ECDC programme on HIV, STI and Hepatitis B and C

Approaches to evaluating cost-effectiveness of HIV screening strategies

HIV in Europe, Copenhagen 2012 Conference

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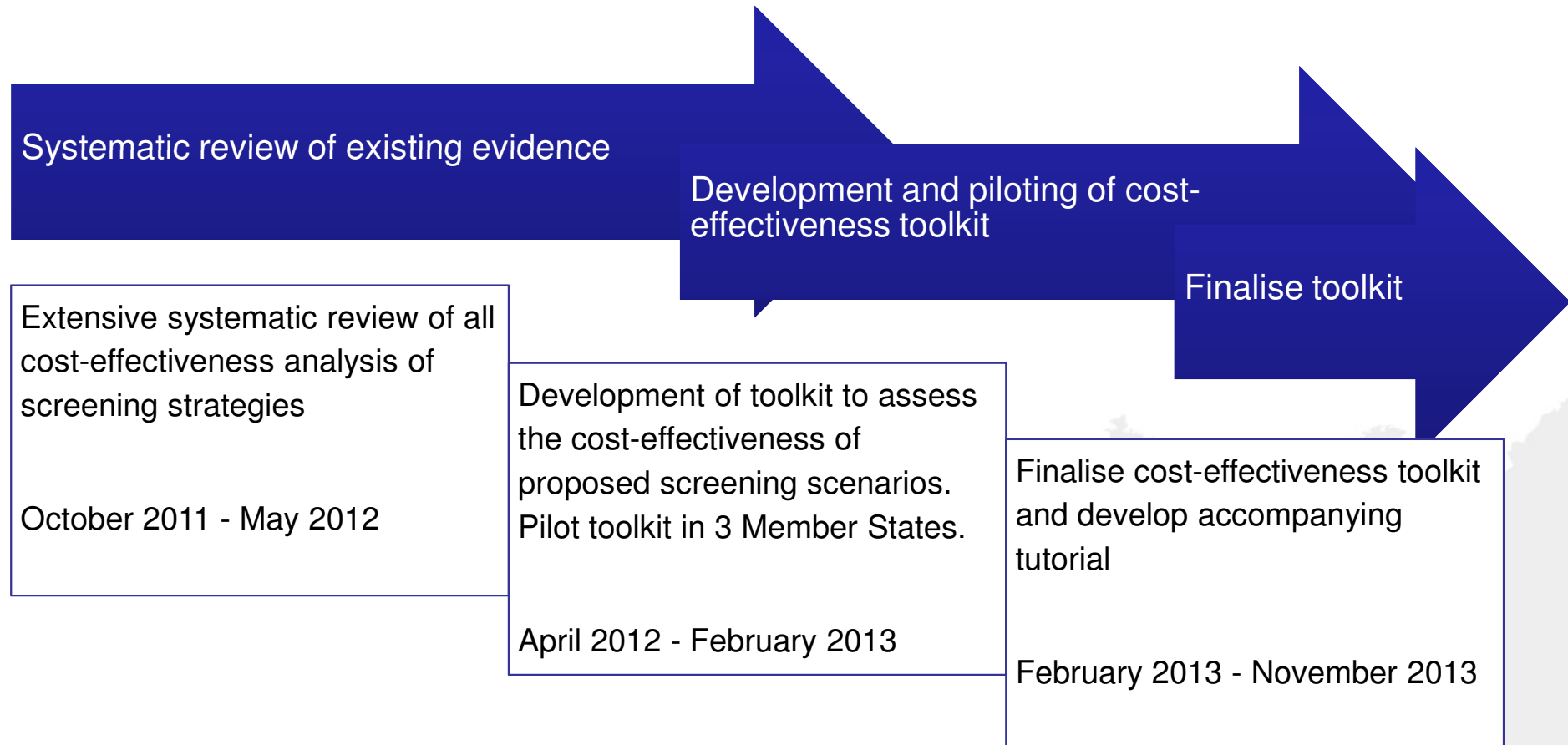
Scope and Objectives

Scope

- To map all existing evidence on evaluating the cost-effectiveness of screening strategies for HIV, HBV and HCV infections; and develop optimum models to inform cost-effectiveness of screening strategies in individual European Member States.

Objectives

- To undertake a systematic review, grade existing literature, and critical assessment of existing models that are designed to estimate the cost-effectiveness of HBV, HCV and HIV testing strategies

- To recommend and develop relevant models, based on the findings of the systematic review and model critique, to be used at a European (or international) level to assess the impact of screening interventions or scenarios

Overall Project Plan

Systematic review of existing evidence

Development and piloting of cost-effectiveness toolkit

Finalise toolkit

Extensive systematic review of all cost-effectiveness analysis of screening strategies

October 2011 - May 2012

Development of toolkit to assess the cost-effectiveness of proposed screening scenarios. Pilot toolkit in 3 Member States.

April 2012 - February 2013

Finalise cost-effectiveness toolkit and develop accompanying tutorial

February 2013 - November 2013

Selection Criteria for the Systematic Review

- Population – groups that have been identified for HIV screening (e.g. unselected populations, women during pregnancy, MSM, migrants, injecting drug users, patients attending sexual health clinics, health professionals, etc.); exclude blood donors

- Interventions and comparators – testing for HIV, no testing or alternative screening strategies

- Outcomes – costs (medical and non-medical costs) and benefits (major outcomes averted, quality adjusted life years, survival)

- Study type – economic evaluations incorporating cost-effectiveness analysis

Quality Assessment of the Evidence

I. Overall assessment of the cost-effectiveness study

- Based on the Drummond checklist[1]

- Overall scope, methodology and presentation of results, overall quality of the economic analysis and appropriate interpretation of findings

- Grading of the evidence

II. Critique of decision analytical models[2]

- Model structure

- Data input

- Internal consistency

[1]Drummond et al, BMJ 1996; [2]Philips et al, Health Technology Assessment 2004

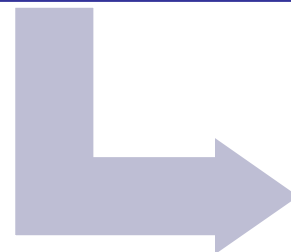# Preliminary Findings – Search Results

Search Output

(N = 7649)

- Medline
- EMBASE
- NHS Economic Evaluation Database
- Database of Abstracts and Reviews of Effects
- The Health Technology Assessment Database]
- Hand and citation search
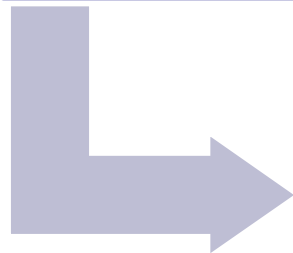
Full Papers Reviewed

(N = 102)

- Excluded due to failure to meet all selection criteria

Studies Included to Date

(N = 30)

- Expect approximately further 15 studies to be included

# Preliminary Findings – Strategies Evaluated

- Screening populations and setting

  - Unselected or general population
  - Women during pregnancy
  - "High-risk" populations
  - Healthcare professionals
  - Soon to be released prisoners

  - Community setting
  - Primary care (clinics)
  - Inpatient care
  - Emergency department
  - Prison

- Screening strategies

  - Expanded screening
  - Screening frequencies (one off versus repeat screening)
  - Voluntary and mandatory
  - Nurse-led initiatives
  - Rapid testing

Preliminary Findings –
Features of Cost-effectiveness Analyses

- Primarily compared screening with no screening (or status quo)

- Healthcare payer perspective; lifetime horizon

- Decision tree +/- Markov Model

- Input parameters

  - Clinical parameters (established disease model such as CEPAC)

  - Cost parameters (direct or indirect medical costs)

  - Health utility decrements

- Outcomes expressed as incremental costs per life year (LY) gained or quality adjusted life-year (QALY) gained

  - Pregnancy studies (infant infection averted)

Typical Decision Analytical Model
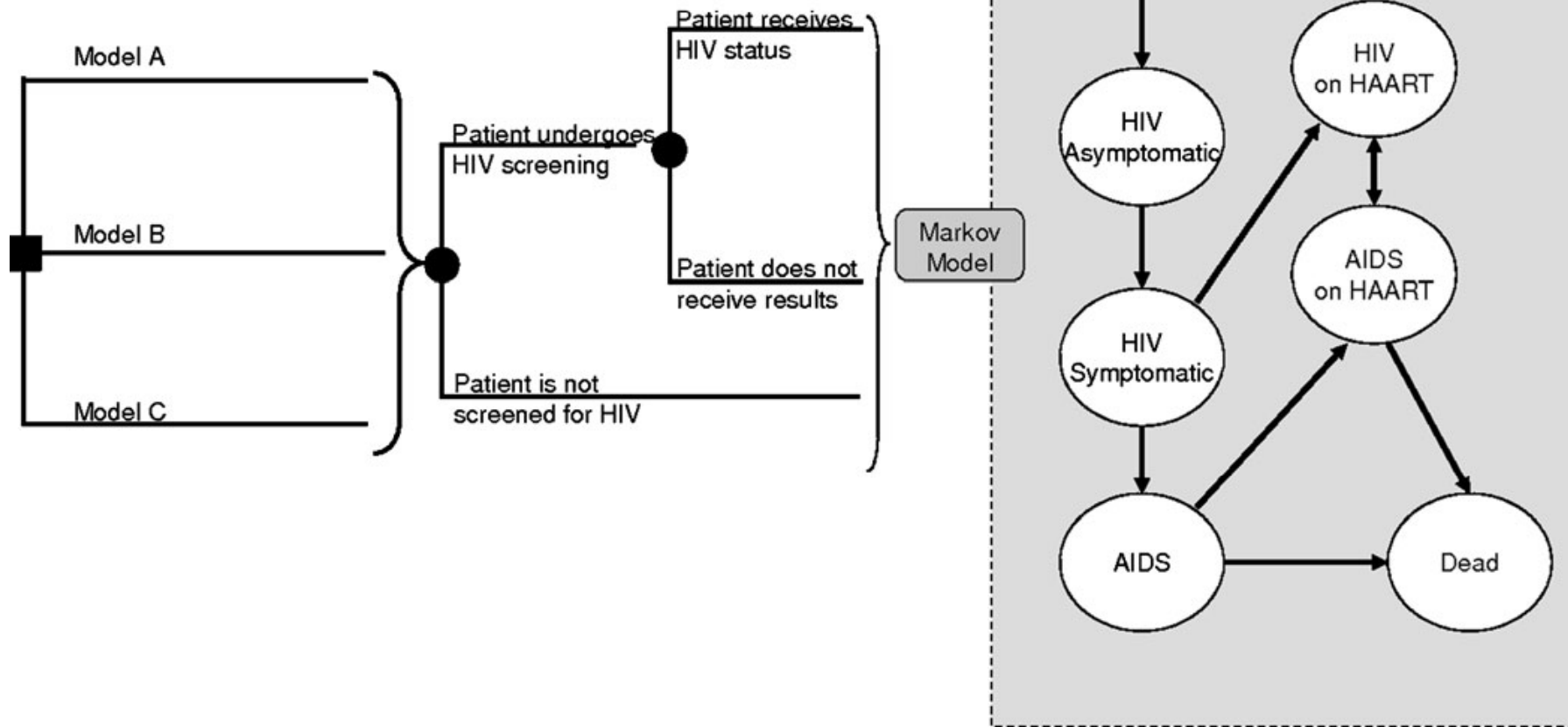
Preliminary Findings – Key Input Parameters

- Prevalence of undiagnosed HIV in populations of interest
- Return for results and access to care
- Transmission to partner (or infants)
- Treatment effectiveness
- Sensitivity and specificity of tests
- Cost of tests and counseling

Preliminary Recommendations

- Healthcare payer perspective, lifetime horizon
- Common key input parameters
- Multiple outcomes
- Decision tree and multi-state Markov model
  - Static vs Dynamic
- Sensitivity analysis
- Key challenges
  - Availability of relevant data
  - Local healthcare structure

Team and Acknowledgements

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