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ORIGINAL ARTICLE

Organising work in neonatal transfer: Optimising place of care for babies born moderately preterm

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Abstract

The organisation of neonatal units into geographically-based networks that offer different levels of care is intended to ensure babies receive the care they need via transfers between different units. In this article, we explore the significant organisational work required in practice to accomplish such transfers. Conducted within a wider study of optimal place of care for babies born between 27 and 31 weeks' gestation, we draw on ethnographic work exploring the accomplishment of transfers in this complex care context. We undertook fieldwork in six neonatal units across two networks in England, representing 280 hours of observation and formal interviews with 15 health-care professionals. Drawing on Strauss et al.'s concept of the social organisation of medicine and Allen's concept of 'organising work', we identify three distinct forms of such work central to the successful accomplishment of a neonatal transfer: (1) 'matchmaking', to identify a suitable transfer location; (2) 'transfer articulation', to successfully effect the planned transfer; and (3) 'parent engagement', to support parents through the transfer process. Our findings build on and extend Strauss et al. and Allen's work by both highlighting the different

forms of 'organising work' undertaken in this clinical context and the distribution of such work across different professional groups.

KEYWORDS
decision-making, ethnography, invisible work, neonatal care, neonatology, organising work

INTRODUCTION

The social organisation of health-care work has been a fruitful area of scholarship within the sociology of health and illness (Allen & Pilnick, 2005; Griffiths, 2003). An important theme has involved analysing the various forms of work undertaken within health care, how these are accomplished and by whom (Strauss et al., 1985). Research examining organising work within health care has focused almost exclusively on the role of nurses and how they engage in organising work when caring for adult patients (Allen, 2014a). In this article, we examine the role of organising work in the specific context of neonatal transfer, describing the distinctive ways that neonatal staff engage in organising work.

We draw on qualitative data from the OPTI-PREM study. OPTI-PREM aimed to provide evidence to guide decisions about best place of care for babies born at 27–31 weeks gestation, a group for which there was no clear guidance (Pillay et al., 2019). In the United Kingdom's National Health Service (NHS), neonatal services are organised into geographical networks. While not every hospital in a region is equipped to provide the most intensive care, the network approach facilitates access to specialist support where this is needed. Neonatal services are categorised according to the technological and staffing resources available (Bliss, 2022). Neonatal intensive care units (NICUs) provide the highest level of care for early preterm babies (<27 weeks gestation) and complex cases. Local neonatal units (LNUs) provide care for babies less in need of intensive or specialised care, normally born between 28 and 32 weeks gestation. Special care baby units provide care for babies who do not require intensive or complex care and are often born after 32 weeks gestation.

In the absence of clear guidance about best place of care for our particular group of babies (in terms of optimising clinical outcomes and minimising mortality and morbidity), their care is typically split between LNUs and NICUs, with babies frequently transferred between different unit types. This may be to escalate their care (i.e. move them to a higher level of unit) if they are deteriorating, or if born at a hospital without the required level of unit. Alternatively, a baby who is deemed sufficiently stable or improving may be moved to a lower-level unit. Ten percent of babies in neonatal care experience at least one transfer (NNAP, 2016), but they can be far from straightforward to organise and accomplish and are stressful for health-care professionals and parents.

We have previously highlighted the complexity of staff decision-making about place of care within a context characterised by the rapidly evolving needs of babies (Cupit et al., 2022). We showed that decisions about place of care are not only related to a baby's clinical needs but are organised through informal systems of demand and capacity management that dominate the work of clinical staff. Staff spend considerable time and effort managing their unit's demand and capacity, negotiating with other units within and outside the network and operationalising transfers (described as baby 'juggling' or 'jiggling').

In this article, we draw on Strauss et al.'s writing on the social organisation of medical work and Allen's concept of 'organising work' (Allen, 2018a, 2018b; Strauss et al., 1985) to explore the significant efforts required in practice to accomplish neonatal transfers. The findings we present build on and extend what is meant by 'work' in the medical context by highlighting the different forms of 'organising work' undertaken in neonatal care and the distinctive distribution of such work across professional groups. We show how in neonatal transfer, organising work is distinctively distributed, with doctors and nurses engaging in organising work. We use the example of organising work in neonatal transfer to deepen our understanding of this type of work and address the importance of acknowledging such organising work, and invisible work more generally, when seeking to improve health-care organisation and delivery.

ORGANISING WORK

Those working in health-care engage in a variety of activities. Strauss et al.'s writing on the social organisation of medical work describes the hospital as a series of 'variegated workshops' (1985, p. 6). Those working in hospitals, in these 'workshops', engage in different kinds of work, using varying amounts of resources and with very different divisions of labour, with all work in hospital directed towards the management of patients' illnesses (Strauss et al., 1985).

Our article is situated in the sociological concept of illness trajectory as a way of understanding these different activities with regards to neonatal transfer work. First discussed by Strauss et al., in 1987 and defined as 'the physiological unfolding of a patient's disease [and] the total organisation of work done over that course [of illness], plus the impact on those involved with that work and its organisation' (p. 8), illness trajectory work provides a sociological lens to understand the process through which patients travel the medical system and the associated activities needed.

In recent years, the concept of 'organising work' has been developed from illness trajectory work. A more specific concept, organising work captures the non-clinical, care-trajectory focused activities that nurses engage in during front-line work (Allen, 2014a, 2014b). Allen argues that organising work is invisible work, often actively hidden and thought of as 'dirty work' that takes away from what are considered 'normal' care responsibilities (Allen 2014b). What 'counts' as invisible work is context-specific and vague in the literature. For example, Star and Strauss argue that (in)visibility is a spectrum; work can be visible/invisible by virtue of how it is valued and by whom (1999). Visible work is easier to define, with Allen describing it as 'formal work that is authorised and documented', thus by extension making invisible work that which is carried out informally, without authorisation or documentation (2014a, p. 4). Nurses are often uncertain of how to value those aspects of their role that are not directly involved with patient care, and until recently, this type of work has had no name with which to describe it (Allen, 2015b). However, organising work can account for up to 70% of a nurse's time on shift, and it is work that plays a vital role in ensuring that everything necessary to facilitate clinical care is provided in the right place, at the right time (Allen, 2014a). Organising work is omnipresent in clinical practice, and examples of it show the complexity of the work itself, which is often about creating opportunities for joined-up decision-making, problem-solving resource allocation concerns, and bridging the informational gaps between professionals, wards and hospitals (Allen, 2018b).

Allen describes these activities as care trajectory focused. Developed from illness trajectory, care trajectory is a defining feature of organising work, as it is 'the unfolding of patients' health and social care needs, the total organisation of work associated with meeting those needs, plus

the impact on those involved with that work and its organisation' (Strauss et al., 1985, p. 8). Care trajectory is divided into three categories of essential practice: trajectory awareness; trajectory working knowledge; and trajectory articulation (Allen, 2018a). Trajectory awareness practices are those that maintain the awareness of which care trajectories are needed at any given time. Trajectory working knowledge practices support the sharing of knowledge so that care can progress appropriately. Finally, trajectory articulation practices ensure everything needed for care is provided in the right place, at the right time, with the right practitioners present.

Activities such as bed matching, for example, where nurses are 'matching patients with beds and expediting patient flows through the organisation' (Allen, 2014b, p. 134) can often involve all three practices. To match the right patient with the right bed, nurses engage in the 'iterative process of moving from one possible coupling to another in order to find optimal arrangements' (Allen, 2015a, p. 374). Nurses rely on their trajectory awareness of why a patient needs to be in a particular type of bed, in a particular ward, using their trajectory working knowledge to share information with the right people to enable the finding of a bed and matching it to the patient's needs (Allen, 2018a). Finally, nurses engage in trajectory articulation to ensure that the right bed is found for the patient in the right ward to facilitate appropriate clinical care for that patient (Allen, 2018a). Bed matching, as an example of organising work, demonstrates the potentially exhaustive and exhausting processes involved, despite being largely invisible in role definition, guidelines and protocols.

The focus in the literature to date has been on how nurses carry out organising work, resulting in a gap in understanding about the extent to which other healthcare professionals, such as doctors, engage in known organising work activities or undertake new forms. There is considerable overlap between the features of organising work described above and the activities in which neonatal staff engage, thus providing an opportunity to explore the extent to which neonatal transfer can help us better understand and expand the concept of organising work beyond nursing.

SETTING AND METHODS

The data reported in this article were gathered through the qualitative work stream of the OPTIPREM study outlined above. This study sought to combine work assessing clinical outcomes for babies cared for in either a NICU or LNU, health economics data on care delivery in each type of unit and qualitative work exploring how decisions about place of care for babies born at this gestation are currently made and enacted in practice.

Our qualitative work was ethnographic (Dixon-Woods, 2003) and conducted in six neonatal units across two networks in England. Of the six units, two were NICU (one per network) and four LNU (two per network). We chose a combination of NICU and LNU explicitly to learn about transfers between higher- and lower-level units. Data collection began in the two NICU, and two LNUs in each network were then selected based on the volume of transfers.

Mindful of the potential difference between work-as-imagined and work-as-done (Hollnagel, 2015), our data collection included three parallel approaches. First, non-participant observation on neonatal units allowed us to observe how decision-making about transfers occurred in practice and how transfers were accomplished. Second, interviews with staff and parents provided us with the participants' lived experiences of taking part in transfers and transfer decisions. Third, the collection of relevant documents pertaining to transfer policies and practices from the units provided the additional context. Combining these three types of data

allowed us to describe and analyse routine behaviours in their natural settings (Mason, 2002; Silverman, 2017).

We observed ward rounds, daily clinical activities and discussions, transfer discussions and referrals and transfers themselves in all six units. In total AP, completed 280 hours of observation over 35 days in 2018. Professionals working in each unit were introduced to the study by members of the project team. These professionals then introduced the study to all eligible parents so they were aware it was taking place. Verbal consent for observation was sought from all participants. We discussed with the study's Patient and Public Involvement group how to manage approaches to parents for consent to observe sensitively and our approach to observation more broadly. We took particular care to respect the time parents spent at their baby's bedside and only approached them about the study when they were taking a break (e.g. in the parents' room). Anonymised notes were made during periods of observation and subsequently written up.

In addition to informal discussions, which are common in ethnographic work, we also conducted formal interviews with 15 staff across the six units during our fieldwork. Our work included interviews with parents, but these are not the focus of this article. All doctors and nurses working at the units on observation days were approached for interview. Semi-structured interviews were completed, using a topic guide developed through a literature review and discussions within the project team, including parent representatives. Topics covered included how decisions were made about transfer, who made those decisions, what actions were involved in those decisions and the consequences of transfer decisions for the baby and the unit. Written consent was sought for interviews. Interviews lasted up to an hour and were audio-recorded, transcribed verbatim and anonymised. Mindful that a key difference between invisible and visible work is whether that work is captured or represented in documentation, copies of documents used in transfer decisions, such as transfer decision flow-charts, transfer protocols, clinical protocols and parent information leaflets were collected as examples of policy and guidance provided to staff and parents about transfer (Lydah, 2017).

Interview transcripts, written de-briefs and notes from observations were analysed using the constant comparative method (Glaser & Strauss, 1967), assisted by NVivo software. Analysis was undertaken by all authors. Raw data were read, compared and sorted into categories. Doing so allowed us to identify conceptual similarities and differences within the data, facilitating the discovery of patterns across different sites, professions and the data as a whole, which ultimately allowed us to develop, refine and define categories (Tesch, 1990). We then further analysed our data using Allen's concept of organising work and Strauss et al.'s writing on the social organisation of medical work, to identify where our data provided novel contributions to the existing literature.

The project was approved by the North East-Tyne and Wear South REC (IRAS 212304).

FINDINGS

We identified three forms of organising work central to a successful neonatal transfer. The first, match-making, is an acknowledged organising work activity (Allen, 2014a, 2014b) focused on identifying a suitable location for care to take place, in this case a bed in a neonatal unit. The second and third forms of work identified are novel organising activities but which build on Strauss et al.'s concepts of illness trajectory and articulation work. We have named them: 'transfer articulation', to effect the planned transfer; and 'parent engagement', to support parents through the process. In presenting our analysis of these three forms of work, we identify features of the

neonatal context that shape both the kinds of work undertaken and by whom. For both Allen and Strauss et al., nurses are central to these forms of work, whereas our findings show a more varied picture, with doctors taking on much of the work previously ascribed to nurses when describing medical 'work' in the sociological context.

Match-making: Not just nurses' work

A substantial amount of organising and coordinating work went into making a transfer happen. The most intensive stage was finding an appropriate bed elsewhere in the network (or beyond) suitable for the baby's needs. If a unit did not have the right equipment, enough staff or enough staff with the necessary skills, this often meant that even if a physical space was available, they could not accept a baby because they could not adequately meet its needs. Finding a match was only the first step, though; ensuring that the transfer took place before another baby took that bed was also important. This process of matching babies to available beds is similar to Allen's process of 'match-making', which she describes as a form of organising work nurses engaged in to manage the beds within and outside of their institution (Allen, 2014a, 2014b, 2015a). While Allen's focus is on this invisible work as it is undertaken by nurses, in our data, it was doctors who typically initiated the match-making process, and in most cases, they were the professional group primarily engaged in the work necessary to find the 'match' and set up a transfer:

> [...] doctors usually do the phoning because they do all the handing over everything like that so it's usually a doctor that calls for transport [...].
>
> (Nurse, LNU, Site 6, Network A)

On neonatal wards, this was very time-consuming and labour-intensive work, as doctors must communicate the baby's needs to every potential receiving unit:

> [...] sometimes we have to fish around for beds [...] it takes time going through switch-boards and asking people around, it can take 15 to 20 minutes easily to call one hospital.
>
> (Doctor, Site 4, LNU, Network B)

These potential receiving units also engaged in matching work, as they in turn had to have their own discussions about their capacity to adequately care for the baby before accepting or declining the transfer. Again, doctors occupied a central role in this work, particularly for more complex cases:

> Blood gasses just did not look that great [for the babies needing to be transferred] so we decided it would be better for there to be doctor to doctor handover to make sure that the children were well enough to actually come to us.
>
> (Nurse, Site 6, LNU, Network A)

The unpredictability of bed space and staff capacity at potential receiving hospitals meant that doctors often had to spend longer than they would have liked on the phone finding a match that could both meet the baby's clinical needs and had the required capacity:

> [...] if there isn't a bed locally and that's where the issue comes. And that's where I had to spend more time asking further down or have to convince other transport teams [outside the network] and so on and so forth.
>
> (Doctor, Site 6, LNU, Network A)

Many of the staff referred to this time-consuming process of matching a baby to a receiving hospital as 'bed hunting'. For the few dedicated transport nurses who engaged in match-making work, bed hunting was identified as a significant amount of work:

> Transport Nurse 1: When it's busy you can ring like 20 units, can't you?
>
> Transport Nurse 3: It can potentially be quite a laborious process. Like a labour-intensive thing. Because you have to find that bed.
>
> (Transport Nurses, Site 1, Neonatal Network A Transport Service)

'Bed hunting' often went beyond a working day, being passed on through two or three consecutive shifts before a bed was found:

> Came in this morning and nurse in charge was calling Site 1, but told no beds [for the baby needing transfer]. Yesterday they had beds but no staff, today it's no beds.
>
> (Observation, Site 6, LNU, Network A)

Additionally, beds were often found and babies 'matched' to a hospital only for the transport team to be unable to carry out the transfer before the bed was filled by a baby from elsewhere:

> Sometimes the transportation team is not available to pick up the baby[...], then the bed, where they will be transported in has already been used by a new baby, so there is no bed again, so you need to ring again the next day and wait again for when the bed will be available.
>
> (Nurse, Site 2, NICU, Network B)

The time needed for these match-making conversations was significant, not just because they are critical discussions required for the baby to receive the correct care in a unit that can provide it but because they create additional work for those involved. The need for clinical expertise in these conversations necessitated at least one member of senior staff stepping out of their normal clinical duties:

> The only problem here sometimes is if [Site 1] has no bed and then we are like stuck on the phone [...] We want to be just like managing the baby, you know? Get the network to sort out the bed for us because we can't be doing two things at the same time.
>
> (Doctor, Site 5, LNU, Network A)

The impact that match-making has on the available capacity of the health-care team to manage both the baby needing transfer, and the ward in general, is therefore potentially significant. However, this work, and the considerable time it may take, is typically not visible within documentary accounts of the transfer process. For example, the transfer protocol flow charts for both neonatal networks in which we observed presented the transfer process as unproblematic to effect. The protocols use words like 'easy' and 'straightforward', and in neither flow chart was there any indication of the time it may take to arrange and complete the transfers in practice. Neither was there any mention of how to mitigate the impact on the ward of the clinician(s) 'lost' to the match-making process, or advice on how to deal with the time-consuming task of 'bed-hunting', such as advice on which non-essential tasks could be abandoned or delegated whilst the clinician is engaged in bed-hunting.

Transfer arrangements were undertaken differently within the two networks, with significant impact on the hidden workload of match-making for staff involved. In Network A, when a transfer was needed, the doctor initiated a call to the transfer team (comprised of a doctor and nurses), communicated what was needed, and the transfer team would then hunt for and seek to match a bed to the baby. In Network B, the transfer team only facilitated the actual moving of the baby once a match had been identified. Here, the hunting for and matching of beds was done by the doctors themselves.

Regardless of how the transfer was arranged, either by the transport team or the unit staff themselves, if the transfer was needed for clinical reasons (i.e., escalating from LNU to NICU), it was always a doctor who initiated and engaged in identifying the right bed for the right baby and a doctor who agreed to send or receive a baby. In contrast, while downwards, sideways and repatriation (moving babies back to the 'home' hospital) transfers were mostly handled by doctors, some senior nurses were observed carrying out aspects of this work, if it was considered straightforward. Senior nurses were sometimes asked to make the initial phone call when sending a baby back to the home unit, a process known as repatriation. Repatriation conversations were often not conversations about the clinical needs of the baby, as the baby was most often returning home more stable than it had left. Senior nurses were seen as being appropriately skilled to initiate conversations about repatriation, as the only issues were the receiving unit's bed and staffing capacity to take the repatriating baby:

> So today it's my job to call [X] hospital and make sure there's a cot available for that baby, then to call transport and make sure that that's fine, but usually, if we're transferring a baby out because they're unstable, doctors usually do the phoning because they do all the handing over [...] the times we [nurses] call round is if we're trying to send the baby back to their home hospital.
>
> (Nurse, Site 6, LNU, Network A)

However, there were rare cases when a nurse initiated a transfer conversation for a clinical reason. In these circumstances, the nurses provided an advance notice that a transfer conversation between doctors would need to occur at some point, and these conversations typically escalated to senior doctors speaking to senior doctors, which was also the preference of the nursing staff:

> [...] we now insist that [transfer] goes through the medics as well. And that may involve a direct conversation between consultant and consultant.
>
> (Nurse, Site 4, LNU, Network B)

In cases where there was uncertainty about the clinical suitability of a baby for transfer (especially by a potential receiving unit), nursing staff were clear that they were not willing to take on particular kinds of organising work they felt sat more appropriately with doctors:

> Consultant wants [the nurse] to ring [Site X] to push them to take the baby as it is technically [isolated from other patients] because the baby is in an incubator. The nurse in charge is not wild about questioning another hospital's policies. [...] The nurse in charge is on the phone to Site X, pointing out that the baby is stable and

> mum still an in-patient [at Site X]. The nurse said questioning Site X's infection policy did not go down well, should have been a consultant-consultant discussion.
>
> (Observation, Site 3, LNU, Network B).

Match-making babies to beds was an intensive process but an essential care trajectory focused activity. Staff were organising and coordinating to allow for the eventual delivery of clinical care in what was believed to be the most appropriate clinical setting. While the need for transfer is acknowledged in the guidance and protocols for caring for these babies, the time and skill it takes to accomplish the match-making process in practice is not. Match-making is an essential, routine activity whose scope and impact are largely invisible to hospital management, and policymakers yet felt keenly by those engaged in it, who must somehow find the capacity to match-make effectively while still remaining accountable for their more visible clinical duties.

Transfer articulation: A partnership between nurses and doctors

Once a match had been made, staff in the neonatal units engaged in significant amounts of organising work to ensure that transfers were achieved within and across units and hospitals. Building on Strauss et al.'s concept of 'articulation work' and Allen's language of 'trajectory articulation', we refer to this work as 'transfer articulation' where it is specific to neonatal care. Transfer articulation is a form of organising work in which staff organised and coordinated within the unit to accommodate the clinical needs of their outgoing and/or incoming babies. Match-making and the operationalisation of match-making through transfer articulation were two different forms of work and thus involved different health-care staff. Unlike match-making, transfer articulation work was shared between nurses and doctors, as it required a partnership across professions. This is not how the various forms of articulation work have been described in the past. Strauss et al. are specific that articulation work is the realm of nurses (1985). Described as the 'key actor in the articulation drama', nurses are considered an essential link in the chain, without which trajectory work and illness trajectory would abruptly stop (Strauss et al., 1985, p. 151). Allen's concept of trajectory work also exclusively describes the practice as nurses engaging in work to make sure that the right people are at the right place at the right time for care to happen (Allen, 2014a, 2014b, 2018a). This includes not just ensuring patients are in the right physical location but also making sure the relevant staff, resources and equipment are available for care (Allen, 2014a, 2014b). However, in the neonatal setting, we observed both nurses and doctors engaged in the transfer articulation work needed to accomplish the matches identified.

Two types of transfer articulation work were observed, which again, were largely invisible, especially as this work was not accounted for in transfer protocols. The first comprised activities that ensured the arranged transfer out occurred as planned from the transferring hospital (i.e. where the baby was currently receiving care). This was additional work on top of whatever tasks had been set for the day and any clinical or administrative work required on the ward. This could take the form of clinically stabilising the baby but also required staff to complete and assemble all the necessary paperwork for the transfer:

> It can take a lot of their time stabilising and getting a baby ready for transfer, it can really change the entire day for the whole unit really, yeah, so it's quite hard for them.
>
> (Transport Nurse, Neonatal Network A)

While organising work is often not clinical work, here some types of clinical work are a necessary part of transfer articulation because failing to address certain clinical concerns could result in the transfer not coming to fruition. Though seemingly contradictory, this work could also include identifying what clinical work should not be done in case it impeded a transfer:

> During the ward round, there has also been a discussion with the doctors about not starting certain treatments and trials before transfer, and that seems to be about not starting something that would destabilise the baby and thus put off transfer until the next stabilisation.
>
> (Observation, Site 1, NICU, Network A)

The second type of articulation work focused on the logistics of the unit and included ensuring that babies remaining on the ward were cared for while the transfer of others took place. This type of transfer articulation work took place in both transferring and receiving hospitals. These transfer articulation activities could include the physical re-organisation of staff and babies in the unit to free-up space to accommodate another baby or move an existing baby out:

> [...] you needed to transfer somebody out who was poorly or who had needs, other types of care, you need to sort that baby out and there's the rest of the unit that, they don't stop having babies.
>
> (Doctor, Site 2, NICU, Network B)

Discussions about available resources were critical to this second type of transfer articulation. This type of work took many forms. It could be discussions about where to check and how to compensate for capacity of staff skill-mix and numbers, how to ease bed-blocking and ensuring availability of equipment. Transfer articulation work was important for ensuring the continuity of care that allowed for transfer to occur, but it is burdensome work as what exactly 'counts' as transfer articulation work changes case by case. When a hospital made a decision to receive a baby, for example, they engaged in an internal checklist to ensure they could receive and care for the baby without compromising the care of babies already in the unit:

> The thing that we might look at is start with ourselves—how are we? Is there enough nursing staff? Are there enough doctors? And then we look at bed capacity [...] whether there is enough space for them.
>
> (Doctor, Site 3, LNU, Network B)

Pre-emptive work to ensure beds were available for potential babies was a constant feature of this type of transfer articulation work in all hospitals we observed. Discussions about baby flow, pending transfers and discharges, liaising with maternity to determine if beds needed to be held for difficult births and organising pre-emptive in-utero transfers were part of the everyday transfer articulation activities in which staff engaged. This type of work was almost always done in partnership between doctors and nurses:

> And in the mornings, we have this discussion about capacity and then I particularly say "OK if I get asked about an admission this is where I'm going to say, are you in

> agreement sister in charge?" and she'll be like "yeah". Like Monday, we said nothing, we have no beds, nothing. Tuesday, she said "actually you can accept that 30 weeker".
>
> (Doctor, Site 4, LNU, Network B)

An important feature of this type of transfer articulation was the way staff would act up or down to cover for those staff caring for a baby being transferred, thus ensuring that care was not disrupted for those babies staying in the unit:

> Student nurse has had to admit and discharge any babies during this time to cover for the nurses, who are covering for the doctors, who are all working on the transfer baby.
>
> (Observation, Site 2, NICU, Network B)

Whilst this flexibility allowed units to be more adaptable to their circumstances, the lack of authorisation and documentation that characterises invisible work presents a possible concern for transfer articulation work: If it is invisible, it is unclear who is accountable when staff must act up to cover for others engaged in transfer articulation.

Parent engagement

When transfers occurred, staff had to organise and coordinate the 'care of parents' of the baby being moved. This work was distributed unequally across professional groups but was still shared to some extent. Doctors would often tell parents that their baby was being transferred, but after that initial discussion, it typically fell to nurses to continue the discussion and support parents. For parents of newly transferred babies arriving at the new unit, the nurses were the first point of contact. Much of this work focused on collecting and providing important information, a form of organising work that Allen describes as 'creating working knowledge' (Allen, 2014a, 2014b). Creating working knowledge is often centred on the written medical record and thus could be argued as visible. However, in our data, two forms of creating working knowledge were observed: developing the written medical record, which was visible and documented, and verbally collecting practical knowledge about what parents knew and what care tasks they could undertake, which was invisible. Doctors were primarily responsible for the written medical record for the babies. Compiling the written medical record required very little engagement work with parents, was an accepted task normally carried out by a junior doctor, was required for admission to the new hospital, and thus not invisible:

> One of the doctors is behind the nurses' station and has been filling out forms for Baby, as that wasn't done when he came in from Site 2.
>
> (Observation, Site 3, LNU, Network B)

Nurses were essential in the labour-intensive process of creating the verbal practical knowledge compiled through engagement with parents, work that took time and was largely invisible and undocumented, despite its importance. Reassuring newly-arrived parents and developing a relationship with these parents were not just a kind and welcoming gesture on the part of nurses but

an essential first step in collecting vital information from new parents about newly-transferred babies that contributed to the working clinical knowledge of that baby on their new ward:

> Mum for baby M is here and staff working hard to make her feel welcome (nurses really), and comfortable, updating her on everything since transfer etc. But also figuring out what Mum knows how to do [for the baby].
>
> (Observation, Site 3, LNU, Network B)

Nurses spent considerable time and effort engaging with parents immediately after a transfer decision to provide a range of practical information and emotional support. The importance of this work being done effectively was clearly evident to other members of the unit team:

> [...] but the main source of information will be the nurse who received the baby and they'll say [to parents], right, this is, you know, this is what we do here [...] people always want to know the visiting times and where they can go to the toilet or where they can get a coffee all those sorts of things. And generally, it's the nurse, who receives the baby first, who goes through all those things with the parents. Now I think that's really, like that first meeting must be so important because it can change people's perception of that whole unit. That first interaction can, can set a mind, different kind of trajectory really with the relationship with the hospital that they're in.
>
> (Doctor, Site 2, NICU, Network B).

All of these activities are care trajectory focused, in that they are geared towards informing and easing the care of the babies by staff. Staff all articulated that a good relationship with parents meant that there were open lines of communication about the needs and concerns that parents had for their babies. Family-centred care and parental participation in care is a vital part of good neonatal clinical practice (Adama et al., 2022; De Rouck & Leys, 2009; Gallegos-Martínez et al., 2013). Staff valued this communication, mentioning several times that parents often knew their babies the best, and they considered this communication a vital source of information, which made up the working knowledge of the baby's needs. However, the engagement with parents of transferred/transferring babies took time and staff, and as Allen observed with nurses caring for adults, the verbal collection of this information was often invisible in job descriptions and on rotas (Allen, 2014a, 2014b).

DISCUSSION

While significant sociological scholarship exists exploring the social organisation of health-care work, we struggled to find research that addressed the role of organising work in neonatal care, or literature exploring doctors undertaking such work. The work that doctors do in relation to the many facets of illness trajectory has not been ignored in the literature, rather, it seems doctors are seen as the 'central figures in the planning' but not in the operationalisation of the plan (Strauss et al., 1985, p. 151). Nurses have always been central to this operationalisation, and it is here that Allen argues the burden of invisible work accumulated. In contrast, the planning aspect of illness trajectory (i.e. the decision made to take a particular trajectory) is an acknowledged aspect of clinical work that features in job roles and protocols: It is visible.

This study is likely the first to examine organising work in neonatal care. This research identifies two forms of organising work that appear to be distinct to the clinical context of neonatal care: Parent Engagement and Transfer Articulation. It identifies doctors as engaging in invisible organising work when carrying out certain activity, such as match-making. The added dimension

of caring for a baby changed the kinds of organising work that staff needed to undertake, and who was involved in such work. As argued above, organising work has been viewed previously as work carried out primarily by nurses; however, our data show that both doctors and nurses take part in organising work when caring for neonatal patients who require a transfer. Sometimes they engaged in this work separately, but at other times, doctors and nurses operated in partnership.

Nurses engaged the most in parent-facing work, as they were often left to coordinate parents, liaise with them regarding experiences at previous hospitals, outline the rules and customs of the receiving hospital and organise logistical issues like parent accommodation and parking vouchers. Even when nurses were not actually the ones communicating directly, they were often still in the room when difficult conversations about transfer happened between parents and doctors. This was work they undertook in addition to their usual clinical care duties, but that was necessary to facilitate effective transfers. Previous research on the organising work nurses do for adult patients has identified that nurses often negotiate the boundary crossings when patient care is transferred between services (Allen, 2014a, 2014b). While working with families does not feature significantly in existing research, parent engagement shared some similarities with the transfer of care aspect of organising work, as both types of organising work rely on nurses to build networks, enable systems and be the 'principal mediators through which the diverse elements that comprise trajectories of care are ordered' (Allen, 2014a, 2014b, p. 136). The more substantial role that parent engagement plays in neonatal care may be the key difference between adult and neonatal care, as neonatal patients are never able to communicate with nurses, and their parents are an important resource for staff in establishing continuity of care. The line between organising work and emotional labour for nurses was often blurred, however, it is important to highlight that parent engagement was not just about attending to parents' feelings but was an important part of creating working knowledge (James, 1992). Nurses and doctors needed the cooperation of parents to allow them to get the information they needed for efficient and effective care. Crucially, as with transfers of care work, parent engagement work is work that nurses and doctors acknowledge as part of their role. However, this work, and the time and energy required to engage in it, remains largely invisible in job descriptions, role definitions, protocols and to hospital management. We acknowledge the potential value in exploring parents' responses to this work. As noted in the Setting and Methods section, while our work included interviews with parents, these are not the focus of this article. We address this issue in a separate article.

Transfer articulation saw nurses and doctors collaborate to facilitate the transfer. They worked together to manage the clinical and organisational needs of the baby being transferred while also managing the unit around them to ensure that others' care was disrupted as little as possible. Previous research has identified the important role that articulation work plays in care, with Allen arguing that in doing articulation work, 'nurses drew on their oversight of trajectory progress and organisational knowledge to anticipate how care would unfold so arrangements could be made to expedite timely action' (Allen, 2014a, 2014b, p. 134). With our concept of transfer articulation, we build on the concept of articulation work and trajectory articulation, describing work that is orientated towards facilitating a neonatal transfer. In our data, nurses and doctors worked together in partnership, both professional groups engaging in transfer articulation work, in contrast to previous research that has identified only nurses engaged in articulation types of organising work. Hierarchies were still present, however, transfer articulation required different skills to those on job descriptions, and often junior staff stepped up, and professional groups crossed boundaries, to support this work such that the unit as a whole kept functioning despite the disruption of a transfer.

A significant finding of our research is that doctors engage in organising work in the neonatal context. Unlike previous work that identifies organising work to belong almost exclusively to

nurses, doctors did more of the work required to set up a transfer, in particular the time-consuming activities involved with match-making beds to patients. As we highlighted, the clinical expertise and experience of doctors were positioned by all involved as central to them being the most appropriate professional group to undertake this element of the work. This was especially so in cases of high complexity and acuity, such as urgent transfers to escalate care for very unwell babies. Here, acuity acted as a structuring influence, determining and limiting the pool of health-care workers able to undertake the work required. In less complex cases, such as repatriations home for stable babies, the pool could sometimes be widened to include senior nurses, although this was infrequent and only ever with the oversight of a doctor. In Bourdieu's terms, we can understand the clinical experience and expertise of doctors in this context as a form of 'cultural capital', not available to other professional groups (Bourdieu, 1984, 1990). It is also possible, although not clear from our data, that doctors' 'social capital'—their networks of contacts in other hospitals and the insights and trust relationships deriving from these—were also important in their ability to undertake this aspect of organising work effectively.

Doctors taking part in organising work has been previously unreported in the literature. There exists a small body of literature that, while not framed as 'organising work', does highlight how doctors contribute to caring work across sectors for patients, such as GPs' involvement in care referrals (Loeb et al., 2016) and the management of patient palliative care pathways (Carline et al., 2003), indicating it is likely that other clinical contexts may also see doctors engaged in invisible organising work alongside nurses.

Allen describes how in doing organising work, nurses drew on their 'fine-grained understanding of the local economies in which they functioned and coupled this with clinical knowledge to match individual patients with beds and expedite patient flows' (Allen, 2014a, 2014b, p. 134). In the same way, doctors drew on similar sources of knowledge about their own and the surrounding neonatal units to arrange a transfer.

Research on the invisible or hidden labour of doctors is difficult to find. Those studies acknowledging doctors engage in invisible work have focused on how the emotional labour of doctors often goes unrecognised (Dhara, 2019; Kerasidou & Horn, 2016). Emotions, and emotional labour, are rarely discussed, as the 'objective doctor' paradigm still prevails (Kerasidou & Horn, 2016). Dhara comes close to articulating the invisible work of doctors, arguing that the most important therapeutic tool doctors have for their patients is to be present with them, but this work goes unrecognised, as it is difficult to name (Dhara, 2019). This point strongly parallels one of the defining characteristics of organising work: That it remained invisible because until recently nurses lacked a language with which to properly describe organising work, which is a necessary criterion for work to 'become' visible (Allen, 2014a, 2014b).

That both professions carry out work that is largely unrecognised in job descriptions, protocols and by management, presents a significant problem for any efforts seeking to improve care. The organising work required to bring about a transfer is largely unacknowledged in the relevant protocols; these represent each step as equal in time and effort for all units across all neonatal networks. This is not the case, as not only is this organising work hidden in the protocols themselves, but each neonatal network operates differently, with some having transfer teams who take on the transfer work for the network, effectively outsourcing this from the units, while other units must do this work on their own. These differences have led to efforts to improve guidance and protocols for neonatal transfer (Pillay et al., 2019).

Is making such work more visible the solution? It is worth considering why some work remains invisible, and to what extent making it visible would help or hinder. For example, Bowker et al. (2001) argue that 'only work that is visible can truly be identified as valuable'.

While classifying actions and writing things down (as Bowker et al. suggest) makes them visible, classification can be problematic when it does not reflect the processes through which work is valued or why it is (in)visible. As a result, we cannot necessarily conclude that simply acknowledging these activities in protocols, for example, would 'solve' the problem. When considering organising work, it is necessary to also consider how to manage the tensions between the desire for and the dangers of visibility (Bowker et al., 2001). When it comes to neonatal transfer, record keeping and classification of transfer work would raise its visibility, potentially giving it value, but without additional capacity and systemic change, what would classification and visibility really add? Whilst acknowledging the time such work takes (and the implications for completion of other tasks) would no doubt be appreciated by those performing it, they may be less pleased if this were to lead to significant protocolisation and inflexibility in how such work is done.

Why does the analysis of such invisible organising work in neonatal care matter? The extent of organising work shown in this article is a direct consequence of institutional systems that require units to pay constant attention to demand and capacity management (e.g. to manage limited resources and maximise revenue for the individual unit) (Cupit et al., 2022). If units were freed of some of this pressure to manage demand and capacity, for example, through increasing equipment or adjusting funding models, this may free up staffing resources which are currently in short supply. Doing so may improve outcomes and improve the overall economic efficiency and capacity of the network.

For neonatal transfer, much of the necessary work that doctors and nurses engage in to make these transfers happen remains largely invisible and unaccounted for in job descriptions, protocols and guidance. Any attempts to improve the organisation and delivery of care for moderately preterm babies, or any neonatal cohorts for that matter, must account for the additional work transfer places on staff. Including invisible activities in documentation, policies and practices related to neonatal transfer work would at the very least leave the door open to start wider, systemic change (McVey et al., 2021). To do otherwise means that any efforts to improve the process of neonatal transfer are likely to fail, as the practices targeted by any quality improvement efforts will remain poorly understood and potentially invisible within organisations (Allen, 2016; Boulton & Boaz, 2019).

CONCLUSION

Unlike other areas of work, where there may be a 'sequence of expected tasks', health work is frequently at the whim of contingencies that are difficult to predict due to the variability of illness, the variety of people involved in that work and the constraints of the organisation itself (Strauss et al., 1985, p. 9). As a result, illness trajectory work, whilst a necessary feature of health work, is as Strauss et al. so simply put it, 'complex and often highly problematic' (1985, p. 9).

Neonatal transfers are volatile illness trajectories, characterised by fluid and fluctuating negotiations required to operationalise a baby's move from one place of care to another. To use Strauss et al.'s language, unlike care within a single hospital, for neonatal transfers, the 'variegated workshops' are unstable. While few illness trajectories are fixed and unchanging, neonatal transfer trajectories can be so highly unpredictable that they need to be renegotiated every time to account for, and work around, the changing parameters involved. It is these constant renegotiations that constitute much of the organising work of neonatal transfer, and which remain largely invisible.

This study highlights the importance of recognising the role organising work has in accomplishing transfers for neonatal care. Making the organising work involved in neonatal transfer visible may help this work to be accounted for and included in important decision-making processes, such as decisions about staff capacity on the ward, job roles on shift and development

of protocols and guidance for clinical best practice, which could improve care outcomes. At present, these needs are not addressed in any documentation, policies or guidance around care for this gestational age group, or any neonatal babies.

Though, as we argued earlier, recognising and accounting for invisible work is not just about accurate paperwork and is not without potential downsides. There currently exists a significant gap between what Allen describes as the professional ideal versus reality for neonatal transfer (2015c). Allen issues a stark warning that this gap cannot be ignored as it leads to dysfunctional wards, staff burn-out, waning commitment in the existing workforce and staff choosing to leave the profession altogether (Allen, 2014a, 2014b). The concept of burn-out in nursing features in the literature on organising work, as a consequence of carrying the burden of invisible organising, work for too long (Allen, 2014a, 2014b). Further understanding and development of invisible work, in particular organising work, for doctors is likely needed, as the consequences of this work may have a negative impact on the workforce. Given the existing staff shortages in neonatal care, these are possible consequences that the specialty would find difficult to weather (Mitchell, 2020). Acknowledging the impact of transfer organising work on clinical care may lead to an improvement in overall care not just for this cohort, but all neonates, whilst avoiding the threat of burn-out, staff leaving and poorer care that invisible work can bring.

AUTHOR CONTRIBUTIONS

Alexis Paton: Formal analysis (lead); investigation (lead); writing – original draft (lead); writing – review & editing (lead). **Caroline Cupit**: Formal analysis (supporting); investigation (equal); writing – original draft (supporting); writing – review & editing (supporting). **Natalie Armstrong**: Conceptualization (lead); formal analysis (supporting); funding acquisition (lead); methodology (lead); writing – original draft (supporting); writing – review & editing (supporting).

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CONFLICT OF INTEREST STATEMENT

All authors declare that the manuscript is not published elsewhere and that they have no conflicts of interest.

DATA AVAILABILITY STATEMENT

No data are available. The consent for this study restricts the use of transcripts to the study team for confidentiality reasons. Raw data are therefore not available.

ETHICS STATEMENT

The study received ethical approval from the North East—Tyne and Wear South REC (IRAS 212304) and the wider OPTI-PREM study is registered with Clinicaltrials.gov (NCT02994849).

PATIENT CONSENT STATEMENT

Patient consent was provided by all participants.

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