

**INQUIRY INTO THE DETENTION OF INDONESIAN MINORS IN AUSTRALIA**

**THE AUSTRALIAN SENATE**

**STANDING COMMITTEE ON LEGAL AND CONSTITUTIONAL AFFAIRS**

**MAY 2012**

**SUBMISSION ON BEHALF OF:**

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**PRESIDENT OF THE AUSTRALIAN SOCIETY OF FORENSIC ODONTOLOGY**

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## SUMMARY

An age estimate is the chronological age range of an individual determined from the analysis of dental, skeletal and other physical characteristics, compared to relevant standards developed from individuals of known age. Precise determination of age is not possible due to human variation; an age range, with confidence intervals is the best expression of age estimation

The simple expediency of visual assessment of a living individual, documentary and circumstantial evidence obtained following interview with parents, guardians or public authorities sourced from the individual's home country, opens the possibility for manipulation and falsification of such evidence. There is also potential for gross error in either over or under estimating the age.

It is recognised that dental development, as opposed to skeletal development, is able to provide the most reliable indicator for chronological age.

Studies have found that analysis of third molar development is accurate and sufficiently correlated with chronological age to be of forensic value. Third molars develop from mid-teens to early 20s and complete closure of the apices of the third molar teeth is an indication that the living individual is over the age of 18 years and thus, by definition, an adult.

A panel of qualified and experienced practitioners should assess all information gathered.

Age assessment will be given which includes an age range of the detainee. This will allow a Magistrate to interpret the age assessment results on the 'balance of probabilities' and give the detainee the right to the rule of the 'benefit of the doubt'. It also addresses concerns rested in the *Covention of the Rights of the Child (CRC)*.

The proposed protocols and standards for age estimation meet UNCRC criteria for age assessments guidance for refugee and migrant children.

## Introduction

I make this submission to the Senate Inquiry in my capacity as President of the Australian Society of Forensic Odontology (AuSFO) and Consultant Forensic Odontologist to the Victorian Institute of Forensic Medicine (VIFM). The VIFM is a statutory authority incorporated under the *Victorian Institute of Forensic Medicine Act 1995* and operates under the auspices of the Department of Justice, reporting to the Parliament through the Attorney-General. Part of the statutory responsibilities of the VIFM is to provide independent, expert and credible forensic medical and scientific services to the justice system.

This submission seeks to address the following specific terms of reference for the Inquiry:

*1 – what checks and procedures exist to ensure that evidence given to an Australian authority or department about the age of a defendant/suspect is followed appropriately.*

*2 – the relevant procedures across agencies relating to cases where there is a suggestion that a minor has been imprisoned in an adult facility.*

## Background

The ability to assign an accurate age to living individuals who have been charged and subsequently incarcerated for people smuggling offences has become a matter of urgency following recent well-publicised cases in New South Wales, Queensland and Victoria. The Australian Human Rights Commission has been aware of a number of cases where individuals suspected of people smuggling offences were acknowledged to be children after they had spent long periods of time in adult correctional facilities. It has been reported, as of 17th October 2011, there are around 25 people in either immigration detention or remand facilities charged with offences, who say they are children. There are a further seven people in immigration detention who say they are children and have yet to be charged. These figures do not include people who were assumed to be adults in court proceedings, were subsequently convicted and imprisoned, but who continue to say they are children [1].

In 1990, Australia ratified the *United Nations Convention on the Rights of the Child* (UNCRC) the key human rights treaty regarding children. The imprisonment of a child in an adult prison is a direct breach of the following rights as stipulated under the CRC:

- The right to be treated in a manner which takes into account a child's age and the desirability of promoting the child's reintegration (article 40(1)).
- The right to be arrested detained or imprisoned only as a measure of last resort and for the shortest appropriate period of time (article 37(b)).
- The right to be protected from all forms of physical or mental violence, injury or abuse, neglect or negligent treatment, maltreatment or exploitation including sexual

abuse, while in the care of parents, legal guardians or any other person who has the care of the child (article 19).

There are a range of other rights, outlined in the Australian Human Rights Discussion Paper: December (2012), which may also be breached as a result of incarceration of a child, in an adult facility, following an inadequate process of age assessment [1].

For Australia to maintain integrity and reputation in the International forum of Human Rights it is of the utmost importance that scientifically tested and proven techniques are utilised for accurate and meaningful age estimations. The simple expediency of visual assessment of a living individual, documentary and circumstantial evidence obtained following interview with parents, guardians or public authorities sourced from the individual's home country, opens the possibility for manipulation and falsification of such evidence. The reliance upon evidence of the behavioral patterns exhibited by detainees by untrained, inexperienced persons, often involved in the confinement of the detainee, is unsound and open to biased reporting.

### **Dental Development and Chronological Age Assessment**

Age assessment must be undertaken using scientific, research supported evidence and techniques grounded in well recognised, robust, academic foundations. This should involve a multi-factorial approach where examination of multiple age markers from the same individual is undertaken. It is recognised that dental development, as opposed to skeletal development, is able to provide the most reliable indicator for chronological age. This is due to the fact that tooth formation (maturation) develops independent of somatic, skeletal and sexual maturation. Dental development is also less affected by environmental insults and systemic illness [2-5].

The predictable, chronological pattern of exfoliation and eruption of the human dentition, as living individuals' progress from infancy to adulthood, has long been used as a means to assess the probable age of that individual. To better understand the scientific basis for the use of this technique, there is a need to briefly understand the process of exfoliation and eruption of the teeth into the oral cavity.

### **Development of the human dentition**

The development of the human dentition begins in utero at 6 weeks, with the first primary (deciduous) tooth appearing in the oral cavity at around 6 months of age. The primary dentition then develops in a well-documented sequence and is complete by 3 years of age. The appearance of the first permanent molar tooth at around 6 years of age signifies a period of loss of all deciduous teeth and replacement with their permanent successors. The process of eruption of the permanent teeth and associated exfoliation of primary teeth occurs in a sequential, predictable pattern and is complete at around 15 years of age. The final permanent tooth to erupt into the oral cavity is the third permanent molar, commonly referred to as the

wisdom tooth. These teeth are radiographically visible at 10 years of age with development completed by early 20's. Once dental development and eruption is complete, degradation changes of the dental tissues occur as a result of occlusal attrition, restorative procedures to maintain the dentition and tooth loss [6-12].

### **Age Assessment of individuals' from mid-teens to early 20's**

Recent research has concentrated on the use of third molar development in age assessment and these studies have found analysis of third molar development to be accurate and sufficiently highly correlated with chronological age to be of forensic value [13-22]. At the time of the development of the third molars (wisdom teeth), from mid-teens to early 20s, there are few other reliable methods of chronological age estimation other than to analyse the calcification and root development of the third molars. Third molar statistics are often presented as evidence of the likelihood that the individual has attained an age of 18 years (complete closure of the apex of the root), or as a percentage of the population who would be aged 18 years when the third molar has completed development.

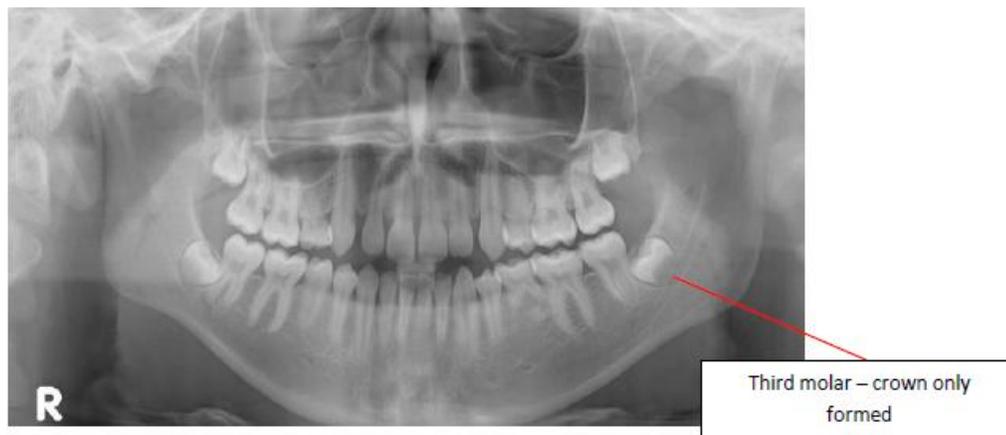


Fig 1  
OrthoPantomoGraph (OPG) - Aged 16 years - Crown Only Formed

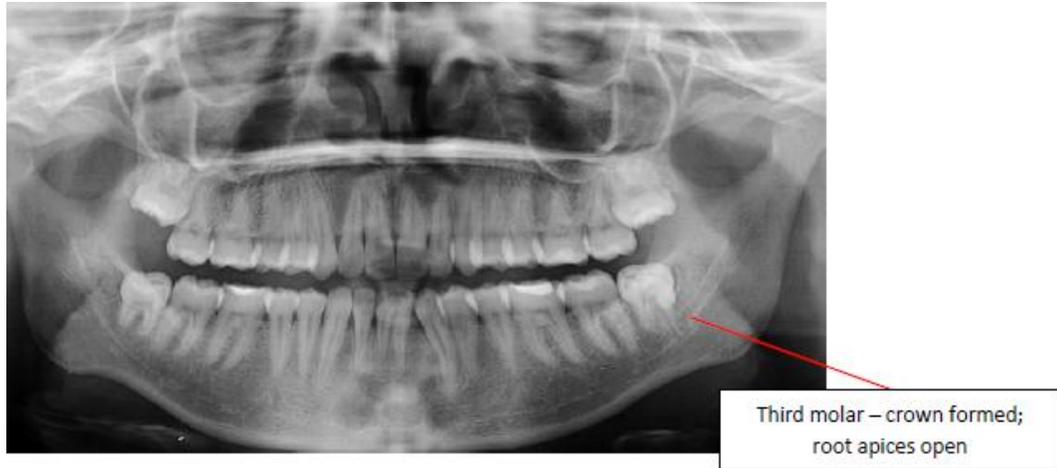


Fig 2  
OrthoPantomoGraph (OPG) - Aged 18 years - Crown Formed; Root Apices Open



Fig 3  
OrthoPantomoGraph (OPG) - Aged 20 years - Third Molar Erupted; Apices Closed

The assessment of the development of the third molar provides an ideal means to discriminate between an adult and a child. Most recent studies have shown that complete closure of the apices of the third molar teeth is an indication that the living individual is over the age of 18 years and thus, by definition, an adult [23].

## Specific Terms of Reference of the Inquiry

I should like now to address the following specific terms of reference for the Inquiry:

*1 - what checks and procedures exist to ensure that evidence given to an Australian authority or department about the age of a defendant/suspect is followed appropriately*

Scientific age assessment procedures undertaken for Indonesian minors in Australia are based upon the use of hand/wrist radiographs comparison with the Greulich-Pyle Radiographic Atlas (GPRA). The reference sample used to develop this atlas was derived from a selection of 1000 middle-class American children who were born in the 1930's-1940's, aged from birth to nineteen years of age. The atlas displays skeletal development at three-month intervals during the first year of life; six-month intervals from one to five years; and one year intervals thereafter; up to 19 years. At no time was this atlas designed to determine chronological age; it was designed as a tool for health workers to better assess a child's skeletal development and overall growth. Clearly, the major drawback when using this technique is that images included in the atlas were obtained some 60 years ago from individuals who grew up on the other side of the world, under environmental conditions totally different to the detainees being assessed. Biological variation in human development means that any age assessment based on GPRA analysis of growth markers will inevitably contain a degree of error.

For Australian authorities and agencies to rely solely on a technique and procedure that was:

- never designed as a tool to determine chronological age
- used images derived some 60 years ago
- used a reference sample of individuals who have no cultural nor genetic connection with an Indonesian population

must inevitably raise doubt as to the veracity of the checks and procedures, now in existence, on which Australian authorities rely. The evidence relied upon will contain errors, the findings will prejudice the outcome for an individual and inevitably this will lead to wrongful detention, as is evidenced at present. If the evidence furnished to Australian authorities concerning the age of a defendant/suspect relies solely upon the Greulich-Pyle atlas, there is little doubt that the procedures to be followed are not appropriate.

AuSFO has expressed its concerns over the use of the Greulich-Pyle Atlas with State Commonwealth Department of Public Prosecutions (CDPP) offices, Australian Federal Police (AFP) agencies, the Australian Human Rights Commission (*Inquiry into the Treatment of Individuals Suspected of People Smuggling Offences Who Say They are Children.*), Senator Hanson-Young (*Inquiry into the Crimes Amendment [Fairness for Minors] Bill 2011*) and the Honorable Nicola Roxon MP, Attorney General, Australian Government. Whilst AuSFO is

mindful that courts will ultimately determine the age of alleged Indonesian minors we would like to stress that the most effective, robust and tested method of age assessment of an individual of unknown age, is by dental radiographic developmental comparisons.

It is my understanding, that at present, the taking of dental radiographs for the purpose of age assessment requires legislative changes to be made. I would urge the Australian Senate Standing Committee on Legal and Constitutional Affairs to give consideration to the introduction of legislation which would allow for the taking of dental radiographs for the purpose of age assessment. The use of dental radiographs will add to the robust, scientific approach of age assessment of minors.

*2 - the relevant procedures across agencies relating to cases where there is a suggestion that a minor has been imprisoned in an adult facility*

The difficulties which face authorities once there is a suggestion that a minor has been imprisoned in an adult facility is often compounded by a lack of understanding of what is the best way forward – ‘How do we proceed from here?’. Under the Convention of the Rights of the Child (CRC), of which Australia is a signatory, it is our duty to ensure:

- The right to be detained or imprisoned only as a measure of last resort and for the shortest appropriate period of time (article 37(b)).
- The right to be protected from all forms of physical or mental violence, injury or abuse, neglect or negligent treatment, maltreatment or exploitation including sexual abuse, while in the care of parents, legal guardians or any other person who has the care of the child (article 19).

Delay in instigating relevant procedures to resolve issues of minors who may be imprisoned can only exacerbate their situation and discredit Australia’s political credibility in Human Rights issues.

In all correspondence, AuSFO has expressed its willingness and ability to assist agencies in resolving age assessment issues. In anticipation of such issues arising, protocols and standards for age assessment examination, issues of informed consent, the constitution of a panel of expert, experienced practitioners and the composition of the written report have been agreed upon following a meeting held in May 2010. Under the auspices of the National Institute of Forensic Science (NIFS), the Medical Sciences Scientific Advisory Group (MSSAG) convened a workshop meeting in Adelaide entitled ‘A Critical Assessment of Human Age at Death Estimations’. This was attended by Australian forensic odontologists and forensic

anthropologists (Appendix I). Agreement amongst the disciplines was unanimously reached. A pro-forma 'Age Report' template was also developed (Appendix II).

In cases where there is a suggestion that minors have been imprisoned in an adult facility, the simple expediency of an intra-oral examination and the taking of appropriate dental radiograph (OPG) will assist in the determination of age range of the individual based on scientifically robust, academic research. The examination procedure, developed by AuSFO, with input from the Dental Age Assessment unit in the United Kingdom, meets UNCRC criteria for age assessments guidance for refugee and migrant children. The technique is simplistic in its implementation, inexpensive to undertake and results would be determined within hours. Both the Australian and Indonesian Governments, the individual assessed, Australian Human Rights issues and Australian law requirements would be addressed in a timely manner. It should be noted that all States and Territories within Australia have qualified and experienced forensic odontologists within easy reach of all detention centres housing suspected child refugees. All detention centres have suitable medical facilities in which oral examinations can be undertaken and many have radiographic facilities which can produce appropriate x-ray images. In some cases the detainee may have to be transferred to an outside radiography facility to obtain an OPG. . It is anticipated that the time taken from initial examination to the presentation of a final signed medico-legal report, including the age estimation, would be completed within 14 days.

## **Conclusion**

An age estimate is the chronological age range of an individual determined from the analysis of dental, skeletal and other physical characteristics, compared to relevant standards developed from individuals of known age. Precise determination of age is not possible due to human variation; an age range, with confidence intervals is the best expression of age estimation

The simple expediency of visual assessment of a living individual, documentary and circumstantial evidence obtained following interview with parents, guardians or public authorities sourced from the individual's home country, opens the possibility for manipulation and falsification of such evidence. There is also potential for gross error in either over or under estimating the age.

It is recognised that dental development, as opposed to skeletal development, is able to provide the most reliable indicator for chronological age.

Studies have found that analysis of third molar development is accurate and sufficiently correlated with chronological age to be of forensic value. Third molars develop from mid-teens to early 20s and complete closure of the apices of the third molar teeth is an indication that the living individual is over the age of 18 years and thus, by definition, an adult.

A panel of qualified and experienced practitioners should assess all information gathered.

Age assessment will be given which includes an age range of the detainee. This will allow a Magistrate to interpret the age assessment results on the 'balance of probabilities' and give the detainee the right to the rule of the 'benefit of the doubt'. It also addresses concerns rested in the *Covention of the Rights of the Child (CRC)*.

The proposed protocols and standards for age estimation meet UNCRC criteria for age assessments guidance for refugee and migrant children:

- be comprehensive, taking into account both physical appearance and psychological maturity
- be conducted in a safe, child and gender sensitive manner
- allow margins of error or caution when scientific procedures are used
- provide children with the benefit of the doubt in cases of uncertainty
- give children clear information about the purpose and process of assessment procedures in a language they understand
- appoint a qualified, independent guardian to advise the child prior to an assessment procedure

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## Appendix I

### Medical Sciences Scientific Advisory Group Workshop

**Title:** A Critical Assessment of Human Age at Death Estimations

**Date:** 27-28 May 2010

**Venue:** Adelaide:Forensic Science SA (21 Divett Place) & Forensic Odontology Unit (233 North Terrace)

**Duration:** 2 days

**Numbers:** 4 anthropologists and 10 odontologists

#### **Aims:**

- Identify similarities and differences of definitions and methods used within and between the disciplines of Forensic Odontology and anthropology
- Achieve a standardized cross-disciplinary approach to the estimation of age at death.

#### **Outcomes:**

- Standardized approaches to ageing
- Determine situational uses and potential clients
- Define terminology
- Determine a consensus of age ranges to be used by anthropologists and odontologists
- Discuss methods practitioners use to estimate age at death, advantages and limitations
- Discuss standard report writing and presentation of evidence
- Produce an information package, including ppt for teaching and FAQ for clients
- Discuss research protocol for combine anthropology / odontology project to be prepared for publication of results in scientific literature
- Disseminate workshop outcomes to practicing Australian odontologists and anthropologists

#### **Deliverables:**

- Report to Medical Science Scientific Advisory group (MS.SAG)

- Report to Australian Disaster Victim identification Committee (ADVIC)
- Review Australian guidelines
- FAQ Collation
- Literature Collation
- Identify Research gaps / projects
- Disseminate outcomes to odontologists / anthropologists (ANZFSS presentation)

### **Age Estimation: Frequently Asked Questions**

#### **What is an age estimate?**

An age estimate is the chronological age range of an individual determined from the analysis of dental, skeletal and other physical characteristics and compared to relevant standards developed from individuals of known age.

#### **In what circumstances may age estimates be useful?**

##### Living

- Refugees and immigrants
- Individual Identification
- Adoption
- Identity theft
- Fraud
- Missing persons
- Amnesia

##### Deceased

- Individual Identification
- Disaster Victim Identification
- Biological profiling
- Missing persons
- Differentiation of siblings

### **What are the broad categories for age?**

FOETAL                    8 wks - Birth

INFANT                    0 - <2 yrs

CHILD                    2 - <13 yrs

ADOLESCENT 13 - <18 yrs

ADULT                    18+ yrs

### **Why have I been given an age range?**

Biological variability. For example, in a classroom of children many will be different heights but will be the same chronological age. The level of biological development of an individual (their biological age) can be affected by many factors including sex, nutrition, ancestry, disease, medical treatment, socio-economic background and other lifestyle factors. This variability increases with age, so the range of an estimate will be narrower in the young and much wider in adults.

### **Are there growth differences between males and females?**

Yes. Males and females exhibit different rates of growth and development. This difference becomes more obvious as the child gets older.

### **Are there differences between races and countries?**

Yes. Ancestry, or genetic heritage, plays a significant role in an individual's rate of growth and development.

### **Are there recommended guidelines for the process of age estimation?**

There is a range of techniques available to the practitioner. The choice of the most appropriate technique will depend on the specific circumstances of the case.

### **What are the limitations of scientific age estimates?**

- A small proportion of people will fall outside the estimated range (about 5%);
- Congenital medical conditions can affect the rate of growth of the teeth and bones and can affect the accuracy of an age estimate;
- Nutrition and lifestyle factors may affect the rates of growth and development and can, in some cases, affect the accuracy of an age estimate;
- Estimates are less accurate in adults and more accurate in children;

- We need the appropriate bones and/or teeth to provide an age estimation. The accuracy of age estimations are affected by the completeness and preservation of the remains;
- There is not always the relevant dataset for a particular population, which means a similar (or 'next best') dataset will be used resulting in a less accurate estimate.

**Can you estimate age of an individual from another country?**

Yes. Ideally a relevant comparative dataset from the country of origin of the individual will be used for an estimation. If such a dataset does not exist the next most relevant dataset will be used. However, this will result in an estimate with a larger age range allowing for the variation between countries and ancestries.

## Appendix II

### Draft Age Assessment Report

Date

Re: *Name*  
*Address*

Dear Sir,

At the request of .....*Name*.....from,.....*Organisation*....., and with written consent from....*Name*.....and his legal representative, I arranged a referral for.....*Name*.....to have an OrthoPantomoGraph (OPG) and/or Hand/Wrist radiograph to be taken at .....*Radiography Department*..... on *Date*

The radiographic images taken were forwarded to my office on the .....*Date*.....

As background information, the human dentition develops from a process of calcification of embryonic membranous tissue, commonly called 'tooth germs'. Calcification of the tissue commences prior to birth and is complete in early adult life with the calcification of the root apex of the third permanent (adult) molar tooth - (wisdom tooth).

The OPG radiograph is viewed to:

- evaluate the dental health status of the dentition; a complete clinical oral examination is required to confirm the status of the oral health of the client
- assess the age of the client

The chronological age assessment is determined by comparing the stages of calcification of all teeth and 'tooth germs' present on the OPG image with relevant published data from individuals of known age (list attached). The chronological age assessment is expressed as an age range, with confidence intervals.

I forwarded the images to Specialist Forensic colleagues .....*Insert Names*  
.....for their review and comment.

An analysis of the teeth and bone images viewed showed... *Unremarkable/Revealed anomalies*  
.....

*Note: All abnormal findings are to be reported and recommendations for further investigation must be made. Any follow-up treatment would be the responsibility of the client who had the OPG taken to arrange.*

Evaluating the status of the teeth present with published data on age assessment (as per the list attached) we assess the age of .....*Name*..... at the date the radiographs were taken to be ..... with a range of ...+/-..... months.

If additional information is required please contact myself on the above address or by phone

Yours sincerely,

Dr .....*Name*.....

.....*Title*.....

.....*Position*

Attached:

Reference list

Reviewers' Addresses