

## The Sleep-Knit Bedding System

Information Handbook

# What is Sleep-Knit and What are the Key Benefits?

This new bedding system is designed to enhance patient comfort and has many advantages for nursing staff and laundry.

The new linen is called **Sleep-Knit** and comprises of soft fitted sheets, pillowcases and lightweight thermal blankets. Sleep-Knit doesn't need ironing or folding like traditional hospital linen and is delivered to wards in bags designed to fit onto a purpose-built bed changing trolley.

## Benefits

### For Patients

Soft comfortable bedding which is preferred by the majority of patients. Sleep-Knit is designed to stay in place on the mattress leading to minimal creasing, rucking and reduced friction. In addition, the unique semi-fitted top sheet is designed to give more room for ankles and feet.

### For Nurses

Easier and quicker bed making. Potentially fewer bed changes. Designed to fit all standard mattresses plus most air bed/profiling mattresses and overlays.

### Health & Safety

Promotes safer moving and handling procedures. Reduction in lint levels at bed area. Reduced risk of cross-infection.

### Laundry

Improved productivity and reduced running costs.

### Financial

Major savings in linen use and overall cost of Linen Service.

## Q. Why are fitted sheets being considered?

This is a modern, innovative and practical bedding system which offers improved patient comfort, positive advancements in pressure ulcer management, quicker and less frequent bed changing, improvements to manual handling procedures, reductions in linen usage and significant cost savings for the Trust.

## Q. Can I use the sheets on all types of mattresses including air/dynamic/pressure mattresses?

The sheets are to be used on all mattresses within the Trust in an effort to improve patient comfort and to reduce potential "rucking" of the fabric under the patient. The sheet has been engineered to stretch in four directions to imitate the movement of the mattress when the patient applies pressure to the surface. The sheet has therefore been designed to work in unison with the mattress rather than against it. A full study on this specific subject has been undertaken by a leading authority in the field of Tissue Viability from the University of Wales. The report is available on request.

## Q. How new is this bed linen concept and has it been tried elsewhere?

This concept, although fairly new to the UK, originated in North America approximately thirty years ago and has now become fully established throughout mainland Europe and several other countries worldwide. Within the UK we have sites in Wales, Scotland, Northern Ireland, England - South, Midlands, North East and North West.

## Q. What is the recommended method for making the bed?

There is a specific technique for making the bed, which requires minimal lifting of the mattress. The golden rule is to stretch the sheet to the corner and not the corner to the sheet. If this rule is followed the mattress will not go into a banana shape thus preventing "hammocking" (see page 13).

## Q. What training and support will be given?

Specific training will be given to as many ward staff as possible prior to and during installation. On ward training sessions will be given to day and night staff. The training will be undertaken by MIP, the company supplying the Sleep-Knit system. Some Linen Services staff will also undertake training.

**Q. Is there a right or wrong way to put the sheets on the bed?**

Yes. The sheets are manufactured from polyester and cotton yarns by a method called plated knitting. This enables the cotton to adhere to the surface of the fabric for maximum patient comfort, and polyester to remain on the underside of the fabric for strength and durability. It is therefore important to make the bed with the cotton side of the sheet against the patient. On the bottom sheet this requires the binding to be hidden as much as possible (see page 13). This is explained at the training stage and is usually simple to remember due to the appearance of the bed once it is made.

**Q. How can I make the appearance of the bed look as neat as possible?**

The best way to keep the bed as neat as possible is to stretch the fabric then tightly tuck in all the way round. The stretch quality of the fabric offers lots of freedom for patients to move inside the bed despite being tucked in. If tucking in is not considered appropriate for some areas the bedding should be left open at the bottom and the sides.

**Q. How many thermal spreads should be placed on each bed?**

The thermal spread is a universal product that is designed to act as both a blanket and a counterpane. It has unique thermal qualities, which offer excellent warmth without excessive weight. In general the majority of beds (approximately 80%) require only one thermal spread but you can expect to use more than one in certain areas. The quantity of thermal spreads to be used per bed will differ from ward to ward and may depend on time of year, temperature of ward, patient preference, clinical need and common practice. Occasionally a patient may request three or more thermal spreads, as they perceive this product as too lightweight and not warm enough. Fortunately this situation is uncommon.

**Q. What is the recommended method of changing the bed for bed bound patients?**

Roll the patient to one side, unhook the sheet lengthways at the corners on one side then push the sheet to the middle. Place a new sheet on to the exposed corners and push the new sheet to the middle. Roll the patient onto the middle of the bed and then onto the other side. Remove the old sheet and stretch the corners of the new sheet to hook onto the corners of the mattress. Return the patient to the middle of the bed.

**Q. Does this system change the way we move patients in bed?**

If you have been using traditional woven sheets to either reposition or assist with patient transfer then yes the system will change. The fitted sheets are stretchy and do not slide and therefore make it more difficult to move patients. Fitted sheets actively promote safe manual handling practices by encouraging staff to use the correct equipment provided. This results in better compliance with Trust guidelines in the best interests of back care and therefore staff health. The suggested equipment to be used with the fitted sheets are slide sheets combined with a patient slide where appropriate. Please contact your Manual Handling Department to receive the correct guidance on best practices for patient movement in your area.

**Q. Any suggestions to make best use of the space available for storing the linen?**

Pack the bags into the spaces that would normally contain woven sheets and pillowcases. After a few weeks the new usage levels will be determined by which time a potential reduction in linen usage should have created more space.

**Q. What is the procedure for returning linen that is stained or damaged?**

It is the responsibility of the laundry to remove as many stained and damaged goods as possible before sending out to the wards but regrettably a few will slip through the net. When this happens the laundry requests the ward removes the items and places them in a specially marked bag. Once the bag is full, hand it over to Linen Services who will send the bag to the laundry to make the decision to rewash, repair or condemn. The laundry will make an assessment of the amount of linen being returned from wards and shall adjust its processes accordingly.



# Features & Benefits

## Hospital Sheets

### Why Fitted Knitted rather than Flat Woven?

- Fitted corners secure sheet to mattress
- Minimal rucking under patient
- Soft and comfortable
- Crease free on the mattress
- Easier and quicker to make
- No need to iron or fold
- Patient preference for fitted
- High level of staff acceptance

## UK Healthcare

- Gwent
- Cardiff
- Grampian
- Fife
- Sunderland
- Newcastle
- Gateshead
- South Tyneside
- Blackpool
- Southport
- Blackburn
- Bolton
- Sheffield
- Nottingham
- Essex
- Bristol
- Salisbury
- Antrim
- Belfast
- London

## Features of Sleep-Knit Sheets and Pillowcases

- Soft feel to offer superior patient comfort
- Patented design provides a smooth, wrinkle free fit on all mattresses without the use of elastic
- Plated knitting formula combines the softness of natural cotton and the strength of polyester
- 4 way stretch enables the sheet to work in concert with pressure redistribution mattresses
- Outstanding longevity when laundered within a typical laundry following the stringent parameters of HSG(95)18
- Colour-coded binding for easier sorting



## Features of Thermal Spread

- Blanket and counterpane combined. No need for two products
- Maximum warmth in a lightweight package
- Selection of sizes and colours to meet diverse range of needs
- Retains its original shape, brightness and colour even after repeated washings
- Does not require ironing or folding
- Inherently flame retardant





### Laundry Benefits

- No Ironing or folding required
- Offering better product & quality of service
- Giving customers what they request
- Major financial benefits/cost savings
- Faster processing
- Energy savings
- Easier to train staff
- Less dust/lint
- Less noisy
- Reduced capital replacement costs



### Trust Benefits

- Innovation and quality improvement
- Efficient use of financial resources
- Offers improved "patient choice"
- Potential reduction in linen usage by at least 10%
- Lighter weights to handle
- Less replacements



### Patient Benefits

- Improved comfort
- Home environment To hospital
- Less weight/more warmth
- Improved aesthetics
- Sheet remains intact
- Minimal rucking
- Increased patient satisfaction



### Staff Benefits

- Easier and quicker bed making
- Universal fit
- Less items on bed
- Potentially less remakes/bed changes and repositioning per day
- Helps to redefine manual handling procedures
- Less to and fro to linen cupboard
- Less reduction in service excuses from laundry service
- Fitted sheet works in harmony with both conventional and duvet bed assemblies



### Presentation to Wards Folded or Bagged?



### Bed Changing Trolley

- Designed to meet the needs of today's Healthcare environment
- For your convenience, ease of bed changing
- All your daily needs easily accessed
- Defined space for both flat folded and sleep-knit linens
- Colour coding for easy identification

### Communication Suggestions for Success

- Involve all Stakeholders at the beginning
- Involve Public/Patient Forum Groups
- Intranet
- Team Briefings
- Leaflets/Flyers For General Awareness
- Supplier Road Shows/Ward Demos
- Bed Making Posters
- Frequently Asked Questions Booklet

### What Back-Up can be offered with the System?

- Awareness Meetings/Seminars
- Visits to Key Installations in UK (Laundry and Hospital)
- Laundry Advice/Planning - Tailored to your organisation
- Consultation with Major Stakeholders
- Ward Demonstrations - Pre and Post Installation
- Patient and Staff Evaluations
- Implementation support the week before going live
- Implementation support on first few days after going live
- Follow up visits to monitor acceptance and resolve any outstanding issues



## Sleep-Knit Bed Linen Bed making Made Easy

Sleep-Knit bed linen is soft, stretchy and fitted unlike conventional woven linen which may be hard, rigid and flat. Sleep-Knit linens are designed with a plated construction with cotton against the skin for patient comfort and polyester on the reverse for durability, which makes proper bed-making essential.

### Bottom Sheet - Blue Binding Semi-fitted Top Sheet - Burgundy Binding (bottom corners are fitted)

**DO NOT** lift the mattress more than a few centimetres to fit the sheet - mattress could create a banana shape and sheets will force unnecessary stretch



**DO NOT** fit the sheet with the coloured binding visible across the entire width of the mattress - this will place the polyester against the skin rather than the cotton



**DO NOT** place the TOP SHEET in a way that has the stitching pointing upwards being smooth



**DO NOT** fit the TOP SHEET in a way that has the turnover showing a rough edge



**DO** secure the first two corners (any corners), keeping the mattress flat at all times. For the third corner, place your hand in the corner and stretch around the mattresses edge.



**DO** keep your hand in the corner and use your other hand to pull and flip the sheet down and under the mattress. Repeat the procedure with the fourth corner. Pull the side and tuck under the mattress.

Note: Do not tuck in on a dynamic/air mattress



**DO** ensure that the binding is not visible when on the mattress. The binding should only be seen in the centre (as shown).



**DO** fit the TOP SHEET so that the stitching is pointing upwards, diagonally from the corner.



**DO** pull the TOP SHEET to the open end of the bed and fold over to display the turnover (showing a smooth hem to show the sheet has been put on correctly)



**DO** place the thermal spread over the top sheet with the round corners to the bottom and square corners towards the top. Pull tightly and tuck under the mattress.

Note: Do not tuck in on a dynamic/air mattress



## Staff Evaluation New Style Bedding

Name of Ward:

Name of Hospital:

Please give us your feedback on the new bedding you are currently using by answering the following questions

**Question 1.** When compared with traditional flat sheets, pillowcases and blankets please indicate whether the new style bedding is:

**Fitted sheets v traditional**

**Thermal spreads v blankets/covers**

	Yes	No	Same
a) Easier to make			
b) Better appearance			
c) Softer			
d) Fits properly			
e) Stays in place			
f) Less bed changes			
g) Preferred			

	Yes	No	Same
a) Easier to make			
b) Better appearance			
c) Softer			
d) Less blanket usage			
e) Less cover usage			
f) Preferred to blankets			
g) Preferred to covers			

**Question 2.** Please indicate your overall performance rating of the new style bedding when compared with traditional bedding

**Traditional Bedding**

	Excellent	Good	Adequate	Poor	Very Poor
Sheets					
Pillowcases					
Blankets					

**New Style Bedding**

	Excellent	Good	Adequate	Poor	Very Poor
Fitted Sheets					
Fitted Pillowcases					
Spreads					

Are there any comments you would like to make related to any aspect of the new bedding?

## Patient Evaluation New Style Bedding

Name of Ward:

Name of Hospital:

Please give us your feedback on the new bedding you are currently using by answering the following questions

**Question 1.** When compared with traditional flat sheets, pillowcases and blankets please indicate whether the new style bedding is:

**Fitted sheets v traditional**

**Thermal spreads v blankets/covers**

	Yes	No	Same
a) More comfortable			
b) Warmer			
c) Better appearance			
d) Softer			
e) Fits properly			
f) Stays in place			
g) Preferred			

	Yes	No	Same
a) More comfortable			
b) Warmer			
c) Better appearance			
d) Softer			
e) Preferred to blankets			
f) Preferred to covers			

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**Traditional Bedding**

	Excellent	Good	Adequate	Poor	Very Poor
Sheets					
Pillowcases					
Blankets					

**New Style Bedding**

	Excellent	Good	Adequate	Poor	Very Poor
Fitted Sheets					
Fitted Pillowcases					
Spreads					

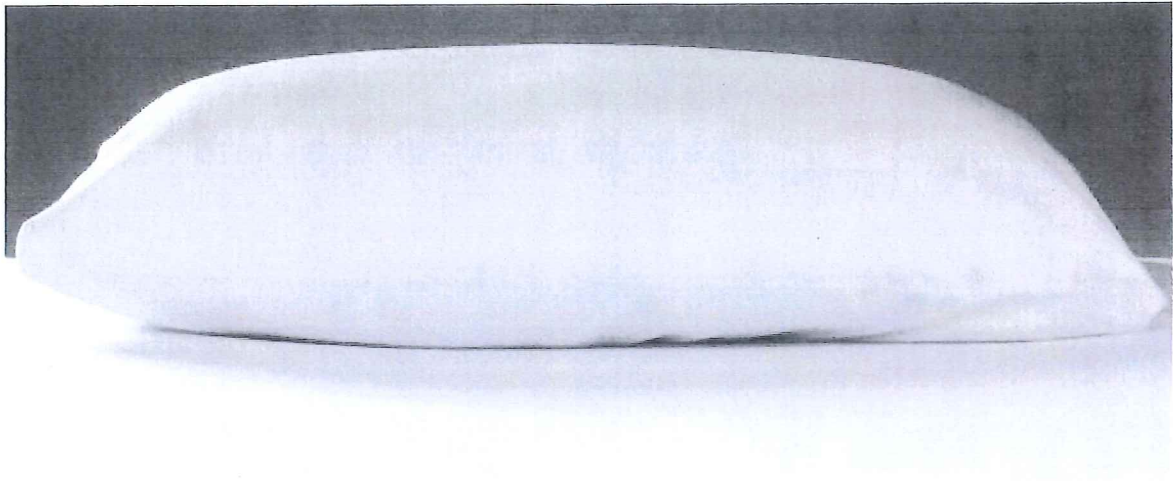
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THE SLEEP-KNIT  
FITTED SHEETS SYSTEM

**STARTER PACK**

**DRAFT**

PRODUCED BY





## What is Sleep-Knit and what are its Key Benefits?

This new bedding system is designed to enhance patient comfort and has many advantages for nursing staff and laundry.

The new linen is called Sleep-Knit and is comprised of soft fitted sheets, pillowcases and lightweight thermal blankets. It doesn't need ironing or folding like traditional hospital linen and it is delivered to wards in bags designed to fit onto a purpose-built bed-changing trolley.

Benefits	
For Patients	Soft, comfortable bedding which stays in place. Minimal creasing and wrinkling; reduced friction and unique semi-fitted top sheet designed to give more room for ankles and feet
For Nurses	Easier and quicker bed making; fewer bed changes; fits all mattresses including airbeds
Health & Safety	Promotes safer moving and handling procedures
Laundry	Improved productivity and reduced running costs

## Patient Benefits

The most important person to consider when seeking to improve health services is the patient, who is central to our company philosophy when considering the most appropriate textiles to use in healthcare.

*The involvement of the public and patients in the planning of healthcare is clearly recognised as an essential element of the modern NHS. Policy documents including the Griffiths Report (DOH 1984), Working for Patients (DOH 1989), Caring for People (DOH 1990), The Patients Charter (DOH 1991), The New NHS: Modern, Dependable (DOH 1998), and The NHS Plan: A Plan for Investment, A Plan for Reform (DOH 2000) stress the role of the active service user and the need for healthcare professionals to work in partnership with patients in making decisions about their treatment. The Health and Social Care Act (1991) places a legal obligation to deliver care in this way.*

(Excerpt from "A collaborative approach to improving staff and patient outcomes: implementing an innovative bedding system for patients cared for in the Gwent Healthcare NHS Trust.")

The most appropriate textiles to meet patients' needs have now become a major consideration of the modern NHS.

### So what benefits does the system offer to Patients?

#### Sheet Remains Intact/Minimal Rucking

Woven flat sheets tend to come loose on a healthcare bed after a period of time due to the slippery nature of the sheet, enhanced by the smooth surface of the mattress or as a result of being too small for modern-day mattresses. This leads to patient discomfort and agitation. The knit sheet, when secured on each corner of the mattress, remains intact, thereby contributing to a more comfortable experience for the patient. Any textile against the skin is more comfortable if it is soft and stretchy. Undergarments and hosiery, for example, tend to be made soft and stretchy for this specific reason. Why, therefore, does UK Healthcare continue to use woven sheets, which **feature an uncomfortable texture, which has no flexibility**, when a softer, more stretch alternative is available? Common sense dictates that a knitted sheet offers a more comfortable experience for the patient and is further enhanced when the sheet is fitted to the corners, causing minimal rucking against the skin.

All surveys conducted to date on this subject indicate an improved comfort level for patients lying on knit sheets, which are fitted, when compared to traditional woven flat sheets. The following table shows the typical feedback **that can be expected** from patients following a trial.

*Results from evaluations from a number of trials conducted in the UK support the these figures. Whilst figures can vary between Trusts, the results illustrated in this table tend to mirror the typical findings from surveys undertaken by MIP and independently.*

Rating	Excellent	Good	Adequate	Poor	Very Poor
Conventional Linen	0%	20%	70%	10%	0%
MIP Fitted Linen	50%	30%	10%	5%	5%

## Nursing Staff Benefits

When trials are undertaken, staff are frequently asked to consider the impact of the new linen in terms of convenience, ease of bed making, appearance of the bed, softness, fit, linen usage and preference between the fitted sheets and the conventional system. Feedback usually indicates an overall preference for fitted sheets by the majority of staff. Evaluations generally confirm an excellent or good acceptance level of around 70% for fitted compared to traditional, where 40% can be expected. Occasionally the fitted system can receive a mixed reaction from some staff, mainly for reasons of traditionalism, reluctance to change and general presentation of the linen at point of delivery. But once staff members start using the sheets on a daily basis, this initial misconception will quickly disappear.

The following table shows the typical feedback to expect from staff following a trial.

*Results from evaluations from a number of trials conducted in the UK support these figures. Whilst figures can vary between Trusts, the results illustrated in this table tend to mirror the typical findings from surveys undertaken by MIP and independently*

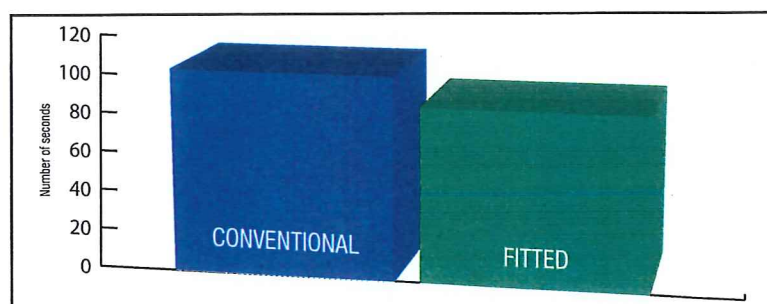
Rating	Excellent	Good	Adequate	Poor	Very Poor
Conventional Linen	10%	30%	45%	15%	0%
Sleep-Knit	20%	50%	15%	10%	5%

As feedback regarding comfort tends to be overwhelmingly positive from patients, staff tends to also be positive regarding the linen. It is not uncommon to receive comments from staff as follows: "Regardless of whether we like it or not, if our patients prefer it, then its better for us".

### Quicker Bed Making

An independent study into the time taken to change beds was carried out by Gwent Healthcare in 2004. A copy of the report, "A collaborative approach to improving staff and patient outcomes: implementation of an innovative bedding system for patients carried out for the Gwent Healthcare NHS Trust" can be provided on request.

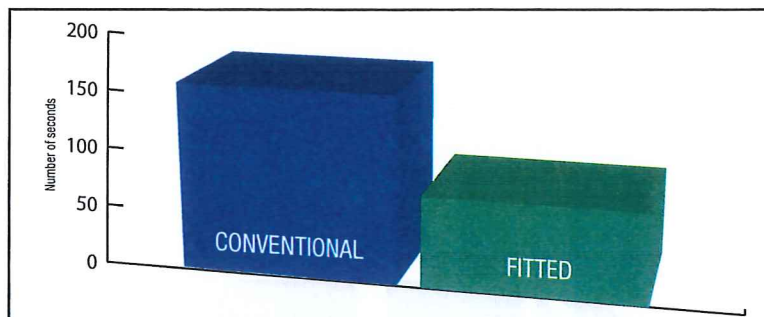
The most common method of bed changing is performed by 2 nurses. In this study, 96 bed changes were undertaken in the conventional way and 94 were carried out the Sleep-Knit way. Results were as follows:



The graph illustrated above represents a saving of 16 seconds per bed or an **overall time saving of 8 minutes per round of bed making** for a 30-bedded unit.



This exercise was repeated for 1 member of staff changing the bed numerous times in both the conventional and fitted way. Results were as follows:



The graph illustrated above represents a saving of 88 seconds per bed or **an overall time saving of 44 minutes** for a 30-bedded unit.

*Disclaimer:*

*It should be stressed that it is not possible to claim precise findings from this study as the numbers were too small for statistical analysis, however it can be stated in general that Sleep-Knit offers a method of bed changing that is considered to be quicker than the conventional way.*

*Results of evaluations carried out within numerous trials conducted in the UK support this claim.*

### **Fewer Remakes**

Any time that can be saved in bed making is generally welcomed by nursing staff. A major positive in the Sleep-Knit system is the sheet remaining intact once the patient has got into bed. It is often the case that conventional sheets get crumpled under the patient, making the bed look unsightly. As a consequence, nursing staff often find it easier to strip and remake the bed rather than spend time trying to make it neat again.

A typical hospital will reduce linen usage by 15-20% under the Sleep-Knit system, which can be verified from the linen usage statistics from a number of our customers who have converted from the conventional system.

## Laundry Benefits

The Sleep-Knit concept represents a major advancement in the planning and organisation of laundries in the modern healthcare market. The major laundry benefits that the system can offer are:

### **Improved Productivity**

3 times faster to process at the finishing stage due to the items being bagged without the need to iron or fold. This can be verified by Green Vale Linen Services, a 225,000-piece/week laundry, which is near total conversion to the fitted system.

### **Reduced Running Costs**

A typical laundry processing 100,000 items per week can expect to reduce running costs by £187,000 following full conversion to Sleep-Knit. This is equivalent to a cost per piece reduction of between 3-5p per item.

### **Lower Capital Replacement Requirement**

As feeders, folders and ironers become obsolete under the Sleep-Knit system, the requirement to purchase expensive replacement finishing equipment is negated. Capital investment in laundry plants is critical for the long-term survival of NHS laundries. The reduction in capital costs reduces the overall running costs of the laundry, thus increasing its long-term viability.

### **Improved Working Environment**

When ironer lines are removed from laundries the result is a quieter, less dusty and more spacious environment for the staff to work in, leading to improved morale and better working conditions.

### **Safer Infection Control Procedures**

In a traditional laundry, sheets, blankets and pillowcases need to be finished in different areas of the laundry and are therefore sorted when soiled, prior to washing. In a Sleep-Knit laundry, sheets, blankets and pillowcases need to be finished in the same area of the laundry and can therefore be sorted after washing. This change to procedures in the laundry leads to less classifying of linen and reductions in potential cross-contamination. Sleep-Knit therefore promotes improved infection control procedures, thereby offering the staff a safer working environment.

## Managing the Change

Making a decision on whether or not to go ahead with Sleep-Knit can be very difficult as it is often considered safer to remain with the traditional system that has been in place for years. Many service providers are apprehensive regarding change and are worried about the impact this new system may make on their existing service. This reaction is totally understandable and can be overcome if we examine the common objections that are often made against acceptance of the new system.

### Staff Acceptance

As with many organisations, staff acceptance of any major change can often be the most important success factor, but the most difficult to overcome. No matter how good Sleep-Knit is, staff can often object to the system simply because they have not been consulted or informed properly. Communication is the key to success with Sleep-Knit, and if handled correctly can lead to far greater acceptance levels than would otherwise be the case. Numerous independent evaluations on Sleep-Knit tend to indicate an acceptance level of around 85% - 90% amongst the staff. The 10%-15% of staff not keen on the system should be treated with respect and given the opportunity to voice their objections without being allowed to dominate the overall opinions of the majority of staff. It is advised to nominate a project champion on each ward who is willing to cascade the information to other members of staff within the department.

### Presentation

Presentation of linen is paramount to laundry providers and is a major concern when considering Sleep-Knit as the method of distribution. Sleep-Knit linen is delivered to the wards in laundry bags without being ironed or folded.

To overcome this concern, each ward is provided with a purpose-designed trolley to hold the bags, which can be wheeled directly to the bedside, saving valuable time in unnecessary trips back and forth to the linen storage area.



## Bed Making Made Easy



### Sleep-Knit Fitted Bed Linen: Bed Making Made Easy

Sleep-Knit bed linen is soft, stretchy and fitted, unlike conventional woven linen which may be hard, rigid and flat. Sleep-Knit linens are designed with a plated construction with cotton against the skin for patient comfort and polyester on the reverse for durability, which makes proper bed making essential.

**Bottom Sheet – Blue Binding**

**Semi-fitted Top Sheet – Burgundy Binding (bottom corners are fitted)**

**DO NOT**



**DO NOT** lift the mattress more than a few centimeters to fit the sheet – the mattress will create a banana shape and the sheets will force unnecessary stretch.

**DO NOT**



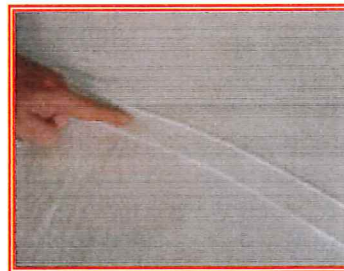
**DO NOT** place the TOP SHEET in a way that the stitching pointing upwards is smooth.

**DO NOT**



**DO NOT** fit the sheet with the colored binding visible across the entire width of the mattress – this will place the polyester rather than the cotton against the skin.

**DO NOT**



**DO NOT** fit the TOP SHEET in a way that has the turnover showing a rough edge.



## Sleep-Knit Fitted Bed Linen: Bed Making Made Easy

**DO**



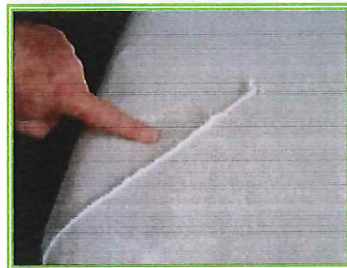
**DO** secure the first 2 corners (any corners), keeping the mattress flat at all times. For the 3<sup>rd</sup> corner, place your hand in the corner and stretch around the mattress edge.

**DO**



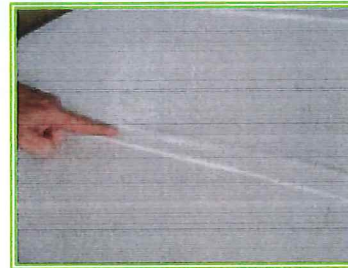
**DO** keep your hand in the corner and use your other hand to pull and flip the sheet down and under the mattress. Repeat the procedure with the 4<sup>th</sup> corner. Pull the side and tuck under the mattress. *NOTE: Do not tuck if resident is on a dynamic/air mattress.*

**DO**



**DO** fit the TOP SHEET so that the stitching is pointing upwards, diagonally from the corner; this will ensure cotton against the skin.

**DO**



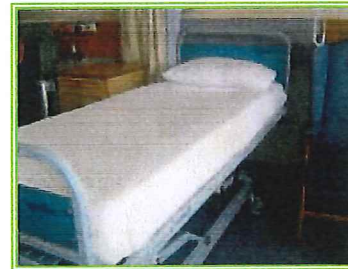
**DO** pull the TOP SHEET to the open end of the bed and fold over to display the turnover (should show a smooth hem to show the sheet has been put on correctly).

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**DO** ensure that the binding is not visible when on the mattress. The binding should only be seen in the center (as shown).

**DO**



**DO** place the thermal spread over the top sheet with the round corners to the bottom and square corners towards the top. Pull tightly and tuck under the mattress. *NOTE: do not tuck if resident is on a dynamic/air mattress.*

## Frequently Asked Questions

### **Q. Why are fitted sheets being trialed in the Trust?**

This is a modern, innovative and practical bedding system which offers superior patient comfort, positive contributions in pressure ulcer management, quicker and less frequent bed changing, redefined manual handling procedures, reductions in linen usage and significant cost-savings for the Trust.

### **Q. Can I use the sheets on all types of mattresses including air/dynamic/pressure redistribution mattresses?**

The sheets are to be used on all mattresses within the Trust in an effort to improve patient comfort and to reduce potential "rucking" of the fabric under the patient. The sheet has been engineered to stretch in four directions to imitate the movement of the mattress when the patient applies pressure to the surface. The sheet has therefore been designed to work in unison with the mattress rather than against it.

### **Q. How new is this bed linen concept, and has it been tried elsewhere?**

This concept, although fairly new to the UK, originated in North America approximately thirty years ago and has now become fully established throughout mainland Europe and several other countries worldwide, in South East England, South West England, Wales, North West England, North East England, The Midlands, Scotland and Northern Ireland. To date, around 50 Healthcare Trusts totaling 20,000 beds in the UK have partly or fully converted to this new system due to the substantial benefits that the system can provide.

### **Q. What is the recommended method for making the bed?**

There is a specific technique for making the bed, which requires minimal lifting of the mattress. The golden rule is to stretch the sheet to the corner and not the corner to the sheet. If this rule is followed, the mattress will not go into a banana shape, thus preventing "hammocking".

### **Q. What training and support will be given?**

Specific training will be given to as many ward staff as required prior to, and during installation. On-ward training sessions will be given to day and night staff **at shift change time**. The training will be undertaken by the company supplying the Sleep-Knit system and some Linen Services staff.

### **Q. Is there a right or wrong way to put the sheets on the bed?**

Yes. The sheets are manufactured from polyester and cotton yarns by a method called plated knitting. This enables the cotton to adhere to the surface of the fabric for maximum patient comfort, and the polyester to remain on the underside of the fabric for strength and durability. It is therefore important to make the bed with the cotton side of the sheet



against the patient. This requires the binding on the bottom sheet to be hidden as much as possible. This is explained at the training stage and is usually simple to remember due to the appearance of the bed once it is made.

**Q. How can I make the appearance of the bed look as neat as possible?**

The best way to keep the bed as neat as possible is to stretch the fabric then tightly tuck in all the way round. The stretch quality of the fabric offers lots of freedom for patients to move inside the bed despite being tucked in. If tucking in is not considered appropriate for some areas, the bedding should be left open at the bottom and the sides.

**Q. How many thermal spreads should be placed on each bed?**

The thermal spread is a universal product that is designed to act as both a blanket and a counterpane. It has a scientifically proven thermal quality, which offers excellent warmth without excessive weight. In general, the majority of beds (approximately 80%) require only one thermal spread, but you can expect to use more than one in certain areas. The quantity of thermal spreads to be used per bed will differ from ward to ward and may depend on time of year, temperature of ward, patient preference, clinical need and common practice. Occasionally, a patient may request three or more thermal spreads, as they perceive this product as too lightweight and not warm enough. Fortunately, this situation is uncommon.

**Q. What is the recommended method of changing the bed for bed-bound patients?**

Roll the patient to one side, unhook the sheet lengthways at the corners on one side then push the sheet to the middle. Place a new sheet on to the exposed corners and push the sheet to the middle. Roll the patient on to the middle of the bed and then on to the other side. Remove the old sheet and stretch the corners of the new sheet to hook onto the corners of the mattress. Return the patient to the middle of the bed.

**Q. Does this system change the way we move patients in bed?**

If you have been using traditional woven sheets to either reposition or assist with patient transfer, then yes, the system will change. The fitted sheets are stretchy and do not slide, so therefore make it more difficult to move patients. Fitted sheets actively promote safe manual handling practices by encouraging staff to use the correct equipment provided. This results in better compliance with Trust guidelines, reducing back strain and thus improving the health of staff. The suggested equipment to be used with the fitted sheets consists of slide sheets, combined with a patient slide where appropriate. Please contact your Manual Handling Department to receive the correct guidance on best practices for patient movement in your area.

**Q. Any suggestions to make best use of the space available for storing the linen?**

Pack the bags into the spaces that would normally contain woven sheets and pillowcases. After a few weeks, the new usage levels will be determined, which are likely to reduce, thereby creating more space.

**Q. What is the procedure for returning linen that is stained or holed?**

It is the responsibility of the laundry to remove as many stained and holed goods as possible before sending them out to the wards, but regretfully, a few will slip the net. When this happens the laundry requests the ward to remove the items and place them in a specially marked bag. Once the bag is full; hand it over to Linen Services who will send the bag to the laundry to make the decision to rewash, repair or condemn. The laundry will make an assessment of the amount of linen being returned from wards and shall adjust its processes accordingly.

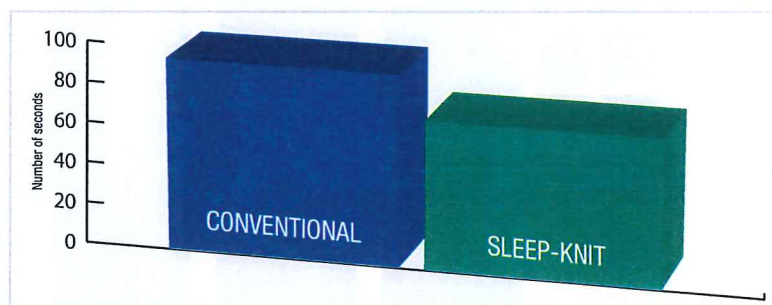
## General Laundering Guidelines for Sleep-Knit

### Wash House Planning

One of the critical factors regarding Sleep-Knit which is often overlooked is the increase in items per load and the reduction in usage at ward level. A laundry processing 100,000 items per week of traditional polyester cotton linen will process around 993 wash loads per week.

Under Sleep-Knit processing, the reduction in usage at ward level will reduce this requirement by 10% to 894 wash loads per week. In addition, the increased items per load will reduce this figure by a further 23% for 60% of the product mix, which saves a further 123 loads, making the total wash loads per week 771.

It can therefore be estimated that laundries fully converted to Sleep-Knit will require reduced wash processing capacity in the region of **22%**.



### Tumbler Capacity

Any laundry processing Sleep-Knit has to be aware of tumbler capacity. It is important to take the reduced number of wash loads (as explained above) into consideration before calculating the additional tumbler capacity required, if any. It is also important to acknowledge that there may or may not be spare capacity, and a tunnel washer line, if programmed correctly, may be able to cope with increased drying capacity as long as the cycle time is not changed.

If the tunnel washer is run at 3 minutes per batch, the tumbler capacity is less likely to be affected as the machine will continue to process batches without the need to stop. If the cycle time is run at 2 minutes per batch, additional tumbler capacity may be required to prevent a bottleneck situation. This will vary from laundry to laundry.

Sleep-Knit takes around 14 minutes to fully dry and cool down in a well maintained 50kg steam tumbler. This is reduced further by as much as 2 minutes in a gas-fired tumbler or in modern high pressure extraction units.

It should be acknowledged that an increase in tumbler capacity, if required, is significantly less capital intensive than a full ironer and folder line which becomes redundant under the Sleep-Knit processing concept.

It is very important when planning Sleep-Knit into production to start from the dry time and work backwards to determine the optimum weight per load which will not slow down the entire tunnel line.

Lint is collected readily at the tumbling stage when processing Sleep-Knit, therefore it is important to clean lint screens regularly. Sleep-Knit is also



prone to snagging on sharp edges from processing machinery, therefore regular checking of tumbler doors with a simple knitted rag should be incorporated into PPM (planned preventative maintenance) schedules.

### Wash Process

#### General

- Do not under load or over load during washing or drying.
- Do not over bleach - avoid use if possible.
- Do not over dry as this can accelerate deterioration and cause excessive shrinkage.
- Do not iron as this can damage the natural stretch.

### Washing Guidelines for a Typical 50kg Load

(Same process for sheets and pillowcases and thermal spreads)

The following table indicates a very general **recommended** process for Sleep-Knit. It is advisable to discuss specific wash processes with your detergent supplier for the ideal wash process which suits your application. There are a number of installations throughout the UK which have specific Sleep-Knit processes designed by experts. Please feel free to contact MIP and we will put you in touch with a company who has experience with our products.

Step	Time	Temp	Level	Chem	% Dose	pH	Titrate
Prewash	3 min.	35C	High	Alkali/Detergent	70%	10-11	
Optional Prewash	2 min.	35C	High				
Main Wash	6-8 min.	65/71C	Low	Alkali/Detergent	30%	11-11.5	400-700 ppm
Main Wash	8 min.	65/71C	Low	Optional Bleach	2-4oz (10%)	10.2-10.8	130-150 ppm
Rinse	2 min.	55	High				
Rinse	2 min.	55	High				
Rinse	2 min.	55	High				
Optional Sour/Softener	4 min.	37	Low	Sour/ Softener	2-4oz of each	6.5-7	10-30 ppm
Extract	6-7 min.						

*Quantity of detergent should be calculated by your detergent supplier*

### Drying Guidelines

Specific drying cycles are not easy to specify as dryers can vary as much as 50% in efficiency, however a 50kg tumbler should be able to dry a load of sheets or pillowcases in 12-14 minutes and thermal spreads in 14-16 minutes at a temperature of 75C, including a cool down of approximately 5 minutes. It is advisable to set the humidity at 6%, as 4% is considered dry, so this allows a 2% tolerance and reduces the risk of over drying.

Once dried, it is recommended to pack the linens into bags as soon as possible to avoid the weight of the textiles in the barrow causing extra creasing.

### Procedure for Holes/Stains

It is important that a quality control check is incorporated as routine into processing procedures for Sleep-Knit. The following protocol is recommended:

- 1) Ensure the wash process gives a rewash percentage of no more than 2-3%.
- 2) Monitor the condition of the stock by incorporating a routine QC inspection of a small sample of Sleep-Knit items on a weekly basis. Check for holes and stains and find an average level. If this level is on the increase over a sustained period of time, conduct a closer inspection of a larger sample of items.
- 3) Undertake a quick visual check of the items before placing in bags as a matter of routine. This may slow the production rates down by a few seconds per item, but it is beneficial to reduce stock arriving at ward level that contains holes or stains. It is important, however, not to slow production down to a level which will negate the productivity benefits that accrue from Sleep-Knit. A balancing act is required between productivity and quality.
- 4) Periodically check for sharp protrusions and shards from mobile equipment and machinery used in the distribution and processing of Sleep-Knit. This could have a serious effect on the condition of the stock if a number of weeks go by without detection.
- 5) Notwithstanding the above procedures, it is inevitable that some items will appear at ward level with stains or holes. Each ward cupboard should contain a specially marked bag for the staff to collect these items. Once the bag is full, it should be returned to linen services for rewash, repair or condemn. It is important to educate ward staff on the importance of respecting the protocols to ensure that they always receive the best quality linen possible.

- 6) Heat seal patches provided by MIP are recommended for repairing Sleep-Knit linen using heat seal machines, on the underside of the sheet. As with traditional sheets, any small holes or tears on the sides of the sheets should be repaired but any holes appearing on the body of the sheet should lead to the item being condemned.
- 7) Staff should also be reminded not to wear jewellery which may catch on the linen, ward staff should avoid use of clips to attach tubes to sheets and all staff needs to be aware of sharp protrusions from mobile equipment. This will help to keep repairs to a minimum.