A study exploring factors which influence the decision to commence nurse-led weaning

Tony Gelsthorpe and Cheryl Crocker

SUMMARY

• Nurse-led weaning can improve patient outcome
• Exploration of the factors that influence the commencement of weaning
• Themes of decision-making, pathophysiological and multidisciplinary team factors emerged
• Experience was a key factor in the decision to wean
• The use of protocol-led weaning may not be useful in the decision to wean

Key words: Decision-making • Multidisciplinary team • Pathophysiological factors • Weaning

INTRODUCTION

Ventilation is a common procedure when caring for critically ill patients. It is often lifesaving, problematic and expensive (Marelich et al., 2000). Reducing the ventilatory period through effective weaning is cost-effective and would improve patient care (Marelich et al., 2000). Following a literature review, it was discovered that despite an abundance of research regarding the methodology of weaning, there appeared none concerning factors that influence the nurse’s decision to commence the process.

It is estimated that patients with prolonged intensive care unit (ICU) admissions account for approximately 50% of ICU funding (Wagner, 1989); therefore, delayed weaning jeopardizes the availability of critical care beds (McAlpine et al., 1997). This, however, was not necessarily the focus for reform and modernization of critical care in the UK. The Department of Health (2000) proposed modification of services with reference to recruitment and retention of staff, professional development and integration of service delivery. Nevertheless, with only 2.6% of hospital beds allocated to ICU (Department of Health, 2000), the significance of prolonged stay becomes apparent. Weaning patients from long-term mechanical ventilation is therefore a resource management issue. The ICU was thought suitable for study as it had introduced nurse-led (all nurses irrespective of grade) weaning which was protocol-based a year before the study commenced. The initiative had been introduced by the recently appointed nurse consultant (second author). It was thought timely and appropriate that a study of this kind should be conducted in order to give information about the nurse-led service; it was envisaged that other units within the network would be introducing this service. Results from this study would be used to evaluate the success of nurse-led weaning.

REVIEW OF THE LITERATURE

Weaning refers to the transition from ventilatory support to spontaneous breathing (Mancebo, 1996) and can be defined as ‘the process of becoming independent from ventilatory support’ (National Health Service Modernisation Agency, 2002, p.6). Slow reduction in respiratory support accounts for approximately 20–30% of patients in ICU (Vassilakopoulos et al., 1996) and is widely acknowledged to be a medical responsibility (Armstrong, 1995; Cull and Inwood, 1999). Cull and Inwood (1999) suggest that since the introduction of the United Kingdom Central Council (1992) Scope of Professional Practice, nurses have had greater autonomy and accountability for developing their role. Weaning patients from mechanical ventilation is an enhanced nursing role and should be undertaken in collaboration with the multidisciplinary team.
Nurse-led weaning

(Cull and Inwood, 1999). However, nurse-led, protocol-based weaning from mechanical ventilation is not a uniform or standard procedure. The practice of weaning patients therefore varies throughout the UK. Therefore, whilst weaning is considered an extended role, practitioners rely on local policy and protocol to establish their decisions.

A review of the literature reveals that there is a lack of research regarding the nurse’s decision to implement a nurse-led weaning protocol. The few studies available are concerned with comparisons between nurse-led protocols and medical strategies. Kollef et al. (1997) in their randomized controlled trial of protocol-based weaning (357 patients) discovered that nurse-led weaning was initiated earlier than medically directed schemes. The study identified a mean total ventilated time of 35h for the protocol and 44h for physician-led weaning. Marelich et al. (2000) discovered median ventilation time to be decreased from 124h for medically led to 68h for the protocol-led patients. Literature is available to guide the patients’ readiness to wean (Burns et al. 1991; Burns et al. 2000). An overview of the parameters used to assess weaning is given in the paper by Clement and Buck (1996). Parameters for weaning are often included in protocol-based weaning (Crocker, 2002). However, parameters used in the UK are not as advanced as those used in the US, and most nurses rely on clinical screening such as respiratory rate, amount of oxygen, etc. (Figure 1).

No studies were identified exploring factors influencing the initiation of nurse-led weaning. Thorens et al. (1995) presented a quantitative analysis on the quality of nursing care and the relationship between experience and weaning. Despite the lack of qualitative data and studies to support its implementation, nurse-led weaning is being widely advocated and implemented across the UK in line with Department of Health (2000) guidelines that endorse its principle.

Wood et al. (1995) supported protocol-based weaning and its effectiveness demonstrating a slight reduction in weaning time, although this was not

**Assessment criteria**

<table>
<thead>
<tr>
<th>Physical</th>
<th>Respiratory</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIO2 &lt;0.5, low levels PEEP, acid / base balanced, ABG’s acceptable and normal for patient, chest secretions acceptable.</td>
<td></td>
</tr>
<tr>
<td>CVS Stable (+/- inotropes), Hb &gt;8, temp &lt;38.5</td>
<td></td>
</tr>
<tr>
<td>Neurological</td>
<td></td>
</tr>
<tr>
<td>Respiratory drive in tact, pain controlled, sedation off or minimal amount</td>
<td></td>
</tr>
<tr>
<td>Gut</td>
<td></td>
</tr>
<tr>
<td>Feeding in progress or being considered, trace elements normalized, gut not distended</td>
<td></td>
</tr>
</tbody>
</table>

| Psychological |
| Patient prepared, involved, has rested, may require additional support |

**Planning**

Assess skill mix of nurse. Co-ordinator to support junior nurses
Timing of weaning to coincide with medical and nursing activities
Equipment :
Evita 4 and Dura for patients with weaning problems
Evita 2 for patients expected to wean quickly (within 7 days)
Evita 1 for post - op electives
Night sedation / anxiolysis therapy Lorazepam +/- propofol titration to induce sleep

**Process**

**Modes of ventilation**

- BIPAP (when total ventilation is indicated)
- Pressures adjusted to provide prescribed P02 and CO2

**Modes of weaning**

- BIPAP + ASB (when patient has reached assessment criteria and sedation is being turned down)
- ASB + CPAP
- Hi-flow

**Figure 1** Guidelines for nurse-led weaning
significant. This research was based on short-term weaning which contrasted with Djunaedi et al. (1997) comparison with long- and short-term weaning before and after the introduction of a protocol discovering no significant variation. It is therefore apparent that there is an argument both for and against the implementation of protocol-led polici es. Price (2001) argues that there is no evidence that nurses actually reduce ventilator time during weaning but rather the introduction of protocols affects weaning time.

Reviewing quantitative material has established that nurse-led weaning is effective (Kollef et al., 1997; Marelich et al., 2000). Additionally, the quality of nursing care and its contribution to weaning has an impact on patient outcome (Thorens et al., 1995).

METHODOLOGY
A review of the literature revealed a lack of studies concerned with the decision to wean; therefore, this study aims to identify the factors which influence the decision to commence nurse-led weaning from mechanical ventilation.

Research design
A qualitative approach was preferred because the research intended to explore factors influencing the commencement of nurse-led weaning by analysing practitioners’ experiences and thoughts. The approach used was heavily influenced by phenomenology, a technique concerned with the necessity to recognize our surroundings (Van Manen, 1990).

Data collection
Data were collected using interviews in order to explore phenomena (Parahoo, 1997). Each respondent was personally interviewed to protect anonymity. Interviews were conducted in a private office situated on the critical care unit. The length varied from approximately 10 min to 30 min. These were taped with participant’s consent and transcribed. Interviews were unstructured. This method of data collection was felt to be the most appropriate as it allowed practitioners to fully explore their thoughts and feelings with spontaneity although this is disputed by Parahoo (1997) who argues that unstructured interviews are insubstantial.

A vignette, which is the description of a scenario (Polit and Hungler, 1991), was presented to participants within the interview. The vignette portrayed a realistic situation for practitioners to establish their decision. This approach added uniformity to the interview process and allowed nurses’ experience of weaning to be evaluated and compared.

Vignette
An 85-year-old man with a medical history of hypertension, ischaemic heart disease, duodenal ulcer and chronic obstructive airways disease was admitted to hospital with acute abdominal pain. He was found to have a perforated duodenal ulcer and required emergency abdominal surgery. Following surgery, the patient quickly developed systemic sepsis and his respiratory and cardiovascular system rapidly deteriorated. He was admitted to intensive care for ventilatory and inotropic support. The patient also had renal impairment and developed acute renal failure, requiring continuous venous to venous haemofiltration (CVVH). A do-not-resuscitate order was placed on day 3 of admission; this was discussed with the patient’s family who supported and understood the decision.

On day five on intensive care, oxygen requirements had come down overnight from 90 to 70%, pressure support had reduced from 25 over 8 to 20 over 5, mandatory respiratory rate was 10 and tidal volume generated was approximately 600 mL. Noradrenaline (16 mg in 100 mL) had been reduced from 10 mL/h to 4 mL/h and he was normatensive. He remained very drowsy since sedation (morphine and midazolam) had stopped. CVVH had been discontinued and urine output was >40 mL/h; yet appeared very dilute. His abdomen was slightly distended and the patient was not absorbing his feed despite the gut being rested post operatively. Bowels had not been open since admission and he had been commenced on prokinetics. Trace elements were within the normal range. Wound was healing. The do-not-resuscitate order had not been lifted.

‘You are the nurse looking after this gentleman. Using the nurse-led weaning protocol would you attempt to wean this patient? If so how would you do it, if not why not?’

The mode of ventilation was not considered important to include as the researcher wished to ascertain if the patient was to be weaned. How, meant following the protocols in place (Figure 2). The mode would need to be prescribed by the medical staff and was dependent on the patient.

Sampling
Purposive sampling was utilized which permits the researcher to select participants (Holloway and Wheeler, 1996), thereby facilitating multiple views of the phenomenon (Parahoo, 1997). Respondents were selected based on their exposure to nurse-led weaning and experience of ICU nursing. Seven respondents out of approximately 55 nurses were identified from the
duty roster. The sample size was limited by time and was a number deemed suitable for the pilot study.

**Intensive care unit**
There are 10 level 2 beds (designated High Dependency Unit) and seven level 3 beds (designated general adult ICU). Although these two units are part of the same Critical Care Directorate, they are staffed and managed independently. There is a separate cardiac ICU in the Trust. The ICU is staffed for one whole time equivalent nurse per patient and one additional nurse in charge. The unit case mix comprises of 40% respiratory patients with 25% thoracic or upper gastrointestinal surgery; we also accept referrals for burns and renal replacement therapy. A recent audit of long-term weaning patients (defined as 7 or more days) revealed that the average (mean) length of time on the ventilator was 16.8 days (Crocker, 2002). Staff are rostered for 12-hour shifts; continuity of care is a problem and has been identified as affecting weaning adversely (Crocker study in progress).

**Data analysis**
A widespread problem with qualitative research is an insufficient description of data analysis (Mays and Pope, 1999). Qualitative data analysis is, to a certain extent, subjective (Parahoo, 1997). Complexity in scrutinizing information should not be overlooked (Burnard, 1991). Therefore, data analysis loosely incorporated Burnard’s (1991) thematic approach, which added structure to the examination. This method of data analysis is intended for qualitative studies using an interview technique and is particularly relevant for semi-structured, open-ended interviews (Burnard, 1991). Although unstructured interviews were utilized, the thematic method of analysis offered an uncomplicated approach and was relevant to implement.

Two independent practitioners (interraters), both educated to first degree, were then asked to establish categories separately. The interraters had extensive ICU experience. This was required, as comprehension of the complexities of ventilatory support was needed to understand transcription. However, to reduce internal partiality, one of the interraters worked externally to critical care and the other worked within the ICU. All three lists were then correlated to create a consistent group of themes. This demonstrated validity of the research and protected against researcher bias (Burnard, 1991). Returning to respondents to corroborate the analysis was considered. However, due to the success of the interrater validation, this was unnecessary.

**Ethical considerations**
Ethical approval was required and obtained through Local Research Ethics Approval (LREC) and Trust

---

**Figure 2** Example of a weaning protocol – weaning from BIPAP ASB
Research and Development department (R&D). Staff confidentiality was difficult due to several reasons. Firstly, the principle researcher was also a staff nurse on the unit and was undertaking this research as part of a degree. It was considered that the researchers position as a member of staff may cause a potential ethical problem. As the participants were known to the researcher, they were asked to participate under the premise that their information would be anonymized and would remain confidential. This did not in fact cause any problems; staff were eager to take part and support this study. The second author is a nurse consultant and was responsible for introducing nurse-led weaning on the unit in September 2001; data for the study were collected a year later.

DISCUSSION
Demographic data
Seven respondents agreed to take part in the study. Of these seven, two were G grades (Sister or charge nurse), three were E grades and two were D grades (staff nurse). All respondents except the D grades and two E grades had undertaken the ENB 100 (previously the recognized short course for intensive care, now replaced with Critical Care Pathways). The range of experience was from 3 months to 9 years; this experience was the total experience and part of it could have been obtained in other units.

Three themes emerged from the data. These are decision-making, pathophysiological factors and multi-professional team working. Four out of the seven participants decided to wean the fictional patient represented in the vignette. Two out of the three who decided not to wean were G grade nurses, the third was a D grade staff nurse. This finding contrasts with the assumption that junior staff members would not wean due to their inexperience and senior nurses would wean based on their practical understanding.

Theme 1 – decision-making
Procedures to wean concentrate on clinical decisions (Blackwood, 2000). To direct specialist, professional and individualized care, ICU nurses often make various decisions promptly in complex, multifaceted environments (Bucknell, 2000). Albeit not the largest factor identified, it is felt that decision-making had the greatest impact and underlined all other factors. Practitioners appeared to base decisions on tangible aspects. Decision-making materialized as insubstantial and was rarely raised as an influential issue during interviews. However, following analysis, it emerged as a hidden and fundamental component of concern inhibiting weaning. It consisted of four sub elements:

- professional accountability;
- experience;
- justification for decision and
- protocol versus professional judgement.

Int. ‘If you were to wean the patient where would you stand professionally if, if things didn’t go well?’

P3. ‘It depends on if we’ve been given the go ahead.’

Int. ‘Who would you discuss that with?’

P3. ‘The consultant (okay) I don’t feel like that would be a problem in discussing that with them (yeah, yeah that’s fine). But you know if they said no we’ve got things to sort out then they’ve got things to sort out.’

This implies that practitioners do not feel responsible or accountable if the decision was discussed with the consultant. The Nursing and Midwifery Council (2002, p.3) state, ‘you are personally accountable for your practice. This means that you are answerable for your actions and omissions, regardless of advice or direction from another professional.’ Difficulty with weaning is attributable to a reduced comprehension of unsuccessful consequences (Dries, 1997). Therefore, it is imperative for practitioners to establish an awareness of their professional standpoint when weaning patients from mechanical ventilation. Anderson and O’Brien (1995) argue that since the introduction of the United Kingdom Central Council (1992) Scope of Professional Practice, nurses should be more aware of their professional accountability. The majority of participants in the study decided to wean the fictional patient, despite prompts regarding accountability. The consequence of weaning patients inappropriately can be catastrophic, only one participant acknowledged accountability as a limiting factor.

Int. ‘How do you feel about your own professional accountability, do you feel that that would be jeopardised if you did implement weaning?’

P7. ‘No I don’t, I don’t do anything that I feel would jeopardise my accountability.’

Experience
Experience means practical association with anything acquired by activity (Davidson et al., 1990). This corresponds with nurses achieving competence through experience from which skill is an inherent element (Benner, 2001). Therefore, skill and experience have a positive impact upon decision-making. Buckingham and Adams (2000) echoed this concept suggesting that instinct, associated with decision-making, is less logical than other approaches. Blackwood (2000) outlines the fundamental importance of nursing skill during the
weaning process, indicating that it needs a sufficient amount of experienced practitioners to fully undertake the procedure. Participants’ experience was an influential factor in establishing their decision.

Int: ‘Do you think that nurse-led protocols are applicable to this or would you go on your experiences as opposed to what’s written in black and white’.

P1. ‘At the moment I would probably go on my own experiences…’.

Again, this approach could jeopardize patient safety. Using experience, which is often prejudiced, to base decisions upon may have undesirable consequences with regard to weaning patients (Harris, 2001). Gluck et al. (1995) suggest that a systematic approach to weaning improves patient outcome as opposed to individual judgement. Contrasting with this, Blackwood (2000) advocates experienced practitioners’ ability to judge patients’ resilience to work, noting that they could identify delicate alterations in the patients’ condition prior to them becoming clinically evident. Certainly, one nurse manager in the study demonstrated this insight, having the ability to predict outcome based on experience.

P6. ‘…I just know that he’s going to have to work quite hard (yeah), he’s a COPD patient, your breathings not going to be easy for him (that’s your experience) and so I think he’s going to work quite hard…’.

Blackwood (2000) supports the notion of using insight by suggesting that it is a contribution and judgement provided by nurses that should not be ignored when influencing the decision to commence nurse-led weaning. Decisions based on experience were made by both nurse managers interviewed. The first nurse manager interviewed stated that from experience, weaning was not appropriate.

P2. ‘…I don’t think it is a good idea to use protocols that rigidly, I think you know, every patient needs to be looked at as an individual, definitely. But you quite often need that criteria as a guide but certainly in my experience I wouldn’t be thinking of weaning somebody on seventy percent oxygen…’.

Literature supports this, outlining comprehension of the clinical picture and conceptualizing situations is important when weaning (Benner et al., 1999; Bonell, 1999). Conversely, however, both D grade staff nurses acknowledged their lack of experience and erred cautiously when making their decision, although one decided to wean the patient despite this issue. Nonetheless, one D grade did attribute insufficient experience with an inadequate theoretical knowledge base. Norton (2000) suggests that protocols are often used with unconfident practitioners as a guide to facilitate clinical decision-making. It is obvious that experience played an important role in the decision-making process. For participants, experience is imperative when justifying decisions to wean, although it should be used in collaboration with evidence. Patients will benefit from the amalgamation of skill and knowledge by having their ventilation time reduced (Thorens et al., 1995). Experience also affects the ICU in the context of staff skill mix and the allocation of managerial support.

Protocol versus professional judgement

Discrepancies concerning the term protocol-led weaning became apparent during data collection. The majority of participants based decisions on their professional judgement or experience as opposed to clinical guidelines. This component should not be undervalued. Nonetheless, protocols are guidelines, controlling an approach to a medical predicament (Jenkins, 1991). The NHS advocates guidelines in an attempt to direct scientific knowledge for patient benefit (Mulhall et al., 1997). However, guidelines do not negate the significance of experienced and skilled practitioners to facilitate continuity with their enforcement (Knebal, 1996). Knebal (1996) therefore outlines the importance and integration of both clinical guidelines and nursing experience and judgement.

P1. ‘But with weaning anyway you’ve got to wean things to get to what the weaning protocol says, so you’ve got to get to normalised level of less than fifty percent oxygen so you’ve got to wean your oxygenation down to get to that level anyway’.

Appleton (1996) maintains that professional practice can be restricted by clinical guidelines, a theory established during the interviews as some participants felt that the protocol did restrict practice, yet provided a rationale for decision-making.

Theme 2 – pathophysiological factors

Pathophysiological factors influencing the practitioner’s decision to wean patients from mechanical ventilation emerged predominantly during interviews. Overall, five sub elements were established within this theme:

- *time of day;*
- *changes in physical parameters;*
- *improvement in organ function;*
- *co-morbidity and*
- *preparation for weaning.*
Time of day
Two out of the seven participants discussed time of day as an influential factor when deciding to wean. An ICU admission disturbs the circadian rhythm. This is attributable to the close monitoring and increased level of care required for critically ill patients (Higgins, 1998). Sleep has a recuperative purpose to reduce fatigue (Higgins, 1998). Reduced sleep causes restlessness, apprehension and depression (Armstrong, 1995). Carroll and Milikowski (1996) suggest that weaning patients from mechanical ventilation can be both psychologically and physiologically stressful and should not be undertaken if the patient is tired. It appears as a standard practice in ICU to commence weaning during the first part of the day, thereby protecting patients from becoming exhausted. Participants reflected this during interviews.

Int. ‘Yeah, so if it was the morning you’d perhaps feel more positively about weaning him than if it was late afternoon?’

P3. ‘I suppose, I think that can, I think, I think yeah you’ve got a point there. I think that sometimes that the time of the day can affect probably, perhaps how proactive you are about doing that . . .’.

Medical cover during the night is significantly less than throughout the day. This is an important factor. Kollef et al. (1997) found a benefit from nurses being able to wean patients at varying times in the day. This would improve the practicability of nurse-led weaning and enhance patient care.

Analysis demonstrated that the participants used a variety of information about the patient in order to optimize weaning, for example feeding the patient, correcting low haemoglobin, etc. and also make the decision to wean such as improvement in organ function. Co-morbidity or medical history was used to judge the success of weaning and time it would take to wean, thereby indicating which approach to take.

Following analysis of the interviews, pathophysiological factors were the most prevalent during discussion. This aspect of care was also heavily incorporated into the weaning protocol and appears to dominate the medically orientated environment. Its impact and significance to patients, staff and critical care should not be overlooked during the weaning process.

Theme 3 – multidisciplinary working
Within this theme, there was one sub element: support.

Multiprofessional, for the context of this study, is a term interchangeable with multidisciplinary. Weaning requires a collaborative approach (Tasota and Dobbin, 2000), which will improve quality outcome (Kite-Powell et al., 1999). It is therefore imperative that practitioners are aware of the contribution other members of the health care team make (Heath, 1995). The positive contribution of practitioners is not in question (Thorens et al., 1995 and Kollef et al., 1997). Within this domain, nurses often facilitate and coordinate activities (Tasota and Dobbin, 2000). Early research has confirmed that multiprofessional approaches to weaning demonstrate a significant reduction in ventilatory time (Cohen et al., 1991). Other than respondent 6, all participants discussed multiprofessional teamwork.

Three nurses, one new to ICU and the other two with approximately 2-year ICU experience, therefore needing more support, mentioned multidisciplinary teamwork. Participant 3 and 7 both outlined the team approach in a positive manner.

P3. ‘If it was early in the day or say that when the doctors came round and did their you know, you’re ward round and you know the surgeons could have a discussion with the intensive care people, and we’d get a bit of a plan for it’.

P7. ‘I think you know, we are part of the MDT, we don’t act in isolation so it would be a group thing, you know, the physiotherapist, the doctors, the nurses, the patient . . .’.

From this, it could be suggested that multiprofessional work would improve the weaning plan whilst involving patients in that arrangement. All the literature supports teamwork when weaning patients. Conversely, however, Cull and Inwood (1999) suggest that weaning at the doctor’s discretion is often inappropriate. Participant four reflected this concept.

P4. ‘I think sometimes doctors come round and just look at numbers rather than, you know, the actual patient clinically rather than, they just tend to go oh yeah, yeah they tend to want to push people a bit too much I think sometimes’.

This reflects the medical dominance and orientation of critical care.

All but one participant advocated the need for further support regarding the clinical decision to wean. It materialized that experienced practitioners required support from medical staff whereas less-experienced staff looked towards senior nurses for support in their decision to wean patients. Nurse leaders in ICU act as change agents and empower staff by providing information (Norton, 2000). This is fundamental when establishing a nurse-led weaning protocol. Undoubtedly, the support provided to less-experienced staff by the nurse-in-charge is essential for patient safety and
care. This aspect could therefore jeopardize patient weaning if the clinical leader lacks managerial qualities needed to provide effective support.

Evidently, the three categories, decision-making, pathophysiological and multiprofessional factors, are interlinked and sustain each other. From the data, there is no doubt that nurses in ICU deliver individualized, holistic care based on an amalgamation of experience, clinical evidence and policy. Whilst pathophysiological factors were the most common to be discussed by participants, decision-making was indisputably the most important as it underpinned other elements.

LIMITATIONS OF THE STUDY
The sample size could be considered insufficient to formulate compelling conclusions. Out of the 10 practitioners approached, only seven were interviewed. Interviews were becoming repetitive and it was therefore decided that the point of saturation had been achieved. On reflection, this was naïve. The small sample group has not impeded implications for practice.

IMPLICATIONS FOR PRACTICE
When introducing a nurse-led initiative, it is important to examine the skill set of staff, culture and decision-making ability. It was intended that nurse-led weaning would be embedded in practice, but an audit of practice found that staff were still relying on medical staff for the decision to wean patients from mechanical ventilation. There could be many reasons for this; therefore, it is important to take into account factors that influence the decision to wean. Constant support and guidance is required and a champion to ensure the initiative continues in the absence of the change agent. The study revealed a dominant medical culture reliant on pathophysiological factors. Education sessions regarding weaning must include psychological factors as well as organizational issues such as skill mix, culture and multidisciplinary working.

CONCLUSION
Three themes emerged during the study: decision making, pathophysiological factors and multidisciplinary working. The study suggested that nurses were delegating the responsibility for weaning to the medical staff. Respondents based their decisions on professional judgement and experience rather than clinical guidelines. Pathophysiological factors were dominant in this study which reflected the prevalence of medical interventions within the unit. This was thought to be a detracting factor inhibiting the implementation of nurse-led weaning. There were five sub elements within this theme of which time of day was an important factor. Nurses preferred to wean in the morning when there were more medical staff present and when the patient was expected to be least tired. Information about the patient was gleaned from the vast array of physiological data available. This data enabled the nurse to judge when the patient was ready to wean and optimize the weaning process. The ability of the nurse to analyse and use this data meaningfully was dependent on experience. Experience was a key factor in the decision-making process. Using experience, which is often prejudiced, to base decisions upon may have undesirable consequences with regard to weaning patients (Harris, 2001). Gluck et al. (1995) suggest that a systematic approach to weaning improves patient outcome as opposed to individual judgement. Working with other professions was thought to improve weaning; support was required and this was often asked for from the medical staff.

The use of protocol-led weaning may not be useful in the decision to commence weaning. Individual judgement based on knowledge and skill may override the protocol and therefore may cause variance in the weaning process. However, once weaning is commenced, protocols may help more junior staff manage the weaning process. It was clear from this study that junior staff needed support and were likely to canvass this from the medical staff. It is therefore important to consider the role of the shift co-ordinator and factor in the knowledge base and skill set when initiating nurse-led initiatives.

ACKNOWLEDGEMENTS
Thanks to the staff who took part in the study and to the help and guidance from Dr Stephen Timmons, the University of Nottingham, who supervised this study and to the interraters, Sue Chambers and Susan Haines.

REFERENCES


© 2004 British Association of Critical Care Nurses, Nursing in Critical Care 2004 • Vol 9 No 5