UK National Screening Committee

Antenatal screening for Human T-cell lymphotropic virus (HTLV)

25th October 2017

Aim

1. To ask the UK National Screening Committee (UK NSC) to make a recommendation, based on the evidence presented in this document, as to whether or not antenatal screening for Human T-cell lymphotropic virus (HTLV) meets the UK NSC criteria for a systematic population screening programme

Previous reviews

2. This is the fourth time that antenatal screening for HTLV has been considered by the UK NSC. A baseline assessment of the case was established in 2000. This was undertaken by Ades et al and published in the BMJ. The paper is referred to in the current review and can be accessed at https://www.ncbi.nlm.nih.gov/pmc/articles/PMC27390/

3. A key outcome of the 2000 assessment was that the balance of benefit and harm from antenatal screening to detect HTLV had not been well explored in primary research. It was suggested that an economic evaluation would help with this. It was proposed that, if screening was found to produce a net benefit, a strategy in high prevalence areas would be the preferred option.

4. The last UK NSC review on HTLV screening in pregnancy was published in 2012. This concluded that no new studies had been published which significantly changed the evidence base relating to screening. However stakeholder concerns about a lack of up to date information on the UK prevalence and a stated interest in addressing the condition in areas of high prevalence was noted. While selective approaches such as this are outside the UK NSC remit the recommendation was that the National Centre for Human Retrovirology

should discuss work in this area with specialised commissioners. The coversheet from 2012 is attached at **Annex A** for background information.

Evidence Summary

5. The current review was undertaken by Solutions for Public Health, in accordance with the triennial review process https://legacyscreening.phe.org.uk/htlv.

6. The review looked for and evaluated studies addressing the prevalence of HTLV-I and II in the UK, studies exploring the performance of HTLV screening in the pregnant population and the effectiveness of breastfeeding avoidance in reducing mother to child transmission of HTLV.

7. The main conclusion of this review is that universal antenatal screening for HTLV should not be recommended in the UK. This is because the review did not identify any new evidence published since January 2011 that would change the conclusions of the 2012 review. The key concerns from the 2011 review still stand:

    a. no studies updated the baseline estimates of the epidemiology of HTLV infection in the UK pregnant population. **Criterion 1 not met**
    b. while screening test performance estimates are derived from blood donors there was an absence of evidence in the pregnant population. **Criterion 4 not met**
    c. a single study reported transmission rates related to breastfeeding duration which were in keeping with those established in earlier estimates. **Criterion 9 no change from the previous review**

Consultation

8. A three month consultation was hosted on the UK NSC website. Direct emails were sent to 10 organisations. **Annex B**

9. Two responses were received, one from the Royal College of Midwives (RCM) and the other from the National Centre for Human Retrovirology (NCHR), see **Annex C** below.

10. The RCM agreed with the overall conclusion of the review. This was mainly because the absence of an intervention for screen positive women limited the impact of screening and harms such as depression and anxiety have been reported in screened women.

Recommendation

11. The Committee is asked to approve the following recommendation:

    A systematic antenatal screening programme for HTLV is not recommended.

Action

The UK NSC is asked to approve the recommendation and to note that the Secretariat will contact the NCHR to highlight that proposals to develop targeted testing strategies should be taken forward via a relevant body, for example NICE or BHIVA.

Based on the 20 UK NSC criteria set to recommend a population screening programme, evidence was appraised against the following four criteria:

	Criteria	Met / Not met
The condition		
1	The condition should be an important health problem as judged by its frequency and/or severity. The epidemiology, incidence, prevalence and natural history of the condition should be understood, including development from latent to declared disease and/or there should be robust evidence about the association between the risk or disease marker and serious or treatable disease	Not met ✗
The Test		
4	There should be a simple, safe, precise and valid screening test.	Not met ✗
The intervention		
9	There should be an effective intervention for patients identified through screening, with evidence that intervention at a pre-symptomatic phase leads to better outcomes for the screened individual compared with usual care. Evidence relating to wider benefits of screening, for example those relating to family members, should be taken into account where available. However, where there is no prospect of benefit for the individual screened then the screening programme should not be further considered.	Met ✓

ANNEX A

Review of antenatal screening for HTLV-1

Aim of the paper

This note provides background to the agenda item addressing the review of antenatal screening for HTLV-1.

Current policy

The current policy is that screening should not be offered.

The previous review was undertaken in 2003 and the rationale for the policy is explained in the attached update review document which was developed by Professor Catherine Peckham.

Review process

The update review addresses literature produced between January 2003 and March 2011.

The document was considered by the FMCH in November 2011. A three month consultation was hosted on the UK NSC website and this closed in April 2012. The following stakeholders were contacted directly: British Infection Association, British Society for Immunology, Health Protection Agency, National Centre for Human Retrovirology, RCOG.

Comments were received from professionals and patients associated with the National Centre for Human Retrovirology which was established to manage and study HTLVs.

While both responses are very critical of the review and its conclusions it should be noted that much of the review's content is accepted. For example the patient group accept that there is a lack of information on prevalence, transmission and outcome. It is notable that both responses mention the possibility of screening within the high risk groups associated with HTLV – 1 infection. In particular, the patient group equates a recommendation not to screen with a perception of the condition being 'insignificant'.

Both sets of comments are attached.

Proposed policy position statement

It is proposed that the current policy position should be retained: screening for HTLV1 is not recommended.

This is because:

- The prevalence of infection is very low in the UK with limited data on prevalence in the defined risk groups
- The risk of mother-to-child transmission is low and data on the long term consequences of infection lacking
- There is no effective treatment
- The impact of avoiding breastfeeding is uncertain

- The negative impact of maternal diagnosis of HTLV on the woman and her family must not be underestimated

Recommendations

The National Centre for Human Retrovirology should be encouraged to approach specialised commissioners regarding work in high risk groups / areas.

Action

The UK NSC is asked to consider the above.

Annex B

List of organisations\individuals contacted:

1. Association for Improvements in the Maternity Services
2. British Association of Perinatal Medicine
3. British Infection Association
4. British Society for Immunology
5. National Centre for Human Retrovirology
6. National Childbirth Trust
7. Royal College of General Practitioners
8. Royal College of Midwives
9. Royal College of Obstetricians and Gynaecologists
10. Royal Society for Public Health

UK National Screening Committee
Antenatal screening for HTLV infection –an evidence review

Consultation comments pro-forma

Name:	Mervi Jokinen	**Email address:**	xxxx xxxx
Organisation (if appropriate):	Royal College of Midwives		
Role:	**Professional Advisor**		

Do you consent to your name being published on the UK NSC website alongside your response?

Yes x☐ No ☐

Section and / or page number	**Text or issue to which comments relate**	**Comment** *Please use a new row for each comment and add extra rows as required.*
Generic		RCM welcomes this review of evidence linked to antenatal screening for HTLV infection. It appears from the review that no new evidence has emerged that would support change in the current recommendation of not screening. As stated in the the absence of treatment and/or preventative

		vaccines reduces impact of effective screening. RCM also acknowledges the potential negative impact of a maternal diagnosis of HTLV on the women and her families' quality of life. Regarding the evidence about prolonged breastfeeding increasing the risk mother-to-child transmission, RCM recognises the fact that breastfeeding rates in UK are statistically low and shorter in duration than in other countries, which may further reduce that risk within our pregnant population. However, this may impact on the need for information regarding the condition both for professionals and women, which is outside the considerations of this consultation.
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Please return to the Evidence Team at screening.evidence@nhs.net **by Thursday 28th September 2017.**

UK National Screening Committee
Antenatal screening for HTLV infection –an evidence review

Consultation comments pro-forma

Name:	Graham P Taylor; Dr Lucy Cook, Dr Divya Dhasmana	**Email address:**	xxxx xxxx
Organisation (if appropriate):	National Centre for Human Retrovirology, Imperial College Healthcare NHS Trust		
Role:	**Consultant Physicians, National Centre for Human Retrovirology, London**		

Do you consent to your name being published on the UK NSC website alongside your response?

Yes ☒ **No** ☐

Section and / or page number	Text or issue to which comments relate	Comment *Please use a new row for each comment and add extra rows as required.*
Page 4	The previous 2012 UK NSC review concluded…..	In the spring of 2012 I submitted to the UK National Screening Committee a detailed response to the 2011/2012 identify major concerns with the analysis in 'Review of screening for Human T-cell lymphotropic virus (HTLV) in pregnancy'. These have yet to be addressed.

Page 4	The document reviews evidence published between January 2011 and January 2017	The current review 'Antetnatal Screening for HTLV infection June 2017' explores only literature published since 2011 and did not address any of the significant concerns about the content of the 2011/2012 document raised in the aforementioned response. Since the 2017 review found no significant change in the evidence base since the previous review I am resubmitting that response at the end of the current response.
Criterion 1 Page 10-11	Summary: Criterion 1 is not met.	We conclude that the 2017 review is seriously flawed by: 1) not addressing the previously identified errors in the 2012 review on which it was based; 2) inadequate assessment of criterion 1 with absolutely no reference to disease severity or rate comparison with other 'screened for' condition and reliance on using an undefined descriptive 'low' to determine that the criterion was not met; In the appraisal against UK NSC criterion 1, the conclusion is that the criterion is not met because the previous review considered the prevalence of HTLV infection in the antenatal population to be 'low'. It is notable that 'low' is not defined and in particular there is no comparison with the frequency of other conditions already included within the screening programme including some which have been added to the screening programme since the 2012 review. Furthermore condition 1 states that '**The condition should be an important health problem as judged by its frequency and /or severity'**. In the assessment of criterion 1 there is no mention of the diseases that the screening programme would prevent and in particular no mention of their severity. It is therefore apparent that

		the assessment of Criterion 1 is incomplete and I strongly the urge the committee to include a full assessment of the morbidity and mortality related to perinatal HTLV-1 infection.
Criterion 4 Page 11	Summary: Criterion 4 not met.	Inadequate assessment of criterion 4, failing to properly evaluate the sensitivity and specificity of the approved serological assays currently in use for the diagnosis of HTLV infection in the UK (including in pregnancy) and failing to provide any evidence that they would not be suitable for testing pregnant women in an antenatal screening programme; Failure to address the previously identified errors in the 2012 review on which this review is based; In the assessment of criterion 4 the reviewers first acknowledge that this was not properly conducted in the 2012 but then proceed to explore only the literature since 2011. The conclusion that criterion 4 is not met is thus based on a failure to correctly evaluate the performance of the assays. The assays which are routinely used in the UK are CE approved and have been demonstrated by the manufacturers to be both highly sensitive and specific. I find it strange that there is no reference to the experience of NHS Blood and Transplant which has been screening blood donors in the UK since 2002, a subset of the population which has a 10 fold lower prevalence of HTLV infection than reported among pregnant women in the UK. The performance characteristics of the assays are publically available and none of the studies reviewed since 2011

		were conducted to assess this. Therefore it is imperative fully evaluate all the evidence. To conclude that assays that are routinely used to screen a low prevalence population in the UK will not be suitable to screen a higher prevalence antenatal population in the UK simply on the basis that there are no studies published in this area since 2011 is unacceptable.
Criterion 9 Page 18	No new evidence was identified to change the conclusion of the previous UK NSC review	It is our opinion at the National Centre for Human Retrovirology that the analysis of Criterion 9 in the 2017 review is seriously flawed by: 1) not addressing the previously identified errors in the 2012 review on which it was based; 2) Failing to evaluate the likelihood that HTLV-1 infected mothers will breast-feed beyond 3 months, after which the risk of transmission increases and thus having no data on the number of infections that would be prevented by a screening programme; The review refers to the conclusion of the 2012 review without further evaluation. The notable deficiency of this evaluation is the assumption that mother to child transmission of HTLV-1 infection is likely to be low as transmission is uncommon unless breast feeding is “continued beyond 6 months”. However, despite published data on breast-feeding patterns in the UK, there is no evaluation of likelihood of mothers infected with HTLV breast feeding for longer than 6 months. Furthermore the quoted transmission rates refer to 5% transmission at 3 months compared to 2.7% in formula-fed infants with 20% where breastfeeding is

		"prolonged". The reported rate at six months is 7.4%[2] whilst when tested at age 2 years 33% of breastfed children were seropositive in another study[3]. Conversely in a small study of formula-fed infants of which 81.5% were delivered by Caesarean section there were no transmissions[4]. 1. European Centre for Disease Prevention and Control. Geographical distribution of areas with a high prevalence of HTLV-1 infection. Stockholm, 2015. 2. Hino S. Establishment of the milk-borne transmission as a key factor for the peculiar endemicity of human T-lymphotropic virus type 1 (HTLV-1): the ATL Prevention Program Nagasaki. *Proc Jpn Acad Ser B Phys Biol Sci* 2011;87(4):152-66. doi: JST.JSTAGE/pjab/87.152 [pii] 3. Ando Y, Matsumoto Y, Nakano S, et al. Long-term Follow up Study of Vertical HTLV-I Infection in Children Breast-fed by Seropositive Mothers. *Journal of Infection* 2003;46(3):177-79. 4. Bittencourt AL, Sabino EC, Costa MC, et al. No evidence of vertical transmission of HTLV-I in bottle-fed children. *Rev Inst Med Trop Sao Paulo* 2002;44(2):63-65. doi: S0036-46652002000200002 [pii] 3) Failing to factor in the strong links between HTLV infection in infancy and a fatal malignancy (as compared to adult acquisition of infection) thereby underestimating the potential benefit of a screening programme.
Throughout	Omission	Cost benefit analysis is not mentioned in the summary or indeed the main text of the review,

Page 6	Introduction	Whilst in most European countries HTLV-1 infection is not common the extensive evaluation of global HTLV prevalence reported by ECDC notes high rates of infection in Romania (as well as a number of Middle East countries.[1]
Page 6	Introduction	A document (reference 5) which is not accessible is extensively referred to in the introduction with onwards reference to additional studies mentioned in this document. This makes it very difficult to address the comments and the source references to the studies should be specified.
Page 6	Statement relating to routine screening of breast-milk donors for HTLV-1	There is an isolated statement acknowledging that breast milk donors are screened for HTLV infection but no comment on how this impacts on the conclusion of the review. Failure to acknowledge that the current situation whereby these donors as well as mothers who choose to preserve cord blood cells are required to be tested for HTLV infection after they have delivered. It is worth noting also that parents seeking IVF are also screened for HTLV infection in the UK.
Throughout	Omission	Failure to acknowledge that the current situation whereby these donors as well as mothers who choose to preserve cord blood cells are required to be tested for HTLV infection after they have delivered. It is worth noting also that parents seeking IVF are also screened for HTLV infection in the UK.

Throughout	References to the previous review – without referring to the input from the public consultation at that time which detailed many concerns	**2. Re-submission of the response to the 2011/2012 review** Contribution to public consultation from the National HTLV clinical service, the National Centre for Human Retrovirology based at xxxx xxxx. Prepared by: Dr Graham P Taylor, Reader in Communicable Diseases, Section of Infectious Diseases, Imperial College London and Honorary Consultant, Imperial College Healthcare NHS Trust. Endorsed by: xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx . In 2003 the UK National Screening Committee concluded that screening for HTLV-1 in pregnancy should not be introduced. The 2011/12 review draws the same conclusion. The rationale presented in the HTLV Consultation document will be addressed point by point commencing with the 2003 conclusions: 1. Prevalence of HTLV-1 in the UK is very low with most cases identified in black Caribbean women and those from West and Central Africa. a. The upper limit of 'very low' is not defined. Each blood donation in the United Kingdom is screened for HTLV-1/2 infections. The prevalence of HTLV-1/2 infections amongst pregnant women in the UK (with similar data across Europe) is 10 fold higher than amongst blood donors(*1, 2*). The consensus in

		the European transplant community is that the definition of a high risk region for which all donors of tissue should be screened is a prevalence >1/10,000. The prevalence of HTLV-1/2 infections among unselected ante-natal attendees in London was reported to be 3/10,000(*1*). b. The wording of the statement is most unfortunate, inadvertently implying that screening is not warranted because most cases are identified in black Caribbean women and those from West and Central Africa. Amongst these women the reported prevalence of HTLV-1/2 is 32 – 170/10,000(*1*). No recommendations were made regarding the screening for HTLV infections amongst women at high risk of carrying these infections. 2. Risk of mother-to-child transmission is low when breast-feeding is not prolonged more than six months. a. The definition of 'low' is not defined. b. The summary implies that risk is related to breast-feeding beyond six months whilst the main text correctly reports transmission rates of 2.7% in formula milk fed infants, double that (5%) in infants breast-fed for 3 months and 8 fold higher (20%) if breast-feeding is prolonged. The importance of breast-feeding in mother-to child HTLV-1

		transmission was demonstrated in the early years after the discovery of HTLV-1. Ando et al first described detection of HTLV-1 infected cells in peripheral blood of 11/24 breast-fed infants with HTLV-1 seropositive mothers at age 12 months in 1987(*3*) compared with only 1/11 bottle-fed infants. Subsequently Ando *et al* describe HTLV infection (diagnosed at age 24 months i.e. after seroreversion) in 1/30 'bottle-fed' babies born to HTLV-1 infected mothers compared with 24/31 breast-fed infants(*4*). 3. Little reduction by formula feeding. a. This statement completely contradicts the data presented in the documented in which mother-to-child transmission of HTLV-1 is reduced by 80% by avoidance of breast-feeding – a highly effective, safe, affordable, acceptable, feasible and sustainable option in the UK. Data from Japan again show significantly lower rates of HTLV-1 transmission with bottle-feeding 2.5% compared with short-term (six months) breast-feeding (7.4%, p <0.001)(*5*). (Although numbers are small, no HTLV-1 positive mothers that we have counselled have chosen to breast-feed). 4. No treatment is available.

		a. The context and relevance of this statement should be stated. b. The absence of a treatment to eradicate HTLV-1 infection once this has occurred justifies the screening for HTLV-1 infection in pregnancy to prevent an untreatable infection. c. Interventions to prevent HTLV-1 mother-to-child transmission are available: i. Exclusive formula-feeding as described above reduces transmission by 80% ii. Pre-labour caesarean section for the prevention of HTLV-1 mother-to-child transmission has been proven to reduce HIV-1 infection by 80%. Whilst this degree of efficacy has not been demonstrated for HTLV-1 (and cannot be demonstrated in the absence of ante-natal screening), this is advocated for some women infected with HTLV-1 based on maternal viral burden and family history. In a study from Brazil, no transmissions occurred among 41 managed mother-infant pairs with 81% delivered by elective caesarean section and all bottle-fed(*6*).

		iii. Antiretroviral therapies with proven anti-HTLV-1 efficacy are available – these currently belong to two classes, nucleoside analogues reverse transcriptase inhibitors and integrase inhibitors. Further development of antiretroviral therapies with broad activity will likely increase the number of available agents with the development of HTLV-1 entry inhibitors (effective in vitro) also realistic. However treatment of established infection, in which the provirus has integrated into host genome, with antiretroviral therapy alone will not be effective. Thus, the optimal time to use any or all of these agents is to prevent HTLV-1 infection with peri-exposure prophylaxis. 5. Most infected women remain asymptomatic and the lifetime risk of HTLV-1 disease is low; 1 – 5% for leukaemia and 0.25 – 3% for myelopathy and tropical paraparesis. a. Two or more individuals have to be considered in the context of screening: i. The pregnant woman ii. Her child iii. Her partner(s)

		b. The definition of a 'low' life-time risk is not given. Is a 1:20 or more chance of developing a rare haematological malignancy 'low'? c. Life-time risk is not uniform. The best estimates of the life-time risk of adult T-cell leukaemia/lymphoma (ATLL) from Japanese Cancer Registries are 6.9 - 7.3% in male and 3.0 - 3.8% in female HTLV-1 infected subjects(*7, 8*). However, epidemiological data imply that the risk of ATLL is related to infection acquire early in life (*in utero*, at delivery or during breast-feeding). Thus where tested the mothers of all patients with ATLL have been found to be carriers, whereas only a proportion of mothers of patients with HAM/TSP are found to be carriers. Prevalence of HTLV-1, particularly in women, rises steeply after the menopause. Thus, the lifetime risk of ATLL in women of child-bearing age and of any infected off-spring is higher than reported and could be double this overall risk. Using data from the Caribbean based on 13,000 subjects and 2.5 years follow-up Murphy estimated the risk of ATLL in patients seropositive for HTLV-1 before age 20 to be approximately 4%(*9*). d. Morbidity and mortality and availability of treatment for the two cited conditions are not

		mentioned. Life-expectancy, with chemotherapy, following diagnosis of ATLL remains six months(*10*). HTLV-1-asssociated myelopathy/tropical spastic paraparesis (HAM/TSP) is associated with chronic morbidity measured in decades, with impaired mobility (>50% become wheel-chair dependent), chronic pain and reduced life-expectancy(*11*). Other conditions associated with HTLV-1 infection (uveitis, alveolitis, polymyositis, Sjogren's syndrome, arthritis and thyroiditis) have not been considered in the evaluation, nor the reduced life expectancy of HTLV-1 carriers compared with uninfected subjects which has been reported in community studies(*12, 13*). e. The cost of HTLV-associated morbidity and mortality is not presented. 6. The negative impact of a maternal diagnosis of HTLV on the women and her family's quality of life must not be underestimated. a. Nor should it be over estimated. This argument is not used for blood donors who usually have less to gain from the diagnosis. b. An argument that was erroneously used for not offering antenatal screening for HIV infection in the pre-HAART era.

		c. No data from UK. d. Data from Japan only, where antenatal screening has recently (2010) been upgraded from regional (based on HTLV-1 seroprevalence) to national. 7. **Summary of the literature since 2003** a. A better description of HTLV-1-associated diseases is presented however importantly the reference to the life-time risk of ATLL acquired in infancy being 1.5% is unfortunately missing. This is at variance with the data presented above. b. Prevention: Screening of tissue donors in the UK, including gametocyte donors and patients attending for in vitro fertilisation, is omitted. c. Screening: No data are presented on the sensitivity and specificity of the assays and particularly importantly reference to these when used in the context of a screening programme. Such data, based on testing millions of blood donations, are readily available from the National Blood and Transplant. The prevalence of false positives is low. d. No data are presented on the cost of screening. It is difficult therefore to determine the rationale for

		the conclusion. e. The success of the Japanese experience with ante-natal screening will be determined from the prevalence of HTLV-1 in the age cohort since this was introduced and this is being studied in the context of the prevalence of HTLV-1 amongst blood donors in this compared to older cohorts. These data should be sought to inform the screening review. The discrimination between HTLV-1 and HTLV-2 is of little relevance in the Japanese context. **2011 Conclusions: Screening for HTLV-1 and -2 in the UK is not recommended:** 8. Prevalence of infection in the UK is low and restricted to specific sub-groups a. No improvement in the validity of this statement which lacks a definition of 'low' and makes no recommendations for the specific sub-groups. b. Data from blood donor surveillance data from the HPA indicate that HTLV-1 infection (rate amongst new donors across UK 6/100,000) was acquired within the UK by 58% of blood donors newly diagnosed since testing was introduced in 2002. 9. Risk of mother-to-child transmission is low when breast-

		feeding unless breast-feeding is prolonged beyond six months. a. No improvement in the validity of this statement which lacks a definition of 'low' and disregards the 3 month cut-off presented in the paper and the 50% reduction achieved with exclusive formula feeding even compared with short-term breast-feeding. No data on duration of breast-feeding in the communities at risk of HTLV-1 infection are presented. 10. Most infected infants remain asymptomatic and the life time risk of subsequent serious disease appears to be low. a. Indeed disease in infants infected with HTLV-1, with the exception of infective dermatitis (which has not been reported in the context of HTLV-1 infection in the UK), is not reported. HAM/TSP has been reported in children in Brazil. b. No improvement in the validity of this statement which does not define 'low'. Since the diseases associated with HTLV-1 infection can only be described as serious, the accepted definition of low must be presented. 11. There is no treatment. a. A strong argument for prevention

		12. The only approach to prevention is the avoidance of breast-feeding. a. This is reported to prevent 80% of mother-to-child transmission and is not an argument against screening. Indeed the efficacy of this simple AFASS intervention is a strong argument for screening. b. Alternative approaches (including pre-labour caesarean section) are tailored to the patient based on risk when the infection status is known. 13. The potential for harm cannot be underestimated. a. The data on stigma from Japan are not presented in their cultural context. The move in Japan, led by patients repeatedly petitioning government, is to increase awareness of HTLV-1 infection and associated diseases in the community and among healthcare professionals. This has finally led to the introduction of universal antenatal screening. b. 'Potential harm' is not specified or referenced. Similar argument was and is being used against universal screening for HIV. 14. **Further comments - The case for and against screening must consider the benefits and cost**. The screening

		recommendations document fails to present either robustly. **a. Pro-screening:** i. the availability of screening and confirmatory assays that are highly sensitive and specific and cheap. ii. Known prevalence of HTLV-1/2 infection in the ante-natal population that is 10 fold higher than amongst blood donors. iii. Ten years experience of screening blood donors in the UK. Introduction of universal real-time screening of all tissue donors in the UK, screening of breast-milk donors, screening of couples seeking assisted conception. iv. A mechanism for screening - through the addition of antibody testing to the current screening programme – minimal extra staff costs when tests are universally recommended. v. Availability of an effective intervention - avoidance of breast-feeding.

		vi. Prevention of diseases for which there is high morbidity and mortality and no, or rarely a, cure. vii. Prevention of onwards transmission to children's partner (s), children's children. viii. Prevention of potential subsequent litigation costs (incurred by NBT following decisions not to screen prior to adopting universal donor screening). **b. Contra-screening:** i. Cost of screening – should be presented and compared with cost of not screening/cost per QALY. ii. Anxiety in patients diagnosed with HTLV-1 infection and their families. **Conclusion:** The literature review supporting the recommendation not to screen antenatally for HTLV-1/2 infections has overlooked key data relating to the prevalence and significance of HTLV-1 infection and the efficacy of readily available interventions to reduce transmission. Definitions of the criteria that need to be met to justify screening or not screening must be presented along with a comprehensive cost-benefit analysis.

Reference List

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10. A. A. Phillips *et al.*, *Cancer* **116**, 3438 (2010).
11. F. Martin, A. Fedina, S. Youshya, GP. Taylor, *J Neurol Neurosurg Psychiatry* **81**, 1136 (2010).
12. T. C. van *et al.*, *PLoS One.* **6**, e29026 (2011).

		13. B. Holmgren *et al.*, *Retrovirology.* **4**, 85 (2007).

Please return to the Evidence Team at screening.evidence@nhs.net **by Thursday 28th September 2017.**