Journal of Nursing Management, 2008, **16,** 204–213

Disconnection: the user voice within the wound dressing supply chain

NATASHA CAMPLING BSc (Hons), PhD, RN[1], PATRICIA GROCOTT BSc (Hons), PhD, RGN[2] and SARAH COWLEY BA, PhD, PGDE, RGN, RHV, HVT[3]

[1]Research Fellow, *Department of Practice and Policy, School of Pharmacy, University of London*, [2]Senior Research Fellow, *Florence Nightingale School of Nursing and Midwifery, King's College London, University of London,* and [3]Professor of Community Practice Development, *Florence Nightingale School of Nursing and Midwifery, King's College London, University of London, London, UK*

Correspondence
Natasha Campling
Research Fellow
Department of Practice and Policy,
School of Pharmacy
University of London, BMA House
Entrance A, Mezzanine
Tavistock Square
London WC1H 9JP
UK
E-mail:
natasha.campling@pharmacy.ac.uk

CAMPLING N., GROCOTT P. & COWLEY S. (2008) *Journal of Nursing Management* **16**, 204–213

Disconnection: the user voice within the wound dressing supply chain

Aim This study examined the user voice in England's National Health Service (NHS) wound dressing supply chain.
Background The impetus for this work came from involvement in a collaboration between industry and clinicians, entitled Woundcare Research for Appropriate Products. Experiences from that study highlighted the notable absence of research about the impact of the supply chain on the users of dressings.
Method Interview data are presented following an outline of the grounded theory method used. These data were obtained from key stakeholders (n = 41) within the wound dressing supply chain such as nurses, manufacturers, distributors, professional organizations, government organizations and user groups.
Results The consequences of supply disconnection revealed haphazard supply, unmet user needs and lack of information transfer between player groups.
Conclusions and implications for nursing management These consequences explain the lack of user voice in the supply chain and have far-reaching implications for nursing management, through purchasing decisions and nurses' management of wound care.

Keywords: supply chain, users, wound dressings

Accepted for publication: 12 July 2007

Introduction

An awareness of the need for research on the impact of the supply chain on the users (i.e. patients and nurses) of wound dressings resulted from participation in the Woundcare Research for Appropriate Products (WRAP) study. These study participants provided insight into how acutely the supply chain was affecting the lives of individuals with chronic exuding wounds. This suggested a lack of nurses' engagement in purchasing and supply chain management on behalf of the patients, due to organizational and system-based problems. The following vignette is presented to explain the focus on the supply chain.

A participant vignette

This vignette has been selected as it demonstrates the profound consequences of supply chain issues in the face of user needs for wound dressings. It displays

DOI: 10.1111/j.1365-2934.2007.00818.x

the influence of relationships between the patient and clinicians on the transfer of user information within the supply chain, and the actual supply of products.

This individual was born with epidermolysis bullosa (where a loosened state of the epidermis causes the formation of blisters which rupture causing wounds) and had circumferential wounds covering his lower legs. He was using a silicone non-adherent layer (four dressings, size 20 × 30 cm, on each leg) and absorbent dressings (12 dressings, size 10 × 20 cm, on each leg) held in place by tubular bandage. Dressing supply was an on-going issue, with levels often falling very low. At one observed dressing change, there were not enough silicone and absorbent dressings. A 'make-do' situation resulted with the participant's mother rinsing the silicone dressings from his left leg in antibacterial scrub, replacing them and using five 10 × 15 cm silver foam dressings on top, which were obsolete products found in a store cupboard in the flat. Maintenance of supplies was complicated by the apparent attitude of the general practitioner (GP). At one dressing change visit, the district nurse told the participant that the GP resented the amount of supplies she had to provide, which the GP saw as most of her dressings budget. He used 24 large absorbent dressings per day and the GP was stated to be very sceptical of these high needs, having not examined his legs. The district nurses appeared to accept the status quo; with one stating that the participant '…should toe the line…' so as not to get on the wrong side of the GP claiming that it was the participant's responsibility to get a supply routine going. The district nurses did not seem to act to bridge the gap by deepening the GP's understanding. Consequently, the care of the individual was affected by a lack of supplies resulting in inappropriate products being used in a 'make-do' scenario.

Throughout the data collection in the WRAP study, it became clear that such situations reflected an acute impact of the supply chain upon users, with important implications for nursing management that require organizational changes to be made. This paper will now focus on the interview data obtained through the supply chain study, following a brief outline of the methodology.

Method: grounded theory, the core category and social processes

The study data were analysed using grounded theory methods to explain the supply chain and its processes. Grounded theory is a systematic process for generating theory through inductive interpretation, grounded in the real world, rather than existing literature or theories (Glaser & Strauss 1967). The approach was viewed as suitable in this context as the user voice in the supply chain is an area of no prior theory, with little relevant literature. Nonetheless, there are many related theories such as those regarding knowledge transfer and the management of supply chains from purchasing perspectives (for example Argote & Ingram 2000, Argote *et al.* 2000, Hines *et al.* 2000, Santoro & Gopalakrishnan 2000, Swan & Scarborough 2001, Tsoukas & Vladimirou 2001, Garavelli *et al.* 2002). However, these cover disparate areas in related fields and consequently the theories do not fit this specific context, that of the user. The theory of disconnection that will be outlined through the interview data applies to the specific area of England's National Health Service (NHS) wound dressing supply chain, providing theoretical explanation of the unheard user voice in the supply chain. Further research is required if a theory is sought that applies across the boundaries of other supply chains. Yet, through its specific focus on the wound dressing supply chain, the theory sheds light on the immediate and local impact of wider policy and global issues.

In line with the method, analysis of the data led to the core category, that of disconnection. It accounted for variation in the social processes (see below) experienced by users within the supply chain (Glaser 1978). As can be seen in Figure 1 disconnection was the main problem for individuals within the supply chain, reflecting their consequent patterns of behaviour.

Grounded theorists examine the basic social processes (BSPs) that individuals use to deal with a given situation (Benoliel 1996). Two types of BSPs have been identified by Glaser (1978): basic social psychological processes (BSPPs), occurring to individuals or groups, and basic social structural processes (BSSPs), referring to changes in social structural arrangements (such as shifting balances of power from centralization to decentralized authority).

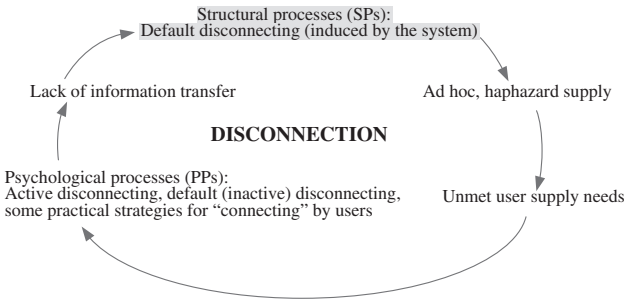


Figure 1
Disconnection the core category.

The structural (system, organizational) processes within Figure 1 are shaded because they are the predominant focus of this paper. These processes emerged comprehensively from the interview data; in contrast to the patient data which revealed primarily psychological (individual and personal) processes (Campling 2006). The data demonstrated the frequency of these structural processes such as cost bias, increasing levels of rationalization and lack of clinical involvement in purchasing, all of which are pertinent to nursing management. It will be seen that these processes have great relevance to nursing management, particularly in the context of an existing supply system that can detrimentally affect users.

The interviewees

Table 1 displays the characteristics of the interview sample. In total, 42 interviews were performed with key stakeholders from various player groups, following informed consent. The majority of the interviews were performed via the telephone. The findings from each of the sample groups will now be addressed in turn to explain the disconnection of the user voice within the supply chain.

Users – practising nurses

Figure 2 displays the structural and psychological processes that were noted by the practising nurses group as occurring within the supply chain. The processes were outlined as working diagrams for each player group (Campling 2006). The processes outlined within the figure will be described in detail for this particular sample group, so as to fully reveal the processes at play. However, this is not possible for every group and their respective findings will be summarized to map the lack of user voice (for further details refer to Campling 2006).

Local level variation in practice

One practising nurse drew on her experience of working as a specialist nurse across care settings, in the South of England:

> '… Well as far as I can see it's…a chaotic system… There doesn't seem to be a clear pathway to actually instruct you how to get what you need for the patient… (Interviewee 011)'.

Given her experience of cross-boundary working, she found that regions and settings had different ways of accessing products. As a result, she expressed confusion about how to go about getting products in these disparate areas. She noted that supply varies tremendously from area to area, from one primary care trust (PCT) to the next, with some being markedly more cost driven than others, therefore not using certain products due to cost reasons. She like others in this group found the system a puzzling one, lacking coherency and transparency in how dressings should be obtained. She said:

> '…I can't develop expertise in getting dressings to patients because what works in one health authority just doesn't in the next door one... (Interviewee 011)'.

These nurses recognized that they had to learn about accessing products via trial and error. Overall, the high level of local variation and lack of coherency was the key in preventing development of expertise within the supply chain, and led to disconnection from the ability to meet both nurse user and end-user, patient needs.

Ad hoc practice considered the norm

The structural, disconnecting processes of chaotic supply, irrationality, discontinuity, local variation, lack of transparency and cost restrictions were noted by the practising nurses to lead to ad hoc and idiosyncratic practice being considered the norm. Examples of inadequate practice were quoted during the interviews because of a lack of knowledge on the part of nurses regarding wound care and product usage. This lack of knowledge regarding wound care was recognized as underpinning ad hoc practice. For example, supply and use of products were at times cited as being justified by '…oh that's what we've been told…' or '…because the sister I work with does…' (Interviewee 038). These participants noted the limits of nurse education training regarding wound care, with one stating that the knowledge base of nurses in this area following preregistration training '…is alarmingly basic…' (Interviewee 025). Thus, because of both the limits of education and the supply chain, practice was recognized as ad hoc with nurses thinking:

> '… Ooh this might be useful I'll nick a few samples off a rep and try it on a few wounds… (Interviewee 011)'.

Other issues that underpinned the ad hoc practice were a lack of trust wide tissue viability services. Examples were provided of this. It was recognized that even with formularies in place supply was not rational. Participants stated that the decisions to place products

Table 1
The interviewees

Interviewee number	*Player group*	*Organization*	*Date of interview*	*Type of interview*
001	Users	King's College London	14 January 2003	Face to face
002	Users	Guy's & St Thomas' NHS Trust	16 January 2003	Telephone
003	Trade and professional organizations	Royal College of Nursing	23 January 2003	Face to face
004	Users	King's College London	23 January 2003	Face to face
005	Users	Southwark Primary Care Trust	24 January 2003	Telephone
006	Manufacturing and supplier companies	Smith & Nephew	27 January 2003	Telephone
007	The evidence base organizations	NHS R&D Health Technology Assessment	27 January 2003	Telephone
008	The evidence base organizations	Centre for Research in Strategic Purchasing and Supply	28 January 2003	Telephone
009	Manufacturing and supplier companies	Activa Healthcare	4 February 2003	Face to face
010	NHS and government organizations	Medical Devices Agency*	6 February 2003	Telephone
011	Users	Dystrophic Epidermolysis Bullosa Research Association/Guy's & St Thomas' NHS Trust	11 February 2003	Face to face
012	Users	King's College London	12 February 2003	Face to face
013	Trade and professional organizations	Association of British Healthcare Industries	12 February 2003	Telephone
014	NHS and government organizations	National Patient Safety Agency	13 February 2003	Telephone
015	NHS and government organizations	NHS Purchasing & Supply Agency	14 February 02	Telephone
016	Trade and professional organizations	Nursing & Midwifery Council	25 February 2003	Telephone
017	The evidence base organizations	National Institute for Health and Clinical Excellence	25 February 2003	Telephone
018	Trade and professional organizations	Chartered Institute of Purchasing and Supply	28 February 2003	Telephone
019	Manufacturing and supplier companies	Smith & Nephew	10 March 2003	Telephone
020	NHS and government organizations	SE London Strategic Health Authority	11 March 2003	Telephone
021	NHS and government organizations	Welsh Health Supplies	12 March 2003	Telephone
022	Manufacturing and supplier companies	3M Healthcare	14 March 2003	Telephone
023	Manufacturing and supplier companies	Ford Medical Associates	14 March 2003	Telephone
024	NHS and government organizations	NHS Purchasing and Supply Agency	18 March 2003 5 April 2005	Face to face Face to face
025	Users	Bromley Primary Care Trust	31 March 03	Face to face
026	Manufacturing and supplier companies	3M Healthcare	3 April 2003	Telephone
027	Users	Nottingham University Hospital	4 April 2003	Telephone
028	NHS and government organizations	Prescription Pricing Authority†	9 April 2003	Telephone
029	NHS and government organizations	Department of Health: Drug Tariff	11 April 2003	Telephone
030	Distributors and wholesalers	NHS Logistics Authority	15 April 2003	Telephone
+031	Users	Guy's & St Thomas' NHS Trust	16 April 2003	Telephone
032	Distributors and wholesalers	AAH Hospital Service	16 April 2003	Telephone
033	Users	Guy's & St Thomas' NHS Trust	28 April 2003	Telephone
034	Users	Southend Hospital	28 April 2003	Telephone
035	Manufacturing and supplier companies	Molnlycke Healthcare	29 April 2003	Telephone

Table 1
(*Continued*)

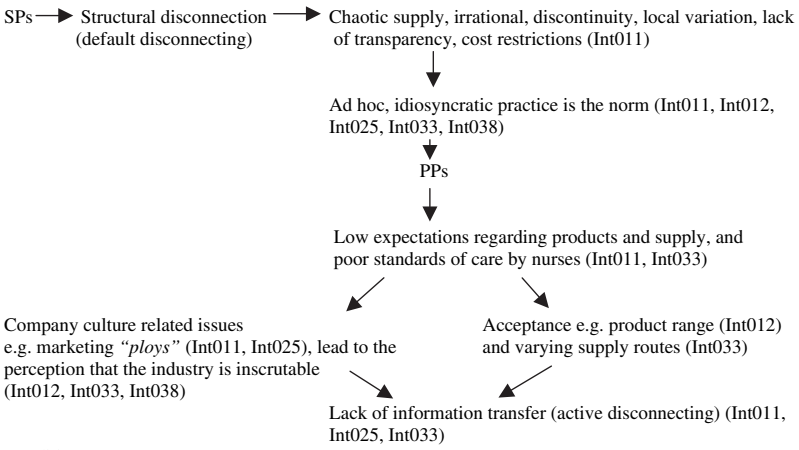
Interviewee number	*Player group*	*Organization*	*Date of interview*	*Type of interview*
036	Distributors and wholesalers	NHS Logistics Authority	19 May 2003	Telephone
037	NHS and government organizations	Commission for Patient and Public Involvement in Health‡	30 May 2003	Telephone
038	Users	Leg Clubs	9 June 2003	Face to face
039	Users	Macmillan Cancer Relief	17 June 2003	Telephone
040	Trade and professional organizations	Surgical Dressing Manufacturers Association	23 April 2003	Face to face
041	Trade and professional organizations	Association of British Healthcare Industries	14 April 2005	Face to face

*At that time the Medical Devices Agency was a single body, but in April 2003 it merged with the Medicines Control Agency into an executive agency entitled the Medicines and Healthcare products Regulatory Agency (Department of Health 2002).
†At that time this was an independent Special Health Authority within the NHS. However, the Department of Health's report on 'Reconfiguring of the Department of Health's Arm's Length Bodies' heralded the PPA's merger with the NHS Pensions Agency and the Dental Practice Board to create the NHS Business Services Authority as '…a new payment and transactions processing entity…' (Department of Health 2004, p. 23).
‡This organization was abolished following the Department of Health's report on 'Reconfiguring of the Department of Health's Arm's Length Bodies' (Department of Health 2004, p. 23).

on a formulary may not in themselves be rational, but rather arbitrary and not evidence based (Interviewee 012, Interviewee 025). Overall, ad hoc practice was perceived as the norm with a lack of rationale behind product choice and care decisions.

Low expectations and acceptance of products and supply

Within this context of ad hoc practice the practising nurses were affected by psychological processes that



Conditions:

- Lack of knowledge regarding wound care underpins the ad hoc practice e.g. justification for supply and use of a product may be *"…because the sister I work with does…"* (Int011, Int038)
- The active disconnecting in the form of a lack of information transfer between nurses and industry is underpinned by a lack of trust of the industry on the part of nurses. There is a general perception that all contact with the industry is potentially detrimental, and nurses appear to worry that such contact may compromise or be seen to compromise their professional autonomy and accountability (Int012, Int038)
- Within this context marketing is perceived as *"bribery"*, with industry tarnished with an associated underhand brush (Int012, Int025)
- Information transfer only occurs, initiated by nurses towards industry, where there is a potential pay off, this is a critical juncture in the PPs (Pt307, Pt400)

Key:
Int… – Interviewee ID number
PPs – Psychological processes
Pt… - Patient ID number
SPs – Structural processes

Figure 2
Practising nurses.

led them to hold low expectations of products and supply, and general standards of care by nurses, perhaps to the point of resigned acceptance. Although some of the psychological processes were very much recognized, other processes went unrecognized. For example, an epidermolysis bullosa nurse specialist was accepting of what she perceived as an inevitability of dressing usage, that dressing systems would need to be adapted to try to meet the needs of her patients, even though the end result may still be unmet needs. This acceptance was arguably the way that she sought to cope with the psychological consequences of caring for individuals with immense needs on a day to day basis. However there appeared to be a paradox within this recognized acceptance of both limited product performance and of products for her patients, which was a search for the perfect dressing. Was this desperate and continuous searching, given the lack of effective product feedback and evaluation, an important but unrecognized coping mechanism when working with this supply chain?

Although the above nurse recognized that products were not in existence to meet the needs of her patients, and perhaps those of other specialist groups, alternative views were held by other nurses in the sample. These nurses believed the existing product range to be 'pretty good'. One stated: '…I think generally…there are products that will meet the need…' (Interviewee 025). This acceptance was qualified by the fact that district nurses within her practice were nurse prescribers and able to access all products listed on the Drug Tariff. Nevertheless, she recognized inherent flaws within the system as she stated that many chose not to prescribe. Despite holding the view that generally there are products to meet patient need, she believed that needs are unmet because of inappropriate product usage.

Issues of low expectations and acceptance were also raised in relation to the numerous supply routes in practice. A specialist nurse stated:

> '…I guess you begin to understand what dressings do for you and what they don't. I think you just learn to get by… (Interviewee 033)'.

She accepted the different supply routes within her hospital trust between products stocked on the wards via materials management and those products that had to be ordered via the hospital pharmacy. However, there appeared to be a lack of knowledge of possible suppliers, distributors and supply routes for products, and also of the sources of breakdowns in supply, despite recognition that breaks in the chain equalled breaks in patient care. The 'middleman' who had no identity was blamed for failures in the supply chain; therefore, the problem was perceived as unresolvable and frustrating:

> '…When…there's been a supplies problem, it hasn't actually been the company. It tends to be the middleman…then everyone's getting confused as I tend to deal directly with the company and…stores are dealing with the middleman… I just want continuity… (Interviewee 033)'.

Mistrust of the industry and a lack of information transfer

Low expectations and acceptance regarding products and supply in turn provide the context for powerful perceptions held by practising nurses of the dressings industry as a whole. The industry is tarnished with a brush of inscrutability, particularly because of their marketing activities, which can be perceived as 'bribery':

> '…I mean we could go to a 2 day study day all on one product…all expenses paid, nice hotel and I think that is bribery… (Interviewee 025)'.

The ultimate consequence of this powerful perception, and lack of trust of the industry, is a lack of information transfer between nurses and manufacturing companies. Information transfer initiated by nurses towards companies rarely occurs. Nurses actively disconnect from the companies for fear of compromising, or being seen to compromise, their autonomy and professional accountability (Interviewee 012 and Interviewee 038).

Part of the mistrust of the industry is related to company representatives (reps) being perceived in a negative light. At times, the nurses were harshly derogatory. It is important not to dismiss this attitude because it is essential in explaining both the lack, and poor quality, of the information transfer between nurse users and company reps. Where interactions do occur they are limited by this mistrust on the part of nurses:

> '…I always, always ask reps for the independent studies, and I mean independent, that support the use of their product. And I've discovered now it's a tack, they'll come to you with their briefcase "oh yes, yes I'll find it. Oops not here I'll send it to you" and of course it never arrives because it doesn't even exist… (Interviewee 012)'.

The attitude stated appeared to be one of reps who play 'tricks' because they are unable to show independent studies that validate their products, ask leading

questions, provide samples for use on patients and do not tell the truth. This nurse was explicit in stating that she was probably 'rep bashing' but she believed her points to be well founded. She was not alone in these views.

It was recognized that any information transfer between manufacturers and nurse users tends to be on industry's terms:

> '…I think we let industry dictate to us rather than doing it the other way round to tell you the truth… We let the companies come to us and tell us how wonderful they are… (Interviewee 025)'.

Despite this one of the nurses stated that it did not cross her mind to provide feedback to the companies regarding product usage unless there is an issue of an adverse reaction or if the company asks directly, even though patients provided verbal feedback to her (Interviewee 033). Where information transfer does occur between users and manufacturers the dialogue can be of limited quality. Such dialogue was noted to lack meaning because of the different perspectives and languages of the parties involved. Nurses may use emotional communication because of observation of extensive patient needs; therefore, the information is not used by the respective company.

In summary, the practising nurses identified the consequences of the structural disconnection in the supply chain in the form of chaotic supply with local variation, lack of transparency and cost restrictions. Although they did not discuss the reasons for these structural processes and consequences, they were fully aware of their impact in practice. They recognized that the processes were defaults from the system, i.e. inactive, default processes that occurred causing supply to be irrational and idiosyncratic. They spoke about haphazard and chaotic systems for obtaining dressings which impacted on the ability to meet end-user, patient needs. Psychological disconnecting processes resulted with low expectations regarding products, supply and care. Existing product ranges were accepted yet the industry as a whole was tarnished as inscrutable. Consequently, a lack of information transfer occurred particularly in the direction of industry from nurses, as nurses actively disconnected from the companies.

Users – other healthcare professionals

Parallel social processes to those discussed by the practising nurses were mapped by the other healthcare professionals (e.g. nurse educators, lead nurses and clinical procurement specialists) in the sample.

Like the practising nurses, this group of other healthcare professionals noted that structural disconnection led to default disconnecting processes as a result of the system. However, they placed a focus, unlike the practising nurses on the reasons for the structural disconnection such as three-tiered policies at local, regional and national levels and nurse prescribing. This structural disconnection was seen to lead to haphazard supply and psychological processes, of low expectations regarding care and supply. In turn, the psychological processes were linked to acceptance of both the existing range of products and the structural impact of the three-tiered policies. Related to these issues of acceptance was a perception that it is difficult to involve patients in purchasing processes, and as a result the status quo is maintained. The healthcare professionals were sceptical of the companies because of their views on the culture of the industry. These views were in relation to frequent company takeovers, the stifling of trial results associated with unfavourable study outcomes and company perceptions of a sophisticated and mature market. The company culture-related views resulted in a lack of information transfer between healthcare professionals and manufacturing companies. Thus, again, the status quo continues with a lack of information transfer regarding products and supply between player groups. This is due to the powerful perceptions held by healthcare professionals, to the extent that they may actively disconnect from the industry as observed within the practising nurses' group.

Manufacturing and supplier companies

The manufacturing and supplier company participants were the individuals within the sample who recognized the greatest level of disconnection within the wound dressing supply chain. Together they mapped a complex array of social processes with circular effects. They highlighted the structural disconnection that occurs as a result of:

- the three-tiered levels of policy: nationally, regionally and locally;
- the regional level purchasing groups;
- the numerous supply routes into the hospital and community markets;
- supply in the community through the Drug Tariff;
- the division of manufacturing companies into multinationals and small- to medium-sized enterprises (SMEs) each with differing perspectives.

Such structural and system issues were seen to leave the door open for the industry to provide education for

healthcare professionals, in turn promoting their companies and products, as well as creating a reliance on market research techniques to outline user requirements for products and supply. Here, disconnection between meeting user needs and the use of these techniques and educational events was not fully recognized. The training packages and market research methods were seen as of particular value by the industry.

Nonetheless, structural disconnections were recognized as leading on to a host of problematic processes (e.g. cost bias, a lack of clinical involvement in purchasing and increasing levels of product rationalization) that constrained the industry's ability to interact with the NHS. These processes and the effects of the Drug Tariff were blamed for stifling the industry's ability to innovate, creating barriers to new product development, whilst encouraging me-too products (products that are very similar to other existing products, with only minor differences) into supply. Despite recognition of these difficulties and the lack of innovation within product development and supply, there was a notable unacknowledged, and unrecognized, disconnection. This view of an inability to innovate appeared in marked contrast to a prevalent view of the market itself as 'sophisticated', with enough products to meet the majority of patient needs. These participants did, however, recognize that the industry as a whole centres their work on the perceived prevalent patient groups, with a particular focus on developing products for venous disease and pressure ulcers for example. Overall, a striking lack of recognition of unmet user needs for product and supply was noted.

The data demonstrated the lack of incentive for companies to improve products and supply because of the lack of recognition of unmet needs and the high costs of product development. The system was blamed for stifling product innovation by creating difficulties in the reimbursement of products that do not conform to an existing product category. Creation of more sophisticated products would require greater training support for users, which would increase costs. Furthermore, such a development was confounded by scepticism of nurses as lacking in knowledge of wound care, commonly misusing products.

Mistrust between manufacturing companies and nurses was demonstrated. A lack of information transfer regarding user needs for products and supply results, with companies via marketing reps, targeting key nurses only where pay-offs are apparent, such as product sales. Unmet supply needs therefore remain unresolved, and importantly unrecognized, because of a lack of transfer of valid information that can be utilized by the companies. The ultimate consequence of this series of processes is that the structural disconnection is further reinforced by companies structuring themselves into separate marketing and research and development sides. They recognized that they could not structure themselves to meet the latest NHS policies in the area, because of the transitional and political nature of these policies. A vicious circle of effects is created.

Distributors and wholesalers

The distributor and wholesaler participants highlighted structural disconnection within the supply chain, focusing on the various and often competing supply routes into healthcare trusts. They acknowledged and recognized that structural disconnections led to the occurrence of default disconnecting processes such as lack of available data regarding supply, local variation in supply procedures, local level professional autonomy and lack of clinical involvement in purchasing. Although there was a conscious awareness of the lack of clinical involvement in purchasing, these participants stated that diversity of professional opinions regarding products caused such involvement to be problematic; and may have precluded collaboration between distributors and clinicians.

Trade and professional organizations

The trade and professional organization participants all highlighted the structural disconnection within the supply chain. These participants acknowledged disconnection resulting from political debate and policy evolution through:

- devolution *vs.* centralization, including local level empowerment with formularies *vs.* national policies and contracts;
- nurse prescribing;
- budgetary compartmentalization (silo budgeting) within the NHS.

Structural disconnection was perceived by these participants to be reinforced by the primacy of market drivers for the functioning of the manufacturing companies. It was noted that industry has to be structured along commercial lines so as to deliver profit and technological drive rather than being aligned to the latest clinical guidelines and NHS policies. Such a potential focus and alignment was seen as an impossibility for the industry. This creates an on-going disconnection in terms of focus between the public and private sectors, leading to psychological processes of

mistrust between the player groups due to a lack of similar perspectives. Overall, the disconnection of focus between the public and private sectors was accepted by individuals within the various player groups as the way of the world. These participants recognized that this acceptance of the structural supply disconnection and its consequences maintained the status quo, ultimately leading to a lack of information transfer between player groups. This lack of information transfer was recognized to occur as a default of the system, through disconnecting processes.

The disconnecting, social processes were affected by conditions relative to their occurrence. The lack of trust between the public and private sectors, and within the private sector itself between companies, was underpinned by a general lack of recognition of supply-related problems. Furthermore, the resulting lack of information transfer between the groups regarding user needs for products was reinforced by a lack of drive to work for the common good (Interviewee 003), by inappropriate product usage by nurses being observed by the industry (Interviewee 040), and by basic commercial drivers of profit and market size (Interviewee 013). Thus, within this context no player group felt responsible for information transfer between groups within the public and private sectors.

NHS and government organizations

The NHS and government organization participants fully recognized and acknowledged the structural disconnection within the supply chain, and the reasons for this disconnection. These participants highlighted what was deemed to be a supplier-focused market, and numerous issues relating to local, regional and national level policies. The market focus and these policies were seen to lead to an extensive array of structurally related processes, such as price wars and industry's involvement in healthcare professional education. Inherent conflicts between such processes were well recognized.

In these interviews, it was the structural processes that were focused upon, with consequent psychological processes not being addressed or recognized as they had been in other sample groups. There was, however, recognition of an imbalance in knowledge levels between healthcare professionals in clinical practice and themselves, as individuals often working within overarching organizations of the NHS and government, such as the National Patient Safety Agency (NPSA), Purchasing and Supply Agency (PaSA) and Department of Health. These participants were aware that in practice nurses lack awareness of formal structures and processes, e.g. for reporting of incidents. They were also aware that poor knowledge levels held by nurses regarding products and wound care, mean that anomalies and variances in product performance as well as 'incidents' may not be recognized (Interviewee 010). Such knowledge levels were seen to lead to ad hoc practice, lack of reporting of dressing-related incidents and substantial lack of awareness of safety issues regarding dressing usage and supply.

The evidence base organizations

Participants from the evidence base organizations acknowledged structural disconnection in the supply chain by pointing out the lack of research to identify the users' voice, their needs and requirements. This group of participants realized that the health service in this country is at an early stage of development in terms of utilizing research evidence to influence purchasing and supply (Interviewee 007). They discussed the dominance of the randomized controlled trial (RCT) and the lack of established standards regarding alternative valid methods, which were viewed as contributing to the lack of evidence regarding wound care and product usage. Within this existing context, and that of local level autonomy and professional judgement, they saw ad hoc practice and supply occurring. Consequently, it was noted that dressings are being used in a haphazard way in both the community and hospitals and that this is an immense issue for the NHS as a whole (Interviewee 007).

Users – user groups

Here, the data displayed a lack of formal patient and carer-focused user groups in the field. No national patient and carer orientated user groups for chronic wound care were found, and those user groups that did exist were found to be primarily professionally focused groups for general wound care. As a result existing user groups play a limited part in increasing recognition of the patient voice in the supply of wound dressings. Only one participant (Interviewee 035), from a manufacturing company, spoke about contacting user groups, and his company was involved with a single group only, the Dystrophic Epidermolysis Bullosa Research Association.

Conclusions

The data demonstrated that the wound dressing supply chain is failing users. Systems failure is occurring

throughout the chain with disconnections inhibiting effective nursing management, at every level: locally, regionally and nationally. This results in haphazard supply, unmet user supply needs and a lack of information transfer between player groups. The lack of user focus is preventing the transfer of valid user information; those stakeholders who need feedback on the functioning of products such as manufacturers and suppliers are not gaining quality information. This means that in practice products are believed to meet patient and nurses' needs; however, the data from this study shows this to be far from the case. Dressings can be inappropriate for patient and nurse needs; furthermore, where patients face extensive needs, there can be a complete absence of suitable products.

A lack of nurse involvement in wound care purchasing was also revealed in the study. Apart from specialists such as tissue viability nurses and clinical procurement specialists, nurses were not involved. Product supply management is a key area of nursing practice. Without suitable products and maintenance of supply levels, patients and their carers suffer. Purchasing requires accountability over healthcare services and best use of public resources in which nurses should provide an important contribution and perspective (Martin 2005). For nurses to do this, however, they must be knowledgeable, relying on clinical information and specialized knowledge to implement and evaluate both products and the outcomes of services and care (Snyder-Halpern *et al*. 2001). Nurses need to routinely collate valid data on both product purchasing and product performance/outcomes in relation to clinical effectiveness needs. Once this data is collated, valid methods for transferring information to all stakeholders in the supply chain must be introduced as part of management practices; otherwise the extensive disconnection revealed will continue.

Acknowledgements

This study was funded by an Engineering and Physical Sciences Research Council doctoral training award.

References

Argote L. & Ingram P. (2000) Knowledge transfer: a basis for competitive advantage in firms. *Organizational Behavior and Human Decision Processes* **82** (1), 150–169.

Argote L., Ingram P., Levine J.M. & Moreland R.L. (2000) Knowledge transfer in organizations: learning from the experience of others. *Organizational Behavior and Human Decision Processes* **82** (1), 1–8.

Benoliel J.Q. (1996) Grounded theory and nursing knowledge. *Qualitative Health Research* **6** (3), 406–428.

Campling N. (2006) *Disconnection: A Grounded Theory of the User Voice in England's Wound Dressing Supply Chain,* Unpublished PhD thesis. King's College London, University of London, London.

Department of Health (2002) *Merger of Health Regulatory Agencies to Strengthen Public Protection: Press Release*. DoH, London.

Department of Health (2004) *Reconfiguring of the Department of Health's Arm's Length Bodies*. DoH, London.

Garavelli A.C., Gorgoglione M. & Scozzi B. (2002) Managing knowledge transfer by knowledge technologies. *Technovation* **22** (5), 269–279.

Glaser B.G. (1978) *Theoretical Sensitivity: Advances in the Methodology of Grounded Theory*. Sociology Press, Mill Valley, CA.

Glaser B.G. & Strauss A. (1967) *The Discovery of Grounded Theory: Strategies for Qualitative Research*. Aldine de Gruyter, New York, NY.

Hines P., Lamming R., Jones D., Cousins P. & Rich N. (2000) *Value Stream Management: Strategy and Excellence in the Supply Chain*. Prentice-Hall, London.

Martin I. (2005) Clinical advisor: Ian Martin. Should procurement be left to medical managers? *Healthcare Equipment and Supplies* **51** (6), 15.

Santoro M.D. & Gopalakrishnan S. (2000) The institutionalisation of knowledge transfer activities within industry–university collaborative ventures. *Journal of Engineering and Technology Management* **17** (3–4) 299–319.

Snyder-Halpern R., Corcoran-Perry S. & Narayan S. (2001) Developing clinical practice environments supporting the knowledge work of nurses. *Computers in Nursing* **19** (1) 17–23.

Swan J. & Scarborough H. (2001) Knowledge management: concepts and controversies. *Journal of Management Studies* **38** (7) 913–921.

Tsoukas H. & Vladimirou E. (2001) What is organisational knowledge? *Journal of Management Studies* **38** (7) 973–993.

