CEA of InterDry vs SoC

A Markov Model of Intertrigo management in the UK

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Coloplast Group – Ostomy Care / Continence Care / Wound & Skin Care / Urology Care

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This analysis is based on an updated and further developed model of a previous CEA model

The first cost-effectiveness analysis model was developed in collaboration with Aalborg University, Gregor Jemec, Karen Lou Kennedy-Evens and Coloplast in 2016.

The current model is an updated and further developed model updating where UK SoC and costing have been updated to a 2019 level as the most significant adjustments.

Abstract #72947

COST-EFFECTIVENESS OF INTERDRY (ID) IN THE TREATMENT OF INTERTRIGO (IN) AND CANDIDAL INTERTRIGO (CI) COMPARED TO STANDARD OF CARE (SOC) IN A BRITISH CARE HOME SETTING USING A MARKOV DECISION ANALYSIS

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OBJECTIVES: To evaluate the cost-effectiveness of InterDry (ID) in the treatment of intertrigo (IN) and candidal intertrigo (CI) compared to the Standard of Care (SoC) recommended by Primary Care Dermatology Society in a British care home setting. **METHODS**: A Markov decision model was constructed to compare the costs and effects of ID and SoC. The analysis was based on a health care system perspective and consisted of a Markov model evaluating the cost per resolved case of IN and CI. The health states included efficacy of treatment and the cost of medicine, medical devices and nursing. The SoC investigated was a Hydrocortisone 1%/Miconazole 2% cream for IN and a Ketoconazole 2% cream with Hydrocortisone 1% for CI. Clinical efficacy of SoC was based on trials found through systematic literature search. Efficacy of ID was extracted from Kennedy-Evans et al. 2007, investigating ID in IN and CI patients. One-way sensitivity analysis and a 2ndorder Monte Carlo simulation was conducted to test the parameter uncertainty. **RESULTS**: The ID study found that 73.33% of IN patients were completely resolved within 5 days, while 42.15% of IN patients were completely resolved within 5 days for SoC based on extrapolated efficacy data. The Markov model predicted that an ID treatment provides a cost-reduction of 34.91£ per case of IN and a cost-reduction of 68.1£ per case of CI treated. The one-way sensitivity analysis showed that nursing costs was the variable with the biggest impact on the cost-effectiveness. However, sensitivity analysis showed that ID was still cost-saving under the assumption of no difference in nursing cost between treatments. The 2nd Order Monte Carlo simulation revealed that ID was cost-saving in 95.32% of the IN iterations, and in 87.67% of the CI iterations. **CONCLUSIONS**: InterDry was found to be a cost-saving treatment strategy compared to SoC in a British care home setting.

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Cost effectiveness of InterDry, a skin fold management product for patients suffering from intertrigo

A decision analysis

Esben Bo Boisen, 3. Semester Project, Medical Market Access, Aalborg University 2016
Devised in collaboration with Coloplast A/S

Background – In the current treatment of intertrigo many patients suffer from persistent intertrigo as a results of ineffective treatment. The management of intertrigo includes addressing the causal factors of friction and moisture in opposing skin folds. In many intertrigo patients this process is associated with care from health care professionals (HCPs). Although the drugs used in the treatment of intertrigo are cheap, the associated care and persistence of the condition results in accumulated costs for the health care system. This decision analysis aims to investigate the cost pr. resolved case of intertrigo for the product InterDry textile with silver and the current treatment scheme.

Methods – A Markov decision tree, was constructed to compare the cost-effectiveness of the two interventions in a British care home setting. Effectiveness data for InterDry was extracted from an unpublished non-controlled multiple site trial, and effectiveness for the current treatment scheme was found in the literature. Drug costs were taken from Drug Tariff, and the effect of the model was cost pr. resolved case of intertrigo. A one-way sensitivity analysis and a probabilistic sensitivity analysis (PSA) was conducted to evaluate the validity of the outcome.

Results – The study estimated InterDry to provide a saving of 33.37 GBP pr. average case of intertrigo compared to the current treatment scheme. InterDry also provided an incremental effect of 0.43 resolved cases of intertrigo pr. year pr. average patient. The sensitivity analysis revealed that the outcome of the model was subject to change if the incremental nursing time of the current treatment fell below 2.1 minutes pr. day, or if the cm cost of InterDry exceeded 0.508 GBP. The PSA showed that in 75.08% of the iterations, InterDry was cost-saving.

Conclusion – The Markov model presented in the study, found InterDry to be cost-saving compared to the current treatment scheme. However, drawing a definitive conclusion from the results of this model is not possible. The model data used in this study is based on low quality clinical studies, and therefore the result of the model is questionable. In order to provide a definitive conclusion on the cost-effectiveness of InterDry and the current treatment, a RCT comparing the two interventions is needed.

Cost-effectiveness Analysis of the Treatment of Intertrigo with InterDry vs. Standard of Care in a UK Community Setting

Objective

To evaluate cost effectiveness of managing intertrigo with InterDry compared to Standard of care in the UK

Estimation based on existing literature

Effect extrapolated over time

Model & assumptions

A Markov Chain model is used to simulate the treatment effect of the two treatments over time.

- *Suitable tool to extrapolate the change in a population over time (treatment)*
- *Multiple states and possible to expand for DT application.*

List of key assumptions

Cost savings	Difference in cost between the two treatments per fully resolved case of intertrigo
Standard of care *(Daktacort alone)*	**Based on The Primary Care Dermatology Society guidelines** • Disregarding expensive alternative 2nd line treatment. • Conservative approach due to lack of evidence
Treatment effect Standard of Care InterDry	**Extrapolated from litterature** RCT (Hedley, Tooley et al. 1990) MSF (Kennedy-Evans KL 2006)
Nursing time Standard of Care InterDry	**Averaged tissue viability nurses estimates** 20 mins daily – Cleaning + intervention 15 mins daily – Cleaning + intervention

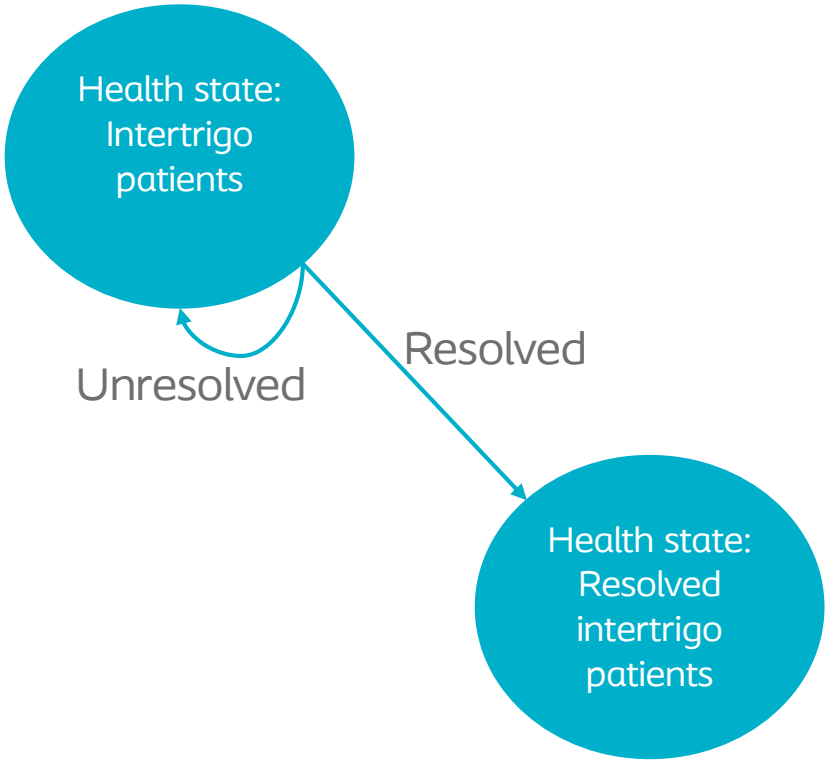
Conclusion

InterDry is cost saving up to a price level of £0,01868 per cm^2, in the given model.

Methodology – Markov Model

- The markov model consists of two health states:
  - Intertrigo patients
  - Resolved intertrigo patients
- The model is split into cycles of 5 days
  - Every cycle is associated with a percentage chance of being resolved and a treatment cost

The model



The model input - InterDry

Variable	InterDry	Calculation
Resolve Chance	0.733	Calculated from Clinical investigation report (CIR) – Does not include symptoms of odor, and does not include patients with candidal intertrigo. (Kennedy-Evans KL 2006)
Usage		
Cm^2 per 5-days	1,656 (±149)	Calculated from CIR. Mean usage per patient, includes only patients used for resolve percentage calculation. (Kennedy-Evans KL 2006)
Nursing time per day	15 min (±7.5)	Averaged estimate from clinical experts (4 tissue viability nurses). This assumes we can reduce nursing time by 5 minutes per day.(Boisen 2017)
Costs		
InterDry	0.01854 £/cm^2	
Nursing rate	12.88 £/hour	Royal college of nursing, band 5 (Nurses 2019)

The model input – Standard of Care (Daktacort)

Variable	InterDry	Calculation
Resolve Chance	0.3617	Calculated from RCT by calculating the compounding curation rate reported by GP and patient reported outcomes (Hedley, Tooley et al. 1990)
Usage		
Grams per 5-days	21.43g	Calculated from Clinical Investigation Report. Mean of the usage documented. Bottle size was not listed, so an estimate from looking up the products was used (Kennedy-Evans KL 2006)
Nursing time per day	20 min (±10)	Averaged estimate from clinical experts (4 tissue viability nurses) (Boisen 2017)
Costs		
DaktaCort	0.0807 £/g	Price from NHS, Drug Tariff (Daktacort) 2019)
Nursing rate	12.88 £/hour	Royal college of nursing, band 5 (Nurses 2019)

The results - A cost reduction of 0,32 £ per resolved case of intertrigo

- If we compare the results from InterDry and SoC we get the following:

	Average cost per average intertrigo treatment	Incremental cost per average intertrigo treatment
InterDry	63.83 £	-
SoC	64.15 £	-0.32 £

One-way sensitivity analysis – impact of 25% change in variables

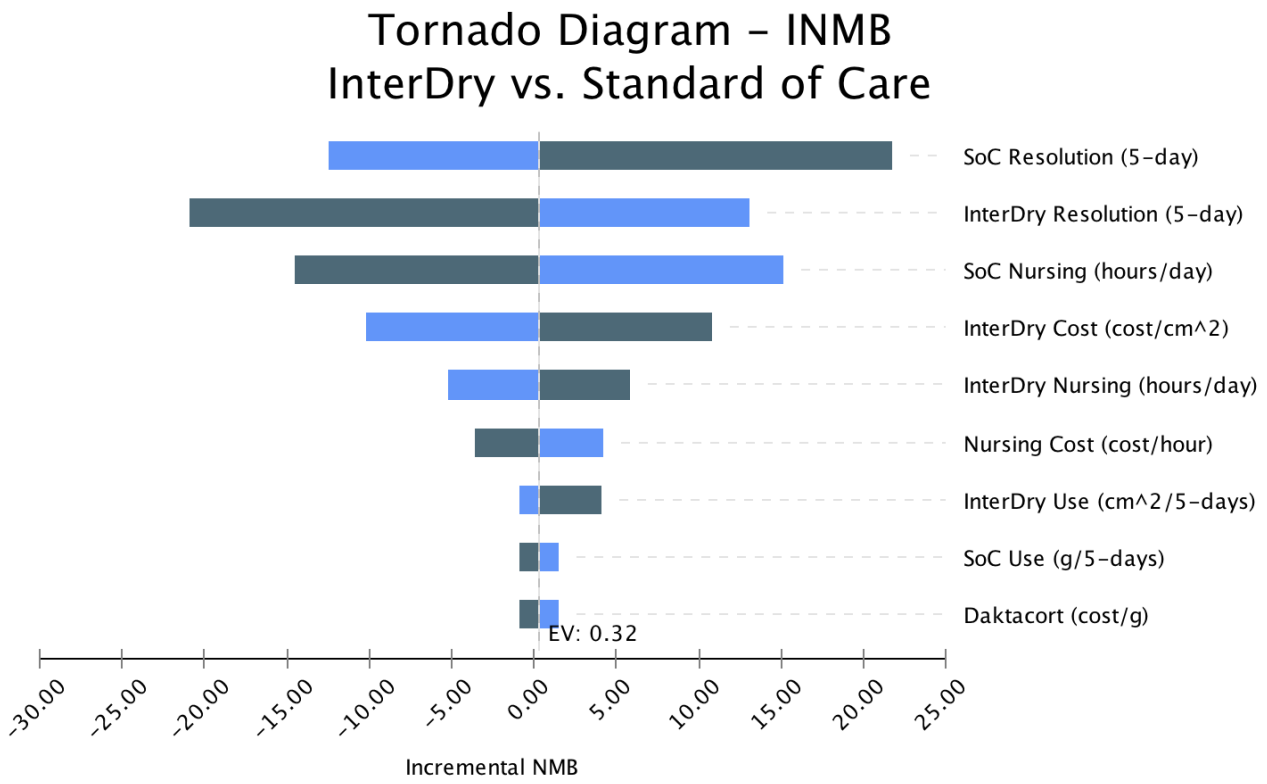


Figure 1 - Sensitivity Analysis, Incremental net monetary benefit (INMB)

Discussion points

- Limitations due to limited clinical evidence
- The InterDry efficacy is probably conservative as the population in the prospective single-arm observational study had all failed US standard of care (SoC). The InterDry efficacy from this study is in the analysis compared to a UK SoC efficacy on a non-SoC failed population.
- UK SoC is conservatively simplified to the cheapest management strategy (Daktacort) excluding the 5-times more expensive Trimovate.
- Not taking into account that most creams require a second daily application
- No downstream health benefits from a relatively faster resolution ie. No economic value of resolution besides no further need for the specific intervention (Consultations)

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Our mission

Making life easier for people
with intimate healthcare needs

Our values

Closeness... to better understand
Passion... to make a difference
Respect and responsibility... to guide us

Our vision

Setting the global standard
for listening and responding

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