Concise Policy Recommendations for Improving Cervical Tissue Histological Examination in Latvian Hospitals

Proposed by:

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Introduction

Cervical cancer (CC) and cervical intraepithelial neoplasia (CIN) remain significant public health challenges in Latvia, with nearly all cases linked to high-risk human papillomavirus (HR HPV) infections. Current diagnostic methods, primarily relying on histomorphology (H&E staining) and single-marker immunohistochemistry (IHC), face critical limitations:

- **Low sensitivity** in detecting HR HPV in formalin-fixed tissues.
- **Over-reliance on surrogate markers** (e.g., p16), which may not distinguish transient infections from progressive disease.
- **Risk of overtreatment**, as many HR HPV infections resolve spontaneously, yet aggressive interventions (e.g., LEEP procedures) can lead to infertility and other complications.

To address these gaps, Pauls Stradiņš Clinical University Hospital (PSUKH) has developed an **enhanced diagnostic algorithm** combining **p16, Ki-67, and p53 markers** via dual/triple IHC staining. This approach improves accuracy by correlating marker expression within the same cells, identifying high-risk lesions (e.g., p53-mutant cancers), and reducing unnecessary treatments.

Target Stakeholders:

- **Hospitals & Pathology Departments** (e.g., PSUKH, regional oncology centers).
- **Gynecologists & Oncologists** involved in cervical cancer screening and treatment.
- **National Health Authorities** (e.g., Ministry of Health, National Health Service).

Policy Recommendations

1. Adopt Advanced IHC Staining Protocols

- **Replace single-marker tests** with **dual (p16/Ki-67) and triple (p16/Ki-67/p53) staining** to:
    - Confirm HSIL (p16+/Ki-67+) or benign cases (p16−/Ki-67−).
    - Detect HPV-independent cancers (p53 null/mutant) requiring genetic testing.
- **Standardize interpretation guidelines** for p53 patterns (wild-type vs. aberrant) across hospitals.

2. Implement Tiered Diagnostic Workflows

- **H&E morphology** → Initial screening.
- **p16/Ki-67 dual staining** → Triage HSIL (manage aggressively) vs. benign (observe).
- **Triple staining (p16/Ki-67/p53)** → Flag high-risk cases (e.g., p53+) for genetic counseling.

3. Reduce Overtreatment Through Precision Diagnostics

- **Avoid ablative treatments** for likely transient HPV infections (p16−/Ki-67−).
- **Prioritize surgery** only for high-risk lesions (p16+/Ki-67+/p53+).

4. Invest in Hospital Infrastructure & Training

- **Equip pathology labs** with automated stainers (e.g., Dako Autostainer) and fluorescent microscopes.
- **Train pathologists** on triple-staining protocols and p53 interpretation.

5. Integrate with National Cancer Screening Programs

- Align with Latvia's **2025–2027 Oncology Improvement Plan** to enhance CC screening accuracy.
- Pilot the protocol in PSUH, then scale to regional hospitals.

Expected Outcomes

- **Higher diagnostic accuracy**: Fewer false positives/negatives.
- **Personalized care**: Tailored follow-up (observation vs. surgery).
- **Cost savings**: Reduced unnecessary procedures and long-term complications.

Approval & Implementation:
Endorsed by PSCUH Pathology Institute and Chief Oncologist. Proposed rollout:

1. **2026**: Pilot at PSUKH; train staff.

2. **2027**: Expand to 2–3 regional hospitals.
3. **2028**: National adoption via Ministry of Health guidelines.