



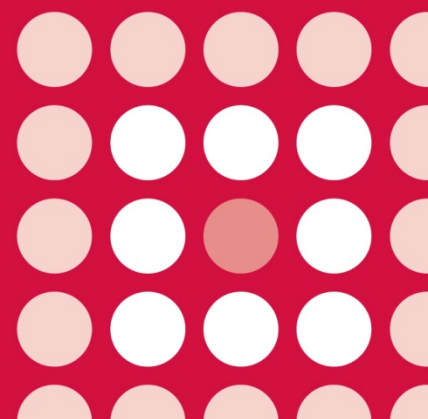
All Wales Therapeutics
and Toxicology Centre
Canolfan Therapiwteg a
Thocsicoleg Cymru Gyfan

AWMSG SECRETARIAT ASSESSMENT REPORT

**Green tea leaf extract (Catephen®)
10% Ointment**

Reference number: 2739

FULL SUBMISSION



This report has been prepared by the All Wales Therapeutics and Toxicology Centre (AWTTC), in collaboration with the Centre for Health Economics and Medicines Evaluation, Bangor University.

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AWMSG Secretariat Assessment Report Green tea leaf extract (Catephen®) 10% Ointment

This assessment report is based on evidence submitted by Kora Healthcare¹.

1.0 PRODUCT DETAILS

| | |
|--|---|
| Licensed indication under consideration | Green tea leaf extract (Catephen®) for the cutaneous treatment of external genital and perianal warts (condylomata acuminata) in immunocompetent patients from the age of 18 years. |
| Dosing | <p>Up to 250 mg Catephen® ointment as total single dose, corresponding to about 0.5 cm of ointment strand to be applied three times per day to all external genital and perianal warts (750 mg total daily dose).</p> <p>Treatment with Catephen® should be continued until complete clearance of all warts, however, no longer than 16 weeks in total (max. duration), even if new warts develop during the treatment period.</p> <p>Refer to the Summary of Product Characteristics for further information regarding the method of administration².</p> |
| Marketing authorisation date | 24 March 2015 ² |

2.0 DECISION CONTEXT

2.1 Background

Anogenital warts (condylomata acuminata) are one of the most common sexually transmitted disease caused mainly by the human papillomavirus (HPV), and mostly associated with subtypes HPV-6 and HPV-11 (non-malignant)³. There is a vaccine available which has been shown to protect against these two HPV subtypes, when administered before an infection occurs³. Anogenital warts can be located in the genital, inguinal, perineal and perianal area and after an incubation period of three weeks to eight months they may be singular or multiple and can coalesce into large plaques⁴. Although most result in little physical discomfort, symptoms can include bleeding, irritation, distortion of urine flow and they may be disfiguring and psychologically distressing⁴.

Referral to a sexual health specialist is recommended for all patients with anogenital warts⁵. Treatment may not always be required, or desired by the patient, for minor eruptions as spontaneous regression is possible⁵. Where treatment is considered appropriate options include patient-administered topical ointments and creams for use at home, or physician-conducted cryotherapy and surgical treatments in clinic⁶. However, only surgical therapies are reported as having primary clearance rates approaching 100% and recurrences occur after all treatments (20–30% or more)⁶. All treatments may also cause considerable local side-effects such as itching, burning and pain^{6,7}.

Catephen® ointment is a herbal medicine for topical treatment and contains 10% green tea (*Camellia sinensis*) leaf extract, corresponding to 55–72 mg epigallocatechin gallate (hereafter, catechin) per gram³. The exact mechanism of action is unknown;

however, it is thought to inhibit the growth of activated kerinocytes and have anti-oxidative effects at the site of application².

Other available topical treatments include; podophyllotoxin 0.5% solution (Condyline[®])⁸ and 0.15% cream (Warticon[®])⁹, which is licensed for the topical treatment of condylomata acuminata affecting the penis or the external female genitalia and often recommended for soft-non-keratinised treatments; and imiquimod 5% cream (Aldara[®])¹⁰, licensed for the treatment of external anogenital warts (guidelines recommend its use for both keratinised and non-keratinised warts⁴). In this submission, the applicant company has requested that AWMMSG consider Catephen[®] when positioned for use in patients not suitable for podophyllotoxin or who have not responded to treatment with podophyllotoxin¹.

2.2 Comparators

The comparator included in the company submission was imiquimod 5% cream (Aldara[®]).

2.3 Guidance and related advice

- Clinical Effectiveness Group (British Association for Sexual Health and HIV). United Kingdom National Guideline on the Management of Anogenital Warts, 2015⁴.
- Lacey CJN, Woodhall SC, Wikstrom A, et al. 2012 European guideline for the management of anogenital warts (2013)⁶.
- National Institute for Health and Care Excellence. Clinical Knowledge Summaries: Warts – Anogenital (2012)⁵.

3.0 SUMMARY OF EVIDENCE ON CLINICAL EFFECTIVENESS

The company submission included evidence from two placebo-controlled phase III studies (CT 1017¹¹ and CT 1018¹²). Due to the identical design, the results are pooled and are described together below. These studies evaluated the efficacy of Catephen[®] 10% and Catephen[®] 15%; the latter is not licensed in the UK and therefore will not be discussed. To address a lack of head-to-head studies versus the comparators, the company also provided details from a German published systematic review¹³ and an indirect treatment comparison (ITC).

3.1 Studies CT 1017¹¹ and CT 1018¹²

These were randomised, double-blind, three-arm parallel-group, placebo-controlled phase III studies to investigate clinical efficacy, safety and tolerability of Catephen[®] 10% compared to placebo in the treatment of external genital warts in immunocompetent male and female patients (aged 18 years and older)^{1,7}. Patients with two to thirty warts and a total wart area from 12 to 600 mm² were randomly assigned to receive Catephen[®] 10% (n = 401) or placebo (n = 207) ointments^{1,7}. In CT 1017, all patients had previous episodes of warts¹¹ whereas the vast majority of patients in CT 1018 did not have previous episodes. Treatment was self-administered at eight hour intervals for up to 16 weeks or until complete visual clearance was achieved as per Summary of Product Characteristics (SPC)⁷. For complete responders, patients entered a 12-week treatment-free follow-up phase to assess wart recurrence⁷.

The primary endpoint was complete visual clearance of all external genital warts during treatment⁷. Catephen[®] 10% demonstrated a statistically significant complete clearance of all warts compared to placebo (210 [53.6%] patients versus 73 [35.4%] patients; odds ratio [OR] = 2.10; 95% confidence interval [CI]:1.485–2.976; p < 0.001)⁷. Of these, 201 (95.7%) patients in the Catephen[®] 10% group and 69 (94.5%) in the placebo group were assessed for recurrence having attended all scheduled visits during the follow up phase. Patients treated with Catephen[®] 10% showed an overall

recurrence rate of any warts (recurrent and new warts) of 6.5% (13/201 patients); the rate for placebo-treated patients was 5.8% (4/69 patients). Other secondary endpoints included complete clearance of baseline warts, incidence of new and recurrent warts during the follow-up period and time to clearance of all and baseline warts⁷.

3.2 Published systematic review and ITC

In the absence of any head-to-head studies, the company identified a German published systematic review (Schafer et al 2014) of the patient administered treatments available in Germany for the treatment of condylomata acuminata^{1,13}. This published article included a systematic review of literature from 1966 to December 2011 in PubMed and the Cochrane Library for medicinal treatments of condylomata acuminata in randomised controlled trials against placebo. Trials were included if reporting complete clearance of warts in English or German language journals and involved treatments licensed in Germany. The treatments included in the review were catechins, imiquimod, and podophyllotoxin; the latter is not considered by the applicant company and therefore will not be discussed. Where several studies were available, the results were pooled and analysed^{1,13}. The clearance and recurrence data from such pooled analyses are summarised in Table 1.

Table 1. Summary of studies and pooled results from the systematic review¹³.

| Treatment | Number of studies identified | Pooled number of patients | Clearance of warts (%) Average (range) | Recurrence of warts (%) Average (range) |
|-----------------------|------------------------------|---------------------------|---|--|
| Catechin 10% ointment | 3 | 764 | 54.4% (49.9%–58.9%) | 7.7% (4.4%–11.0%) |
| Imiquimod 5% cream | 6 | 670 | 43.1% (38.1%–48.2%) | 18.2% (11.6%–24.8%) |

The authors note that the interpretation of these data are complicated by issues with comparability between the studies, their quality, and the length of time each product has been on the market¹³. However, they conclude that the clearance rate of imiquimod (43.1%) was significantly lower than catechin (54.4%), whilst the recurrence rate was much lower with the catechin treatment (7.7% versus 18.2%)¹³.

The applicant company provided results from an anchored adjusted ITC using the Bucher method to validate the effectiveness results in the systematic review¹. The analysis involved using risk ratios comparing *Camellia sinensis* to imiquimod, and the company conclude this validates the clearance and recurrence rates presented in the review¹. In addition, statistical analysis to assess heterogeneity in the studies included in the published systematic review was performed and the company state that this confirmed high heterogeneity across the studies¹.

3.3 Safety

Pooled results were provided from the placebo-controlled studies CT1017 and CT1018 comprising 1,004 patients^{1,3,7,11,12}. Treatment-emergent adverse events (AEs) were reported in 85.3% (341/401) of patients in the Catephen[®] 10% group compared to 72.5% (150/207) in the placebo group^{3,7}. The most commonly reported treatment-related AEs were local application site reactions; overall, erythema, erosion/ulceration and oedema were the most frequently reported. These were mainly mild or moderate and in general, they started early after treatment and decreased under continued treatment. Very few of the AEs that related to study treatment were classified as serious: one patient in the Catephen[®] 10% group developed pustular vulvovaginitis, which resolved after treatment interruption and did not recur after reintroduction^{3,7}. The number of patients who discontinued prematurely from the studies due to AEs was low: four patients in the Catephen[®] 10% group discontinued prematurely due to an AE⁷.

3.3 AW TTC critique

- Catephen[®] is a herbal medicine licensed for treatment of external genital and perianal warts. It is available in Europe and the US and is listed as a treatment option in the latest European guidelines⁶. The applicant company requested that AWMSG consider Catephen[®] as an alternative to imiquimod: that is, when positioned for use in patients not suitable for podophyllotoxin or who have not responded to treatment with podophyllotoxin¹.
- Clinical expert opinion sought by AW TTC confirmed that the choice of treatment is dependent on a number of factors including number, type, site and previous treatment. Current British guidelines (2015) recommend patients with a small number of low volume warts or keratinised warts are best treated with ablative treatments; podophyllotoxin is usually considered for soft non-keratinised warts and imiquimod can be used for both keratinised and non-keratinised warts⁴. Clinical expert opinion suggests podophyllotoxin, imiquimod and cryotherapy would be appropriate comparators for the full licensed indication. However, the company suggest the patient-administered option imiquimod is more appropriate given the similar licensed indication to Catephen[®] and, following a survey of three centres in Wales, they state that podophyllotoxin is the first line treatment within its licensed indication and that imiquimod is used when treatment with podophyllotoxin has failed or is not suitable¹.
- In the pivotal studies, a statistically significant difference between Catephen[®] and placebo was demonstrated for the primary endpoint of complete clearance of all warts. However, due to a lack of comparative efficacy and safety data, the company report the findings of a published systematic review of treatments available in Germany for the patient treatment of condylomata acuminata^{1,13}. The authors of the review report a high clearance rate and low recurrence rate for the catechin treatment¹³. The company provided an ITC to validate the effectiveness results from the review¹; however, safety endpoints were not evaluated. Furthermore, information on the methodology used, and heterogeneity of study populations, methodology and follow-up are generally lacking. The company has provided further information to address this i.e., by conducting a comparison of some baseline characteristics, study length and differences in primary endpoints as well as statistical analysis on heterogeneity between studies¹. Overall, given the inherent limitations, the applicability of the review to Wales remains largely unknown.
- In the pooled analysis of studies CT 1017 and CT 1018, the overall proportion of patients treated with podophyllotoxin was small, resulting in limited data for the use of Catephen[®] after podophyllotoxin. Only 33% of patients in the Catephen[®] group and 38% in the placebo group had a history of previous treatment⁷. In study CT 1017, podophyllotoxin followed by curettage and electrodesiccation, laser surgery, and cryotherapy were the predominantly used previous treatment modalities¹¹. In study CT 1018 the vast majority of patients did not have previous episodes¹².
- At the time of licensing, it was highlighted that in all efficacy studies placebo clearance rates were relatively high. It was suggested that the known irritant potential of the excipients, the corresponding mechanical stimulus associated with a three times a day application, and the intensified hygiene care at the wart site could account for this phenomenon³.
- The administration schedules of Catephen[®] and imiquimod differ^{2,10}. Catephen[®] is applied three times per day and continued until complete clearance of all warts, while imiquimod is applied three times per week, with the cream remaining on the skin for six to ten hours. The maximum treatment duration for both medicines is 16 weeks^{2,10}.

4.0 SUMMARY OF THE EVIDENCE ON COST-EFFECTIVENESS

4.1 Cost-effectiveness evidence

4.1.1 Context

The company submission includes a cost-utility analysis (CUA) of Catephen[®] for the cutaneous treatment of external anogenital warts (condylomata acuminata) in immunocompetent patients from 18 years of age compared to topical imiquimod after treatment with podophyllotoxin and/or cryotherapy is not suitable or has failed¹.

A decision tree model with a NHS perspective is used to assess the cost-effectiveness of Catephen[®] compared to imiquimod. In the absence of a standard treatment algorithm, the company surveyed three Welsh centres that treat sexually transmitted infections (STI). Based on the data from the survey, patients enter the model after podophyllotoxin and cryotherapy have failed in first line treatment, and the patient switches to either Catephen[®] or imiquimod. Catephen[®] and imiquimod are applied until clearance or a maximum of 16 weeks. If warts do not clear after the maximum 16 weeks of treatment, one more cycle of 16 weeks of second line treatment is applied. If the warts persist after this repeat treatment, the patient is referred to a clinic for surgical removal. The analysis assumes that, after recurrence, topical treatment is 100% effective again, if it was effective once before. The model has a one year time horizon to accommodate the entire patient pathway and no discounting is applied.

In the absence of direct comparative clinical effectiveness data, the company performed an ITC using data from a published systematic review of the literature¹³ to estimate the clearance and recurrence rates associated with each treatment option. The analysis does not take into account AEs and discontinuation rates. The cost to the NHS per episode of care is based on a study which estimates the average mean cost of care for genital warts in England¹⁴. This includes GP contacts, genitourinary medicine (GUM), clinic visits, and surgical procedures, but excludes STI screening. Cost of surgical excision and quality-adjusted life year (QALY) data for an episode of genital warts were derived from a cross-sectional study of patients attending eight sexual health clinics in the UK¹⁵. Loss of quality of life associated with surgical excision is not considered in the analysis.

One-way sensitivity analyses are undertaken to test the robustness of the results to changes in the clearance and recurrence rates, QALY loss, treatment cost estimates and product market share. No probabilistic sensitivity analysis is reported.

4.1.2 Results

The results of the base case analysis are presented in Table 2. Catephen[®] is found to be £110.11 less expensive and resulted in 0.0052 more QALYs compared to imiquimod and is thus reported to be the dominant treatment option.

Table 2. Results of the base case analysis.

| | Catephen [®] | Imiquimod | Difference |
|--|---------------------------------|-----------|------------|
| Total cost per patient | £749.59 | £859.71 | -£110.11 |
| Total QALYs lost | 0.03* | 0.04* | -0.0052 |
| ICER (£/QALY gained) | Catephen [®] dominates | | |
| ICER: incremental cost effectiveness ratio; QALY: quality-adjusted life year. * QALYs lost due to warts rather than QALYs gained. | | | |

Table 3 summarises the scenarios provided by the company in order to address uncertainty around the key input parameters. Catephen[®] dominates imiquimod in all scenarios where clearance and recurrence rates are assumed superior for Catephen[®]. Scenario 4 is a cost-minimisation analysis assuming clearance and recurrence rates to be equal and shows that imiquimod would be less expensive. Scenario 3 assumes only

slightly lower clearance rates and marginally higher recurrence rates for imiquimod compared to Catephen[®] in which case Catephen[®] was found to be not cost-effective with an incremental cost-effectiveness ratio (ICER) of £60,994.

Table 3. Results of the deterministic sensitivity analyses.

| Scenarios | ICER | Plausibility |
|---|---|---|
| Scenario 1 Uses the lower limit of the 95% CI for clearance rates and the upper limit of 95% CI for recurrence rate as reported by Schafer et al 2014 ¹³ . | Catephen [®] dominates | This scenario is plausible. The clearance and recurrence rates used in this analysis are within the ranges reported in European guidelines ⁶ . |
| Scenario 2 Uses the upper limit of the 95% CI for clearance rates and the lower limit of 95% CI for recurrence rate as reported by Schafer et al 2014 ¹³ . | Catephen [®] dominates | This scenario is plausible. The clearance and recurrence rates used in this analysis are within the ranges reported in European guidelines ⁶ . |
| Scenario 3 Assumes lower clearance rates and upper recurrence rates for Catephen [®] and upper clearance and lower recurrence rates for imiquimod based on 95% CI reported by Schafer et al 2014 ¹³ . | £60,994 | This scenario is plausible but unlikely, given that the indirect comparison provided by the company reports that Catephen [®] can be expected to be superior in clearance and recurrence rates. Rates in this analysis are very similar for both treatment options, so it might be considered a worst-case scenario. |
| Scenario 4 Assumes clearance rate of 50% and recurrence rate of 10% for both treatments. | Cost minimisation analysis: Catephen [®] costs £62.37 more | According to the indirect comparison provided by the company, Catephen [®] can be expected to be superior in clearance and recurrence rates. Rates in this analysis are equal, so it might be considered a worst case scenario. |
| Scenario 5 Assumes 2.5 tubes of Catephen [®] used instead of 6 tubes in base case. | Catephen [®] dominates | The usage of 2.5 tubes is based on the actual usage as observed in the clinical trials and might be considered more plausible than 6 tubes in the base case. |
| Scenario 6 Assume QALY loss of 0.031 per episode compared to 0.018 based on upper limit of QALY loss reported by Woodhall et al 2011 ¹⁵ . | Catephen [®] dominates | Using lower and upper limits of the mean are plausible assumptions. |
| Scenario 7 [Commercial in confidence information removed]. | Catephen [®] dominates | This scenario [commercial in confidence information removed] and cannot be considered plausible, without evidence on efficacy rates with average market use. |
| Scenario 8 Assumes a lower cost of care (including GP and GUM visits) based on Woodhall et al 2011 ¹⁵ . | Catephen [®] dominates | The cost of care does not differ considerably from the base case (£124 vs £113). |
| CI: confidence interval; GUM: genitourinary medicine; QALY: quality-adjusted life year. | | |

4.1.3 AWTTTC critique

The results of the CUA indicate that the use of Catephen[®] leads to cost savings and increased quality of life, and as such is the dominant treatment compared to imiquimod. The base case of the CUA assumes that clearance rates for Catephen[®] are superior to

imiquimod (54% versus 43%) and that recurrence rates are less than half compared to imiquimod (7.7% versus 18%). The sensitivity analyses show that the results are sensitive to the clearance and recurrence rates and indicate that smaller differences in effectiveness may overturn the results. In the presence of very small incremental QALYs, the ICER is quite unstable and very small changes in the costs or QALYs can produce large variations in the ICER.

Strengths of the economic analysis:

- The model treatment pathway presented by the company appears to reflect the patient pathway as informed by a survey of Welsh STI centres and British Society for Sexual Health and HIV Guidelines
- The company provided an anchored adjusted ITC of the clinical data taken from the systematic review¹³.
- Considering the relatively short duration of the condition as well as follow-up data available in the literature, the structure and time horizon of the model seem appropriate.

Limitations of the economic analysis:

- The decision tree model applies costs for treatment and QALYs lost during an episode of genital warts. The results are therefore presented as cost per QALYs not lost which is unusual. However, the incremental difference in QALYs between the treatments remains the main outcome measure and therefore appears acceptable.
- The company does not indicate whether Catephen[®] is to be used as monotherapy or in combination. The CUA is based on Catephen[®] being used as a monotherapy but the evidence¹⁶ suggests that topical treatments are also used in combination with other clinical treatments. This is not a treatment arm explored in the CUA and could have been explored in scenario analysis. Furthermore, clinical expert opinion sought by AWTTTC suggests that podophyllotoxin and cryotherapy would also be appropriate comparators for the full licensed indication, confirming that the choice of treatment is dependent on a number of factors including number, type, site and previous treatment.
- Clinical effectiveness data for both comparators are taken from a single published systematic review¹³. The company acknowledges that there is considerable heterogeneity between studies in this review, which may impact the reliability of the clinical inputs presented by the company. Furthermore, the methodology of the indirect comparison in the review is not described in sufficient detail.
- The clearance data is derived from pooled data of non-UK studies¹³ and comparison across these study populations could only be done for age and gender. This may imply insufficient information on the comparability of these study populations, also whether the data is generalisable to the UK population. This effect could have been evaluated through sensitivity analyses.
- The clinical studies investigating Catephen[®] measure clearance rates for both baseline and new warts during treatment, whereas the clinical studies for the comparators measured clearance rates for baseline warts only. It is uncertain to what degree this may affect the results of the analysis.
- AEs have not been taken into account in the model. The company states that major AEs are uncommon and mild side effects are experienced with both treatments but do not normally require attention. Given the small cost difference and the negligible difference in terms of effectiveness, this could have a major impact on the conclusions.
- The cost of surgical extraction used in the model was taken from Desai et al (2011)¹⁴. However, only 40% of hospital procedures reported by Desai et al were surgical excisions. The inclusion of other procedures in the average cost will cause bias.

- The QALY estimates applied in the model do not take into account the effect of surgical excision. As a certain loss of QALYs can be expected to be associated with surgical procedures and surgical procedures are thought to be less frequent in the Catephen[®] arm due to higher clearance rates, this limitation of the analysis might underestimate the cost-effectiveness of Catephen[®].
- The QALY loss per episode of 6.6 days applied in the model is based not only on the treatment period, but also on the continued presence of genital warts after the last clinic visit. Therefore, QALY loss associated with successful treatment may be overestimated.

4.2 Review of published evidence on cost-effectiveness

Standard literature searches conducted by AWTTC have not identified any published evidence on the cost-effectiveness of Catephen[®] for the treatment of genital and perianal warts.

5.0 SUMMARY OF EVIDENCE ON BUDGET IMPACT

5.1 Budget impact evidence

5.1.1 Context and methods

The eligible population was extrapolated from 2013 HIV and STI trends in Wales¹⁷. This was updated with the quarterly “Sexual Health in Wales Surveillance Scheme” reports published by NHS Wales with data available up to the end of June 2015¹⁸, [commercial in confidence information removed].

[Commercial in confidence information removed].

Sensitivity analyses estimate the effect of reducing treatment cost for Catephen[®] and increasing the market share.

5.1.2 Results

The estimated net budget impact as presented by the company is shown in Table 4.

The company estimates that the use of green tea leaf extract could save a total of £27,282 over 5 years which includes savings in medicine cost and cost of GP, GUM and hospital visits.

Table 4. Company-reported costs associated with the use of Catephen® 10% ointment.

| | 2016 | 2017 | 2018 | 2019 | 2020 |
|---|------|------|------|------|------|
| Number of patients with genital warts in Wales | ¶¶ | ¶¶ | ¶¶ | ¶¶ | ¶¶ |
| Number of eligible patients (patients with genital warts receiving topical treatment) | ¶¶ | ¶¶ | ¶¶ | ¶¶ | ¶¶ |
| Number of patients using imiquimod | ¶¶ | ¶¶ | ¶¶ | ¶¶ | ¶¶ |
| Uptake green tea leaf extract (%) | ¶¶ | ¶¶ | ¶¶ | ¶¶ | ¶¶ |
| Estimated number of treated patients | ¶¶ | ¶¶ | ¶¶ | ¶¶ | ¶¶ |
| Expenditure imiquimod (medicine and GUM costs) | ¶¶ | ¶¶ | ¶¶ | ¶¶ | ¶¶ |
| Expenditure green tea leaf extract (medicine and GUM costs) | ¶¶ | ¶¶ | ¶¶ | ¶¶ | ¶¶ |
| Net financial costs or savings | ¶¶ | ¶¶ | ¶¶ | ¶¶ | ¶¶ |
| ¶¶ Commercial in confidence figure removed. | | | | | |

[Commercial in confidence information removed].

5.1.3 AWTC critique

- The company has adopted a pragmatic approach to its estimates of eligible patient numbers for Wales, but these are associated with a degree of uncertainty.
- Estimates of uptake are subject to uncertainty as in all budget impact analyses. The company anticipates that all of its predicted uptake of Catephen® will be due to displacement of imiquimod use based on market share data.
- The company include primary and secondary care costs. The net financial costs of introducing Catephen® in practice may not be equivalent to the opportunity costs calculated for the economic analysis. It may therefore be more appropriate to consider the net medication costs when evaluating the budget impact in Wales.
- The 2013 STI data suggest a trend of rising incidence of 2% per year, but the impact of the HPV vaccine may counteract this. The company has adjusted for this by using quarterly NHS reports up to June 2015, which they plotted and extrapolated to 2020.
- The patient population eligible for treatment is based on assumption, which introduces uncertainty surrounding the true budget impact.
- [Commercial in confidence information removed]. The fact that the total number of recurrent patients was reduced but only part of them received the new treatment, will underestimate the recurrence rate of imiquimod.

5.2 Comparative unit costs

Acquisition costs per course for different treatment regimens for genital and perianal warts are described in Table 5.

Table 5. Examples of acquisition costs of Catephen 10% ointment.

| Regimens | Example doses | Approximate costs per patient per course |
|---|---|--|
| Green tea leaf extract (Catephen [®]) 10% ointment 15 g | Apply three times per day until complete clearance of all warts (max. 16 weeks) | £156 (maximum 16 weeks) |
| Imiquimod (Aldara [®]) 5% cream 12-sachet pack | Apply three times per week at night until lesions resolve (max. 16 weeks) | £194 (maximum 16 weeks) |
| Podophyllotoxin (Warticon [®]) 0.15% cream 5 g | Apply twice daily for three consecutive days; treatment may be repeated at weekly intervals for a total of four 3-day treatment courses | £71.32 (maximum 4 weeks) |
| Podophyllotoxin (Warticon [®]) 0.5% solution 3 ml | Apply twice daily for three consecutive days, treatment may be repeated at weekly intervals for a total of four 3-day treatment courses | £59.44 (maximum 4 weeks) |
| Podophyllotoxin (Condyline [®]) 0.5% solution 3.5 ml | Apply twice daily for three consecutive days, treatment may be repeated at weekly intervals for a total of five 3-day treatment courses | £72.45 (maximum 5 weeks) |
| <p>Not all regimens may be licensed for use in this patient population. See relevant Summaries of Product Characteristics for full licensed indications and dosing details. Costs are based on BNF list prices as of 30 April 2016¹⁹, assuming wastage. Costs of administration are not included. This table does not imply therapeutic equivalence of medicines or the stated doses.</p> | | |

6.0 ADDITIONAL INFORMATION

6.1 Prescribing and supply

AWTTC is of the opinion that, if recommended, green tea leaf extract (Catephen[®]) may be appropriate for specialist only prescribing within NHS Wales for the indication under consideration.

The company do not anticipate that green tea leaf extract (Catephen[®]) will be supplied by a home healthcare provider.

6.2 Ongoing studies

The company submission states that there are no ongoing studies from which additional evidence is likely to be available within the next 6–12 months.

6.3 AWMSG review

This assessment report will be considered for review three years from the date of the Final Appraisal Recommendation.

6.4 Evidence search

Date of evidence search: 2 and 3 November 2015.

Date range of evidence search: No date limits were applied to database searches.

REFERENCES

1. Kora Healthcare. Form B: Detailed appraisal submission. Green tea leaf extract (Catephen[®]) 10% Ointment. Mar 2016.
2. Kora Healthcare. Catephen[®] 10% Ointment. Summary of Product Characteristics. Apr 2015. Available at: <http://www.medicines.org.uk/emc/medicine/30250>. Accessed Apr 2016.
3. Bundesinstitut für Arzneimittel und Medizinprodukte. Public Assessment Report, Mutual Recognition Procedure, Veregen 10% Ointment, green tea leaves dry extract with water: DE/H1659/001, DE/H/1659/001/E001. Mar 2012. Available at: http://mri.medagencies.org/download/DE_H_1659_001_PAR.pdf. Accessed Apr 2016.
4. Clinical Effectiveness Group British Association for Sexual Health and HIV. Skin conditions: UK National Guidelines on the management of anogenital warts 2015. Apr 2015. Available at: <http://www.bashh.org/BASHH/Guidelines/Guidelines/BASHH/Guidelines/Guidelines.aspx?hkey=072c83ed-0e9b-44b2-a989-7c84e4fbd9de>. Accessed Apr 2016.
5. National Institute for Health and Care Excellence. Clinical Knowledge Summaries: warts - anogenital. Nov 2012. Available at: <http://cks.nice.org.uk/warts-anogenital>. Accessed Apr 2016.
6. Lacey CJN, Woodhall SC, Wikstrom A et al. 2012 European guideline for the management of anogenital warts. *Journal of the European Academy of Dermatology and Venereology*. 2013.;27(3):e263-e270. Available at: <http://onlinelibrary.wiley.com/doi/10.1111/j.1468-3083.2012.04493.x/abstract;jsessionid=86F94504BDF3DBD199813CAFEDBA DC55.f03t03>. Accessed Apr 2016.
7. Tatti S, Stockfleth E, Beutner KR et al. Polyphenon E[®]: a new treatment for external anogenital warts. *British Journal of Dermatology*. 2010;162(1):176-184. Available at: <http://onlinelibrary.wiley.com/doi/10.1111/j.1365-2133.2009.09375.x/abstract>. Accessed Apr 2016.
8. Takeda UK Ltd. Condylone[®]. Summary of Product Characteristics. May 2015. Available at: <http://www.medicines.org.uk/emc/medicine/22861>. Accessed May 2016.
9. GlaxoSmithKline. Warticon Cream[®]. Summary of Product Characteristics. Sept 2015. Available at: <http://www.medicines.org.uk/emc/medicine/7322>. Accessed May 2016.
10. Meda Pharmaceuticals Ltd. Aldara[®] 5% cream. Summary of Product Characteristics. Mar 2015. Available at: <http://www.medicines.org.uk/emc/medicine/8>. Accessed May 2016.
11. Stockfleth E, Beti H, Orasan R et al. Topical Polyphenon[®] E in the treatment of external genital and perianal warts: a randomized controlled trial. *British Journal of Dermatology*. 2008;158(6):1329-1338. Available at: <http://onlinelibrary.wiley.com/doi/10.1111/j.1365-2133.2008.08520.x/abstract>. Accessed Apr 2016.
12. Tatti S, Swinehart JM, Thielert C et al. Sinecatechins, a defined green tea extract, in the treatment of external anogenital warts: a randomized controlled trial. *Obstetrics & Gynecology*. 2008;111(6):1371-1379. Available at: http://journals.lww.com/greenjournal/Fulltext/2008/06000/Sinecatechins,_a_Defined_Green_Tea_Extract,_in_the.18.aspx. Accessed Apr 2016.
13. Schafer T, and Schnoor M. Data analysis for clearance and recurrence rates: self-treatment of condylomata acuminata with medication. *Der Deutsche Dermatologe*. 2014;62(3):200-205.
14. Desai S, Wetten S, Woodhall SC et al. Genital warts and cost of care in England. *Sexually Transmitted Infections*. 2011;87:464-468. Available at: <http://sti.bmj.com/content/87/6/464.long>. Accessed Apr 2016.

15. Woodhall SC, Jit M, and Soldan K. The impact of genital warts: loss of quality of life and cost of treatment in eight sexual health clinics in the UK. *Sexually Transmitted Infections*. 2011;87:458-463. Available at: <http://sti.bmj.com/content/87/6/458.long>. Accessed Apr 2016.
16. Woodhall SC, Jit M, Cai C et al. Cost of treatment and QALYs lost due to genital warts: data for the economic evaluation of HPV vaccines in the United Kingdom. *Sexually Transmitted Infections*. 2009;36(8):515-521. Available at: <http://www.ncbi.nlm.nih.gov/pubmed/19543143>. Accessed Apr 2016.
17. Communicable Disease Surveillance Centre. HIV and STI trends in Wales. Surveillance Report, December 2013. Dec 2013. Available at: [http://www2.nphs.wales.nhs.uk:8080/CommunitySurveillanceDocs.nsf/\(\\$All\)/B223E62F70BAF4A080257C51003D1E32/\\$File/HIV%20and%20STI%20trends%20in%20Wales%20Report%202013_2012data_v1.pdf?OpenElement](http://www2.nphs.wales.nhs.uk:8080/CommunitySurveillanceDocs.nsf/($All)/B223E62F70BAF4A080257C51003D1E32/$File/HIV%20and%20STI%20trends%20in%20Wales%20Report%202013_2012data_v1.pdf?OpenElement). Accessed Apr 2016.
18. Communicable Disease Surveillance Centre. Sexual health in Wales surveillance scheme (SWS), quarterly report, January 2016. Jan 2016. Available at: [http://www2.nphs.wales.nhs.uk:8080/CommunitySurveillanceDocs.nsf/3dc04669c9e1eaa880257062003b246b/24e4987677a4a3f480257f53004e832c/\\$FILE/Quarterly%20Report_Jan2016_v1.pdf](http://www2.nphs.wales.nhs.uk:8080/CommunitySurveillanceDocs.nsf/3dc04669c9e1eaa880257062003b246b/24e4987677a4a3f480257f53004e832c/$FILE/Quarterly%20Report_Jan2016_v1.pdf). Accessed Jun 2016.
19. British Medical Association, and Royal Pharmaceutical Society of Great Britain. British National Formulary. April 2016. Available at: <https://www.medicinescomplete.com/mc/bnf/current/>. Accessed April 2016.