

Keep as many people happy as possible  
Feedback is key

Iterative & informal



patient group  
fix  
other

Existing models?

Yes

No

Model adaptation/reconstruction

Likes/dislikes  
w/ clinical experts

Clinical input  
Relevant pathway & Tx  
Model on paper effect

which methodology

[Throughout the process]

Markov (12 states)

IPM

how complex does of pt. hist  
patient history  
dwell times  
infection/ness & interact  
possible

2-way interaction

Feasible model which  
approximates what we need.

Iterate  
model  
structure  
&  
decision  
(scope)

Quality  
assurance  
& development

Influence of  
data  
availability

Documentation

Iteration  
(present to  
clinicians)  
- as step by step for patient

develop "implementable"  
model - my word

collected data from SUs

same interaction

documentation  
face validity  
Present report

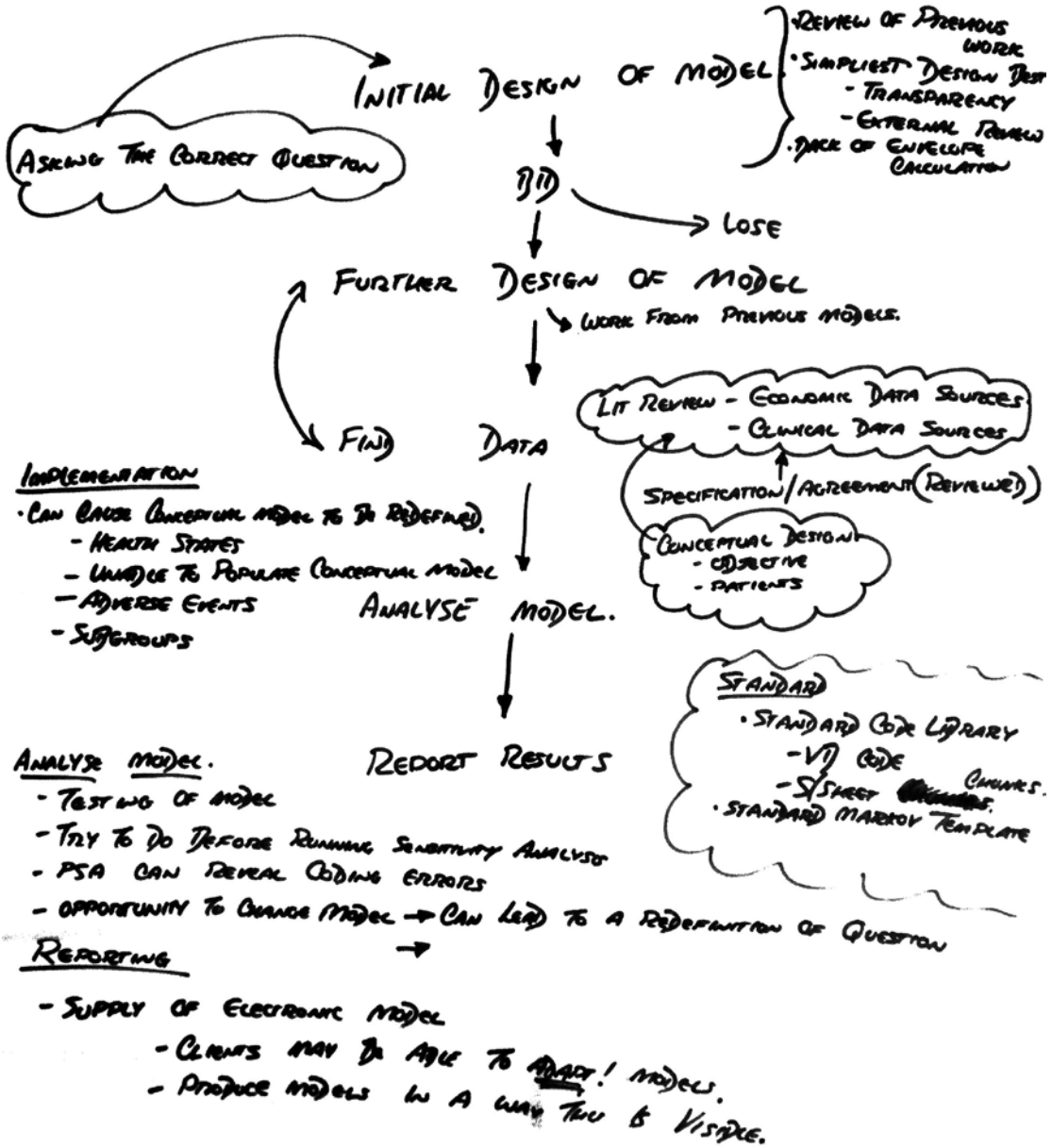
Iterative

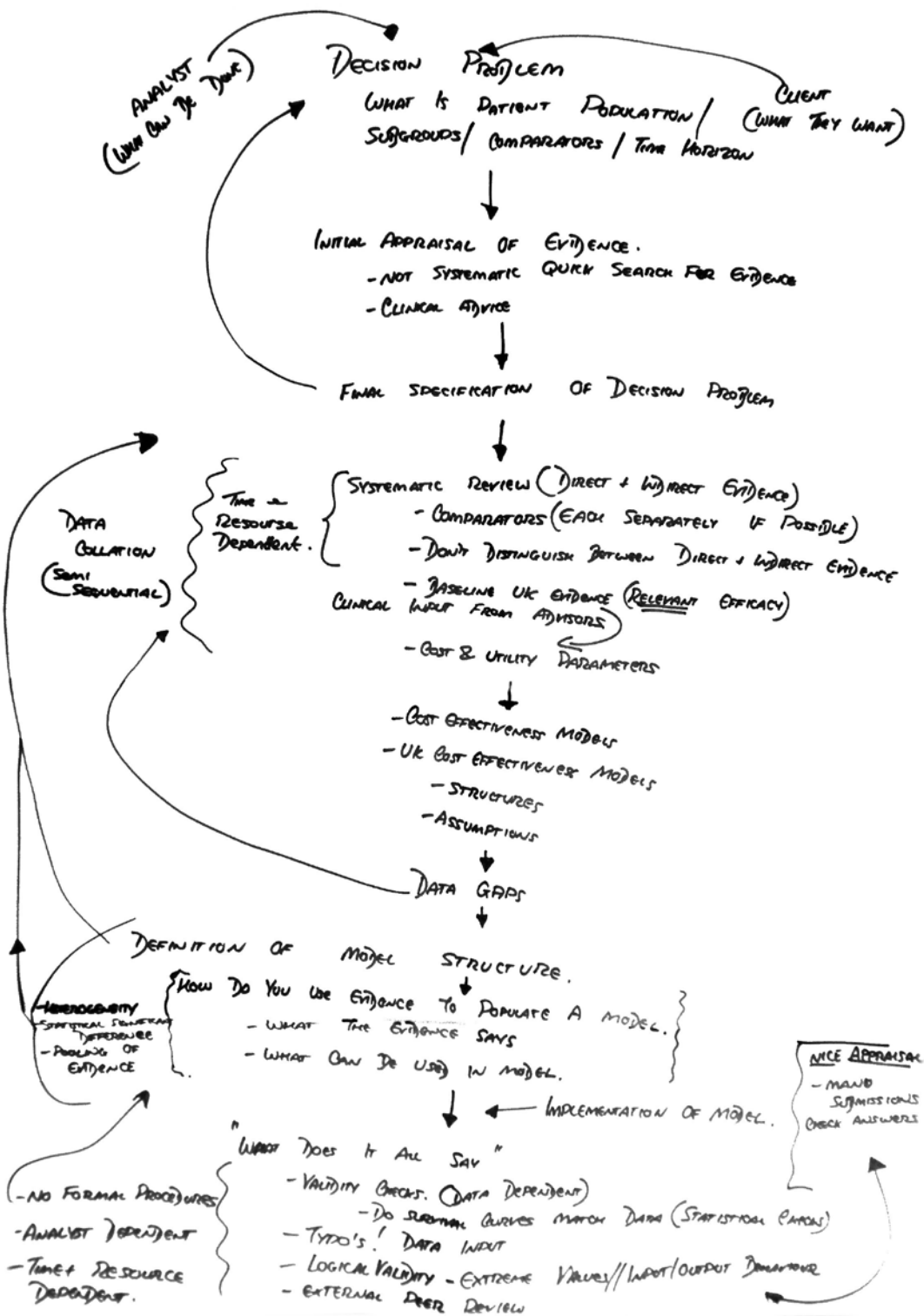
Face validity of <sup>model</sup> outputs

public health

clinicians

Write report & present to Committee  
+ SA





Subject to change → health economics, clinical experts (some integrated reviewers) what the question should be

Start of project "starting to think about project"

Developing protocol/application

how does interest fit into pathway of care?  
current practice?  
change

Refining care pathways

Electronic model structure

Email exchange  
Meeting  
Draw out care pathway

change structure to reflect data limitations  
Clarification what parameters "Refine points of detail"

Iterative

EXPERIENCE CONCURRENCE + METHODOLOGISTS  
STRUCTURE NOT FINISHED UNTIL NEAR END OF PROJECT  
(TIME VARIABLE)

checking logic

Final model (signed off)

Break the model

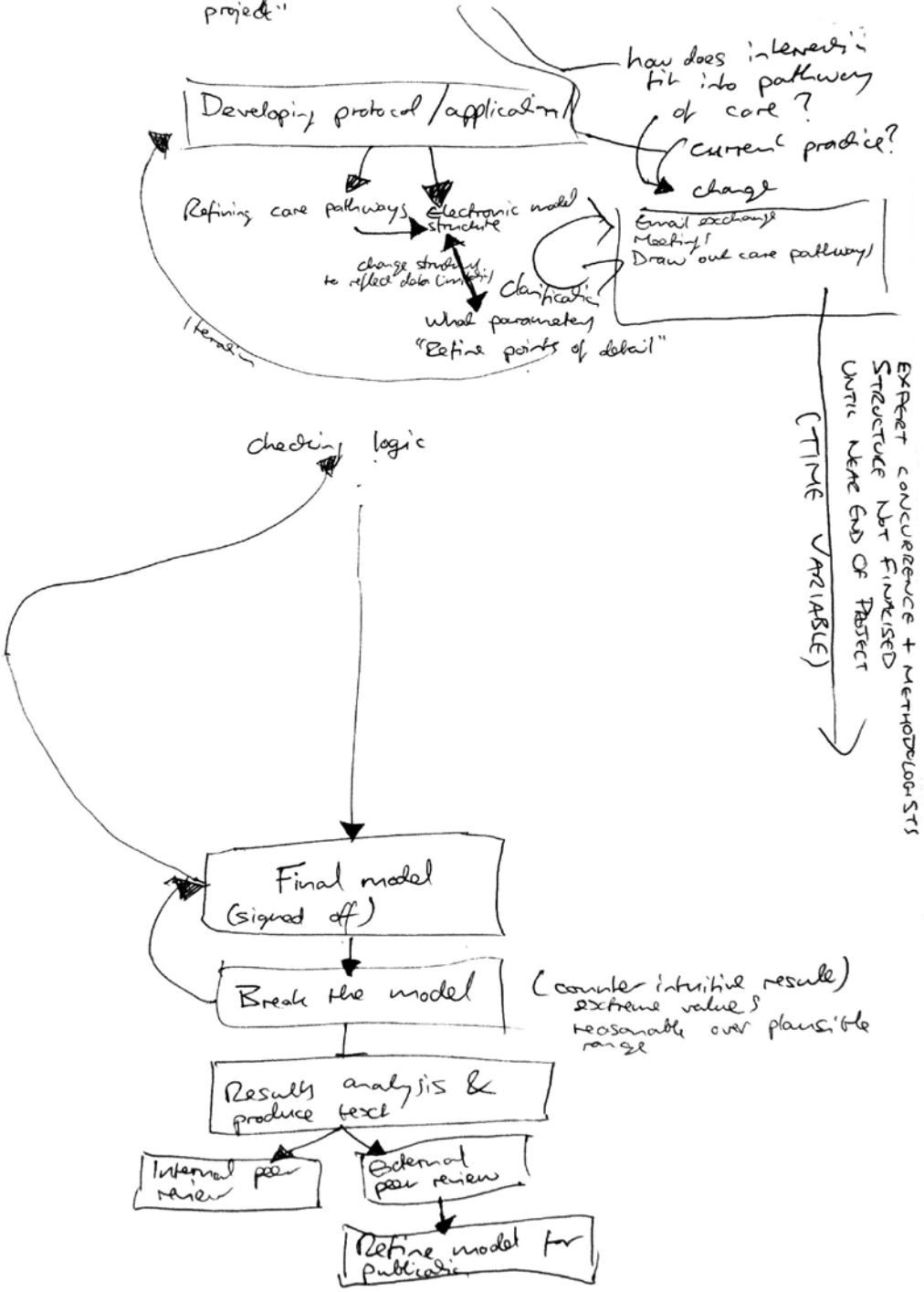
(counter intuitive results) extreme values reasonable over plausible range

Results analysis & produce text

Internal peer review

External peer review

Refine model for publication







PREPARE PROPOSAL/DEFINING RESEARCH OBJECTIVE

- Risk Management (Problematic Work)
- INTERNAL CONSUMPTION?
- NICE REFERENCE CASE?
- TREATMENTS / COSTS / QALYs / COMPARATORS

EVIDENCE REVIEW

- CLINICAL EVIDENCE
- NON-CLINICAL EVIDENCE
- ECONOMIC EVIDENCE

SYSTEMATIC

DRAFT REPORT OF EVIDENCE PRESENTED TO CLIENT

- SHARED UNDERSTANDING OF DATA

EXTENSIVE CLINICAL INPUT THROUGHOUT PROCESS IS IMPORTANT

- MODEL METHODOLOGY
- PURPOSE
- TIME HORIZON
- UTILITY/COST DATA

PREPARE MODEL SPECIFICATION DOCUMENT

- CONCEPTUAL FRAMEWORK
- DATA
- WILL CONSULT WITH <sup>"CLIENT EMPLOYEES" AND EXTERNAL</sup> CLINICIANS TO ENSURE VALIDITY
- PRESENTED TO CLIENTS/CLINICIANS FOR "SIGN UP"

TRADE OFF EFFORT/BUDGET

MODEL CONSTRUCTION

- CONSTRUCTOR/DEVELOPER - "RESPONSIBILITY FOR ERROR CHECK"
- MODELLER TO PERFORM QUALITY CONTROL
- BREAK MODEL
- CHECK LINKS + LOGIC OF MODEL
- SHEETS IN MODEL TO MAKE IT "SELF CONTAINING" + TRANSPARENT

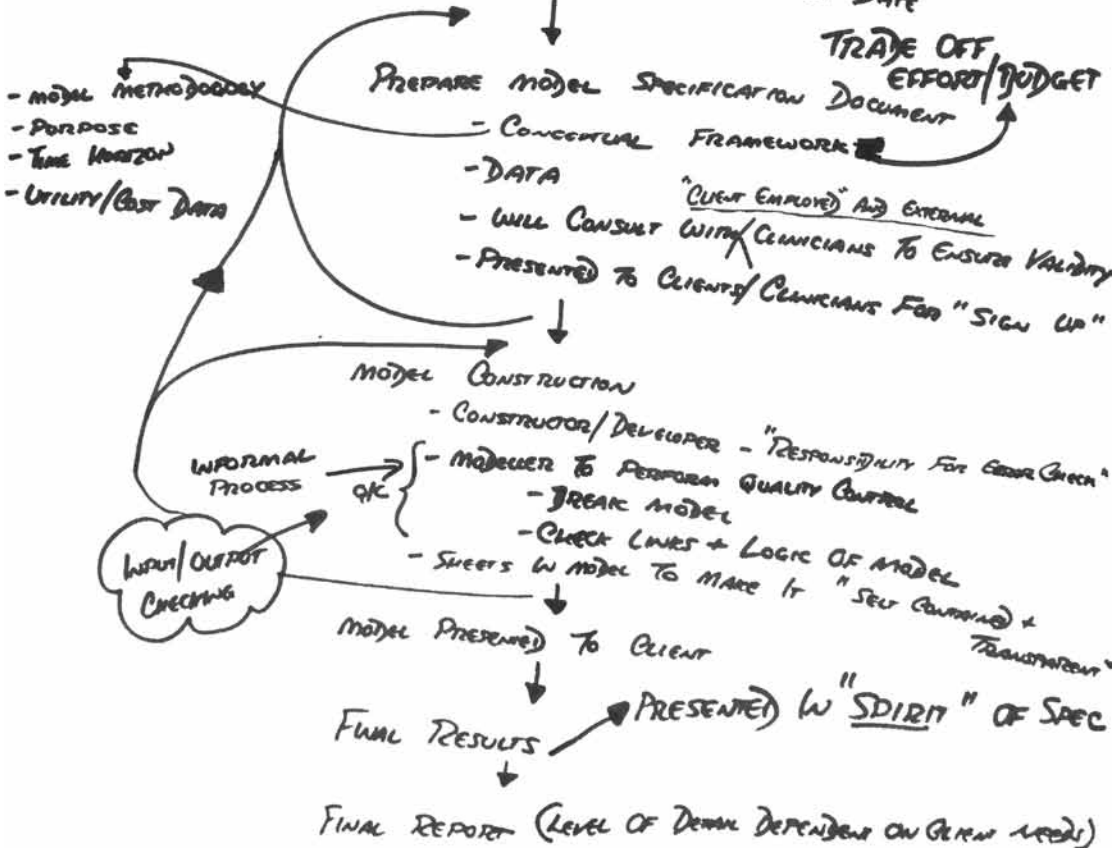
INFORMAL PROCESS

INPUT/OUTPUT CHECKING

MODEL PRESENTED TO CLIENT

FINAL RESULTS PRESENTED W "SDIRIT" OF SPEC

FINAL REPORT (LEVEL OF DETAIL DEPENDENT ON CLIENT NEEDS)



### IDENTIFY AIMS + OBJECTIVES

- WHAT OUTCOME
- USER
- SETTING

### RESEARCH (DISEASE BACKGROUND)

- TREATMENTS
- PREVIOUS MODELLING HISTORY

### ~~DEVELOPING MODEL STRUCTURE~~ DEVELOPING MODEL STRUCTURE

- PREVIOUS ECONOMIC MODELLING
- NATURAL HISTORY LITERATURE

### COLLECTING DATA

- UNIT COSTS → NHS REF COSTS / NERTEN & CURTIS
- TREATMENT EFFECT → SYS REVIEW / REVIEWS & TRIALS

### CHECKING

- STRUCTURE IS CORRECT
- COMPARING RESULT WITH RESULTS FROM PRIOR MODELLING
  - TRANSITION PROB RUN TO 1
  - DYNAL REGENERATION OF PATIENTS
  - GRAPH OUTPUTS ACROSS TIME
- INPUTS ~~AND~~ TOGETHER AND DIFFERENCES
  - CALCULATION STEPS
  - AVOID VDA PREFER CELL FORMULAE
  - EXTREME VALUE TESTING
- DO RESULTS MAKE SENSE → CHECK WITH DATA OF EMERGENT RESULTS

### REPORTING

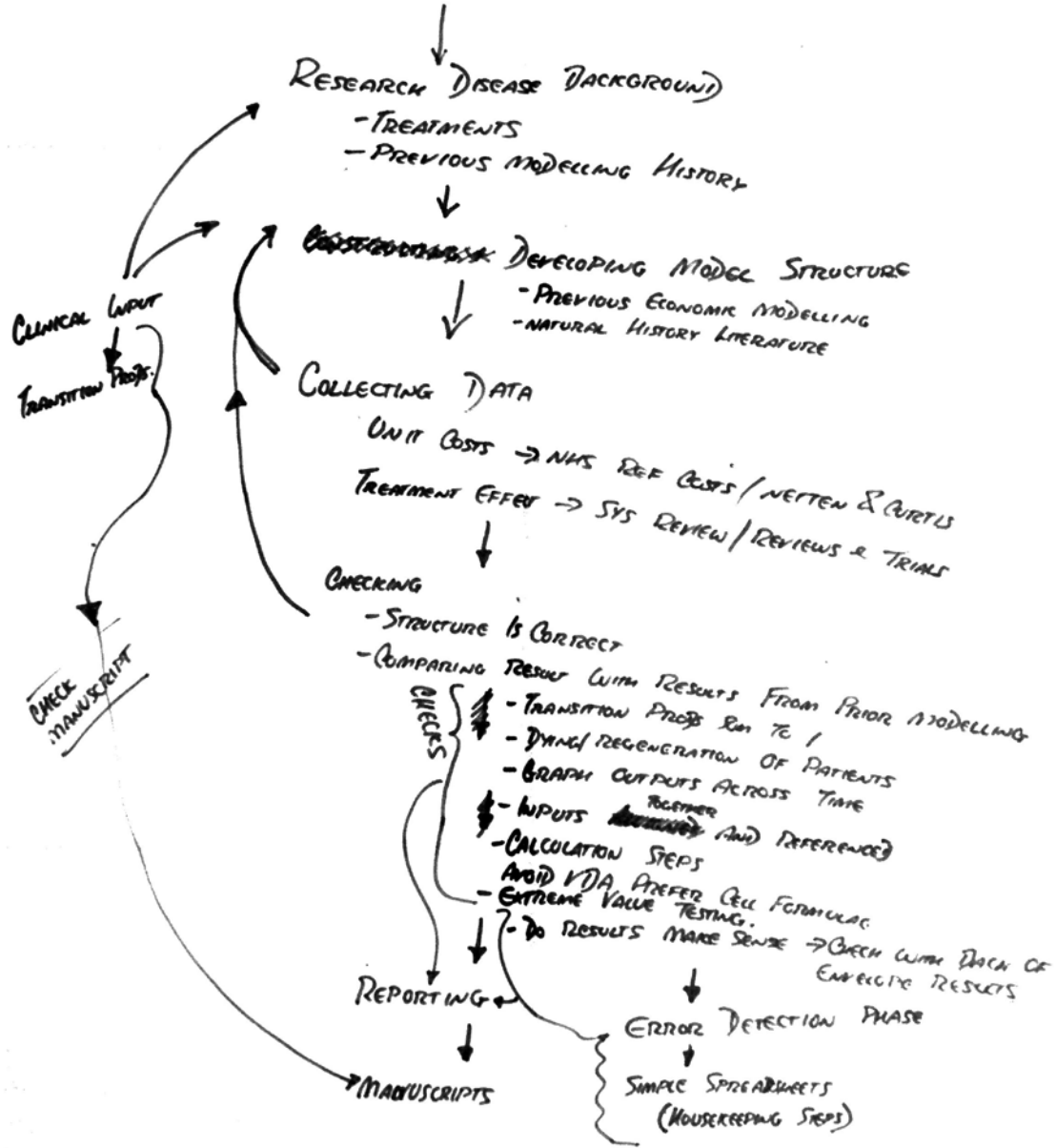
### ERROR DETECTION PHASE

SIMPLE SPREADSHEETS  
(HOUSEKEEPING STEPS)

MANUSCRIPTS

CLINICAL INPUT  
TRANSITION PROBS

CHECK MANUSCRIPT



ENSURING CLARITY & DETERMINING HOW TO PROCEED

RFP → Proposal

