DentalCharting
Clinic Management

# Philippine Dental Association

## *“Emerging Trends in Oral Health Care for Philippine Dentistry”*

# Adopt a School & eCharting Program

Dr. Clarissa Jane F. Pe

Authors Dr. Anna Liza A. Lerio, Dr. Clarissa Jane F. Pe
FDI 2016 Poznan, Poland
September 7, 2016

# ASeCP progress

Adopt A School & eCharting Program

- 2015 – 2022

Executed 2015 – 2016

- 30 adopted schools
- 90 volunteer dentists trained in eCharting
- 8,000 pupils eCharted

Conclusion: technically and organizationally feasible:

1. Online eCharting
2. Automatically generating digital statistics
3. Focus on ICDAS

MEMBER PASS
PASS NO.: 00090
MEMBER PASS
PASS NO.: 00057
mentos

# Adopted schools

| DENTAL CHAPTER | ADOPTED SCHOOL |
|---|---|
| **REGION 1** | |
| Baguio City | Dominican Mirador Elementary School |
| Pangasinan | Malabago Elementary School |
| **REGION 2** | |
| Cagayan Tuguegarao | Alibago Elementary School |
| **REGION 3** | |
| Angeles City | Mining Elementary School |
| Tarlac | Cruz Elementary School |
| Pampanga | San Jose Elementary School |
| **REGION 4** | |
| Quezon Province | Mayao Castillo Elementary School |
| Cavite | Ligas II Elementary School |
| Batangas Province | Cawit Elementary School |
| Batangas City | Sta. Clara Elementary School |
| Lipa City | Claro M. Recto Memorial Elementary School |
| Occidental Mindoro | Tagumpay & Mapaya II Eschools |
| Palawan | Magbanua Elementary School |
| Romblon | Tumingad Elementary School |
| Marinduque | Makapuyat Elementary School |

# Adopted schools (2)

DentalCharting
Clinic Management

| DENTAL CHAPTER | ADOPTED SCHOOL |
|---|---|
| **NCR** | |
| **Pasig-Pateros** | Caniogan Elementary School |
| **REGION 6** | |
| **Ilo-ilo City** | Molo 1 Elementary School |
| **Capiz City** | Don Juan Celino Memorial Elementary School |
| **Antique** | Atabay Elementary School |
| **REGION 7** | |
| **Cebu** | Labangon Bliss Elementary School |
| **Mandaue** | Sayaw Elementary School |
| **REGION 9** | |
| **Zamboanga City** | Tugbungan Elementary School |
| **Zamboanga-Sibugay** | Tomitom Elementary School |
| **REGION 10** | |
| **Bukidnon** | Can-ayan Integrated School |
| **Iligan City** | Kabangahan Elementary School |

# Adopted schools (3)

| DENTAL CHAPTER | ADOPTED SCHOOL |
|---|---|
| **REGION 11** | |
| **Davao City** | Marahan West Elementary School |
| **REGION 12** | |
| **General Santos City** | Lamlifew IP Integrated School |
| **North Cotabato** | Miguel Intes Elementary School |
| **REGION 13** | |
| **Surigao del Norte** | M. Cagasan Memorial Elementary School |
| **REGION 18** | |
| **Negros Occidental** | Hope GK Sibol Elementary School |
| **ARMM** | |
| **Sulu Tawi-Tawi** | Camp Asturias Elementary School |
| **AFFILIATE** | |
| **PAPSDI** | Pasong Tamo Elementary School |

# What and What not

WHAT: ASeCP today, IS about:

- Proof online digital technology works: only practical option
- ASeCP demonstrates that dental health surveys of very large cohorts are within reach for the first time ever, by means of the eCharting approach

WHAT NOT: ASeCP today, is NOT YET about:

- Scientific epidemiological study

WHAT WILL be: ASeCP TOMORROW:

- Scientific epidemiological study
- Real field data input for health policy formulation
- Public dental health tracking

# EDR

Electronic Dental Record:

- Pupils’ profile + MH + DH + uploaded referrals, X-rays
- Automatic prescriptions
- School profile
- eChart (PDA compliant)
    - Baseline
    - Work proposed
    - Work done
    - Periodontal

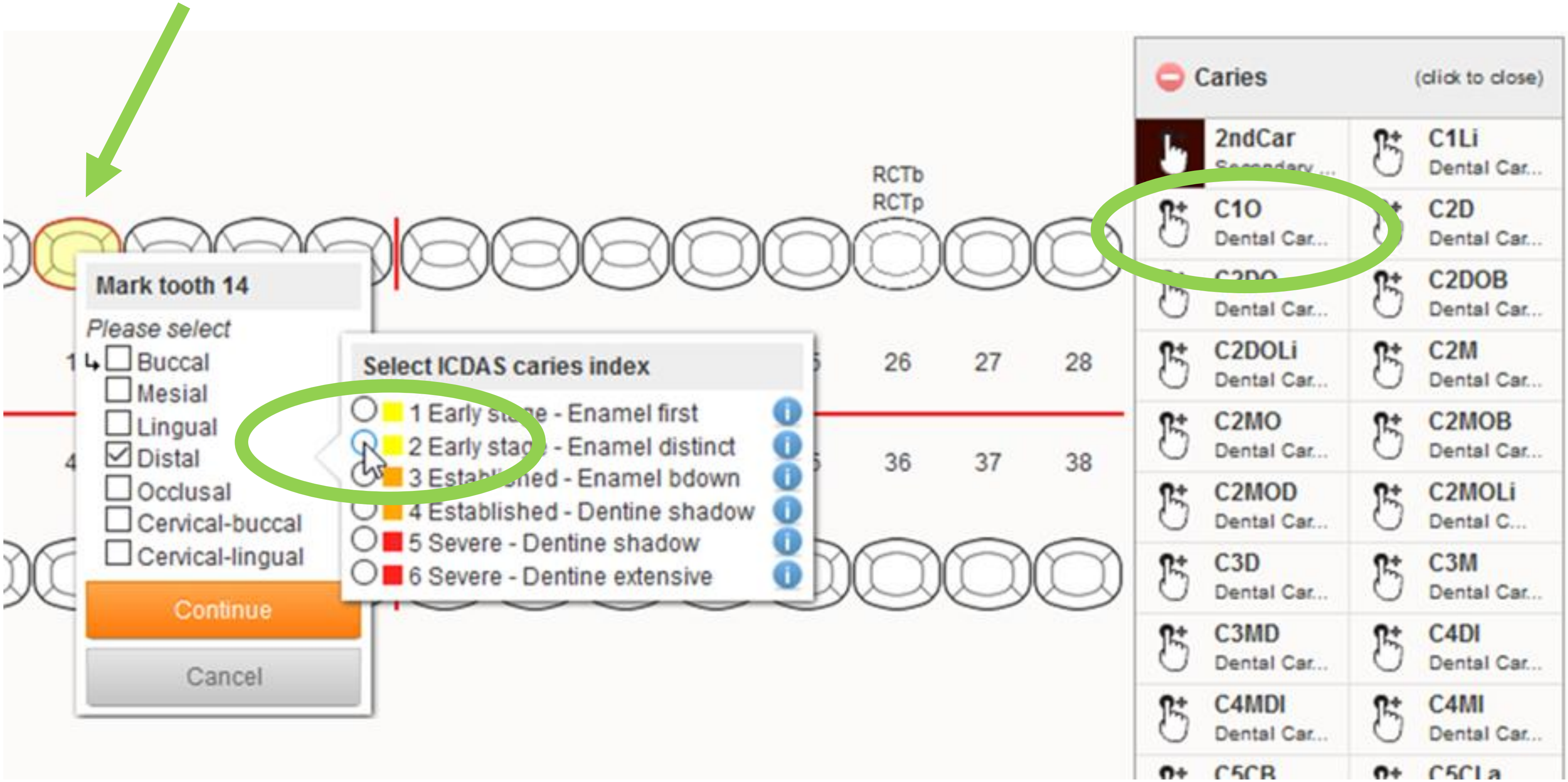
# EDR (2)

Electronic Dental Record (cont’d):

- 900 statuses/procedures including basics such as
  - caries, fillings, missing teeth (DMF, df)
  - extractions, fillings, oral prophylaxis, fluoride treatment, application of sealant/varnish
- ICDAS 1-6
- 400 materials
- Signs & symptoms, Diagnoses

# ICDAS in EDR

eCharting example



**Mark tooth 14**

*Please select*

- ☐ Buccal
- ☐ Mesial
- ☐ Lingual
- ☑ Distal
- ☐ Occlusal
- ☐ Cervical-buccal
- ☐ Cervical-lingual

Continue

Cancel

**Select ICDAS caries index**

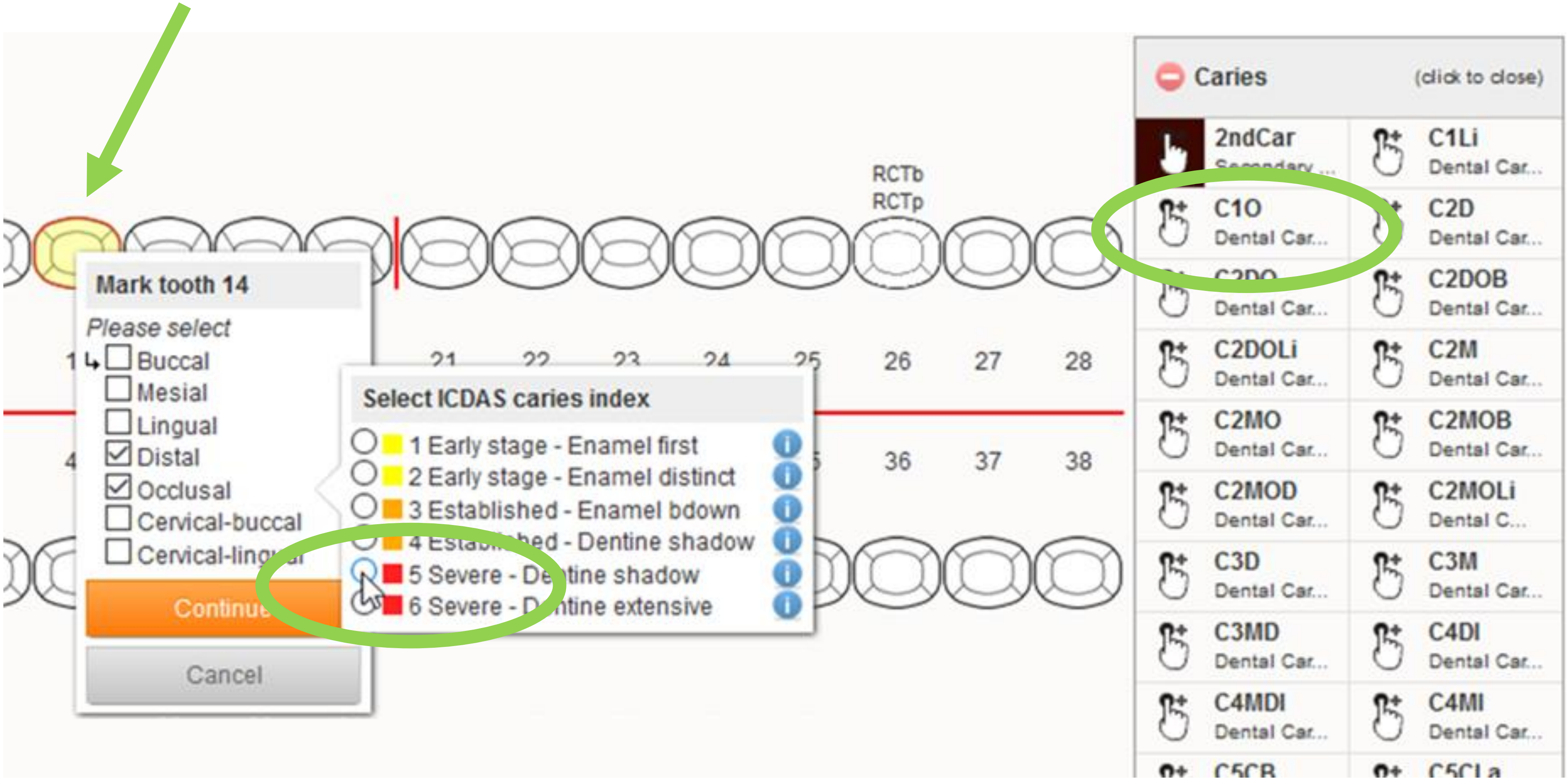
- ○ 🟨 1 Early stage - Enamel first
- ○ 🟨 2 Early stage - Enamel distinct
- ○ 🟧 3 Established - Enamel bdown
- ○ 🟧 4 Established - Dentine shadow
- ○ 🟥 5 Severe - Dentine shadow
- ○ 🟥 6 Severe - Dentine extensive

Caries (click to close)

- 2ndCar Secondary ...
- C1Li Dental Car...
- C1O Dental Car...
- C2D Dental Car...
- C2DO Dental Car...
- C2DOB Dental Car...
- C2DOLi Dental Car...
- C2M Dental Car...
- C2MO Dental Car...
- C2MOB Dental Car...
- C2MOD Dental Car...
- C2MOLi Dental C...
- C3D Dental Car...
- C3M Dental Car...
- C3MD Dental Car...
- C4DI Dental Car...
- C4MDI Dental Car...
- C4MI Dental Car...
- C5CB
- C5CLa

# ICDAS in EDR (2)

eCharting example



**Mark tooth 14**

*Please select*

- ☐ Buccal
- ☐ Mesial
- ☐ Lingual
- ☑ Distal
- ☑ Occlusal
- ☐ Cervical-buccal
- ☐ Cervical-lingual

**Select ICDAS caries index**

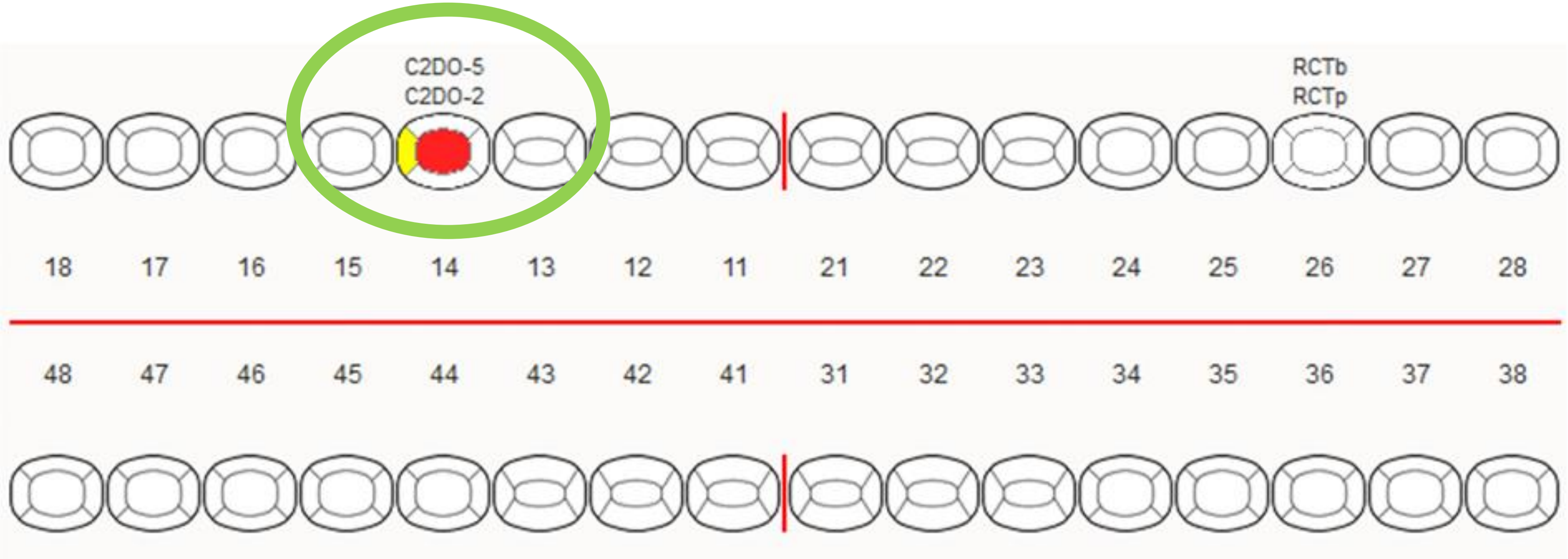
- ○ 🟨 1 Early stage - Enamel first
- ○ 🟨 2 Early stage - Enamel distinct
- ○ 🟧 3 Established - Enamel bdown
- ○ 🟧 4 Established - Dentine shadow
- ○ 🟥 5 Severe - Dentine shadow
- ○ 🟥 6 Severe - Dentine extensive

**Caries** (click to close)

| | |
|---|---|
| 2ndCar<br>Secondary ... | C1Li<br>Dental Car... |
| C1O<br>Dental Car... | C2D<br>Dental Car... |
| C2DO<br>Dental Car... | C2DOB<br>Dental Car... |
| C2DOLi<br>Dental Car... | C2M<br>Dental Car... |
| C2MO<br>Dental Car... | C2MOB<br>Dental Car... |
| C2MOD<br>Dental Car... | C2MOLi<br>Dental C... |
| C3D<br>Dental Car... | C3M<br>Dental Car... |
| C3MD<br>Dental Car... | C4DI<br>Dental Car... |
| C4MDI<br>Dental Car... | C4MI<br>Dental Car... |
| C5CB | C5CLa |

# ICDAS in EDR (3)

eCharting example


C2DO-5
C2DO-2
RCTb
RCTp
18 17 16 15 14 13 12 11 21 22 23 24 25 26 27 28
48 47 46 45 44 43 42 41 31 32 33 34 35 36 37 38

# Other functions EDR

DentalCharting
Clinic Management

Electronic Dental Record (cont’d):

- Schedule appointments
- Plan school dental budget
- Extract statistics from the cohort database: graphs

# eCharting statistics

Graphical output:

- Count of pupils, both male and female
- Prevalence Rate
- Incidence Rate (dormant)
- Ratio of the occurrence of the indicator relative to the other indicators in its cluster (if called for)
- Distinction between temporary and permanent teeth
- Distinction between tooth surfaces, teeth and the full mouth (if called for)

# eCharting statistics (2)

| **Prevalence Rate** of indicator X | **Incidence Rate** of indicator X<br>(dormant) |
|---|---|
| **total # teeth*) with indicator X**<br>**------------------------------------------------ x 100**<br>**# of pupils** | **total # teeth with indicator X**<br>**------------------------------------------------ x 100**<br>**# of pupils with indicator X** |

*) or tooth surfaces, or full mouth when called for

# eCharting indicators

***Baseline*** and ***Work done***

- For permanent teeth
  - D
  - M
  - F
- For temporary teeth
  - d
  - f
- ICDAS 1-6 for permanent and for temporary teeth
- Preventive therapies for permanent and for temporary teeth
  - Sealant
  - Varnish

# eCharting indicators (2)

***Baseline*** and ***Work done*** (cont’d)

- Miscellaneous oral disease conditions for permanent and for temporary teeth
  - Decubital ulcer
  - Periodontal problem
  - Gingivitis
  - Abscess

# eCharting indicators (3)

***Work proposed***

- For permanent teeth
  - F
  - E
- For temporary teeth
  - f
  - xt
  - xt-rtt
- Preventive therapies for permanent and for temporary teeth
  - Sealant
  - Varnish

# eCharting indicators (4)

***Work proposed*** (cont'd)

- Preventive full mouth oral hygiene therapies for permanent teeth
  - Oral prophylaxis
- Preventive full mouth oral hygiene therapies for temporary teeth
  - Oral prophylaxis
  - Fluoride treatment

# eCharting indicators (5)

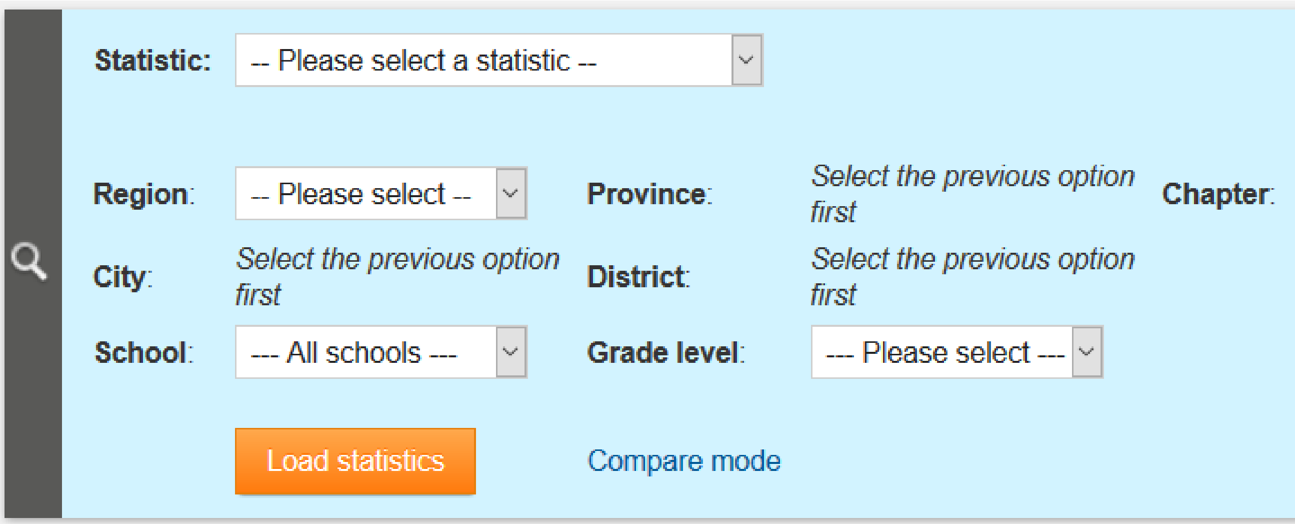
***Behavioral***

- Own tooth brush
- # / day brushing
- Tooth paste while brushing
- # / year brush change
- # / year dentist visit

# eCharting filters

Graphs are extracted by setting filters:

- Geography
  - National
  - Region
  - Province
  - Chapter
  - City
  - School
  - Grade level
- Time (dormant)
  - Latest (year A, month B)
  - Earliest (year X, month Y)



**Statistic:** -- Please select a statistic --

**Region:** -- Please select --

**Province:** *Select the previous option first*

**Chapter:**

**City:** *Select the previous option first*

**District:** *Select the previous option first*

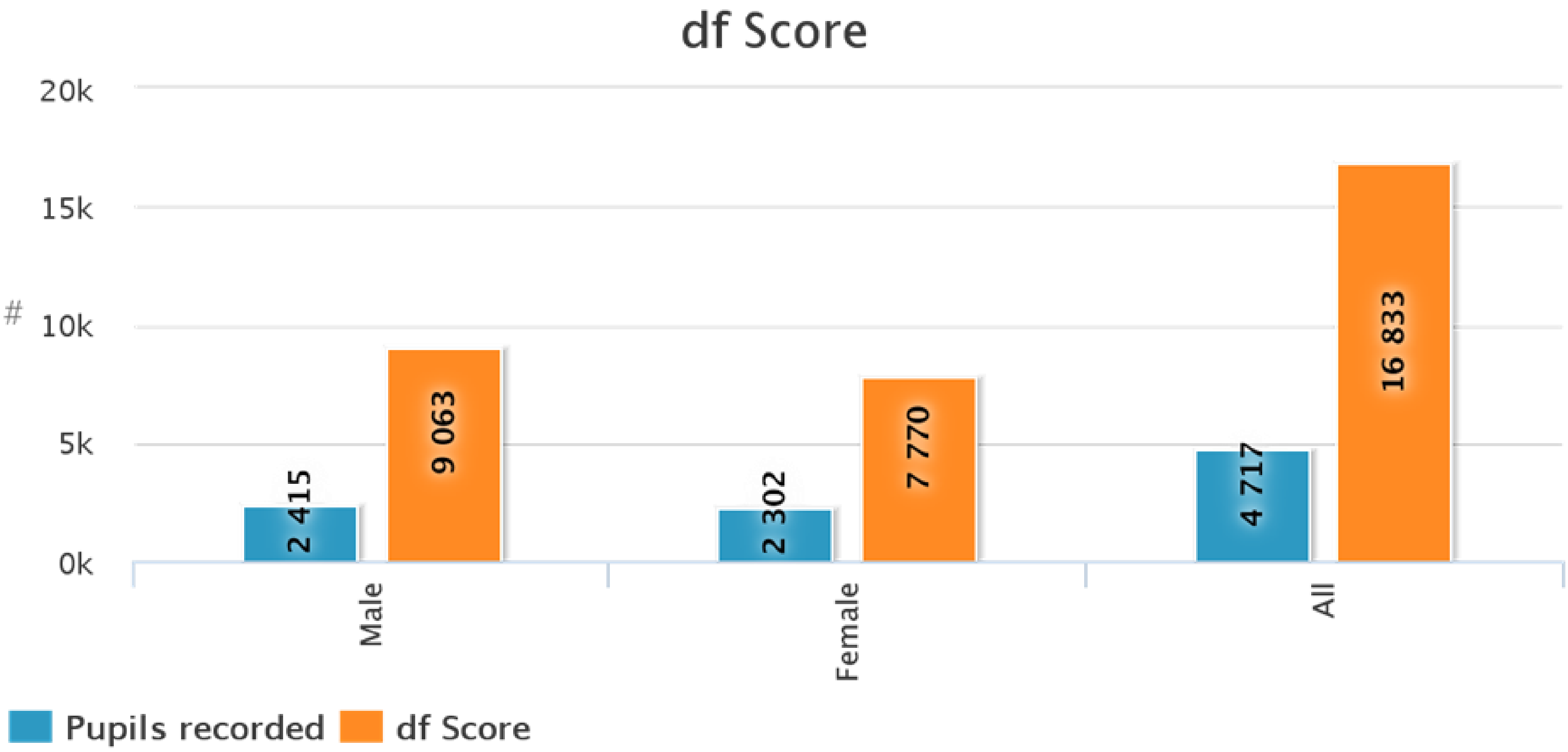
**School:** --- All schools ---

**Grade level:** --- Please select ---

# “df ” for National cohort

Statistic example

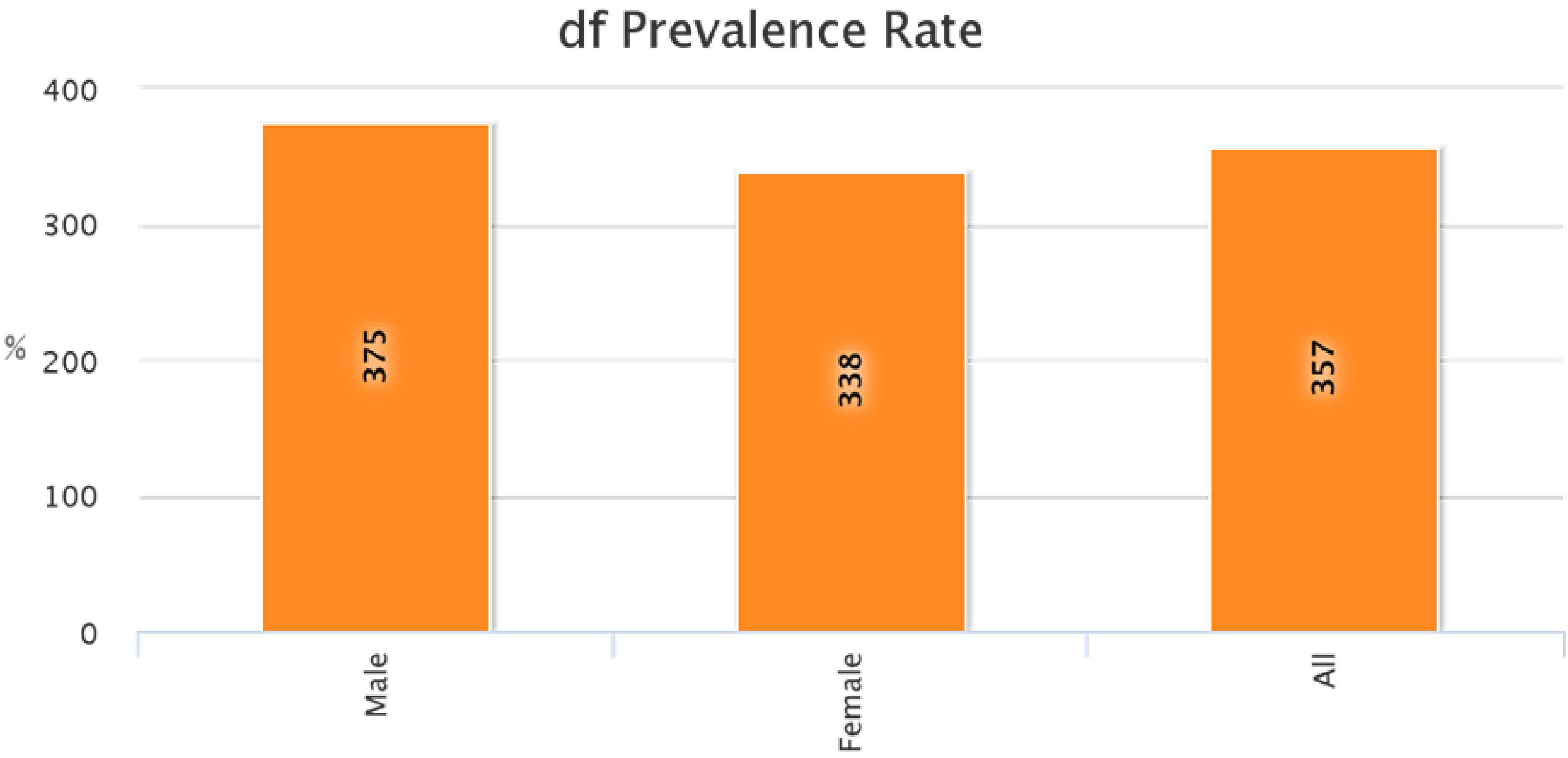
## ***Baseline*** and ***Work done***



# “df ” for National cohort (2)

Statistic example

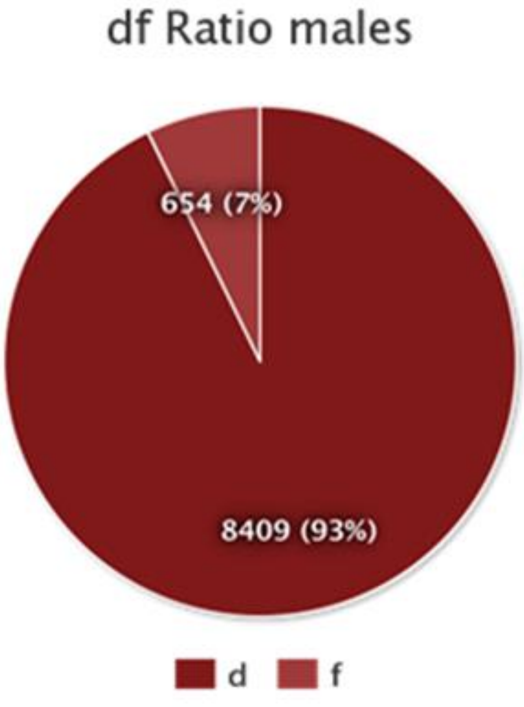
## ***Baseline*** and ***Work done***

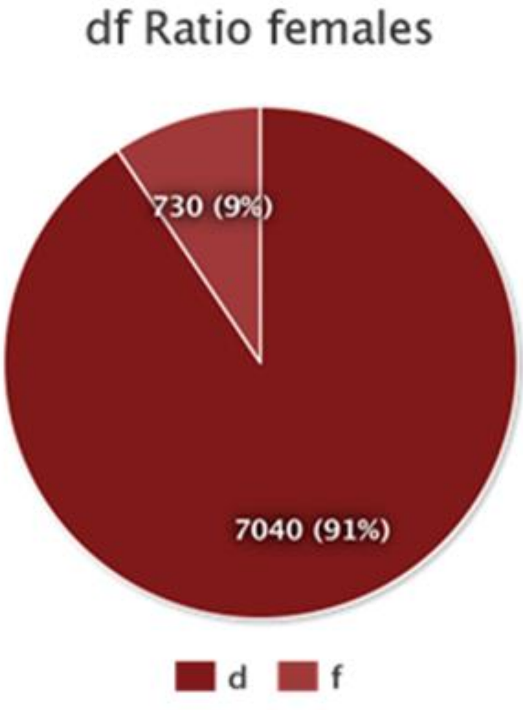


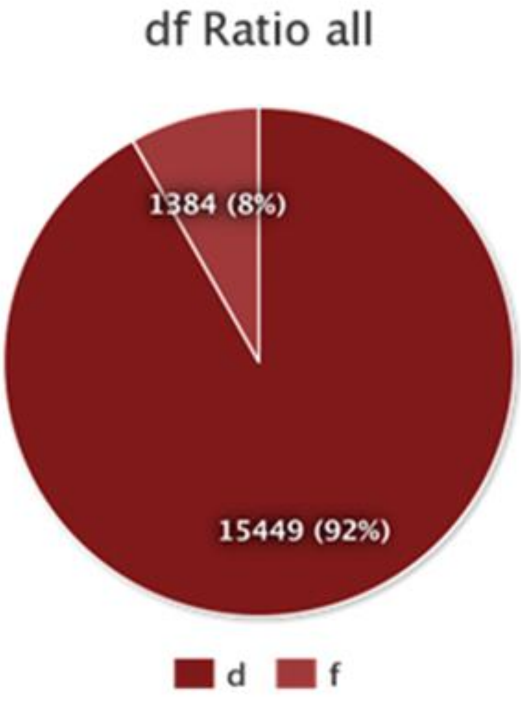
# “df ” for National cohort (3)

Statistic example

## ***Baseline*** and ***Work done***


df Ratio males


df Ratio females

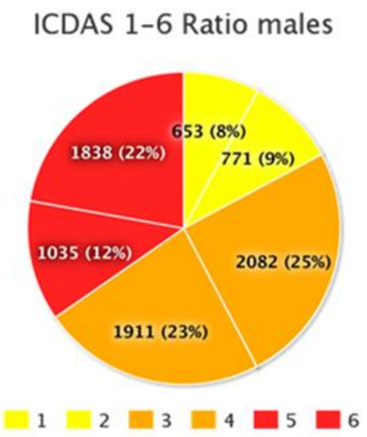

df Ratio all

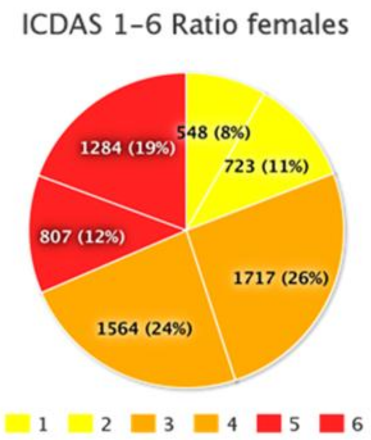
# “ICDAS” for National cohort

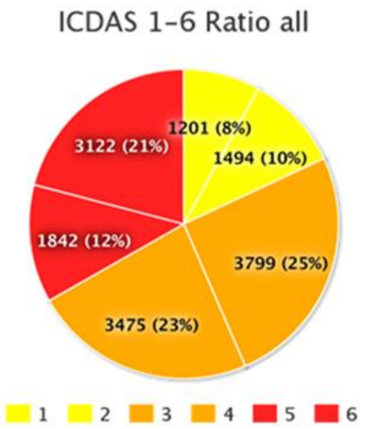
Statistic example

## ***Baseline*** and ***Work done***

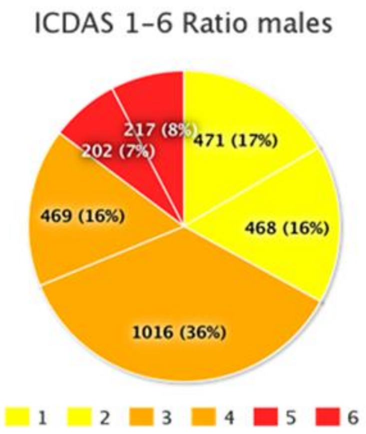
*temporary*

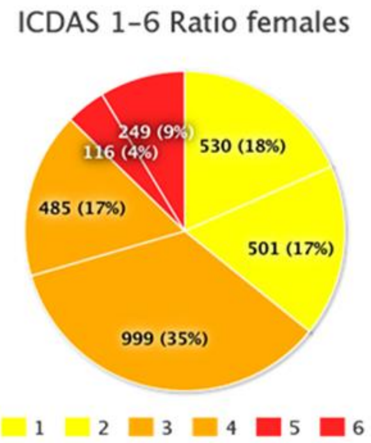

ICDAS 1-6 Ratio males

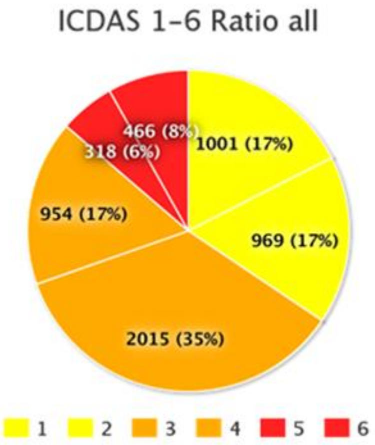

ICDAS 1-6 Ratio females


ICDAS 1-6 Ratio all

*permanent*


ICDAS 1-6 Ratio males

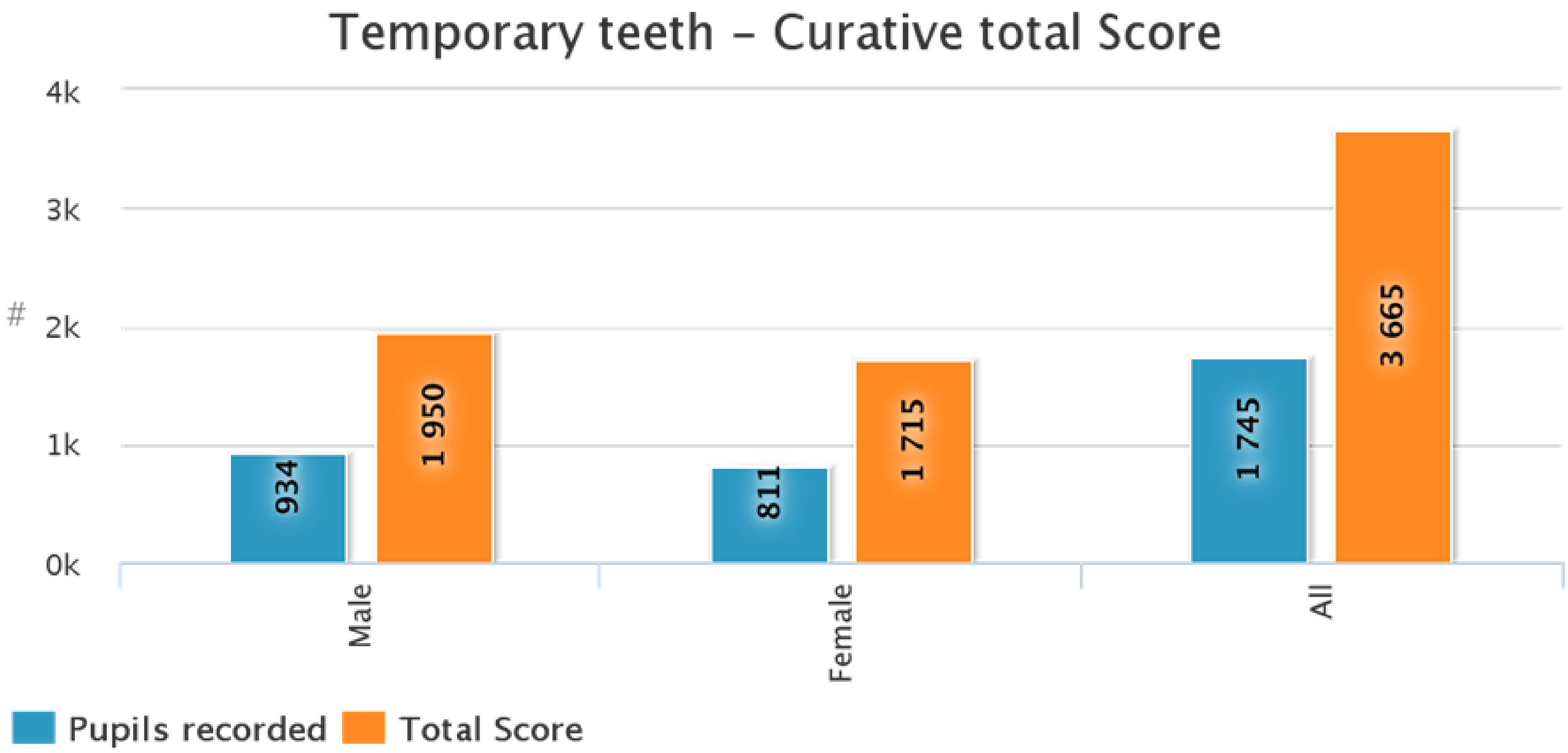

ICDAS 1-6 Ratio females


ICDAS 1-6 Ratio all

# “f/xt/xt-rtt” for National cohort

Statistic example

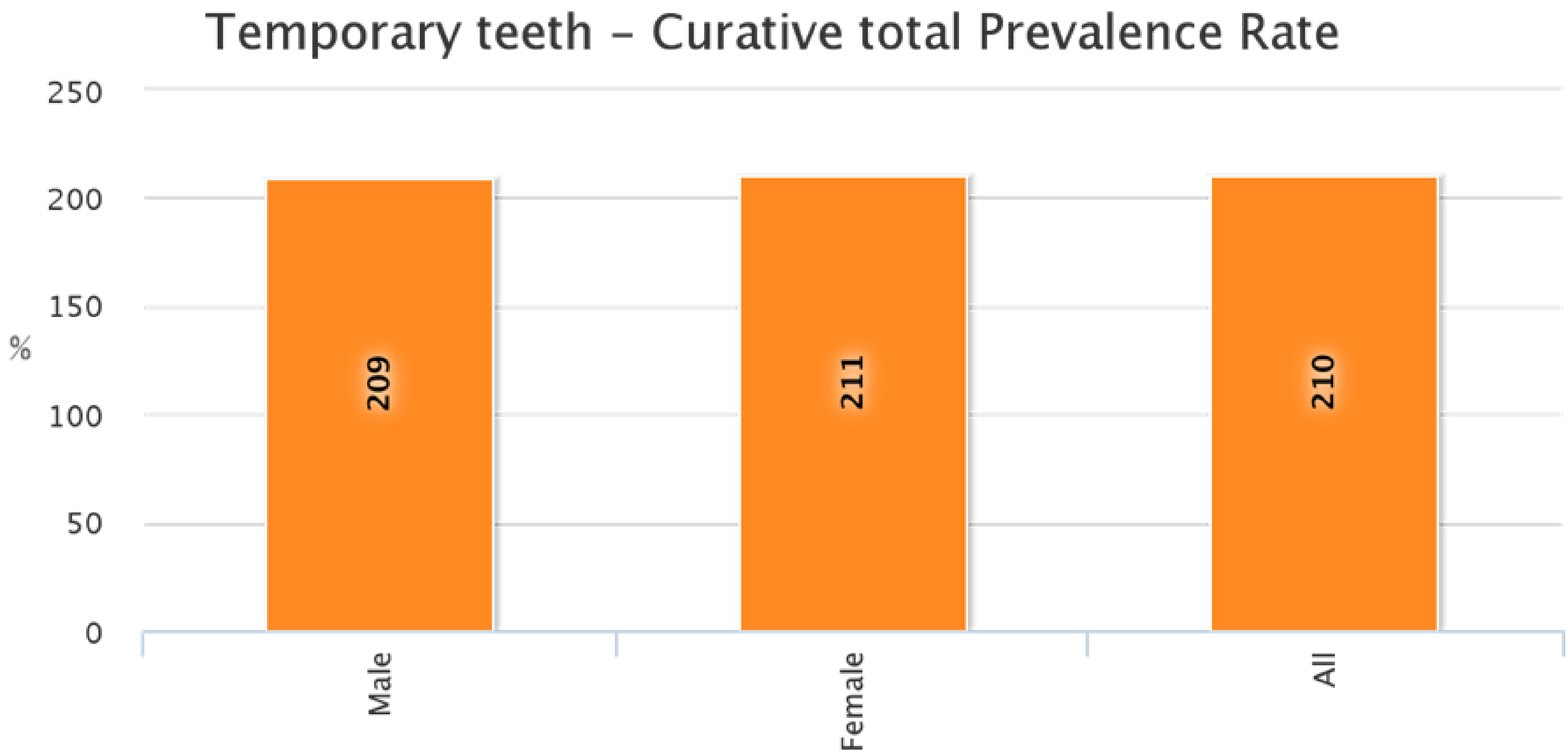
## *Work proposed*



# “f/xt/xt-rtt” for National cohort (2)

Statistic example

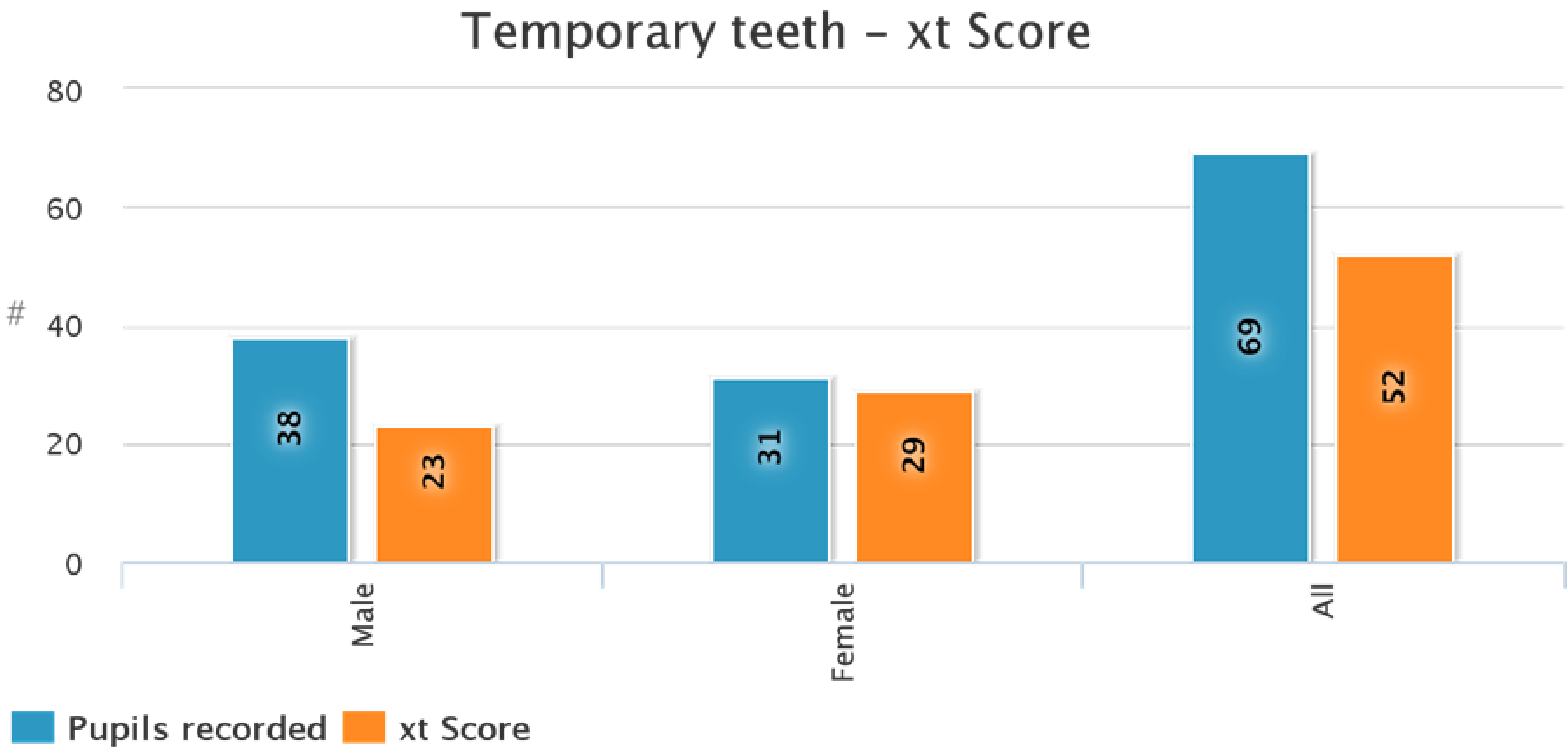
## *Work proposed*



# “xt” for Region 10 cohort

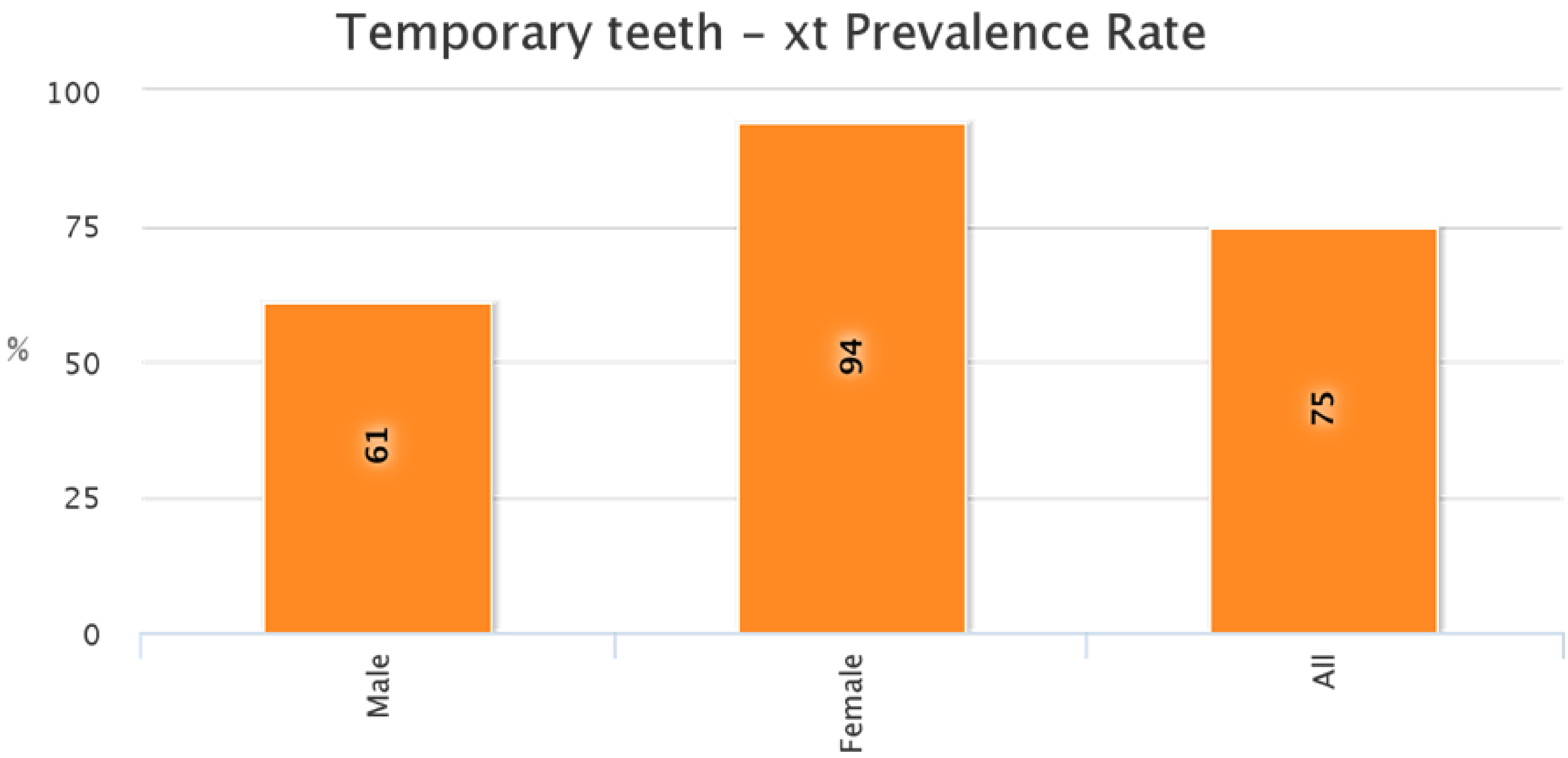
Statistic example

## *Work proposed*



# “xt” for Region 10 cohort (2)

## *Work proposed*

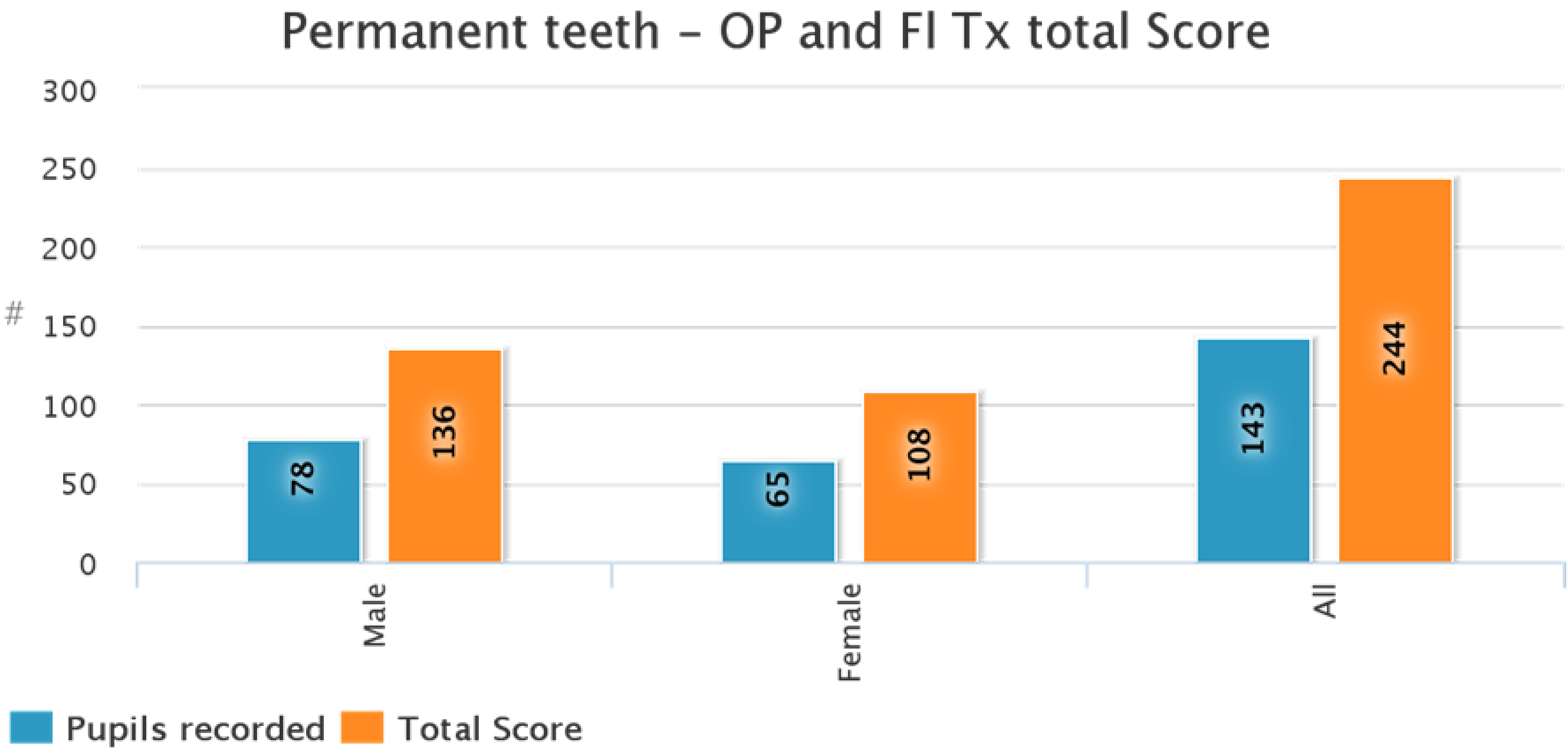


Temporary teeth – xt Prevalence Rate

# “OP + FI Tx” for Malungon City cohort

Statistic example

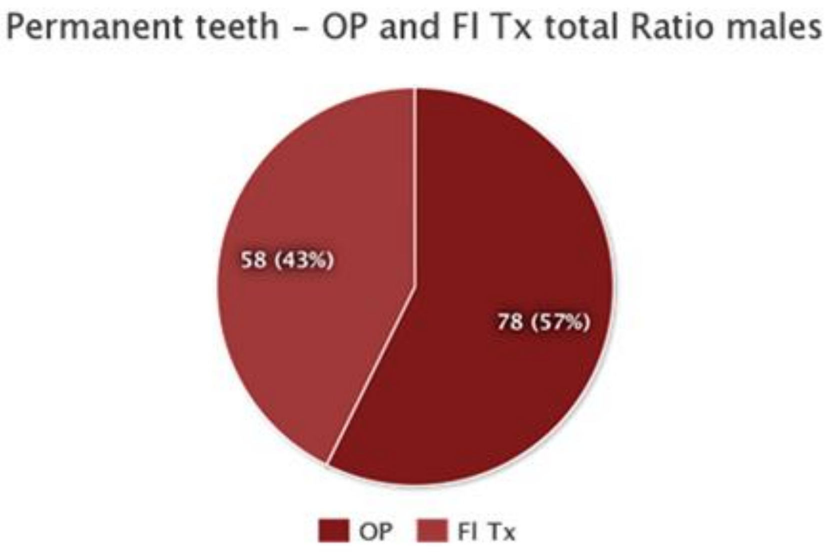
## *Work proposed*

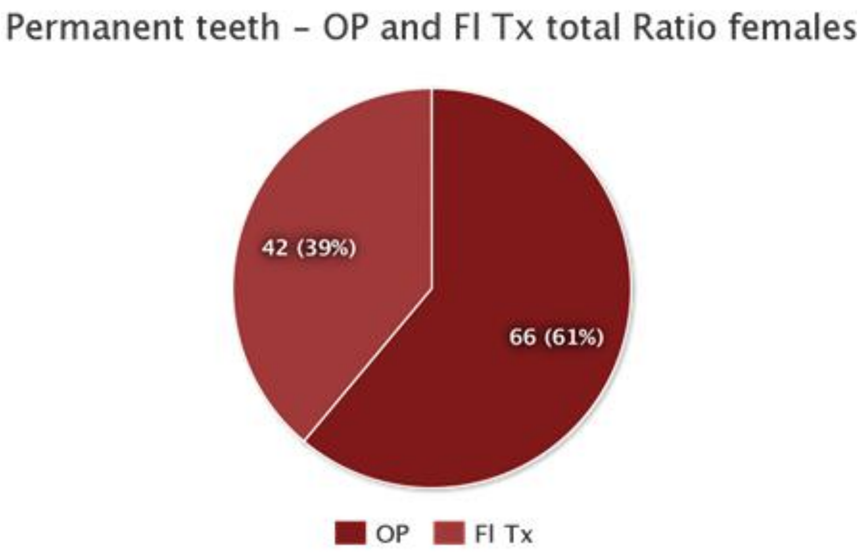

Permanent teeth – OP and FI Tx total Score

# “OP + FI Tx” for Malungon City cohort (2)

Statistic example

## *Work proposed*


Permanent teeth – OP and FI Tx total Ratio males

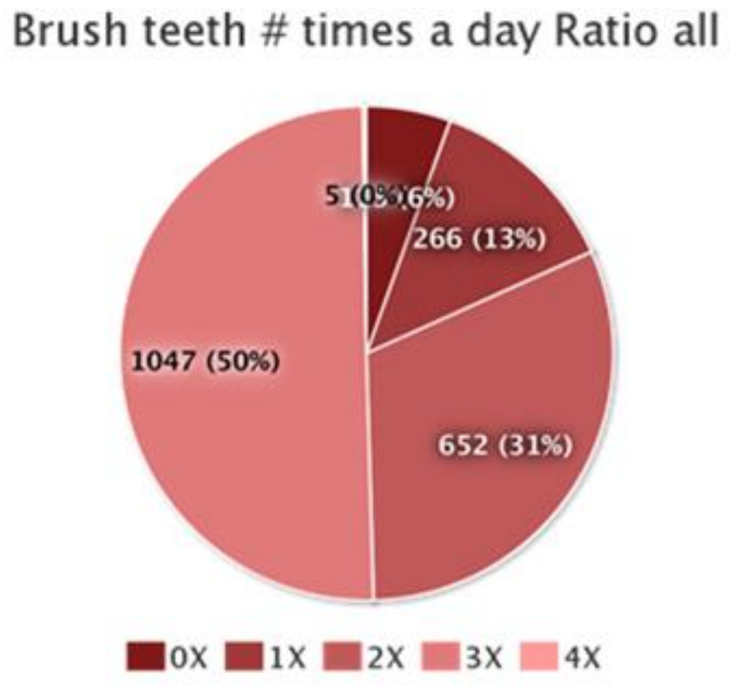

Permanent teeth – OP and FI Tx total Ratio females

# “Brushing” for compared cohorts

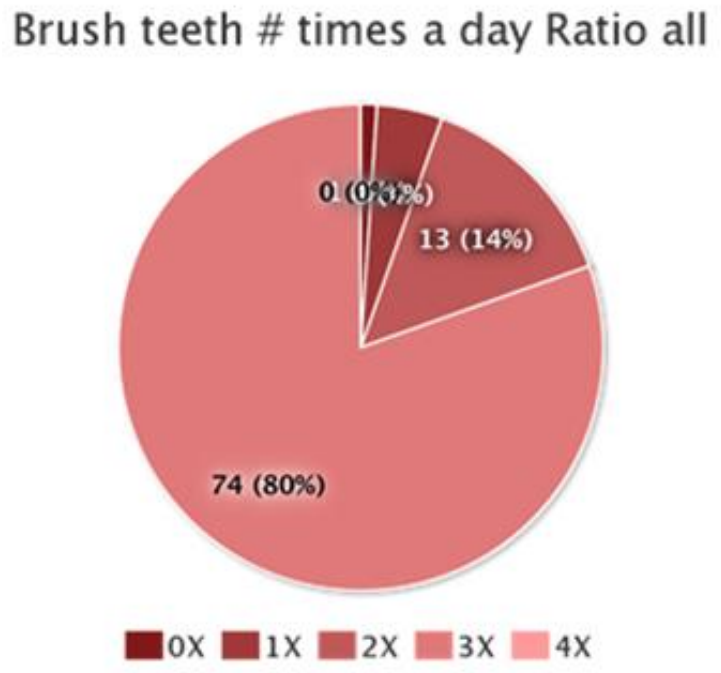
Statistic example

## *Behavioral*

Cohort: National



Cohort: Cruz Elem. School



# Conclusion

Conclusion:

- Installment 2015-2016 of 6-year ASeCP completed on schedule
- Minimum limit cohort 6,200 elementary school pupils surpassed: 7,900 reached
- The 3-criteria objective met with flying colors
    1. Online eCharting at schools
    2. Automatically generating digital statistics
    3. Focus on ICDAS

Overall:

- Survey blatant success, surpassed expectations
- Groundwork laid for solid continuation next 5 years, as PDA's resolution stipulates

# Recommendation

Expand eCharting database for existing 32 schools to include entire population at each school:

- Refresh eCharting training and ICDAS to the volunteer dentists
- Validate the April 2016 database jointly with them
- Expand encoding at the 32 schools
  - 2nd data set for the current 7,900 cohort
  - 1st data set for the remaining pupils not already in the 7,900 cohort
- For the 7,900 expand the statistics with Incidence Rate

# Recommendation (2)

Bring on board:

- Dental scientist
- Statistician

Involve partners:

- DepEd
- DoH
- Other relevant partners

# Recommendation (3)

Expand the database with hundreds of thousands of children on thousands of elementary schools:

- Evaluate the 7,900 cohort data sets
- Design a massive scale up program for country-wide cohort of hundreds of thousands
- Execute the program
  - Optimize the eCharting tool for scale up and statistics functionalities
  - Train eCharting dentists on massive scale
  - eChart the countrywide cohort