

# Health Economics, Cost Effectiveness & Health Technology Assessment

**Dr. Michael P. Craven**

Health Economist, NUH

**CHEATA**



The University of  
**Nottingham**

UNITED KINGDOM • CHINA • MALAYSIA



Nottingham University Hospitals **NHS**  
NHS Trust



# Rationale

- **Health Economics (HE) methods** – already well established in Pharmaceutical & larger Medical Device companies, providing evidence of value to reimbursement & HTA agencies
- **NHS and other health providers** - more demanding of evidence of benefits as well as costs in their evaluation of healthcare innovations
- **Medical device manufacturers** - show broader value of their innovations to justify price and to show how they improve patient quality-of-life
- **Procurement practice** - not only about cost saving, but about demonstrating benefits of services: 'cost-effectiveness'



# Health Technology Assessment in Practice

**Early stage  
evaluation**

**Late stage  
evaluation**

In-house decision making

Funding applications

Healthcare provider

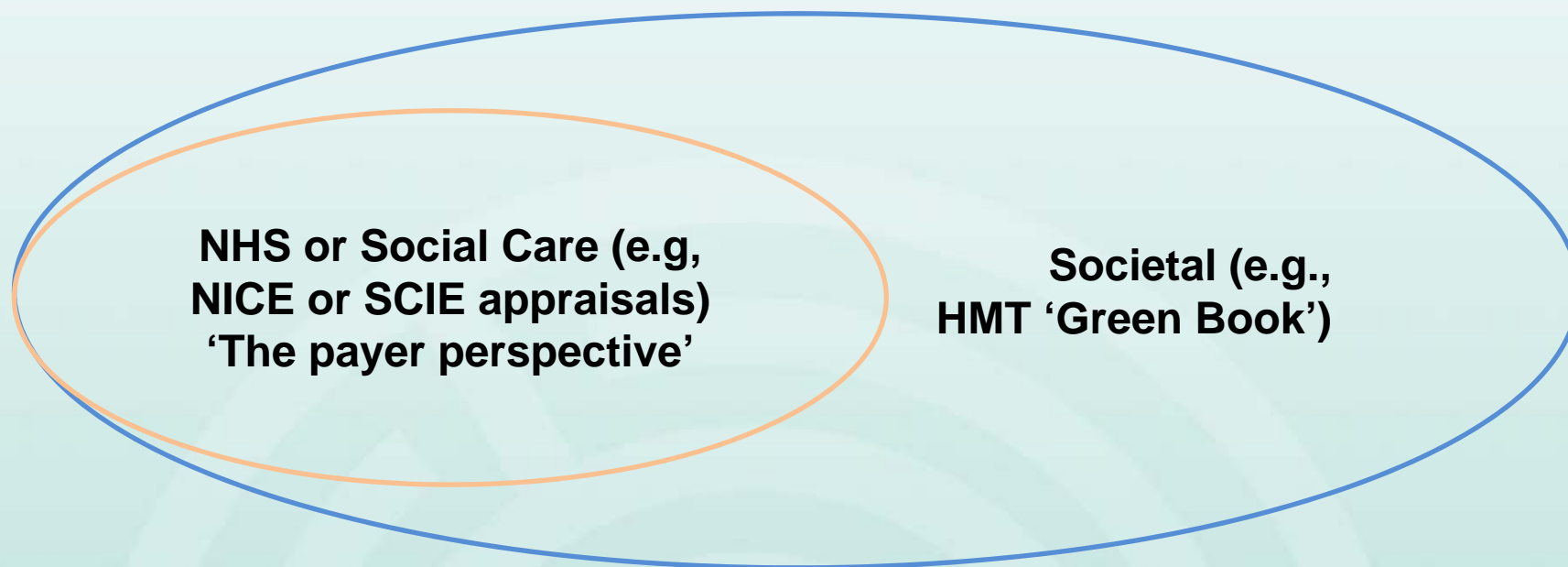
Feasibility  
assessment

NICE MTEP  
submission

Sales and Marketing



# Model perspectives



- Important to define early, as the choice of perspective influences which costs are to be included in an analysis.
- **Note: In UK, most models is based on the NHS or social care payer perspective.**



# Modelling approach

- **Elucidate** **existing clinical pathway** for the disease
- **Articulate** **change** made by the innovation
- **Develop** **economic model** (decision tree or Markov)
- **Gather** **data** (population, costs, probabilities, utilities)
- **Assign** **costs & benefit measures** to the model based on plausible usage scenarios
- **Deal with** **uncertainty** (sensitivity of the results to model data and parameters)
- **Appreciate** **limitations** especially in early stage models



# Decision support

		Patient Benefit		
		-	=	+
Cost	-	?	Y	Y
	=	N	?	Y
	+	N	N	?

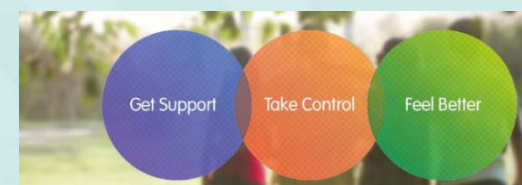
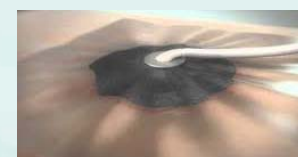
Introduction of a new device or intervention into the patient pathway will deliver either **improved, equivalent or reduced patient benefit** and will be either **cheaper, about the same or more expensive**.

Modelling will also illustrate **sensitivity of the result to input values**.



# Some examples

- Inditherm patient warming electric blanket, alternative to forced air (NICE Med Tech Guidance MTG7)
- Vacuum Assisted Closure® therapy CEP 08017 (Evidence review)
- ProTetanus rapid tetanus immunity point of care test CEP10001&2 (Review & Economic Report)
- Big White Wall™ online peer support & therapy (EMAHSN with MindTech)
- Novel interventions & service improvements for Diabetic Foot Ulcer, COPD etc.

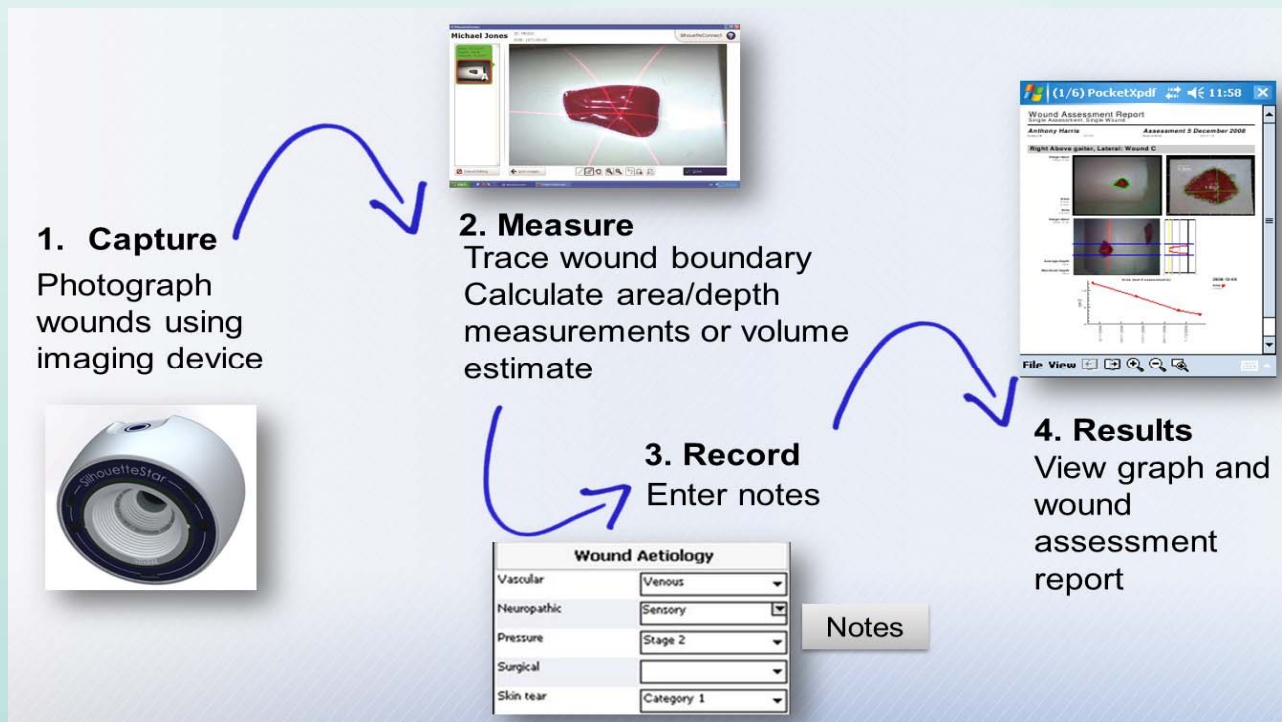






# Silhouette 3D camera Digital Wound Imaging, Assessment & Information Management System

- East Midlands Academic Health Sciences Network sponsored project for Diabetic Foot service transformation



Point of care  
3D wound  
camera

Smart  
software for  
measuring  
wounds

Wound  
information  
database

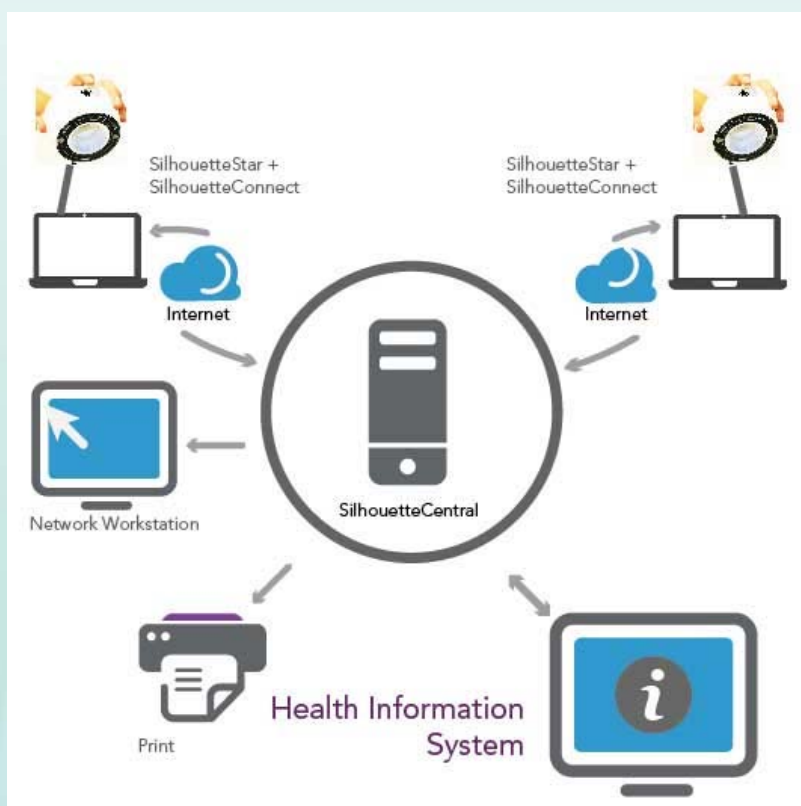




# Silhouette Deployment Plan

## Derbyshire Integrated Diabetic Foot Service

- Multi-disciplinary Team care across hospital and community



### Supporting MDT Care

**Royal Derby Hospital and Community Clinicians able to access Silhouette Data from SilhouetteConnect application on computer AND SilhouetteCentral database from networked Trust PC or via N3 connectivity to RDH server**



## Expected outcomes

1. Support multi-disciplinary care of Diabetic Foot patients
2. Release capacity in hospital out-patient DF clinic
3. Improve DF service access in community
4. Reduce cost of DF service delivery
5. Improved patient convenience, experience



silhouette®





# Partnership

- Industry & NHS partners: Entec Health/Aranz medical & Royal Derby Hospital outpatient foot clinic
- Deploy system - and evaluate during one year
- Predict and track impact -  
**CHEATA is modelling the cost saving from the service transformation**, contracted by EM AHSN (funding sponsor)





# CHEATA

[WWW.CHEATA.CO.UK](http://WWW.CHEATA.CO.UK)

CALL US ON - 0115 924 9924 EXT: 64458

OR EMAIL - [INFO@CHEATA.CO.UK](mailto:INFO@CHEATA.CO.UK)

**CHEATA** is a service of NUH NHS Trust and is supported by the EMAHSN

Nottingham University Hospitals   
NHS Trust

East Midlands   
**Academic Health  
Science Network**  
Igniting Innovation