

## PEER REVIEW HISTORY

BMJ Open publishes all reviews undertaken for accepted manuscripts. Reviewers are asked to complete a checklist review form ([see an example](#)) and are provided with free text boxes to elaborate on their assessment. These free text comments are reproduced below. Some articles will have been accepted based in part or entirely on reviews undertaken for other BMJ Group journals. These will be reproduced where possible.

### ARTICLE DETAILS

<b>TITLE (PROVISIONAL)</b>	Computer templates in chronic disease management: ethnographic case study in general practice
<b>AUTHORS</b>	Swinglehurst, Deborah ; Greenhalgh, Trisha; Roberts, Celia

### VERSION 1 - REVIEW

<b>REVIEWER</b>	Catherine Pope Professor of Medical Sociology University of Southampton, UK  I examined the doctoral thesis by one of the authors from which some of the material in this paper was drawn. I have no other conflicts of interest.
<b>REVIEW RETURNED</b>	11-Jul-2012

<b>THE STUDY</b>	Stats question not relevant to this study design
<b>REPORTING &amp; ETHICS</b>	no relevant checklist for this research design, but it is well reported.
<b>GENERAL COMMENTS</b>	I have to declare an interest as I examined the doctoral thesis from which this paper is drawn so I am delighted to see this aspect of the work written up in this form. This is a novel, innovative and sophisticated analysis of a significant area of primary care (and of so much medical work now) namely the use of electronic templates in patient management. This study shows how these technologies define chronic disease and shape clinical encounters. The paper is beautifully written, well argued and immediately relevant to the journal's readership.

<b>REVIEWER</b>	Iedema, Rick University of Technology Sydney, Centre for Health Communication
<b>REVIEW RETURNED</b>	18-Sep-2012

<b>GENERAL COMMENTS</b>	This manuscript addresses the constraints imposed by computer templates that are increasingly used to guide chronic disease management in the UK. The manuscript offers an important corrective for those who see ongoing information technologisation as the answer to the challenges posed by rising levels of chronic disease. The manuscript shows how many nurses are led to construe the consult as a data gathering exercise rather than as a personal encounter with a sick person. The relevance of the conclusions drawn from the research presented here could be extrapolated to initiatives such as the 'checklist manifesto', whose principal objective appears to be to fully mechanise clinicians' behaviours, and whose assumptions are that such mechanisation will ensure quality and safety. In challenging these conceptions and views, this paper performs a critical task.
-------------------------	---

Having said that, I also believe the paper can be made stronger by rendering its argument more subtle. First of all, a claim is made (page 9 of 33, line 32ff) that it is the template that directs nurses' attention to particular data fields. This is of course a reductive analysis. Ultimately, the data fields would have been constructed by software engineers collaborating with the people who they regard as principal users, in this case perhaps doctors, as is the case in much healthcare and medical-clinical software design. Thus, it is not principally the template, but the design process that may need to be targeted if claims are to be made about what drives what here. The software's forcing functions may also be a rematerialisation of existing practices as dictated by the clinicians enacting those practices, and assuming that only clinical-technical issues are to be retained as data.

Second, the paper's critique of the automatic appointment should be reconsidered. Automatic appointments are very handy with regard to matters to do with dentists, cars, and the like. Indeed, the care of chronic disease patients is aided by early detection of problems to prevent major disasters (cf. Wagner's work). I think the problem discussed in the paper is not a fault of the template sending out indiscriminate appointment messages, but the various sectors (acute, primary, etc) not adequately talking to each other (or their IT systems or administrative personnel not adequately talking to each other). To blame the appointment issue on the software/template is again to reduce a much broader set of relations and complexities down to a single aspect ('the template').

Third, the nurse's comment that 'we have to have our records up to date' is presented (page 11 of 33, line 47) as evidence of the people using the template falling prey to its technological prerequisites and information-seeking demands. Your analysis of the nurse's statement may be unnecessarily ungenerous at best, and wrong at worst. Again, and for one, keeping track of chronic disease patients on a regular basis is critical to spotting problems early. Also, the nurse may well have uttered the statement in question as her/his best way of signaling to the patient that s/he cared to see him/her. I say this because I feel that the analysis over-reaches itself. It needs to pull back somewhat from the claim that the nurse was fully taken in by the technologising demands imposed by the software and was therefore duped into committing an unacceptable bureaucratisation of care. Such claim steers close to subscribing to technological determinism, and you risk doing discourse analysis and conversation analysis a disservice by suggesting that care bureaucratisation is evident from this single utterance. Your data offer support for your claim, but that needs to be made more evident in your argument.

Fourth, you emphasise the undesirable consequences of the situation you describe frequently; e.g. "There is considerable scope for unhelpful, potentially incorrect labeling of patients" (page 13 of 33, line 21); "the institutional truth bears little resemblance to the reality it seeks to record" (page 13 of 33, line 36), etc. This critique has now been overtaken by considerations that acknowledge technological enablements as well as constraints (see Timmermans'

and Berg's work). To your credit, you also describe situations, occurring less frequently you say, which show nurses navigating around the template, skillfully addressing patients' concerns and enacting what you could describe as a 'relational' encounter. These latter examples show that it is possible for people to decide (or learn) that the technology should not overwhelm or determine their style. Given that possibility, would it not also be necessary to acknowledge that clinicians may well be on a learning trajectory; one which requires that people learn to use new technologies and adjust their practices to them, being reflexive about their impacts on how they relate to others, and that this learning is yet to happen because the templates are a recent introduction? You hint at this possibility in your final section, but not convincingly enough.

Fifth, the last point leads me to wonder whether you could derive more specific recommendations from your study for how the templates are designed, and whether the relational dynamics you (and I) value, could be integrated in some way? Could we recommend that the template incorporate a PAUSE TO CONNECT WITH PATIENT? Or something else? If you feel the issue is really one of the clinicians needing to respond more dynamically to patients' personal and sensitive issues when they raise them, would you recommend that no such templates should be integrated into practice without thorough training enabling clinicians to recognise patients' need for dialogue that diverts from the data gathering trajectory? Do clinicians need 'active listening' training (cf Egan's work)? Also, do the clinician users of the system need to be appraised of the point of regular checks as per Wagner's advice, and the reason for the technology working as it does in the first place, so they can better contextualise what they're doing when talking to patients?

Sixth, the 'technology imposes unacceptable simplification' argument ("symptoms were recorded as either present or absent", page 15 of 33, line 20) runs parallel to your 'templates bureaucratise care' argument. In the last analysis, however, this argument hits an infinite regress. Language itself is a simplification of what is, and to some language is made up of lies (cf. Eco's work) as it too will never fully capture that which it claims to represent. Any representation is unsatisfactory in this regard! This argument, on its own, of course, underestimates the incredible potential of these kinds of representational systems. Language does amazing things, and also think of musical notation and the complex musical forms that it affords. Same counts for technology, but you do not touch on the positives at all, and this detracts from the strength of your argument. Perhaps a better way of thinking about the issues at work in your research therefore is not found in what some might hear as dated medical sociological critique, but in the pretty much inevitable complexification experienced through ongoing and perhaps unstoppable technologisation. The networking afforded by new technologies is limited in many respects, but we, I think, need to balance our critique of these things with what might enable clinicians to perform with "exceptional creativity" (page 19 of 33, line 9). What would it take for clinicians to adopt such 'exceptional crativity' and make these things work well? If you read German, look out for Peter Sloterdijk's "Du mußt dein Leben ändern" (2009), where he builds the argument that our present world requires us to become increasingly responsive to constantly changing networks and

	<p>practices, and where 'performing the impossible' is the new standard. The fact that something is impossible or exceptional may no longer offer adequate ground for critique!</p> <p>Finally, let me congratulate you on what I think will be an important paper that I hope the BMJ will publish. It should be published because the paper highlights issues that clinicians may not readily attend to. The paper presents a rich piece of research that combines complex methods and analyses. It ventures into a critical domain: the technologisation of care. The paper should not miss the opportunity however to alert readers to the onus that bears on all of us, namely, to adjust to new technologies while not losing sight of our humanness, or better, while keeping those technologies in sync with our human needs, and not allow them to overshadow those needs.</p>
--	---

### VERSION 1 – AUTHOR RESPONSE

We will respond to Rick Iedema's comments one by one.

1) Thank you for pointing out the need to make it clear that the template is itself a complex social construction and that the way we have reported our analysis is in places too reductive. We fully embrace this principle and have inserted a paragraph on pages 6-7 which we hope clarifies our stance.

"From this perspective, the electronic record is not simply a collection of hardware and software on the clinician's desk but is a complex "social substance" definable in terms of the properties of a social world.(1) The template is itself a manifestation of complex socio-technical practices and relationships involving systems engineers, clinical software designers and others, whose assumptions about chronic disease management practices become inscribed (and reified) in the template. In this study we sought to illuminate how and to what extent templates – and the socio-technical practices of which they are a part - contribute to what is accomplished in the clinic."

We have also further clarified our claim on p 9 as follows:

"The template is not merely organised around a single disease entity, but around a particular version of this disease, reflecting the assumptions of those responsible for designing the template"

As our ethnographic observation focussed on the activities within the clinic, we are unable to speculate about precisely how the templates come into being, but we hope that inclusion of this paragraph addresses the issue that the template does not appear from 'nowhere' but comes about through social processes that lie outside the main focus of our research. We do however believe that our work demonstrates clearly that the incorporation of the template as a social object within the clinic has observable and profound consequences on how consultations and clinic practices unfold.

2) Automatic appointments. We agree that the section which highlights the experience of automated recalls is perhaps overly critical. We still feel that the observations are worthy of inclusion, since the EPR facilitates a very different model of care. We have included the following additional paragraph which we hope makes for a more balanced argument.

"These examples illustrate that whilst on the one hand the electronic patient record facilitates the regular recall and review which are critical to a high quality chronic disease programme (2) there are potential pitfalls to a highly automated recall system, especially if it is disconnected from the wider set of relationships within which care is delivered or the rationale behind it does not make sense to individual patients."

3) "We have to keep our records up to date". We believe that this criticism stems at least in part from the difficulties inherent in having to select very short data fragments from a large and complex dataset without always being able to offer the full contextual detail within which the analysis was conducted.

As the ethnographer in this particular clinic (DS) I felt that the particular nurse had (at least to some extent) – as you say – “fallen prey to the template’s pre-requisites and information-seeking demands” and that this was evident in other practices around the template. That said, I accept that as it stands the analysis could attract criticism. I also accept your concerns about technological determinism which would be most unhelpful to our effort in presenting this work. Out of respect for my research participant I have drawn back from this claim and re-presented it so as to retain the sense that ‘data-gathering’ is often a driver to care, but without the charge of her utterance being evidence of an “unapologetic and explicit bureaucratisation of care”. Thank you for pointing this out.

4) Undesirable consequences. We feel that the balance in our paper between some of the unanticipated, less desirable aspects of the use of templates in the consultation and their enablements is a fair representation of how we experienced these encounters. We are very keen to highlight that this is not an inevitable consequence of the use of templates - hence our detailed description of two cases which we felt were exemplary in illustrating a more creative approach. We have incorporated some additional sentences on p. 18 to emphasise the point that the template is not deterministic of practices, and have included a section in our discussion which suggests that there is room for optimism and that the situation is not one of gloomy technocratic rule!

We are aware of the work of Timmermans and Berg and include some of their work in our references. In particular we acknowledge Berg’s call to focus not so much on the opposition of the ‘formal’ and the ‘informal’ but to focus on practices and consider how skilful human work bridges the rationality-reality gap. (3;4) Indeed this ‘social practice’ approach is central to our methodology. However we do not go along with Berg’s notion that the generative power of technology lies (necessarily) in the very existence of this gap.(4) Whilst we think that the focus on emergent practices is helpful, we still see a role for work which (to continue the ‘bridge’ metaphor) looks critically at which bridges are built and which bridges are torn down, or what is produced and what may be lost as the EPR is incorporated in practice and how macro-institutional forces come to be enacted (and in turn constituted) in the micro-practices around the EPR.

We do agree that greater acknowledgement that clinicians may be on a learning curve is important and have mentioned this in our Discussion section.

5) Recommendations. We have extended the section arguing for more explicit attention to the use of templates in education and have tried to incorporate the sense of the increasing complexity that comes with technologies and which perhaps runs counter to common sense assumptions about the use of a template. Whilst we value your suggestion about the incorporation of a “pause to connect” we do not feel that this would do anything to address the fundamental problem of competing ‘logics’ in the consultation. We have included a short sentence explaining why we think that tweaking the template is unlikely to resolve the complex issues at stake.

6) We fully accept your reservations about the critique of representations and the inevitable limitations of any representation, including language (see our brief discussion of our social constructionist approach on page 8).

Our statement on page 15 (“The template shaped not only what was relevant to record, but also how this was recorded. For example symptoms were recorded as either ‘present’ or ‘absent’ when patients described a much more complex reality.) is not so much a critique of the template as an inadequate representational tool but a critique of the extent to which the template fosters a particular orientation to the world (or ‘professional vision’) which became evident to us in our observation and in our detailed analysis of language. We have included a quote by Goodwin to direct emphasis here. That said, the template fields place more substantial constraints on what can be recorded (and how) than the paper record which was its predecessor (and which we also realise is not perfect either!) Thank you for your recommendation of Sloterdijks work. My German is elementary, but I will try to find a

willing friend to translate it for me as it sounds very interesting.

We hope that the changes we have made to the paper and our responses above adequately address your concerns and would really like to thank you for taking such considerable time and care in your review of this paper. We do believe that the paper has been strengthened by including these minor changes.

D Swinglehurst, on behalf of the authors

#### Reference List

- (1) Harré R. Material Objects in Social Worlds. *Theory Culture Society* 2002; 19(5-6):23-33.
- (2) Wagner E, Austin B, Von Korff M. Organising care for patients with chronic illness. *Milbank Quarterly* 1996; 74(4):511-544.
- (3) Berg M. Practices of reading and writing: the constitutive role of the patient record in medical work. *Sociology of Health and Illness* 1996; 18(4):499-524.
- (4) Berg M. Of Forms, Containers, and the Electronic Medical Record: Some Tools for a Sociology of the Formal. *Science, Technology & Human Values* 1997; 22(4):403-433.