NHS Greater Glasgow & Clyde
Oral Health Directorate

Needle Desensitisation (combined with advanced management strategies) for dental phobia in Paediatric Dentistry

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Produced by: Clinical Effectiveness Department, Royal Hospital for Sick Children

SECTION 1 PROJECT BACKGROUND

Phobic paediatric dental patients are a challenging group of children and adolescents to care for. A variety of management strategies are employed within the department of paediatric dentistry to help these children cope with dental treatment. However, phobia resolution and a future positive outlook towards dental treatment is a fundamental aim of treatment too.

Pharmacological options including inhalation sedation or intravenous sedation are not always helpful for the information seeking dentally phobic patient. In some cases, the information seeking patient requires to be taught coping strategies in the form of relaxation exercises, hypnosis and further information on anxiety aetiology (cognitive behavioural therapy-CBT) and what dental treatment involves e.g. needle desensitisation (ND). Patients who present with extreme dental phobia (maybe due to previous difficult dental/medical care) or have generalised fears and phobia (of which dentistry happens to be one) also benefit from treatment by psychology teams both in primary and secondary care (CAHMS).

Having a detailed profile of patients for which needle desensitisation is effective will allow more effective allocation of phobic patients to utilising this management strategy. Similarly, having a profile of patients for whom alternative anxiety management strategies are likely to be required will mean less time is allocated to ND where it may not be effective. Establishing effectiveness of the clinical psychology service may indicate that referral to these sources could be made earlier in the child's journey of care. Any changes that occur as a result of this project may make a huge difference in the patient journey and ensuring the Department of Paediatric Dentistry is working further towards patient centred care.

SECTION 2 IMPROVEMENT AIMS

1. To investigate the profile of paediatric patients for which needle desensitisation (ND) is an effective method for controlling dental phobia.

2. To investigate additional methods employed to help treat dental phobia when needle desensitisation has not been effective.

3. To evaluate the effectiveness and engagement of patients with clinical psychology service(s) for managing dental phobia including needle phobia in patients where other treatment strategies including needle desensitisation is not effective or requires adjunctive care.

SECTION 3 METHODOLOGY

30 case notes of dentally phobic paediatric patients, treated in GDH over a 18 month period, whose dental phobia was managed in the first instance by needle desensitisation were requested. 24 case notes were reviewed with case notes for 6 patients unavailable due to ongoing care.

A data collection form (please see Appendix 1) was completed for each patient to determine patient age, gender, ASA class, modified child dental anxiety scale faces version (MCDASF) score at start of treatment (indicating phobia). Anxiety aetiology and coping mechanism (information seeker/blunter) for patient were looked for in the notes. Socieconmic status and caries risk were noted. Whether ND and or CBT and or the WAND STA system and or clinical psychology services were required were also documented. For this project engagement with and effectiveness of the psychology service was determined by treatment completion and communication from psychology colleagues. Post treatment MCDASf scores were looked for in patient notes also.

The project was given approval by the clinical effectiveness committee GDH & S in October 2014 and was completed in February 2015. The data collection sheet results were then input into an excel

spreadsheet and analysed. All notes which were available were scrutinised for the information required.

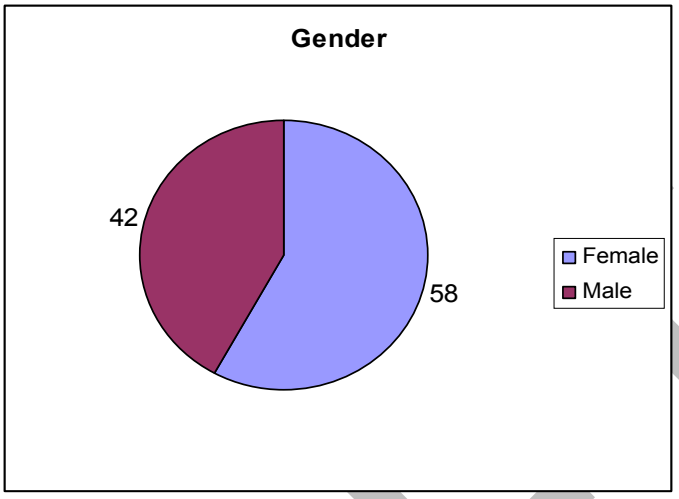
Data collection was undertaken by CS during the above time frame over a number of data collection sessions (after an afternoon of discussion with CC on how this should be undertaken). The data available for the study was retrospective and so limited by what was already in patient notes. The psychology effectiveness was limited by communication from psychology colleagues. As mentioned, unfortunately there is no prospective database of anxious patients where information could be drawn from and so the sample size for the project is small and should be viewed as a pilot survey for future study.

SECTION 4 RESULTS AND DISCUSSION

Twenty four cases were audited.

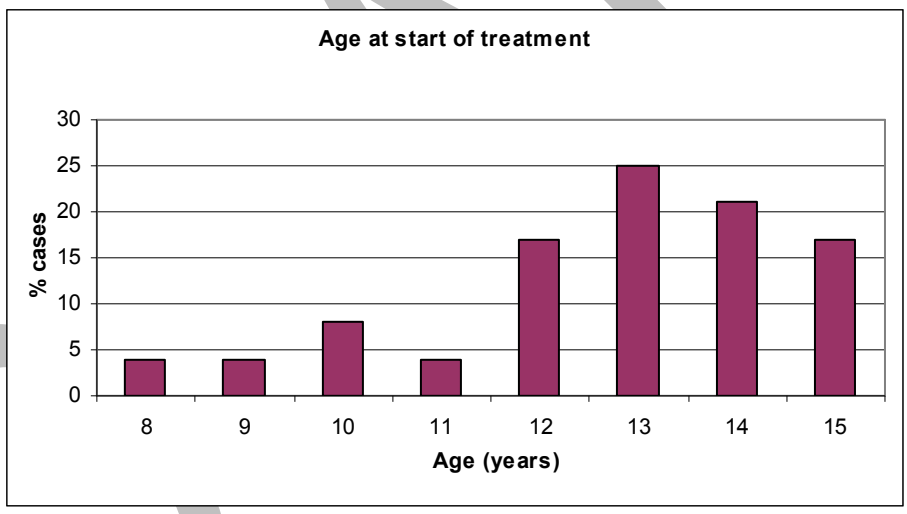
General demographics and history

Gender:



n = 24

Age:



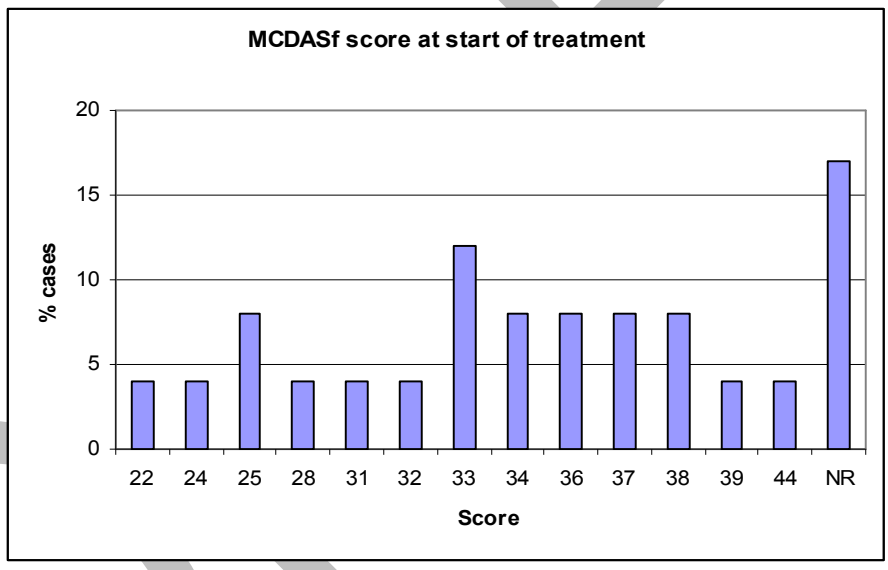
n = 24

Median age - 13

MCDASf Score:

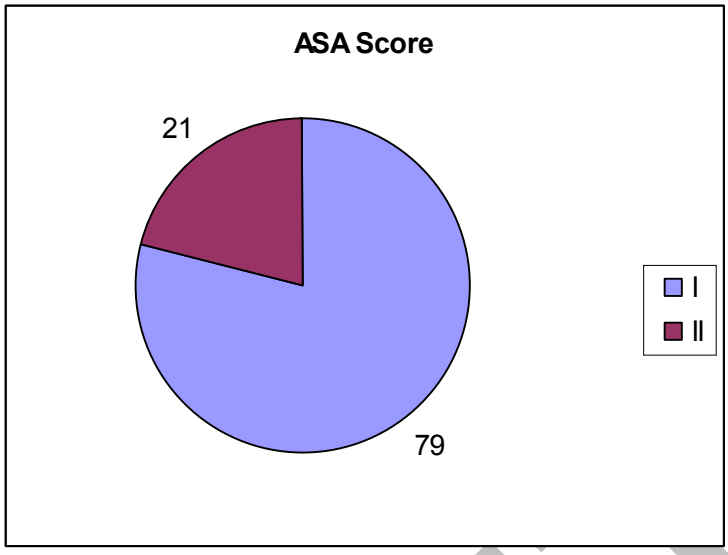
MCDASf score at start of treatment	No of cases	% of cases
22	1	4
24	1	4
25	2	8
28	1	4
31	1	4
32	1	4
33	3	12
34	2	8
36	2	8
37	2	8
38	2	8
39	1	4
44	1	4
NR	4	17

n = 24



Median Score: 33.5

ASA Score:

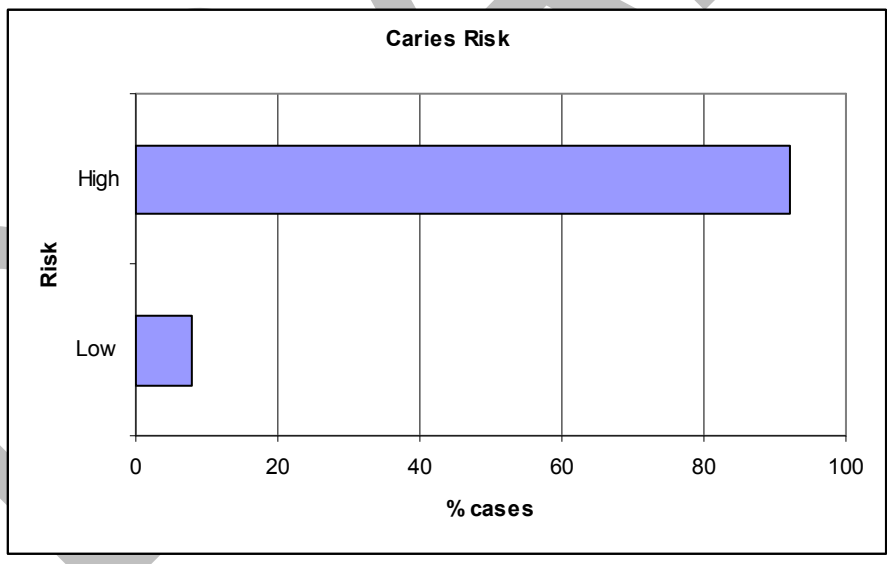


n = 24

Caries Risk:

Risk	No of cases	% of cases
High	22	92
Low	2	8

n = 24



Information seeker or blunter:

Response	No of cases	% of cases
Seeker	6	25
Not recorded	18	75

n = 24

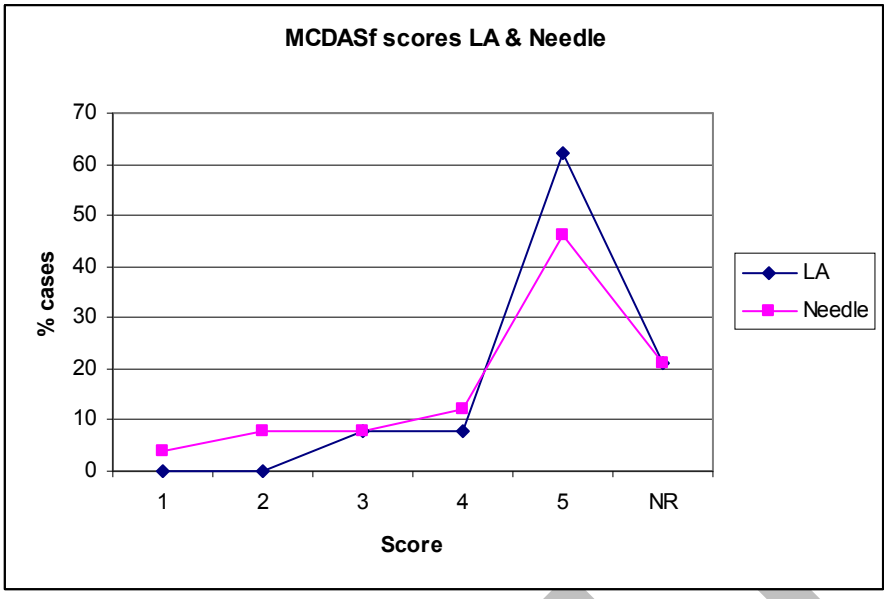
Total MCDASf scores plus those for LA and Needle in the back of the hand:

MCDASf score at start of treatment (out of 45)	MCDASf score for dental LA	MCDASf score for needle in back of hand
22	3	2
24	4	4
25	5	1
25	3	4
28	6	2
31	5	5
32	5	5
33	5	3
33	4	5
33	5	3
34	5	4
34	5	5
36	NR	5
36	5	5
37	5	5
37	5	5
38	5	5
38	5	5
39	5	5
44	5	NR

MCDASf scores for LA and Needle in the back of the hand:

Score	LA %	Needle %
1	0	4
2	0	8
3	8	8
4	8	12
5	62	46
NR	21	21
Median	5	5

n = 24



Anxiety due to past **dental** experiences:

Response	No of cases	% of patients
Yes	6	25
No	8	33
Not recorded	10	42

n = 24

Anxiety due to past **medical** experiences:

Response	No of cases	% of patients
Yes	8	33
No	5	21
Not recorded	11	46

n = 24

Patients treated with needle desensitisation

Thirteen patients (13/24) (54%) were treated with needle desensitisation (success rate (7/12, 1 ongoing) 58%).

Was needle desensitisation effective in the treatment of anxiety?

Response	No of cases	% of patients
Yes	7	54
No	5	38
Ongoing	1	8

n = 13

Was there a subsequent referral to clinical psychology?

Response	No of cases	% of patients
Yes	6	46
Ongoing	1	8
Not applicable	6	46

n = 13

Were relaxation exercises taught?

Response	No of cases	% of patients
Yes	12	92
No	1	8

n = 13

How many relaxation sessions were required?

Number of sessions	No of cases	% of patients
1	3	25
2	4	33
3	2	17
4	2	17
5	0	0
6	1	8
Ongoing	1	8

n = 12

Did patient come alone to most appointments?

Response	No of cases	% of patients
No	5	38
Not recorded	8	61

n = 13

Were other methods used?

Method	Yes %	No %	Ongoing %
Wand	61	38	0
Hypnosis	38	61	0
CBT	31	61	8

n = 13

Patients treated with clinical psychology

Ten patients were referred to clinical psychology 10/24 (42%), success rate 4/7 (57%), 3 ongoing

Was needle desensitisation attempted before referral?

Response	No of cases	% of patients
Yes	6	60
No	4	40

n = 10

Was clinical psychology effective in treating anxiety?

Response	No of cases	% of patients
Yes	4	40
No	3	30
Ongoing	3	30

n = 10

Did patient attend all appointments with Clinical Psychology Service?

Response	No of cases	% of patients
No	4	40
Ongoing	3	30
Not recorded	3	30

n = 10

Did psychologist attend dental treatment?

Response	No of cases	% of patients
Yes	2	20
Ongoing	3	30
No	5	50

n = 10

Patients treated with the Single Tooth Anaesthetic System (STAS or 'wand)

Sixteen patients 16/24 were treated with the 'wand' (67%). Success rate 100%

Were relaxation exercises taught?

Response	No of cases	% of patients
Yes	14	87
No	2	12

n = 16

Was needle desensitisation used?

Response	No of cases	% of patients
Yes	8	50
No	8	50

n = 16

Was hypnosis used?

Response	No of cases	% of patients
Yes	6	37
No	10	62

n = 16

Was CBT used?

Response	No of cases	% of patients
Yes	3	19
Ongoing	1	6
No	12	75

n = 16

Was the patient referred to Clinical Psychology Service?

Response	No of cases	% of patients
Yes	4	25
Ongoing	1	6
No	11	69

n = 16

SECTION 5 CONCLUSION AGAINST IMPROVEMENT AIMS

1. **To investigate the profile of paediatric patients for which needle desensitisation (ND) is an effective method for controlling dental phobia.**

   A profile of patients for which ND is effective has been difficult to propose due to the small sample size, as many attributes did not appear to contribute to the success or failure of treatment.

   From the thirteen children offered ND there is no clear age or gender where this has a better success rate. ND can be effective in information seeking phobic children and can be effective when used with CBT and also using the WAND STA system. From the small sample taken this technique has a 58% success rate in needle phobic children (92% were taught relaxation as part of this process). The children who do not complete the ND process may require other management strategies including psychology input (6 children).

   Psychology referral can be instigated when the decision to treat with ND was undertaken. If ND was not successful children were offered a referral to psychology services to gain further insight into their dental/needle phobia.

2. **To investigate additional methods employed to help treat dental phobia when needle desensitisation has not been effective or started.**

   Sixteen children were offered a combined approach with the WAND STA system which appears to be successful with CBT (19%) and relaxation (87%) helping children accept treatment. Hypnosis (37%) and ND (50%) appears also to help children having injections using the WAND. All children (100%) offered the WAND STA system at the assessment visit coped with this style of injection when offered. A quarter of patients (4) received treatment with the WAND following engagement with the clinical psychology service.

3. **To evaluate the effectiveness and engagement of patients with clinical psychology service(s) for managing dental phobia including needle phobia in patients where other treatment strategies including needle desensitisation is not effective or the patient requires adjunctive care.**

   From this pilot group ten children were referred to clinical psychology with 60% referred as dental treatment was not completed and 40% referred as an initial treatment option.

   From this sample 40% completed treatment 30% did not complete treatment or failed to engage with the psychology services and in 30% treatment is ongoing. Although attendance or lack of may not always be communicated back to referrer 40% of patients do not attend all appointments. Half of patients benefitted from the psychologist attending the dental clinic or dental appointments.

   57% of subjects referred to clinical psychology after unsuccessful ND were able to manage their anxiety to tolerate an intraoral injection. This shows that ND works well in conjunction with the psychology service, and so it is important that clinicians managing dental anxiety are aware of this service and the great benefit that it can provide over standard dental chairside management of anxiety alone.

SECTION 6 NEXT STEPS

1. Implementation of a standard assessment sheets in GDH & S for anxious patients in the pre-sedation assessment clinics and other paediatric clinics where management of anxiety will form a part of a patient's treatment plan. Please see Appendix 2. This will ensure all patients benefit from a comprehensive assessment of their dental anxiety.

2. Create a database of patients who are receiving non pharmacological care for dental phobia using ND, CBT, The WAND STA, Relaxation and hypnosis

3. Repeat this audit using a prospective data base with a larger sample from which conclusions may be drawn. This may indicate where the effectiveness of the service can be improved.

4. Liaise further with the psychology teams to discuss joint care of dentally phobic children and adolescents and how engagement with this service could be improved.

SECTION 7 ACKNOWLEDGEMENTS

Many thanks to Susan Harvey for her help in collating the results section for this report and medical records department for arranging access to the patients notes.

SECTION 8 REFERENCES

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SECTION 9 APPENDIX 1

NEEDLE DESENSITISATION AUDIT FORM **Patient Number**

A retrospective audit regarding treatment of dental anxiety with needle desensitisation (ND) and referral to the clinical psychology service in patients for whom needle desensitisation was not effective.

Gender	M	F		
Age of patient at start of treatment	_____			
MCDASf Score at Start of Treatment	_____			
ASA Classification	I	II	III	IV

Needle Desensitisation and Patient Profile

Was ND effective in treating anxiety?	Y	N	
How many sessions of ND were required?	_____		
Caries risk of patient	L	M	H
Socioeconomic status of patient	L	M	H
Did the patient come into the surgery alone for most appointments?	Y	N	
Was the patient's anxiety due to a traumatic past dental experience?	Y	N	
Was the patient's anxiety due to a traumatic past medical experience?	Y	N	
Other reason, please specify……..			

Additional Methods Employed

Was the wand used in conjunction with ND?	Y	N
Was hypnosis used in conjunction with ND?	Y	N
Was CBT used in conjunction with ND?	Y	N

Clinical Psychology Service

Was the patient referred to the clinical psychology Service?	Y	N
Did the patient attend all appointments at the clinical psychology service?	Y	N
Was the service effective in treating anxiety?	Y	N
What treatment strategy did they use……..		
Did the psychologist attend dental treatment sessions	Y	N
MCDASf Score at End of Treatment	_____	

Dental Anxiety Assessment Record **APPENDIX 2**

Patient Details/Sticker

Date / / 20

Name M/F

CHI

Address

MCDASf at assessment /45

MCDASf (Injection in mouth) /5

MCDASf (Cannula in hand) /5

Age Weight /Kg ASA 1 2 3

Caries Assessment Risk LOW HIGH

Anxiety Aetiology

Previous Medical Experience ☐ Details

Previous Dental Experience ☐ Details

Generalised Anxiety ☐ Details

Parental/Family Dental Fear ☐ Details

Fear of the Unknown ☐ Details

Other ☐ Details

Information Style

Seeker ☐ Blunter ☐

Treatment Options (more than one may be appropriate)

Blunter/Seeker

WAND ☐

Inhalation Sedation ☐

Intravenous Sedation ☐

Relaxation ☐

Needle Desensitisation with Relaxation ☐

Relaxation with Hypnosis ☐

CBT ☐

Psychology Referral ☐

MCDASf at Teatment Completion /45

MCDASf (Injection in mouth) /5

MCDASf (Cannula in hand) /5