Dental input into the CRANE Database

For Cleft Care Scotland (CCS) Annual Education Event: Multidisciplinary Cleft Care – The Dental Specialties

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24 November2022

Background - CRANE

- Cleft Registry and Audit Network (CRANE) Database
- Registry of live births since 2000
  - For England, Wales, Northern Ireland and Scotland
  - Almost 23,000 registrations to date
- Since 2004: Audit of child growth, dental health, facial growth, speech and psychology outcomes

Contents

1. Collaborating with the Dental CEN since 2011*
2. Key points about Dental Outcomes reporting
3. Database developments
4. Impact of patient factors on dental health outcomes of cleft care at 5 years of age
5. Your input

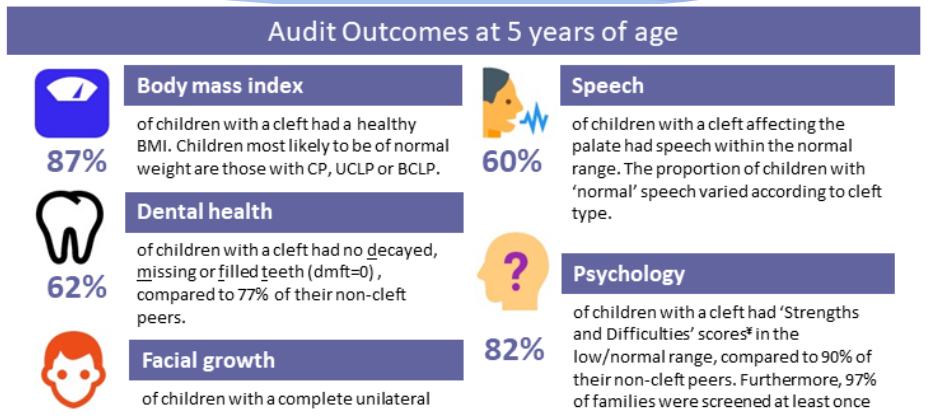
1. Collaborating with the Dental CEN - dental health outcomes

Decayed (d), missing (m) and filled (f) teeth (dmft)

- dmft>0 - experience of dental decay — 2011* – 5 years of age
- dmft>5 - extensive dental decay — 2020 (5 yrs)
- Treatment index – (m + f) / dmft — 2014 (5 yrs)
- Care index – f / dmft — 2015 (5 yrs)
  - 100% is the desirable outcome

1. Collaborating with the Dental CEN - reporting

- Annual Report – main output
- May 2016 – live tables, data completeness
- Dec 2017 – expanded outputs to include
  - patient summary and Infographic
- Dec 2019 – at 10 years (07-08 births)
  - Summary since
- Dec 2020 – all available years (10 yrs)
- Dec 2021 – outlier policy
  - three years (rolling) + 1 year summary



Audit Outcomes at 5 years of age

Body mass index

87%

of children with a cleft had a healthy BMI. Children most likely to be of normal weight are those with CP, UCLP or BCLP.

Dental health

62%

of children with a cleft had no decayed, missing or filled teeth (dmft=0), compared to 77% of their non-cleft peers.

Facial growth

of children with a complete unilateral

Speech

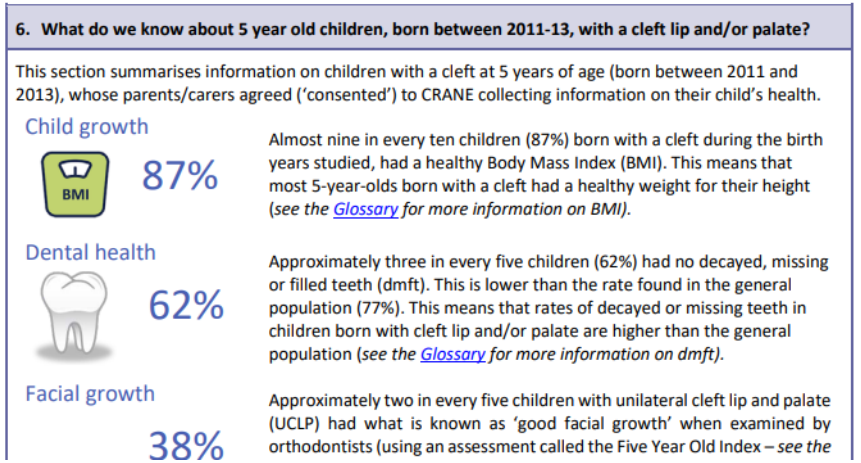
60%

of children with a cleft affecting the palate had speech within the normal range. The proportion of children with 'normal' speech varied according to cleft type.

Psychology

82%

of children with a cleft had 'Strengths and Difficulties' scores[¥] in the low/normal range, compared to 90% of their non-cleft peers. Furthermore, 97% of families were screened at least once [i] 6.



6. What do we know about 5 year old children, born between 2011-13, with a cleft lip and/or palate?

This section summarises information on children with a cleft at 5 years of age (born between 2011 and 2013), whose parents/carers agreed ('consented') to CRANE collecting information on their child's health.

Child growth

BMI 87%

Almost nine in every ten children (87%) born with a cleft during the birth years studied, had a healthy Body Mass Index (BMI). This means that most 5-year-olds born with a cleft had a healthy weight for their height (*see the Glossary for more information on BMI).*

Dental health

62%

Approximately three in every five children (62%) had no decayed, missing or filled teeth (dmft). This is lower than the rate found in the general population (77%). This means that rates of decayed or missing teeth in children born with cleft lip and/or palate are higher than the general population (*see the Glossary for more information on dmft).*

Facial growth

38%

Approximately two in every five children with unilateral cleft lip and palate (UCLP) had what is known as 'good facial growth' when examined by orthodontists (using an assessment called the Five Year Old Index – *see the*

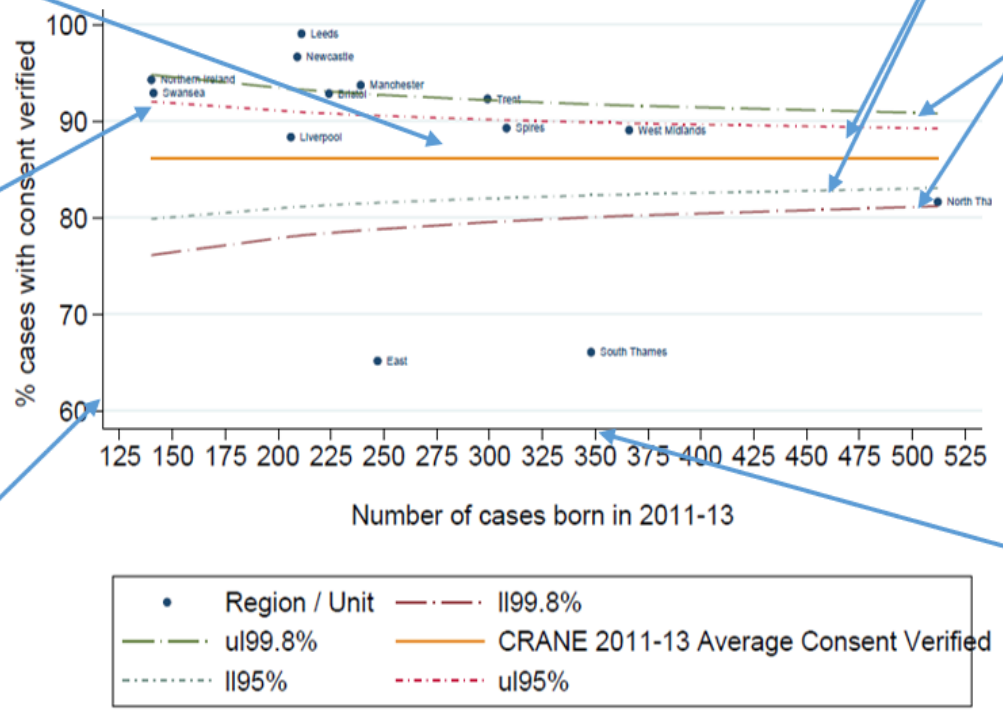
2. Dental Outcomes reporting - indicators

- Completeness
- dmft>0 - experience of dental decay
- dmft>5 - extensive dental decay
- Treatment index
- Care index

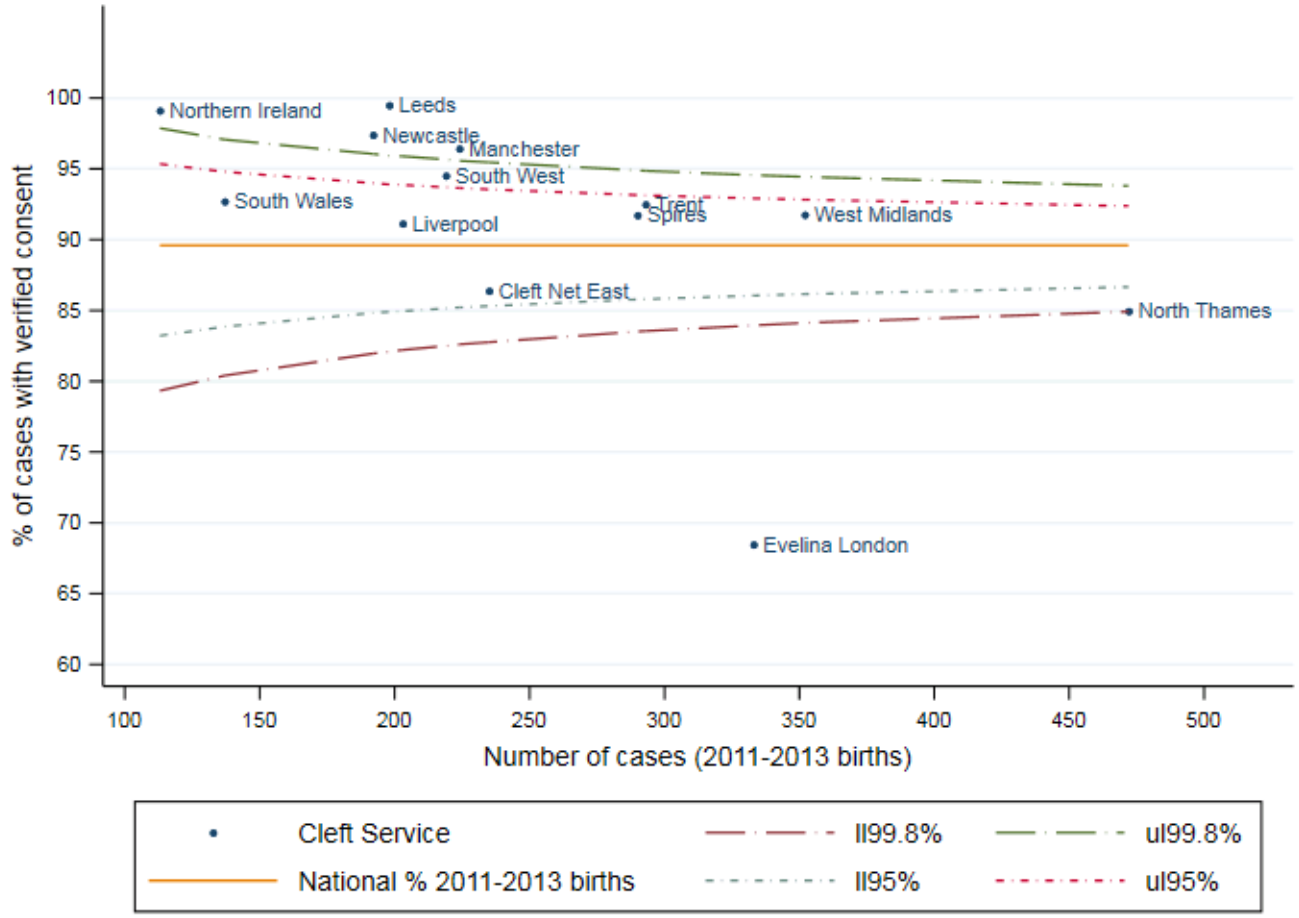
Outcomes / Treatment: Dental	A : O	7	Dental decay at 5 years of age	All consented children, without submucous cleft palates, alive at the age of 5 years – with dental health data	Patients with at least one dmft (dmft >0) at 5 years of age	
Outcomes / Treatment: Dental	A : O	8	Dental treatment index at 5 years of age	All consented children, without submucous cleft palates, alive at the age of 5 years – with dental health data	Patients with treatment indices of 1 (no untreated disease) at 5 years of age	Mirrors CLP06: % of 5 year old children with CLP, who have had a treatment index recorded by a calibrated paediatric dentist (dmft scores)

Interpreting funnel plots

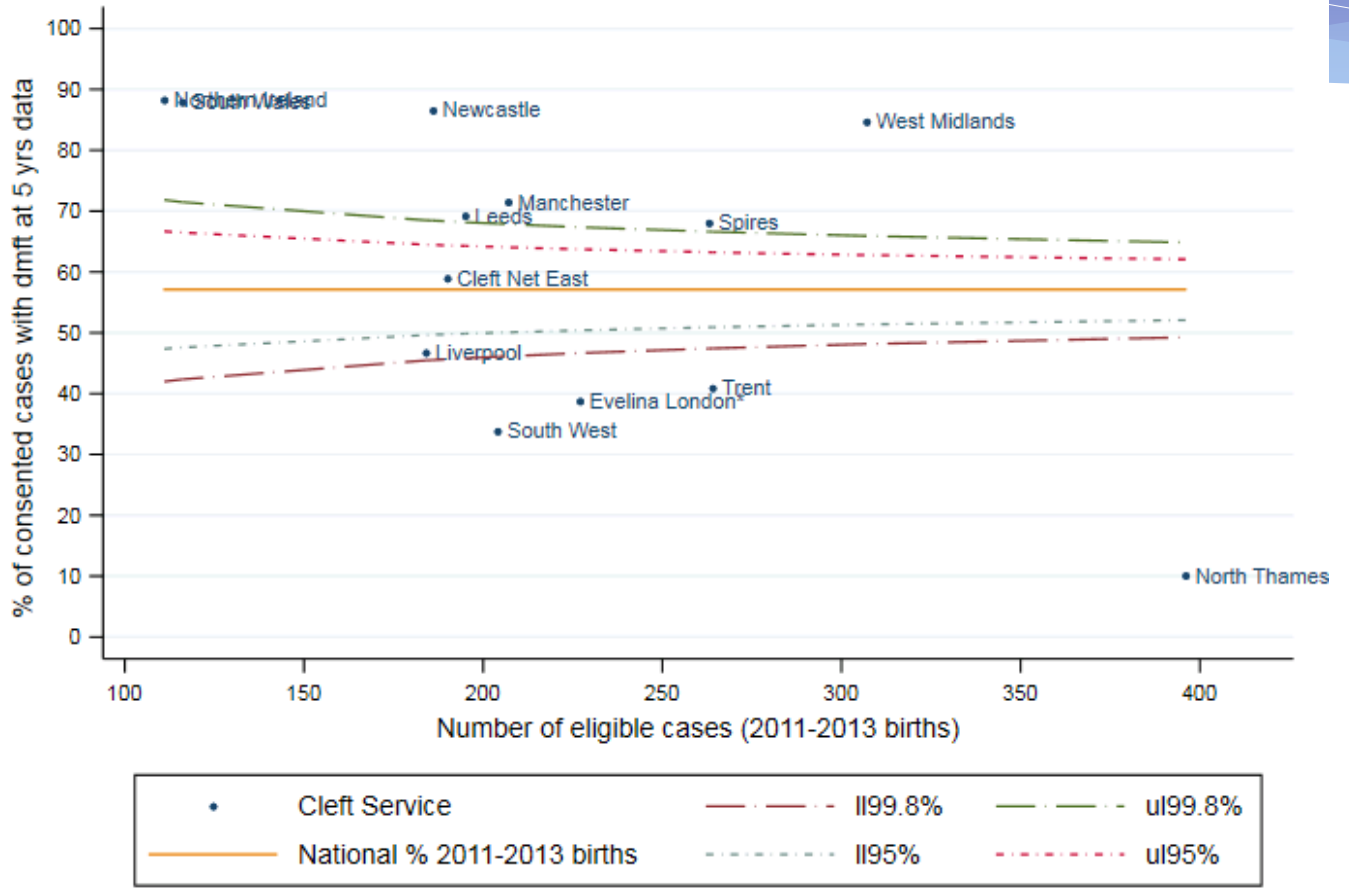
- The overall national percentage is shown as a horizontal line through the centre of the graph
- Each point on the funnel plot represents a region / unit
- Each funnel plot is for one outcome, with its values shown on the vertical/Y axis
- The graph shows two funnels that lie on either side of the benchmark and are called the control limits – similar to confidence intervals – that fall either side of the overall percentage
- Inner lines show two standard deviations or 95% control limits
- Outer lines represent three standard deviations or 99.8% control limits
- The funnel shape is formed because the control limits get narrower as the total number of patients in an organisation increases
- The size of the teams' cohort is shown on the horizontal or X axis



Consent 2021 report (2011-13 births)

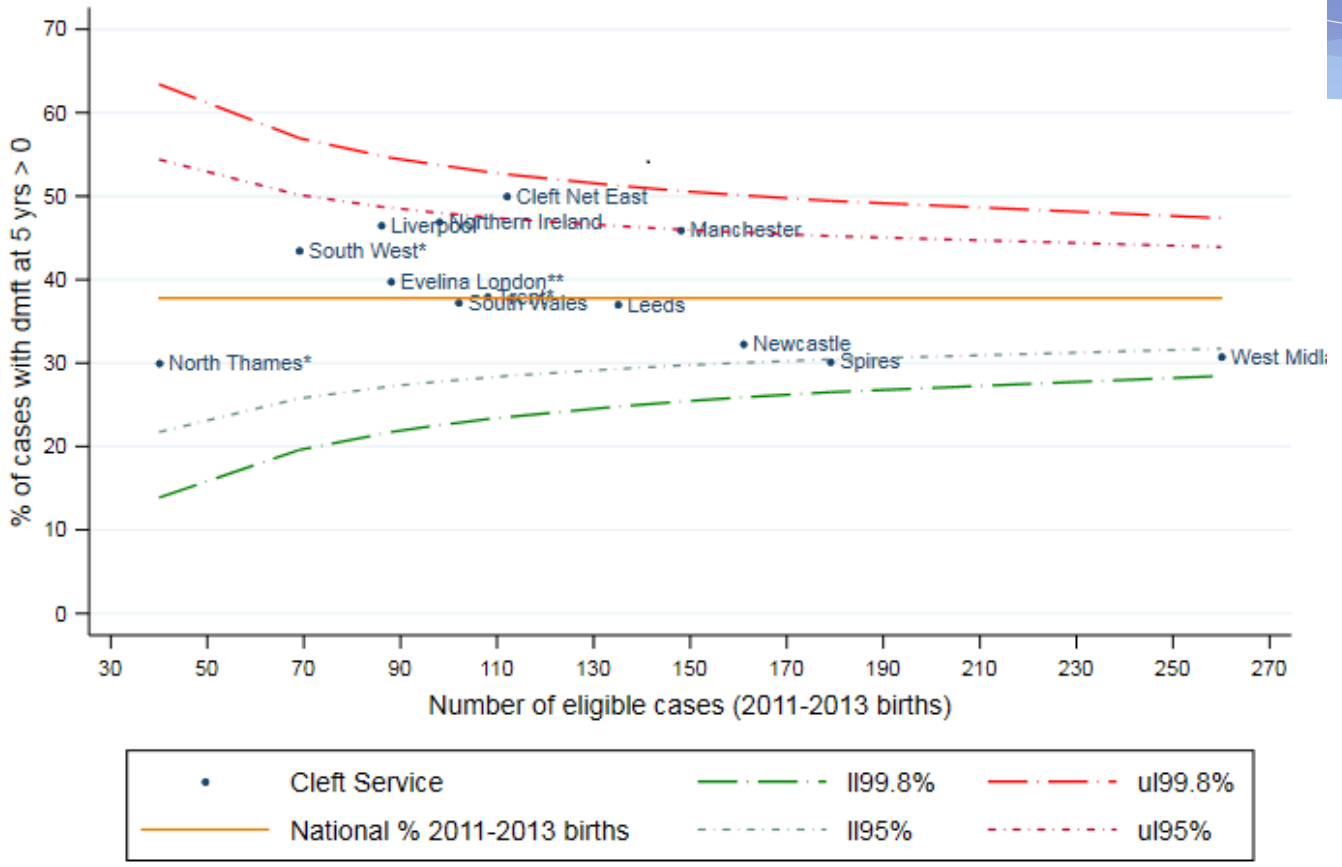


Dental comp 2021



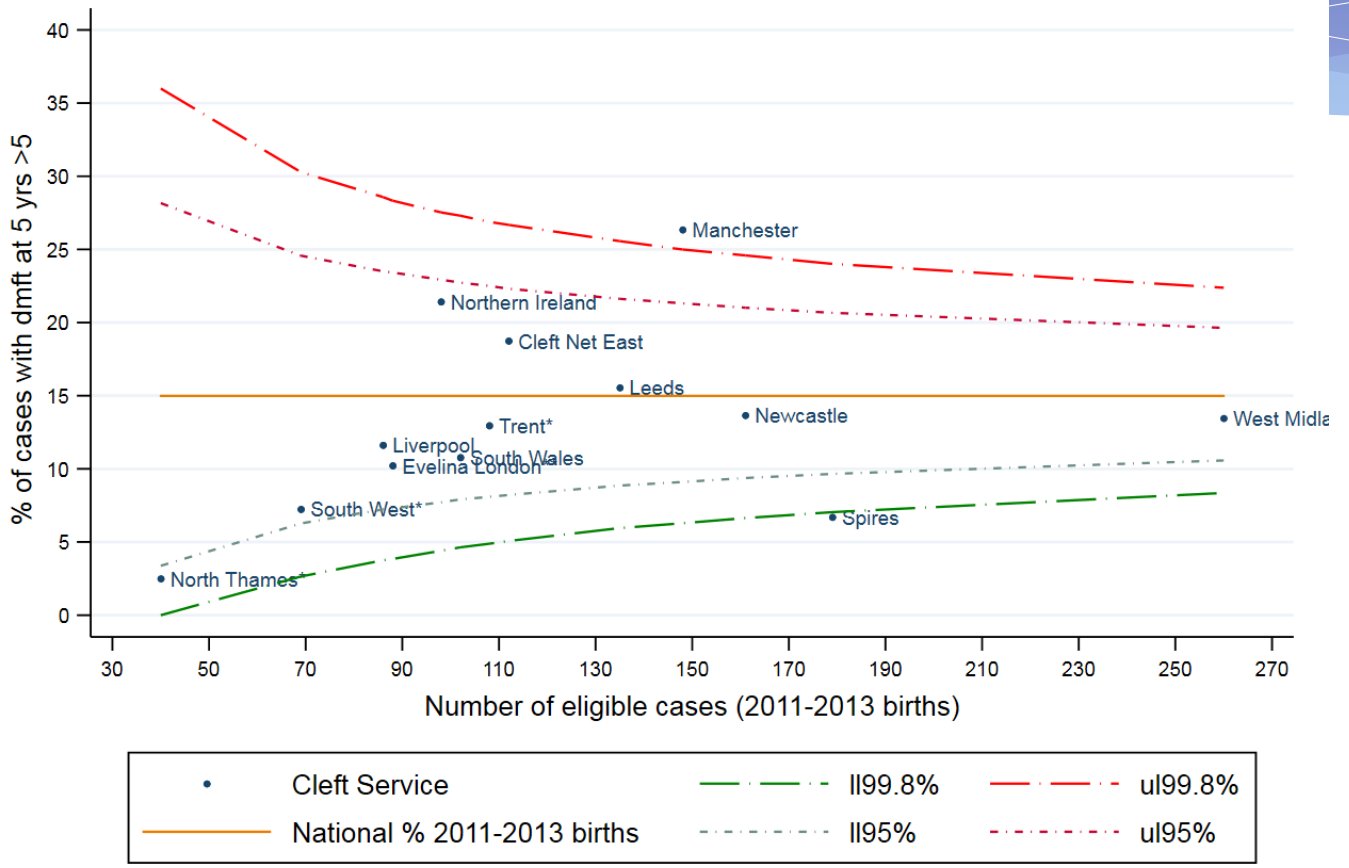
Note: Data from Evelina London was not used to create funnel plot due to poor consent rate.

dmft >0 2021



Note 1: Data from Evelina London was not used to create funnel plot due to poor consent verification rate.
Note 2: Data from Trent, N Thames, S West & Evelina were not used to create funnel plot due to poor data completion rates.

dmft >5 2021



Note 1: Data from Evelina London was not used to create funnel plot due to poor consent verification rate.
Note 2: Data from Trent, N Thames, S West & Evelina were not used to create funnel plot due to poor data completion rates.

Reporting 2022 and 2023

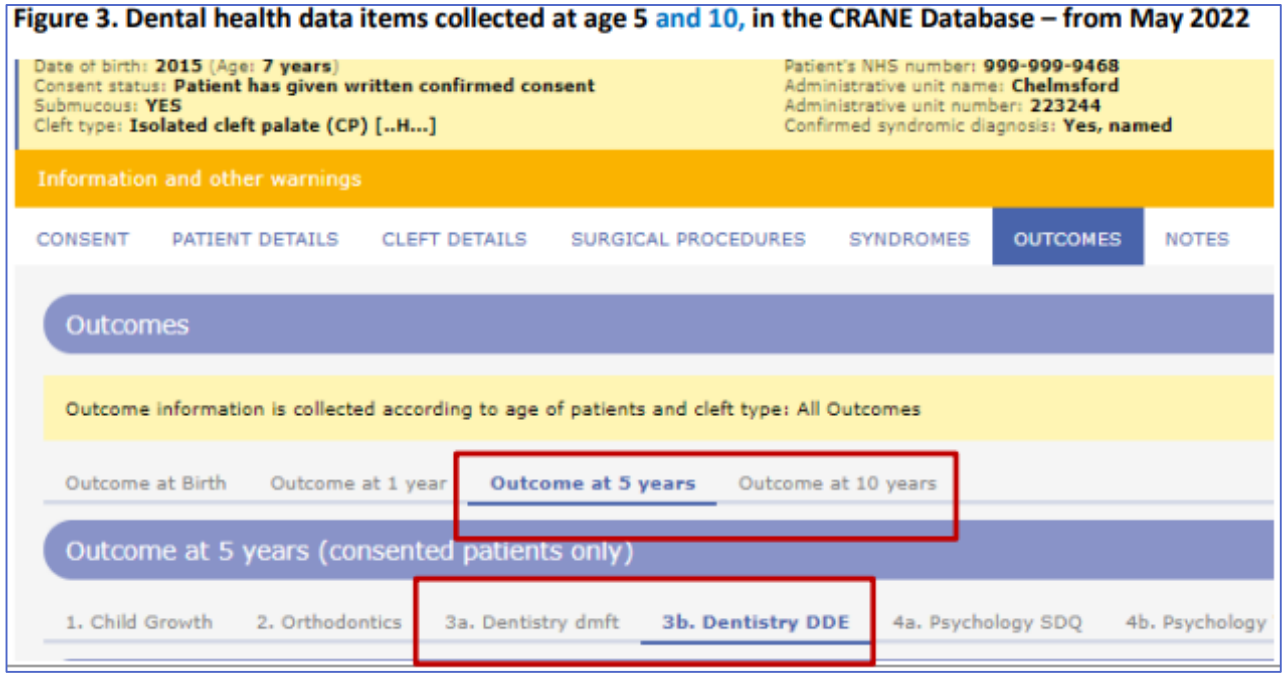
- CRANE website – 9 December 2022
  - Patient summary and Infographic
- Quality Monitoring and Improvement Committee of CDG

Suggestions please

- to help improve the Annual Report for your contributions and specialties
- learning from other audits, and
- communications (social media)

3. Database developments

- Summer 2015 – new Database
- May 2016 – 10 years
- Jul 2022 – started collecting Developmental Defects of Enamel (DDE), guide
- Import / Export function – interoperability



Demo System

4. Impact of patient factors on dental health outcomes of cleft care at 5 years of age

- Children with an orofacial cleft are recognised to be at increased risk of developing dental caries
- Evidence is limited on the patient factors associated with caries risk and treatment among children with a cleft
- Inform risk adjustment work

Patient factors

- Sex

- Cleft type

- Ethnicity

- Socio-economic deprivation

Method

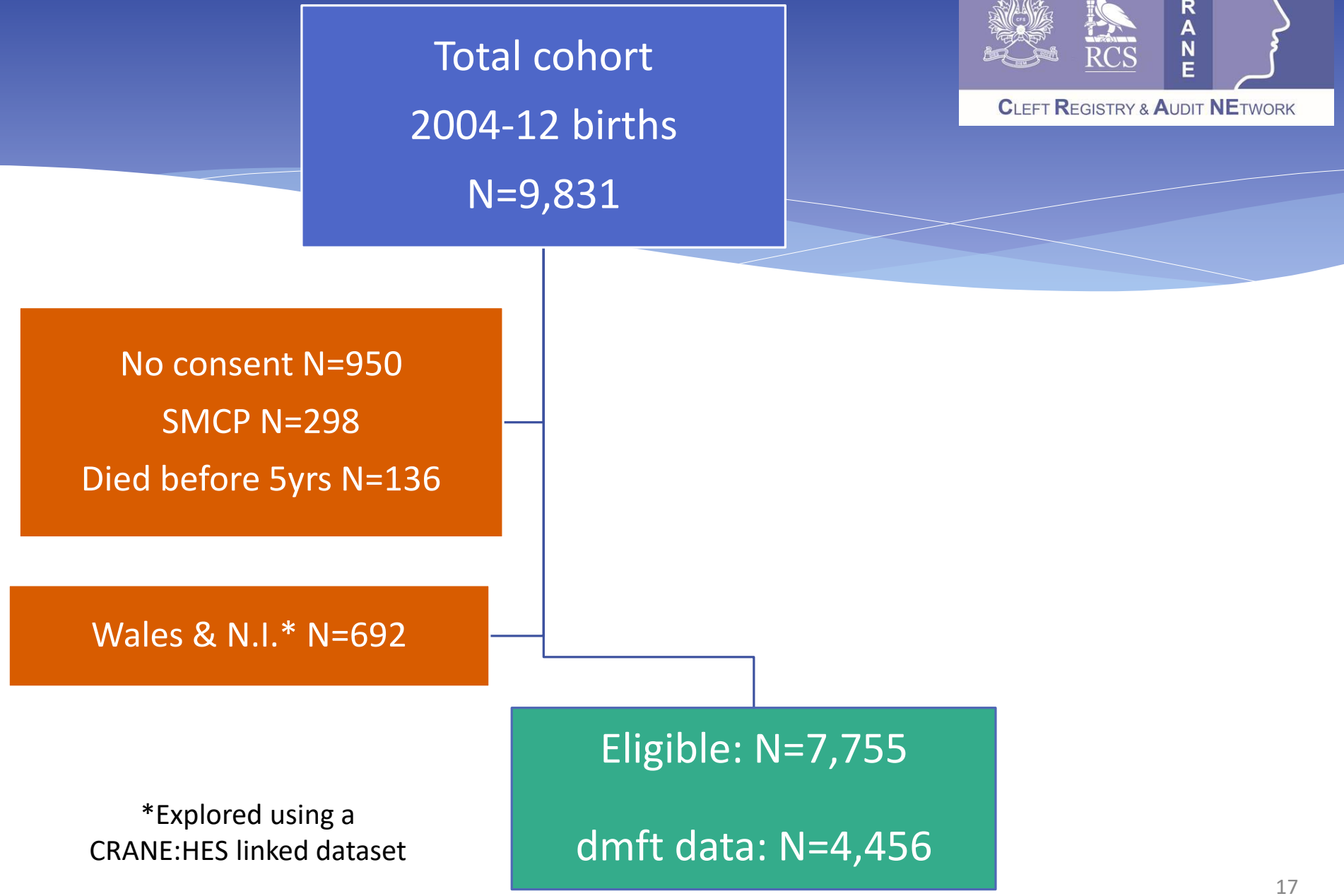
- The CRANE Database linked to Hospital Episode Statistics (HES) data from NHS Digital

Cohort

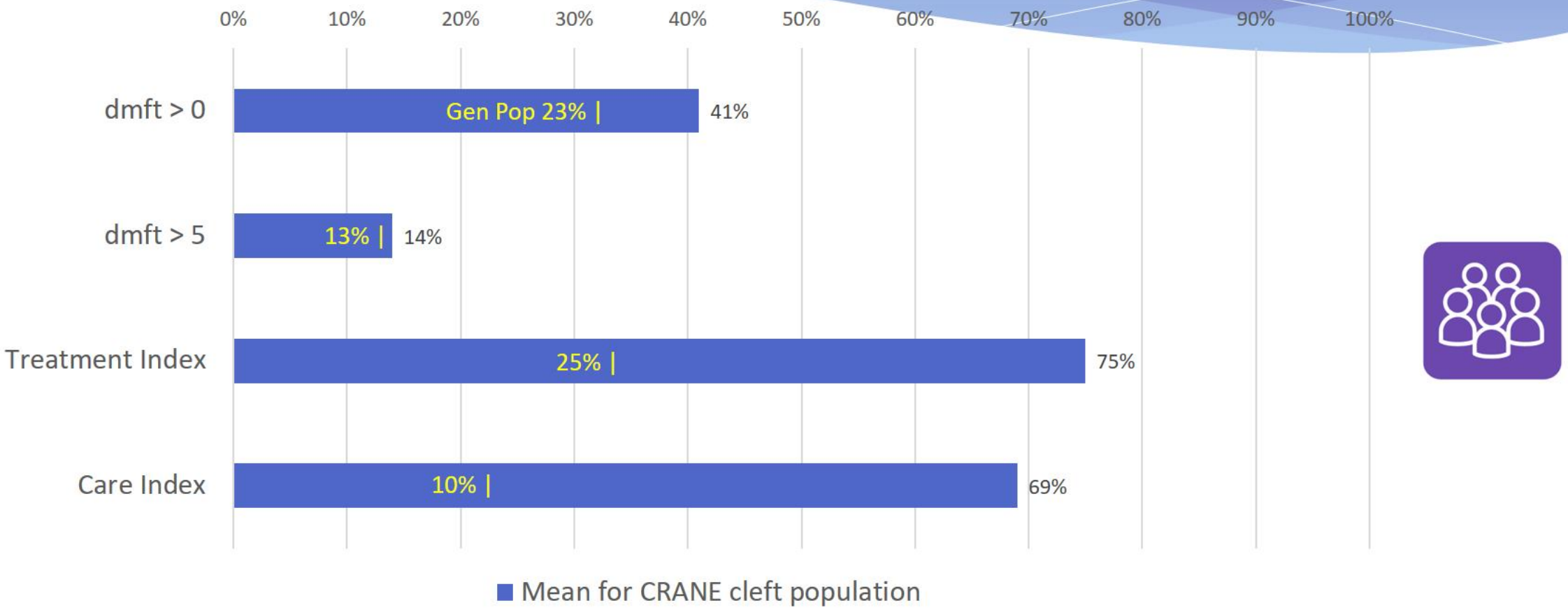
- 2004-12 births (9 years)
  - Audited up to December 2018 (up to 6 years of age), and
  - pre COVID-19 pandemic
- Consented cases
- Without SMCP, still alive @ 5yrs, and with dmft data
- England only*

*Explored using a CRANE:HES linked dataset.

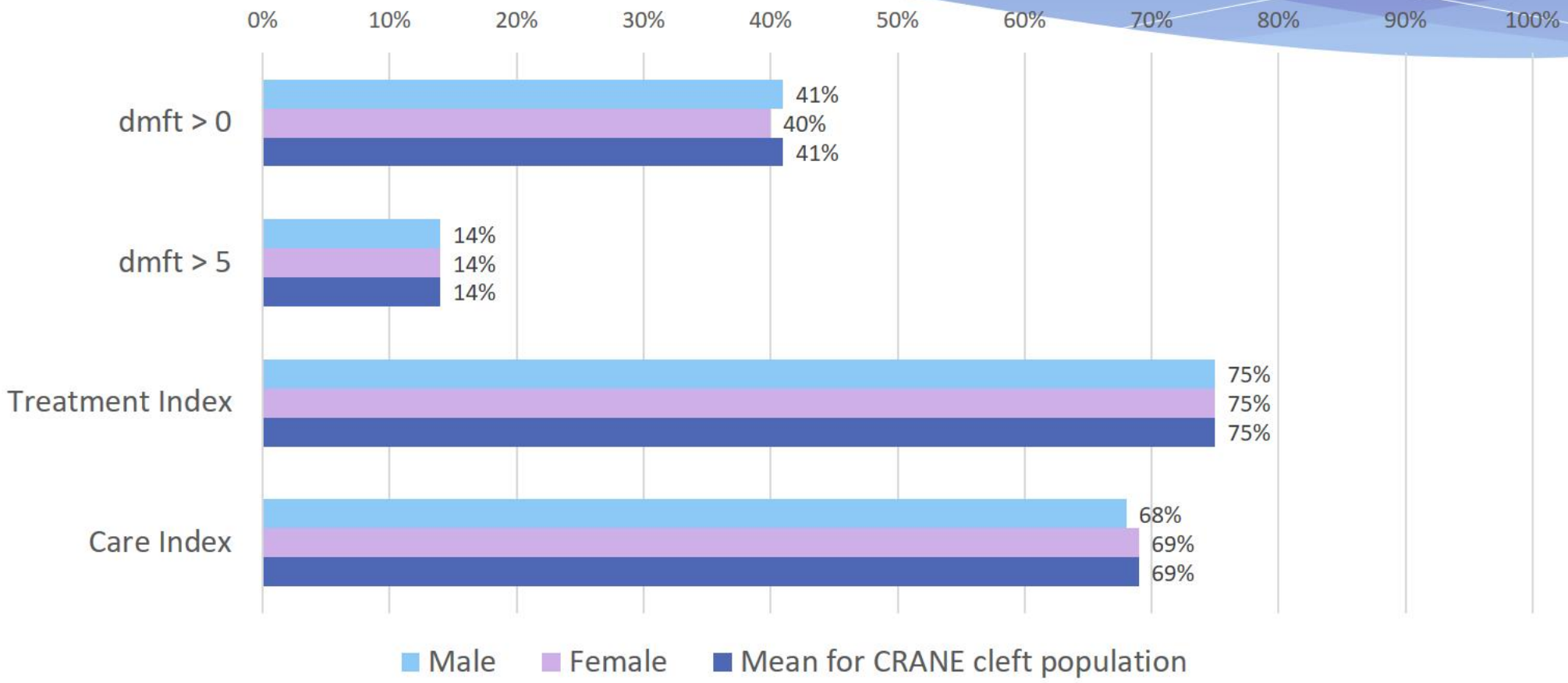
Cohort


Total cohort
2004-12 births
N=9,831
No consent N=950
SMCP N=298
Died before 5yrs N=136
Wales & N.I.* N=692
Eligible: N=7,755
dmft data: N=4,456
*Explored using a
CRANE:HES linked dataset

CRANE cleft population vs. general population

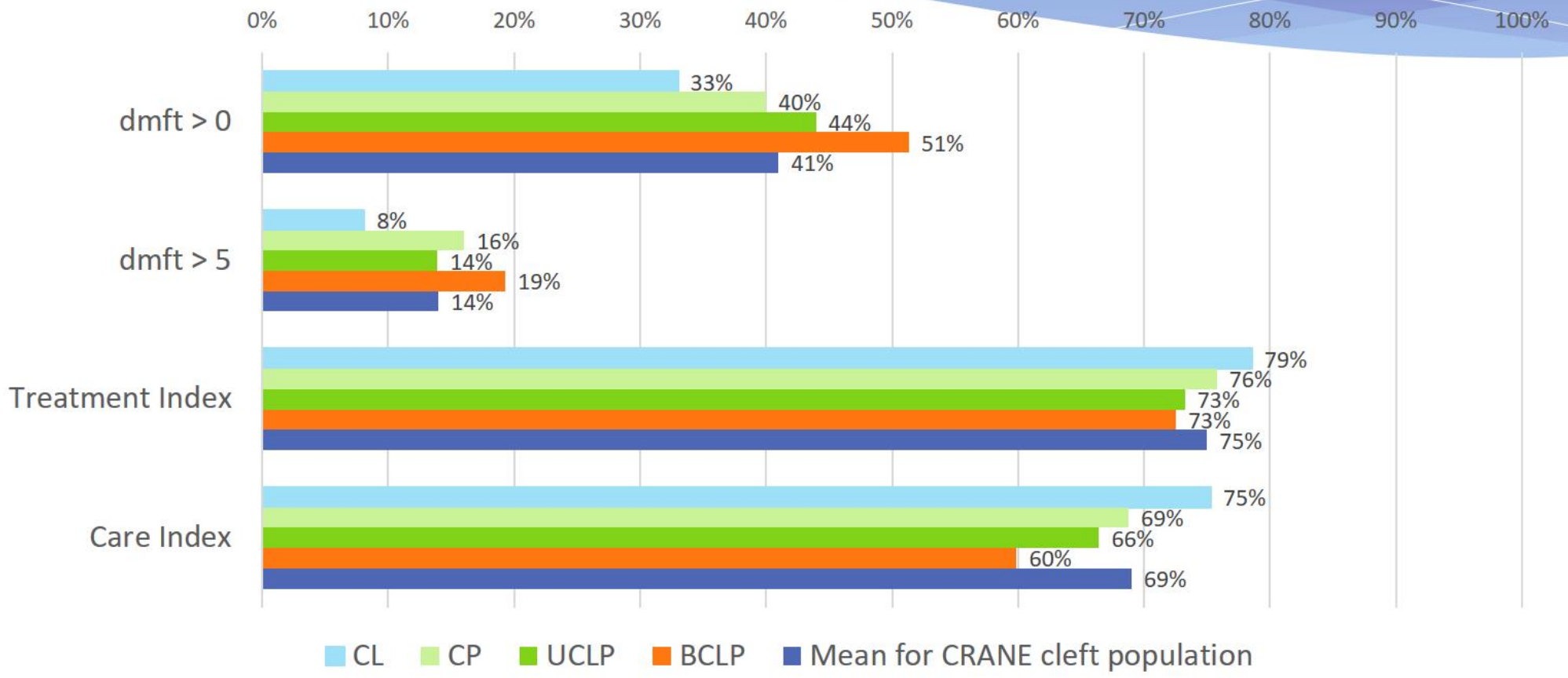


Sex


0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
dmft > 0
41%
40%
41%
dmft > 5
14%
14%
14%
Treatment Index
75%
75%
75%
Care Index
68%
69%
69%
Male
Female
Mean for CRANE cleft population

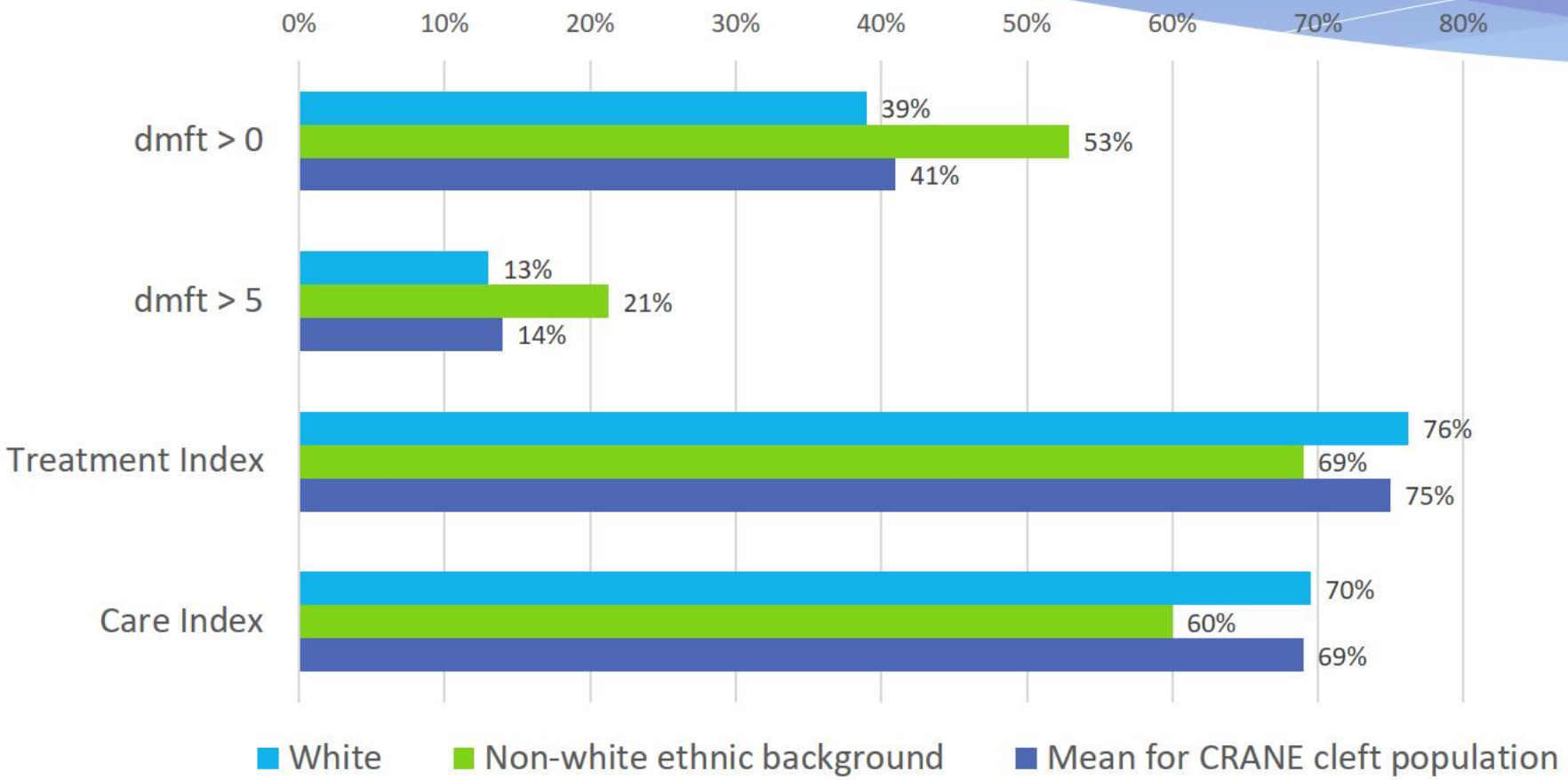
All p > 0.05

CRANE cleft by cleft type



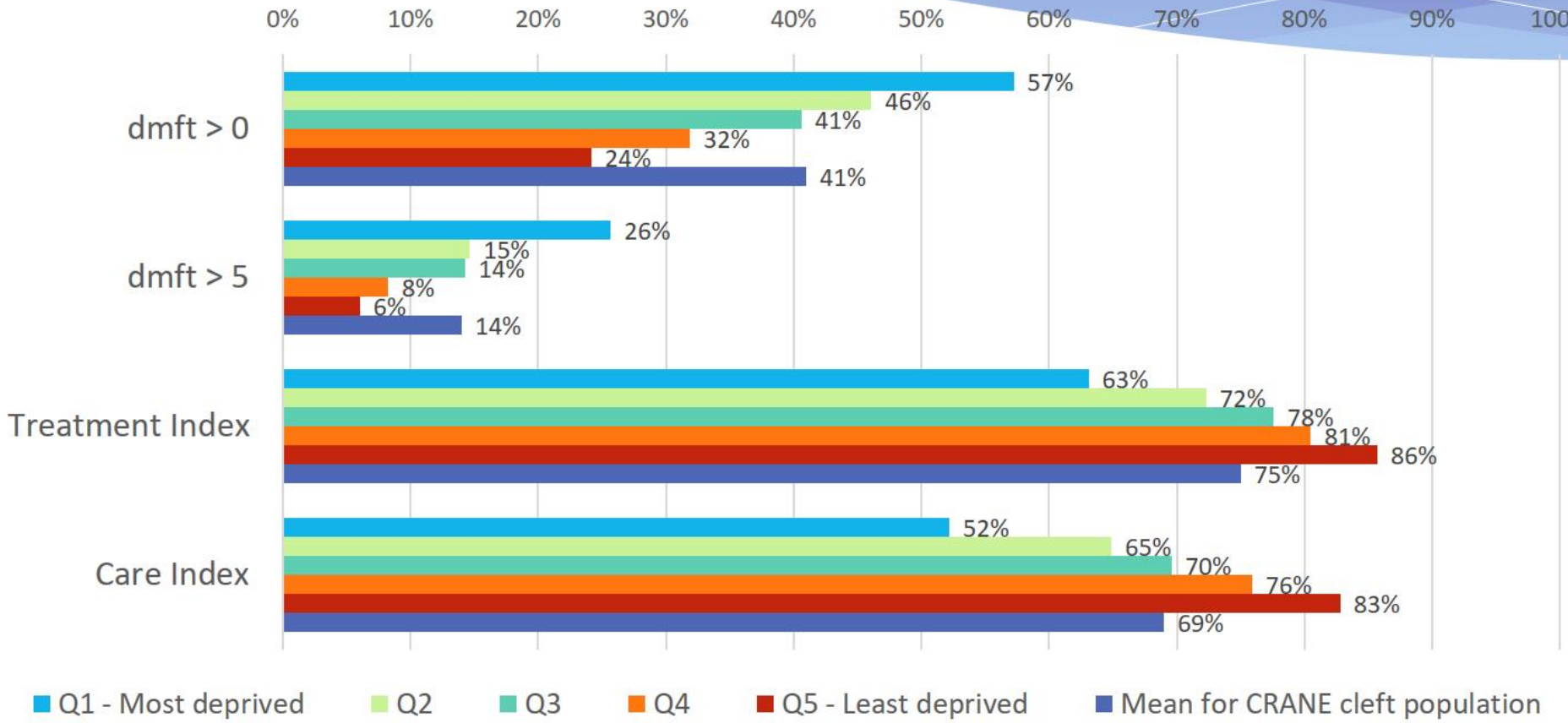
All $p < 0.05$

CRANE cleft by ethnicity



All p < 0.001

Socio-economic deprivation



All $p < 0.001$

Interpretation and Future

Poorer dental health associated with:

- living in the most deprived areas,
- more complex clefts, and
- being of an non-white ethnic background

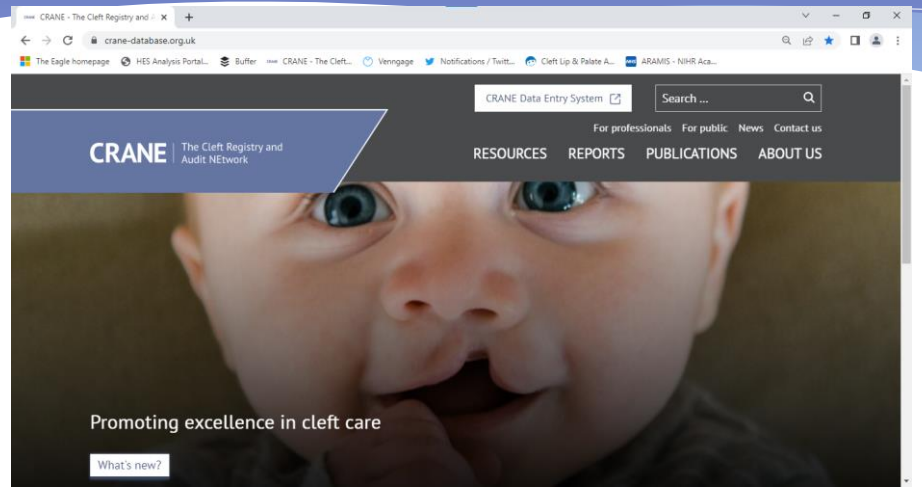
Further exploration of impact of patient factors on outcomes will allow:

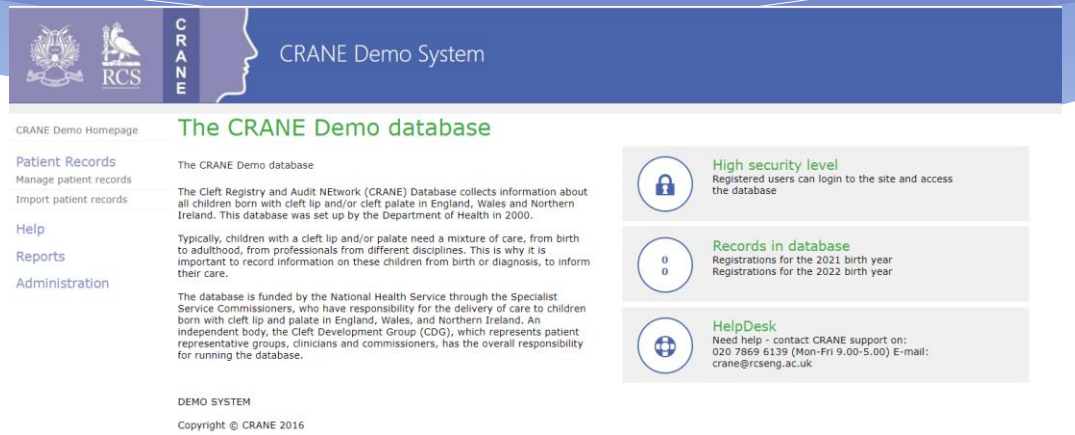
- Resources / effort to be focussed on those with greatest need

5. Database and audit developments – your input

- Indicators e.g. dmft > 5 and care index
  - Process and outcomes (service delivery/provision)
- Database enhancements
  - Meaningful: Clinicians, commissioners (planning and provision), patients
- Risk adjustment

Resources helpful to aid data collection?





No.	Recommendation (*Guidance available – Full detail on final page*) [Related report section]	Action required? *(Yes/No; state intended action OR reason for no action)*	Action activities			
			Responsible individual(s)	Agreed deadline	Status *(see Key 1)*	Priority *(see Key 2)*
Rec 11	**Child growth at 5 years** Cleft services should aim to assess children's weight and height at age five and improve the reporting of these measures in the CRANE database. This will facilitate more meaningful comparisons between subgroups in the future. [Chapter 4, Section 4.1] Indicator: #6	*Suggested actions:* *Does your team have a protocol for how these outcome data are systematically collected, recorded and documented on CRANE Database?* *Has a specific individual been assigned responsibility to ensure collection / submission of these data points?* *Look at how your cleft services compares to the figures for all/ other teams in… the Annual Report / Audit Day Reports / Outcomes Report (behind the log-in).* *Does this reflect what happens in your organisation? If not, what steps can you take to improve assessment of these outcomes? What action needs to be taken?* *Where collection / submission low assigned individual should reach out to cleft services with high data completeness and share learning locally, champion introduction of similar processes applicable to the local healthcare environment* *[Consider incorporating virtual MDT meeting where all audit data is reviewed on CRANE to ensure that whole team happy with record]*				

1.1. Patient consent

Δ**Consent status**

- ☐ Patient has given written confirmed consent
- ☐ Patient has declined to consent
- ☐ Consent status unknown - awaiting verification*
- ☐ Not possible to verify consent status*

*Please give further details _____

Δ**Linkage of CRANE database to Health data**

- ☐ Patient has given written confirmed consent
- ☐ Patient has declined to consent
- ☐ Consent status unknown - awaiting verification*
- ☐ Not possible to verify consent status*

Δ**Linkage of CRANE data to Education data**

- ☐ Patient has given written confirmed consent
- ☐ Patient has declined to consent
- ☐ Consent status unknown - awaiting verification*
- ☐ Not possible to verify consent status*

1.2. Cleft team details

Δ**Administrative Unit Name** _____ **Hospital Name** _____

Δ**Administrative Unit No.** _____ **Hospital No.** _____

1.3. Patient details

Δ**CRANE ID** _____

Automatically generated by CRANE Database

Δ**Patient's NHS No.** ☐☐☐☐☐☐☐☐☐☐

Δ**Reason patient's NHS Number not available**

- ☐ Patient from the Channel Islands
- ☐ Patient from Scotland
- ☐ Private UK patient
- ☐ Non-UK reside
- ☐ Other. Δ*Please provide other reason:*_____

Δ**Date of birth** / / (DD / MM / YYYY)

Δ**Date deceased** / / (DD / MM / YYYY)
(Where applicable)

Your questions?

Thank you

Stay in touch and contact us

@CRANE_News

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