# Assignment #2

- *Sketch out a model-based decision analysis project*

- *Should address a realistic health problem, and propose specific interventions to be evaluated using a Markov model*

- *Description should include…*

  - Motivation

  - Research question (study objective)

  - Population

  - Cycle length

  - Competing interventions

  - List of main model parameters

  - Outcomes of interest

Assignment #2
Example

- **Motivation:** Each year, over 3 million Pap smear results are equivocal. There is no consensus on the optimal management strategy for women with equivocal results on the Pap smear screen.

- **Statement of the question (study objective):** To evaluate the comparative effectiveness of management strategies for women with equivocal Pap smear results

- **Population:** U.S. women eligible for screening (cohort start age 21)

- **Health states:** see next slide

- **Cycle length:** monthly

- **Competing interventions:** (1) ignore equivocal result, (2) repeat Pap at 6, 12 months, (3) HPV DNA test, (4) immediate colposcopy

- **List of main model parameters:** see next slide

- **Outcomes of interest:** Reductions in lifetime risk of cervical cancer, gains in life expectancy, quality-adjusted life expectancy

Health States
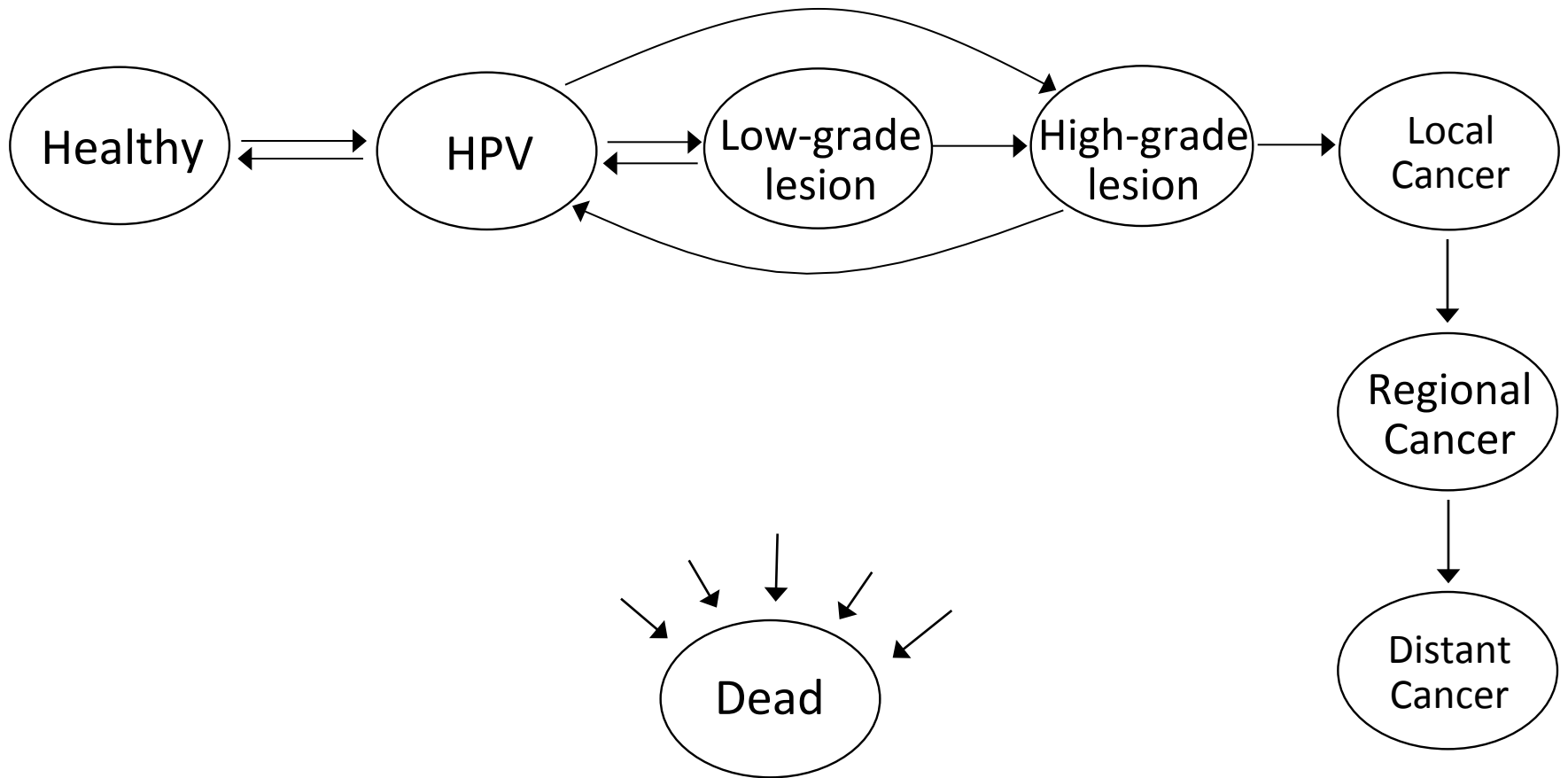
Main Model Parameters

- Natural history of disease (transition probabilities)
  - HPV incidence (Healthy to HPV)
  - HPV clearance (HPV to Healthy)
  - HPV progression (to low-grade lesion, to high-grade lesion)
  - Low-grade lesion progression (to high-grade lesion)
  - Low-grade lesion regression (to HPV)
  - High-grade lesion regression (to HPV)
  - Cancer incidence (high-grade lesion to local cancer)
  - Cancer progression (to regional, to distant cancer)
  - Mortality (all-cause by race and age, cancer-specific by state)

- Intervention
  - Pap test sensitivity and specificity
  - HPV DNA test sensitivity and specificity
  - Colposcopy/biopsy sensitivity and specificity
  - Treatment efficacy

- Health state utilities
  - Cancer (local, regional, distant)
  - Disutility associated with positive test results, procedures