



DEPARTMENT OF HEALTH AND SOCIAL SECURITY

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The Isle of Man Real Nappy Campaign

NHS Estates
Building Better Healthcare Awards 2004
Winner
Outstanding Sustainability Project



The introduction of cloth nappies into maternity services



**Isle of Man
Government**

Reillys Ellan Vannin

The award winning Isle of Man Real Nappy Campaign

The sustainable

Stork-eco HAPPY[®]

for healthcare



NHS

Estates

Building Better
Healthcare Awards
2004

Winner outstanding
Sustainability project



GREEN
ORGANISATION

2004

AWARD WINNER

Outstanding contribution to
environmental best practice

BRITISH JOURNAL OF
MIDWIFERY

INNOVATOR OF THE YEAR
AWARD WINNER
2004

Annual Midwifery
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NHS Building Better Healthcare Award winner 2004

Outstanding Sustainability Project

The Isle of Man Real Nappy Campaign

Background to campaign

As midwives our ethos is based in public health: our aim is to improve the health and lifestyle of the women and young families in our care.

Whilst working in parenthood education in 2003 several expectant parents asked me about cloth nappies and their availability on the Isle of Man. Since then I have endeavoured to find a solution to improve the quality of life for our families, in conjunction with the reduction of waste to the environment and financial expenditure to the health service.

What is possibly the most important factor to parents not purchasing real nappies is their cost. Environmental issues are secondary to many families as the initial outlay for real nappies is more than a weekly supply of disposable nappies. Approximately £6 of child benefit is spent each week on disposable nappies, families in receipt of income support benefit and family credit cannot afford the initial outlay of a 'birth to potty' pack of real nappies and are therefore socially and financially excluded, it is these parents who would benefit most from a subsidised scheme and with the money saved child health issues could be targeted.

In 2003 I successfully influenced the political agenda of the Isle of Man Government to introduce new legislation. On the 1st of April 2004 interest-free loans became available for cloth nappies to young families in receipt of income support benefit. Further, on the 1st of September, of the same year, this was extended to families in receipt of family credit with a child under the age of one year.

As midwives, we provide families with information and lead by example, therefore what better way to demonstrate cloth nappies than to introduce them to maternity services? We needed a product for the 21st century that would be aesthetically pleasing to a young generation, durable for healthcare and above all-energy efficient. I decided to design a nappy for maternity services: the NHS created the sustainable Stork-eco nappy for the NHS, it is non profit making, supported by government it creates and sustains employment within the British Isles.

The utilisation of space capacity at NHS and NHS-contract laundries is one of the secrets to disposable nappy waste minimisation for the Department of Health. Financial costing of textiles is currently calculated on a piece-by-piece basis and a full capacity load. I suggested, in an attempt to effectively reduce our clinical waste and

for the Stork-eco nappy to be financially viable, change would be required: to base cost on weight and a variable capacity load.

At the Jane Crookall Maternity Unit (Nobles Hospital) on the Isle of Man we have effectively reduced our disposable nappy waste for clinical incineration by **99.9%** with the introduction of the Stork-eco nappy and our total clinical waste by **83%**. This will make long-term financial and environmental savings. The financial savings will be reinvested in healthcare services.

Prior to the introduction of our maternity service nappy in 2005 a three month audit of all women at antenatal booking indicated only **1%** of women on the Isle of Man choose to use cloth nappies at home. At that time no advertising/information was available for cloth nappies on the Isle of Man.

A recent 28-day postnatal audit provided us with the following results:

Now:

- **99.9%** of women find the Stork-eco easy to use as an in-patient.
- The Stork-eco nappy is pivotal in their conversion to cloth.
- **3%** of women are now using only cloth nappies at home.
- **19%** of women are now using a mixture of cloth and disposable nappies; home laundered cloth nappies 65% of the time, disposables at night and on holiday.

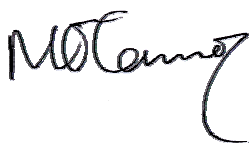
This Midwifery initiative achieves the three pillars of Sustainable Development:

- It reduces poverty and minimises social exclusion.
- It promotes environmental best practice by reducing clinical and environmental waste.
- It creates and sustains local employment in the Isle of Man and in the UK, it promotes community cohesion.

This guideline template is a best practice example of integrated governance:

- Clinical
- Corporate
- Business

The Department of Health of the Isle of Man Government supports this midwifery initiative on grounds of quality, cost effectiveness, risk management, patient care, infection control, waste reduction, energy efficiency and environmental impact.



Mary B. O'Connor
Midwife

The Isle of Man Real Nappy Campaign

The Isle of Man Real Nappy Campaign has attempted to meet the challenges to the environment, the economy and the societal issues created by the increasing reliance on disposable products by introducing a reusable real nappy.

Clinical Waste minimisation and reduction in the NHS

In 2001, the NHS in England and Wales generated an estimated 120,547 tonnes of clinical waste, amounting to a disposal cost for NHS trusts alone of between £34 million and £60 million per year.

In 2004, associated disposal costs escalated even further. Economic instruments such as "landfill tax" and the "climate change levy" have progressively raised the cost of waste disposal. As a result, reducing the growing cost of waste will become increasingly important as a means of reducing unnecessary expenditure. One way of tackling this issue is by reversing the growing tendency to use disposable equipment and re-introducing more re-usable equipment – although clinical requirements should always take precedence.

Sustainable Development

"Sustainable Development" is about ensuring a better quality of life for everyone, now and for generations to come.

In (April 2002) NHS Estates issued the environmental pack, consisting of:

- New Environmental Strategy for the NHS
- Sustainable Development in the NHS-guidance
- NHS Environmental Assessment Tool-software

As such, it is therefore becoming increasingly more important to meet the challenges of sustainable development head-on and provide health care that is both effective and environmentally sensitive.

In many regions in the UK the NHS now employ waste minimisation personnel in an attempt to reduce their large quantities of refuse, in particular clinical waste.

Investigating the Issues

The success of our scheme depended on focussing on key individuals who were representative stakeholders in areas, which would be affected by any subsequent proposals.

The findings and recommendations came from a steering group consisting of staff from the following areas:

- Midwifery
- Service Users (Mother)
- Clinical General Management
- Estate Services
- Nursing Management
- Healthcare assistance
- Infection Control
- House keeping
- Laundry
- Purchasing

Other individuals contributed to the investigation including:

- Mothers of newborn children
- Waste Management staff
- Social Security staff
- Treasury staff
- Manufacturing staff

We would recommend the adoption of a similar working group in other hospitals to ensure full stakeholder support.

Local Findings

In the Isle of Man (IOM) we face similar issues as the rest of the British Isles, except on a much smaller scale. Our Island is approximately 33 miles long by 13 miles wide with a resident population of about 75,000 and an annual live delivery rate of 850 to 950 births. The IOM uses approximately 3,600,000 disposable nappies every year. Data indicates that the Women and Children's Health directorate wastes in excess of 23,000 disposable nappies per year. Each clinical waste bag weighs 10kg and is estimated to contain no more than 100 soiled wet newborn nappies.

National Findings:

- Many of the nappies available in the UK market are manufactured abroad, primarily Asia and Eastern Europe. In addition, Canada, Australia and Northern Europe also export to the UK.
- The presence of real nappies in high street stores is minimal as they are considered a one-off commodity and therefore the profit margins are much smaller in comparison to a weekly purchase for two and a half years of disposable nappies.
- A small number of local councils mostly, as part of the sure start programme, offer voucher and loan schemes towards the purchase of real nappies.
- Only a very small number of maternity units are using real cloth nappies on their postnatal wards and utilising their NHS/ NHS franchise laundry.
- The majority of midwives are unaware of the types of real nappies available to the general public and from where they can be obtained.

Costing existing disposable nappy waste

Introducing the energy efficient Stork-eco nappy to maternity units and utilising NHS hospital laundries or NHS contract laundries is one of the secrets to the effective reduction of disposable nappy waste for the Department of Health. We reviewed our costs using the model below.

UK deliveries

100 soiled nappies	=	10kg clinical waste
10,000 soiled nappies	=	1 metric tonne
1000 births per year	=	24,000 disposable nappies.

Trusts should identify the total cost of clinical waste disposal (costing should include handling, transportation to incinerator, cost for incineration per metric tonne.)

Create a nappy waste map

A waste map will help to identify the bin sizes/types and amount of bins you require for your unit to implement real nappies. It will also help with sourcing the type of bins from within the directorate. (HTM 83)

Hospital/Trust.....

Waste Map

Waste Point	Container Type	Container Size	Colour of sack	Condition

Ward:

Completed By:

Date:

Type: Small, Medium, Large

Colour of sack: **B** - Black, **C** - Clear, **R** - Red, **W** - White, **Y** - Yellow

Condition: New/Old

Acquisition Costs

The purchase of real nappies may be met entirely by the hospital/ NHS Trust or by the local council or as a joint purchase between hospital and the local council.

Stock is based on the following:

A terry inner is required for every change:

An outer wrap required for every 2/3 nappy changes:

NHS laundries that are closed weekends and bank holidays, recommended stock 5 days supply plus 2 days impressed stock:

Daily deliveries, 3 days stock plus 2 days impressed stock.

Laundry Policy and Infection Control

- Patients will be encouraged to adhere to strict hand washing policies by the midwives.
- Alcohol gel is placed by each bedside and/or wall mounted for staff and patient use.
- Personal protective equipment (gloves & aprons) is to be used when staff is handling any body fluids.
- Normal local policy for handling fouled and infected linen will apply.

Meconium excreted by the newborn infant in the first week of life is formed over several months by the developing fetus in utero (a sterile environment) it is made up of 85% water, lanugo and shed gut cells.

- HSG (95) 18 regulations apply for laundering of the two-piece stork – eco nappy.
- Each bay/room will have two enclosed, foot-pedal-operated, metal, fire-retardant bins (HTM 83) with plastic bag linings (coloured according to local policy).
- Segregation of waste policy will apply regarding cleansing wipes, cotton wool balls etc.
- Linen and waste bins will be emptied on each shift and checked by members of staff these bags will be kept in a disposal hold prior to collection.
- Cleaning of bins and storage areas must be carried out in accordance with the decontamination policy and the support services cleaning schedules.

All personnel involved in the collection, transport, sorting and washing of soiled linen must receive training, wear protective personal clothing and have access to hand washing facilities.

Used linen must be put into the appropriate coloured bag as soon as possible after removal and must be handled with care at all times. Agitation of the fabrics can markedly increase the number of airborne bacteria.

Infected linen must be handled only by the inner bag and placed directly into a designated machine and processed by thermal or other disinfection process.

Clean and soiled linen must be transported separately.

Clean linen must be covered or wrapped for protection from contamination during transport.

Clean linen must be stored within a suitable dry clean area of the department.

Laundry bags must not be stored in wet places and must be protected during transport.

Patients will be encouraged to adhere to strict hand washing policies by the midwives.

Prior to implementation, a steering group will be necessary to address any particular questions/issues specific to your clinical/geographical area. Teamwork and good communications is essential at all levels for the success of this initiative.

Laundry Policy and Costs

A common method of arriving at these costs is simply to average the annual running cost of a laundry over the number of pieces laundered. This is misleading as it fails to take account of the relative size of the pieces. For example, a clean, dry sheet weighing approximately 1200g costs on average 20p for a complete laundry cycle including: energy resources, manpower, detergents etc. However, a two-piece clean dry real Stork-eco nappy weighing 70g is charged at 40p.

By equating weights, one sheet weighing approximately 1200g equals 17 complete nappies; effective waste reduction can be achieved and made financially viable.

Example based on an annual delivery rate of 1000 births per year:

1000 deliveries

An average stay of 3 days (includes caesarean sections, forceps, photo therapy etc)

8 nappies per day (average 6-8) per baby

1000 deliveries x 8 nappies x 3 days = 24,000 nappies

24,000 nappies divided by 52 weeks = 461 nappies per week

461 nappies per week divided by 7 days = 66 nappies per day

One terry inner is required for every nappy change.

One outer wrap is required for every 2 to 3 nappy change

Therefore, for 66 nappies per day, 66 inners and 18-32 wraps are required per day.

To calculate the weights:

One terry inner weighs 40 g,	66 x 40g	= 2640g
One wrap weighs 30g,	32 x 30g	= 2080g

Total weight 70g		= 4720g

This is almost equivalent to the weight of 4 dry bed sheets.

The cost of washing 4 sheets with a total weight of **4800g is 80p**

The cost of washing a daily requirement of Terries and wraps **weighing 4720g is £19.60**

To calculate the cost by piece:

66 Terries x 20p	= £13.20
32 wraps x 20p	= £ 6.40

Total cost	= £19.60

What wash process will be used?

Option 1: - HSG (95) 18 Laundry Arrangements for used and Infected Linen
- washed at 71 degrees Centigrade
- 2 wash process, lasting not less than 3 minutes plus mixing time.

Option 2: - as above but washed at a maximum of 65 degrees Centigrade
- washed for not less than 10 minutes plus mixing time.

Both of the above options will ensure that thermal disinfection has occurred, however the higher temperature wash has proven to be more effective with stain removal.

There is also a definite need to restrict drying temperatures **to 60°c** for the outer wrap.

The reason for segregation at the drying stage is due to the very different textile make-up of each product. This necessitates a different drying process. which in time will prove beneficial to the longevity of the products particularly the outer wrap.

It should be noted that of all the processes undertaken in a laundry, the tumbler is the least effective in its use of energy, therefore the installation of an appropriate "Heat Recovery" system should be considered. The introduction of such a system can reduce energy consumption by 20-25%.

Thermal disinfection - as with all foul/infected processes, it is recommended that regular checks are carried out during the wash cycles to ensure thermal disinfection has occurred, and has been maintained for the correct length of time relevant to HSG (95) 18. This can be achieved via regular visual checks of the machines LED display. Less frequent (weekly) recovering of a sample of the wash liquor at the appropriate wash stage and manually taking a temperature reading can also be carried out. More modern machines incorporate software, which records all stages of every programme.

Heat sensing systems should be checked at six-weekly intervals.

Questions frequently asked regarding the Washing Process

What washing products are you using?

Fully built enzyme detergent.

Are you using fabric conditioners?

No, due to adverse effect on the absorbency of the terry.

Do you use hypochlorite bleach?

Not as a matter of course, however it is used in rewash recovery programmes.

Do you recommend the use of nappy liners?

No, not unless they are biodegradable and removed from the terry prior to arriving at the laundry.

How to inform parents

At antenatal booking, the antenatal clinic, parent information booklet, GP/midwife surgeries, hospital clinic, parenthood education, hospital website, baby TV, health centres, local media, buses, billboards, adshels.

How to involve staff

Staff on steering group, staff involved with information leaflets, awareness of clinical waste reduction and cost, awareness of cost of real nappy, highlight initiative at ward meetings, intranet, in house magazines, and local induction days.

Introducing the Stork Eco nappy at ward level

A wrap and 3 terry inners are given to the mum twice per day: 8.00am and 8.00pm. Additional wraps and terry inners on request. Note if the mum is for discharge.

A white marker board is kept in the clean linen store on the ward. Each time a woman/visitor requests a new wrap or terry, a mark is noted beside the bed/room number. This maintains a basic tracker of the wraps. The staff can then enquire why so many wraps/terries are required.

Two blue pedal bins separately identifiable, which have picture templates of the terry and wrap on bin lids and each, contain coloured plastic bags. Local policy applies.

A separate two bag linen skip is kept for the nappies in the sluice. If red alginate bags are used for the ward bins, an additional red alginate is not required for the linen skip, creating double bagging. Knot the red alginate bags close to the opening; Small red alginate bags are available to order via procurement. If one wrap or terry is in the bin wait until the next collection otherwise you can be washing more plastic than product.

All maternity/obstetric/paediatric personnel are provided with an information sheet about the initiative. Basic on-ward training is given to relevant staff on the handling and disposal of the nappies.

An information board about the nappies is displayed in the ward/corridor area.

Signs are placed on room/bay doors reminding parents that they must supply their own nappy for discharge.

A laminated instruction/picture template leaflet is placed under the Perspex cot or on the bedside locker for parents.

On transfer via NNU and SCBU the Stork-eco nappy may have to be removed/replaced depending on local policy.

Clinical waste bins in the antenatal/postnatal wards have picture templates of relevant types of waste applied to the lids; this enables women to more effectively segregate their waste. This is particularly helpful to women who cannot speak or read English.

Coloured dot templates are applied to all bin lids, this highlights the colour of bag required and ensures that the correct colour of bag corresponds to the information/instructions on the lid.

Inter departmental Services involving this initiative are audited, evaluated and improved upon on a three monthly basis.

Isle of Man Department of Health and Social Security

Product Development Strategy

Purpose

This strategy has been developed to support the project to acquire a new clinically efficient real cloth nappy for the health service in the Isle of Man.

The strategy is informed from research data and empirical evidence generated by Mrs Mary O' Connor, Midwife, Nobles Hospital Women and Children's Directorate.

The strategy provides a plan set at summary level with key stages and performance criteria.

The proposal to develop the concept of the sustainable Stork-eco nappy from design to reality is evident as highlighted in the following pages. The green coded pages indicate where objectives are complete. This follows on from two previous colour coded sections, which indicated awaiting action and progress.



<p>Research 'Real' Nappy Market Place.</p> <ul style="list-style-type: none"> • Through web- site information. • Worldwide contacts-Healthcare. • Examination of relevant journals. • Contacted UK agencies. • Local stakeholders (e.g., Colleagues, WOMU, ESD, Laundry). • Explore opportunities to reduce reliance on disposable nappies. <p>Outcome</p> <ul style="list-style-type: none"> • Basic product design. • Significant interest across country. 	
<p>Initial Report</p> <ul style="list-style-type: none"> • Identified scope and scale of project. • Environmental Considerations. • Socio-Economic factors. • Prepared (and accepted) real nappy financial support scheme. • Canvass senior/officers/politicians. • Provide media/news relate for approval to inform public journals/press/radio. <p>Outcome</p> <ul style="list-style-type: none"> • Acceptance and introduction of financial benefits package. • UK wide project interest. • Ministerial support. • Local manufacturer. • Non profit making product. 	

<p>NHS Product Development Manufacture/implementation – Stork-eco nappy</p>	<ul style="list-style-type: none"> • Advice received from Mr Keith Halford – NHS Linen Services. • Advice received from Ms Suzanne Crellin – NHS Linen Services. • Advice received from Mr Ian Cooil – NHS Purchasing Service. • Advice received from Dr John Wardle – Infection Control. • Advice received from – Ms Margaret Kermode – Infection Control. • Advice received from Mr Gary Radcliffe – NHS Estates – Waste, energy, water. • Local manufacturer identified. • Health Protection Agency collaboration. • British Standard of Inspectorate collaboration. • Infection Control Nurses Association collaboration. • Society of Hospital Linen Service and Laundry Managers collaboration. • NHS Estates collaboration. • Department of Health collaboration. • Department of the Environment collaboration. • Department of Trade and Industry collaboration.
<p>NHS Control/ Approval procedures</p>	<ul style="list-style-type: none"> • Stage 1: Concept development DHSS Minister. • Stage 2: Product design registration: Mary O’Connor. • Stage 3: Sample development DHSS Minister. • Stage 4: Testing: Mary O’ Connor, laundry, IF, OC. • Stage 5: Evaluation: Mary O’ Connor, IF, OH, Laundry. • Stage 6: Costing: Mary O’Connor, Ian Cooil, I.H, and J.S. • Stage 7: Recommendation to DHSS: Mary O’ Connor. • Stage 8: Decision to implement: DHSS Minister.
<p>NHS Clinical operational efficiency testing (2 years) Stork-eco nappy.</p>	<ul style="list-style-type: none"> • Manufactured to NHS specification. • Manufactured to BSI specification. • Complies with Code of Ethics: product/brand of textile not available to general public. • Complete product sustainable life cycle assessment. • Waste reduction/minimisation assessment. • Feasibility assessment. • Tensile strength/durability. • Energy efficiency assessment; energy resources, manpower, water, detergents. • Specialised product for maternity services. • Health and safety. Latex free. • Occupational health. • Infection control • Clinical governance.

Stork-eco Nappy Project step-by-step process map

Form steering group 1	Involve key stakeholders
Identify the key issues 1	Waste map/ Environmental Sustainable development
Clarify Costs 1	All factors Acquisition to disposal
Consider legislation / NHS Policies 1	Review local, National, International policies
Consider the options 1	Continue with disposables/ mixed solution/real nappies
Recommend Stork-eco nappy 1	Prepare detailed business plan
Project Endorsement 2	Approval hospital/trust board
Implement the nappy programme 2	Introduce real cloth nappies
Use existing Stocks 2	Work with supplies staff
Implement Infection Control plan 2	Create local plan
Implement Laundry Plan 2	Create local plan
Communicate benefits to staff and parents 2	Communication key Implementation tool
Celebrate your success 2	Publicise your areas contribution to society

Useful websites:

- Australian College of Midwives: www.acmi.org.uk
- British Standards Institute: www.bsi-global.com
- Environment Agency UK: www.environment-agency.gov.uk
- Infection Control Nurses Association: www.icna.co.uk
- Isle of Man Government: www.gov.im
- Midwifery Alliance of North America: www.mana.org
- Midwifery Council of New Zealand: www.midwiferycouncil.org.nz
- Midwifery Digest: www.midirs.org
- National Library for Health: www.nelh.nhs.uk
- National Patient Safety Agency: www.npsa.nhs.uk
- NHS Estates: www.nhsestates.gov.uk
- NHS Purchasing and Supply Agency: www.pasa.nhs.uk
- The Department of Food and Rural Affairs: www.defra.gov.uk
- The Department of Health: www.dh.gov.uk
- The National Institute of Clinical Excellence; www.nice.org.uk
- The Health Protection Agency (HPA): www.hpa.org.uk
- The Hospital Infection Society: www.his.org.uk
- The Royal College of Midwives: www.rcm.org.uk
- Society of Hospital linen Service and Laundry Managers: www.linenmanager.co.uk
- Sustainable Development Commission UK: www.sd-commission.org.uk
- Sustainable Development UK government: www.sustainable-development.gov.uk
- Waste Resources Action Programme: www.wrap.org.uk
- Women's Environmental Network; www.wen.org.uk

Useful reading:

General

Chief Medical Officer (2003) Winning ways: working together to reduce healthcare associated infection in England, London: Department of Health.

Department of Health (2004) Towards cleaner hospitals and lower rates of infection. A summary of action. London: Department of Health.

Hand Hygiene

National Institute of Clinical Excellence (2001) Standard Principles for preventing hospital acquired infections. London: NICE.

Environment and Equipment

NHS Estates (2002) National Standards of cleanliness for the NHS. Norwich: The Stationary Office.

NHS Estates (2004) The NHS Healthcare cleaning manual. London: Department of Health.

Clinical Waste

Department of the Environment (1991) Environment Protection Act 1990: waste management the duty of care. A code of practice. London: HMSO.

Health Service Advisory Committee (1999) Safe disposal of clinical waste. 2nd Ed Sudbury: HSE Books.

NHS Estates (1994) Strategic guide to clinical waste management for general managers and chief executives London: NHS Estates.

NHS Estates (1997) Healthcare waste management: segregation of waste streams in clinical areas. (Health Technical Memorandum 2065) London: HMSO

NHS Estates (1994) Fire safety in healthcare premises (Health Technical Memorandum 83) London: HMSO

NHS Estates (2002) New Environmental Strategy for the NHS London: NHS Estates.

The Management of Health and Safety at Work Regulations 1992 (Statutory Instrument 2051) London: The Stationery Office

Laundry

Department of Health (1995) Hospital laundry arrangements for used and infected linen. (Health Service Guidance (95)18). London: Department of Health

NHS Estates (2002) Infection control in the built environment. 2nd Ed. Norwich: The Stationery Office.

Society of Hospital Linen Service and Laundry Managers, British Standard Institute
NHS Estates

Acknowledgements

Ms Bev Critchlow Director of Nursing and Midwifery
Mr Ian Cooil NHS Purchasing Service
Ms Suzanne Crellin NHS Linen Service
Miss Jane Gray Clinical Governance, Supervisor of Midwives
Mr Nick Gough Policy/legislation Executive
Mr Ian Harris Clinical General Manager
Mrs Victoria Harrop Photographer
Ms Margaret Kermode Specialist Nurse Infection Control
Mr David Killip Chief Executive Officer DHSS
Mrs Jan Mellows Director of Corporate Affairs
Mr Gary Radcliffe NHS Estate Services
Hon, Steve Rodan MHK Minister for the DHSS
Mr Paul Shields Hospital Manager
Mr Ken Strickett Manager Printing Services
Mr Andrew Smith Printing Services - Graphics
Mr Mitch Thomas Facilities Manager
Mrs Jane Sloane Head of Midwifery, Supervisor of Midwives
Dr John Wardle Consultant infection Control
Mr Bill Williams Castle Industries

Special Thanks to the following;
The Staff of Nobles Hospital and the DHSS Isle of Man

British Standard Institute
Health Protection Agency
Infection Control Nurses Association
Society of Hospital Linen Service & Laundry Managers

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