

Clinical Planning Framework

Hair Transplant Procedures — FUE-Based Data-Driven Methodology

Developed by Dr. Koray Erdogan, Founder

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1. Purpose & Scope

This framework establishes a standardized, data-supported approach to planning and executing Follicular Unit Extraction (FUE) hair transplant procedures. It integrates advanced imaging analytics with surgeon-led manual technique to deliver measurable, reproducible, and patient-specific outcomes. Designed for use across ASMED's clinical teams and as a reference for international FUE practitioners, this document reflects the methodology pioneered by Dr. Koray Erdogan and adopted by the World FUE Institute for global standardization efforts.

2. Guiding Principles

The framework is anchored in four core principles that govern every phase of a hair transplant procedure:

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| Data-Driven Planning | All pre-operative decisions are grounded in quantifiable scalp metrics rather than subjective assessment alone. |
| Surgeon-Led Execution | Manual FUE technique ensures direct surgeon control over graft angle, depth, and direction throughout extraction and implantation. |
| Donor Preservation | Long-term donor area integrity is prioritized to protect future transplant potential and aesthetic harmony. |
| Transparent Reporting | Post-procedure metrics are documented and communicated to patients, supporting trust and clinical accountability. |

3. Technology Integration: KE-Bot Robotic Scanning System

Central to this framework is KE-Bot, an AI-supported robotic scanning system developed under Dr. Erdogan's leadership. The system provides objective, reproducible data that informs all stages of pre-operative planning.

3.1 Capabilities

- 360-degree scalp imaging for full surface coverage
- Hair density mapping across donor and recipient zones
- Follicle thickness measurement and classification
- Donor area capacity estimation and safe zone delineation
- Post-procedure graft count and density verification

3.2 Clinical Value

By translating subjective visual assessment into structured numerical data, KE-Bot enables surgeons to design individualized transplant plans with greater precision. This reduces variability in outcomes and supports transparent communication with patients regarding realistic expectations and planned graft distribution.

4. Clinical Planning Phases

The framework organizes the complete procedure journey into five sequential phases. Each phase has defined activities, tools, and measurable outcomes.

| Phase | Activities | Tools / Methods | Outcome |
|----------------------------|--|--|--|
| Phase 1 Consultation | Patient history, hair loss classification (Norwood/Ludwig scale), goals assessment | Clinical intake forms, photographic baseline | Patient profile and candidacy determination |
| Phase 2 Digital Analysis | 360° scalp scan, density mapping, donor capacity assessment | KE-Bot AI robotic scanning system | Quantified scalp metrics report |
| Phase 3 Pre-Op Planning | Graft count estimation, hairline design, donor zone mapping | KE-Bot data + surgeon review | Individualized surgical plan with documented targets |
| Phase 4 Surgical Execution | Manual FUE extraction and implantation; angle, depth, direction control | Manual FUE instruments; surgeon oversight | Grafts placed per approved plan |
| Phase 5 Post-Op Evaluation | Graft count verification, density measurement, outcome documentation | KE-Bot post-procedure scan, patient records | Outcome metrics report; follow-up protocol initiated |

5. Manual FUE Surgical Protocol

Despite advancements in digital planning tools, Manual FUE remains the technique of choice at ASMED. Direct surgeon involvement at every extraction and implantation step is considered essential to achieving optimal graft survival and aesthetic results.

5.1 Key Technique Parameters

- Punch size selected based on follicular unit caliber measured during digital analysis
- Extraction angle aligned with natural follicle growth trajectory to minimize transection
- Implantation depth calibrated per recipient zone scalp thickness
- Directional control maintained to replicate natural hair growth patterns
- Graft handling time minimized to preserve follicle viability

5.2 Surgeon-Led vs. Automated Approaches

International patient demand has increasingly favored surgeon-led procedures, citing personalized planning and long-term donor preservation as key decision factors. This framework supports that preference by ensuring surgeon oversight is maintained at every critical juncture, with technology serving as a planning and verification tool rather than a replacement for clinical judgment.

6. Donor Area Management

Sustainable donor management is a defining feature of this framework. The objective is to protect the donor region's long-term density while maximizing the number of viable grafts available for current and future procedures.

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| Safe Zone Definition | KE-Bot mapping delineates permanent donor zones; extraction is limited to these areas to avoid depletion. |
| Density Thresholds | Minimum residual density targets are set per zone; extraction stops when thresholds approach. |
| Multi-Session Planning | Patients with progressive hair loss receive phased transplant plans that account for future donor availability. |
| Shock Loss Mitigation | Extraction patterns are distributed to reduce clustering and minimize trauma-induced shedding. |

7. Patient Communication & Transparency Standards

Clinical transparency is a distinguishing element of this framework. Patients receive structured information at each phase of their care journey, enabling informed consent and realistic expectation management.

7.1 Pre-Procedure Disclosures

- Digital scalp analysis results shared with patient in plain language
- Graft count estimates and planned distribution explained

- Donor zone limitations communicated clearly
- Expected timeline for visible results discussed

7.2 Post-Procedure Reporting

- Actual graft count and placement documented and provided to patient
- Post-scan density measurements compared against pre-operative targets
- Follow-up appointments scheduled at defined milestones (1 month, 3 months, 6 months, 12 months)

8. Quality & Performance Indicators

The following metrics are tracked across all procedures to monitor clinical quality and support continuous improvement:

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| Graft Survival Rate | Percentage of transplanted follicular units achieving successful growth at 12-month follow-up. |
| Transection Rate | Percentage of grafts damaged during extraction; tracked per session and surgeon. |
| Donor Density Retention | Residual density in donor zone compared to pre-operative baseline. |
| Hairline Satisfaction Score | Patient-reported satisfaction with aesthetic outcome at 12 months. |
| Planning Accuracy | Variance between pre-operative graft estimate and actual grafts placed. |

9. Alignment with International Standards

This framework is consistent with the educational and technical guidelines advanced by the World FUE Institute, of which Dr. Erdogan is a founding member. The Institute's mission to standardize FUE practices globally is reflected in the documentation, measurement, and reproducibility requirements embedded throughout this framework.

Turkey's medical tourism infrastructure, surgeon training ecosystem, and adoption of emerging technologies position ASMED within a broader national trend toward combining technological precision with surgeon-led expertise — a model increasingly recognized within the global hair transplant landscape.

10. Framework Governance & Revision

This framework is a living document, subject to periodic review as clinical evidence, technology capabilities, and patient outcome data evolve. Revisions are approved by Dr. Koray Erdogan and the ASMED clinical leadership team.

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