4n6 Tools Pro

version 5.5 · build 26

Quick guide - 27 forensic-medicine tools in one app. Everything runs on the device; nothing is sent to a server.

1. Basics

- **Home screen** - tool tiles by category, search and category filters. Tap to open a tool; the arrow at the top left goes back.
- **Language** - the button with the language code in the header, available everywhere: Slovak, English, Czech, German, Italian, French, Ukrainian, Polish, Hungarian, Chinese (Simplified), Spanish and Portuguese (Brazil) - twelve languages. On first launch the app follows the phone language. Changing the language also recalculates the report records; the export is always single-language.
- **Favourites** - the star on a tile pins it to the top.
- **Work in progress** - field values (including drink rows, Widmark measurements and the odontogram) are saved continuously and are back after returning to a tool or a phone call. They are cleared after 6 hours so numbers from a previous case never appear in a new one.
- **Results** come from the calculate button and the screen scrolls to them. Every result carries a range and a source citation under “Method and references”.

2. Case, report and backup

- Case details (protocol number, name, date, examiner) are entered **once** in “Report and cases”. They are optional.
- Every completed calculation is filed **automatically** into the active case’s report; repeating a tool replaces its record.
- **Copy / Send** - the whole report as text or as a file “protocol – date – name.txt”.
- **Several cases** - “New case” starts a separate report; the catalogue appears from two cases on.
- **Case backup** - all cases and reports into a single `.json` file (Files, iCloud Drive, AirDrop). **Restore from backup** merges them: new cases are added, for an identical case the newer version is kept, nothing is deleted.

3. Tools

Case

- **Report and cases** - Results in one place, export and sharing.

Thanatology

- **Forensic entomology** - Fly development, identification and PMI.
- **Henssge - time of death** - PMI from rectal temperature, plus date and time of death.
- **Post-mortem changes - PMI** - Livor and rigor → date and time of death.
- **Vitreous K^+ - PMI** - Time since death from vitreous potassium.

Trauma

- **Burns - extent** - TBSA per Lund and Browder, the Baux index.

Toxicology

- **CO-Hb - carbon monoxide** - Interpretation of poisoning and vitality in fire deaths.
- **Ethanol - concentration over time** - Timed drinks → concentration at a target time.

- **Ethanol - interpretation** - Blood, urine, vitreous, ratios and stages.
- **PAL - drug concentrations** - Therapeutic [non-toxic], toxic and fatal concentrations.
- **Ethanol - calculations** - Curve, back- and balance calculation, breath.

Biochemistry

- **Traub index** - Glucose + lactate - antemortem glycaemia.

Cardiac pathology

- **BSA + heart weight** - Body surface area and expected heart weight.

Identification

- **Age from aortic girth** - Age from three aortic circumferences.
- **Blood groups and traces** - AB0/Rh, inheritance, angle of impact, DNA.
- **DVI - mass fatality** - Phases, identifiers and identification categories.
- **Odontology** - AM/PM odontogram and dental age.

Anthropology

- **Stature from bones** - Stature from long bone lengths.
- **BMI / nutrition** - Body mass index and a verbal nutritional description.
- **Volumetric estimate** - Weight from body dimensions (experimental).
- **Skeletal sex and age** - Sex and age of an adult skeleton.

Microscopy

- **IHC - desmin** - Desmin quantification (CPA) and indices.
- **Microscopy** - Cells and structures in a field.

Tools

- **Colorime3ka** - Objective colour naming, incl. bruises.
- **Unit converter** - mg/dL ↔ mmol/L and more.
- **littlEye AI** - On-device AI assessment of histology.
- **Fotograme3ka** - Scale and measurement on a photograph.

Application

- **Settings** - Appearance, text size and information about the app.

4. Reading the key results

- **PAL - drug concentrations** (67 substances). The result has two separate blocks: **Clinical reference levels** (blood/plasma of living persons; Schulz 2020, Baselt, Molina & Hargrove) and, for 53 substances, **Post-mortem femoral blood** (Ketola & Ojanperä 2019, 122,000 autopsies): the median is a common post-mortem finding, above the 90th percentile is possible overdose, above the 97.5th percentile is the band of fatal concentrations. For a post-mortem finding the post-mortem distribution matters more - clinically “toxic” is not yet proof of poisoning. An empty cell is deliberate: the literature gives no reliable value; the reason is given with the substance.
- **Henssge** - the 95 % interval depends on the cooling phase (Q) and on whether a corrective factor was used. Below it the **Glaister equation** is shown for comparison (orientational); with the rectal temperature alone the app gives at least this rough estimate.
- **Post-mortem changes** - the result is the intersection of time windows (Mallach; Henssge & Madea 2004). An open-ended window shows as “time of death before <date>”; the app names the signs that bound the window or conflict.

- **Entomology** - choose the species (developmental threshold T_0). The ADD table is for *Lucilia sericata*; for another species enter its own ADD. The result is a **minimum** PMI.
- **Ethanol** - Widmark with resorption deficit also in the balance, individualised r after Seidl, blood : breath ratio (statutory 2000/2100/2300 and the physiological mean 2400), blood from vitreous after Jones & Holmgren (central estimate, range and conservative V/2). Samples across midnight are handled correctly.

5. Settings

- **Text size** - Small, Medium, Large or **System** (follows the iOS text size within a range that keeps the layout legible; a change applies when you return to the app).
- **Appearance** - light, dark or system. **App icon** - seven variants.
- About the author, sources, privacy and links to littlEye AI, aPrehliadky and Colorime3ka.

6. Principles of interpretation

- All values are **orientational** and based on published methods. Report the **range**, not the mid-value.
- The final assessment belongs to the examining physician or expert. The app is not a medical device.

7. Privacy and contact

- No internet, analytics or sign-in. Photographs are processed in memory and stored nowhere.
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- Support and privacy policy: **dzanino.github.io/4n6**