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The practice politics of computerised information systems: a focus group study

Computerised Patient Information Systems (CPIS) are being adopted widely by health care units, yet few studies have sought to investigate nurses’ and midwives’ experiences of using them. Philip Darbyshire reports on an Australian study which used focus group interviews with 53 nurses and midwives to explore their experiences of using such systems.

Health care is changing with a speed and magnitude that few could have predicted. Health care itself and clinicians cannot be divorced from the technological changes that are integral to many people’s lives. Today, the average school child is computer literate, and many patients attend clinics and consultations armed with information about their condition and treatment downloaded from the internet. Information is prized currency and when the complexity of health care information is fully appreciated, the rationale behind moves towards increasing use of Computerised Patient Information Systems (CPIS) (Asbury 1995) becomes clearer. What is less clear, however, is how nurses understand and experience the use of such computerisation in their everyday practice.

Outline of the paper

This paper presents a central finding from an Australian study of nurses’ and midwives’ experiences of using CPIS. The paper opens with a focused review of the literature concerning nurses’ views of CPIS and the various advantages and disadvantages that have been claimed for these systems and highlights the comparative lack of research which directly asks users for their views. The aims and research approach of the current study are outlined and a central finding regarding nurses’ perceived social and political power in relation to CPIS is explored.
The paper concludes by stressing the need to consider the socio-political dimensions of such organisational change as introducing CPIS.

**Nurses’ attitudes towards computers and CPIS**
Recent studies of nurses’ attitudes (Axford and Carter 1996; McBride 1996; Marasovic *et al* 1997; Simpson and Kenrick 1997) suggest that, in general, nurses are adopting a cautious acceptance of computerisation. Part of the difficulty in assessing the body of attitude studies is, however, that the influence of variables such as age and experience level can change or even seem contradictory. This may be due to the variety of scales and tools that have been used, often with little regard for their psychometric properties. Existing research also tends to assume that if only nurses could be made more positive about computerisation, then all would be well. One study, for example, concludes with the following proposition:

“To increase motivation, education should support the concept that computer use leads to the desired outcomes (e.g. accuracy, legibility, documentation quality, improved efficiency). Therefore, orientation and in-service education programs must provide appropriate and applied information to optimise the beliefs and thus motivation of nurses using CPIS frameworks. After attainment of the preferred outcomes, satisfaction will improve’ (Marasovic *et al* 1997).

In other words, remain ‘on message’ until nurses’ ‘resistance’ is finally overcome.

**Impact of CPIS on nursing practice**
While all nurses and health care organisations may reasonably claim that their ultimate priority is people’s health and patients’ wellbeing, this is not synonymous with a claim that all interests and priorities are identical, especially at the level of everyday clinical practice. As Nauright and Simpson observe:

‘Benefits of the HIS (Hospital Information System) that are crucial to those who make the purchasing decision may not be useful or important to those who will use the system. In addition, benefits that may accrue for first-line system users may not be recognized or articulated by..."
vendors or administrators’ (Nauright and Simpson 1994).

Studies of the effects of CPIS have suggested several advantages for nurses. These include marked improvement in documentation quality, especially in legibility, increased frequency of charting relevant information, and increased comprehensiveness of documented information (Halford et al 1989; Hammond et al 1991; Lower and Nauert 1992; Catanzano 1994; Nauright and Simpson 1994). Studies are inconclusive on the question of whether CPIS save nurses’ time in documentation, but on balance the view seems to be that they do (Halford et al 1989; Hammond et al 1991; Lower and Nauert 1992; Dennis et al 1993; Minda and Brundage 1994; Pabst et al 1996).

There are two main areas of possible disadvantage in relation to CPIS. The first – which could be labeled ‘ideological’ – occurs when computers are viewed as inherently de-humanising and robotic – the ‘dark, satanic mills’ of our age, which will mechanise and objectify what is essentially and fundamentally a human, caring, activity. The second range of objections is more pragmatic and argues that computerisation is simply more trouble than it is worth as it is costly, largely experimental, difficult to use in practice and likely to be obsolete as soon as it is installed. The first area of objection seems less prevalent today than it was at the dawn of the computerisation era. Hawthorne and Yurkovich (1995) exemplify this romanticised stance that technology is antithetical to caring, arguing, with more feeling than evidence, that:

‘Greater reliance on computerised information has resulted in people being labeled as numbers or codes. The more professions become immersed in the technological products of ST (Science and Technology) the less they care about the recipients of professional practice [Leonard 1990]’ (Hawthorne and Yurkovich 1995).

Nurses may also be unsure of CPIS or even deeply cynical about the latest techno-fads. Chu (1993) has suggested that:

‘Despite the fact that cutting edge technologies are already at our doorsteps, the greatest stumbling block to change involving information technology is the nurses’ unfavourable experience with the difficult and inefficient applications currently in place’ (Chu 1993).
This study is significant in that it actively sought the views and perspectives of nurses and midwives who were currently using today’s computerised systems. This is an important perspective to gain if future generations of patient information systems are to be developed with the meaningful input of those clinicians who are ultimately the front line users of such systems. As Wilson and Fulmer (1997) note:

‘Although more nurses are using computer technology, little is understood of how nurses perceive the impact of these technologies on their practice’ (Wilson and Fulmer 1997).

The aims of this study were:

- To gain a deeper understanding of nurses’ and midwives’ experiences of using CPIS.
- To explore nurses’ and midwives’ meanings, perceptions, and understandings regarding CPIS.
- To explore the participants’ perspectives of the relationship between CPIS and patient care/patient outcomes.

**Research approach and method**

The study took a qualitative and interpretive approach to the central research question of ascertaining and understanding clinicians’ perspectives and experiences regarding CPIS. Qualitative methods are becoming more widely used in health informatics research, (see e.g. Dennis et al 1993; Sjoberg and Timpka 1995; Axford and Carter 1996; Karlsson et al 1997; Wilson and Fulmer 1997; Murphy et al 1998; Purkis 1999; Darbyshire 2000) as they have considerable strengths in enabling researchers to explore and articulate a range of meanings and accounts of experiences.

Focus group interviews are now an accepted research strategy within qualitative research (Fern 1982; Festervand 1985; Morgan 1993; Dilorio et al 1994; Krueger 1994; Asbury 1995; Carey 1995; Thomas et al 1995; McDaniel and Bach 1996; Esposito et al 1997; Wilkinson 1998). They ‘are a particularly good choice of method when the purpose of the research is to elicit people’s understandings, opinions and views, or to explore how these are advanced, elaborated and negotiated in a social context’ (Wilkinson 1998).
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Selecting the research participants
Participants were selected who had experience of the central study phenomenon, i.e. they had experience of using CPIS and were willing to discuss these. Qualitative research does not claim ‘representativeness’ but in order to sample broadly across clinical areas, a total of 13 focus group interviews were held in 1998 with a total of 53 participating nurses and midwives. Focus groups lasting from 45 to 90 minutes were held in comfortable meeting rooms in the participating centres, which were hospitals in five capital cities and one rural centre in Australia. Each focus group began with ‘focused but roomy’ questions, usually about the kinds of systems that the participants had experience of using, moving on to more specific aspects of their perceptions of CPIS and their use. The group interviews were tape-recorded, transcribed and checked to ensure accuracy and completeness of the interview data. The ‘moderator’ or interviewer in each group was the author of this paper.

Data collection and early analysis were concurrent as this enabled nascent themes and issues from early data to inform subsequent interviews, thus helping maintain a clear focus on the central study question. The interview data were questioned and analysed manually and in line by line detail by the author in order to identify and explicate salient themes, patterns, similarities and dissimilarities, observations, events, perceptions, understandings and practices which highlighted the nurses’ and midwives’ experiences in relation to CPIS. While participants described a wide range of practical and logistical difficulties related to their everyday working with CPIS (Darbyshire 2000), the focus of this paper is on their understandings of the practice politics of CPIS.

Computer power: the social and professional context of nurses involvement with CPIS
Only naïve nurses or health informaticists would underestimate the impact of organisational, social, interpersonal and practice politics factors in relation to CPIS. Keen and Malby among others, have described the context within which information technology has been
introduced to practice – a context in which ‘senior nurses at the sites decided which systems ward nurses should use’ and where ‘systems were imposed rather than agreed through discussion’ (Keen and Malby 1992). CPIS is assuredly not ‘neutral’ technology (Barnard 1997). Participants in this study articulated a range of suspicions and resentments towards CPIS, towards their mode of introduction, and towards those who introduced them and their motives. These perceptions, which simmer below the rhetoric of much of the health informatics literature, were shared not only by ward-level clinicians but also by participants who were involved in managing IT services on a daily basis.

This paper reports on two specific themes related to the practice politics of CPIS:
• ‘Dumped on left, right and centre’: Nurses as passive recipients of CPIS.
• ‘It’s management information, not clinical information’: Knowledge, power and the ownership of information.

‘Dumped on left, right and centre’: nurses as passive recipients of CPIS.

There was a fatalistic view among participants that CPIS were the way of the future and that these would be introduced whether clinicians wanted them or not and that perhaps ‘just live with it’ and ‘make the best of it’ were the best strategies.

‘I think people tend to believe it’s the way of the future, that’s the way it’s going and there’s not really a lot they can do about it, and have come round to that idea that they can try and fight as hard as they want but this is how it’s going. So better that they accept it and just get on with it.’ P3: SA1

For others the same resignation seemed to accompany the notion of ‘decentralising’, ‘devolving down’ or ‘being given ownership of…’ The bottom line, however, seemed to be: more work with less support. As one nurse observed:

‘As a Nurse Unit Manager that’s another one of the things at the moment. Everything that has to be done somehow ends up back on your desk. So the time that you have available, you know when they talk about all this
Participants suggested that nursing was still a ‘dependent profession’ that did not control its own activities but rather responded constantly to the demands of others:

‘Nursing is what you call a dependent profession in that the agenda for a particular nurse on shift is not driven by them, it is driven by others, and that’s either the patient and the other categories of staff and other nurses that they work with. Essentially what you do on the course of the shift is driven not by you, you can probably try and bring order to the chaos to a degree and structure it a bit, but at the end of the day often times the ability to set the agenda for your shift is actually out of your hands.’ P2: QLD2

‘Software is always designed for everyone else to get everything flowing and we just have to work around that as nurses (…) everything we do in tracking data is always determined by what everybody else wants, all unit and other departments.’ P1: SA1

Several participants described a sense of CPIS being just another burden of work with little or no demonstrable benefit that they could see.

‘There’s been no demonstrable benefit, to clinicians. There’s no value adding in these systems, they see it as a net burden rather than a net benefit, and that’s a bit of an issue.’ P2: QLD2

‘At the moment, they can’t see the relevance of them sitting at a computer for ten minutes punching this in, when they could be doing something else.’ P6: SA1

‘In our unit they haven’t cut down any paperwork at all. And I think that’s one of the angsts of the clinicians is that they do their computer bits, on top of, the written work.’ P1: NSW1

There was a sense of computerised systems being imposed rather than negotiated in ways that have been suggested previously (Keen and Malby 1992). This phenomenon is not new to clinicians. Historically, they have been expected to adopt and ‘adapt’ to an almost bewildering range of ‘innovations’ and ‘improvements’ (e.g. the nursing process, nursing models, quality assurance, evidence-based practice, customer
focus and clinical governance) which have promised much and which have largely been driven by others in academia and management. Failure to adopt these innovations enthusiastically could of course leave the clinician open to the shaming charge that they are ‘resistant to change’.

‘I think the problem with the acceptance of TRENCARE here is that there’s a lot of staff that have been here for many years and we’ve actually been through EXCELCARE, we’ve been through PND, now we’re on TRENCARE, and you know people think, Well none of those worked for me so why is this one going to work for me? and that’s a huge problem.’ P3: SA1

What is rarely considered in change literature is that the clinician’s reluctance to embrace the latest innovation may be more substantive than merely petulant or stubborn. Other participants echoed a common complaint that some approaches to introducing IT and CPIS can leave clinicians feeling that their role is merely to operationalise the agendas of others:

‘The problem I had with it, particularly coming from a clinical background recently, is that that vision is focused at admin and it’s focused at the management.’ P4: QLD2

‘It’s just “Let’s get the software in,” so it’s not – it doesn’t just affect the Level 1s, it does affect us. And then we find out later (…) we haven’t actually got the right server, or the memories. It’s as though all of that research doesn’t take place before we go out and buy this beautiful new thing to help out.’ P1: SA1

Where clinicians felt that the CPIS had been imposed on them, where they saw little relevance to their practice, where they could see little value in it, or where feedback from the system seemed inadequate, it seemed easier to simply bypass or subvert it, thinking ‘why bother?’

‘We don’t feel as though they [the management] do anything with it (…) people get fed up and they think, “Well, why do it properly?” Nobody looks at it or there’s no benefit to us.’ P1: SA3

‘The carrot that was dangled when they brought (in) EXCELCARE, (was) that the staffing levels will be adjusted accordingly. And so of course everyone thought, “Yeah, that’s great”. And I think now what’s
happened everyone’s realised the staffing levels haven’t altered. We wonder if they even really do look at it and that’s why people have got to the stage, “Well blow putting that on EXCELCARE, I can’t be bothered.” P2: SA3

‘It’s management information, not clinical information’ – knowledge, power and the ownership of information

The perception of ‘ownership’ of information is important, not least because clinicians are often exhorted that they must begin to ‘take ownership’ of CPIS to ensure their successful implementation in practice. The perspectives of the nurses and midwives in this study would suggest, however, that this strategy may be easier to propose than adopt, since the real power and ownership of CPIS and related information was perceived as being firmly in the hands of managers and executives.

As a profession that has traditionally been ‘dependent’ upon others, such as medicine and administration, nursing does not have a strong history of pushing itself into powerful positions, especially if those in more powerful positions are reluctant to share the symbols of power. In our present age of evidence worship, there is probably no more potent symbol of power than information and its control.

Most participants in this study described CPIS as essentially management tools, governed by the power relations within the hospital and health care system and intended for the collection of management information which had little clinical relevance for practitioners:

‘In the past, the information that has come out of these (CPIS) has been mainly for the top few to see and the line staff have only seen the after effects, so they’ve been sort of missed.’ P4: QLD2

‘The information’s used by someone else. I do the work, I put the information in and then someone else goes and uses it for their benefit, not for mine. (…) So ownership of the information becomes important (…) it’s always being used by someone else.’ P2: VIC1

‘But traditionally that’s where they (computers) have been seen. I now when I was working in the country, the first use of computers happened in administration, the CEO and DON and the secretaries.'
Then the next one was the dependency system, which was always regarded as a management tool. That was never to help the nurses out in the wards, that was always a management tool to make sure that the nurses weren’t slacking off. And then there was the quality assurance stuff that started to be computerised. So a long way down the pecking order was clinical business and that was one of the reasons why there was this separation. And even when you put a terminal in the nurses’ station you only ever see the nurse unit manager playing with it, or the person who’s in charge of the shift because they had to put dependency systems in there.’ P2: NSW2

‘People who have access to computers are the people with the knowledge and the power in the organisation – the managers.’ P4: QLD1

‘We (RNs) don’t have access to their [Unit Heads] office and we don’t have access to their computer. It’s got a code number that they punch into it so that no one can get into it, so definitely with hierarchy, computers go with the hierarchy.’ P1: SA3

In a caustically revealing comment one participant remarked that in her area, nurses who used CPIS a lot were referred to as the ‘checkout chicks’!

Discussion
This study highlights the importance of understanding the social, perceptual and political aspects of CPIS. In this respect, it is difficult to agree with one participant who felt that CPIS were ‘just a tool’ and in essence no different from a piece of paper and pencil. For most of the respondents in this study, questions of power and organisational culture were integral to their understandings and experiences of using CPIS.

Participants had a predominantly negative view of the meaning of informatics for clinical practice and for their role as nurses or midwives. CPIS were not seen to be about assisting clinicians to deliver better care but about providing management with information intended to support largely financial agendas that were more hidden than explicit. Participants felt strongly that the information they were collecting was essentially ‘management’ information which was thus seen to be of little interest or concern to them.

Possibly the strongest aspect of nurses’ dissatisfaction with CPIS was the perception that this was simply more work being ‘dumped’ on
them by management and ‘the powers that be’. The success of any new CPIS will depend significantly on whether clinicians have been convinced that this new system will clearly benefit both them and their patients and that at the very least, it will not add to their workload for no tangible benefit. It is difficult to be optimistic here as studies continue to show that clinicians as ‘end-users’ are rarely adequately involved in the design, commissioning and introduction of CPIS (Goorman and Berg 2000). It is popular to encourage nurses to solve every organisational problem by ‘taking ownership’ of it. For the participants in this study, there was little sense of ownership of CPIS and their data. The predominant view was of nurses as ‘IT soldier ants’ – mere data enterers for others who dictate and control the important aspects of data collection and its use.

What alternative interpretations could be made of these participants’ accounts? Perhaps these nurses and midwives were simply ‘Luddites’ who wanted to abandon everything with a computer screen in favour of pencils and paper. Perhaps they were unwilling to change and were happy to undermine systems that were challenging their ‘comfort zones’. Could it be that CPIS represent a cultural and professional crisis for nursing which dramatically exposes our reluctance to change practice in response to innovation?

I consider these unlikely possibilities. For a few participants who worked in highly technological areas where CPIS were closely and fully integrated and used consistently and exclusively by the entire multidisciplinary team, there was a view that they would never wish a return to a manual or paper system. These nurses seemed certain however that their electronic ‘bedside’ systems were resolutely clinical rather than managerial in their focus. Rather than rejecting CPIS totally, the participants in this study seemed to feel that there were important advantages to be obtained from CPIS, but that current systems and organisational contexts are not yet ‘delivering the goods’ that clinicians expect in ways that they can comfortably use. Nor does it seem plausible to suggest that nurses simply ignore whatever they don’t like. What they seem to do is to ‘make the best of a bad job’ by
trying to adapt and modify CPIS, either explicitly or surreptitiously in order to make them fit nurses’ clinical reality. As Purkis notes of the Canadian nurses in her study, ‘It is safe to say nurses will employ quite impressive resources in an attempt to make practice ‘fit’ whatever model they are given to record that practice within’ (Purkis 1999).

These findings may be uncomfortable, but perhaps not surprising, reading for those involved in health care informatics. Other recent interpretive studies have highlighted the profound implications of workplace technology for nurses. Goorman and Berg (2000) criticise CPIS for assuming that nurses’ need for information is a clear cut, linear, stage process which fits logically within CPIS models when in fact it is much more ‘fluid and diverse’ and for adhering to a model or computerised representation of nursing work which clinicians find difficult to recognise. In an exemplary critique of a specific case of the introduction of the ‘Omaha Model’ of CPIS in Canada, Purkis (Purkis 1999) also highlighted the above discrepancy, noting that nurses were essentially ‘transforming’ patients in order that they might fit the recording system and that indeed both nurses and nursing were also being subtly transformed in this technological process.

The current study participants’ discussions of the power relations underlying computer use was extremely revealing and should re-emphasise that CPIS are not simply a technical issue which can be solved through better hardware or software design. These technologies are being used by ordinary people in an extraordinary organisational setting. Any system designed by others, purchased by others, controlled by others, owned by others and merely operated by clinicians is very likely to attract the same suspicions and criticisms that has been expressed in this and other studies. If CPIS have a future, then the challenge is to build the tangible partnerships between system developers, clinicians, IT Managers and service managers in order that nurses can become more active partners than passive recipients of the next generation of 21st century CPIS.

Philip Darbyshire RNMH, RSCN, DipN (Lond.), RNT, MN, PhD is Chair of Nursing, Women’s & Children’s Hospital, University of South
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Footnotes
1 P-identifies the speaker/participant from within each focus group.
SA, NSW, QLD, NSW, VIC – identifies the State where the interview occurred. The following number indicates the Focus Group number from that State.