



33. Evaluation of bone age at the request of the State

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Background

The Ethics Board was presented with the question of what physicians should do when required by the state to evaluate the bone age of an underage illegal resident, in order to determine his chronological age and decide how the state will deal with him.

In recent years, the number of illegal residents in Israel has rapidly increased. Some are held in custody pending the conclusion of legal proceedings initiated against them for illegal residence. Many of them carry no documents that could attest to their chronological age – a crucial legal factor.

On June 10, 2007, the Ministry of Justice issued the “Procedure for Evaluating the Biological Age of Teenagers and Young Adults in Legal Proceedings Regarding Illegal Residence in Israel.”

According to this procedure, biological age can be determined in three ways: a physical examination of the patient by a physician specializing in pediatric endocrinology, evaluation of a hand X-ray or assessment of dental maturity in an orthopantomogram (panoramic teeth X-ray).

The procedure further stipulates that these examinations should only be carried out after receiving a court order or a decree from the “Immigration Detention Review Tribunal,” and that X-rays of the hand or teeth should be taken only if the age cannot be evaluated “with high probability” without them. Prior to performing the examinations, the procedure also requires providing the patient with information about the examinations and their purpose, and receiving his consent, in accordance with the Patient’s Rights Law, 1996.

The Ethics Board was presented with a case where the police transferred an illegal resident from a detention facility to a nearby hospital and requested an X-ray of his hand in order to determine his age. This request was not accompanied by a warrant from a court or tribunal, by “informed consent” or by a report stating that a physical examination had previously been performed by a pediatric endocrinologist and was inconclusive.

During the discussion by the Ethics Board, Dr. Gideon Flusser, an expert in diagnostic radiology and the director of the Skeletal Imaging Unit at Sourasky Medical Center, presented the main points of the medical opinion he gave to the Hotline for Aid to Foreign Workers in a lawsuit against the state regarding a minor who was sent for a hand X-ray to determine his age.

The examination used to evaluate bone age relies on Greulich’s bone age atlas, which was published in 1959 and relies on images taken during the 1930s from hundreds of white children in the area of Cleveland, Ohio. The images in the atlas are supposed to represent the average development of bones at different ages.



The first edition of the atlas already contained a warning that the X-ray standard should not be expected to apply to other populations. According to the editors, there is significant variance in findings among different ethnic groups. Considering the 80-year gap and the immense changes in diet and health in various populations, there is no doubt that the atlas is far from capable of providing a credible scientific assessment of a patient's age. This warning is doubly relevant to underage illegal residents, who come to Israel from countries stricken by hunger and sickness, which clearly alter the biological maturation of those minors.

According to data presented in the atlas itself, even within the specific population referred to in the book, there is a high standard deviation. For example, at age 17 the standard deviation is 16 months. This means that even within the population in this study, a minor who is supposed to be 17 according to the atlas could actually be as young as 15 years, 8 months or as old as 18 years, 4 months. This data was confirmed in a study that only found a match between chronological age and bone age in 20-30% of patients.

There is no doubt that this is an obsolete diagnostic tool with very questionable scientific credibility. The only reason it exists is that nowadays, knowing the risks of ionizing radiation, it's impossible to X-ray thousands of healthy children in order to create a new standard.

Despite all this, the Ministry of the Interior and the Population and Immigration Authority rely exclusively on evaluations of bone age to determine the age of illegal residents. As a result, minors who were ostensibly shown to be adults have been transferred to jails and incarcerated in harsh conditions alongside adults.

Many Western countries that face problems of illegal immigration have completely stopped using a hand X-ray to determine the age of immigrants, or alternatively determine the age using additional measures such as dental examinations and interviews with a psychologist.

The national policy on determining the chronological age of illegal residents should be reconsidered. Until this policy is altered, each physician should decide for himself how to act professionally in such cases.

The position paper:

1. The assessment of bone age in minors for determining their chronological age relies on an atlas of X-rays performed 80 years ago in a homogenous population of white children in the U.S. Midwest.
2. The scientific validity of the atlas is currently very doubtful vis-à-vis populations that vary in any way from the sample group.
3. Evaluating bone age is not a precise way of determining biological age, the correlation to chronological age is very low, and there is a high standard deviation.



4. The use of ionizing radiation for X-ray imaging is forbidden when there is no benefit to the patient. This is especially problematic when regarding minors.
5. The use of ionizing radiation for imaging that is not for medical purposes is forbidden without freely given informed consent.
6. Requests for a bone age evaluation should state why such an examination is necessary.
7. Bone age evaluations intended to determine a person's age should be performed only in accordance with a court warrant, and with informed consent signed by the examined person.
8. Evaluating bone age for non-medical reasons is subject to the discretion and conscience of every physician.