B07/S/d

2013/14 NHS STANDARD CONTRACT
HUMAN T-CELL LYMPHOTROPIC VIRUS TYPE 1 AND 2 (ALL AGES)

SECTION B PART 1 - SERVICE SPECIFICATIONS

Service Specification No.	B07/S/d
Service	Human T-cell Lymphotropic Virus Type 1 and 2 (HTLV1/2) (All Ages)
Commissioner Lead	
Provider Lead	
Period	12 months
Date of Review	

1. Population Needs

1.1 National/local context and evidence base

In the United Kingdom (excluding Scotland), it is estimated that 20,000 – 30,000 persons are infected with Human T-cell Lymphotropic Virus (HTLV) (Tosswill et al BMJ 1999;320:611-2). This is predominately HTLV-1 infection although a small minority of infections are with HTLV-2. In the absence of universal screening, many HTLV cases go undiagnosed and even associated disease may not be correctly identified as resulting from HTLV infection. As of May 2012, 920 people have been diagnosed with HTLV in the UK since 2002. The HTLV service saw 243 patients in 2011. Diagnosis is identified through Public Health England (Formerly the Health protection Agency) (HPA)) enhanced surveillance programme. Surveillance data is cumulative to date and is not sufficiently developed to account for patients who have died or moved. Annually, c.90 people diagnosed with either virus.

Many patients are of African-Caribbean origin although 28% of recently diagnosed infections were in people born in the UK, not restricted to those of African / Caribbean origin and 45% of infections were acquired in the UK. Although thought of as a condition of older age, presentations are represented through the age ranges. Mother-to-child transmission of HTLV is predominately through breast feeding and therefore preventable. No antenatal screening programme is in place. Avoidance of breastfeeding by positive mothers would prevent 80% of transmissions. Evidence for other interventions (e.g. elective C-section) are not evidenced based and tends to be extrapolated from evidence in relation to HIV infection. Antiretroviral therapy has

been shown to prevent viral spread in vitro and in animal models but there is as yet no in vivo human evidence of efficacy and therefore perinatal antiretroviral prophylaxis to reduce the risk of HTLV mother-to-child transmission is not recommended.

HTLVs are transmitted through unprotected sexual intercourse with an annual risk between sero-discordant couples of circa 1% per annum.

High rates of HTLV transmission through infected blood, tissue and organs are reported. Transfusion of infected cellular blood products results in transmitted infection in 9%- 63%. UK data indicate c.35% transmission. Risk decreases with longer storage. All blood donations have been screened for HTLV since 2002. Since 2011 all organ donors are now screened for HTLV.

Injecting drug users are at risk but predominately from HTLV-2.

For those infected with HTLV-1, there is a disease progression risk of 5-10% in carriers. HTLV associated diseases include

- Adult T cell leukaemia / lymphoma (ATLL) – life time risk of ATLL in HTLV-
- 1 carriers is 2 – 6%, thought to occur almost entirely in people infected during infancy and is associated with high HTLV-1 viral load in the carrier state. Median age at presentation in the UK is 58 years. Median survival with chemotherapy only is 6 – 8 months.
- HTLV-I-associated myelopathy (HAM) – reported lifetime risk 0.25% (Japan) - 3% (UK). Occurrence of first symptoms peaks during the 4th and 5th decades, life expectancy is reduced and 50% become wheelchair dependent/bed-bound
- Other inflammatory conditions such as uveitis (H20.9), polymyositis, arthritis, thyroiditis, infective dermatitis, alveolitis and bronchiectasis are associated but prevalence is unknown. It should be noted that much HTLV-related disease is undiagnosed in the UK
- HTLV-1 increases the risk of certain co-infections, most notably disseminated Strongyloides stercoralis (B78.9). HTLV-1 co-infection with HIV-1 results in increased risk of myelopathy and more advance immune suppression than suggested by absolute CD4 cell counts.

HTLV-2 infection is rarely associated with disease although HAM is reported and an increased risk of respiratory and bladder infections noted.

Despite more the 30 years since the discovery of HTLVs, research is ongoing to understand the predictors, the symptoms and optimal management of the condition.

For those with HTLV-associated diseases:

- ATLL (C91.5) – patients may present via haematology, oncology or renal services as leukaemia, lymphoma or hypercalcaemia. First line treatment of aggressive ATLL has been with chemotherapy (CHOP - cyclophosphamide; doxorubicin, vincristine, prednisolone). Median survival of 6-8 months (despite therapy). 5 year survival is less than 5%. This compares unfavourably to other forms of lymphoma. Following chemotherapy, treatment is with antiviral therapy (zidovudine (ZDN), alpha-interferon (IFN)). This significantly improves the

outcome and for patients with leukaemic ATLL is the 1st line therapy improving 5 year survival to 20%. These patients are at high risk of opportunistic infections and need to be managed with prophylaxis etc. These patients are at risk of inpatient presentation and admission.

- HAM (G04.1) - Patients present with difficulty walking, often mild onset (trips, falls, slow movement etc.). Symptoms also include weakness, stiffness and low back pain. Poor bladder control and severe constipation, as well as impotence in men are common. 50% become wheelchair dependent, usually in second decade of disease. Minority (~5%) are fast progressors and may be paraplegic within weeks or months of first symptom. Significant pain is experienced and referral pathways into pain management services are required. To date best therapy results are with immunosuppressive therapy but data on when and what to start and duration of treatment remain limited.
- Asymptomatic carriers (Z22.6/B33.3) seen for monitoring annually. Carriers with high viral load require more frequent assessment. Counselling provided and timely intervention if symptoms develop and progress.

Specialised HTLV services are currently provided on a hub and spoke basis (see table 1 below)

Table 1 : National HTLV Centres

Highly Specialised Centre (Hub)	Specialised Service (spoke)
Imperial College Healthcare St Mary's Hospital	Queen Elizabeth Hospital, Birmingham
	North Manchester General Hospital
	York community clinic

Services for Human T-cell Lymphotropic Virus Type 1 (HTLV1) are provided by three hospitals in England. The lead service is provided at St Mary's Hospital (Imperial College Healthcare NHS Trust), and satellite clinics are run at Queen Elizabeth Hospital (University Hospitals Birmingham NHS Foundation Trust), North Manchester General Hospital (The Pennine Acute Hospitals NHS Trust) and at a community clinic in York (York Teaching Hospital NHS Foundation Trust). The service is commissioned via Imperial College Healthcare NHS Trust who sub-contract with Birmingham, Manchester and York.

Admissions are mostly restricted to patients with ATLL and HAM. During 2011 eight patients were admitted because of HAM or other HTLV-associated inflammatory diseases by HTLV services in England. All patients with aggressive ATLL are initially admitted for diagnosis and early management.

2. Scope

2.1 Aims and objectives of service

The HTLV service aims to diagnose, support and treat those with HTLV. The service description for HTLV can be described as

- Pre-test information and prevention - including awareness raising, advice, other health or behavioural intervention, contact screening.
- Diagnosis - with microbiology / virology. Specialist molecular diagnostics and immunology required. Imaging – MRI currently used.
- Long-term follow-up – of both asymptomatic and symptomatic patients. Multidisciplinary Team (MDT) approach involving infectious diseases (ID) specialist and / or speciality clinician. Input likely to include nursing, neurophysiotherapy, ophthalmology.
- Specialist management of HTLV-associated diseases – MDT approach involving ID specialist and / or speciality clinician. Input likely to include nursing and pharmacology, neurology, ophthalmology, urology, rheumatology, respiratory, pain services and onco-haematology. Shared care for ATLL involves cancer pathways. Drug initiation and monitoring. ATLL management involves novel treatment approaches including anti-viral therapy. Shared care for HAM involves neurology, urology/ urogynaecology as well as pain management. Drug initiation and monitoring.
- Patient information – providing information (including written) and advice on the condition and management. Counselling for patients and family. Patient forum provided. The service website provides updated clinical information in lay language (www.htlv1.eu).
- Research studies – ongoing research into the predictors, the symptoms, and the management of the condition. Participation in international studies.

2.2 Service description/care pathway

This specification is limited to the outpatient care of adults with HTLV.

In order to ensure access to expertise for dealing with HTLV it is necessary to commission the hub and spoke model provided by Imperial College Healthcare NHS Trust.

The HTLV service is provided by multidisciplinary teams including ID consultants. Shared care is provided with other clinicians with expertise in neurology, ophthalmology, urology, rheumatology, respiratory, pain services and onco-haematology

Asymptomatic patients (e.g. blood donor)

- New diagnosis via blood test seen by specialist nurse
- Proforma based history taken
- Initiation of assessments – blood count, chemistry, VL (diagnostics)
- Verbal and written info to patient
- Offer relevant contacts screening (not contract tracing)
- Prevention of transmission (pregnancy/safer sex/donations)
- Medical team review (consultant or registrar/clinical fellow) for signs of HTLV-related disease
- Results given/ further discussion re-implications for patient/family/partner

- Review- annual/SOS if HTLV-1 viral load < 1 HTLV DNA copy/100 PBMCs
- (%); 4- 6 months if >1%
- Routine tests include FBC, differential, blood film, biochemical profile, screen for TB, Strongyloides and blood-borne viruses, an immunology profile specific to HTLV, HTLV molecular virology.
- Participate in research (note research is not funded via this specification)

Symptomatic patients (malignancy)

- Patients referred before / during or after chemo
- Medical team led assessment
- Patient information – spoken and written – and counselling for patients and family members
- Diagnostics
- Initiation / advice / monitoring anti viral therapy (ZDV and IFN)
- Shared care with haematologists / oncologists
- If remission achieved, treatment continues for up to 5 years.
- Molecular surveillance
- Alternative ATLL specific therapies for relapse
- Review – treatment and ATLL subtype dependent. Usually every 1 – 2 weeks during early treatment with zidovudine/interferon. Monthly to quarterly once complete remission established. (Day case attendances for some therapies).
- Routine tests – as per asymptomatic carriers ± additional molecular virology (tissue dependent)

Participation in research: pathogenesis, improved diagnostics, therapy (note research is not funded via this specification)

Symptomatic patients (HAM and other HTLV-associated inflammatory disease [HAID])

- Currently patients are referred at many different stages of disease. Aim is to see all patients with HAM early in disease
- Medical team led assessment
- Patient information – verbal and written – and counselling for patients and family members
- Diagnostics – virology and immunology including cerebrospinal fluid analysis diagnosis of association of HTLV-1 with atypical neurological presentations
- Imaging – currently MRI head and spinal cord to exclude other pathology.
- Management of complications of HAM and HAID with MDT
- Management of spinal cord/CNS inflammation with immunomodulating agents/antiviral therapy. First line therapy is ciclosporin but treatment is dependent on history, tolerability and response and changes with continuing research.
- Review: Subtype and treatment dependent. Day case attendances for some therapies. Fortnightly – monthly when initiating immunosuppressive therapy. Quarterly for stable non-progressing disease.
- Routine investigations: as per asymptomatic carriers plus MRI head and spinal

cord, Lumbar puncture for CSF examination, pulmonary function tests, bladder ultrasound.
- Participation in research: pathogenesis, improved diagnostics, therapy (note research is not funded via this specification)

Patients with co-infections

Strongyloides stercoralis – risk of persistent infection and disseminated infection. Patients usually referred after initially presentation.

- Medical Team led assessment
- Patient and contacts information,
- Repeated or prolonged courses of anti-helminthic therapy essential.
- Investigation for underlying ATLL.
- Follow-up for relapse, other HTLV-associated disease (patients have high HTLV viral load)
- Review – monthly initially becoming annual after one year if asymptomatic

HIV Co-infection

- Medical Team led clinical assessment
- Initiation of investigations/laboratory assessments – confirmation of diagnosis blood count, chemistry, VL (diagnostics), immunology
- Verbal and written info to patient
- Offer relevant contacts screening (not contract tracing)
- Prevention of transmission (pregnancy/safer sex/donations)
- HIV co-infected may also follow asymptomatic/inflammatory/malignancy pathway as above
- Associated specialties: Co-location with other specialties is not essential. However establishing the network of associated specialties is essential to the provision of care. Key associated specialties are: Haematology, Neurology, Orthopaedics, Pain /Palliative care, Psychology, Respiratory Medicine, Rheumatology, Urology
- See appendix 2 for investigations and appendix 3 for prescribing.
- The service has produced service standards (appendix 1)

Staffing profile at the hub and at the spokes

- Staffing profile reflects size and age of service.
- Hub: Two Consultants (Clinical Academics), registrar, clinical nurse specialist, virology technician, neurophysiotherapist, pharmacist, service coordinator/ secretarial support plus sessions from Neurologist, onco-haematologist and ophthalmologist.
- Additional support by a rheumatologist and anaesthetist (pain management) and paediatric infectious diseases.
- Birmingham: sessions from two consultants, registrar, clinic nurse, neurophysiotherapist.
- Manchester. Sessions from one consultant, clinic nurse, neurophysiotherapist.

- York: Sessions from one consultant, clinic nurse
- All satellite services are supported by the hub with regular joint clinics (consultant and physiotherapist from London, molecular virology).
- A non PbR year of care tariff is paid for patients diagnosed with HTLV:
    - Inflammatory (highest level of HTLV service input)
    - Malignant (shared care with cancer services)
    - Asymptomatic (annual monitoring of carriers for early identification of disease)

This tariff includes:

- All staffing costs
- Diagnostics (see list of first assessment and follow-up assessments)

Drugs:

- Treatments related to the underlying HTLV-1 associated diseases include: ATLL specific therapy: antiviral therapy (zidovudine/interferon-a) , immunosuppressive therapy (ciclosporin, methotrexate, corticosteroids), antimicrobial prophylaxis,
- Symptomatic management for pain, spasticity, bladder and bowel dysfunction, xerophthalmia (were appropriate – prescribing is continued in primary care)
- Patient transportation

The tariff does not include:

- Anti-proliferatives: anti-CD25 monoclonal antibody/proteasome inhibitors
- Research investigations including novel imaging such as PET with PBR-28

Tariff is paid to Imperial who then sub contract and fund the spoke services.

General Paediatric care

When treating children, the service will additionally follow the standards and criteria outlined in the Specification for Children's Services (attached as Annex 1 to this Specification)

Pregnancy

Pregnant women with pre-existing conditions as discussed in this specification require assessment and/or management from highly specialist tertiary maternity care delivered within a dedicated multidisciplinary service staffed by a maternal medicine specialist, a physician, and supporting multidisciplinary team with extensive experience of managing the condition in pregnancy. In view of this, nationally commissioned condition specific services must have outreach arrangements with highly specialised tertiary maternity units with access to appropriate tertiary medical, surgical, fetal medicine, clinical genetics and level 3 Neonatal Intensive Care services. These specialised maternity services must have a critical mass of activity to maintain expertise, ensure best practice, training opportunities and for the organisational infrastructure, staffing, facilities and equipment to be clinically and economically efficient. They shall have robust risk management and performance monitoring processes.

All such women must receive personalised pre-pregnancy and maternity care planning from specialised tertiary maternity services to allow optimal disease management in the context of the pregnancy. This will reduce avoidable morbidity, mortality and unnecessary intervention for mother and baby. Women with conditions discussed in this specification must be referred immediately once they are pregnant to plan their care. This must include access to termination of pregnancy and specialist advice re contraception. The individualised care plan must cover the ante natal, intrapartum and postnatal periods. It must include clear instructions for shared care with secondary services, when appropriate including escalation and transfer protocols and clear guidelines for planned and emergency delivery.

2.3 Population covered

The service outlined in this specification is for patients ordinarily resident in England*; or otherwise the commissioning responsibility of the NHS in England1 (as defined in Who Pays?, Establishing the responsible commissioner and other Department of Health guidance relating to patients entitled to NHS care or exempt from charges). Specifically, this service is for adults with an infectious disease requiring specialised intervention and management, as outlined within this specification.

2.4 Any acceptance and exclusion criteria

Acceptance criteria includes:

- Referrals accepted from GP, other specialist service, National Blood Service. Self referral acceptable if identified risk.
- Patients with HTLV infection (1&2, untyped, indeterminate serology)
- Family members of those with HTLV infection

2.5 Interdependencies with other services

Treatment of HTLV requires interdependencies with other services including but not limited to:

- Cancer Services
- Services for Blood and Marrow Transplantation
- Services for Women's Healthcare
- Neurosciences Services
- Renal Services
- HIV Treatment and Care Services
- Immunology Services
- Mental Health Services
- Rheumatology Services
- Pain management services
- Orthopaedics

Early presentation, testing and diagnosis are important in prevention, management

and control of HTLV and requiring clear pathways with local services in primary care, community care, social care and voluntary sector.

HTLV requires network management arrangements and clear pathways and responsibilities shall be identified.

3. Applicable Service Standards

3.1 Applicable national standards e.g. NICE, Royal College

- Health Protection Legislation (England) Guidance 2010 - http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/@ps/documents/digitalasset/dh_114589.pdf.
- NICE Guidance - www.nice.org.uk
- Standards applicable to Highly Specialised Centre and spoke centres – See appendix 1

4. Key Service Outcomes

- Ability of infected patients and affected relatives to cope with a lifelong retroviral infection through knowledge and support.
- Improved diagnosis and risk management to prevent onward transmission
- Early detection and treatment of malignancy
- Improved survival following malignancy
- Early detection and management of HAM – reduced progression
- Enabling patients with HAID to maintain maximum physical potential
- Optimised management of co-infections: prevention of disseminated strongyloides/opportunistic infection

5. Location of Provider Premises

The Provider's Premises are located at:

Imperial College Healthcare NHS Trust
National Centre for Human Retrovirology
Ground floor
Winston Churchill Wing St Mary's Hospital Praed Street
London W2 1NY

The clinical lead is Dr Graham Taylor

University Hospitals Birmingham NHS Trust

Department of Sexual Health

Queen Elizabeth Hospital Birmingham
Edgbaston
Birmingham

The clinical lead is Dr Meg Boothby

Pennine Acute Hospitals NHS Trust

Department of Infectious Diseases
North Manchester General Hospital
Crumpsall
Manchester

The clinical lead is Dr Alec Bonington

York Teaching Hospital NHS Foundation Trust

Monkgate Health Centre,
31 – 33 Monkgate,
York YO31 7WA

The clinical lead is Dr Fabiola Martin

ANNEX 1 TO SERVICE SPECIFICATION:

PROVISION OF SERVICES TO CHILDREN

Aims and objectives of service

This specification annex applies to all children's services and outlines generic standards and outcomes that would fundamental to all services.

The generic aspects of care: The Care of Children in Hospital (HSC 1998/238) requires that:

- Children are admitted to hospital only if the care they require cannot be as well provided at home, in a day clinic or on a day basis in hospital.
- Children requiring admission to hospital are provided with a high standard of medical, nursing and therapeutic care to facilitate speedy recovery and minimize complications and mortality.
- Families with children have easy access to hospital facilities for children without needing to travel significantly further than to other similar amenities.
- Children are discharged from hospital as soon as socially and clinically appropriate and full support provided for subsequent home or day care.
- Good child health care is shared with parents/carers and they are closely involved in the care of their children at all times unless, exceptionally, this is not in the best interest of the child; Accommodation is provided for them to remain with their children overnight if they so wish.

Service description/care pathway

All paediatric specialised services have a component of primary, secondary, tertiary and even quaternary elements. The efficient and effective delivery of services requires children to receive their care as close to home as possible dependent on the phase of their disease. Services should therefore be organised and delivered through “integrated pathways of care” (National Service Framework for children, young people and maternity services, Department of Health and Department for Education and Skills, London, 2004)

Interdependencies with other services

All services will comply with Commissioning Safe and Sustainable Specialised Paediatric Services: A Framework of Critical Inter-Dependencies – Department of Health.

Imaging

All services will be supported by a 3 tier imaging network (“Delivering quality imaging services for children’s DOH 13732 March2010).
Within the network:

- It will be clearly defined which imaging test or interventional procedure can be performed and reported at each site
- Robust procedures will be in place for image transfer for review by a specialist radiologist, these will be supported by appropriate contractual and information governance arrangements
- Robust arrangements will be in place for patient transfer if more complex imaging or intervention is required
- Common standards, protocols and governance procedures will exist throughout the network.
- All radiologists, and radiographers will have appropriate training, supervision and access to CPD
- All equipment will be optimised for paediatric use and use specific paediatric software

Specialist Paediatric Anaesthesia

Wherever and whenever children undergo anaesthesia and surgery, their particular needs must be recognised and they should be managed in separate facilities, and looked after by staff with appropriate experience and training. All UK anaesthetists undergo training which provides them with the competencies to care for older babies and children with relatively straightforward surgical conditions and without major co-morbidity. However those working in specialist centres must have undergone additional (specialist) training and should maintain the competencies so acquired *. These competencies include the care of very young/premature babies, the care of babies and children undergoing complex surgery and/or those with major/complex co-morbidity (including those already requiring intensive care support).

As well as providing an essential co-dependent service for surgery, specialist

anaesthesia and sedation services may be required to facilitate radiological procedures and interventions (for example MRI scans and percutaneous nephrostomy) and medical interventions (for example joint injection and intrathecal chemotherapy), and for assistance with vascular access in babies and children with complex needs such as intravenous feeding.

Specialist acute pain services for babies and children are organised within existing departments of paediatric anaesthesia and include the provision of agreed (hospital wide) guidance for acute pain, the safe administration of complex analgesia regimes including epidural analgesia, and the daily input of specialist anaesthetists and acute pain nurses with expertise in paediatrics. *The Safe and Sustainable reviews of paediatric cardiac and neuro-sciences in England have noted the need for additional training and maintenance of competencies by specialist anaesthetists in both fields of practice.

References

1. GPAS Paediatric anaesthetic services. RCoA 2010 www.rcoa.ac.uk
2. CCT in Anaesthesia 2010
3. CPD matrix level 3

Specialised Child and Adolescent Mental Health Services (CAMHS)

The age profile of children and young people admitted to specialised CAMHS day/in-patient settings is different to the age profile for paediatric units in that it is predominantly adolescents who are admitted to specialised CAMHS in-patient settings, including over-16s. The average length of stay is longer for admissions to mental health units. Children and young people in specialised CAMHS day/in-patient settings generally participate in a structured programme of education and therapeutic activities during their admission.

Taking account of the differences in patient profiles the principles and standards set out in this specification apply with modifications to the recommendations regarding the following:

- Facilities and environment – essential Quality Network for In-patient CAMHS (QNIC) standards should apply (http://www.rcpsych.ac.uk/quality/quality,accreditationaudit/qnic1.aspx)
- Staffing profiles and training - essential QNIC standards should apply.
- The child/ young person's family are allowed to visit at any time of day taking account of the child / young persons need to participate in therapeutic activities and education as well as any safeguarding concerns.
- Children and young people are offered appropriate education from the point of admission.
- Parents/carers are involved in the child/young person's care except where this is not in the best interests of the child / young person and in the case of young people who have the capacity to make their own decisions is subject to their consent.
- Parents/carers who wish to stay overnight are provided with accessible

accommodation unless there are safeguarding concerns or this is not in the best interests of the child/ young person.

Applicable national standards e.g. NICE, Royal College

Children and young people must receive care, treatment and support by staff registered by the Nursing and Midwifery Council on the parts of their register that permit a nurse to work with children (Outcome 14h Essential Standards of Quality and Safety, Care Quality Commission, London 2010)

- There must be at least two Registered Children's Nurses (RCNs) on duty 24 hours a day in all hospital children's departments and wards.
- There must be an Registered Children's Nurse available 24 hours a day to advise on the nursing of children in other departments (this post is included in the staff establishment of two RCNs in total).

Accommodation, facilities and staffing must be appropriate to the needs of children and separate from those provided for adults. All facilities for children and young people must comply with the Hospital Build Notes HBN 23 Hospital Accommodation for Children and Young People NHS Estates, The Stationary Office 2004. All staff who work with children and young people must be appropriately trained to provide care, treatment and support for children, including Children's Workforce Development Council Induction standards (Outcome 14b Essential Standards of Quality and Safety, Care Quality Commission, London 2010).
Each hospital who admits inpatients must have appropriate medical cover at all times taking account of guidance from relevant expert or professional bodies. (National Minimum Standards for Providers of Independent Healthcare, Department of Health, London 2002)."Facing the Future" Standards, Royal College of Paediatrics and Child Health. Staff must carry out sufficient levels of activity to maintain their competence in caring for children and young people, including in relation to specific anaesthetic and surgical procedures for children, taking account of guidance from relevant expert or professional bodies (Outcome 14g Essential Standards of Quality and Safety, Care Quality Commission, London 2010).

Providers must have systems in place to gain and review consent from people who use services, and act on them (Outcome 2a Essential Standards of Quality and Safety, Care Quality Commission, London 2010). These must include specific arrangements for seeking valid consent from children while respecting their human rights and confidentiality and ensure that where the person using the service lacks capacity, best interest meetings are held with people who know and understand the person using the service. Staff should be able to show that they know how to take appropriate consent from children, young people and those with learning disabilities (Outcome 2b, Seeking Consent: working with children Department of Health, London 2001).

Children and young people must only receive a service from a provider who takes steps to prevent abuse and does not tolerate any abusive practice should it occur (Outcome 7 Essential Standards of Quality and Safety, Care Quality Commission, London 2010 defines the standards and evidence required from

providers in this regard). Providers minimise the risk and likelihood of abuse occurring by:

- Ensuring that staff and people who use services understand the aspects of the safeguarding processes that are relevant to them.
- Ensuring that staff understand the signs of abuse and raise this with the right person when those signs are noticed.
- Ensuring that people who use services are aware of how to raise concerns of abuse.
- Having effective means to monitor and review incidents, concerns and complaints that have the potential to become an abuse or safeguarding concern.
- Having effective means of receiving and acting upon feedback from people who use services and any other person.
- Taking action immediately to ensure that any abuse identified is stopped and suspected abuse is addressed by:
    - Having clear procedures followed in practice, monitored and reviewed that take account of relevant legislation and guidance for the management of alleged abuse
    - Separating the alleged abuser from the person who uses services and others who may be at risk or managing the risk by removing the opportunity for abuse to occur, where this is within the control of the provider
    - Reporting the alleged abuse to the appropriate authority
    - Reviewing the person's plan of care to ensure that they are properly supported following the alleged abuse incident.
- Using information from safeguarding concerns to identify non-compliance, or any risk of non-compliance, with the regulations and to decide what will be done to return to compliance.
- Working collaboratively with other services, teams, individuals and agencies in relation to all safeguarding matters and has safeguarding policies that link with local authority policies.
- Participates in local safeguarding children boards where required and understand their responsibilities and the responsibilities of others in line with the Children Act 2004.
- Having clear procedures followed in practice, monitored and reviewed in place about the use of restraint and safeguarding.
- Taking into account relevant guidance set out in the Care Quality Commission's
- Schedule of Applicable Publications
- Ensuring that those working with children must wait for a full CRB disclosure before starting work.
- Training and supervising staff in safeguarding to ensure they can demonstrate the competences listed in Outcome 7E of the Essential Standards of Quality and Safety, Care Quality Commission, London 2010

All children and young people who use services must be:

- Fully informed of their care, treatment and support.
- Able to take part in decision making to the fullest extent that is possible.
- Asked if they agree for their parents or guardians to be involved in decisions

they need to make.

(Outcome 4I Essential Standards of Quality and Safety, Care Quality Commission, London 2010)

Key Service Outcomes

Evidence is increasing that implementation of the national Quality Criteria for Young People Friendly Services, Department of Health, London, 2011) have the potential to greatly improve patient experience, leading to better health outcomes for young people and increasing socially responsible life-long use of the NHS. Implementation is also expected to contribute to improvements in health inequalities and public health outcomes e.g. reduced teenage pregnancy and STIs, and increased smoking cessation. All providers delivering services to young people should be implementing the good practice guidance which delivers compliance with the quality criteria**.**

Poorly planned transition from young people's to adult-oriented health services can be associated with increased risk of non adherence to treatment and loss to follow-up, which can have serious consequences. There are measurable adverse consequences in terms of morbidity and mortality as well as in social and educational outcomes. When children and young people who use paediatric services are moving to access adult services (for example, during transition for those with long term conditions), these should be organised so that:

- All those involved in the care, treatment and support cooperate with the planning and provision to ensure that the services provided continue to be appropriate to the age and needs of the person who uses services.

The National Minimum Standards for Providers of Independent Healthcare, (Department of Health, London 2002) require the following standards:

- **A16.1** Children are seen in a separate out-patient area, or where the hospital does not have a separate outpatient area for children, they are seen promptly.
- **A16.3** Toys and/or books suitable to the child's age are provided.
- **A16.8** There are segregated areas for the reception of children and adolescents into theatre and for recovery, to screen the children and adolescents from adult patients; the segregated areas contain all necessary equipment for the care of children.
- **A16.9** A parent is to be actively encouraged to stay at all times, with accommodation made available for the adult in the child's room or close by.
- **A16.10** The child's family is allowed to visit him/her at any time of the day,
- except where safeguarding procedures do not allow this
- **A16.13** When a child is in hospital for more than five days, play is managed and supervised by a qualified Hospital Play Specialist.
- **A16.14** Children are required to receive education when in hospital for more than five days; the Local Education Authority has an obligation to meet this need and are to be contacted if necessary.
- **A18.10** There are written procedures for the assessment of pain in children and the provision of appropriate control

All hospital settings should meet the Standards for the Care of Critically Ill Children, Paediatric Intensive Care Society, London, 2010). There should be age specific arrangements for meeting Regulation 14 of the Health and Social Care Act 2008 (Regulated Activities) Regulations 2010. These require:

- A choice of suitable and nutritious food and hydration, in sufficient quantities to meet service users" needs;
- Food and hydration that meet any reasonable requirements arising from a service user's religious or cultural background
- Support, where necessary, for the purposes of enabling service users to eat and drink sufficient amounts for their needs.
- For the purposes of this regulation, "food and hydration" includes, where applicable, parenteral nutrition and the administration of dietary supplements where prescribed.
- Providers must have access to facilities for infant feeding, including facilities to support breastfeeding (Outcome 5E, of the Essential Standards of Quality and Safety, Care Quality Commission, London 2010

All paediatric patients should have access to appropriately trained paediatric trained dieticians, physiotherapists, occupational therapists, speech and language therapy, psychology, social work and CAMHS services within nationally defined access standards. All children and young people should have access to a professional who can undertake an assessment using the Common Assessment Framework and access support from social care, housing, education and other agencies as appropriate.

All registered providers must ensure safe use and management of medicines, by means of the making of appropriate arrangements for the obtaining, recording, handling, using, safe keeping, dispensing, safe administration and disposal of medicines (Outcome 9, Essential Standards of Quality and Safety, Care Quality Commission, London, 2010). For children, these should include specific arrangements that:

- ensure the medicines given are appropriate and person-centred by taking account of their age, weight and any learning disability
- ensure that staff handling medicines have the competency and skills needed for children and young people's medicines management
- ensure that wherever possible, age specific information is available for people about the medicines they are taking, including the risks, including information about the use of unlicensed medicine in paediatrics.

Many children with long term illnesses have a learning or physical disability. Providers should ensure that:

- They are supported to have a health action plan
- Facilities meet the appropriate requirements of the Disability Discrimination Act 1995
- They meet the standards set out in Transition: getting it right for young people. Improving the transition of young people with long-term conditions from children's to adult health services. Department of Health Publications, 2006, London

i 90% of clinic attendees participate in research relating to HTLV infection and disease including HTLV Register funded by Health Protection Agency and the Communicable Diseases Tissue Bank funded by the Section of Infectious Diseases, Imperial College. Specific pathogenesis, diagnostic and therapeutic research projects are Grant funded (Currently: MRC, LLR, Imperial BRC)
ii Shared care onco-haematology: patients presenting at non-HTLV centres – samples sent for baseline assessment, treatment with chemotherapy initiated. Referral to HTLV clinic for further assessment, initiation of additional ATLL specific therapy. Clinic-based treatment and follow-up. Re-admissions to local services. Regular written/verbal communication.
iii HIV care maintained at referring centre. HTLV/HIV co-infection related conditions managed at HTLV clinic

Appendix 1

National Centre for Human Retrovirology

Guidelines for the Management of HTLV-I/II Infection

19 October 2006 (updated 9 August 2012)

National Centre for Human Retrovirology
St. Mary's Hospital,
Praed St. London W2 1NY

Tel: 0203 312 6790/6604
E-mail: g.p.taylor@imperial.ac.uk http://www.htlv1.eu/

1. Diagnosis of HTLV-I/II infection
2. HTLV-I Asymptomatic Carriage
3. HTLV-II Asymptomatic Carriage
4. HTLV-associated myelopathy
5. Adult T-cell Leukaemia/Lymphoma
6. Other HTLV-associated inflammatory disease
7. Strongyloides stercoralis co-infection
8. HIV co-infection

These notes are designed to provide guidance on the management of patient with HTLV infection and associated diseases. They are not exhaustive or prescriptive and should be considered in the context of co-morbidities and emerging data

1) Diagnosis of HTLV-1/2 infection

HTLV infections are initially detected by serology. The screening assay (usually an EIA or particle agglutination assay) should have at least 99.5% sensitivity. Due to the high antibody titre of HTLV-I infection multiple samples can be pooled with no significant risk of loss of sensitivity. Such methods are suitable for the screening of large healthy populations, at low risk of HTLV infection. HTLV-II infection may not be detected by this method especially if the subject has impaired immunity e.g. HIV-1 infection. Screening assays do not distinguish between HTLV-I and HTLV-II.

All HTLV-I/II reactive samples should be retested with the same or a different assay. Repeat reactive samples (same assay) should be retested with a different assay. All samples positive in two assays should be further tested with an assay that will confirm and serotype the infection. This is usually a Western Blot orimmunoblot – Line immunoassay. Four diagnoses are possible; HTLV-I infection, HTLV-II infection, HTLV infection untyped and HTLV indeterminate. HTLV untyped and HTLV indeterminate samples should be further

investigated.

A new sample from the patient will be required for repeat serology (to detect seroconversion, or exclude infection) and for molecular diagnosis - Type specific PCR. Serum and EDTA blood are required. Subtyping of HTLV-I and HTLV-II is not required for diagnostic purposes.

2) HTLV-1 asymptomatic carriage

Past medical history of HTLV-I associated inflammatory diseases including: thyroiditis, uveitis, arthritis, myositis, alveolitis and symptoms suggestive of Sjögren's syndrome. HTLV-I-associated diseases may mimic sarcoidosis. Direct inquiry regarding, urinary frequency, nocturia, urgency and incontinence, constipation, impotence, back/leg pain and proximal lower limb weakness e.g. difficulty climbing stairs. Examination: Observe gait and document timed 10m walk. Assess lower limb tone and power. If normal observe rising from squat, deep tendon reflexes and plantar responses.

Routine Investigations: Full blood count with differential white cell count to be carried out. Peripheral blood film, assessed by experienced observer to detect cleaved or poly-lobulated lymphocytes. Biochemisty to include corrected calcium, LDH and CK. HTLV-I proviral load has prognostic implications and should be measured more than once. Send EDTA whole blood. Stool microscopy and serology for Strongyloides stercoralis if geographically appropriate. Provide patient information including disease risk, modes of transmission and transmission avoidance. Carriers should be advised not to donate blood, semen, breast milk or organs (as appropriate). Family and sexual partner access to HTLV-I information and confidential testing should be offered/made available. Asymptomatic carriers can be offered access to either routine follow-up e.g. annual or six monthly assessments or open access to the HTLV clinical service in case of concerns regarding interpretation of new symptoms.

Asymptomatic carriers (and their GPs if permitted) should be provided with written information about HTLV-I (or directed to www.htlv1.eu/) Asymptomatic carriers should be invited to participate in the National HTLV Register – a longitudinal study of HTLV-I infection in the UK.

3) HTLV-2 Asymptomatic Carriage

Past medical history of injecting drug use or blood transfusion, hepatitis. Direct inquiry regarding, urinary frequency, nocturia, urgency and incontinence, constipation, impotence, back/leg pain and proximal lower limb weakness e.g. difficulty climbing stairs. Examination: Observe gait and document timed 10m walk. Assess lower limb tone and power. If normal observe rising from squat, deep tendon reflexes and plantar responses.

Routine Investigations: Screen for co-infection with HIV, HBV, HCV.
HTLV-II proviral load may have prognostic implications and should be measured more than once. Send EDTA whole blood. Provide patient information including

disease risk, modes of transmission and transmission avoidance. Carriers should be advised not to donate blood, semen, breast milk or organs (as appropriate).

Family and sexual partner access to HTLV-II information and confidential testing should be offered/made available. Asymptomatic carriers can be offered access to either routine follow-up e.g. annual or six monthly assessments or open access to the HTLV clinical service in case of concerns regarding interpretation of new symptoms. Asymptomatic carriers (and their GPs if permitted) should be provided with written information about HTLV-II (or directed to www.htlv1.eu/). Asymptomaticcarriers should be invited to participate in the National HTLV Register – a longitudinal study of HTLV-I/II infection in the UK.

4) HTLV-associated myelopathy

HAM: An unremitting spastic paraparesis, without sensory level, in the presence of anti-HTLV-I antibodies in serum, in the absence of other aetiology.

Early HAM: onset of neurological symptoms (excluding bladder symptoms and sexual dysfunction) within the past two years

Progressing HAM: Documented persistent deterioration in neurological symptoms during the preceding six months. This can include a change in disability score, a 30% increase in timed walk (measured on two separate occasions) or onset of symptoms in a new muscle group.

Investigations performed at presentation (or if new symptoms)

- Full blood count with differential white cell count
- Blood film for atypical lymphocytes
- Biochemical profile including Ca, LDH, CPK and CRP
- 2-microglobin
- HTLV-I proviral load
- Blood sugar
- Auto-antibody screen
- T-cell subsets CD4, CD8, CD25, HLA DR (co-expression)
- Urinalysis (culture if abnormal)
- Chest X-ray
- Screen for Strongyloides stercoralis, Schistosomiasis, T. pallidum and other infections (HIV, HBV, HCV) as appropriate
- Lumbar puncture:
  CSF paired with plasma/serum:
  - anti-HTLV-I antibody titres
  - Glucose
  - Protein electrophoresis
  - HTLV-I DNA viral load (qPCR)
- CSF only:
  - Protein
  - WCC & differential
  - Intrathecal IgG synthesis

- MRI – full neuroaxis
- Schirmer"s Test
- Urodynamics (minimum of maximum and residual volumes)

Investigations performed routinely at baseline and follow-up:
- FBC, diff
- Biochemistry (including Creatinine, LFTs, Calcium, CPK & LDH)
- HTLV-I PBMC qPCR
- 2-microglobin
- T-cell subsets CD4, CD8, CD25, HLA DR (co-expression)

Clinical Measures (in addition to full examination**)**
- Timed 10 meter walk and step count
- Document nature of gait and use of walking aid
- Spasticity Score (Ashworth"s modified)
- 11-point Visual Analogue Pain Scale
- 6 minute walking test

Specific Management

Since optimal treatment of HAM/TSP is not known all patients should be offered the opportunity to participate in clinical trials (Contact National Centre for Human Retrovirology). Where a trial is not available or declined or where the disease is rapidly progressing making referral for trial assessment inappropriate.

First line

- IV Methyl Prednisolone 1g daily for 3 days
- Prednisolone 1mg/kg for 4 - 6 weeks

If benefit:
- Add immunomodulating /steroid sparing agent such as ciclosporin A 2.5 –
- 5mg/kg/day in 2 equally divided doses.
- (Ciclosporin target trough level 80 – 100ng/L)
- Commence Ciclosporin as soon as benefit is observed, continue
- Prednisolone at high dose until no further improvement then taper prednisolone to zero regulating dose reduction according to clinical change

If no benefit after a maximum of 6 weeks (or if not tolerated), tail prednisolone more rapidly; Weekly through 40, 30, 20, 15, 10, 5 stop. Consider immunomodulating /steroid sparing agent. If no benefit with Ciclosporin, or not tolerating switch to Methotrexate. Initiate at 7.5mg weekly (plus 5mg folic acid weekly on a different day). Monitor FBC/LFTs and increase initially to 10 and then 12.5 mg per week. Higher doses can be considered if tolerating without clinical improvement.

Second line

Interferon, 3MU sc daily. Review after 28 days

Third line - see study protocols

Investigations to monitor therapy

- Clinical examination every week for 4 weeks
    - every 4 weeks for 3 months,
    - every 4 – 8 weeks thereafter
- FBC, diff, biochemical profile (treatment dependent)
- PBMC HTLV qPCR every 4 – 8 weeks
- CSF WCC and anti-HTLV-I antibody titre at 4 weeks
- 2-microglobin
- T-cell subsets CD4, CD8, CD25, HLA DR (co-expression)
- Bladder US – every 4 weeks (unless catheterised)

Outcome measures

Clinical improvement is defined as at least one of the following changes persisting over a minimum of 4 weeks:

Motor improvement

- Change in disability scale by 3 points (IPEC)
- >10% improvement in timed walk on two consecutive appointments
- Change in muscle group power (MRC scale) by 1 Grade

Autonomic/Sacral improvement

- Persistent reduction in urinary frequency (20% fewer episodes) or nocturia (1 less episode)
- Decreased urgency & incontinence
- Increase bladder volume at urge (20% increased volume)
- Decreased residual volume (to less than 100ml if previously greater than 100ml)
- Persistent improvement in frequency of defecation unrelated to other interventions (increased frequency by at least one episode per week)
- Persistent improvement in sexual function

Sensory

- Persistent improvement in pain score (>1) unrelated to other interventions.
- CSF improvement is defined as a decrease (after 4 weeks therapy) in any of: lymphocytosis, protein, anti-HTLV-I antibody titre, HTLV-I viral DNA.
- Virological improvement is defined as a persistent > 0.5 log reduction in HTLV DNA copy number

Symptomatic management

The following is a list of therapies than may be considered. It is not intended to be exclusive.

Bladder

- Oxybutinin or similar (confirm emptying by U/S)
- Amitryptiline (start 5mg)
- Intermittent self-catheterisation d) Urine acidification
- Supra-pubic catheterisation
- Antibiotics (intermittent or chronic)

Spasticity

- Physiotherapy
- Baclofen/Tizanidine
- Botox

Pain

- Physiotherapy
- TENS
- Paracetamol/NSAIDs
- Codeine/Opiate derivatives
- Trial of pulsed methyl prednisolone
- Trial of Baclofen/Diazepam
- Neuro-analgesia (carbamezapine, amitriptyline, valproate,
- gabapentin, pregabalin)
- Local injections
- Exclude new or additional cause

Lower limb weakness

- Lower limb weakness

Sexual dysfunction

- Sildenafil or related compounds

Many patients require management of a variety of symptoms. Avoid initiating polypharmacy as this is poorly tolerated.

5) Adult T-cell Leukaemia/Lymphoma

Should be suspected in a known HTLV-I infected subject, in a subject at risk of HTLV-I and whenever a T-cell malignancy is diagnosed. Clues to the diagnosis include a raised corrected serum calcium, and flower cells in the peripheral blood. ATLL may present with diverse symptoms and signs. Cutaneous manifestations are particularly variable and a biopsy is required. Spontaneous remission may on occasions occur in patients with Cutaneous or chronic ATLL.

Diagnosis of Leukaemic ATLL

- WCC raised > 4 x 106 lymphocytes/ml
- Confirm HTLV-I seropositive
- Immunophenotype – CD4 CD25
- Flower cells in peripheral blood
- (± raised serum Calcium)
- Confirm HTLV-I integration - viral load frequently but not always approximates 100%
- (Clonal integration of HTLV-I)

Diagnosis of Lymphomatous ATLL

- Confirm HTLV-I seropositive
- Immunophenotype – CD4 CD25
- Peripheral blood HTLV-I viral load usually >1% but does not reach 100%
- Viral load in Lymphoma tissue higher than in PBMCS often approaching
- 100%

Investigations

In addition to standard investigations and staging of suspected leukaemia/lymphoma the following HTLV-1 specific investigations are indicated:

- HTLV-1 proviral load/integration site analysis
- CD4/CD25 co-expression
- Serum Calcium
- HIV serology
- Investigations for Strongyloides stercoralis

Treatment

First line treatment is type dependent:

- Leukaemic ATLL (acute or chronic) – Zidovudine 250 – 500mg bd/Interferon- 3 – 9 MIU sc daily (can switch to pegylated interferon once established)
- Lymphomatous ATLL – CHOP 2 – four cycles followed by zidovudine/interferon
- Consider BMT if achieve CR or good PR

Second line treatment

- Leukaemic ATLL (acute or chronic) – CHOP – 6 cycles or Bortezomib/Basiliximab
- Lymphomatous - DHAP or Gemcitabine with Oxaliplatin

Duration of ZDV/IFN is as yet uncertain – viral load and integration site analysis indicate that molecular remission occurs months after normalisation of total lymphocyte count.

Adjunctive therapy

Patients with ATLL are at high risk of OI and should be prescribed PCP, HZV and crytococcal prophylaxis. Anaemia/Neutropenia/Thrombocytopenia are common

during ZDV/IFN especially following CHOP and supportive therapies should be titrated to maintain normal Hb and neutrophil counts.

6) HTLV-1-associated inflammatory disease (HAID)

HTLV-1 infection is associated with a range of diseases including but not limited to: arthritis, pulmonary disease including alveolitis, bronchiectasis, polymyositis, Sjögren"s syndrome, thyroiditis, eye disease including uveitis and keratoconjunctivitis sicca. These conditions commonly co-exist with other inflammatory disease particularly HAM. Initial assessment and management as per asymptomatic carrier plus additional tissue specific investigations. Important to determine whether HTLV-1is causally associated or co-incidental. Management: Symptomatic ± corticosteroids. Look for other HAID Optimal management has not been determined.

7) Strongyloides stercoralis coinfection

HTLV-1 infected patients who have been exposed to Strongyloides stercoralis are at risk of persistent carriage and rarely disseminated Strongyloides stercoralis infection (Strongyloidiasis). All patient at risk of Strongyloides (epidemiological assessment) should be investigated for evidence of exposure and treated with Albendazole and Ivermectin if exposure/infection demonstrated. In patients with symptoms of strongyloides negative serology and stool microscopy does not exclude infection. Disseminated strongyloidiasis has a 90% mortality. Repeated courses of albendazole and ivermectin may be required to eliminate infection. All such patients must be investigated for underlying ATLL. Additional investigations as per HTLV-1 asymptomatic carriage. Regular and prolonged follow-up is essential to detect early relapse of Strongyloides infection.

8) HIV co-infection

HTLV-1/HIV co-infection leads to immune suppression which is underestimated by the CD4 cell count. Antiretroviral therapy should be initiated at higher CD4 counts than for HIV monoinfection. OI prophylaxis should be administered if an ADI occurs regardless of the CD4 count. HTLV-1-associated diseases occur in the patients with HIV infection including ATLL and HAM. The incidence of myelopathy is higher with co-infection. Treatment of HAM may require immunosuppressive therapy as above. ATLL should be treated as above.

Zidovudine and Raltegravir have been demonstrated to be the most effective inhibitors of HTLV-1 RT and integrase respectively unproven and there is as. The role of these in HTLV-1/HIV co-infection is however yet no indication to digress from the national guidelines of first-line antiretroviral therapy. Additional investigations as per HTLV-1 asymptomatic carriage.

Appendix 2: HTLV1, Investigations

Haematology	Initial Assessment	Follow-up
FBC & Differential & film	1	1
serum B12	1	
RC Folate	1	
Biochemistry		
Bone	1	1
U + Es	1	1
LDH	1	1
CPK	1	1
TFTs	1	
LFT's	1	1
Glucose	1	
Lipids	1	
Ferritin	1	
Vitamin d	1	
Parathyroid hormone	1	
Immunology		
T-cell activation profile	1	1
2 Microglobulin	1	1
CRP	1	
Auto-antibody screen ANA	1	
Micro/Virology		
HTLV qPCR	1	1
Clonality Studies	ATLL only low viral load only	ATLL only low viral load only
HTLV nPCR		
Anti-Hep A virus total IgG/IgM	if not known	
Hepatitis B serology	if not known	
Hepatitis C serology	if not known	
HTLV -1 AB test screen	1	
HTLV -1 AB test confirmation	1	
HIV EIA	1	
MSU	HAM only	HAM only
Strongyloides serology	1	
TB (IGRA)	HAM only	
Treponema pallidum	1	
Lumbar Puncture	HAM only	as indicated
CSF Glucose		
CSF Micro		
CSF Virology		

CSF Protein	
CSF HTLV-1 viral load	
Pulmonary Function	
Spirometry Fevi, vc,Pefr	if indicated
Diffusing Capacity	
Total Lung capacity	
Transfer Factor	
Imaging	
MRI Inc Brain, Cervical Thoracic & Lumbar	if indicated
Chest Radiology	
High Resolution pulmonary CT	

Appendix 3: HTLV-1 prescribing

For constipation:

- Lactulose
- Senna
- Docusate sodium
- Moycol
- Glycerine Suppositories
- Micro-enemas

For Spasm:

- Diazepam
- Baclofen
- Tizanidine
- Gabapentin

For Pain:

- Paracetamol
- Codeine
- Tramadol
- Tramadol m/r
- Fentanyl patches
- Amitryptiline,
- Gabapentin
- Pregabalin
- Carbamazepine (plain tabs.)
- Sodium valproate
- Ibuprofen
- Diclofenac

For night cramps:

- Quinine

For cutaneous/nail fungal infections:

- lamisil cream
- ketoconazole shampoo

For dry eyes/mouth:

- Artificial tears/ hypromellose eye drops
- Artificial saliva

For urinary frequency:

- oxybutynin plain (some may need to change to the x/l preparation later)
- tolterodine
- amitryptiline

For stress:

- duloxetine

For infections – mostly UTIs and OI prophylaxis:

- Nitrofurantoin
- Amoxicillin
- Augmentin
- Cephalexin
- Trimethoprim
- Ciprofloxacin
- Doxycycline
- Co-trimoxazole
- Dapsone
- Aciclovir
- Fluconazole

Immune-modulators/ immuno-suppressive agents:

- Oral prednisolone
- IV methyl-prednisolone (solu-medrone 1gram od x 3/7 days)
- Ciclosporin
- Methotrexate (with folic acid)
- Azathioprine
- Hydroxychloroquine

Treatment of ATLL:

- Zidovudine + interferon (pegylated- interferon)
- Supporting treatment: Filgrastim (G-CSF) and erythropoetin
- Future therapy for ATLL: Basiliximab+Bortezomib