drug or substance abuse and addiction?

This depends on the nature of the drug being abused, the person taking the drug and the circumstances under which it is taken. Some medications - for example certain sleeping pills or painkillers are physically addictive. They have a specific effect on the body which leads to tolerance and withdrawal symptoms. Others may lead to a psychological addiction if people have a craving for the effect the drug causes. There has been some speculation that some people may be more prone to drug abuse and addiction than others. Social circumstances are important in drug abuse. Peer pressure, emotional distress and low self-esteem can all lead individuals to abuse drugs. Ease of access to drugs is another influence. People abuse drugs for a reason.

Drug pathways (12) or attitudes towards drugs taking in a population. Howard Parker and colleagues describe four drug pathways in their book " Illegal Leisure" as:

1. *Abstainers hold anti-drug attitudes, have never taken a drug, and never intend to.*

2. *Former triers hold fairly negative attitudes to drug use and whilst they have tried or used illicit drugs they have no intention of doing so again.*
3. *Those in transition hold fairly positive drug attitudes, most have tried drugs, but all feel they might use drugs in the future.*
4. *Current users hold pro-drug attitudes, they use one or more drugs regularly and expect their drug careers to continue into the future.*

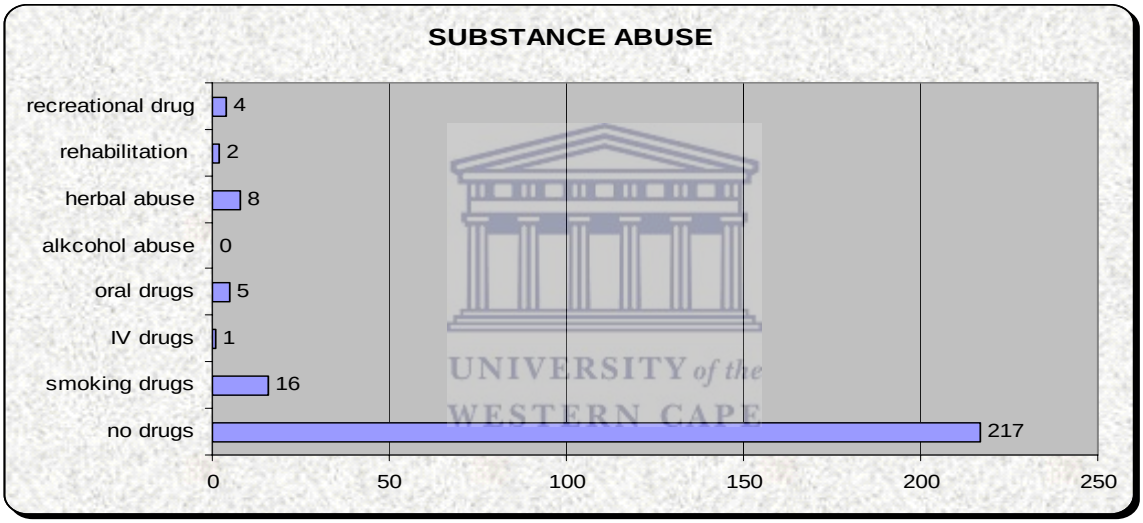


Fig. 25 Substance Abuse.

The majority of patients participating in the research do not use any drugs and as it is a voluntary participation. I believe that a great number of patients have opted out of participating, just to avoid embarrassing information. Statistically between 35% - 55% deny drug use, but if tested can turn out to be users (13). I have not tested any patients.

Classes of drugs (14):

1. Stimulants:

Stimulants are drugs that stimulate (activate, enhance, or increase activity) the Central Nervous System. These substances tend to increase alertness and physical activity. They include Amphetamines, Cocaine, Crack and some inhalants like Amyl® or Butyl Nitrites® and synthetic appetite suppressants such as phenmetrazine or methylphenidate. Stimulants can give rise to symptoms suggestive of intoxication, including tachycardia, papillary dilation, elevated blood pressure and nausea or vomiting. They can also cause violent and aggressive behaviour, agitation and impaired judgment. A full-blown delusional psychosis may occur. Caffeine (present in tea, coffee and many soft drinks) is also a mild stimulant drug.

2. Depressants:

Depressants are sedatives that act or depress the Central Nervous System. Depressant drugs include alcohol, barbiturates and benzodiazepines. They provide artificial relaxation and relief from anxiety and mental stress, but tend to produce psychological dependence; withdrawal from heavy use is severe.

3. Analgesics:

Analgesics are substances that provide relief from pain. Mild analgesics, such as the many brand-named preparations of aspirin or paracetemol, are relatively harmless. Analgesic drugs are far stronger than this and are all powerful pain killers which can be abused. Some are refined from an extract obtained from opium poppies (Papaver somniferum) and are classed as "opiates" and some are produced by chemical synthesis as methadone®

(usually as syrup), physeptone® (a methadone tablet), and pethidine®. Opiates include opium itself, which is the resin obtained from the seed pod of the opium poppy, along with morphine, heroin and codeine. These can all be produced from raw opium by fairly simple chemical processing.

4. Hallucinogens:

Hallucinogens or psychedelics - are drugs that affect a person's perception of sights, sounds, touch, smell etc, and are chemically diverse and produce profound mental changes such as euphoria, anxiety, sensory distortion, vivid hallucinations, delusion, paranoia and depression. Some of the stronger hallucinogenic can exert a powerful effect on a drug users thinking and self-awareness.

A few hallucinogens come from natural sources, such as mescaline from the peyote cactus and psilocybin, which is the hallucinogenic agent in so-called magic mushrooms. Others, such as LSD, MDA (methylenedioxyamphetamine) and Ecstasy (MDMA or methylenedioxymethamphetamine) are either entirely synthetic or semi-synthetic. For example, LSD is derived from a fungus that grows on rye grains but requires very substantial chemical processing to produce. Pathways of reward of drug addiction (15).

It is generally accepted that drugs with addictive properties act on brain systems sub serving reinforcement or reward. These mechanisms are exceedingly complex and involve both multiple brain areas and multiple neurotransmitters (16).

DRUG PATHWAYS

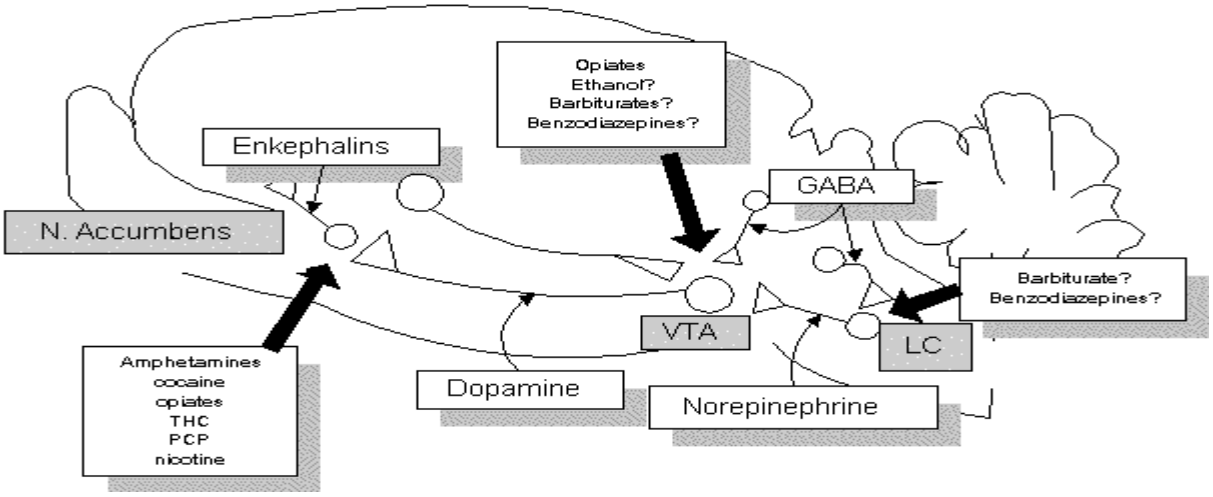


Fig. 26 Drug Pathways.

Biochemical adaptations

A .Dopamine Systems

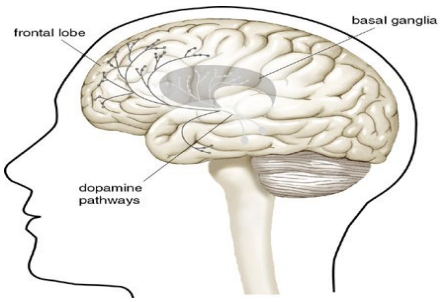
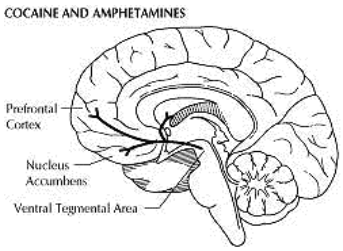
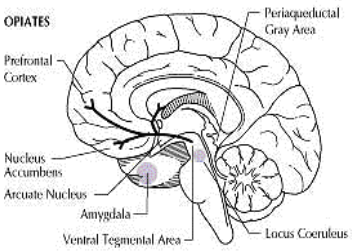


Fig. 27.

One pathway central to reward is the dopaminergic mesocorticolimbic pathway. This originates from dopamine-containing cell bodies in the ventral tegmental area in the midbrain, passes through the medial forebrain bundle and projects to the nucleus accumbens, olfactory tubercle, frontal cortex and septal area.(17) Many addictive drugs activate this system and it has been claimed that it constitutes the final common pathway for all drugs of abuse. Thus cocaine, amphetamine, opioids, nicotine, alcohol, cannabis and other drugs that are misused have all been shown to increase dopamine release in the nucleus accumbens. Natural rewarding behaviors,





including sexual activity and food reinforcement, are probably also at least partially mediated by this system. Dopaminergic systems probably underlie the positive motivational or incentive aspects of reward and may form the basis of drug-seeking (approach) behavior. (18)

Fig. 28.

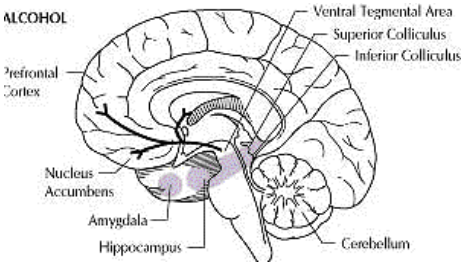
B.Opioid Systems

A second, interacting, reward system utilizing endogenous opioids (ß-endorphin, encephalin) appears to form the basis for consummatory rewards. Although opioids increase dopamine release in the nucleus accumbens, they also sub serve reinforcement in animals by a non-dopaminergic mechanism. For example, lesions of the nucleus accumbens and dopamine receptor antagonists drastically reduce cocaine and amphetamine self administration in animals but have much less effect on heroin self-administration. The opioid reward system involves not only the nucleus accumbens but also opioid systems in the periaqueductal grey, amygdala, locus coeruleus and elsewhere. It appears to be largely involved in the consummatory rewards of feeding, drinking, sexual and maternal behavior. Not only opioid narcotics but also alcohol and possibly benzodiazepines and cannabis have important actions on this system.(19)

Fig. 29.

C.GABA Systems

A third system postulated to be important for the rewarding actions of sedative/hypnotic drugs is mediated by GABA. Alcohol, barbiturates and benzodiazepines have common actions which include euphoria,



disinhibition, anxiety reduction, sedation and hypnosis. *Fig. 30.* *In addition, all of these drugs produce a release of punished responding in experimental conflict situations, an effect which correlates well with their clinical actions. This anxiolytic property, mediated by enhancement of GABA activity via interaction with $GABA_A$-benzodiazepine receptors, may be a major component in the rewarding actions and abuse potential of alcohol and other anxiolytic drugs. As well as providing a positive reward, one important factor in their abuse is that they alleviate the anxiety associated with withdrawal from several other drugs of addiction.(19)*

D. Other Neurotransmitter Systems

Many other neurotransmitters are undoubtedly involved in reward systems. These include noradrenalin, which is particularly important in opioid effects on the locus coeruleus, cholecystokinin (CCK; important in signaling satiety), glutamate, neuropeptide Y and others, each of which acts on multiple receptor subtypes. The interplay between these complicated systems and those described above remains obscure but may well be different for different drugs and different types of reward.(19)

E. Interaction of Serotonergic Pathways with Reward Systems

5-HT appears to play a dual role in reward. There is much evidence for an interaction with the mesolimbic dopaminergic pathway, both the ventral segmental area and the nucleus accumbens receive serotonergic projections from the dorsal and median raphe nuclei. Serotonergic activity in the ventral tegmentum appears to be excitatory, resulting in increased dopamine release in the nucleus accumbens. Conversely, serotonergic

neurons from the raphe nuclei appear to exert an inhibitory effect on dopaminergic neurons in the nucleus accumbens.

In summary, serotonergic pathways to the dopaminergic mesolimbic system appear to exert opposing effects, causing excitation in the ventral tegmental area and inhibition in the nucleus accumbens. It is not clear whether the outputs from the dorsal and median raphe nuclei subserve separate functions in the reward-punishment spectrum or whether the opposing effects are mediated by different 5-HT receptors.

There appears to be little information on the interactions between opioids and serotonergic systems but benzodiazepines and alcohol are thought to exert their anxiolytic effects at least partly by decreasing serotonergic activity in critical pathways via GABA enhancement. (18)

F. 5-HT in Addictive Behaviours

In view of these contradictory actions on dopaminergic reward pathways, it is not surprising that the part played by 5-HT in addictive behaviours is uncertain. However, there is some evidence for decreased serotonergic activity in alcoholics, bulimics and possibly in opiate and CNS stimulant abusers, although this may be related to depression. It has been suggested that 5-HT deficiency may underlie drug-seeking behaviour, that it is involved in craving and that brain serotonergic activity contributes to satiety and modulates the reinforcing effect or 'high' produced by other drugs of addiction.(20)

Pathology related to drug or substance abuse can be divided in categories (21) as:

A. Acute intoxication or over dose. The primary manifestations include central nerves system simulation or depression, convulsions, hyperthermia, arrhythmias, hypertension, hypotension or coma. Trauma is often found as a classical secondary manifestation of an over dose.
B. Acute medical or surgical problems associated with drug abuse. Intra venous injections results in extravasations and causes lymphatic and venous obliteration and the puffy hand syndrome. There are always bruising present with intra venous injections. Complications of intra venous use are: thrombophebitis, deep and superficial abscesses formation, deep vein thrombosis, pulmonary micro embolism, tissue necrosis, gangrene, hepatitis B and C, HIV infections.
C. Intra arterial injections can cause false aneurisms. Subcutaneous injections are normally associated with abscesses formation. Quite frequent there are associated chest problems.
D. Nasal: habitual sniffing of certain drugs can cause septal perforation
E. Related surgical disease. Dental problems are common in all substance abusers, like rampant tooth decay. Complications in obstetric patients are possible hypertension, premature labour.

Signs and symptoms that may indicate drug abuse are: unexplained coma, unexplained convulsions, hyperthermia, unexplained arrhythmias and unexplained pulmonary oedema. Signs and Symptoms of Drug Intoxication and Withdrawal (22) in an algorithm for the diagnosis of drug intoxication and withdrawal, judging by the patient's mood and clinical observations is use full at consultation stage.

Fig. 31. DIAGNOSIS OF DRUG INTOXICATION

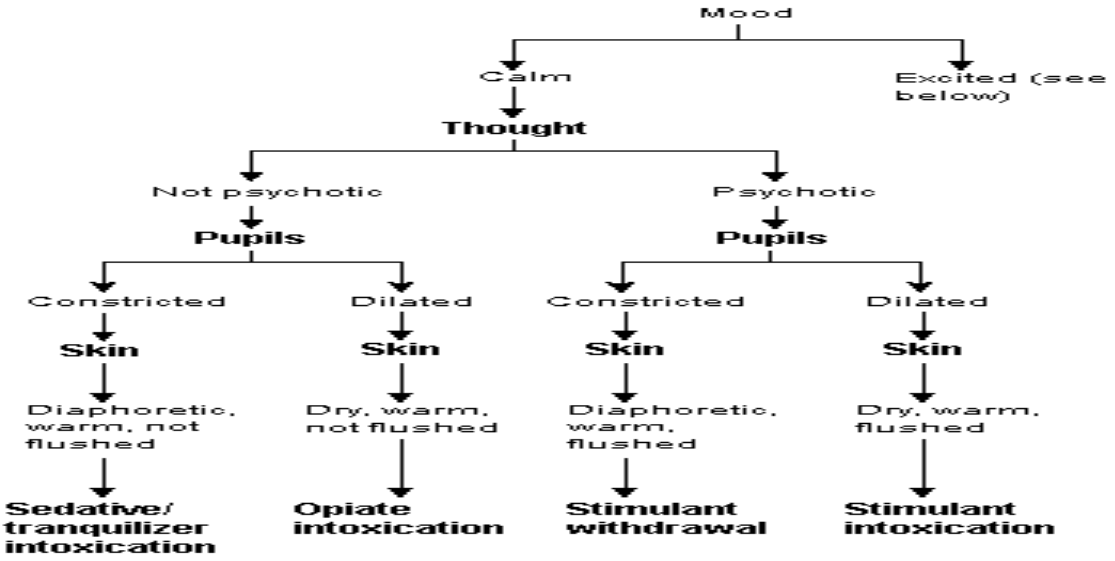
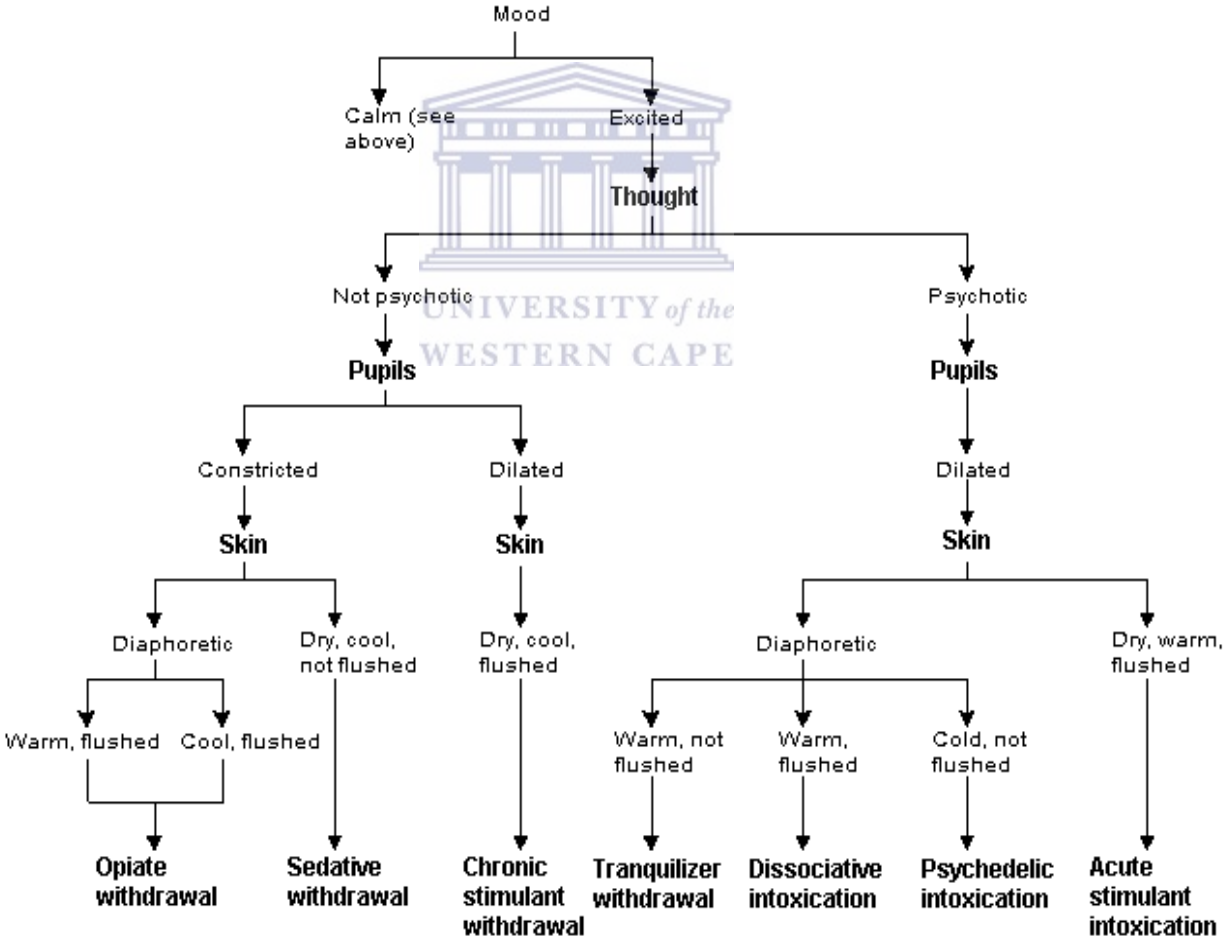


Fig. 32. DIAGNOSIS OF DRUG INTOXICATION



Routes of drug administration. The oldest and most frequent one is orally and the onset of drug effect takes an average of 10 -20 minutes for onset of the euphoric effects of most drugs. Secondly is the nasal route and peak plasma levels, are obtained in 15 minutes, but may fluctuate according to which drug is abuse. The last major route is intra venous or IV route, with peak plasma levels within 3 minutes and the duration of the drug depends on the doses and halve life of the drug injected. There exits other routes to the harden drug abuser, but very seldom used by the occasional user.

Department of health research show that drug use in young people under the age of 25 is: Among 11 to 15 year olds in England in 2001(23):

- 12% had used drugs in the last month, and 20% had used drugs in the last year.
- The prevalence of drug use increased sharply with age: only 6% of 11 year olds had used drugs in the last year compared with two fifths (39%) of 15 year olds.
- Cannabis was the most frequently reported illicit drug used in the last year, used by 13%.
- One percent had used heroin in the last year and 1% had used cocaine. In total, 4% had used class A drugs in the last year.

DRUG USE

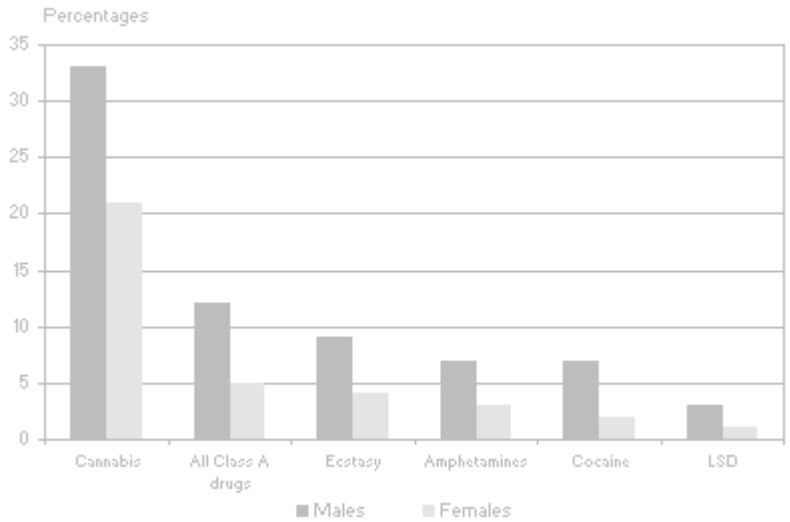


Fig. 33.

Among 16 to 24 year olds in England and Wales in 2000: Prevalance of drug misuse by 16 to 24 year olds in 2001and 2002 in England and Wales:

- 29% had used drugs in the last year and 18% in the last month.
- 26% had used cannabis in the last year, 6% amphetamines, 5% ecstasy, 5% cocaine, 4% poppers, 1% heroin and 1% crack. In total, 9% had used Class A drugs in the last year.
- The proportion who had used drugs in the last year was at the same level in 1994, 1996, 1998 and 2000 (29%). The only drug to show a significant increase in misuse between 1994 and 2000 was cocaine (from 1% to 5% for use in the last year).

Cannabis (24) or marijuana is the most frequent drug use in the UK for smoking purposes and with 42% of 15 to 34 year olds saying they have tried it at least once.

The increasing potency of cannabis for 1%-2% THC to 5% - 10% THC for both resin and herbal varieties, but some samples of up to 30% THC content have been tested. Cannabis is freely availability in a saturate market as the UK.

Fig.34 Cannabis.

Fig.35 Cannabis.

Cannabis has got a plasma half life of 20 – 30 minutes and has a biphasic effect on the autonomic nervous system. Firstly in low to moderate doses it increase the sympathetic activity and in high doses it increase the parasympathetic activity (vagal). Long term cannabis abuse, lets to increase of sinusitis, bronchitis and wheezing which is important in conscious sedation. This is a possible cause for bronchospasm during sedation.

There is a new generation of drug abusers, who are starting to use cannabis at a younger age. They are using it more intensively up to age 20 at more than 20 times per month.

Patient, who smoked cannabis prior to the sedation appointment, can have a prolonged effect of the sedation and also, the recovery time is much longer after sedation. This additional side effect may have a greater or lesser effect depending on the time span between smoking cannabis and the sedation appointment. These patients do not always inform us of their habits.

Under oral drugs I have incorporate drugs taken either through the mouth or nose.

Glue-sniffing and other forms of solvent abuse are a much more acute risk for young people in the UK than ecstasy.

Solvents remain the third most used drug after cannabis and alcohol, with one in ten of 14-15 year old, trying them at some stage (25). Most of these patients are young children and their parents are unaware of their habits and to predict the effect of the solvents on sedation is impossible, but one must always suspect the worst case scenario and be prepared to deal with it effectively.

The effects of solvent abuse start almost immediately after inhalation, and last between 15 to 45 minutes, unless the user continues to repeat the dose. Users normally feel an initial euphoria and lowering of inhibitions which is followed by feelings that are similar to those when you are drunk; disorientation, blurred vision, dizziness, slurred speech, drowsiness, and some people may even experience hallucinations. Users can also experience nausea, vomiting and blackouts. The after-effects include a mild hangover that leaves the user feeling tired and lacking in concentration for about a day (26).

Fig. 36 Solvents.

In 1999 15.8% of school children have been offered ecstasy and 5.7 % have taken it.

Ecstasy (MDMA) is illegally manufactured in tablet form of a variety of appearances and taken orally

Fig. 37 Ecstacy.

Fig. 38 Ecstacy.

The on set of an oral dose is 20 to 45 minutes and last up to 6 hours, it is most popular to young people in the clubbing scene. Ecstasy is a stimulant drug with mild hallucinogenic effects. The pupils become dilated, the jaw tightens and there is often brief nausea, sweating, dry mouth and throat. The blood pressure and heart rate increase and loss of appetite is common, many experience a feeling of initial rushing followed by a combination of energetic and yet calm, loss of anger, empathy with other people, an enhance sense of communications, some reported a heightened sense of their surroundings, but some may have bad experiences that may in some cases last for days, even weeks.

After taking ecstasy, users may feel tired and low and need a long period of sleep to recover, what is known as “comedown” and can last up to 3or 4

days. Regular users may have problems with sleep, lack of energy, depression, anxiety. Increase of colds, flu, and sore throat.

The mechanism of action is a powerful serotonin agonist and causes the release of 5-HT and dopamine. The effects of serotonin are bronchospasm, vasoconstriction leads to hypertension and can aggravate asthma (27).

As ecstasy is an amphetamine, an alarming complication is an acute cerebral oedema. This situation occurs because of an amphetamine induced thirst.

In sedation avoid exaggerating the already existing sympathetic over activity. Catecholamine depletion may occur in chronic users and can lead to a possible collapse following induction.

Drugs which have a psychotropic effect include the benzodiazepine family (28).

Fig. 39 Benzodiazepine.

- Benzodiazepine abuse is a growing problem and carries serious risks to health and society.
- Benzodiazepines are commonly used by polydrug abusers, alcoholics. Benzodiazepines have been taken by opiate, amphetamine and cocaine users worldwide for about 20 years
- People who abuse benzodiazepines often take very large doses orally, by injection or by snorting.

- *Benzodiazepine is taken primary recreational drug for recreational purposes. The teenage rave scene amongst users of MDMA (Ecstasy) and LSD (Strang et al. 1993). Various intoxicating drug- benzodiazepine combinations such as 'Tem-Tems' (buprenorphine and temazepam) and temazepam and lager are popular*
- Benzodiazepine use leads to dependence and a withdrawal syndrome which may include convulsions and psychosis.

All benzodiazepines have five primary effects. They are (29):

A. Hypnotic (tending to make you sleepy).
B. Anxiolytic (tending to reduce anxiety/produce relaxation).
C. Anti-epileptics (tending to reduce the probability of having seizures and convulsions),
D. Muscle relaxant (tending to reduce muscle tension and associated pain).
E. Amnesic (tending to disrupt both long and short term memory).

Benzodiazepines are consumed by two main populations with different characteristics: (1) low-dose prescribed benzodiazepine users and (2) high-dose, non-prescribed benzodiazepine abusers.

The most common reason given by polydrug abusers for taking benzodiazepines, is that they enhance and often prolong the 'high', obtained from other drugs, including heroin, other opioids, cocaine and

amphetamines. Benzodiazepines are mainly taken along with the primary drug, but sometimes used alone as an alternative or in times of shortage. Second, benzodiazepines alleviate withdrawal effects, including anxiety and insomnia, when supplies of other drugs are limited. Users of stimulants including cocaine, amphetamines and Ecstasy also take benzodiazepines as 'downers' to overcome the effects of their 'uppers' and to combat hangover effects. In alcoholics, benzodiazepines are used partly to alleviate the anxiety associated with chronic alcohol use, but also because the mixture of alcohol and benzodiazepines produces a hedonic effect. Finally, benzodiazepines, when taken alone in high doses and particularly when injected, can themselves provide a 'kick'.

Which benzodiazepines are abused? Nearly all the available benzodiazepines have been abused. In general, those which enter the brain rapidly (e.g. diazepam) are preferred to those which are absorbed more slowly (e.g. oxazepam). However, preferred drugs vary between countries and over time depending on their availability and reputation in the illicit drug world. In the UK, temazepam has superseded diazepam, nitrazepam and flurazepam as the most commonly abused benzodiazepine. Doses used by recreational benzodiazepine users are usually far in excess of those recommended for therapeutic purposes. Oral and intravenous doses of 100-150mg temazepam and diazepam are common while some youths may take up to fifty tablets of temazepam (500-1,000mg) for hedonic effects (29).

Cocaine(30).

Cocaine is made from the leaves of a South American shrub, Erythroxycon coca which grows in the mountain regions. It can be marketed in different forms such as crystals, granules or white powder. The powder is the most common form of cocaine in Britain to be sniffed or can be made in a solution to be injected

Fig. 40 Cocaine.

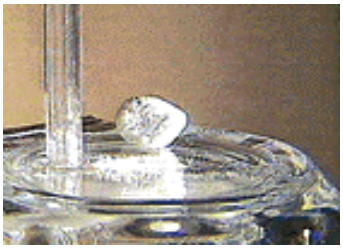


Fig. 41 Cocaine.

Most popular form of cocaine is prepared by heating cocaine hydrochloride with baking soda and water to yield free base cocaine commonly known as crack; it is 95% pure and is the smokeable form of cocaine made into small lumps or rocks. Cocaine and crack are strong, but short acting, stimulant drugs. They tend to make the users more alert and energetic. Smoking crack makes the user feel intense euphoria in less than a minute and last for 5 to 10 minutes. The use of cocaine and crack are in the increase, more so in the cities. It is an expensive drug and more associated with the rich and famous.

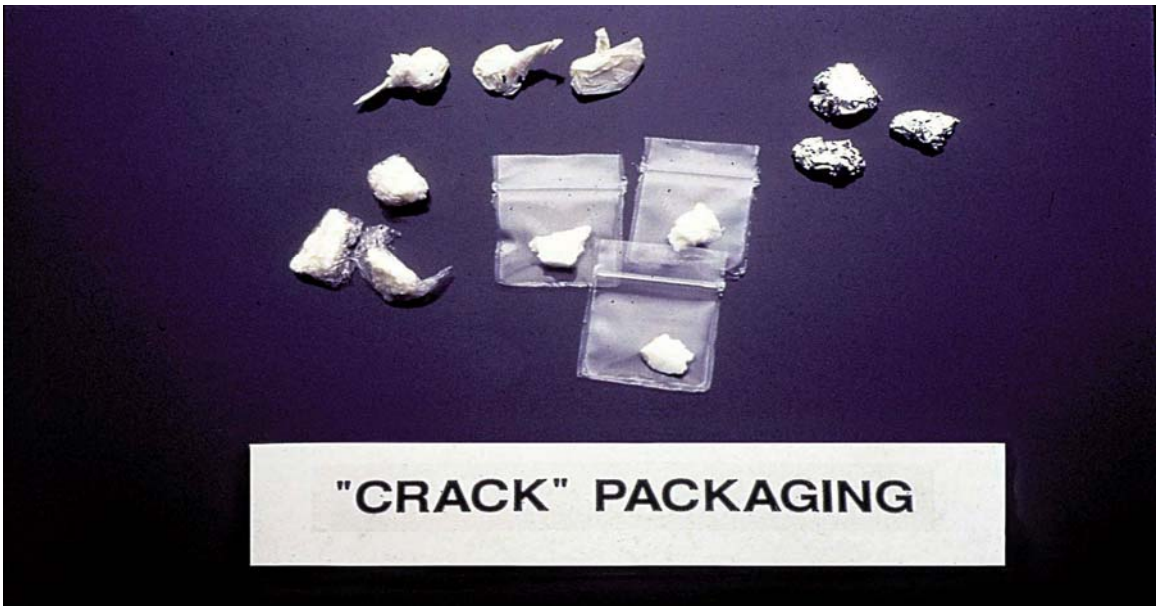


Fig. 42 “Crack”.

Mechanism of cocaine action:

As a local anaesthetic, cocaine prevents an increase of cell membrane permeability to sodium ions and this blocks the propagation of an action potential. It may have negative inotropic and chronotropic effects on the heart. Inhibits dopamine and serotonin re-uptake, and presynaptic catecholamine re-uptake. Alters corticotrophin releasing factor, adrenocorticotropic hormone and cortisol release.

The pharmacodynamics of cocaine:

High levels of cocaine may persist for 6 hours after nasal administration. The metabolism accrues in the plasma and hepatic cholinesterase. Patients with pseudo cholinesterase deficiency run the risk of cocaine toxicity. Cocaine metabolites can be detected for 14 to 60 hours in the urine after cocaine use.

Complications of cocaine abuse:

- Cardiac: Myocardial infarction 0.7% to 6%.
- Arrhythmias: Asystole.

- Cardiomyophathy.
- Myocardial depression.
- Severe hypertension.
- CNS: Convulsions; Cerebral infarction, bleeding, coma.
- Obstetric: Preterm labour; Abruptio placentae.
- Paediatric: Congenital abnormalities; behavioural abnormalities.
- Pulmonary symptoms or signs:
    a. Cocaine induced asthma.
    b. Pneumonits.
    c. Chronic cough.
    d. Pulmonary oedema.
    e. Pneumothorax.
    f. Pulmonary symptoms usually in those who smoke crack.
- Habitual sniffing of cocaine may cause septal perforation.
- Hyperthermia:
    a. Hyperthermia with convulsions may follow cocaine abuse.
    b. During sedation, the fever and sympathomimetic effects of cocaine overdose can mimic malignant hyperthermia.

Symptoms of cocaine use:

- Euphoria (exaggerated feeling of well-being).
- Dilated pupils.
- Rapid heart rate.
- Restlessness and hyperactivity.

Symptoms of cocaine withdrawal:

- Fatigue and malaise.

- Depression.
- Vivid and unpleasant dreams.

Ketamine® (31).

Fig. 43 Ketamine

Ketamine® has pain killing effects but also alters perception. People who use it commonly say they feel detached from themselves and others around them. The drug is described as dose specific. This means the amount taken will strongly determine the extent and type of effect the drug will have. At low doses (roughly 100mg), the user will feel euphoric and experience rushes or waves of energy. At higher doses (200mg and over) the user will often experience hallucinations, similar to LSD, and the typical out-of-of-body or detached experience. This is often followed by numbness, often in the limbs, and strange muscle movements. Users may also feel sick or throw up - dangerous at high doses if the user is unconscious or very disorientated and can choke on their vomit. In long-term ketamine use, reports suggest that flashbacks, memory, attention and vision impairment may result from frequent and prolonged use. Tolerance develops quickly, requiring more of the drug to achieve the same repeated high. Stimulant-like weight loss and loss of appetite may occur during periods of heavy use, as well as psychological dependence, psychosis and gradual loss of contact with the real world.

Ketamine use can also be particularly dangerous if used at the same time as depressant drugs such as alcohol, barbiturates, heroin or tranquillisers as it

can shut the body down to such an effect that the lungs or heart to stop functioning.

Heroin and other Opiates (32).

Heroin is one of a group of drugs called opiates which are derivate from the opium poppy. Opium is the dried milk of the opium poppy. It contains morphine and codeine, both effective painkillers. The history of opium is old and even wars had been fought over it. Opium was used for medical and recreation drug and was mainly smoked in an opium pipe.

Fig. 44 Opium poppy.

Heroin is made from morphine and in pure form it is a white power; it is three times more potent than morphine.

The main source of street heroin, is from the golden crescent countries of the South West Asia in Europe, It counts for 75 % of the drugs and in the UK 95% is originated from Afghanistan in an off white or brown powder. Heroin can be smoked, snored or prepared for injection.

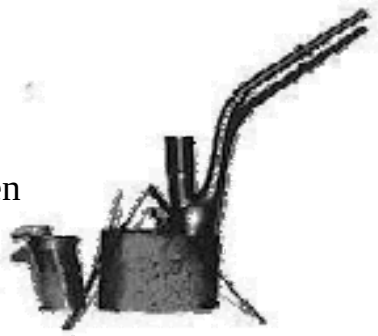


Fig. 45 Opium pipe.

Fig. 46 Heroin.

For medical use, heroin usually comes as a tablets or an injectable liquid. A number of synthetic opiates (called opioids) are also manufactured for medical use and have similar effects to heroin. These include dihydrocodeine® (DF 118s), pethidine (often used in childbirth), Diconal®,

Fig. 47 Heroin.

Fig. 48 Heroin.

Palfium, Temgesic and methadone, a drug which is often prescribed as a substitute of heroin addiction. Methadone is the leading drug for substitute prescribing and can be used to maintain or detox. It has a reputation among

users as being more difficult to detox from, compared to heroin. Dihydrocodeine is used by some practitioners to reduce the severity of withdrawal symptoms, usually at the end of a methadone reduction programme. However, the drug is also used in cases where the dispensing of oral methadone is inappropriate, for example when a user is going on holiday for a period longer than methadone storage will allow. The drug is usually dispensed in tablet form.

Heroin and other opiates are sedative drugs that depress the nervous system. They slow down body functioning and are able to combat both physical and emotional pain. The effect is usually to give a feeling of warmth, relaxation and detachment with a lessening of anxiety. Effects start quickly and can last several hours but this varies with how much is taken and how the drug is taken.

Initial use can result in nausea and vomiting but these unpleasant reactions fade with regular use. With high doses sedation takes over and people become drowsy. Excessive doses can produce stupor and coma and even death from respiratory failure.

With regular use tolerance develops so that more is needed to get the same effect. Physical dependence can also result from regular use. Withdrawal after regular use can produce unpleasant flu like symptoms 8 to 24 hours after last use and may include aches, tremor, sweating, chills, anxiety, nausea and muscular spasms. These symptoms are reversible with methadone 10 mg. These fade after 7- 10 days but feelings of weakness and feeling ill may last longer. Whilst many people do successfully give up long term heroin use, coming off and staying off heroin can be very

difficult. Withdrawal symptoms can be managed symptomatically with benzodiazepine and beta blocker.

It is imported to realize that the periop period is not the proper time to withdraw an addict from opioids. If an addict has token heroin less than 3 hours before sedation, don't give sedation. Heroin addicts have a high occurrence of liver disease.

LSD (33).

Fig. 49 LSD.

LSD (lysergic acid diethylamide) is one of the major drugs making up the hallucinogen class. LSD was discovered in 1938 and is one of the most potent mood-changing chemicals. It is manufactured from lysergic acid, which is found in ergot, a fungus that grows on rye and other grains. It is a white powder, but as a street drug, it is a liquid either on its own or absorbed into paper sheets. The sheets are cut into tiny squares like postage stamps or transfers and often have pictures or designs on. LSD is also sometimes dropped on to sugar cubes or formed into tablets or small capsules.

Only tiny amounts are needed to get an effect and the strength of LSD can vary greatly. It is usually taken orally LSD is a hallucinogenic drug. Strength varies but a low dose (half a regular tab) will usually result in a mild LSD experience and full tab in a full blown trip. This begins about 30 minutes after taking LSD and can last up to 20 hours. The effects of LSD vary greatly depending on dose level.

The physical effects include dilated pupils, higher body temperature, increased heart rate and blood pressure, sweating, loss of appetite, sleeplessness, dry mouth, and tremors.

Sensations and feelings change much more dramatically than the physical signs. The user may feel several different emotions at once or swing rapidly from one emotion to another. If taken in a large enough doses, the drug produces delusions and visual hallucinations. The user's sense of time and self changes.

Sensations may seem to "cross over," giving the user the feeling of hearing colours and seeing sounds. These changes can be frightening and can cause panic.

The fact that once LSD is taken there is no going back until it wears off. LSD is not considered an addictive drug since it does not produce compulsive drug-seeking behaviour.

Symptoms of LSD use:

- Anxiety.
- Frightening hallucinations.
- Paranoid delusions.
- Blurred vision.
- Dilated pupils.
- Tremor.

Alcohol (34).

Alcoholic drinks consist mainly of flavoured water and ethyl alcohol (ethanol).

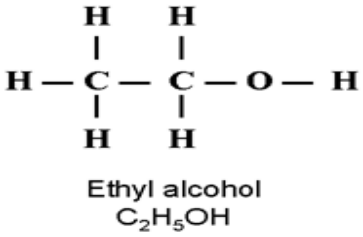


Fig. 50 Alcohol.

They are made by the fermentation of fruits, vegetables or grains. Beer, lager and cider are usually about one part ethanol to 20 parts water, although some brands may be twice as strong as others. Wine is about twice to four times as strong and distilled spirits such as whisky, rum and gin is about half water and half ethanol.

Authorities recommend that men should drink no more than three to four units a day and women no more than two to three units a day. It is also suggested that having one or two alcohol free days per week is wise

What is a unit?

- One pint of normal strength lager (3 - 3.5%) is equivalent to 2 units.
- One 275ml bottle of alcopop (5.5%) is 1.5 units.
- a 175ml glass of 12% wine is 2 units.
- a single measure of spirits (40%) is 1 unit.

Fig. 51.

Alcohol is our most popular drug. Over 90% of British adults drink alcohol. On average men drink the equivalent of a pint and a half of beer a day,

women about half a pint. One in five men drinks more than three pints of beer at least once a week.

Getting drunk is very common. Nearly half the male population and one in seven women will have been drunk in the past three months Young people drink more alcohol than older people. In the late teens and early twenties alcohol consumption is 40-50% higher.

Despite the licensing laws about 60 per cent of 13 -17 year olds have bought alcohol in a pub or off-licence. Young people tend to get drunk more often, drink more in one session and drink stronger beers.

Alcohol is absorbed into the bloodstream and starts to have an effect within 5 to 10 minutes. The effect can last for several hours, depending on the amount consumed. The effect will also depend on:

- How quickly it is drunk, whether there is food in the stomach and the person's body weight.
- How used to drinking someone is, in other words, what their tolerance is to alcohol.
- How people feel before they are drinking. People who feel relaxed and in a good mood are less likely to become aggressive. Some people 'drown their sorrows' in drink and find they feel worse than ever after.

After about two pints of beer most people feel less inhibited and more relaxed. Alcohol is a depressant drug. It acts on the central nervous system to slow the body down. Some people become aggressive and

argumentative; especially men after about 4 pints of average strength beer, drinkers become uncoordinated and slur their speech.

Drinking alcohol makes accidents more common. Alcohol can also be very dangerous to take in combination with other drugs, especially other depressant drugs such as barbiturates, heroin, methadone or tranquillisers and drugs such as anti-depressants, anti-histamines and painkillers. Mixing these drugs and alcohol has led to many fatal overdoses.

Long term, heavy drinking can be very damaging. Physical dependence and tolerance develop, so people drink more and more and suffer withdrawal symptoms (such as trembling, sweating, anxiety and delirium) if they try to stop. At this point people will be regarded as alcoholics.

Heavy, long term drinking can also lead to damage to the heart, liver, stomach and brain and lead to obesity.

Symptoms of alcohol use are:

- Slurred speech.
- Lack of coordination.
- Decreased attention span.
- Impaired judgment.

Symptoms of alcohol withdrawal (35):

- Anxiety.
- Tremors.
- Seizures.
- Increase in blood pressure, pulse, and temperature.
- Delirium.

Hepatic biotransformation and hepatic drug clearance.

Drugs have high or low hepatic extraction ratios(ER). A high extraction drugs may have an ER of 0.7 or 0.8 (propanolol) this is an indication that more than 70% to 80% of the drug is cleared in one pass through the liver out of the blood circulation. For some drugs, hepatic blood flow is the rate of limiting factor for hepatic clearance, so if there is a lowering in hepatic flow the clearance of drugs will be effected.

Drugs that can lower to hepatic blood flow include: beta blockers and cimetidine. A low extraction drugs like diazepam, alfentanil or mepivacaine have an ER of 0.3 or less. Here is the hepatic enzyme activity rate limiting and enzyme stimulation or inhibition can influence the pharmacokinetics. Drug biotransformation in the liver consists of two phases: phase I reaction and phase II reaction.

Herbal abuse (36).

The recent popularity of herbal remedies has freed many people to take psychoactive drugs when their cultural beliefs (e.g., "I'm not crazy") may have prevented them from doing so. One of the best examples of this sort of reasoning is St. John's Wort, which is often used for depression.

On the flip side, though, it has also freed people to use other plant-derived substances for abuse. They relieve themselves of the belief that they are not abusing anything, because the substance is "natural”. The most commonly abused herb is caffeine. Here are some of the other substances used around the world.

Substance	Source	Country	Route	Results	Side effects	Active ingredient
khat	khat shrub	Somalia, Yemen (over half the country uses khat, East Africa, Middle East (used in Muslim Countries where alcohol is banned)	chewing the leaves twigs, and shoots	stimulant; methamphetamine-like rush	anorexia, tachycardia, hypertension, chronic insomnia, irritability, violent behavior	cathinone (most potent in leaves < 48h old)
betel nuts	nut	Arabia, India, Phillipines, New Guinea; brought to Europe in 1300 by Marco Polo	chewing the nut with another plant leaf (like peppermint) and slaked lime to improve flavor.	mild euphoria, excitation	blackened teeth over time, damage to oral and esophageal mucosa, cancer	muscarine
yohimbine	African yohimbe	Africa	brewed in tea or taken orally	increases acetylcholine activity and thus increased penile blood flow. Euphoria and possibly hallucinations.	fatal in large doses	
ephedra	ephedra bush	deserts around the world	tea, pills, extracts	stimulant	death in overdose, cardiovascular complications	ephedrine
mushrooms	one of about 75 species	Mexico, U.S., South America, Southeast Asia, Europe	eating or drinking	hallucinations, nausea, alterations in perception	possible hepatotoxicity	psilocybin & psilocin

Substance	Source	Country	Route	Results	Side effects	Active ingredient
morning glory seeds	Turbina plant		ingesting several hundred seeds	hallucinations, perceptual disturbances	nausea	low concentration of lysergic acid amide
yage	Amazonian vine (ayahuasca)	South America	extract used in drink	dreamlike state	intense vomiting, diarrhea	harmaline
peyote	peyote cactus	Mexico, Southwest US	consumed whole or made into tea	colorful visions, hallucinations	severe nausea	mescaline
nutmeg or mace	nut or casing	nutmeg tree	oral consumption	mild floating sensation to full delerium	severe nausea with psychedelic doses	myristicin, methylenedioxy-amphetamine
marijuana	plant	worldwide	inhalation	mild confusion, deja vu, detachment, concentration difficulties	damage to respiratory mucosa, higher cancer risk	tetrahydrocan-nabinol (THC)
sinsemilla	flower top of female marijuana plant		inhalation			
hashish	pressed resin of marijuana		oral consumption, inhalation			
mexican sage	salvia divinorum	mexico; worldwide	typically smoking; sometimes oral consumption	visual hallucinations, intense perceptual disturbances		possibly serotonergic mechanism
Acasia bark	Acacia (“Wattle”)	africa	Smoked the bark or resins	hallucinations,	relatively no reported after effects	

Table 12. SOME HERBAL SUBSTANCE USED AROUND THE WORLD

Keeping in mind the side effects of these herbal products and their abuse, one must always be prepared to deal with their interference with the sedative drugs and a possible interaction between them. The only herbal abuse that I have come across was betel nut chewing.

2.5 Previous IV/DA experience

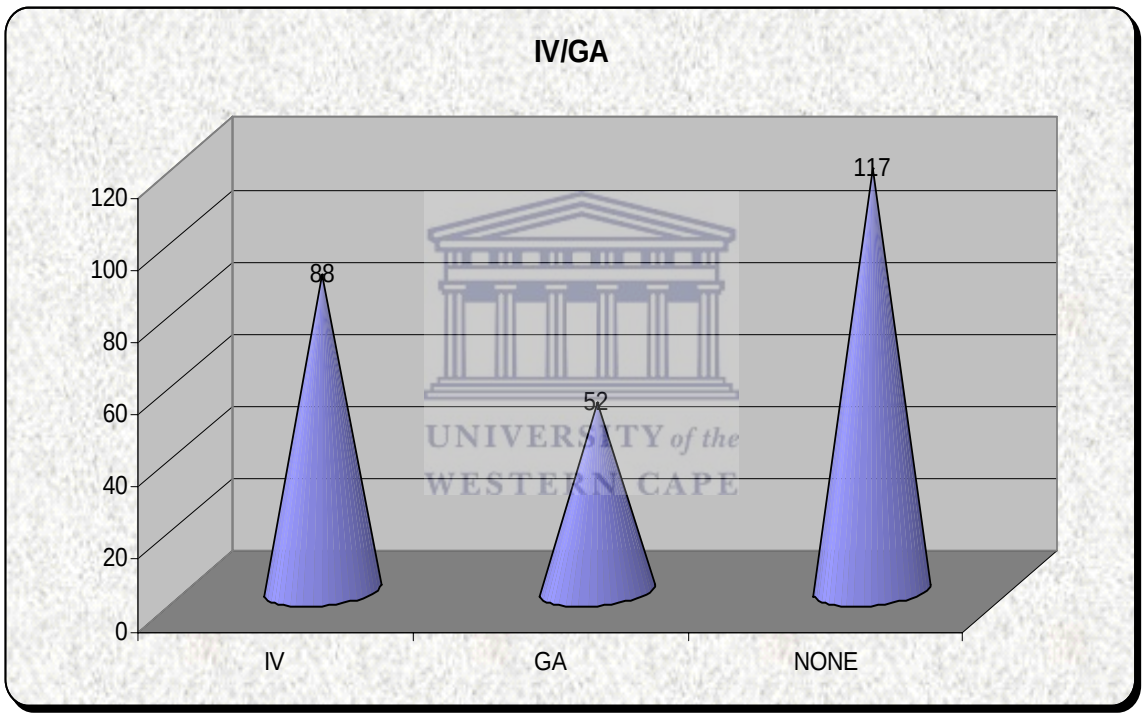


Fig. 52 IV/GA.

The majority of the referred patients have had a previous experience with either IV (35%) or GA (20%) and 3 patients experienced both. The new patients to IV are 45% of the referred patients, and are mainly the young referred patients, which have never been to the dentist.

The 3 patients who have had both IV and GA have expressed their opinion that they prefer IV sedation above GA, due to the post operative feeling

after sedation. It is so much better, and they could not remember anything of the sedation either.

Patients who had IV sedation is much more relaxed about their next sedation and also mentioned that they had pleasant memories of the previous sedation.

The group that had previous GA for medical or dental problems are more difficult to come to grips with the fact, that they will not be asleep. None of these groups refused to have IV sedation as an alternative to GA, probably because the waiting list for GA dental work in the UK, is very long. Most of the patient are pleased that the risk for sedation is lower than the risk for GA and prepared to give sedation a chance.

No points are scored for previous experiences in IV or GA.

2.6 Adverse reactions to IV/GA

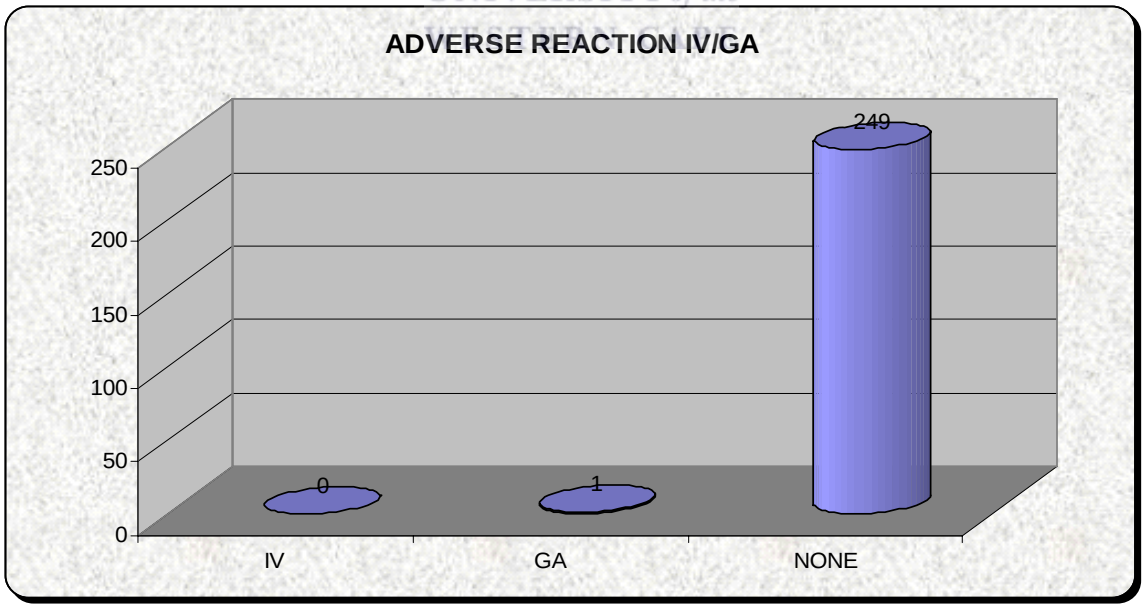


Fig. 53 Adverse reaction IV/GA.

Only one patient has experienced an adverse reaction to GA. This particular patient is a multi drug abuser. The patient woke up during the GA, but it is quite acceptable for IV, because conscious sedation will not induce sleep, it is just a state of relaxation. The majority have not experience any adverse reactions. I have not taking vomit or nausea as an adverse reaction.

IV. POINT SCORE

Point scoring for ASA:

- ASA I = O points.
- ASA II = 5 points.
- ASA III (mild) = 7 Points.
- ASA III = 9 points.
- ASA IV = 10 points.
- ASA V +VI = 10 points.

Point scoring for ADS:

- No ADS = 0 points.
- ADS controlled and on medication = 5 points.
- ADS uncontrolled and on medication =8 points.
- ADS not on medication = 10 points.

Point scoring for smoking:

- 0 -10 per day =0 points.
- 11-20 per day = 2 point.
- 21-30 per day = 4 points.
- 31 plus per day = 6 points.

Point scoring for drug abuse:

- No drug use = 0 points.
- Herbal user = 1 point.
- Occasional or recreation user = 4 points
- On Rehabilitation drugs = 6 points.
- Drug addict = 8 points.

Points scored for adverse reaction to IV or GA:

- No reaction = 0 points.
- Adverse reaction to IV = 10 points.
- Adverse reaction to GA = 8 Points.

CHAPTER 3

ANATOMICAL OBSERVATIONS

I. INTRODUCTION

Anatomical observation involved the physical anatomical structures of the head, neck and oral cavity from the patient and questioning about some of their natural habits relating to the breathing patterns. I have use the following framework as my base of research:

3.1 Head shape

3.1.1 Round (1)

3.1.2 Oval (2)

3.1.3 Elongated – extreme not suitable for sedation in dental chair (3)

3.2 Airway

3.2.1 Upper airway open (1)

3.2.2 Upper airway partly closed (2)

3.2.3 Upper airway closed (3) note airway classification

3.3 Mouth

3.3.1 Access

3.3.1.1 Opening 1 cm (1)

3.3.1.2 Opening 2 cm (2)

3.3.1.3 Opening 3 cm (3)

3.3.1.4 Opening 4 cm plus (4)

3.3.1.5 Total Trismus (5)

3.3.2 Malampati score

3.3.2.1 Class 1 (1)

3.3.2.2 Class 2 (2)

3.3.2.3 Class 3 (3)

3.3.2.4 Class 4 (4)

3.3.3 Palate shape

3.3.3.1 Wide and flat (1)

3.3.3.2 Normal and curved (2)

3.3.3.3 Narrow and high (3)

3.4 Breathing

3.4.1 Nasal (1)

3.4.2 Mouth (2)

3.4.3 Both nasal and mouth (3)

3.5 Sleep, breathing pattern

3.5.1 Normal (1)

3.5.2 Snoring (2)

3.5.3 Stuttering (3)

3.5.4 Sleep apnoea (4)

3.6 Tongue

3.6.1 Micro (1)

3.6.2 Normal (2)

3.6.3 Macro (3)

3.7 Tonsils

3.7.1 Present

3.7.1.1. Small (1)

3.7.1.2 Normal (2)

3.7.1.4 Large = moderate swelling (3)

3.7.1.5 Enormous =severe swelling (4)

3.7. 2 Removed (5)

3.8 Gag Reflex

3.8.1 Normal (1)

3.8.2 Active (2)

3.8.3 Severe (3)

3.9 Neck

3.9.1 Mobility

3.9.1.1 Normal (1)

3.9.1.2 Restricted flexion (2)

3.9.1.3 Restricted extension (3)

3.9.2 Length

3.9.2.1 Short and thick (1)

3.9.2.2 Normal (2)

3.9.2.3 Long (3)

3.10 Skeletal

3.10.1 Cass 1 (1)

3.10.2 Class 11(2)

3.10.3 Class 111 (3)

3.11 Obstruction (Anatomical deformities)

3.11.1 Swelling/Abscess

3.11.1.1 Under tongue (1)

3.11.1.2 Jaw anterior (2)

3.11.1.3 In Neck and posterior jaw (3)

3.11.1.4 None (4)

3.11.2 Other

3.11.2.1 Goiter (1)

3.11.2..2 Burn/Scaring (2)

3.11.2.3 Tumours (3)

3.11.2.4 None (4)

II DATA TABLES

Table 13.

NR	3. ANATOMICAL OBSERVATIONS														
	3.1	3.2	3.3			3.4	3.5	3.6	3.7	3.8	3.9		3.1	3.11	
	HEAD	AIR WAY	MOUTH			BREA THING	SLEEP	TON GUE	TON SILS	GAG	NECK		SKELE TAL	OBSTRUCTION	
			ACCESS	MALAMPATI	PALATE						MOBILITY	LENGTH		SWE/ABS	OTHER
1	1	1	3	1	1	3	1	1	2	1	1	1	1	2	4
2	1	1	4	1	1	1	2	3	2	1	1	1	1	4	4
3	2	1	4	1	2	1	1	2	2	1	1	2	1	4	4
4	2	1	3	1	2	3	1	2	2	1	1	2	1	4	4
5	1	1	3	1	2	1	1	2	1	1	1	3	1	4	4
6	2	1	3	1	2	3	2	2	2	1	1	2	1	4	4
7	1	1	2	1	2	1	1	2	2	1	1	2	1	2	4
8	2	1	4	1	1	1	1	2	2	1	1	3	1	4	4
9	1	1	3	1	3	3	2	2	1	1	1	2	1	2	4
10	1	1	3	1	1	1	1	3	1	1	1	2	1	2	4
11	2	1	3	1	2	1	2	2	2	1	1	2	1	4	4
12	2	1	3	1	2	1	2	2	2	1	1	2	1	4	4
13	2	2	3	1	1	2	2	2	5	1	1	2	1	4	4
14	1	1	2	1	3	3	2	2	3	1	2	1	1	4	4
15	2	1	3	1	2	1	1	2	2	1	1	2	1	2	4
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19	2	1	3	1	2	1	1	2	2	1	1	2	1	4	4
20	2	1	3	1	2	3	2	2	2	1	1	1	1	4	4
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25	2	1	3	1	2	1	1	2	2	1	1	1	1	2	4

NR	3. ANATOMICAL OBSERVATIONS														
	3.1	3.2	3.3			3.4	3.5	3.6	3.7	3.8	3.9		3.1	3.11	
	HEAD	AIR WAY	MOUTH			BREA THING	SLEEP	TON GUE	TON SILS	GAG	NECK		SKELE TAL	OBSTRUCTION	
			ACCESS	MALAMPATI	PALATE						MOBILITY	LENGTH		SWE/ABS	OTHER
26	2	1	3	1	2	1	1	2	2	1	1	1	1	4	4
27	2	1	3	1	2	1	1	3	1	1	1	2	1	4	4
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50	2	1	3	1	2	1	2	2	2	1	1	2	1	2	4

NR	3. ANATOMICAL OBSERVATIONS														
	3.1	3.2	3.3			3.4	3.5	3.6	3.7	3.8	3.9		3.1	3.11	
	HEAD	AIR WAY	MOUTH			BREA THING	SLEEP	TON GUE	TON SILS	GAG	NECK		SKELE TAL	OBSTRUCTION	
			ACCESS	MALAMPATI	PALATE						MOBILITY	LENGTH		SWE/ABS	OTHER
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NR	3. ANATOMICAL OBSERVATIONS														
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			ACCESS	MALAMPATI	PALATE						MOBILITY	LENGTH		SWE/ABS	OTHER
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100	1	1	3	1	1	1	1	2	2	2	1	2	1	4	4

NR	3. ANATOMICAL OBSERVATIONS														
	3.1	3.2	3.3			3.4	3.5	3.6	3.7	3.8	3.9		3.1	3.11	
	HEAD	AIR WAY	MOUTH			BREA THING	SLEEP	TON GUE	TON SILS	GAG	NECK		SKELE TAL	OBSTRUCTION	
			ACCESS	MALAMPATI	PALATE						MOBILITY	LENGTH		SWE/ABS	OTHER
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121	2	1	3	1	2	1	2	2	2	1	1	2	1	2	4
122	2	1	3	1	2	1	1	2	2	1	1	2	1	4	4
123	2	1	3	1	3	1	1	2	2	1	1	2	1	2	4
124	2	1	3	1	2	1	1	2	2	1	1	2	1	2	4
125	2	1	3	1	2	3	2	2	5	1	1	2	1	2	4

NR	3. ANATOMICAL OBSERVATIONS														
	3.1	3.2	3.3			3.4	3.5	3.6	3.7	3.8	3.9		3.1	3.11	
	HEAD	AIR WAY	MOUTH			BREA THING	SLEEP	TON GUE	TON SILS	GAG	NECK		SKELE TAL	OBSTRUCTION	
			ACCESS	MALAMPATI	PALATE						MOBILITY	LENGTH		SWE/ABS	OTHER
126	1	2	3	1	1	3	2	3	2	1	1	2	1	4	4
127	2	1	3	1	2	1	1	2	2	1	1	2	1	2	4
128	1	2	3	1	2	3	3	2	5	1	1	1	1	2	4
129	2	1	3	1	2	1	1	2	2	1	1	2	1	4	4
130	2	1	3	1	2	1	1	2	2	1	1	2	1	2	4
131	2	1	2	1	2	1	1	2	2	1	1	2	1	2	4
132	2	1	3	1	2	1	1	2	2	1	1	2	1	4	4
133	2	1	3	1	2	1	1	2	2	1	1	2	1	4	4
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135	2	1	2	1	3	1	1	2	2	1	1	2	1	4	4
136	2	1	3	1	2	1	2	2	2	1	1	2	1	4	4
137	2	1	3	1	1	1	1	2	2	1	1	2	1	2	4
138	1	1	4	1	1	1	1	2	2	1	1	2	1	4	4
139	1	1	3	1	2	3	2	2	5	1	1	2	1	2	4
140	1	1	3	1	1	1	1	2	2	1	1	2	1	2	4
141	2	1	3	1	2	3	2	2	5	1	1	2	1	4	4
142	2	1	3	1	2	1	1	2	2	1	1	2	1	4	4
143	2	1	3	1	2	1	1	2	2	1	1	2	1	4	4
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149	2	1	3	1	2	1	1	2	2	1	1	2	1	4	4
150	2	1	3	1	2	1	1	2	5	1	1	2	1	2	4

NR	3. ANATOMICAL OBSERVATIONS														
	3.1	3.2	3.3			3.4	3.5	3.6	3.7	3.8	3.9		3.1	3.11	
	HEAD	AIR WAY	MOUTH			BREA THING	SLEEP	TON GUE	TON SILS	GAG	NECK		SKELE TAL	OBSTRUCTION	
			ACCESS	MALAMPATI	PALATE						MOBILITY	LENGTH		SWE/ABS	OTHER
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158	1	1	3	1	1	3	2	2	2	1	1	1	1	4	4
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NR	3. ANATOMICAL OBSERVATIONS														
	3.1	3.2	3.3			3.4	3.5	3.6	3.7	3.8	3.9		3.1	3.11	
	HEAD	AIR WAY	MOUTH			BREA THING	SLEEP	TON GUE	TON SILS	GAG	NECK		SKELE TAL	OBSTRUCTION	
			ACCESS	MALAMPATI	PALATE						MOBILITY	LENGTH		SWE/ABS	OTHER
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NR	3. ANATOMICAL OBSERVATIONS														
	3.1	3.2	3.3			3.4	3.5	3.6	3.7	3.8	3.9		3.1	3.11	
	HEAD	AIR WAY	MOUTH			BREA THING	SLEEP	TON GUE	TON SILS	GAG	NECK		SKELE TAL	OBSTRUCTION	
			ACCESS	MALAMPATI	PALATE						MOBILITY	LENGTH		SWE/ABS	OTHER
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NR	3. ANATOMICAL OBSERVATIONS														
	3.1	3.2	3.3			3.4	3.5	3.6	3.7	3.8	3.9		3.1	3.11	
	HEAD	AIR WAY	MOUTH			BREA THING	SLEEP	TON GUE	TON SILS	GAG	NECK		SKELE TAL	OBSTRUCTION	
			ACCESS	MALAMPATI	PALATE						MOBILITY	LENGTH		SWE/ABS	OTHER
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239	3	2	3	1	3	3	3	2	1	1	1	1	1	4	4
240	2	1	3	1	2	1	1	2	2	1	1	1	1	4	4
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250	2	1	3	1	2	1	1	2	2	1	1	1	1	4	4

III DISCUSSION

3.1 Head Shape

The head shape of a patient have an influence on maintaining an open airway during sedation in a dental chair. The limitations of movements of the head rest on a dental chair make it impossible to maintain an open airway in the extreme elongated head shapes. It is impossible to do any dental treatment if the patient is not positioned on there backs.

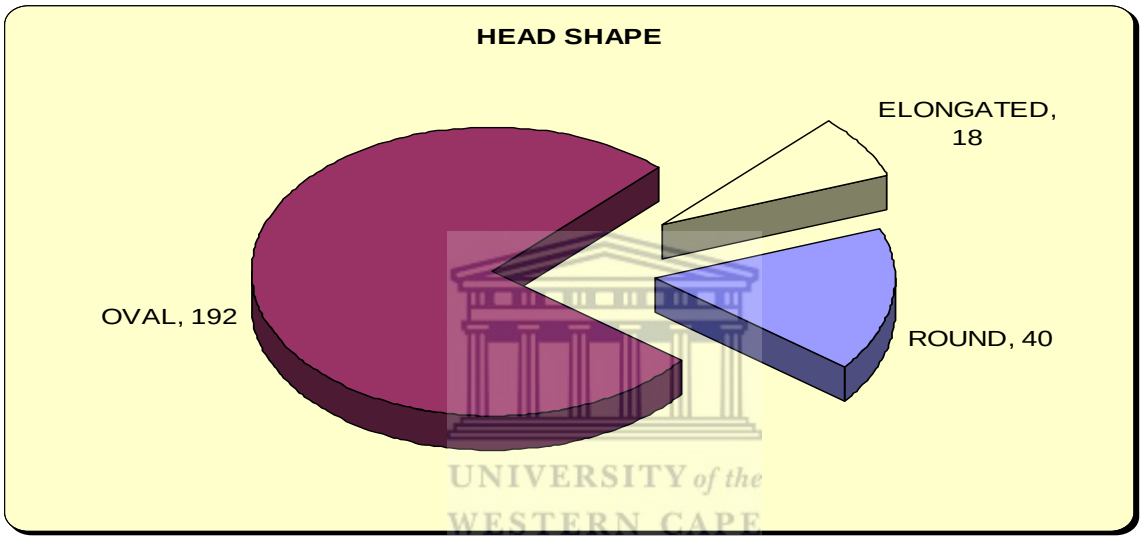


Fig. 54 Head shape.

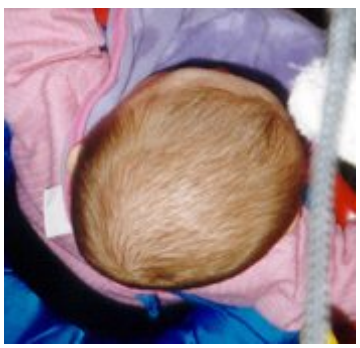
The round and oval head shapes have got no negative influence on the dental procedures, as long as the head can be reasonably stable during the dental procedures. The majority of patients, are either oval or round, I have found 18 patients with elongated heads who mostly had an elongated tendency, with nothing more. The only one true elongated head I managed to research, is a patient from Ethiopic descendents. Treating this patient in a dental chair, when the patient is in the supine position the neck is not extended, the chin always touches the suprasternal notch with the result that the airway is obstructed.

Although there are many other causes for abnormal head shapes for example croniosynostoses, syndromes, craniofacial clefts, etc. I only encountered the elongated shape in a dental day clinic.

Fig. 55 Ethiopic child.

The shape of any persons head is mainly genetically predetermined, but we were all born as babies and baby's skull is malleable. Too much time in one position can give it an uneven shape well past the time when uterine or birth-related head malformation should have resolved. This later head malformation, known as positional molding, develops in babies who spend most of their time on their backs in cribs, car seats or infant seats. Positional molding may reinforce a birth-related head malformation, or it may create flattening or elongation in a baby whose head was evenly shaped at birth.

Fig. 56 Head shapes.



3.2 Airway

The upper airway is built into the anterior head and neck, shearing spaces with many other systems. Posterior the nasal cavity opens into the muscular tube of the pharynx; first the nasopharynx, defined by the highly mobile soft palate as it's floor, then on to the oropharynx defined anteriorly by the tongue and finally into the laryngopharynx.

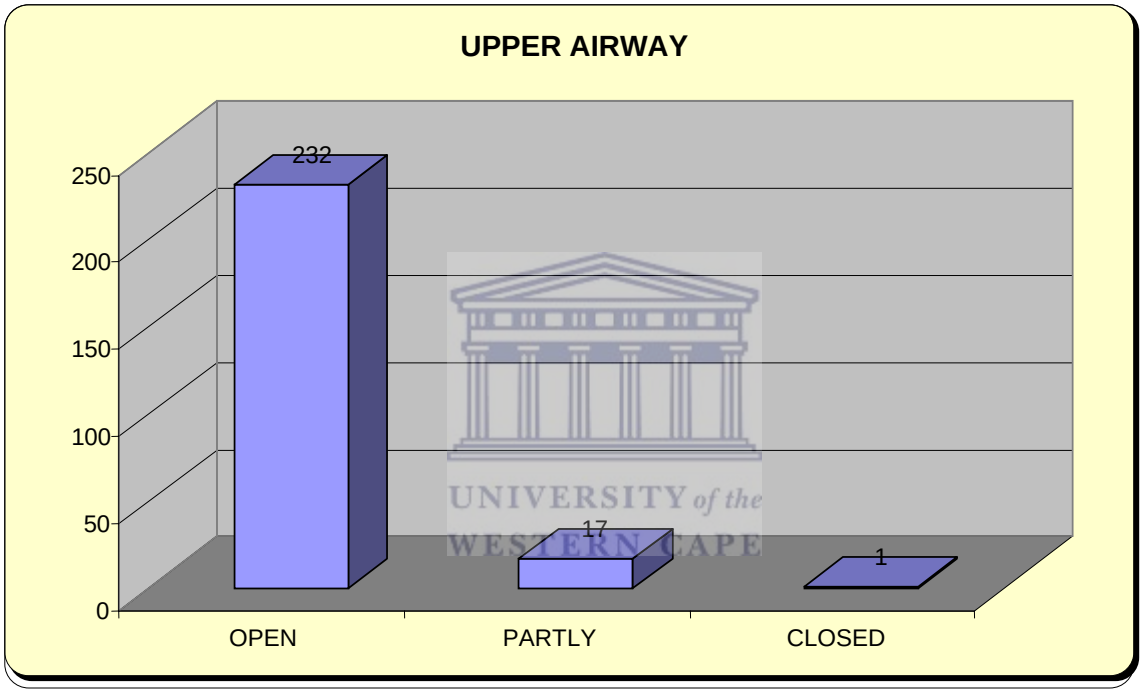
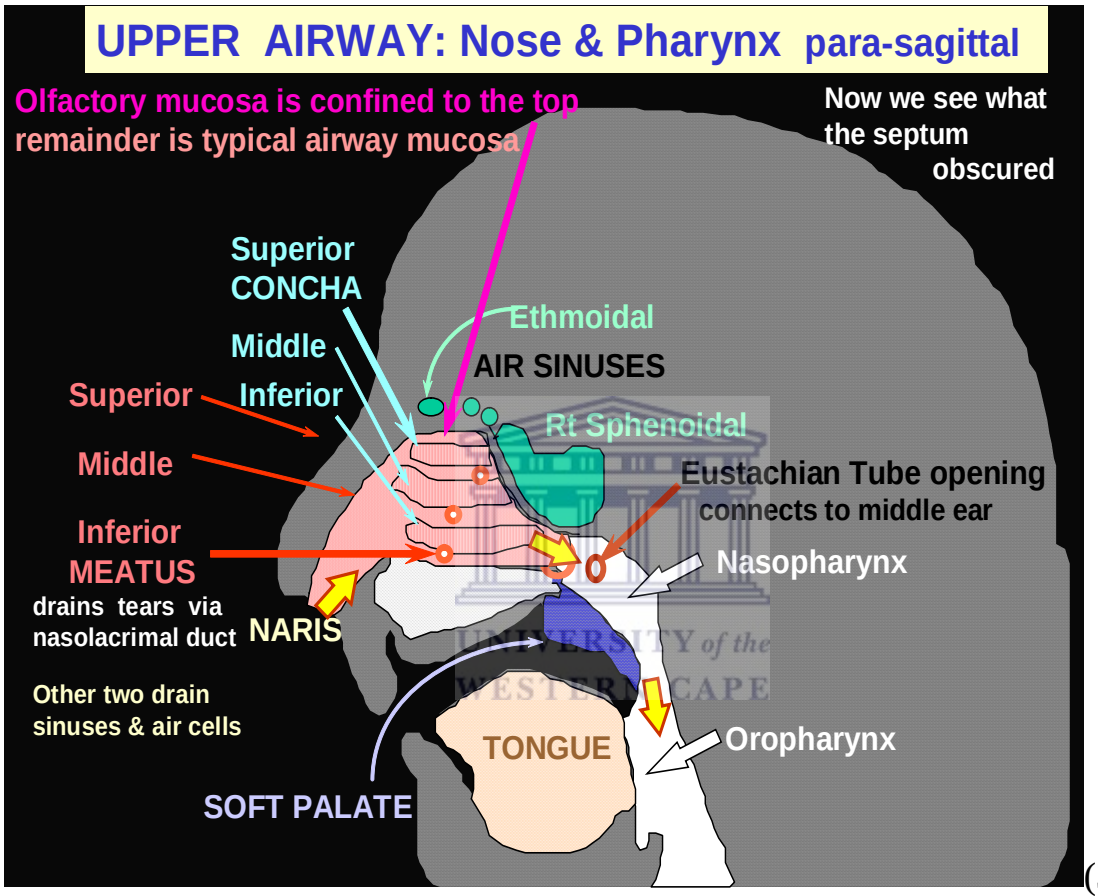


Fig. 57 Upper airway.

Open airway is related to the patient who can breathe without any problems through the nose. Partly open airway, is where the patient breathes through the nose and mouth, but can breathe through the nose only with difficulty. Only mouth breathing is possible with closed airway. Closed nasal airway is mainly a complication of cold or flu and the sedation can be postponed until the patient has recovered from it.

The size of the adenoids has an influence on the airflow through the nasal passage and there for, have a contribution to make for a successful sedation, the smaller the better.



(38)

Fig. 58.

An open airway is essential for dental sedation as the patient is unable to breathe through the mouth when dental treatment is being carried out. Any pre-sedation consultation must exam the patient from a worst point scenario. In case of any potential emergency you must be able to rescue the patient. Successful management of the difficult airway begins, with recognizing the potential problem before any airway mishap occurs. Recognizing it at the consultation appointment is important.

Recognition of the Difficulty Airway:

A. Pathologic Causes of Difficult Airways:

- Congenital facial deformities.
- Congenital upper airway deformities.
- Severe maxillary overbite.
- Maxillofacial and airway trauma.
- Airway tumours.
- Airway abscesses.
- Cervical spine immobility.
- Burns to the head and neck.
- Radiation to the head.

B. Mask Airway Difficulties:

Face masks ventilation common method of maintaining airway potency and gas exchange. In any given patient the degree of difficulty with mask ventilation may change at any given time.

Facial features contributing to difficult mask ventilation:

- Beard: difficult to get a good mask seal.
- Large jaw/head: difficult to apply enough force to move the tongue forward.
- Lack of teeth: makes it difficult to obtain good mask fit. Upper airway structures tend to collapse inward.
- Obesity: airway collapse due to redundant tissue. Low chest compliance = high airway pressures.
- Facial dressings/appliances.
- Sensitivity of skin to friction: skin grafts, burns, epidermolysis bullosa

C. Anatomic Causes of Airway Difficulty:

Three key components to the complete anatomic airway exam:

- Evaluation of the tongue vs. pharyngeal size.
- Evaluation of the atlanto-occipital joint extension.
- Evaluation of the amount of mandibular space.

These three steps are easy to perform, cost nothing and appear to be suitably accurate predictors of subtle anatomic causes of intubation difficulty.

Relative Tongue/Pharyngeal Size.

Also known as the Mallampati Classification will be discussed under Malampati (3.3.2).

Atlanto-Occipital (AO) Joint Extension.

Successful exposure of the glottic opening requires alignment of the oral, pharyngeal and laryngeal axes (the “sniff” position) and this is most easily achieved when the neck is moderately flexed on the chest and the head is well extended on the neck.

Normal extension at the AO joint is 35 degrees.

Mandibular Space:

This is the area bounded by the plan of the line of vision and the part of the mandibular arch in front of this plane.

The tongue is pushed into this space during direct laryngoscopy.

If the mandibular space is small, it is difficult to pull the tongue forward and the posterior area of the tongue will obstruct your view (39).

Another way of airway assessment is the LEMON law.

LEMON is an abbreviation of:

- L = Look externally; Does a beard disguise micrognathia, or macrognathia? Does the patient have a bull neck or a receded chin?
- E = Evaluate the 332 rule which help to assess the external dimensions of the airway and predict possible difficulties intra-operatively:

    3: Extent of ability to open oral cavity, 3 fingers next to one another.

    3: Fingers abreast as distance from mentum to hyoid cartilage (Pharynx).

    2: Fingers abreast as distance from mouth floor to thyroid cartilage (larynx). Any severe deviation from this guide could indicate possible airway obstruction when the patient is in a supine position intra-operatively.

- M = Mallampati classification (3.3.2).
- O = Obstruction of the upper airway e.g.: the tonsils which could cause partial, moderate or severe direct obstruction. Indirect obstruction may be caused by a swollen thyroid, especially in the supine position (e.g. Adenomatous Goiter) (3.8).
- N = neck mobility. The degree of mobility is to be noted, as extension may be necessitated intra-operative. This may be hampered by arthritis, injury or fusion. (41)(3.10).

3.3 Mouth.

With the mouth I have taken into consideration the:

3.3.1 Access.

Access to the mouth is measured by how wide the mouth can open in centimetres (cm) between the upper incisors and the lower incisors. I have divided it into increments of one cm. at each stage of opening. The average peek around 3 cm and complex dental treatment can easily been carried out with an opening of 3 cm.

ACCESS

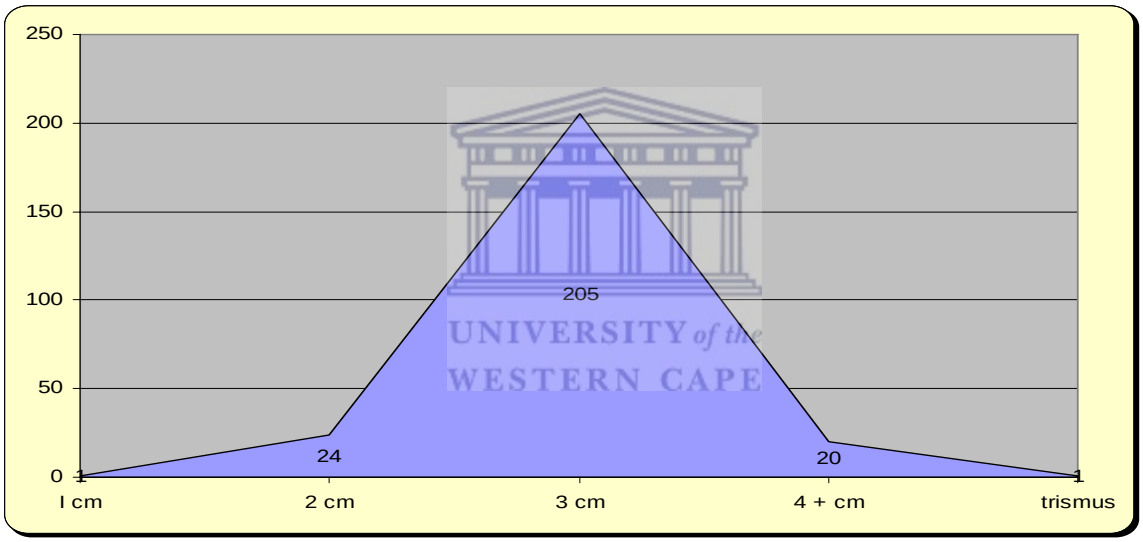


Fig. 59 Accses.

One patient did have trismus as a result of wisdom teeth infection and course antibiotics were prescribed before patient was booked for sedation. Mouth opening of 2 cm makes the use of dental instrumentation very difficult and the patient can't be treated satisfactory for conservation but elementary extractions can still be done.

Possible causes of difficult mouth opening: The following medical conditions are some of the possible causes of difficult mouth opening as a symptom (40):

- Mouth pain
- Jaw pain
- Dental pain (see Oral pain)
- Tooth decay
- Dental infection
- Impacted wisdom teeth
- Jaw disorder
- TMJ disorder
- Tetanus - the well-known "lockjaw" symptom.
- Strychnine poisoning
- Mononucleosis
- Upper respiratory infection
- Tonsillitis
- Cancrum oris
- Mumps
- Periotonsillar abscess
- Trismus

Conditions for difficult mouth opening:

- Broken jaw

Effect of mouth opening on swallowing apnea in supine position

During dental treatment it is difficult to swallow a small amount of turbine water remaining in the mouth. It has been revealed that there is an interdependence between the upper airway and digestive system. Recently it have been reported that mouth opening increased upper airway collapsibility during sedation (T.Ayuse; J.Dent.Res.2004;83(9):718-22). -----*The aim of this*

study is to test the effect of mouth opening on swallowing apnea. ---- The responses to continuous infusion of water were analyzed using the data of last 2 min of a 3 min period of water infusion. The measurement was performed in mouth closed and in mouth opening condition in supine position. Mouth opening significantly prolonged the duration of swallowing apnea (1.38 ± 0.30 sec) compared to mouth closed condition (0.78 ± 0.19 sec). The number of swallows in mouth opening condition was significantly smaller than mouth closed condition. Conclusion: We conclude that mouth opening may provide major effect on coordination between swallowing and respiration. (42)

3.3.2 Mallampati.

Mallampati Classification:

The Mallampati classification relates tongue size to pharyngeal size. This test is performed with the patient in the sitting position, the head held in a neutral position, the mouth wide open, and the tongue protruding to the maximum.

The subsequent classification is assigned based upon the pharyngeal structures that are visible:

- Class I = visualization of the soft palate, fauces, uvula, anterior and posterior pillars.
- Class II = visualization of the soft palate, fauces and uvula.
- Class III = visualization of the soft palate and the base of the uvula.
- Class IV = soft palate is not visible at all.

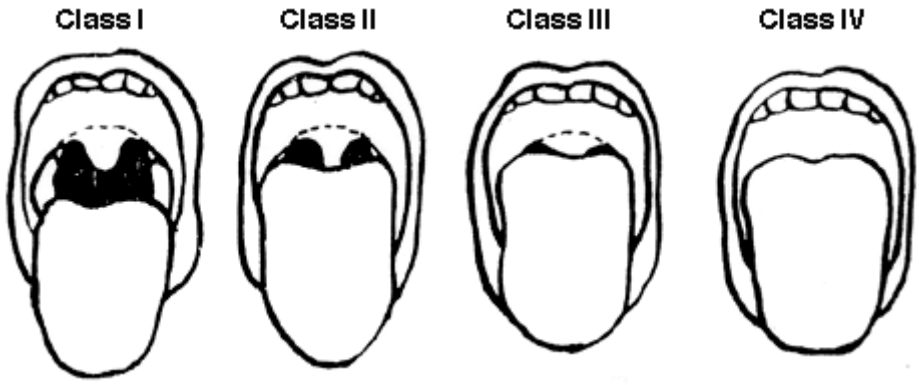


Fig. 60 Mallampati.

The progression of diagrams from left to right suggests increased difficulty in airway management during sedation (43).

Patients who have an abnormal airway exam (including Class III or Class IV oral exam) should be considered to be at increased risk for airway obstruction during sedation. Also, they potentially have a difficult airway to manage if mask ventilation or intubation becomes necessary.

Significant patient history that suggests increased risk for sedation is:

- Stridor.
- Significant Snoring.
- Sleep Apnoea.
- Advanced Rheumatoid Arthritis.
- Dysmorphic Facial Features.
- Down's Syndrome.
- Upper Respiratory Infections.

Al the participating patient is Mallampati class 1.

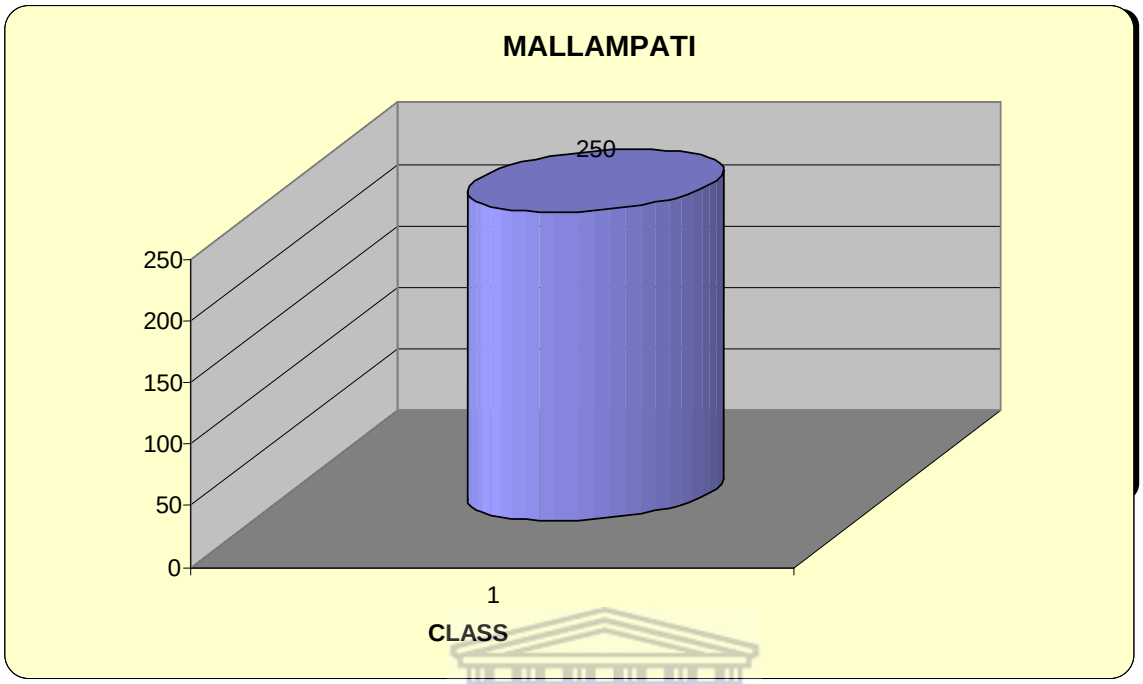
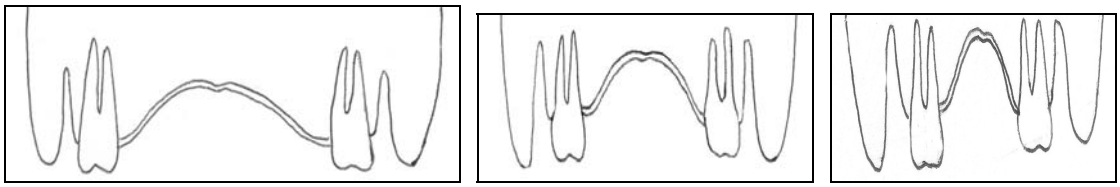


Fig. 61 Mallampati.

3.3.3 Palate shape.

The hard palate forms the roof of the oral cavity and also the floor of the nasal cavity. The shape of the palate can be flat and wide between the molar teeth, normal and curved or high and narrow.

PALATE SHAPE



Flat and Wide Normal Narrow and High

Fig.62 Palate shape.

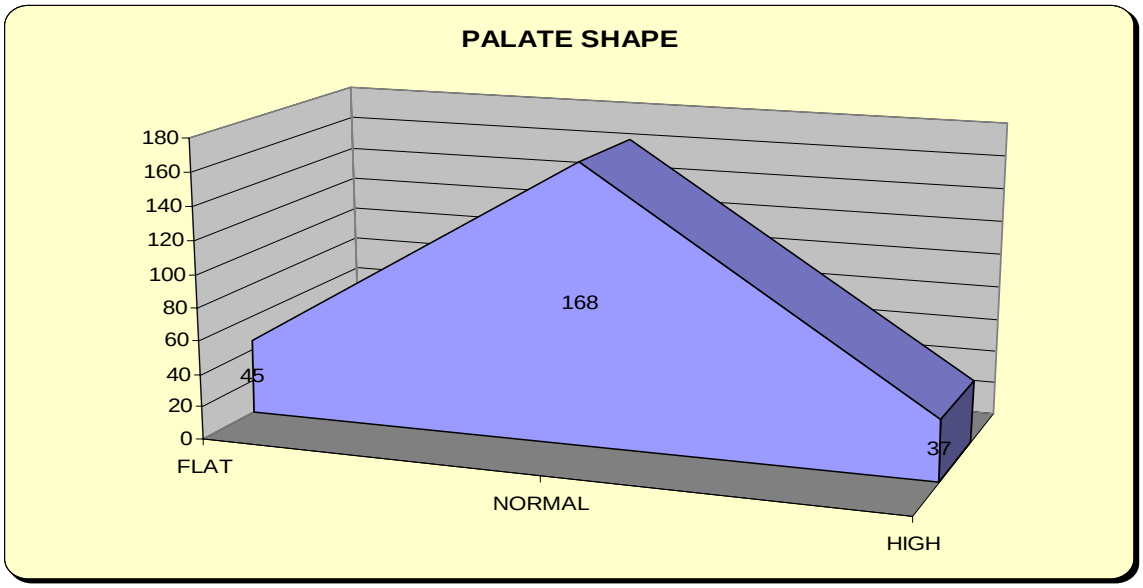


Fig.63 Palate shape.

From a sedation point of view, the most important shape is the high palate that intrudes into the nasal cavity by pushing the nose floor up and restricts airflow through the nose. This occurs normally in dental class 2 patients, with a large overbite and small mandible that is set back.

3.5 Breathing.

For many patients, breathing is only a function of the body which exists without paying any attention to it and it has no relevance whether it takes place through the mouth or nose, but for dental sedation it is a major criteria if a patient can breathe sufficiently through the nasal passage.

I have found that the majority of patients are nose breathers and most of the rest, breathe through both mouth and nose, but can if they try, be able to breathe through the nose.

The minority of 3% were mouth breathers and of them, only 2 patients were anatomical mouth breathers and had the anatomical features of mouth

breathing. The rest just developed into a mouth breathing pattern out of habit or form medical reasons.

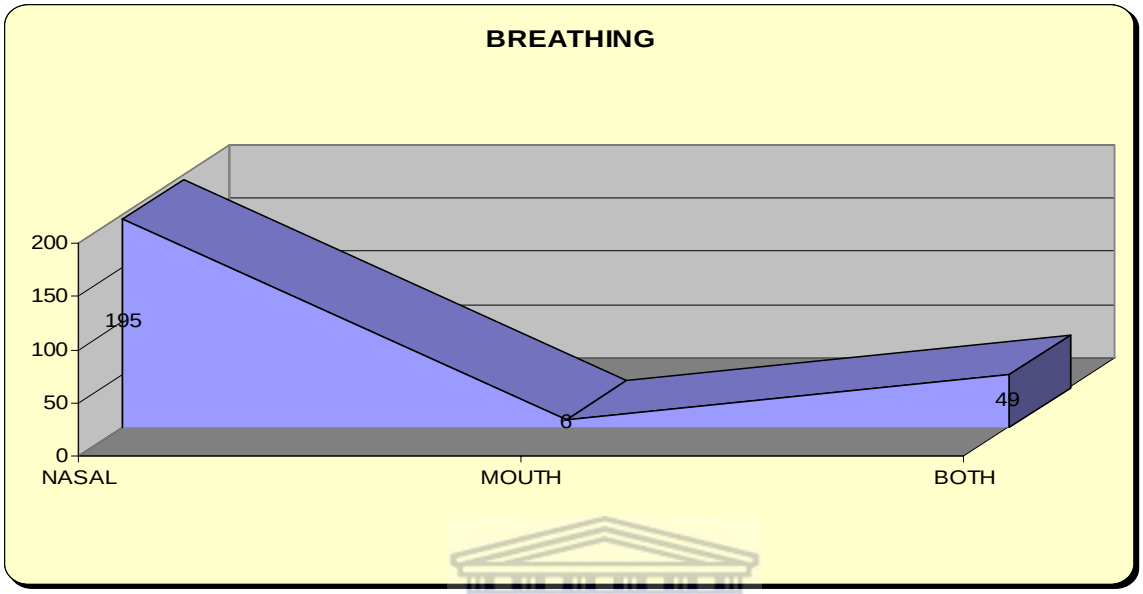


Fig. 64 Breathing.

A mouth breather is difficult to treat. Often the condition will need medical (allergy) attention, speech therapy, orthodontics and orthognathic surgery or a combination of the above. For example: orthodontic correction of a mouth breathing child

Fig. 65 Mouth breathing/correction.

Lungs extract oxygen from the air we breathe primarily on the exhale. Because the nostrils are smaller than the mouth, air exhaled through the nose creates back pressure when one exhales. It slows the air escape so the lungs have more time to extract oxygen from them.

When there is proper oxygen-carbon dioxide exchange, the blood will maintain a balanced pH. If carbon dioxide is lost too quickly, as in mouth breathing, oxygen absorption is decreased.

Afferent stimuli from the nerves that regulate breathing are in the nasal passages. The inhaled air passing through the nasal mucosa carries the stimuli to the reflex nerves that control breathing.

Mouth breathing bypasses the nasal mucosa and makes regular breathing difficult.

When breathing through the mouth, the brain thinks carbon dioxide is being lost too quickly and sensing it, this will stimulate the goblet cells to produce mucous, slow the breathing and cause constriction of blood vessels.

The nostrils and sinuses filter and warm the air going into the lungs. The mouth breather bypasses this.

The sinuses produce nitric oxide (NO) which is a pollutant but harmful to bacteria in small doses. Mouth breathing also accelerates water loss increasing possible dehydration.

Each nostril is innervated by five cranial nerves from a different side of the brain. Each nostril, functions independently and synergistically by filtering, warming, moisturizing, and smelling the air (44).

Nasal Resistor:

- Matches impedance of remainder of upper and lower respiratory treat.
- Controls breathing frequency.
- Controls duration of expiration

3.6 Sleep Pattern Breathing.

The breathing pattern of a patient sleeping, is a good indicator to the expected breathing pattern of a sedated patient. There is a correlation between sedation induced state and normal sleep, breathing.

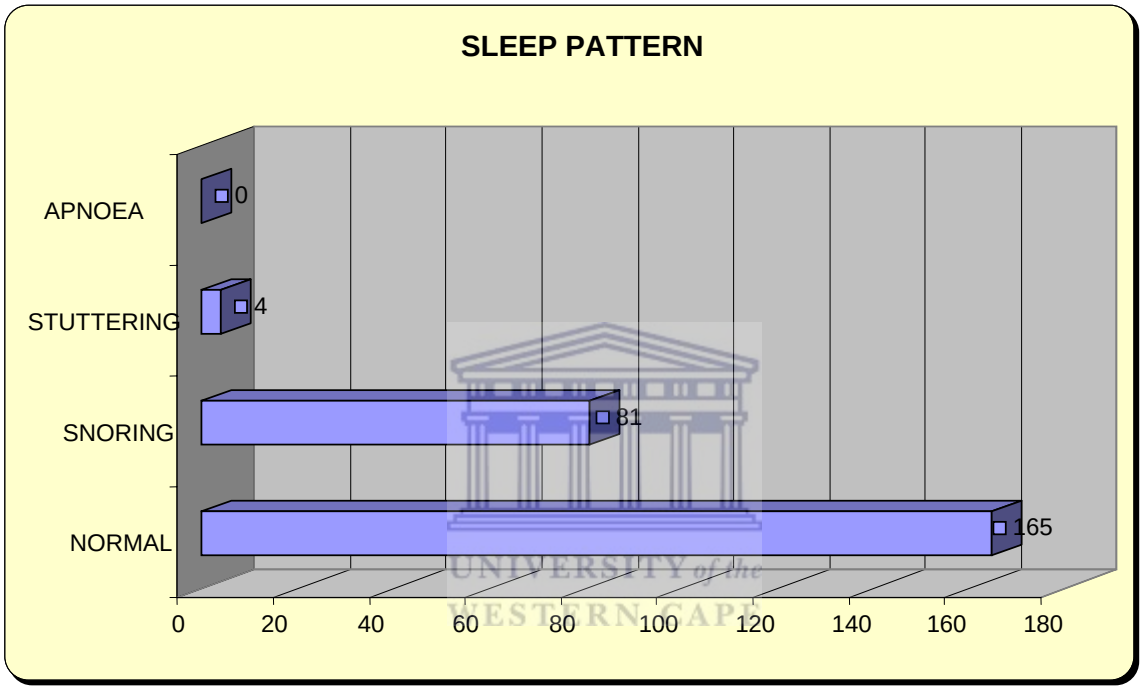


Fig. 66 Sleep pattern.

Snoring arises when the air passage is blocked which inhibits easy and normal breathing during sleep. When awake the muscles of the throat keep the throat open, but when asleep, these muscles go into a relax mode & sag inward. Snoring occurs when these muscles collapse (i.e. become too relaxed), creating a blockage at the airway.

Snoring has many other causes such as physical, medical and anatomical all with the same end result by restriction the air flow during breathing.

The orchestrated snoring movement opens with the excessive vibration of the uvula and the soft palate as air is being forced through the narrow air passage way to reach the lungs.

A nasal blockage causes one to breathe through the mouth, which can lead to snoring. In an open-mouth position the tongue is pushed back causing the uvula to press against the back of the throat.

An air blockage where the muscles of the throat either become too relaxed or swollen, can be caused by alcohol, smoking, sleeping pills, blocked nose, sinusitis, enlarged tonsils, cough mixture containing dextromethorphan, excess body weight and an allergy to dust, mould, wheat or eggs. Other causes include a large uvula and deformities in the nasal pathway.

Stuttering is the stage where snoring is going over into sleep apnoea and the snoring stops from being continuous to a stuttering pattern.

Sleep apnoea (Apnea is a Greek word that means "want of breath") is a condition where the snorer stops breathing for a couple of seconds (10-30 seconds) at a time, long enough to deplete oxygen in the blood and brain, then followed by loud snorts. This cycle occurs many times during sleep.

In some cases, the snorer awakens abruptly a few times in the night, gasping for air or may have jerking limbs, which are periodic limb movements of sleep. Sleep apnoea is also known as obstructive sleep apnea syndrome or sleep apnoea syndrome (45).

In sedation the stuttering and apnoea sleep pattern is a concern as this patient might find it difficult to maintain their airway and breathing during sedation.

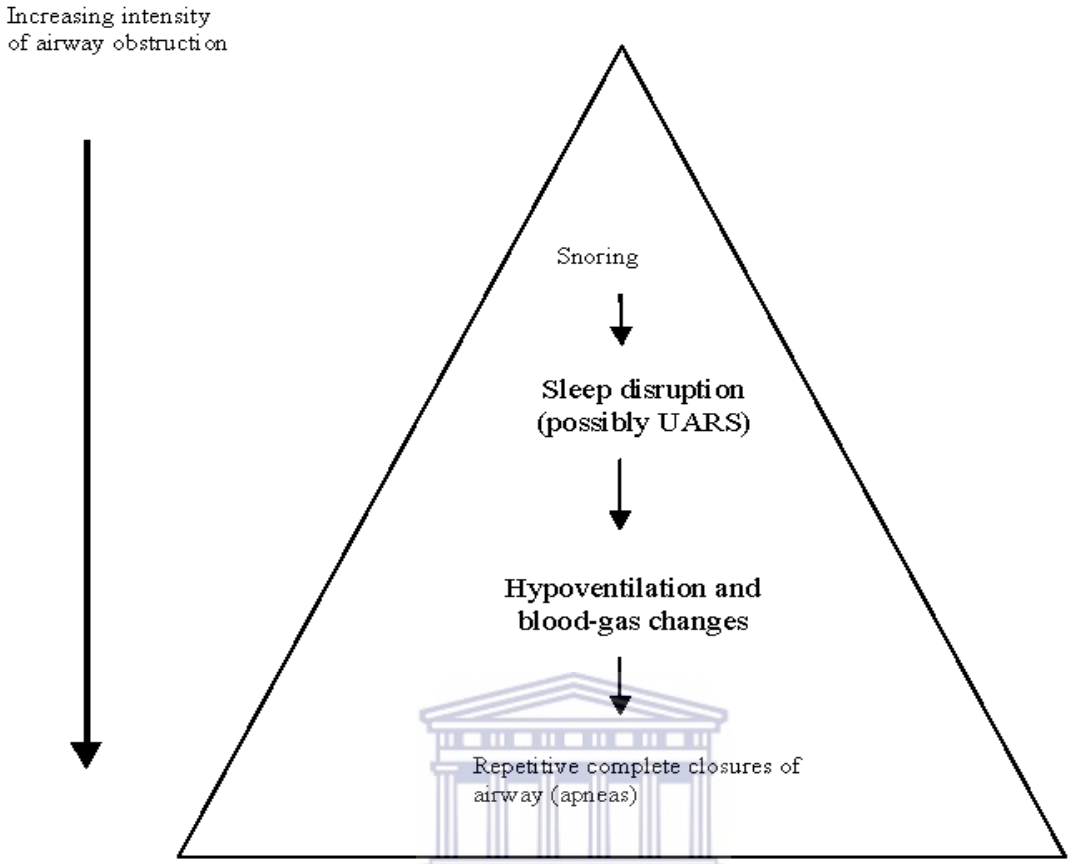


Fig. 67 Airway Obstruction.

The schematic spectrum of the severity of airway obstruction in children (46). UARS is upper airway resistance syndrome.

3.7 Tongue

Tongue size has got an influence on the work space in the mouth as the sedated patient has got little control over the tongue movement. The tongue is divided into three sizes:

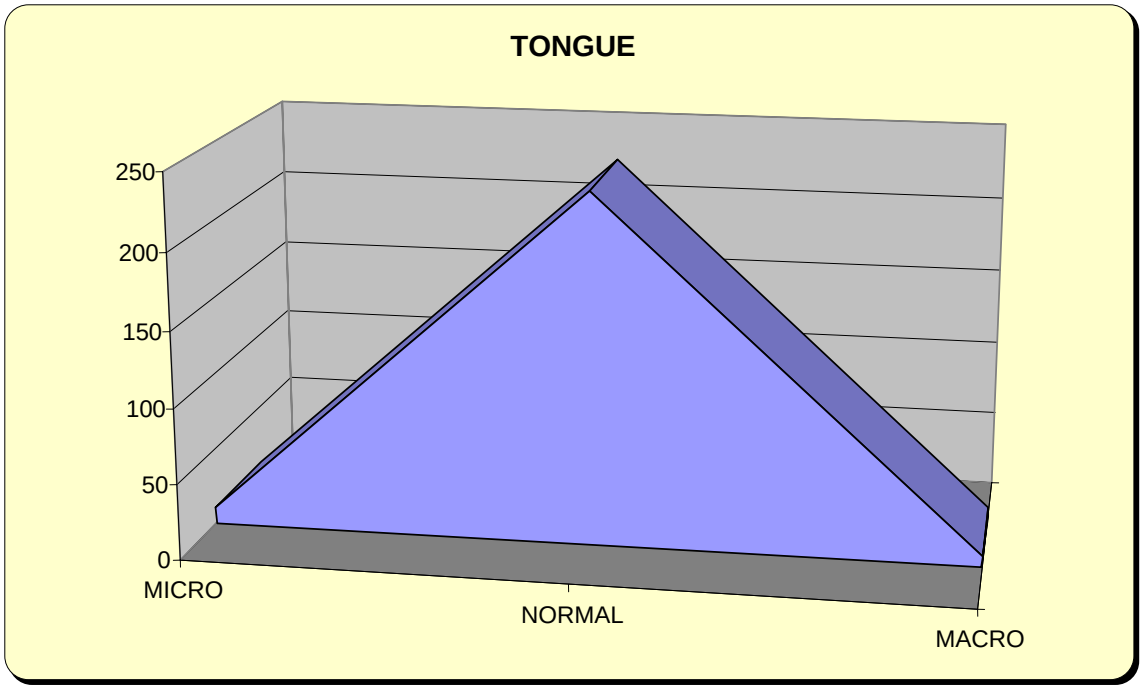


Fig. 68 Tongue.

With micro glossia, the tongue is small and fit easy into the mandible and lower teeth area, they are of no concern for sedation and make the access to the oral cavity a pleasure to do dental treatment. Restricted tongue movement, is normally associated with small tongue size, as the tongue muscle do not develop to it's full extend due to a lack of activity and exercise.

Normal tongue size fits well into the mandible and teeth and occupies all of the available space in the mouth, this do not hamper routine dental treatment under sedation as the patient is in the supine position and gravity let the tongue fall back into the oral cavity.With macro glossia, the tongue is too large for the oral cavity and lay over the teeth, the sides of the tongue can have indentations, in as a result of the teeth formation and tongue pressure. The tongue tends to protrude and make access for dental treatment difficult. Large tongue has also got an effect on the breathing pattern of patients.

The tongue doubles in length, width and thickness between birth and adolescence and grows considerably beyond this period. The major dimensions of the tongue correlate more with head size than body size. This implies that local factors affect lingual growth more than generalized somatic ones. Variations in the size of the tongue and mandible occurred frequently, but small tongues are not always associated with small mandibles and large tongues are not always observed with large mandibles. Thus, the association of lingual and craniofacial anomalies seems to develop from a number of diverse factors, in addition to biomechanical ones (47).

There is a trend for patients with sleep disturbing patterns to have larger tongue size compared with non-sleep disturbing patients, but tongue size is independent of sleep apnoea and correlates significantly with BMI and neck circumference.

3.8 Tonsils.

Tonsils are made of soft glandular tissue and are part of the immune system. You have two tonsils, one on either side at the back of the mouth. Tonsils vary in size from person to person.

A main function of tonsils is to trap bacteria and viruses which you may breathe in. Antibodies and immune cells in the tonsils help to kill germs and help to prevent throat and lung infections.When you're very young, your tonsils will grow, because you need extra help fighting infection. They usually shrink by the time you go to school and disappear almost completely by the time you reach adulthood.

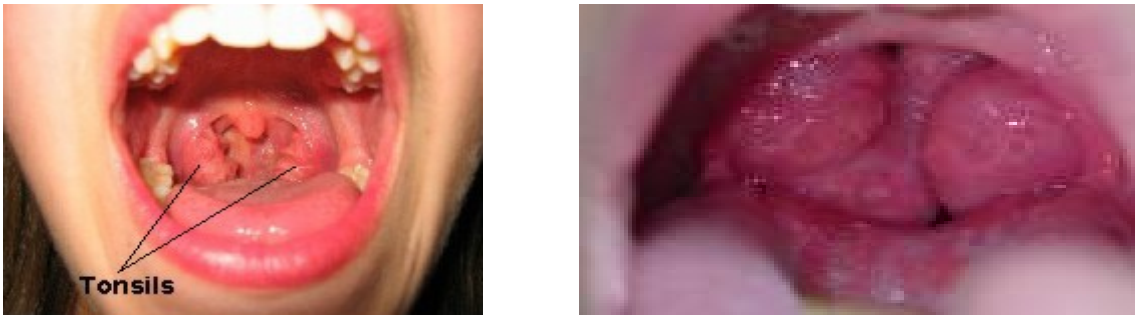


Fig. 69 Tonsils.

I have taken the size of the tonsils in relation to the obstruction between the anterior pillars of the throat.

Small tonsils degree of obstruction is zero.

Normal tonsils degree of obstruction is less than 25 %.

Large tonsils degree of obstruction is between 25% to 50%.

Enormous tonsils degree of obstruction is more than 50%.

Removed relate to the patients who had a tonsillectomy.

The majorities of patients were still in possession of their tonsil of which most of them, were normal, small, or removed and they had no influence on sedation.

The large and enormous tonsils are of great concern to us for sedation. The degree of airway obstruction increase with the size, and under sedation, to maintaining an open airway, becomes more difficult. Enormous tonsils which touch in the midline, is a contra indication for sedation.

From an economical view point the tendency in the nineties in England, was to remove as less tonsils as possible. As with Mad Cow Disease all instrumentation must be destroyed after the operation. Fewer tonsillectomies had been carried but with the re-introduction of reusable instruments up to 6500 tonsillectomies are performed each month, according to the Department of Health in England.

I have noticed that most of the patients without tonsils are of the older generation, and the children which is been born in the nineties have mostly got their tonsils.

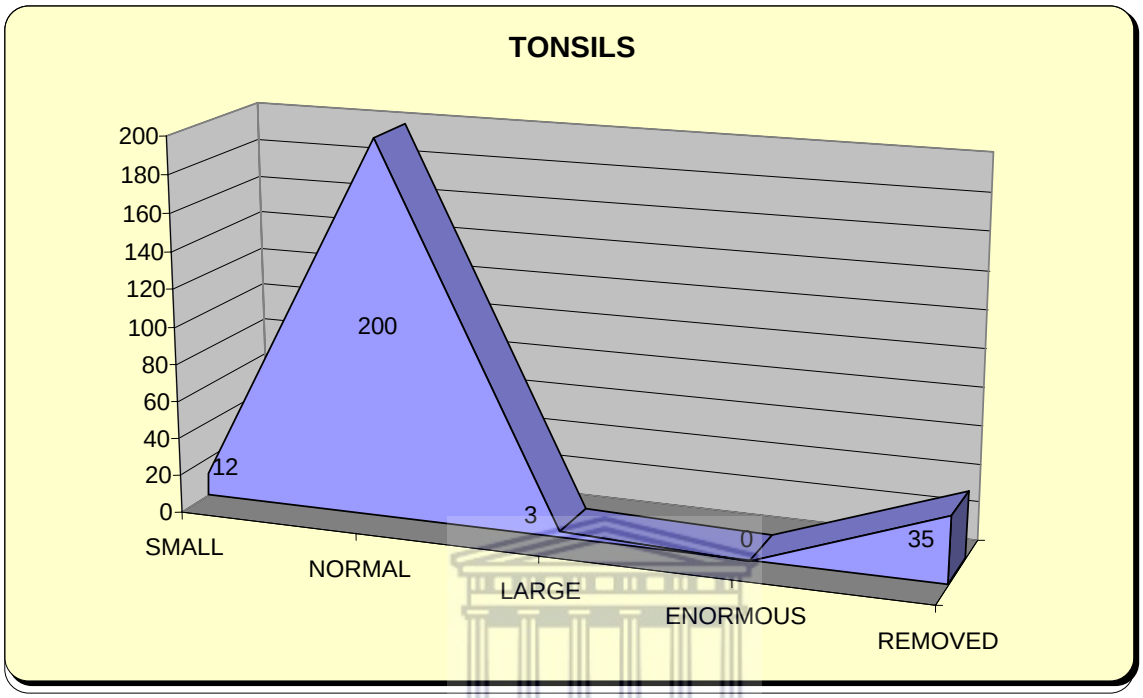


Fig. 70 Tonsils.

Adenoids are also made of glandular tissue and are part of the immune system. They hang from the upper part of the back of the nasal cavity. Adenoids get bigger after you are born but usually stop growing between the ages of 3 and 7 years (48). You cannot see your adenoids. I have not taken adenoids into consideration.

3.9 Gag Reflex

The gag reflex, is a reflex contraction of the soft palate. It is tested for by touching the back of the patient's pharynx on each side with a spatula. The sensation of the spatula is mediated via the IXth cranial nerve, and the reflex contraction of the soft palate is mediated via the vagus Xth cranial nerve (49).

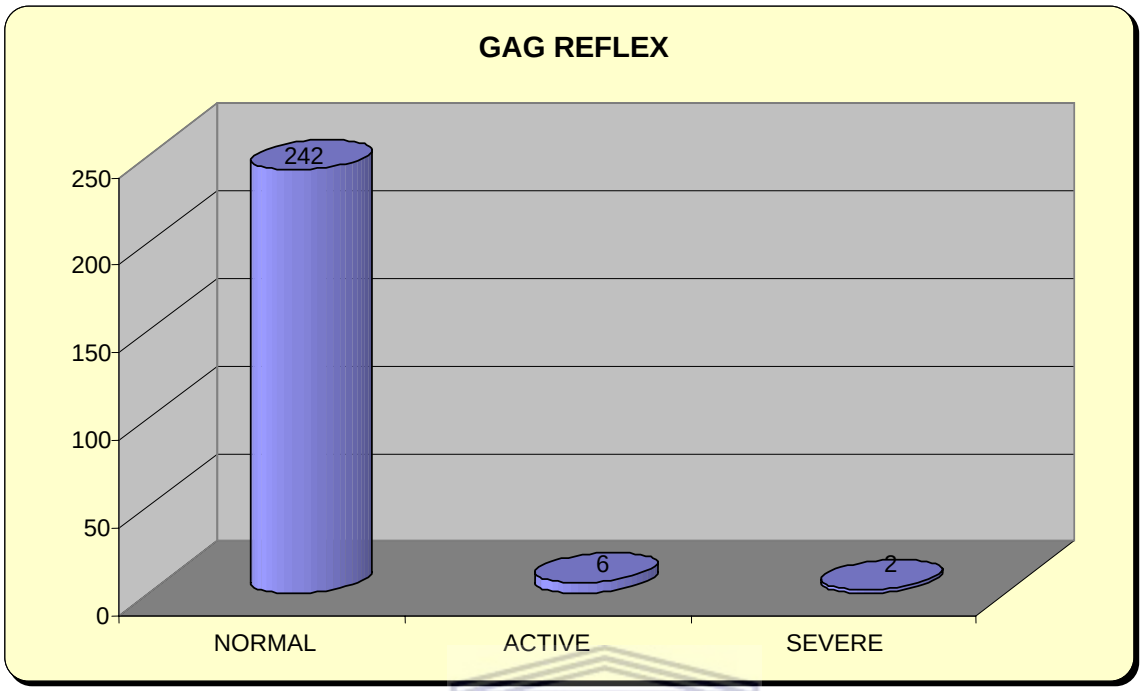


Fig. 71 Gag reflex.

With conscious sedation the patients maintains the control over his airway and swallow reflexes including the gag reflex.

A normal reflex is of no concern. An active and severe reflex has got implications as to what the treatment requires, and possible under sedation. The more severe the reflex, the less treatment can be carried out and there for the extreme reflex patients should be treated under general anaesthetic.

The more anterior in the mouth, the easier the treatment become and less likely that the gag reflex is stimulates during treatment.

The high incidence of absence of the gag reflex was normal in the research group of volunteers who took part and there appeared to be low sensitivity (active), high sensitivity (severe) and exstreme sensitive (severe) in the clinical study.

3.10 Neck.

I have observe the neck for both mobility and length.

3.10.1 Neck Mobility.

Neck moblity can be devided into flexion, extension, lateral flexion and rotation. For sedation, flexion and extension are important. Any restriction in neck meneuverability make the access to do dental treatment in the supine position difficult, and to maintain the airway at the same time. Neck manipulations during dental treatment are unavoidable.

Most of the patient had normal mobility; the restricted neck movement was a result of post injuries and burn scaring.

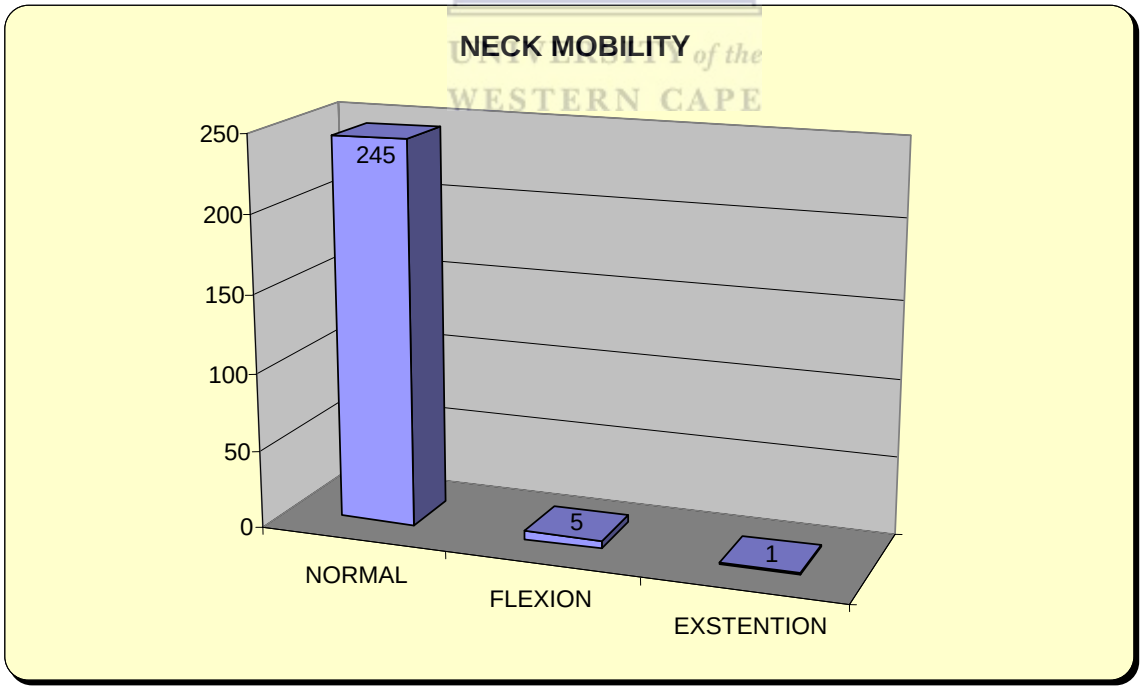


Fig. 72 Neck mobility.

Neck mobility is reduced immediately after, but not 3 months after, a whiplash trauma.

One of the symptoms of Cervicogenic headache, is reduced neck mobility. Cervical Collars is an indication of patients with injured necks and neck muscle weakness, who are vulnerable to injury. Neck muscle weakness can lead to a vicious cycle of limited head mobility and a stiff neck.

Neck mobility can also been assessed under the LEMON evaluation.

3.10.2 Neck Length

There are no national or international standards for neck length.

The majority of patients fell into the normal catogory, but a large percentage were noted as short. This could be as a result of being over weight. Both the overweught and or short with thick neck individuals, have no mobility restrictions and is not a contra indication to sedation.

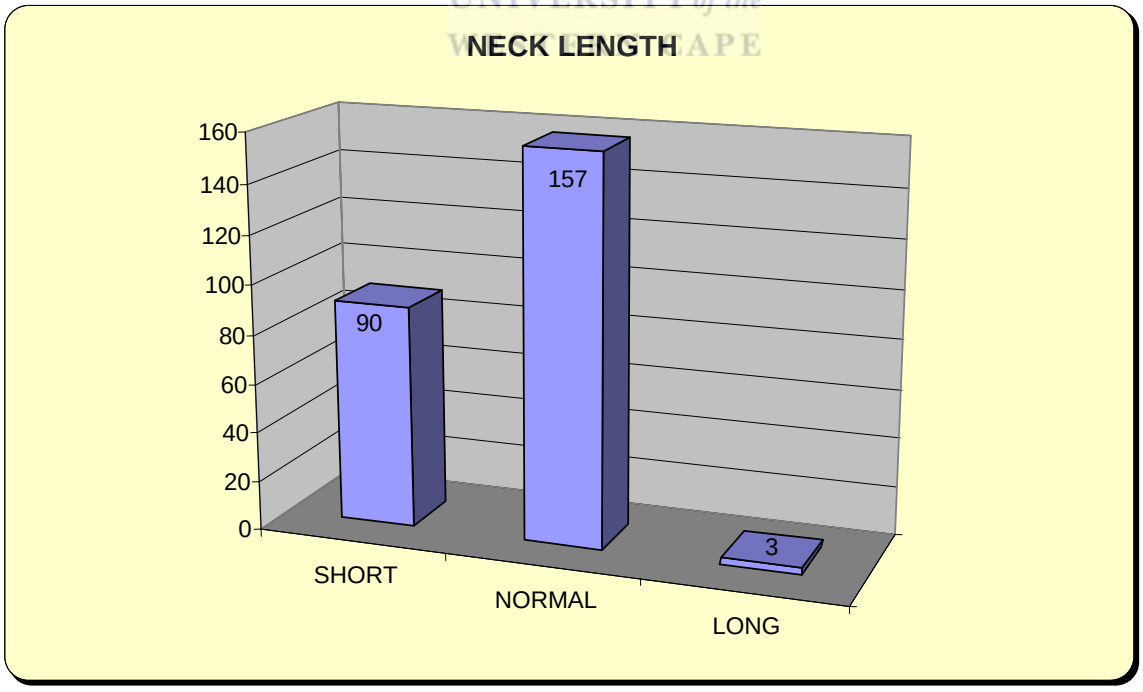


Fig. 73 Neck length.

Patients with the long neck are of no risk during sedation, but one must remember to have the right emergency tube length at hand. I have visualy assess the patients neck length and remained consequint with my obsevations.

There are various ways to take measurements of the neck:

- Neck length can be measured by a modified two-point discriminator between two fixed bony points-inion and spinous process of C7 with the head held in neutral position or by the vertical length from the thyroid prominence to the sternal notch.
- Oblique length is from the masoid process to sternal notch.
- Circumference at the level of the cricoid (50).

3.11 Skeletal

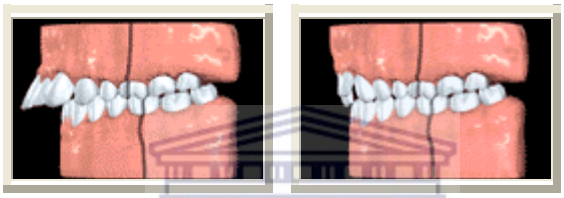
Dental skeletal classification is helpful in the way that it gives an indication of the theeth relationship in the maxilla to to teeth in the mandibule. It is also an indication of mandible size.

Class I: This involves the normal relationship between the upper and lower teeth and jaws, or balanced bite. The patients profile is in a straight line and the chin is in a normal position. Thus, a balanced growth took place in both the jaws.

Fig. 74 Class I.

Class II: With this condition, the lower first molar is posterior than the upper first molar. In this abnormal relationship, the upper front teeth and jaw project further forward than the lower teeth and jaw. There is a convex appearance in the profile with a receding chin and lower lip.

Class II problems can be due to insufficient growth of the lower jaw, an over growth of the upper jaw, or a combination of the two. In many cases, Class II problems are genetically inherited, and can be aggravated by environmental factors such as finger sucking.

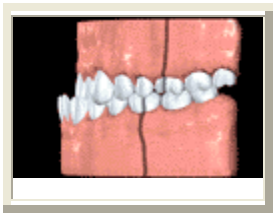


Class II - Division 1 Class II - Division 2

Fig. 75 Class II.

Class III: The lower jaw bone has outgrown the upper jaw. The lower teeth are too far in front of the upper teeth Class III appears when the lower first molar is anterior than the upper first molar. In this abnormal relationship, the lower teeth and jaw project further forward than the upper teeth and jaws.

There is a concave appearance in profile with a prominent chin. Class III problems are usually due to an overgrowth in the lower jaw, an undergrowth of the upper jaw, or a combination of the two, they can be genetically inherited.



Class III - Functional or Dental

Class III - Skeletal

Fig. 76 Class III.

The majority of patients are class I, followed by class II and class III, are the rarest. From a dental sedation view point, only class II div 1 is important. This is the group of patients who have small mandibles that can be set back. They have high palate shapes and are normally mouth breathers. Class II div 2, are more likely to have limited opening between the upper incisors and lower incisors.

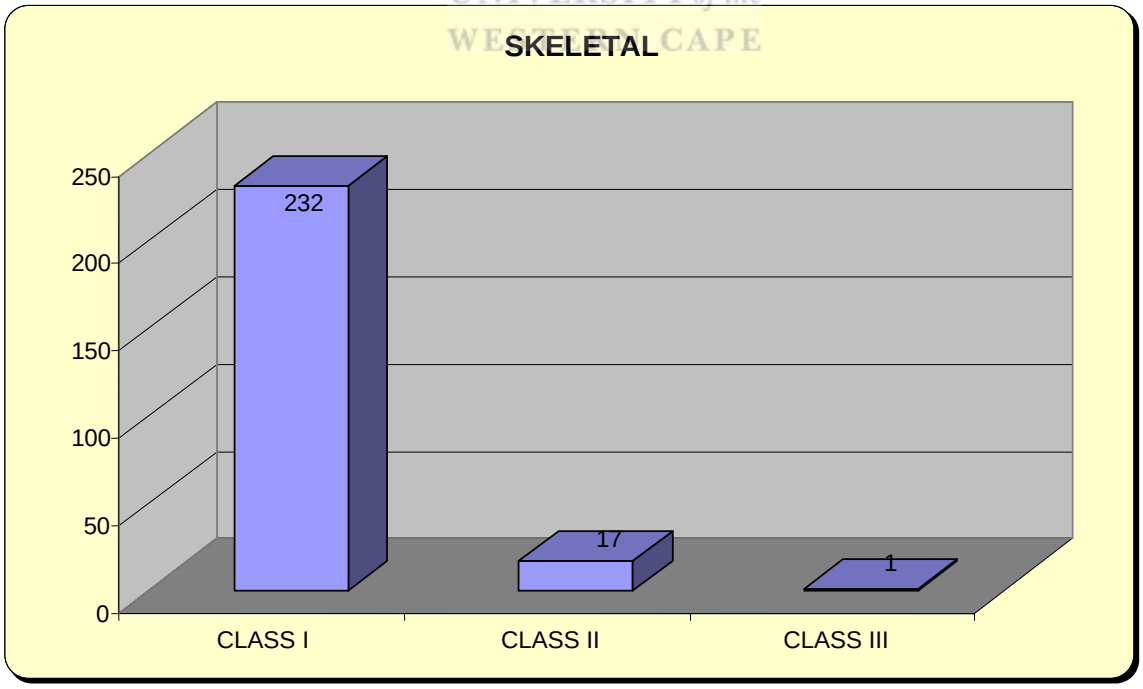


Fig. 77 Skeletal.

3.12 Obstruction (Anatomical deformities)

3.12.1 Swelling / Abscess

The swellings or dental abscess formation in the mouth, were located and separated into three groups as:

1. Tongue or mouth floor related.
2. Jaw or bone related.
3. Neck related.
4. None.

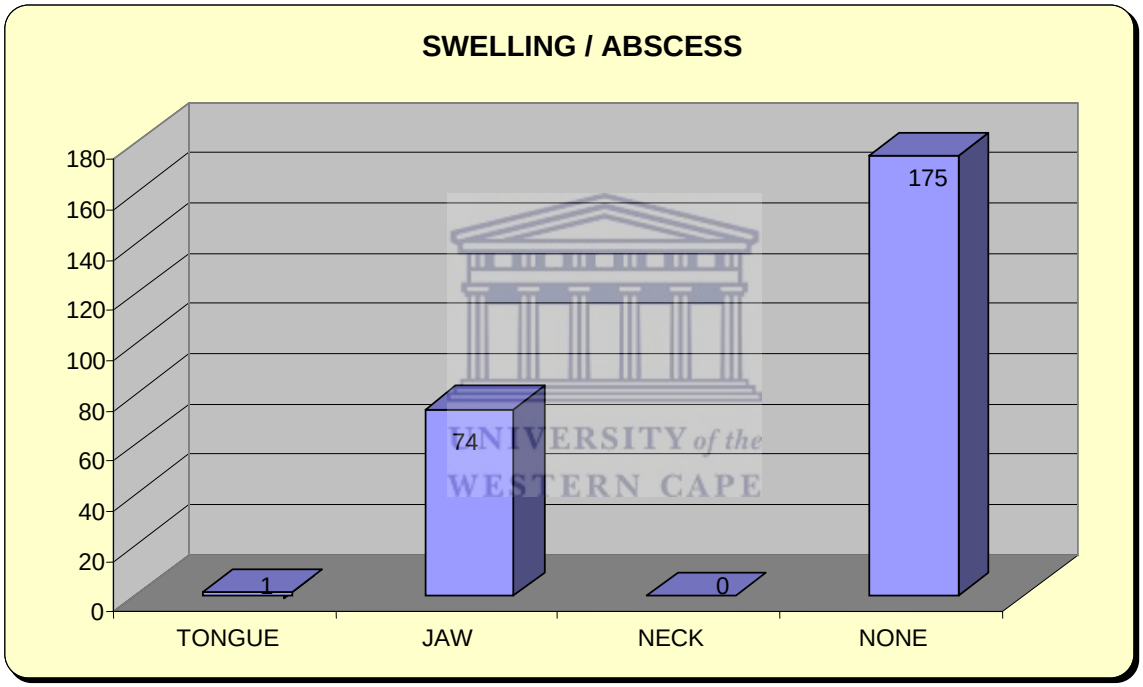


Fig. 78 Swelling/Abscess.

List of symptoms of Dental abscess: The list of symptoms mentioned in various sources for Dental abscess includes:

- Fever.
- Swollen gums.
- Red gums.

- Swollen cheek.
- Red cheek.
- Lump in gum.
- Warm lump in gum.
- Tooth pain.
- Mouth pain.
- Loose tooth.
- Difficulty closing mouth fully.
- Facial swelling.
- Swollen neck.
- Chest swelling.

Most of the swelling was jawbone related, only one tongue, related. The jawbone swelling is of minor importance if they are small and localised, or mainly hard and localised. This condition is normally caused by tooth decay. The soft tissue swelling is a concern to dental treatment and it can spread to have an influence on the airway.

Ludwig's angina is a type of cellulites that involves inflammation of the tissues of the floor of the mouth, under the tongue. It often occurs following infection of the roots of the teeth (such as tooth abscess) or after mouth trauma. Swelling of the tissues occurs rapidly and may block the airway or prevent swallowing of saliva.

This condition is uncommon in children. Patients with the risk of a soft tissue infection which can spread, is better to be treated in hospital where they can be admitted and observed.

3.12.2 Other Obstruction

I have looked at abnormalities which can cause obstruction to the airway as: Goiter is the medical term for enlargement of the thyroid gland. Goiter is often merely a symptom of a more serious thyroid condition, such as:

- Hyperthyroidism, an overactive thyroid gland.
- Hypothyroidism, an under active thyroid gland.

I was only interested in hyper and hypo thyroids for conscious sedation purposes.

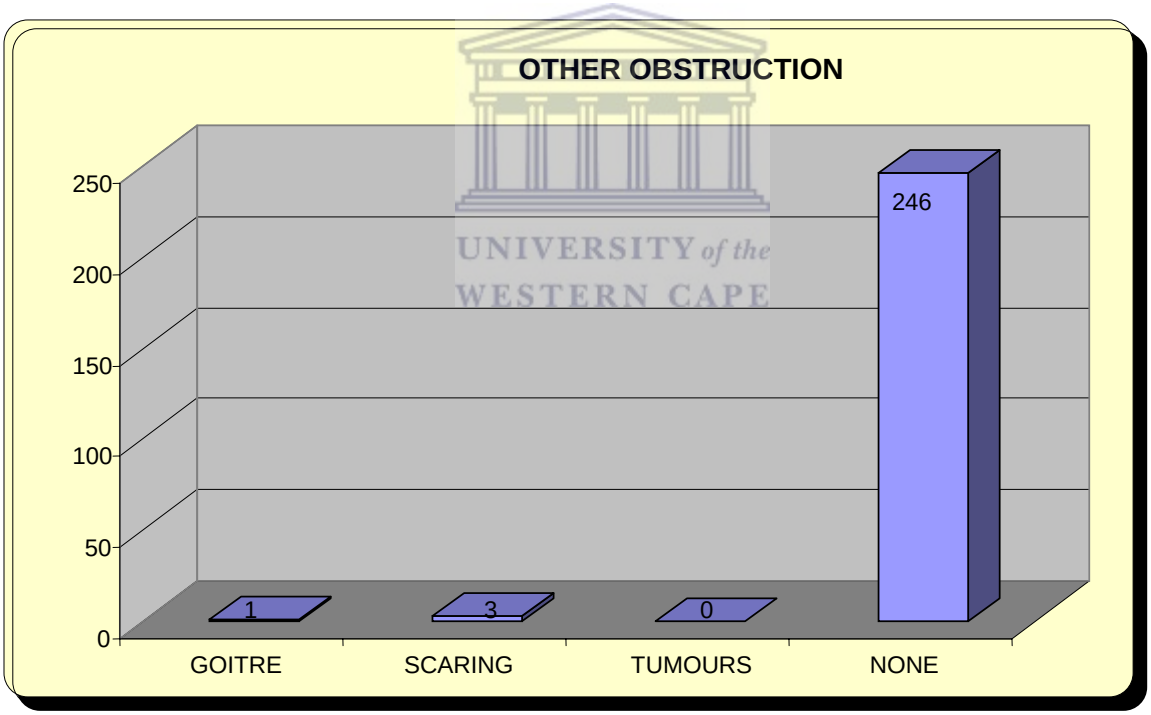


Fig. 79 Other obstructions.

Scarring will occur wherever multiple layers of the skin have been affected usually as a result of an accident, surgery or a burn.

There are three major types of burn related scars: Keloid, Hypertrophic and Contractures.

Fig. 80 Keloid.

- Keloid scars are an overgrowth of scar tissue. The scar will grow beyond the site of the injury. These scars are generally red or pink and will become a dark tan over time. Keloid scars are sometimes very nodular in nature, and they are often darker in colour than surrounding skin. They occur when the body continues to produce tough, fibrous protein (known as collagen) after a wound has healed.

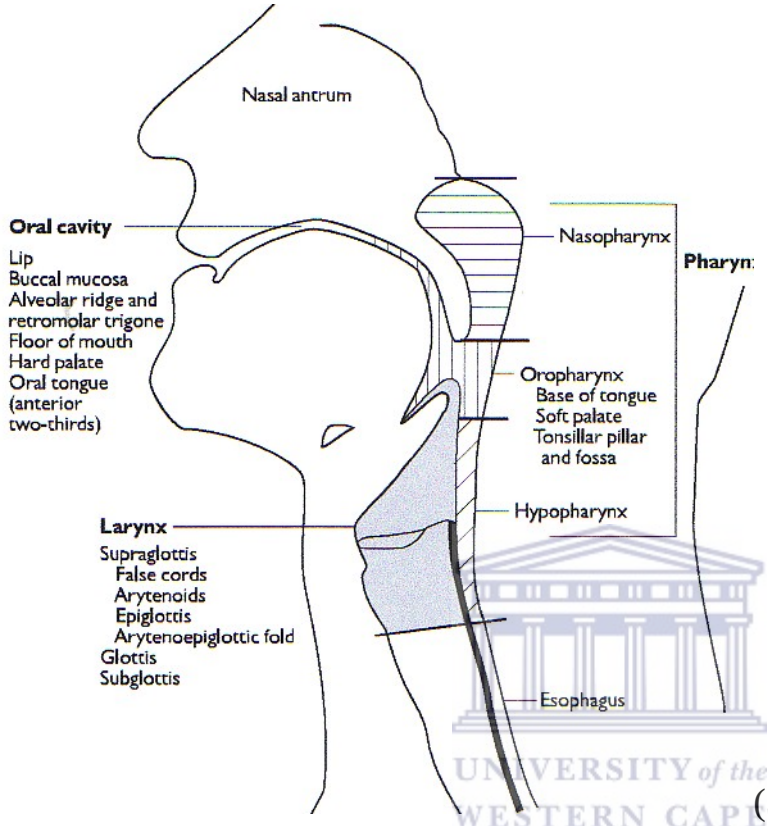
- Hypertrophic scars are red, thick and raised, however they differ from Keloid scars in that they do not develop beyond the site of injury or incision.

- A contracture scar is a permanent tightening of skin that may affect the underlying muscles and tendons that limit mobility and possible damage or degeneration of the nerves (51).

The scaring I have seen in the face, is mainly due to burns of different degrees. As long as the scaring does not interfere with the access and mobility of the head, neck or access to the oral cavity, there is no contraindication to sedation.

Patients with tumours in the head and neck are not suitable for day clinic sedation and must be referred to hospital.

Anatomical sites and sub sites of head and neck cancers:



(52)

Fig. 81 Cancer sites.

IV POINT SCORE.

Point scoring for head shape:

- Oval = 0 points.
- Round = 0 points.
- Moderate deformity(Mild elongated) = 6 points
- Sever deformity(Extreme elongated) = 10 points.

Point scoring for airway (nasal):

- Open = 0 points.
- Partly = 4 points.
- Closed = 10 points.
- Pathologic Difficult Airways = 10 points.
- Mask Airway Difficulties = 5 points.
- LEMON: i. no deviation = 0 points.
  ii. mild deviation = 4 points.
  iii. moderate deviation = 7 points.
  iv. severe deviation = 10 points.

Point scoring for mouth opening:

- 1 cm = 9 points.
- 2 cm = 6 points.
- 3 cm = 0 points.
- 4 + cm = 0 points.
- Total trismus = 10 points.

Mallampati point score:

- Class 1 = 0 points.
- Class 2 = 2 points.
- Class 3 = 4 points.
- Class 4 = 6 points.

Point scoring for breathing:

- nasal =0 points.
- both nasal and mouth = 2 points.
- mouth(without skeletal/dental deformities) = 8 points.
- true mouth(with deformities) = 10 points.

Point scoring for sleep pattern:

- normal = 0 points.
- snoring = 4 points.
- stuttering = 8 points.
- apnoea = 10 points.

Point scoring for tongue:

- Micro = 0 points.
- Normal = 0 points.
- Macro = 5 points.

Point scoring for tonsils:

- Small = 0 points.
- 2 normal = 0 points.
- large = 5 points.
- enormous (not touching) = 8 points.
- enormous (touching) = 10 points.
- removed = 0 points.

Point scoring for gag reflex:

- Normal = 0 points.
- Active = 3 points.
- Severe = 6 points.
- Exstreme severe = 10 points.

Point scoring for neck mobility:

- Normal = 0 points.
- Restricted Flexion = 5 points.
- Restricted Extension = 8 points.

Point scoring for neck length:

- short = 4 points.
- normal = 0 points.
- long = 0 points.

Point scoring for skeletal:

- Class I = 0 points.
- Class II div 1 = 6 points.
- Cass 2 div 2 = 4 points.
- Class 3 = 0 points.

Point scoring of swelling/abscess:

- Tongue = 5 points.
- Anterior Jaw = 3 points.
- Neck and posterior jaw = 7 points.
- Ludwig Angina tendency = 10 points.
- None = 0 points.

Point scoring for other obstruction:

- See the ASA classification for medical associated conditions.
- Burn scaring nor interference = 0 points
- Burn scaring with minor interference = 3 points.
- Burn scaring with major interference = 10 point

CHAPTER 4

WORKLOAD

I. INTRODUCTION

Workload refers to the required dental treatment, in which quadrants, duration and quantity of appointments as well as the arrival time for the dental appointment. I have recorded it on a spread sheet with reference to the following patient information:

4.1 Quadrants

- 4.1.1 One quadrant (1)
- 4.1.2 Two quadrants (2)
- 4.1.3 Three quadrants (3)
- 4.1.4 Four quadrants (4)

4.2 Procedures

- 4.2.1 Restorative dental work (1)
- 4.2.2 Root canal treatment (2)
- 4.2.3 Crown and bridge (3)
- 4.2.4 Extractions (4)
- 4.2.5 Oral surgery (5)
- 4.2.6 Periodontal (6)

4.3 Appointment

4.3.1 Number

4.3.1.1 One (1)

4.3.1.2 Two (2)

4.3.1.3 Three (3)

4.3.1.4 Four (4)

4.3.1.4 Five and more (5)

4.3.2 Duration

4.3.2.1 Minutes 15 (1)

4.3.2.2 Minutes 30 (2)

4.3.2.3 Minutes 45 (3)

4.3.2.4 Minutes 60 plus (4)

4.3.3 Arrival time for appointments

4.3.3.1 Minutes 15 (1)

4.3.3.2 Minutes 45 for pre-med (2)

4.3.3.3 Minutes 90 for emla® patch and pre-med

4.4 Sedation Experience

4.4.1 None (1)

4.4.2 Previously one sedation (2)

4.4.2 Multi previous sedations (3)

II. DATA TABLES

Table 14.

NR	4. WORKLOAD					
	4.1	4.2	4.3			4.4
	QUADRANTS	PROC.	APPOITMENTS			SED EXP
			NUMBER	DURATION	ARRIVAL	
1	3	1+5	1	2	1	1
2	2	1	1	2	1	3
3	4	6	1	2	1	1
4	3	1	1	2	1	1
5	2	1+5	1	2	1	3
6	4	6	1	2	1	1
7	1	5	1	1	1	1
8	1	5	1	1	1	1
9	1	6	1	1	1	1
10	1	5	1	2	1	1
11	1	2+3	2	2	1	3
12	3	1+7	1	2	1	2
13	4	1+2+5	2	1	1	1
14	3	5	1	1	1	1
15	1	5	1	1	1	1
16	1	5	1	1	1	1
17	2	5	1	1	1	1
18	3	1+6+7	2	1	1	1
19	4	1+2	2	2	1	1
20	2	1+2	1	2	1	1
21	3	1+6	2	2	1	2
22	2	1+5	1	2	1	1
23	4	1+2	4	2	1	1
24	3	1+2	1	1	1	1
25	1	1+5	1	1	1	1
26	4	1+2	2	2	1	1
27	1	1	1	1	1	1
28	2	6	1	1	1	1
29	1	6	1	1	1	1
30	1	1	1	1	1	1
31	4	1+5	2	2	2	1
32	2	1+6	2	2	1	1
33	3	1+2+5	2	2	1	1
34	1	6	1	1	1	1
35	2	1+2+5	1	1	1	1

NR	4. WORKLOAD					
	4.1	4.2	4.3			4.4
	QUADRANTS	PROC.	APPOITMENTS			SED EXP
			NUMBER	DURATION	ARRIVAL	
36	4	6	1	1	1	1
37	2	5	1	1	2	1
38	1	6	1	1	1	1
39	3	1+2+5	2	2	1	1
40	1	5	1	1	1	1
41	1	1+2	1	1	1	1
42	4	1+2	2	2	1	1
43	2	5	1	1	1	2
44	1	6	1	1	1	1
45	2	4	1	1	1	1
46	2	5	1	1	3	2
47	2	5	1	1	1	1
48	1	5	1	1	1	1
49	3	5	1	1	1	1
50	1	6	1	1	1	1
51	1	5	1	1	1	1
52	2	1+5	1	2	1	1
53	4	1+5	2	2	1	1
54	1	5	1	1	1	1
55	2	6	1	1	1	1
56	1	5	1	1	1	1
57	3	1+5	1	2	1	1
58	3	5	1	1	1	1
59	3	5	1	1	1	3
60	3	1+2+5	2	2	1	1
61	3	1+5	1	2	1	3
62	4	5	1	1	1	1
63	4	5	1	2	1	1
64	3	1+5	1	2	1	1
65	1	5	1	1	1	1
66	3	1+3+5	2	2	1	3
67	1	6	1	1	1	1
68	1	5	1	1	1	1
69	1	2	1	2	1	1
70	1	2	1	2	1	3

NR	4. WORKLOAD					
	4.1	4.2	4.3			4.4
	QUADRANTS	PROC.	APPOITMENTS			SED EXP
			NUMBER	DURATION	ARRIVAL	
71	1	2	1	2	1	1
72	1	6	1	1	1	1
73	4	6	1	2	1	3
74	1	5	1	1	1	1
75	4	1+5	1	2	1	1
76	2	6	1	2	1	1
77	1	6	1	1	1	2
78	3	1+5	1	2	1	1
79	1	5	1	1	1	1
80	1	1	1	1	1	1
81	1	2	1	3	2	1
82	4	1+6	2	2	1	1
83	1	1	1	1	1	1
84	1	6	1	1	1	1
85	1	6	1	1	1	2
86	1	5	1	1	1	1
87	4	1+5	2	2	1	1
88	4	5	1	1	1	1
89	3	4	2	4	1	1
90	3	1+5	1	2	1	1
91	1	5	1	1	1	1
92	1	5	1	1	1	1
93	3	1	1	2	1	3
94	4	1	1	2	1	1
95	1	2+3	2	2	1	1
96	4	6	1	2	1	1
97	1	6	1	2	1	1
98	1	1+5	1	1	1	2
99	2	6	1	1	1	1
100	3	5	1	1	1	1
101	1	6	1	1	1	2
102	1	5	1	1	1	1
103	1	5	1	1	1	1
104	1	5	1	1	1	2
105	4	1+6	3	2	1	1

NR	4. WORKLOAD					
	4.1	4.2	4.3			4.4
	QUADRANTS	PROC.	APPOITMENTS			SED EXP
			NUMBER	DURATION	ARRIVAL	
106	1	1	1	1	1	3
107	1	6	1	1	1	1
108	1	2	1	2	1	3
109	1	5	1	1	1	1
110	1	1+5	1	1	1	3
111	4	1+5	2	2	1	1
112	1	5	1	1	1	1
113	3	2+6	2	1+2	1	1
114	4	1	2	2	1	1
115	4	1+5+7	2	2	1	1
116	4	1+5	1	2	1	1
117	1	6	1	1	1	1
118	4	1	1	2	1	1
119	1	5	1	1	1	1
120	1	5	1	1	1	1
121	4	6	1	2	1	1
122	2	6	1	2	1	1
123	1	6	1	1	1	1
124	1	5	1	1	1	2
125	1	5	1	1	1	2
126	1	5	1	1	1	1
127	1	5	1	1	1	2
128	2	5	1	1	1	1
129	2	1+5	1	2	1	1
130	4	6	1	2	1	1
131	4	1+5	1	2	1	1
132	1	5	1	1	1	1
133	1	5	1	1	3	1
134	1	2	1	2	2	1
135	3	1+5	1	2	1	1
136	1	5	1	1	1	2
137	4	1+5	2	1+2	1	2
138	4	1+2	3	2	1	1
139	4	1+5	1	2	1	1
140	4	1+2+5	2	3	1	1

NR	4. WORKLOAD					
	4.1	4.2	4.3			4.4
	QUADRANTS	PROC.	APPOITMENTS			SED EXP
			NUMBER	DURATION	ARRIVAL	
141	1	6	1	1	1	1
142	1	6	1	1	1	2
143	1	5	1	1	1	1
144	4	7	2	3	1	1
145	3	1+5	1	2	1	3
146	2	1	1	1	1	2
147	3	5+6	1	2	1	1
148	4	1+5	2	2	1	1
149	4	6	1	2	1	1
150	1	5	1	1	1	1
151	2	5	1	1	1	1
152	1	5	1	1	1	3
153	4	6	1	2	1	1
154	3	1	1	2	1	1
155	1	5	1	1	1	1
156	2	1+2	1	2	1	2
157	4	1	1	2	1	1
158	1	3	1	2	1	3
159	1	2	1	2	1	1
160	1	2	1	2	1	1
161	4	6	1	2	1	1
162	2	5	1	1	1	1
163	1	5	1	1	1	1
164	3	1	1	2	1	1
165	2	6	1	2	1	1
166	4	1+5	2	2	1	1
167	1	2	1	2	1	1
168	3	2+3+6	4	2	1	3
169	4	1+5	1	2	1	1
170	4	1+2	2	2	1	1
171	4	1+5	1	2	1	1
172	3	1	1	2	2	1
173	3	1+5	1	2	1	1
174	4	5	1	1	1	1
175	3	5	1	1	1	1

NR	4. WORKLOAD					
	4.1	4.2	4.3			4.4
	QUADRANTS	PROC.	APPOITMENTS			SED EXP
			NUMBER	DURATION	ARRIVAL	
176	4	1	1	2	1	1
177	4	1	1	2	1	1
178	1	2	1	2	1	1
179	1	5	1	1	1	1
180	1	1	1	1	1	1
181	2	1	1	1	1	1
182	3	1	1	2	1	3
183	4	1	1	2	1	1
184	2	6	1	2	1	1
185	1	3+5	2	2	1	3
186	2	1+5	1	2	1	2
187	2	1+5	2	2	1	1
188	1	5	1	1	1	1
189	1	5	1	1	1	1
190	1	2	1	2	1	1
191	4	1+5	2	2	1	1
192	1	1	1	1	1	1
193	1	6	1	1	1	1
194	4	1+5	1	2	1	1
195	3	1	1	2	1	1
196	1	5	1	1	1	1
197	3	1	1	2	1	1
198	2	1+5	1	1	1	1
199	1	5	1	1	1	1
200	2	2	1	2	1	1
201	2	1	1	2	1	2
202	1	5	1	1	1	1
203	1	2	1	2	1	1
204	1	6	1	2	1	1
205	2	1+5	1	1	1	1
206	3	6	1	2	1	1
207	1	5	1	1	1	1
208	1	5	1	1	1	1
209	4	2	2	1+2	1	2
210	3	1	1	2	1	1
211	1	5	1	1	1	3
212	4	1+5	1	2	1	1

NR	4. WORKLOAD					
	4.1	4.2	4.3			4.4
	QUADRANTS	PROC.	APPOITMENTS			SED EXP
			NUMBER	DURATION	ARRIVAL	
213	4	1+5	1	2	1	1
214	1	5	1	1	1	1
215	4	1+6	1	2	1	1
216	4	1+5	2	2	1	1
217	4	1+5	2	2	1	1
218	1	6	1	1	1	1
219	1	5	1	1	1	1
220	4	5	1	2	1	1
221	1	6	1	2	1	1
222	4	6	1	2	1	1
223	2	5	1	1	1	1
224	4	1+5	1	2	1	1
225	4	1+5	1	2	1	1
226	4	1+5	1	2	1	1
227	2	1	1	1	1	1
228	2	6	1	2	1	2
229	3	1	1	2	1	2
230	4	1+2+6	3	2	1	1
231	2	5	1	1	1	1
232	1	1	1	1	1	1
233	4	1+6	2	2	1	1
234	1	1	1	1	1	1
235	4	1	1	2	1	1
236	2	5	1	1	1	1
237	4	1+5	1	2	1	1
238	2	6	1	1	1	1
239	1	5	1	1	1	1
240	3	1+5	1	1	1	3
241	1	1+5	1	1	1	1
242	4	1	1	2	1	1
243	4	1	1	2	1	1
244	1	6	1	1	1	1
245	2	1+2	2	2	1	1
246	2	5	1	1	1	1
247	2	1+2	1	2	1	3
248	1	1	1	1	1	2
249	4	1	1	2	1	1
250	2	1	1	2	1	1

III. DISCUSSION

4.1 Quadrants

The oral cavity is divided into four quadrants. The maxilla, is divided between the two central teeth, the upper right is one quadrant and the upper left is a second quadrant. The mandible is also divided into two quadrants to make a total of four quadrants. For my research the patients were divided into four groups on grounds of how many quadrants were involved to complete the required dental treatment.

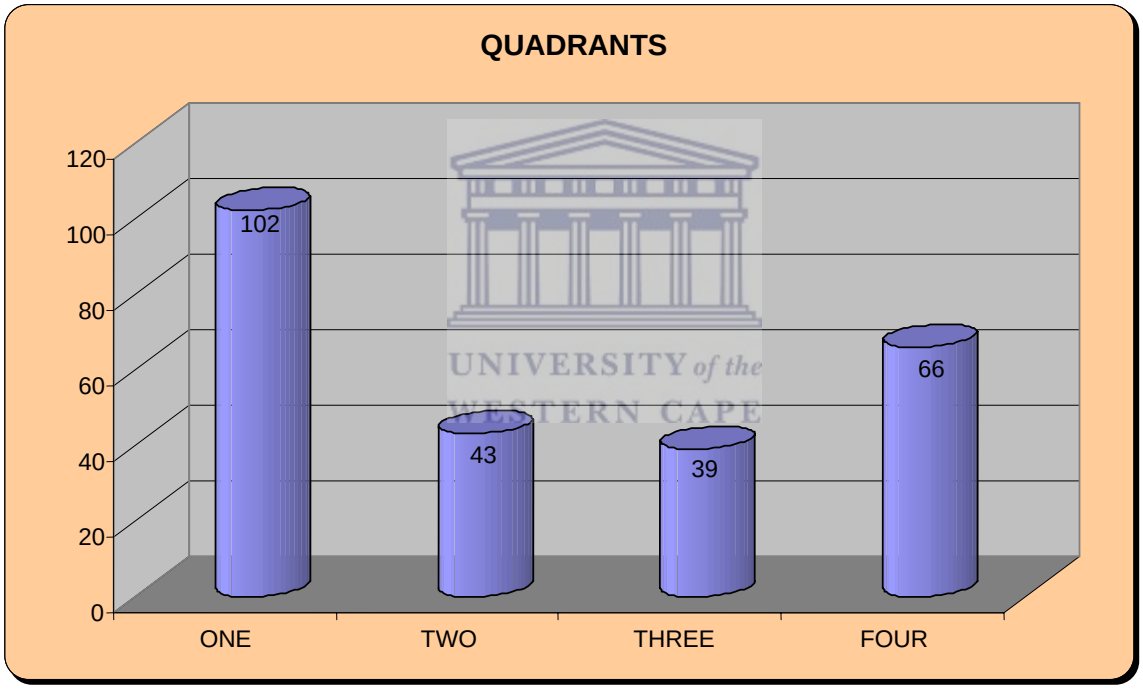


Fig. 82 Ouadrants.

The single quadrant for single procedures, was in the majority. Most of these, were for single removal of teeth to get out of pain. The four quadrant group was second, and were mostly made up, of the very nervous patient, who only attend to their teeth once every few years and young patients attending for their first dental treatment. There is not a lot of difference between the second and third quadrant groups and they are normally patients who had previous

sedations. These patients are dental phobic, but will care for their teeth if they can have it done under sedation.

4.2 Procedures.

The procedures of dental treatment under taken at the clinic, cover almost the full spectrum of dentistry where local anaesthetic are required. To perform the requested treatment by the referring dentist, it includes:

- Restorative dental work.
- Root canal treatment.
- Crown and bridge work.
- Implants.
- Extractions.
- Minor oral surgery including impacted wisdom teeth.
- Periodontal surgery.

Some of the patients required more than one procedure in the course of treatment.

The biggest category is the extraction of teeth followed by restorative dentistry, and then oral surgery for removal of wisdom teeth and the request for root canal treatment were also significant.

The demand for crown and bridge work, implants and periodontal is the least of the requests we received from the referring dentists.

Currently we don't employ a periodontist and therefore the referrals for periodontal treatment are below average. Gum decease is the number one problem in dentistry, and also the most under treated.

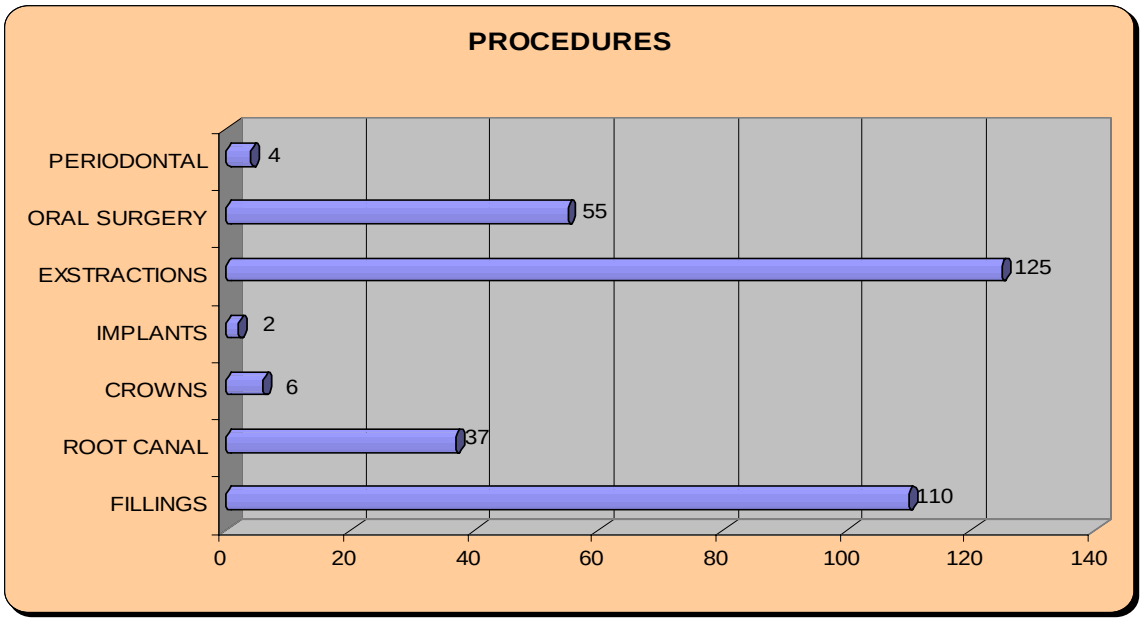


Fig. 83 Procedures.

The permanent or mix dentition had no effect in determining the kind of procedure necessary to secure dental fitness.

4.3 Appointments.

The appointments are divided into three subsections as:

4.3.1 Number.

The number indicates the appointments, to carry out the dental treatment as requested by the referring dentist.

More than 80 % of requested treatment is single appointments to carry out the necessary dental treatment. This is reflected in the high level of requests for extraction, oral surgery, single tooth root canal treatment and children to be treated. The multi appointments, are made up of the more complex dental treatment, and patients who had neglected their teeth badly, like the drug abusers.

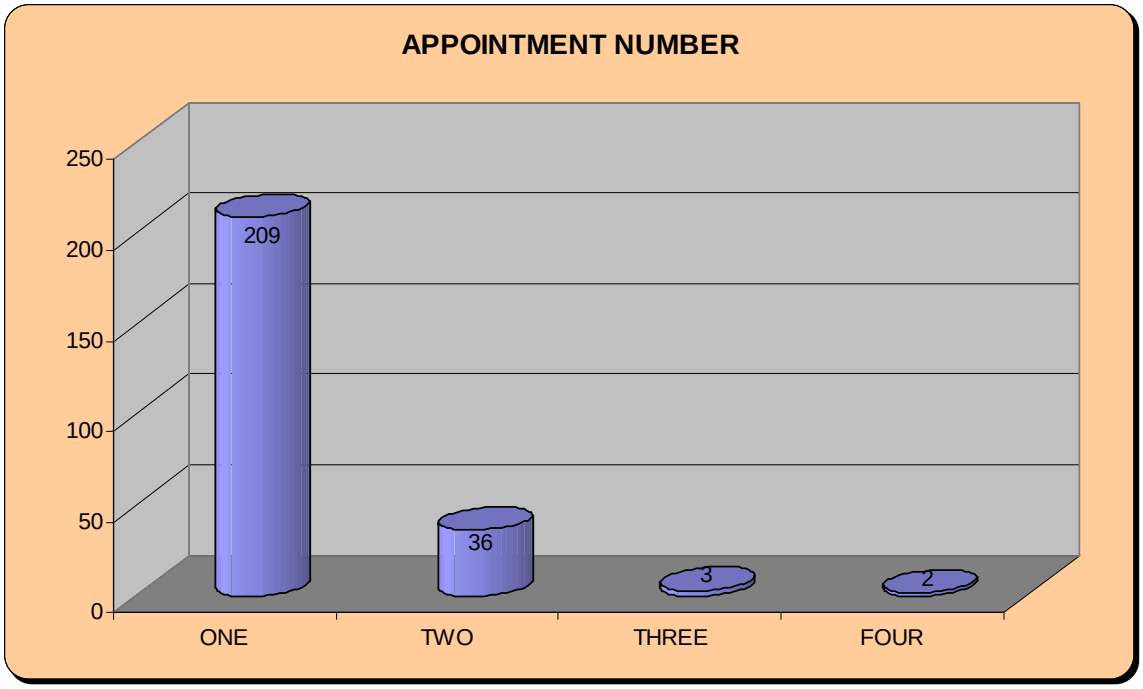


Fig. 84 Appointment number.

4.3.2 Duration

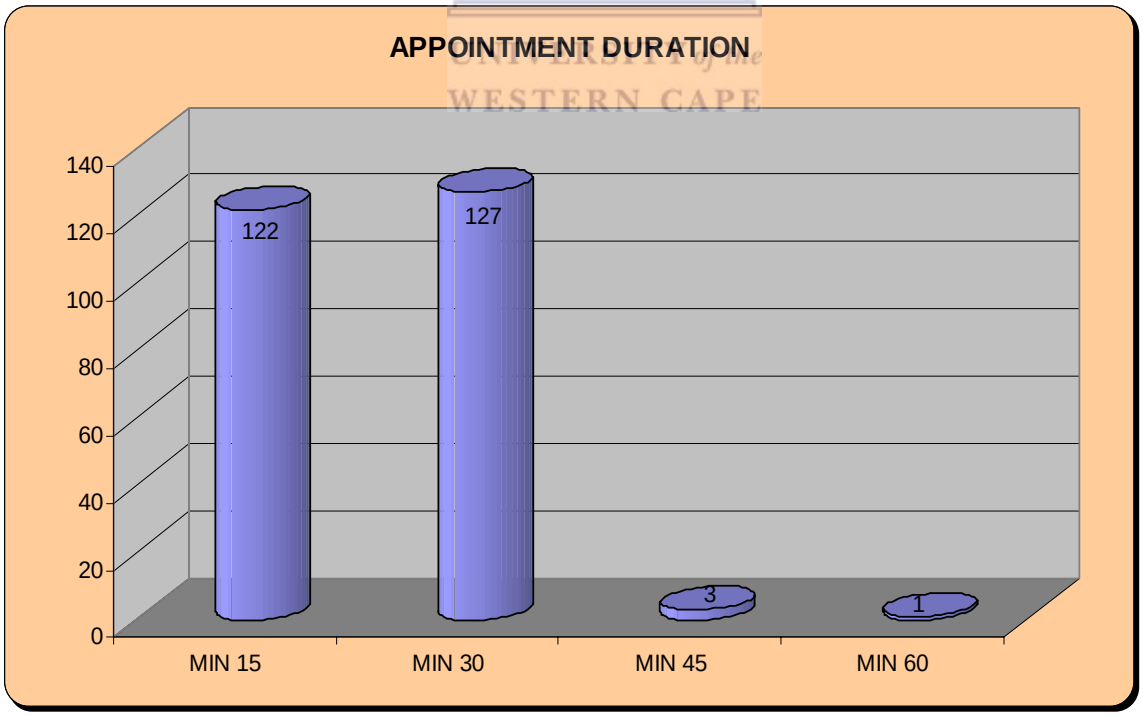


Fig. 85 Appointment duration.

The duration for the appointment is the time required to perform the required treatment. The time has been divided into intervals of 15, 30, 45and 60 minutes. For the patient who requirs extended treatment, it is better that the treatment be carried out in multiple shorter appointments, rather than one extended long appointment. There are certain procedures like implants that can not be interrupted and for them longer appointments are more appropriate.

4.3.3 Arrival for appointments.

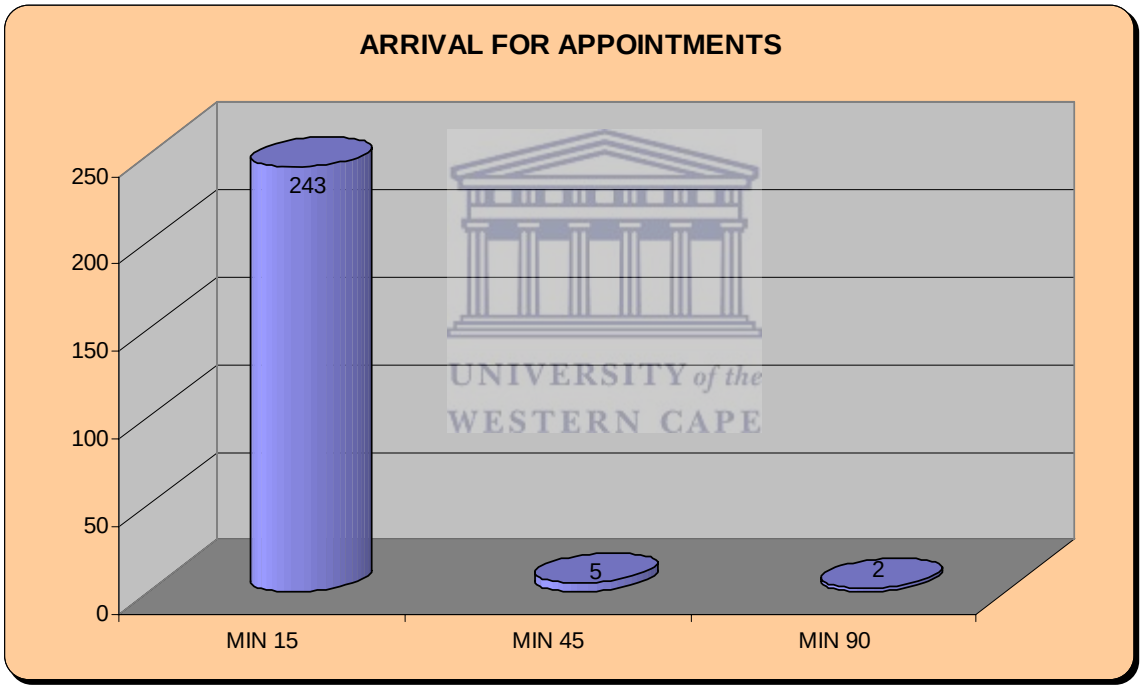


Fig. 86 Arrival for appointments.

The arrival of the sedation patient at the clinic depends on what request the patients have prior to the sedation:

- 90 minute arrival prior to sedation appointment, require an emla® patch and or pre-medication 45 minutes before appointment.
- 45 minutes arrival prior to sedation appointment, requires pre-medication.

- 15 minutes arrival prior to sedation requires no pre- sedation attention, but just to make sure they are in the building at sedation appointment.

4.4 Sedation experience.

Sedation experience is an indication whether the patient had any previous treatment under sedation. The bulk of patients are new to sedation but they are more likely to be children on their first dental treatment, extractions or wisdom teeth removals.

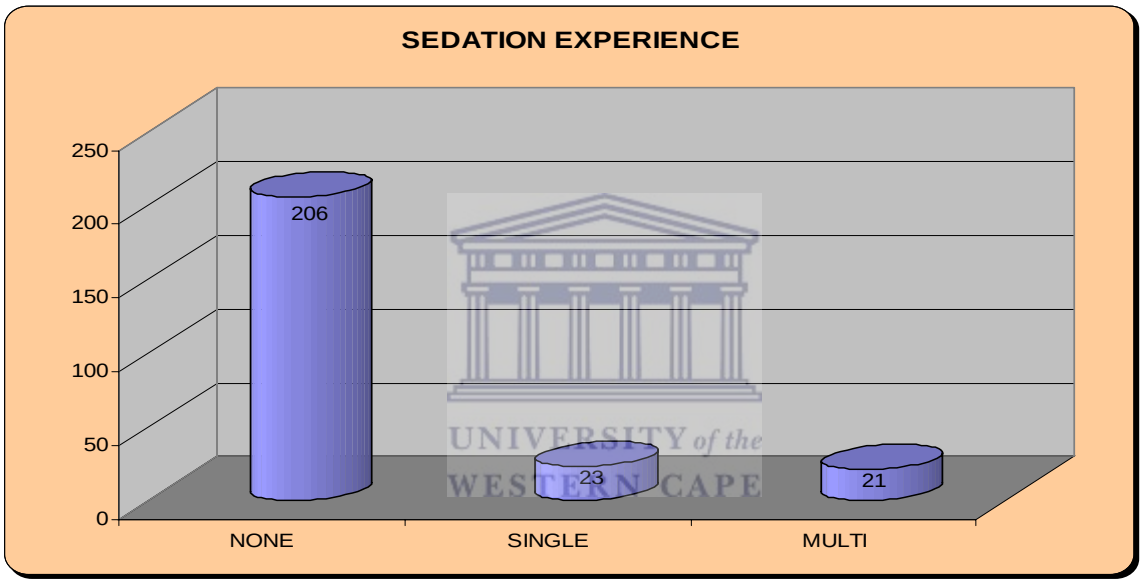


Fig. 87 Sedation experience.

The multi sedation patients are the phobic patients whom I encountered with previous sedation experience. They will not have any dental treatment done without sedation.

IV POINT SCORE

There are no points to be scored under workload. Treatments are of no contra indication for sedation.

CHAPTER 5

PATIENT PHOBIC ASPECTS

I. INTRODUCTION.

I have observed the patients reactions and body language from their first entry into the surgery, through the clinical consultation until their departure out of the surgery. I have taken into consideration the following framework:

5.1 Anxiety scale

5.1.1 Calm (1)

5.1.2 Alert (2)

5.1.3 Hyper alert - possible pre-med (3)

5.1.4 Phobic – pre-med (4)

5.2 Behavioural scale

5.2.1 One (1)

5.2.2 Two (2)

5.2.3 Three (3)

5.2.4 Four (4)

5.2.5 Five (5)

5.2.6 Six (6)

5.2.7 Seven (7)

5.2.8 Eight (8)

5.2.9 Nine (9)

5.2.10 Ten (10)

5.3 Nail Biting

5.2.1 Passive (1)

5.3.2 Active (2)

5.4 Attending attitude of patient

5.4.1 Pleasant (1)

5.4.2 Pleasant/Apprehensive (2)

5.4.3 Apprehensive (3)

5.5 Escort attitude of patient

5.5.1 Pleasant (1)

5.5.2 Pleasant/Apprehensive (2)

5.5.3 Apprehensive (3)

5.5.4 No escort (4)

5.6 First consultation rating

5.6.1 Fully cooperative/no anxiety (1)

5.6.2 Limited cooperative/mild anxiety (2)

5.6.3 Uncooperative/ anxious (3)

5.7 Patients trust in Dentist

5.7.1 Complete (1)

5.7.2 Hesitant (2)

5.7.3 None (3)

5.8 Patients phobia

5.8.1 None (1)

5.8.2 Needle (2)

5.8.3 Drill (3)

5.8.4 Noise (4)

5.8.5 Dental environment (5)

5.8.6 Previous bad experience (6)

5.8.7 Everything (7)

5.9 Patients reasons for requesting sedation

5.9.1 Petrified (1)

5.9.2 Don't want to know what is happening (2)

5.9.3 Pain with local (3)

5.9.4 Workload/Convenience (4)

5.9.5 Previous pleasant experience (5)

5.9.6 First visit (6)

5.9.7 Extractions for orthodontic reasons (7)

5.9.8 Other (8)

II. DATA TABLES.

Table 15.

NR	5. PHOBIC ASPECTS								
	5.1	5.2	5.3	5.4	5.5	5.6	5.7	5.8	5.9
	ANXIETY	BEHAV.	NAIL BITE	ATT ATT PT	ESCORT ATT	F.CONS. RAT.	PT.TRUST	PT PHOBIA	REASONS
1	2	4	1	1	1	1	2	6	2
2	3	5	1	2	4	2	1	5	5
3	2	3	2	1	4	1	1	2	1
4	1	2	1	1	1	1	1	1	4
5	2	4	1	1	4	1	1	5	5
6	1	2	1	1	4	1	1	1	4
7	1	3	1	2	2	2	2	7	6
8	2	3	1	2	4	2	2	1	3
9	3	6	2	2	4	2	2	7	1
10	2	4	1	2	1	2	2	5	6
11	2	2	1	1	4	1	1	7	5
12	3	6	2	2	4	2	1	6	5
13	3	5	1	2	4	2	1	5	2
14	3	5	1	2	1	2	2	7	6
15	1	2	1	1	1	1	1	1	3
16	2	4	1	2	1	2	2	1	3
17	1	2	2	1	1	1	1	1	5
18	4	8	2	3	4	2	2	6	2
19	2	4	1	2	1	2	1	5	5
20	1	2	1	1	1	1	1	1	4
21	1	2	1	1	4	1	1	5	5
22	2	4	1	1	1	1	1	2	6
23	1	1	1	1	4	1	1	1	8
24	2	2	1	2	2	2	2	6	2
25	1	1	1	1	4	1	1	1	8
26	3	7	1	3	1	2	2	7	2
27	1	2	1	1	4	1	1	1	8
28	1	1	1	1	1	1	1	1	4
29	1	3	1	1	4	1	1	1	4
30	1	1	1	1	4	1	1	1	4
31	4	9	1	3	2	2	2	7	6
32	2	2	1	1	4	1	1	6	4
33	1	2	1	1	4	1	1	1	4
34	2	4	1	1	1	1	1	1	4
35	3	6	2	3	4	2	2	7	2

NR	5. PHOBIC ASPECTS								
	5	5.2	5.3	5.4	5.5	5.6	5.7	5.8	5.9
	ANXIETY	BEHAV.	NAIL BITE	ATT ATT PT	ESCORT ATT	F.CONS. RAT.	PT.TRUST	PT PHOBIA	REASONS
36	2	5	1	2	4	1	1	2	1
37	4	9	1	3	2	3	3	7	1
38	1	2	1	1	4	1	1	1	1
39	2	3	1	1	4	1	1	1	4
40	2	4	1	2	4	2	1	6	3
41	3	6	1	2	4	2	2	2	3
42	2	3	2	2	4	1	1	6	2
43	2	5	1	2	1	1	1	7	5
44	1	1	1	1	4	1	1	1	4
45	1	1	1	1	4	1	1	1	4
46	4	6	2	2	1	2	2	2	2+5
47	1	3	1	1	1	1	2	1	4
48	2	4	2	2	2	1	2	5	2
49	1	1	1	1	1	1	1	1	4
50	1	1	1	1	4	1	1	1	4
51	1	1	1	1	4	1	1	1	4
52	1	3	1	1	1	1	1	7	5
53	2	4	1	2	3	1	2	1	6
54	1	3	1	1	1	2	1	8	3
55	1	3	1	1	4	1	1	1	4
56	1	1	1	1	4	1	1	1	8
57	2	4	1	2	1	1	1	7	6
58	2	4	2	2	1	1	2	2	3
59	2	5	2	2	4	1	2	7	5
60	2	4	2	1	4	1	2	7	4
61	2	6	1	2	1	1	1	7	5
62	2	4	1	2	2	1	1	8	9
63	2	4	1	2	4	1	2	5	1
64	2	5	1	2	1	2	2	7	6
65	2	4	1	1	1	1	1	8	4
66	1	2	1	1	4	1	1	5	5
67	1	1	1	1	4	1	1	1	4
68	2	3	1	1	4	1	1	6	2
69	1	4	2	1	4	1	1	3	2
70	2	2	1	1	4	1	1	5	5

NR	5. PHOBIC ASPECTS								
	5.1	5.2	5.3	5.4	5.5	5.6	5.7	5.8	5.9
	ANXIETY	BEHAV.	NAIL BITE	ATT ATT PT	ESCORT ATT	F.CONS. RAT.	PT.TRUST	PT PHOBIA	REASONS
71	1	1	1	1	4	1	1	5	3
72	2	3	1	1	4	1	1	1	4
73	1	1	1	1	4	1	1	1	4
74	1	2	1	1	4	1	1	1	4
75	2	5	1	2	4	1	2	7	2
76	1	2	1	1	4	1	1	8	2
77	1	2	1	1	4	1	1	1	5
78	2	4	1	2	1	1	1	7	6
79	2	5	1	2	1	1	1	7	6
80	2	4	1	2	1	1	1	7	6
81	1	1	1	1	4	1	1	1	4
82	2	6	2	2	4	1	2	7	2
83	2	3	1	2	1	2	2	5	4
84	2	3	1	2	1	2	2	5	4
85	1	2	1	1	4	1	1	1	4
86	2	3	1	1	4	1	1	2	4
87	2	4	1	1	1	1	1	8	4
88	2	6	2	2	1	1	2	8	9
89	1	1	1	1	4	1	1	1	4
90	2	4	2	2	1	2	2	6	1
91	2	4	1	1	1	1	1	5	6
92	2	2	1	1	4	1	1	8	4
93	2	3	1	1	1	1	1	7	6
94	1	3	1	1	1	1	1	5	6
95	3	8	2	3	4	3	2	7	2
96	1	3	1	1	4	1	1	1	4
97	2	2	1	1	4	1	1	8	4
98	2	3	1	2	1	1	1	5	5
99	1	1	1	1	4	1	2	1	4
100	2	6	2	2	1	2	2	7	6
101	3	7	1	2	4	1	1	7	5
102	3	1	2	1	1	1	1	5	6
103	2	4	1	1	1	1	2	5	6
104	1	2	2	1	1	1	1	2	5
105	2	4	1	2	1	1	2	7	2

NR	5. PHOBIC ASPECTS								
	5.1	5.2	5.3	5.4	5.5	5.6	5.7	5.8	5.9
	ANXIETY	BEHAV.	NAIL BITE	ATT ATT PT	ESCORT ATT	F.CONS. RAT.	PT.TRUST	PT PHOBIA	REASONS
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108	1	2	1	1	4	1	1	3	5
109	1	2	1	1	1	1	1	8	4
110	2	4	1	2	4	1	1	5	5
111	3	7	2	2	4	2	2	7	2
112	2	3	2	1	4	1	1	8	4
113	2	3	1	1	1	1	2	3	2
114	1	2	1	1	4	1	1	1	6
115	1	4	1	2	1	1	2	7	2
116	4	9	1	3	1	3	3	7	6
117	1	2	1	1	4	1	1	1	4
118	2	3	1	2	2	1	1	7	6
119	3	7	1	3	4	2	2	8	2
120	1	2	1	1	4	1	1	1	4
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122	1	2	1	1	4	1	1	1	4
123	1	1	1	1	4	1	1	1	4
124	2	3	2	1	4	1	1	5	5
125	2	4	1	2	1	1	1	6	5
126	2	4	1	2	2	1	2	1	4
127	2	3	1	1	4	1	1	7	5
128	2	3	2	1	4	1	2	7	2
129	3	7	1	2	2	2	2	7	2
130	1	2	1	1	4	1	1	1	4
131	2	3	1	1	1	1	1	6	2
132	1	2	1	1	4	1	1	1	4
133	4	10	2	3	1	3	3	6	2
134	4	9	2	3	1	3	3	7	2
135	2	5	1	1	1	1	1	1	4
136	2	4	2	1	4	1	1	6	5
137	2	4	1	2	4	1	1	7	5
138	2	3	1	1	4	1	1	7	6
139	3	7	2	2	1	2	2	7	6
140	1	2	1	1	4	1	1	1	4
141	1	2	1	1	4	1	1	1	4
142	1	2	1	1	4	1	1	1	5
143	2	4	1	2	4	2	2	2	2
144	1	2	1	1	4	1	1	1	4
145	3	6	2	2	4	2	2	5	2

NR	5. PHOBIC ASPECTS								
	5.1	5.2	5.3	5.4	5.5	5.6	5.7	5.8	5.9
	ANXIETY	BEHAV.	NAIL BITE	ATT ATT PT	ESCORT ATT	F.CONS. RAT.	PT.TRUST	PT PHOBIA	REASONS
146	2	4	2	2	1	1	1	2	5
147	1	2	1	1	4	1	1	1	4
148	1	2	1	1	4	1	1	1	1
149	2	3	1	1	4	1	1	1	4
150	1	2	1	1	4	1	1	1	4
151	1	2	1	1	1	1	1	8	6
152	3	6	1	2	4	2	2	5	5
153	2	4	1	2	4	2	2	6	2
154	2	4	1	2	1	2	2	5	6
155	1	1	1	1	4	1	1	1	8
156	2	3	1	2	4	1	1	7	2
157	2	3	1	1	1	1	1	1	6
158	2	3	2	1	1	1	1	5	5
159	1	2	1	1	1	1	1	1	4
160	2	6	1	2	4	2	2	8	4
161	2	4	1	1	1	1	1	8	4
162	2	5	1	2	4	1	2	6	4
163	1	2	1	1	4	1	1	1	4
164	2	4	1	2	4	2	2	7	2
165	2	3	1	1	4	1	1	1	4
166	2	4	2	2	4	1	2	6	2
167	1	3	1	1	4	1	1	8	4
168	2	6	2	2	4	1	1	5	5
169	3	7	1	2	2	2	2	7	2
170	3	6	1	2	4	2	2	5	2
171	3	7	1	2	1	1	2	7	2
172	4	10	1	3	4	2	2	7	2
173	2	6	2	2	2	2	2	7	2
174	2	4	1	1	1	1	1	8	4
175	2	3	1	2	1	1	1	8	4
176	1	2	1	1	1	1	1	1	6
177	2	3	1	2	2	1	2	8	6
178	1	2	1	1	1	1	1	6	2
179	1	2	1	1	1	1	1	8	4
180	2	5	1	2	1	2	2	2	3

NR	5. PHOBIC ASPECTS								
	5.1	5.2	5.3	5.4	5.5	5.6	5.7	5.8	5.9
	ANXIETY	BEHAV.	NAIL BITE	ATT ATT PT	ESCORT ATT	F.CONS. RAT.	PT.TRUST	PT PHOBIA	REASONS
181	3	7	2	3	1	2	2	7	2
182	2	3	1	1	1	1	1	5	5
183	2	3	1	1	1	1	1	3	2
184	1	2	1	1	4	1	1	1	4
185	2	3	1	2	4	1	1	6	5
186	2	3	1	2	1	1	1	5	5
187	1	2	1	1	4	1	1	1	4
188	1	2	1	1	4	1	1	1	4
189	1	1	1	1	4	1	1	1	8
190	1	2	1	1	4	1	1	1	8
191	2	5	1	2	4	2	2	7	2
192	2	4	1	2	1	1	1	7	2
193	1	2	1	1	4	1	1	1	4
194	2	4	1	2	1	1	1	7	6
195	2	4	1	2	1	1	1	7	6
196	1	2	1	1	4	1	1	1	4
197	2	4	1	1	1	1	1	5	6
198	2	4	1	1	1	1	1	5	5
199	1	1	1	1	4	1	1	1	4
200	1	2	1	1	4	1	1	1	4
201	2	4	1	2	4	1	1	5	5
202	1	2	1	1	4	1	1	1	4
203	2	6	2	2	4	2	2	6	2
204	1	2	1	1	4	1	1	1	4
205	3	8	2	3	2	2	2	6	2
206	1	1	1	1	4	1	1	1	4
207	3	6	1	2	1	2	2	7	2
208	1	2	1	1	1	1	1	8	6
209	2	4	1	1	2	1	1	7	2
210	2	3	1	2	1	1	1	6	2
211	2	5	1	2	4	1	1	6	2
212	2	3	1	1	2	1	2	6	2
213	3	7	1	2	1	2	2	7	6
214	3	6	1	2	1	2	2	8	2
215	1	3	1	1	4	1	1	8	2

NR	5. PHOBIC ASPECTS								
	5.1	5.2	5.3	5.4	5.5	5.6	5.7	5.8	5.9
	ANXIETY	BEHAV.	NAIL BITE	ATT ATT PT	ESCORT ATT	F.CONS. RAT.	PT.TRUST	PT PHOBIA	REASONS
216	2	4	1	2	2	2	2	7	2
217	2	4	1	2	2	2	2	7	2
218	1	2	1	1	4	1	1	1	4
219	1	3	1	2	4	1	2	1	4
220	3	7	2	2	1	2	2	7	5
221	1	2	1	1	4	1	1	1	4
222	2	4	1	1	4	1	2	1	4
223	3	6	2	3	4	2	2	7	2
224	2	3	1	1	1	1	1	1	6
225	2	3	1	1	1	1	1	1	6
226	2	4	1	1	1	1	1	1	6
227	1	2	1	1	1	1	1	1	4
228	2	4	1	2	4	1	1	5	5
229	1	1	1	1	1	1	1	1	5
230	2	4	1	1	4	1	1	7	2
231	1	2	1	1	4	1	1	1	4
232	2	4	2	2	1	1	2	5	2
233	2	3	1	1	4	1	2	7	2
234	2	3	1	1	1	1	1	7	6
235	3	7	2	2	2	2	2	7	6
236	1	1	1	1	1	1	1	1	4
237	4	8	1	3	1	3	2	7	2
238	2	3	1	2	1	1	1	1	3
239	2	4	1	1	1	1	1	5	6
240	2	3	2	1	1	1	1	5	5
241	1	2	1	1	1	1	1	1	4
242	2	5	1	2	2	2	1	5	5
243	2	4	1	2	4	2	1	7	2
244	1	1	1	1	4	1	1	1	2
245	2	5	1	2	4	1	1	8	2
246	3	7	1	2	1	2	2	5	6
247	3	6	1	2	4	2	1	5	5
248	2	3	1	1	1	1	1	5	5
249	2	3	1	1	1	1	1	7	6
250	2	5	1	2	2	2	2	7	2

III. DISCUSSION.

5.1 Anxiety scale.

Between 6-14% of the population avoid attending the dentist because of the anxiety factor regarding the treatment. Between 45-55% of patients who attended the dentist are anxious in the dental environment (53).

The anxiety of the patient was established by observation of the patient body language and observing how the patient enters the surgery for the first consultation.

Clinical signs of anxiety, in a greater or lesser presence, which I have observed include:

- Fast eye movement as if they scanning of danger.
- Quick body movements which is not smooth, some hesitation.
- Facial expression and colour for signs of increase blood pressure (flushing).
- Tempo of speech, is it relax or fast and stuttering.
- Tempo of breathing, normal or fast and shallow.
- Hand observations, have they got sweaty palms and they do bite nails.

I have classified the patients according to my scale from calm, alert, hyper alert and phobic. The majority of patients were alert, which was to be expected, as we only treat patients on a referral base. The number of calm patients was in relation to the removal of wisdom teeth referrals. With the hyper alert patient, if you can gain the trust of the patient in your first appointment, there will be no need for pre medication. The phobic patient is best treated with pre medication prior to the sedation appointment.

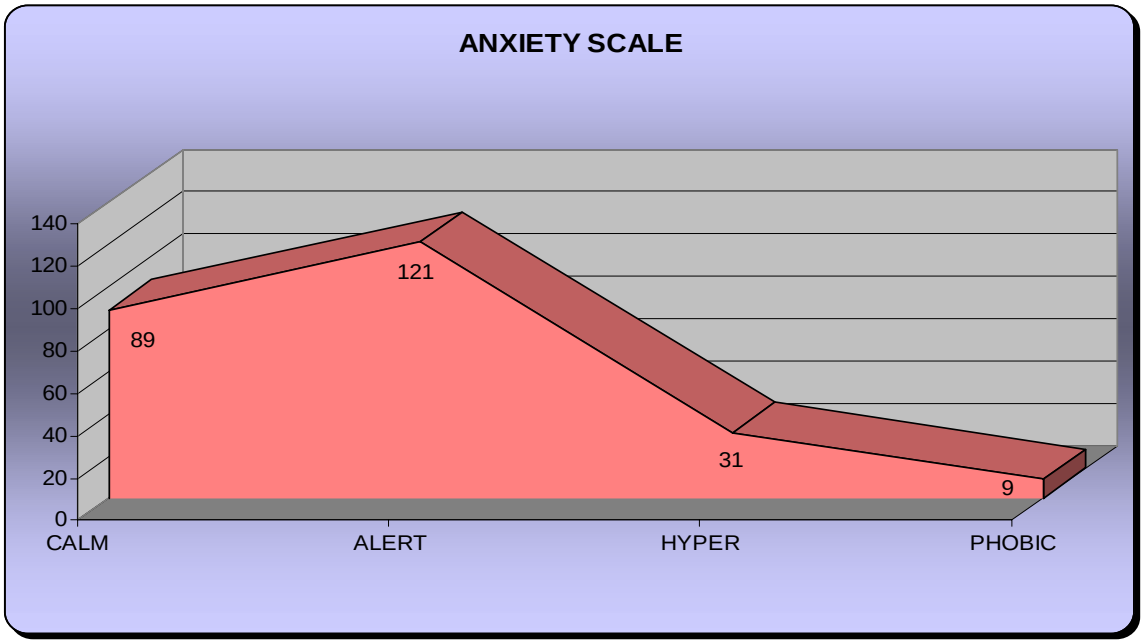

Fig. 88 Anxiety.

The anxiety scale is useful to establish which patients would benefit from pre medication

5.2 Behavioural scale

The way the patients behave as they came into the surgery is an indication of which approach is required to deal with the different degrees of anxiety or fear.

A phobic patient reacts to fear in different ways:

- Physiologically symptoms.
- Behavioural symptoms.
- Subjective symptoms.

Dental nervousness, anxiety, fear and phobia are all ways in which patient's express their feelings towards dental treatment. It is also a patient's scale of

referring to their problem, and an indication to us dentist's of how complex the anxiety is to the patient.

I have used the scale below as a reference to establish the patient's behaviour:

1 2 3 4 5 6 7 8 9 10

Fig 89 Behaviour indicator.

This is a sliding scale of a very happy patient up to the other extreme end of the scale, where the patient is stubborn and refuses any interaction or participating in the consultation by, virtually freezing up.

I have asked the patient to identify a face which resembles his/her feelings the most at the present moment.

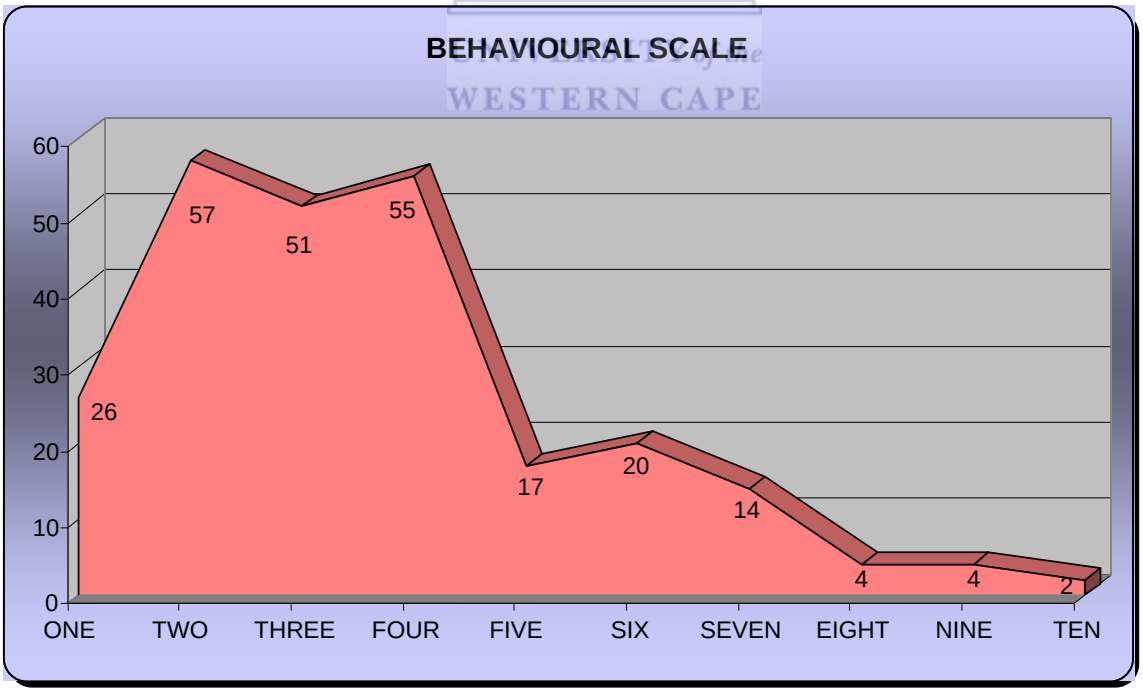

Fig. 90 Behavioural scale.

I have got the impression that most people underrate their feelings if they have to pick out a face. The number of their choice goes below 5 and shows a false bravery which they award themselves, but they are more inclined to give a true reflection of themselves if the face rating is 6 and higher.

The reasons people fear attending the dentist do vary and will include pain, cost of treatment, lack of control while in the dental chair, embarrassment and fear of the unknown. The origin of a patient dental anxiety in the dental surgery can stems from a previous bad experience, the media, family or friends who have told them horror stories. With the result, they neglect to maintain their dental health, by avoiding visits to the dentist.

The fear of treatment to some patients may appear to be irrational, uncontrollable and without obvious cause. For other patients, the fear is not so deep seated. They can explain the cause of their anxiety and can usually control it to some extent. However, they are still anxious about dental treatment and will try and avoid it where possible.

Patients in the 8, 9 and 10 category are pre medication candidates,

According to Dr. Arthur A. Weiner, who is clinical professor and director of the behavioral science course at Tufts School of Dental Medicine, believes that in treating dental anxiety, it should be categorized into two subgroups: (1)exogenous and (2) endogenous. Exogenous dental anxiety patients etiology is situation-related. Individuals experience moist palms, hand tremors, rapid heartbeat and fluttery stomach. All of these signs are associated with the fight or flight response in the central nervous system, and are in response to external stimuli. Endogenous generalized anxiety patients experience

lightheadedness, difficulty breathing, hyperventilation and nervousness. All of these symptoms are felt are very severe levels. Because these symptoms mimic so many other medical disorders, it is recognized as a medical condition, and should be properly diagnosed. Identifying between the two can be a difficult process, and since multiple methods of anxiety management are required, it is divided into three major categories:

1. *Observation and interaction*
2. *Collection of information*
3. *Environmental analysis*

Observation and interaction are initial ways of detecting dental anxiety in patients who do not readily express their feelings to the practitioner. The practitioner as well as the office staff should observe the patient's verbal and non-verbal expressions. Either the patient's choice of words when talking about past dental experiences, or the rate at which the patient is talking is an indication of dental anxiety. Non-verbal expressions such as sitting position in the reception area, rubbing of hands or pacing are also strong signs of dental anxiety. After determining if a patient does have dental anxiety, the next step is data collection.

This happens to be the most effective method of identifying and getting a general idea of how to treat each patient's dental anxiety. Data collection is best achieved by providing the patient with anxiety questionnaires. This

should be done prior to patient's first visit with any practitioner, preferably a few days to a week before the appointment. The practitioner should follow up the questionnaire with a personal interview in the office. The purpose of the patient questionnaire is to allow the patient to be a part of all phases of their dental treatment. It also allows the practitioner and his/her staff to assess the level of anxiety that should be anticipated with each new patient. The final phase of dental anxiety identification is environmental analysis.

Viewing the surroundings of the dental office through the eyes of the phobic dental patient is quite significant. Pamphlets and posters displayed in the reception area can have a negative affect on patients because of the grotesque monsters used on the posters or pamphlets. Also, the arrangement of the equipment in the operatory, dental drills and all other instruments that could intimidate patients should be kept out of the sight of the phobic dental patient. Sound is also a factor in the fear of dental patient. The practitioner should try not to have the operatories too close to the reception area since the sound of dental drills will elevate the patient's already high anxiety levels. Colors, like reds, blues and dark greens, create undesired feelings of arousal in the dental chair. The practitioner would like the patient to remain as calm and relaxed as possible to ensure that dental treatment runs smoothly. -----According to Dr. Weiner, managing the behavior of a patient with dental anxiety can be

achieved after proper identification of anxiety and their causes are established (54)

5.3 Nail biting.

Nail biting is an easy physical observation; in general most people bite their nails in times of stress or as a habit at an unconscious level, without even noticing they are doing it. The nail biters are more nervous of nature and seem to be more anxious and uptight.

The majority of patients don't bite their nails. However 17% do. In comparison to the behavioural scale of 6 -10, which is also 17%, I have came to the conclusion that there could be a correlation between the two groups. This is only an indication, not a rule as there are nervous patient who don't bite nails and vice versa.

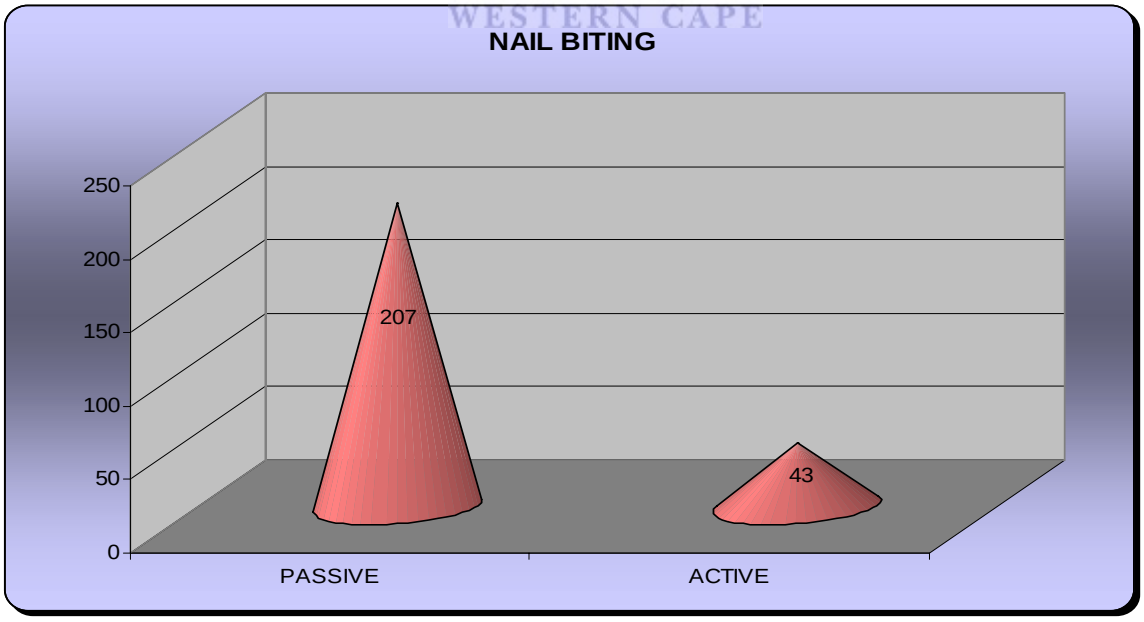

Fig. 91 Nail biting.

Other habits which can be observed, are hair pulling and skin picking, most of these patient are aware of their problem and try to hide, either by keeping the hands out of sight or some covering up. Pulling, picking or biting also seems to deliver a pleasurable or relaxed sensation. When sufferers feel stressed, doing these things has a kind of soothing effect on their nervous systems, and reduces levels of stimulation and seems to happen when people are in one of two modes. Some do it in an automatic way subconsciously and others deliberately. They will frequently interrupt other activities to engage in it (55).

5.4 Attending attitude of patient

Attending attitude of the patient is established through a combination of observation and communication.

I have used a three point sliding scale from pleasant, pleasant / apprehensive and apprehensive.

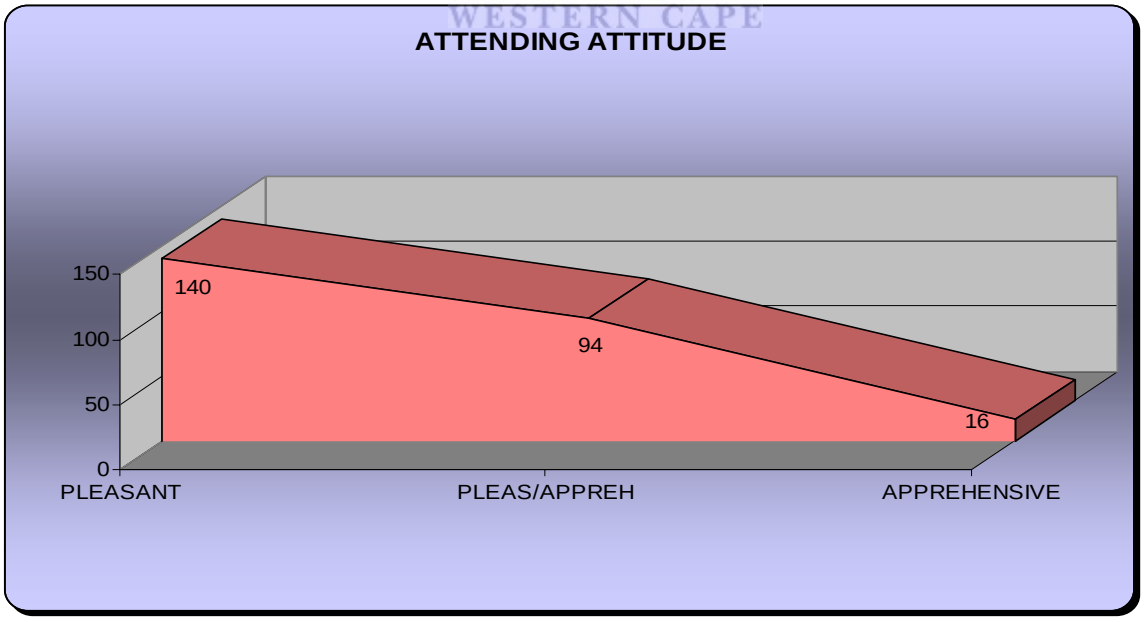

Fig. 92 Attending attitude.

Subjective observation is required to determine attitude, which is based on evidence such as patient's attitude towards dental environment, dental auxiliary staff, dentist, body language and voice tone.

Demanding and threatening language, verbal abuse, aggression and in the rear situation, physical violence could be experience by the very apprehensive patient.

The majority of the apprehensive patients are usually in the very phobic category. They come to the dentist mostly, driven by severe tooth ache.These are the group of patients, who can most likely turn violent if they can't receive treatment immediately as they have got themselves in a state of desperateness for pain relieve. They very rarely have any dental treatment done, except in an emergency.

5.5 Escort attitude.

The escort attitude was noted on the same scale as the patient's attitude. As we do our consultations on a different day as the sedation appointment, the majority of adults did not have an escort present at consultation.

I have observed that there are two kinds of escorts:

- The supportive escort. Their attitude is different from the phobic patient and they are an asset to the dentist in gaining the patients trust.
- The overprotective escort. Their attitude correlates with the patient's attitude and they have their own anxieties. They can be overprotective, demanding, unpleasant, rude or even aggressive. This is the kind of escorts that prevent the dentist to establish a positive trust relationship

with the patient. They are of no help, rather a saboteur of successful patient management.

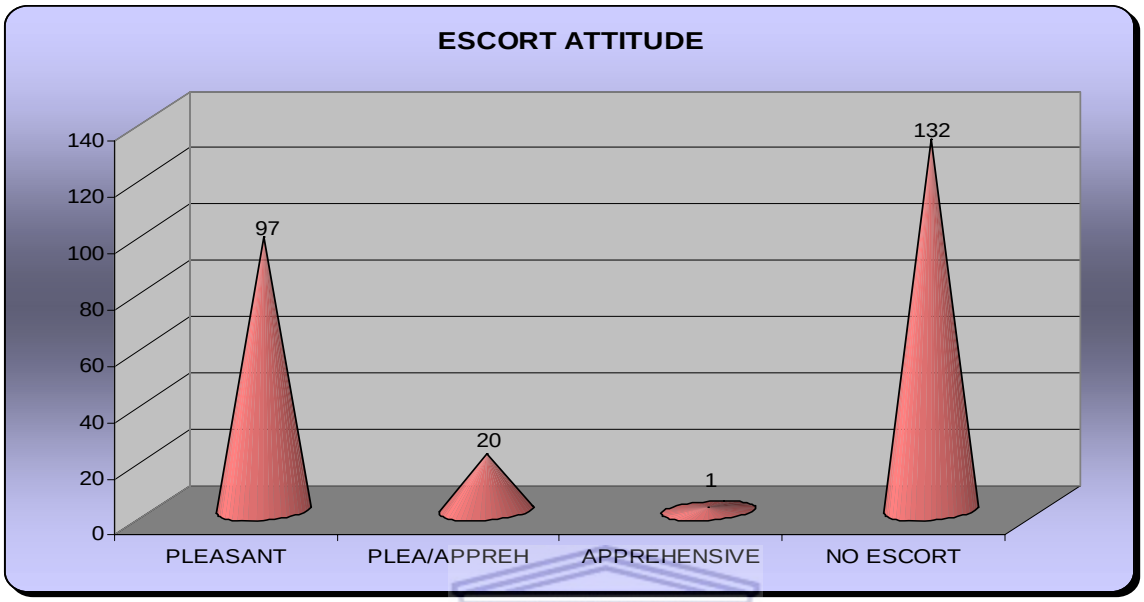

Fig. 93 Escort attitude.

The value of a supportive escort can not be held in high enough esteem. There is merit into having a second consultation appointment with a child accompanied by a overprotected parent. For example to ask the mum to stay home next time and let the dad bring the child in for the next consultation.

5.6 First consulting rating.

The first consulting rating of the patient, I established by how much cooperation, participation and interaction the patient had with me.

I have used a three point sliding scale from: fully cooperative with no anxiety, limited cooperative with mild anxiety and uncooperative in the anxious patient.

The uncooperative and the behavioural scale 9 and 10 have a strong correlation and they are the true dental phobic patients. Pre medication and physiological preparation are the preferred approach to a successful sedation.

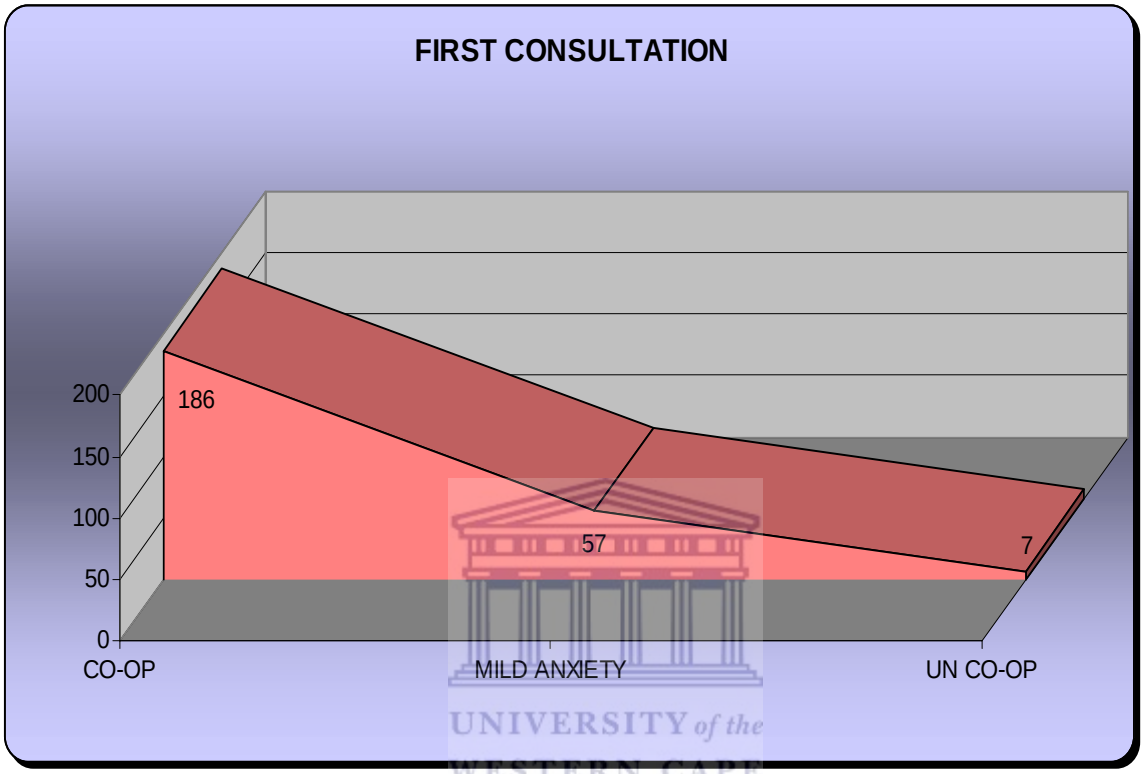

Fig. 94 First consultation.

5.7 Patients trust in dentist.

Patients trust in the dentist is very important. The first contact between a new referred patient and the dentist must be of such a nature that the patient can start to relax and put his trust in the dentist.

An interfering escort is the biggest trust damager in dentist patient relationship. For the phobic patient at consultation, it is important not to lose the patients attention and to reassure the patient that the treatment requires,

can be done in a relax environment under conscious sedation without the anxiety associated by the normal dental treatment.

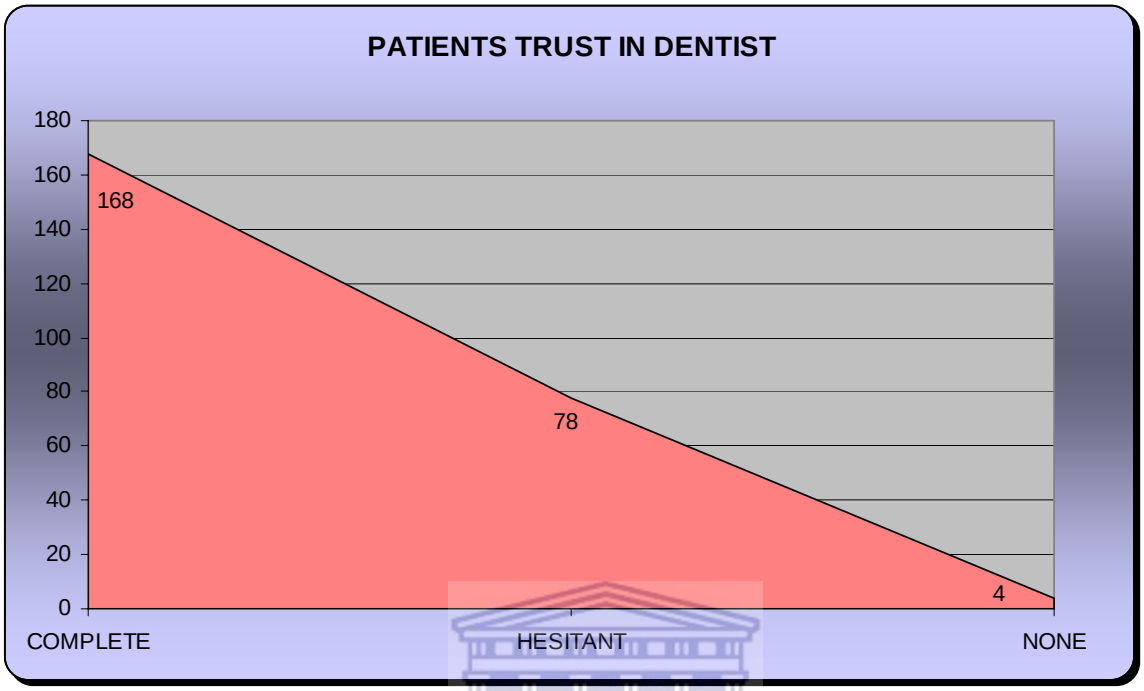

Fig. 95 Patients trust in dentist.

Doing consultation in a patient friendly surgery, is a step in the right direction. Addressing the patients anxiety helps to establish a good relationship of trust. Successful sedation is a fine balance between patient trust and sedation drugs. A conscious sedated patient will listen to the dentist and respond positive on verbal commands.

The majority of the patients have got complete trust after the consultation, but the higher the behavioural number and apprehensive attitude, the more difficult it is to establish good communication. If trust is not established at the consultation or a sound foundation set for the upcoming sedation appointment, it could lead to an unstable relationship and possible difficult sedation. A pre medication must be considered in these situations.

5.8 Patients phobia.

A phobia is a quite different problem than nervousness, fear or anxiety. Nervousness in the dental situation, means feeling slightly afraid of what is going to happen. Dental anxiety is anticipated or imagined pain of some dental procedure.

Fig. 96 Phobia.

Dental fear is present perceived pain of some dental procedure.

Dental phobia is an extreme instance of dental anxiety which creates a pattern of total avoidance behaviour, even without a previous traumatic experience.

The classic sign of a phobia is the 'avoidance behaviour. The patient does virtually everything possible to avoid the threatening situation (56).

A phobia is a persistent and excessive fear of a situation, or object, which in fact is not dangerous.

The phobic patient is usually a very poor dental attendee, and only attends when forced to do so by very extreme pain. The accompanying features of a panic attack associated with a phobic situation include heart palpitations, feeling sick, nauseous and faint.

It is easy for phobic patients to feel that they are alone and the only one with these fears and it is up to the dentist to reassure the patients. Patients realize that their phobias are not rationale.

A patient may have a specific phobia, such as needles, but for some the phobia will involve lots of individual phobias or a combination of some specific

phobias. It is not necessary to know the exact cause of a phobia to treat it successfully.

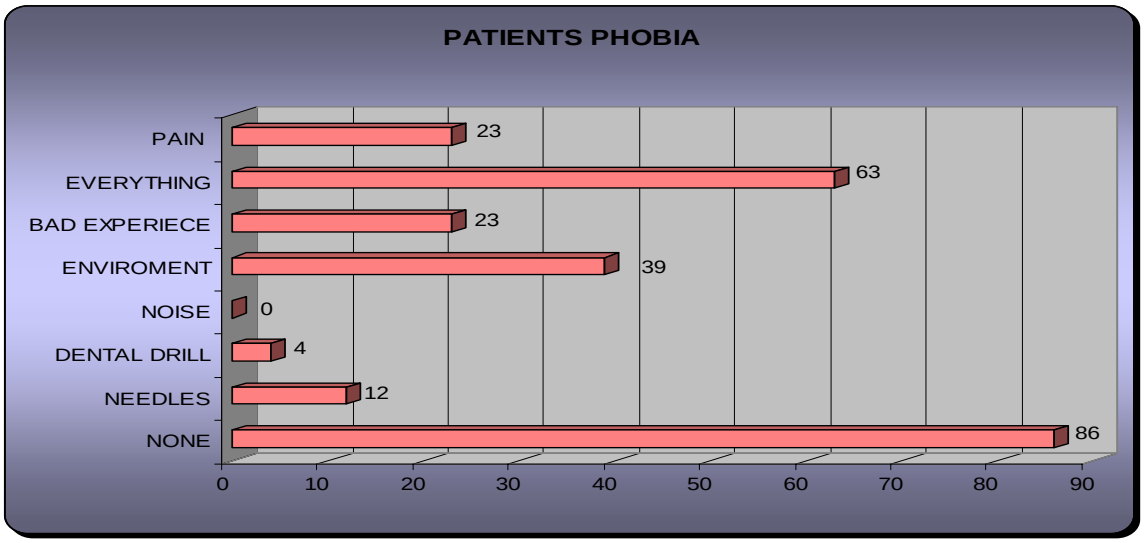

Fig. 97 Patients phobia.

The majority had no phobias. It is in this area of services that we mainly perform a large number of oral surgery for wisdom teeth removals. These categories of patients are regular customers at their local dentist and care about their teeth. The rest is a combination of a single phobia, a dominate phobia or a combination of phobias.

5.9 Patients reasons for requesting sedation

Patient's reasons for requesting sedation often goes hand in hand with their phobias for dental treatment. The majority is in the convenience group for oral surgery. The rest is a mixture of, those who don't want to know what is happening in their mouths as long as the treatment gets done.

New patients to sedation and patients with pleasant previous experience, are about equal. The number of children on their first visit to the dentist for treatment, counts for almost al the newcomers to sedation.

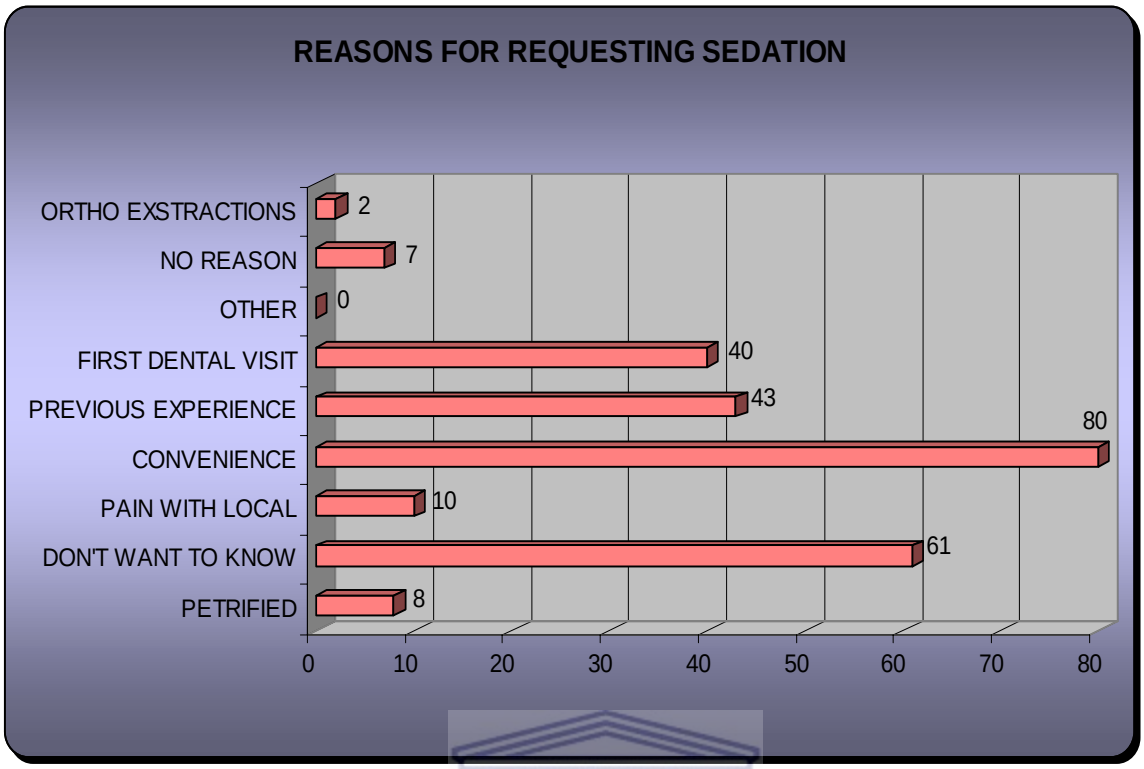

Fig. 98 Reasons for requesting sedation.

A nervous or a phobic patient, who had a pleasant experience, once will always be in favour of treatment under sedation and return for future treatments.

IV POINT SCORE.

There are no points to be scored under phobic aspects, as it is an indication for sedation, rather than a contra indication, but as with every rule there is an exception.

10 points are given to those patients who are in the behavioural scale of 10 and in the severe apprehensive side of the attending attitude scale and who are being uncooperative at consultation.

CHAPTER 6

Patient's expectation

I. Introduction.

Before committing themselves to treatment under sedation, I have asked the patients's opinion about their expectations regarding the sedation procedure as well as the recovery state of sedation. The questions were asked in such a manner, that they were able to think for themselves, rather than to be led into answers of my own reserved requirements, or opinion, based on information supplied by me.

In order to get the true identity of their opinions, I gained much clarity by taking note of their first impressions, before any discussion could take place between them and me. The line of questioning I followed was based on the following framework:

6.1 Kind of anaesthetics

6.1.1 Local only (1)

6.1.2 Conscious sedation (2)

6.1.3 General Anaesthetic

6.1.3.1 Will not except conscious sedation (3)

6.1.3.2 Will except conscious sedation (4)

6.2 Feeling

6.2.1 Nothing (1)

6.2.2 Some sensation /no pain (2)

6.2.3 Mild pain (3)

6.2.4 Pain (4)

6.3 Hearing

6.3.1 Nothing (1)

6.3.2 Background sounds (2)

6.3.3 All the surgery noises/everything (3)

6.4 Seeing

6.4.1 Nothing (1)

6.4.2 Out of focus (2)

6.4.3 Everything (3)

6.5 Remember

6.4.1 Nothing (1)

6.4.2 Some detail (2)

6.4.3 Everything (3)

6.6 Post Sedation

6.5.1 Awake (1)

6.5.2 Drowsy (2)

6.5.3 Drunk (3)

6.5.4 Sick (4)

6.7 Sedation Expectation

6.7.1 Pleasant (1)

6.7.2 Unpleasant (2)

6.7.3 Do not want sedation (3)

II. Data tables.

Table 16.

6. PATIENTS EXPECTATIONS								NR
6.1	6.2	6.3	6.4	6.5	6.6	6.7		
KIND ANES	FEELING	HEARING	SEEING	REMEMBER	POST SED	SED EXPEC.		
2	1	1	1	1	2	1		1
2	1	1	1	1	2	1		2
4	1	1	1	1	3	1		3
2	2	2	2	2	2	1		4
2	2	2	2	2	3	11		5
2	2	2	2	2	2	1		6
2	1	1	1	1	2	1		7
1	2	2	2	2	2	2		8
4	1	1	1	1	1	2		9
2	1	1	1	1	1	1		10
2	2	2	1	1	2	1		11
2	1	2	1	1	3	1		12
4	1	1	1	1	3	1		13
2	1	1	1	1	2	1		14
2	2	2	2	2	2	1		15
2	1	2	2	1	2	1		16
2	1	2	1	1	2	1		17
2	1	1	1	1	2	1		18
2	1	2	1	1	3	1		19
2	1	2	2	1	2	1		20
2	1	2	2	1	2	1		21
2	1	1	1	1	2	1		22
1	2	3	3	3	1	3		23
2	1	1	1	1	2	1		24
1	2	3	3	3	1	3		25
4	1	1	1	1	3	1		26
1	2	3	3	3	1	3		27
2	2	2	2	2	3	1		28
2	1	2	2	1	2	1		29
2	2	2	2	2	2	1		30
2	1	1	1	1	2	1		31
2	1	2	2	1	2	1		32
2	2	2	2	2	2	1		33
2	1	2	2	1	2	1		34
4	1	1	1	1	3	1		35

6. PATIENTS EXPECTATIONS								NR
6.1	6.2	6.3	6.4	6.5	6.6	6.7		
KIND ANES	FEELING	HEARING	SEEING	REMEMBER	POST SED	SED EXPEC.		
4	1	1	1	1	2	1		36
4	1	1	1	1	3	1		37
2	1	2	2	1	2	1		38
2	1	2	2	2	2	1		39
2	1	2	2	1	2	1		40
2	1	2	2	1	2	1		41
4	1	1	1	1	3	1		42
2	1	1	1	1	2	1		43
2	1	2	2	1	2	1		44
2	1	2	2	1	2	1		45
2	1	1	1	1	2	1		46
2	1	2	2	1	2	1		47
2	1	2	2	1	2	1		48
2	1	2	2	1	2	1		49
2	1	2	2	1	2	1		50
2	1	2	2	2	2	1		51
2	1	1	1	1	2	1		52
2	1	1	1	1	2	1		53
2	1	2	2	1	2	1		54
2	1	2	2	2	2	1		55
1	2	3	3	3	1	3		56
2	1	1	1	1	2	1		57
2	1	1	1	1	2	1		58
2	1	1	1	1	2	1		59
2	1	1	1	1	2	1		60
2	1	1	1	1	2	1		61
2	1	1	1	1	2	1		62
4	1	1	1	1	2	1		63
2	1	1	1	1	2	1		64
2	1	2	2	1	2	1		65
2	1	2	2	1	2	1		66
2	1	2	2	1	2	1		67
2	1	1	1	1	2	1		68
2	1	2	2	1	2	1		69
2	1	1	1	1	2	1		70

6. PATIENTS EXPECTATIONS								NR
6.1	6.2	6.3	6.4	6.5	6.6	6.7		
KIND ANES	FEELING	HEARING	SEEING	REMEMBER	POST SED	SED EXPEC.		
2	1	2	2	1	2	1		71
2	1	2	2	1	2	1		72
2	1	2	2	1	2	1		73
1	2	3	3	3	1	3		74
2	1	1	1	1	2	1		75
2	1	2	2	1	2	1		76
2	1	2	2	1	2	1		77
2	1	1	1	1	2	1		78
2	1	1	1	1	2	1		79
2	1	1	1	1	2	1		80
2	1	2	2	1	2	1		81
4	1	1	1	1	2	1		82
2	1	1	1	1	2	1		83
2	1	1	1	1	2	1		84
2	1	2	2	1	2	1		85
2	1	2	2	1	2	1		86
2	1	2	2	1	2	1		87
2	1	2	2	1	2	1		88
2	1	2	2	1	2	1		89
2	1	1	1	1	2	1		90
2	1	1	1	1	2	1		91
2	1	2	2	1	2	1		92
2	1	2	2	1	2	1		93
2	1	1	1	1	2	1		4
4	1	1	1	1	2	2		95
2	1	2	2	1	2	1		96
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2	1	2	2	1	2	1		99
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2	1	2	2	1	2	1		101
2	1	2	2	1	2	1		102
2	1	1	1	1	2	1		103
2	1	2	2	1	2	1		104
4	1	1	1	1	2	1		105

6. PATIENTS EXPECTATIONS								NR
6.1	6.2	6.3	6.4	6.5	6.6	6.7		
KIND ANES	FEELING	HEARING	SEEING	REMEMBER	POST SED	SED EXPEC.		
2	1	2	2	1	2	1		106
2	1	2	2	1	2	1		107
2	1	2	2	1	2	1		108
2	1	2	2	1	2	1		109
2	1	1	1	1	2	1		110
4	1	1	1	1	2	1		111
2	1	2	2	1	2	1		112
2	1	2	2	1	2	1		113
2	1	2	2	1	2	1		114
4	1	1	1	1	2	1		115
4	1	1	1	1	2	1		116
2	1	2	2	1	2	1		117
2	1	1	1	1	2	1		118
4	1	1	1	1	3	1		119
2	1	2	2	1	2	1		120
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2	1	2	2	1	2	1		122
2	1	2	2	1	2	1		123
2	1	2	2	1	2	1		124
2	1	2	2	1	2	1		125
2	1	2	2	1	2	1		126
2	1	1	1	1	2	1		127
4	1	1	1	1	2	1		128
2	1	1	1	1	2	1		129
2	1	2	2	1	2	1		130
2	1	1	1	1	2	1		131
2	1	2	2	1	2	1		132
4	1	1	1	1	2	1		133
4	1	1	1	1	2	1		134
2	1	2	2	1	2	1		135
2	1	2	2	1	2	1		136
2	1	2	2	1	2	1		137
2	1	1	1	1	2	1		138
2	1	1	1	1	2	1		139
2	1	2	2	1	2	1		140

6. PATIENTS EXPECTATIONS								NR
6.1	6.2	6.3	6.4	6.5	6.6	6.7		
KIND ANES	FEELING	HEARING	SEEING	REMEMBER	POST SED	SED EXPEC.		
2	1	2	2	1	2	1		141
2	1	2	2	1	2	1		142
4	1	1	1	1	2	1		143
2	1	2	2	1	2	1		144
2	1	1	1	1	2	1		145
2	1	1	1	1	2	1		146
2	1	2	2	1	2	1		147
4	1	2	2	1	2	1		148
2	1	1	1	1	2	1		149
2	1	2	2	1	2	1		150
2	1	1	1	1	2	1		151
2	1	1	1	1	2	1		152
4	1	2	2	1	4	1		153
2	1	2	2	1	2	1		154
1	2	3	3	3	1	3		155
2	1	2	2	1	2	1		156
2	1	1	1	1	2	1		157
2	1	1	1	1	2	1		158
2	1	2	2	1	2	1		159
2	1	2	2	1	2	1		160
2	1	2	2	1	2	1		161
2	1	1	1	1	2	1		162
2	1	2	2	1	2	1		163
4	1	2	2	1	3	1		164
2	1	2	2	1	2	1		165
2	1	1	1	1	2	1		166
2	1	2	2	1	2	1		167
2	1	1	1	1	2	1		168
2	1	1	1	1	2	1		169
4	1	1	1	1	3	1		170
2	1	1	1	1	2	1		171
4	1	1	1	1	2	1		172
2	1	2	2	1	2	1		173
2	1	2	2	1	2	1		174
2	1	2	2	1	2	1		175

6. PATIENTS EXPECTATIONS								NR
6.1	6.2	6.3	6.4	6.5	6.6	6.7		
KIND ANES	FEELING	HEARING	SEEING	REMEMBER	POST SED	SED EXPEC.		
2	1	1	1	1	2	1		176
2	1	2	2	1	2	1		177
2	1	2	2	1	2	1		178
2	1	1	1	1	2	1		179
2	1	2	2	1	2	1		180
2	1	1	1	1	2	1		181
2	1	1	1	1	2	1		182
2	1	1	1	1	2	1		183
2	1	2	2	1	2	1		184
2	1	2	2	1	2	1		185
2	1	1	1	1	2	1		186
2	1	2	2	1	2	1		187
2	1	2	2	1	2	1		188
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2	1	2	2	1	2	1		199
2	1	2	2	1	2	1		200
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2	1	1	1	1	2	1		211
2	1	1	1	1	2	1		212
2	1	1	1	1	2	1		213

6. PATIENTS EXPECTATIONS								NR
6.1	6.2	6.3	6.4	6.5	6.6	6.7		
KIND ANES	FEELING	HEARING	SEEING	REMEMBER	POST SED	SED EXPEC.		
2	1	2	2	1	2	1		214
2	1	2	2	1	2	1		215
2	1	1	1	1	2	1		216
2	1	1	1	1	2	1		217
2	1	2	2	1	2	1		218
2	1	2	2	1	2	1		219
2	1	1	1	1	2	1		220
2	1	2	2	1	2	1		221
2	1	2	2	1	2	1		222
2	1	1	1	1	2	1		223
2	1	2	2	1	2	1		224
2	1	2	2	1	2	1		225
2	1	2	2	1	2	1		226
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2	1	2	2	1	2	1		228
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2	1	1	1	1	2	1		246
2	1	1	1	1	2	1		247
2	1	2	2	1	2	1		248
2	1	1	1	1	2	1		249
2	1	2	2	1	2	1		250

III. Discussion.

6.1 Kind of Anaesthetics.

The kind or type of anaesthetic the patient expected to receive for their dental treatment was no surprise. As they were referred for conscious sedation the majority did ask for sedation. Local anaesthetic was requested by a few patients who were referred for easy wisdom teeth removal by the oral surgeon.

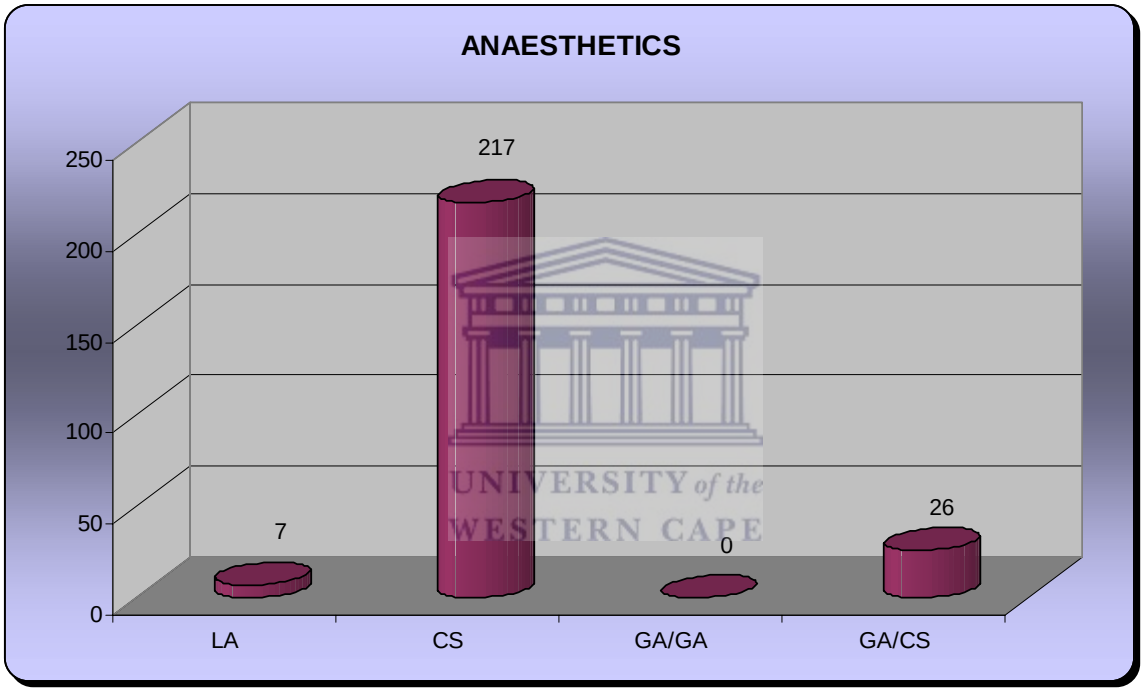

Fig. 99 Anaesthetics.

The very phobic had second thoughts about sedation and requested general anaesthetic for their treatment. This they have required after an explanation of conscious sedation verses general anaesthetic. I have given the patient an opportunity to ask questions about sedation. When those patients, who preferred general anaesthetic, been asked once again whether they would change their first option to sedation, they were all in favour of sedation for their treatment.

This might have been influenced by the fact that we do not do general anaesthetic and the waiting list for general anaesthetic at the local hospital for dental treatment, is about 18 to 36 months for routine dental treatment, with the exclusion of dental emergencies.

One option I have not given the patient, is a choice between conscious sedation (the minimum drug/drugs is required to carried out the treatment) and deep sedation (maximum drug/drugs is use during treatment with out the loss of verbal contact and response). I am of the opinion that the majority would prefer deep sedation, rather than conscious sedation. This choice of deeper sedation would be in line with their phobic aspect, the more phobic the deeper the sedation.

6.2 Feeling.

The majority of 94% expect to feel nothing during the treatment; only 6% did thought that they might feel some sensation, but no pain.

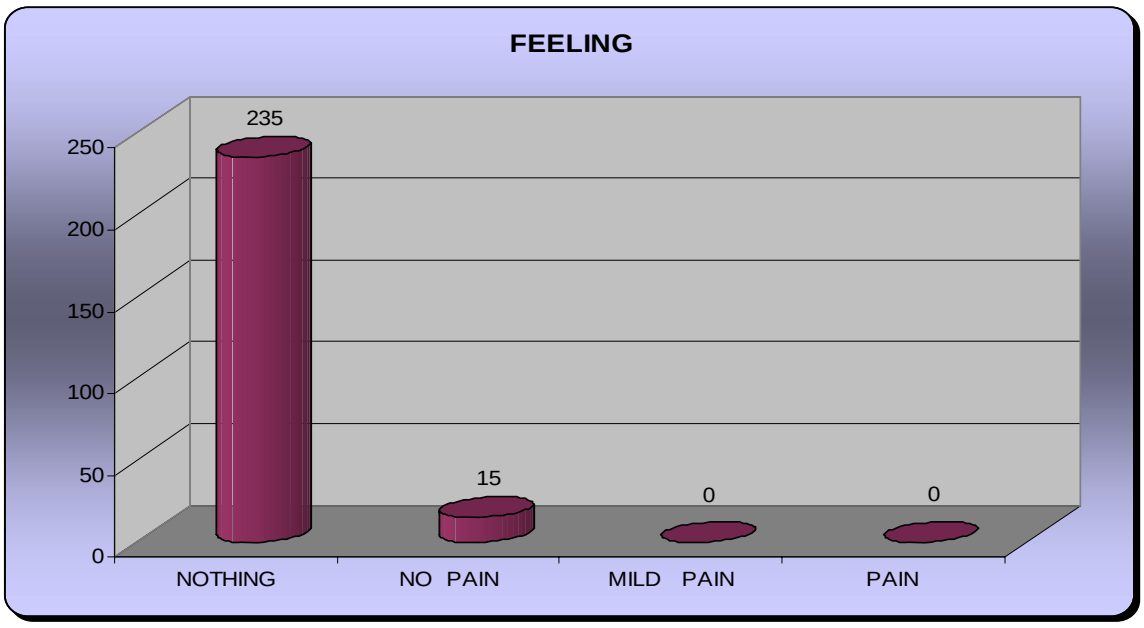

Fig. 100 Feeling.

The thought of any pain sensation during the dental treatment was not entertained. A number of patients had expressed themselves that if they believe they are going to experience any pain, they would rather have general anaesthetic.

Pain is one of the big phobias and fears we have to deal with, in those patients who preferred to have their dental treatment done under conscious sedation.

6.3 Hearing.

The majority of patients believe that they would hear some sounds and verbal commands during conscious sedation. The 2.5%, who decided to have their treatment under local anaesthetic, are aware of all the surgery noises.

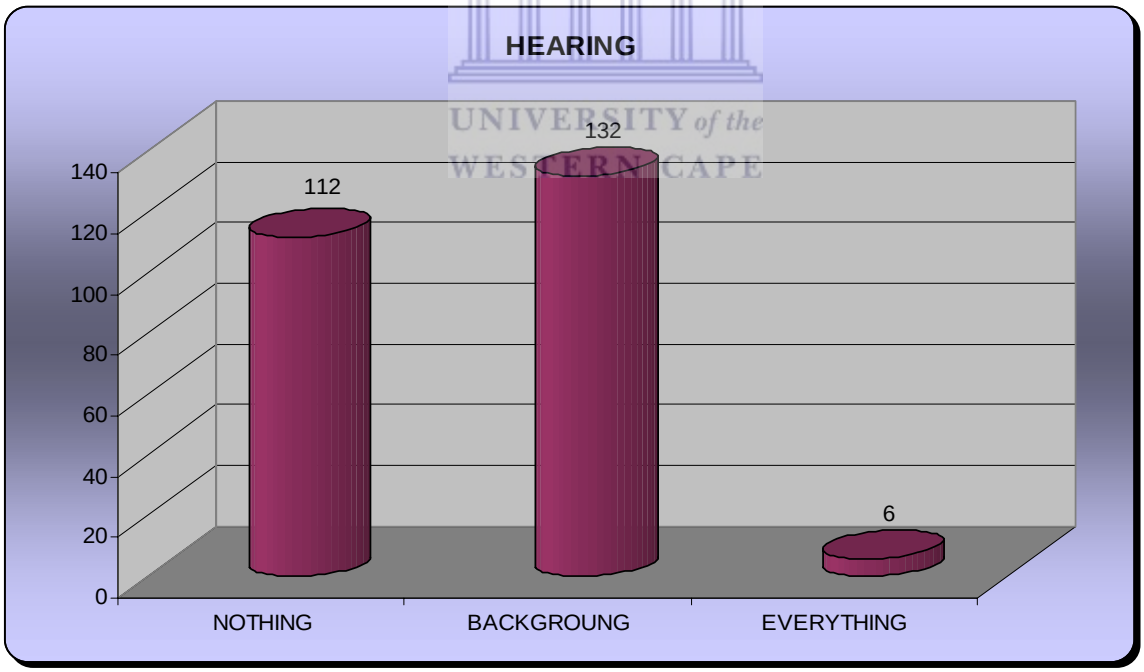

Fig. 101 Hearing.

The patients who expect to hear nothing are 45%, but they are of the opinion that if they can't remember, they surely have not heard any sounds.

6.4 Seeing.

According to my research, 46% of patients do not whish to see anything during sedation, but are willing to accept to see something if they can't remember it afterwards. Over 50 % believe that they will see something, but not everything of what is going on in the dental surgery under sedation, and are quite content with it.

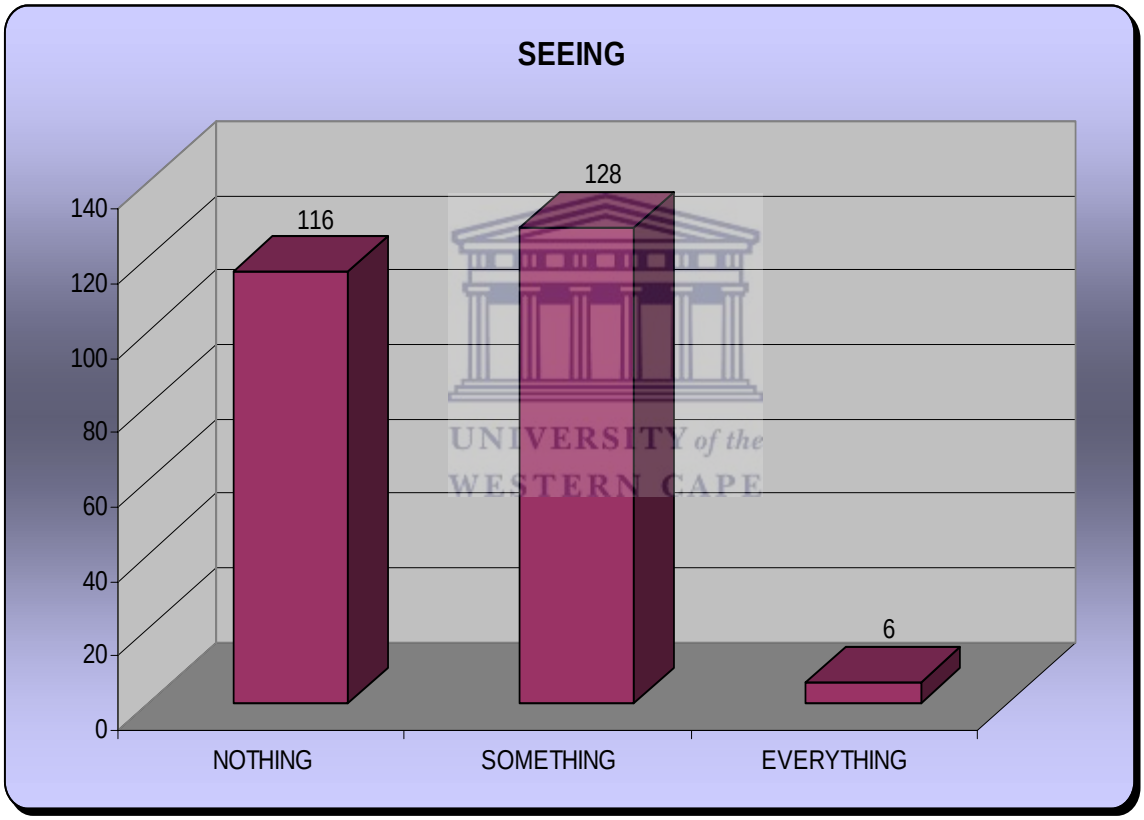

Fig. 102 Seeing.

The remainder of patients who have their treatment done under local anaesthetic, are quite content to observe any of the treatment procedures.

6.5 Remembering.

This is the one major criteia where the patient's in the majority of 93%, don't want to remember anything what is happening under sedation. From a patients view point, not remembering any of the procedures is an effective way to deal with their anxiety and phobias.

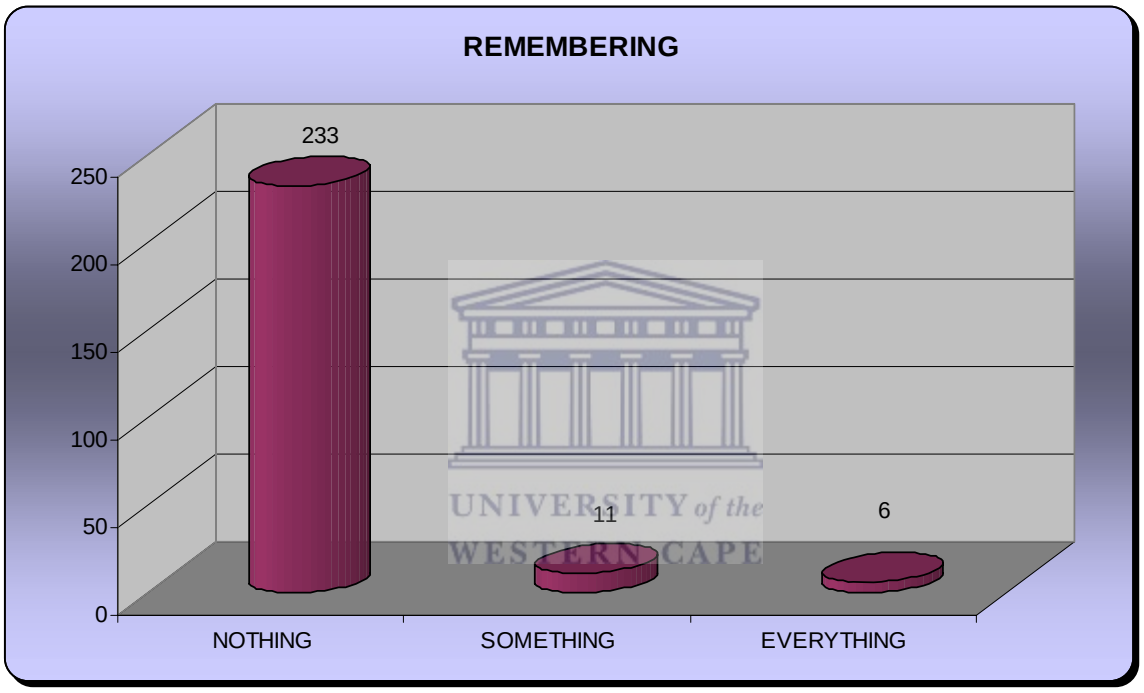

Fig. 103 Remembering.

Less than 5% is of the opinion that they will remember some detail, but not everything, and this is expectable for the patients if it doesn't include remembering any sensation of pain, most of them believe they will remember verbal commands.

The patients who have decided to have local anaesthetic only, will remember everything.

The amnesia effect of conscious sedation, is one of the major benefits for patients in dealing with their phobias regarding dental treatment.

6.6 Post Sedation.

The after effects is the least concern of the phobic patients.

92% of patients believe that they will be drowsy until the sedation drugs have worn off; only 5% think that they will be more than drowsy, even drunk but this will only last for a short time and will not leave recovery, until they feel just slightly drowsy.

Only one patient had said: “That being sick is a condition to be expected afterwards” and also added to this statement: “I am always sick after a general anaesthetic and think sedation must have the same effect”.

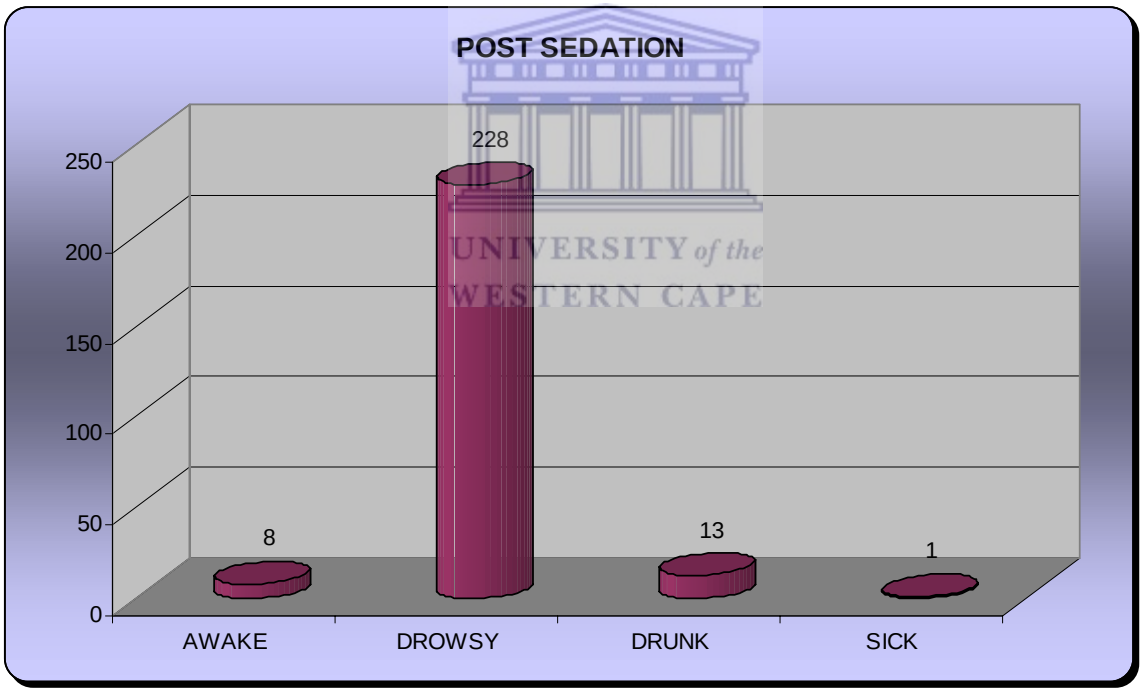

Fig. 104 Post Sedation.

Patients who had the local anaesthetic said, they will be awake. Less than 1% of sedated patients think they will be awake completely and can drive themselves home after a sedation.

6.7 Sedation Expectations

The majority of over 96% of patient would like to have a pleasant experience during their sedation appointment.

Patients, who had previous sedations, did point out that their previous experiences were pleasant and made them less nervous to have another sedation. They said that they will only have their dental treatment under sedation in future.

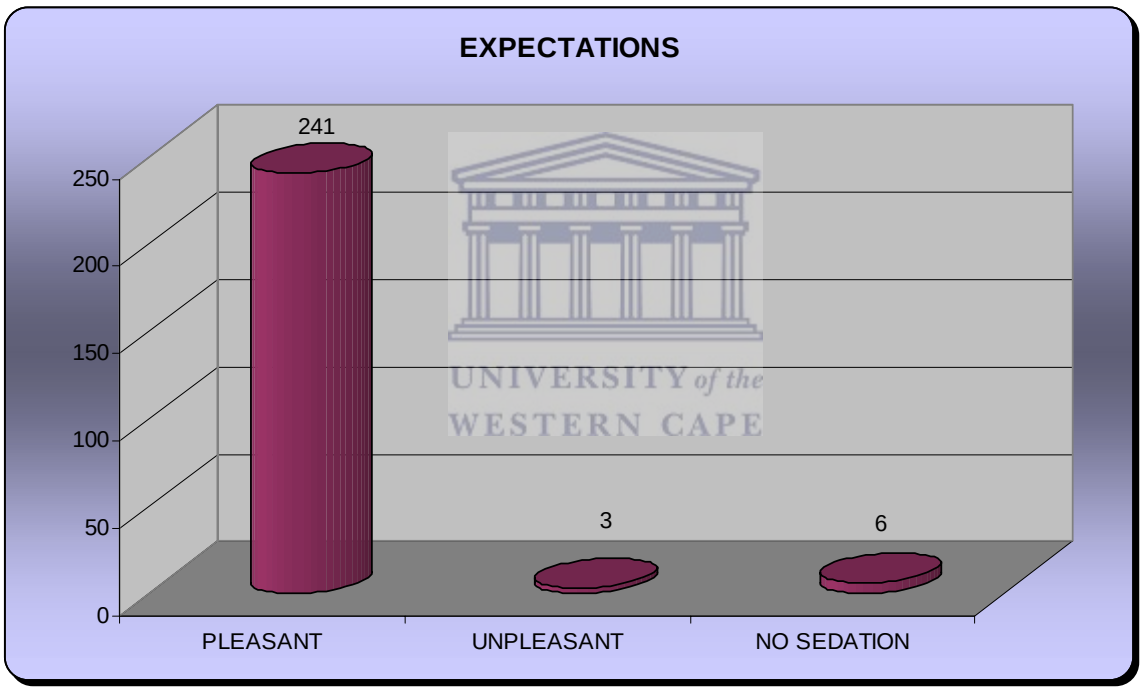

Fig. 105 Expectations.

Less than 1 % expected to have an unpleasant experience and they were patients that did prefer to have a general anaesthetic but change their decision after a discussion. They were sceptical about the sedation, but felt that they can't wait that long for a general anaesthetic appointment.

The patient that prefers the local, did not have any expectation.

IV. Point score.

In general there are no points to be scored for expectations.

Patients that insist to have only a general anaesthetic and are not prepared to compromise to a conscious sedation = 10 points.

CHAPTER 7

Point Score

I. Introduction.

I have taken all the previous chapters point scores together in this chapter, with the purpose to design a consultation assessment form. The aim of the form is to help in the decision making, of those patients is suitable for conscious sedation or not.

The points score, will work on the principle of, the fewer points the patient scored, the better candidate they will be for sedation. I have allocated a maximum point score for the total of 10 points. Any patient who accumulate 10 or more points in total over the entire form, are not suitable for sedation in a day clinic.

The points I have allocated to every aspect for consideration is of my own opinion, what the score for that specific category should be. I am aware their can be a difference of opinion on the weight of point allocations.

The form can act as a guideline to those patients who accumulated points in excess to the maximum points allowed. Consultation can be stopped at that stage without completing a full consultation and the patient can then be referred, on to a hospital setting for treatment.

This will help to make sedation safer and also save time during the consultation by not spending unnecessary time on a patient who is not going to be treated in a day clinic.

II. Data from point scores

A. Age point score:

- Age under 4 years = ---------- 10 points
- Age form 4 years to 4 years 6 months = ---------- 8 points
- Age form 4 years 6 months to 5 years =---------- 6 points
- Age form 5 years to 5 years 6 months = ---------- 4 points
- Age form 5 years 6 months to 6 years = ---------- 2 points
- Age form 6 years to 55 years =---------- 0 points
- Age form 55 years to 60 years =---------- 2 points
- Age form 60 years to 65 years =---------- 4 points
- Age form 65 years to 70 years =---------- 6 points
- Age form 70 years to 75 years =---------- 8 points
- Age form 75 years and older =---------- 9 points

B. Point scoring body data:

B.1 Points score for height:

- Over 100 cm =---------- 0 points
- Under 100 cm =---------- 10 points

B.2 Points score for weight in children only:

- Over 20 kg =---------- 0 points
- 18 +19 kg =---------- 2 points
- 17 kg =---------- 4 points
- 16 kg =---------- 6 points
- 15 kg =---------- 8 points
- 14 kg and under =---------- 10 points

B.3 BMI point scoring for children and teenagers:

- BMI-for-age equal or smaller than 5th percentile =-- 3 points
- BMI-for-age greater than 5th percentile but smaller than 85th percentile =---------- 0 points
- BMI-for-age greater than the 85th percentile but smaller than the 95th percentile =---------- 6 points
- BMI-for-age equal or greater than the 95th percentile =---------- 10 points

B.4 BMI point scoring for adults:

- BMI 18.5 and under =---------- 6 points
- BMI 18.5 to 24.9 =---------- 0 points
- BMI 25 to 29.9 =---------- 2 points
- BMI 30 to 34.9 =---------- 6 points
- BMI 35 to 39.9 =---------- 8 points
- BMI 40 and higher =---------- 10 points

OR USE

B.5 BMI Weight Status for point scoring, which is more accurate:

- BMI below 15 =---------- 8 points
- BMI 15 to 18.4 =---------- 6 points
- BMI 18.5 to 24.9 =---------- 0 points
- BMI 25 to 29.9 =---------- 1 point
- BMI 30 to 34.9 =---------- 4 points
- BMI 35 to 39.9 =---------- 7 points
- BMI over 40 =---------- 10 points

B.6 Point scoring system for obesity grade:

- Grade 0 =---------- 0 points
- Grade I =---------- 0 points
- Grade II =---------- 6 points
- Grade III =---------- 10 points

C. Point scoring for ASA:

- ASA I =---------- 0 points
- ASA II =---------- 5 points
- ASA III (mild) =---------- 7 points
- ASA III =---------- 9 points
- ASA IV =---------- 10 points
- ASA V +VI =---------- 10 points

D. Point scoring for ADS:

- No ADS =---------- 0 points
- ADS controlled and on medication =---------- 5 points
- ADS uncontrolled and on medication =---------- 8 points
- ADS not on medication =---------- 10 points

E. Point scoring for smoking:

- 0 -10 per day =---------- 0 points
- 11-20 per day =---------- 2 points
- 21-30 per day =---------- 4 points
- 31 plus per day =---------- 6 points

F. Point scoring for drug abuse:

- No drug use =---------- 0 points
- Herbal user =---------- 1 point
- Occasional or recreation user =---------- 4 points
- On Rehabilitation drugs =---------- 6 points
- Drug addict =---------- 8 points

G. Points scored for adverse reaction to IV or GA:

- No reaction =---------- 0 points
- Adverse reaction to IV =---------- 10 points
- Adverse reaction to GA =---------- 8 points

H. Point scoring for head shape:

- Oval =---------- 0 points
- Round =---------- 0 points
- Moderate deformity(Mild elongated) =---------- 6 points
- Sever deformity(Extreme elongated) =---------- 10 points

I. Point scoring for airway (nasal):

- Open =---------- 0 points
- Partly =---------- 4 points
- Closed =---------- 10 points
- Pathologic Difficult Airways =---------- 10 points
- Mask Airway Difficulties =---------- 5 points
- LEMON: i. No deviation =---------- 0 points
  ii. Mild deviation =---------- 4 points
  iii. Moderate deviation =---------- 7 points
  iv. Severe deviation =---------- 10 points

J. Point scoring for mouth opening

- 1 cm =---------- 9 points
- 2 cm =---------- 6 points
- 3 cm =---------- 0 points
- 4 + cm =---------- 0 points
- Total trismus =---------- 10 points

K. Mallampati point score

- Class 1 =---------- 0 points
- Class 2 =---------- 2 point
- Class 3 =---------- 4 points
- Class 4 =---------- 6 points

L. Point scoring for breathing

- nasal =---------- 0 points
- both nasal and mouth =---------- 2 points
- mouth(without skeletal/dental deformities) =---------- 8 points
- true mouth(with deformities) =---------- 10 points

M. Point scoring for sleep pattern

- normal =---------- 0 points
- snoring =---------- 4 points
- stuttering =---------- 8 points
- apnoea =---------- 10 points

N. Point scoring for tongue

- Micro =---------- 0 points
- Normal =---------- 0 points
- Macro =---------- 5 points

O. Point scoring for tonsils

- Small =---------- 0 points
- 2 normal =---------- 0 points
- large =---------- 5 points
- enormous (not touching) =---------- 8 points
- enormous (touching) =---------- 10 points
- removed =---------- 0 points

P. Point scoring for gag reflex

- Normal =---------- 0 points
- Active =---------- 3 points
- Severe =---------- 6 points
- Exstreme severe =---------- 10 points

Q. Point scoring for neck mobility

- Normal =---------- 0 points
- Restricted Flexion =---------- 5 points
- Restricted Extension =---------- 8 points

R. Point scoring for neck length

- short =---------- 4 points
- normal =---------- 0 points
- long =---------- 0 points

S. Point scoring for skeletal

- Class I =---------- 0 points
- Class II div 1(sever retrognathia) =---------- 6 points
- Cass II div 2(mild retrognathia) =---------- 4 points
- Class III =---------- 0 points

T. Point scoring of swelling/abscess

- Tongue =---------- 5 points
- Anterior Jaw =---------- 3 points
- Neck and Posterior Jaw=---------- 7 points
- None =---------- 0 points

U. Point scoring for other obstruction

- See the ASA classification for medical associated conditions
- Burn scaring nor interference =---------- 0 points
- Burn scaring with minor interference =---------- 3 points
- Burn scaring with major interference =---------- 10 points

V. The patients who are in the behavioural scale of 10, together with the severe apprehensive attending attitude, plus being uncooperative at the consultation, with no trust in the dentist =---------- 10 points

W. Patients that insist to have only a general anaesthetic and are not prepared to compromise to a conscious sedation =---------- 10 points

III. Discussion.

The allocation of point's value is self explanatory in the data table above. The numerical score number is my own allocation and it can be altered by different seditionists to their own ability and margin of safety which is acceptable to themselves. The perimeters for point score is not cast in iron but operator specific. The point score can also be adjusted according to where

the sedation is going to be done, for example: a dental surgery, dedicated day clinic or hospital setting.

Allocation of points to a specific category, one must bear in mind that there is an overlap in the categories and points allocated in one category, must be ignore in the next category, for example: BMI and BMI weight status and obesity grade. It is for the professional, doing the consultation, to decide which one of the options is going to be used. Please note that the obesity grade is not taken in consideration for the ASA classification.

I found that it was not always possible to use the same categories for all the patients. I have introduced options in order to give me some flexibility in the point allocations.

Points must always be allocated in the category where the highest points are scored, or where the weighted score, has got more influence on the sedation.

Where it is necessary, their must be differentiate between children and adults.

Use the dedicated boxes for point allocation and ignore the other boxes which are not relevant.

When there is no point score, one can either record a zero, or leave the box blank. I prefer to leave it blank, it made it easier for me to spot where entries has been made and helped me with the quick calculation of total points. Always refer to the data tables for point score values, before allocating a score for a specific category.

Note that there is only the maximum of 10 or zero in the phobic and expectation categories, as this is not a contra indication of sedation but rather an indication. The maximum is necessary, as these patients refuse participation in the sedation and we all are aware that without the patient's co-operation the sedation has failed even before it started.

VI. Point score form.

Table 17.

	Points for:	**points**		**Points for:**	**points**
A	Age		BI	Children Height	
B2	Children Weight		B3	BMI-for-age	
B4	BMI		B5	BMI Weight Status	
C	ASA		B6	Obesity Grade	
E	Smoking		D	ADS	
G	Adverse reaction IV + GA		F	Drug Abuse	
I	Nasal Airway		H	Head Shape	
K	Mallampati		J	Mouth Opening	
M	Sleep pattern		L	Breathing	
O	Tonsils		N	Tongue	
Q	Neck Mobility		P	Gag reflex	
S	Skeletal		R	Neck Length	
U	Obstruction		T	Swelling/Abscess	
W	Patient Expectation		V	Phobic aspects	
	SUB TOTAL			SUB TOTAL	
TOTAL					

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Criteria	Selection
Age	
Height	
Children and teenagers: Weight & BMI for Weight	
Adults: BMI & BMI for Weight & Obesity Grade	
ASA	
ADS	
Smoking	
Drug Abuse	
Adverse Reaction to IV & GA	
Head Shape	
Nasal Airway	
Mouth opening	
Mallampati	
Breathing	
Sleep pattern	
Tongue	
Tonsils	
Gag reflex	
Neck mobility	
Neck Length	
Skeletal	
Swelling / Abcess	
Obstruction / Burn scarring	
Phobic patients, apprehensive/uncoopperative/No trust	
Patient expectation / only want GA & not compromising	

Final score not to exceed 10 SCORE