The benefits and costs of identification and treatment of early rheumatoid arthritis

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Our modelling set out to examine

- The pathway to diagnosis
  - after onset of symptoms
- Treatment patterns
  - in particular, the time treatment starts after symptom onset

Our economic modelling

Two models

- Earlier identification of RA
- Treatment of early RA

Modelling – key points of focus

- People of working age
- Costs to the NHS
- ‘Costs’ to the economy
- New cases – 26,000 annually
- ¾ people diagnosed when of working age
- One third give up work within two years

Modelling approach

- Data sources
  - GPRD, ERAN, NOAR, NAO, Kings Fund, published literature (inc clinical trials)
- Probabilities
- Analyses and results
  - Baseline results
  - Scenarios
  - Assumptions
  - Sensitivity analyses
  - Costs, volumes

The identification model

- Purpose
- Costs
- Results
- Conclusions

Purpose of identification model

- Establish the number of people diagnosed within 3 months under current practice
- Compare current practice against
  - Service reconfiguration - Greater use of Early Arthritis Clinics
  - Raising public awareness of RA
- Associated costs of diagnosis process

Costs – direct to NHS

- Consultations (consultant/GP/A&E)
- Cost of diagnostic tests
  - FBC, RF, ESR, CRP, anti-CCP, x-ray

Results

- Only those diagnosed with rheumatoid arthritis < 3 months
- 40% present within 3 months
- 60% referred to specialist within 3 months
- 2,600 people with RA diagnosed <3 months

If

- 80% referred <3 months (EAC approach)
  - 4,300 diagnosed <3 months
  - £1.8 million saving – GP repeat visits, tests
- 80% referred AND 80% present (EAC+public awareness)
  - 5,900 diagnosed <3 months
  - Net costs to NHS

Conclusions for RA services

- Reconfiguration towards EAC approach
  - could reduce annual NHS costs to diagnosis
  - increases numbers diagnosed <3 months
- Comments
  - initial spike in referrals
  - specialist capacity esp. specialist nurses
  - no cost difference EAC-non EAC
  - public awareness as a limiting factor
  - *conservative* model

The treatment model

- Purpose
- Model characteristics
- Probabilities
- Costs
- Assumptions about productivity
- Results
- Conclusions

Purpose of early RA treatment model

- Explores impact of early treatment

  on

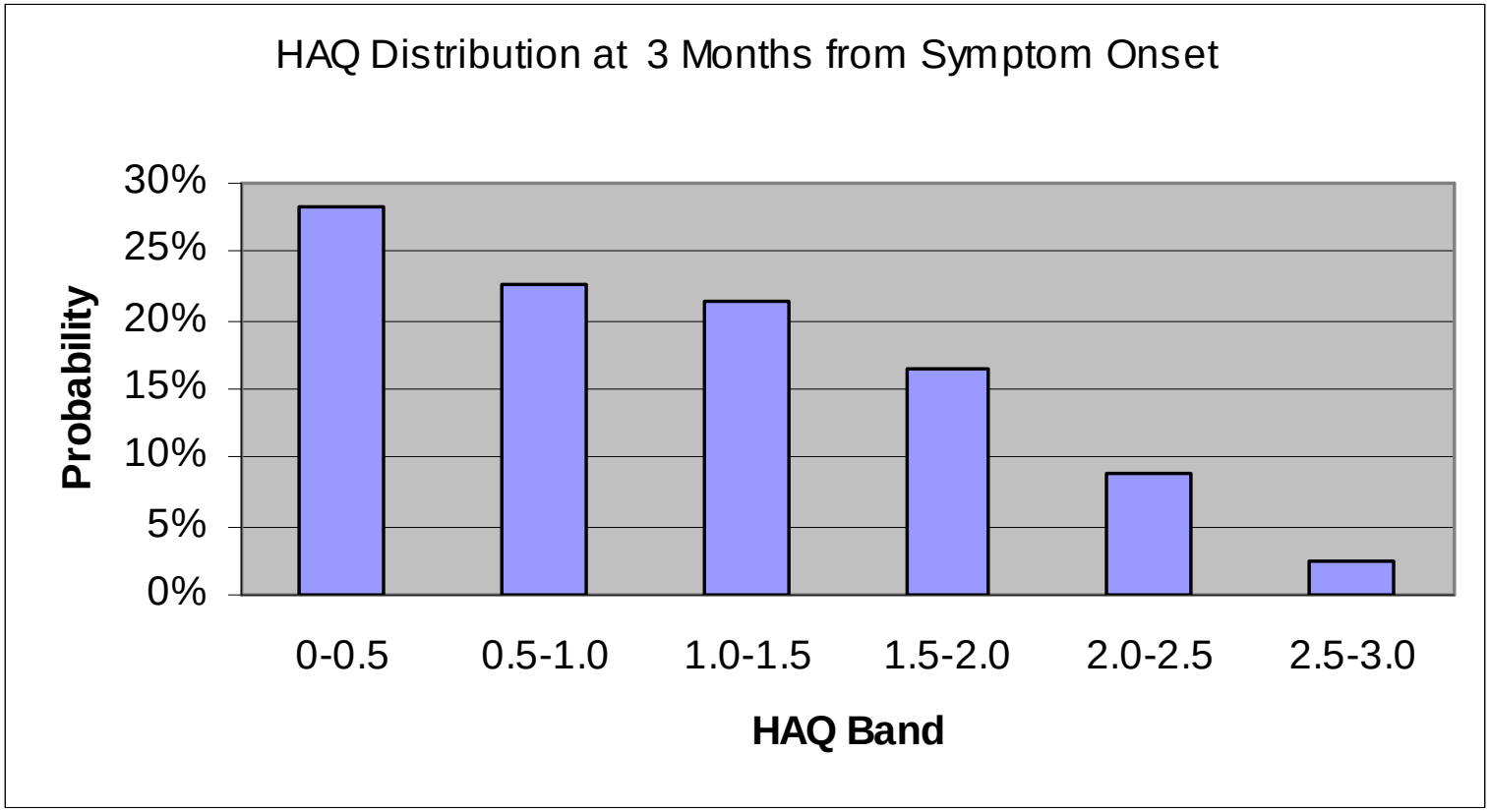
  - Costs to the NHS
  - Productivity (lost employment/working days)
  - measured quality of life

- Five year period (people of working age)

Characteristics

- Three treatment regimes (scenarios)
  - Nine months ‘routine’ treatment
  - Three months with early routine treatment
  - Combination/step down at three months
- All follow NICE
- HAQ is the driver of the model
  - used ERAN data to establish HAQ distribution @3 months

Baseline HAQ score - ERAN



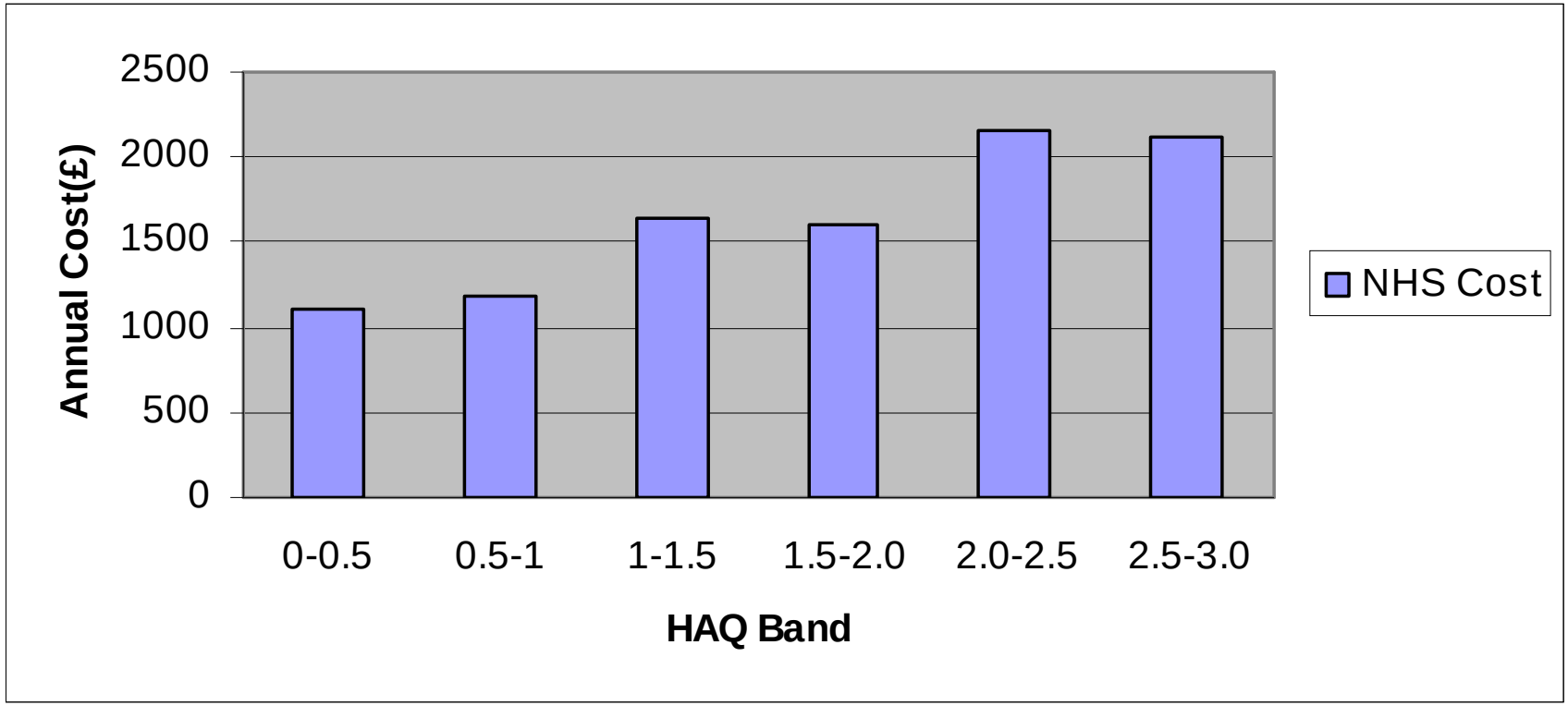
Key probabilities

- Efficacy (NICE)
  - Single DMARD monotherapy
  - Combination therapy step up/step down
  - Biologics (after 2 DMARD)
- HAQ Progression
- Withdrawal rates

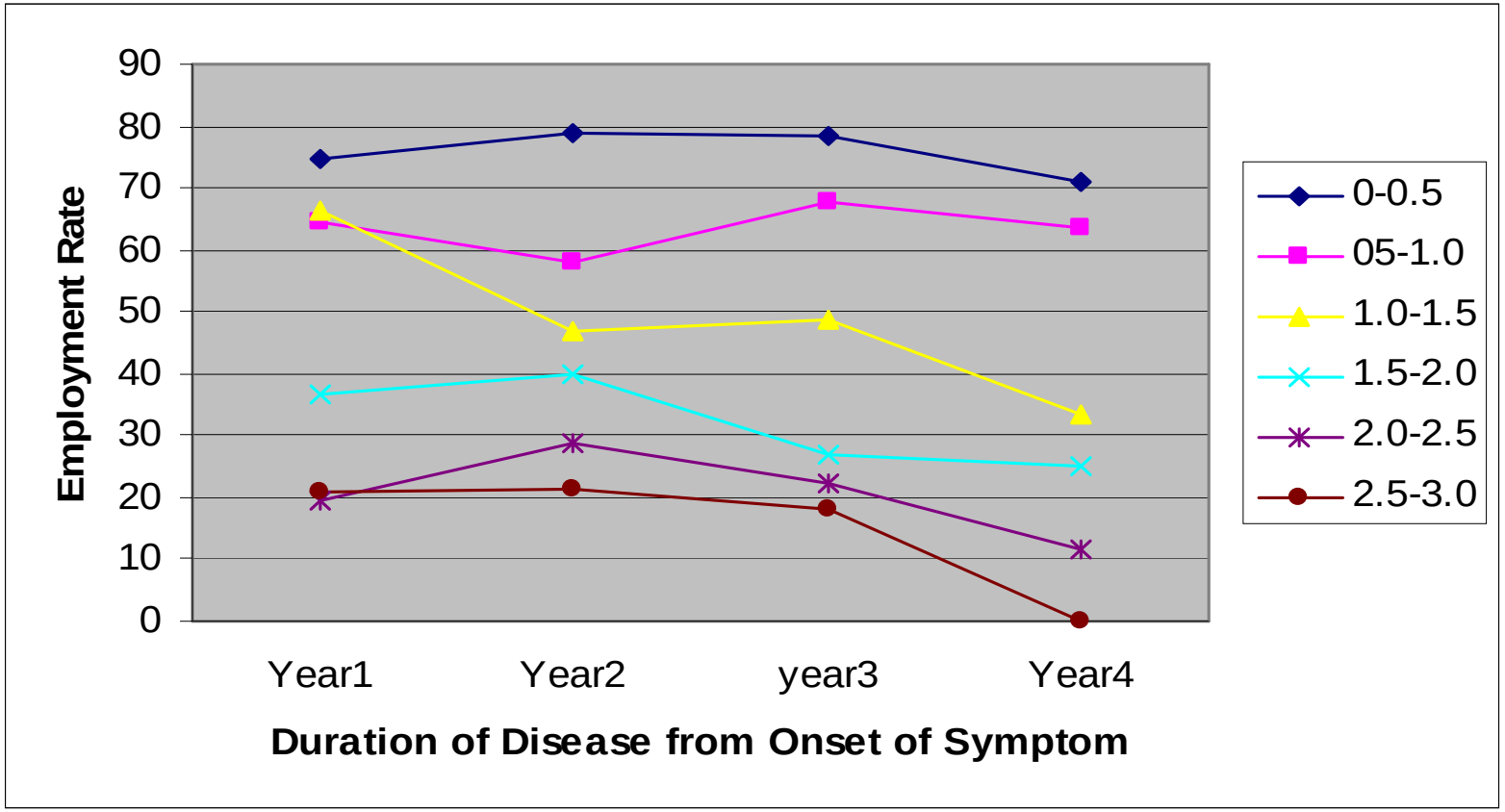
Costs – direct to the NHS

- Drug costs (including admin, monitoring)
- NHS resource utilisation
  - Hospitalisation, Outpatients, surgery
  - Established costs according to HAQ score (NICE/NOAR)
  - Closely correlated to disease severity

HAQ score and NHS resource utilisation (Taylor et al 2008)



HAQ band and employment in ERAN cohort in 4 years after disease onset



Results

- Treating patients earlier increases NHS costs
- Under *any* DMARD regime (combination/step down most costly)

but

- Early treatment would reduce lost employment: > 30 days over five years (combination 42 days)
- Quality of life improvements
  - Around 4 % QALY improvement with routine treatment
  - Around 5.5 % with combination/step down

Informed our overall Value for Money conclusions

- Better VFM could be achieved by:
  - Increasing from current 10% treated in 3 months to 20% would increase costs to the NHS by £11m over 5 years, but...
    - Productivity gains for UK plc of £31 million
    - Improved quality of life
    - Reduced NHS costs in medium-longer term

Some comments

- Combination DMARD more effective that sequential monotherapy
- Very few studies beyond 5 years of onset
- Analyses constrained to NICE guidance
- Individual treatment regimes involve much more subtlety than a model can demonstrate
- Only takes account of direct costs arising – not carer costs, DWP benefits, impact on family members

Key messages from our modelling

- More people could be diagnosed within 3 months
  - Reconfiguration towards rapid referral on suspicion
  - Better public awareness
- Early treatment improves productivity
- £ earlier treatment NHS costs outweighed by £ productivity gains for UK plc

Detailed modelling paper

- http://www.nao.org.uk/