Telemonitoring after discharge with heart failure – cost effectiveness model of alternative service designs

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Home Telemonitoring [TM]
- Patients use electronic monitoring devices which transmit data automatically
- Staff examine data during office hours and decide on advice/referral

None [Usual Care]
- Outpatient + community nurse visiting

Structured telephone support human to machine [STS-HM]
- Patients telephone a computer & staff examine data later

Structured telephone support via human to human [STS-HH]
- Patients telephone a nurse and give vital signs and symptoms

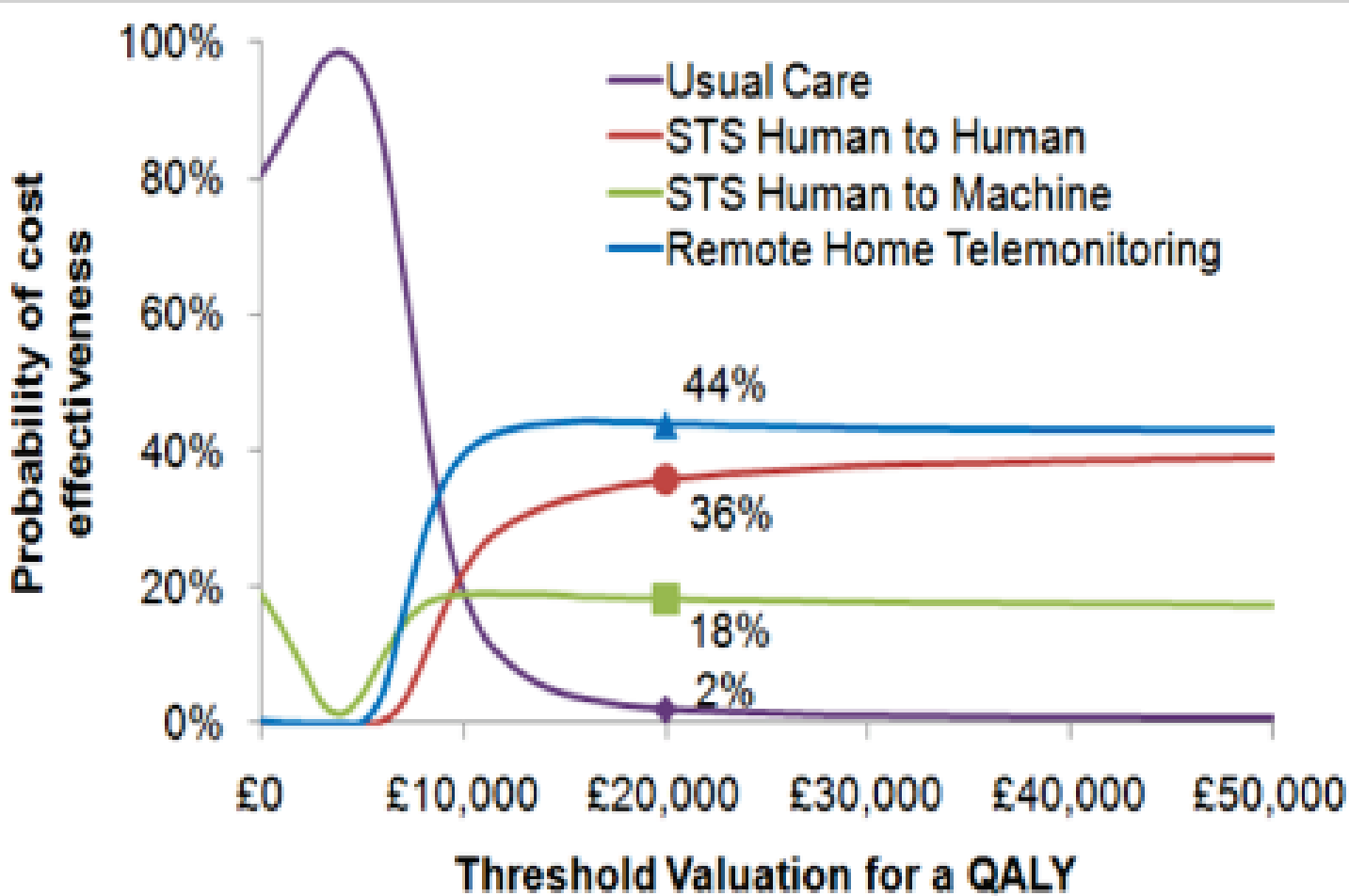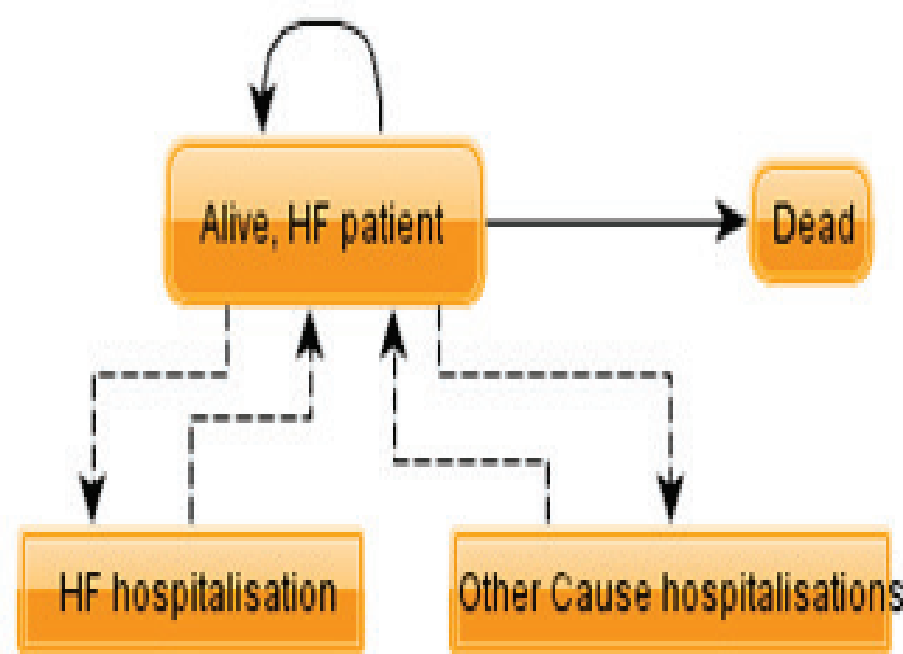## Q: Which telemonitoring service is most cost-effective?

A:

- ☑ **TM**
- ☐ **STS-HH**
- ☐ **STS-HM**
- ☐ **Usual Care**

Graph: Probability of cost effectiveness (0%–100%) vs Threshold Valuation for a QALY (£0–£50,000).
- Usual Care
- STS Human to Human
- STS Human to Machine
- Remote Home Telemonitoring

Values: 44%, 36%, 18%, 2%

Our model structure

Alive, HF patient → Dead; HF hospitalisation; Other Cause hospitalisations

Method?
- 6 months of telemonitoring then equipment returned
- Markov model (1 month)
- 30 year horizon
- NHS Cost per QALY

Evidence?
- Baseline survival from published studies
- Baseline re-hospitalisation from published studies
- Network meta analysis of 21 international trials gives RR of mortality & RR of re-hospitalisation
- Clinician advice on staff time
- Routine data on unit costs

Further research?
Big UK trial reporting "Whole Systems demonstrator"

Uncertainty?
- Model parameters
- Clear descriptions of the interventions in the trials
- Our estimation of service costs with clinician advice

Answer could be **Structured telephone support via human to human** or **Structured telephone support human to machine**

Q: Which is the most cost-effective service if equipment was provided for 12 months?

A: Home Telemonitoring [TM]

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