ORIGINAL ARTICLE

Data driven or data informed? How general practitioners use data to evaluate their own and colleagues' clinical work in clusters

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Abstract

In contemporary policy discourses, data are presented as key assets for improving health-care quality: policymakers want health care to become 'data driven'. In this article, we focus on a particular example of this ambition, namely a new Danish national quality development program for general practitioners (GPs) where doctors are placed in so-called 'clusters'. In these clusters, GPs are obliged to assess their own and colleagues' clinical quality with data derived from their own clinics—using comparisons, averages and benchmarks. Based on semi-structured interviews with Danish GPs and drawing on Science and Technology Studies, we explore how GPs understand these data, and what makes them trust—or question—a data analysis. The GPs describe how they change clinical practices based on these discussions of data. So, when and how do data for quality assurance come to influence their perceptions of quality? By exploring these issues, we carve out a role for a sociological engagement with evidence in everyday medical practices. In conclusion, we suggest a need to

move from the aim of being data driven to one of being data informed.

KEYWORDS
cluster, data, datafication, evaluative judgement, evidential value, general practice, national quality program, quality assessments

INTRODUCTION

In many health-care systems, policymakers wish to transform everyday practices and ensure higher quality through digitalisation (Carboni et al., 2022; Rich et al., 2019) and datafication (Ruckenstein & Schüll, 2017). Digital health technologies, such as digital administrative systems and health apps, are increasingly introduced to support health-care professionals (Gardner, 2022) and empower patients (Fiske et al., 2020; Torenholt et al., 2020). Though aimed at enhancing quality, such initiatives are also known sometimes to have unintended implications (Hoeyer & Wadmann, 2020; Ziebland et al., 2021).

In the Danish health-care system, a new clinical governance concept was introduced in general practice in 2018. The concept aims to support and empower general practitioners (GPs) to improve their clinical work by becoming *data driven*. In so-called clusters, 'all GPs must work with data-driven quality improvement' (RLNT and PLO, 2022, p. 143, our translation). By sharing data from their own clinic with each other, the GPs evaluate their own and colleagues' clinical work and quality (Kousgaard et al., 2022). The national central quality organisation, Quality in General Practice (KiAP), supports the cluster concept. They describe how 'data-driven quality development is the core of the clusters' work' (KiAP, 2023, our translation). The cluster is meant to be the 'medical professional framework for data-driven quality development' (Agergaard, 2021, p. 19, our translation). Though it is mandatory to use data, each cluster can independently choose which data to explore. The GPs also choose their own clusters, structures of meetings and which topics to discuss. It can be, for example, data on prescriptions, referrals, chronic care management, hospital admissions and use of municipal services (Bundgaard et al., 2022).

The explicit ambition behind the clusters is to optimise patient care via so-called 'data-driven' changes. But how do GPs use data? When do they trust them and for which purposes? The way in which doctors use cues from patients and colleagues to judge the quality of their work has been explored in the literature of medical learning (Bearman et al., 2021, 2022). However, the turn to data needs more attention. Investigating GPs' understanding and use of data for quality development is more than a study of a specific national quality development program: it is a study of how political ambitions to make clinicians 'data driven' become enacted in practice. We will suggest that these practices might give reason to rethink that very ambition.

Drawing on Science and Technology Studies and philosopher of science Leonelli's work on how data are assigned evidential value in biological research (Leonelli, 2009, 2014, 2015a, 2015b, 2016), and based on semi-structured interviews with Danish GPs, we present the understandings and use of data among GPs. We show how GPs ascribe data with different meaning and values depending on context and who is making the analysis. Though often questioning data, the GPs still consider the data highly useful within the cluster, while doubting analyses made by external authorities. The GPs' use of data thereby diverge in significant ways from that suggested by

the designers of the quality program. These findings suggest a particular role for a sociological engagement with medical understandings of evidence.

Overall, these learnings from the cluster program should inspire some general lessons about how to engage clinicians in data usage to develop quality. In particular, we suggest abandoning the term 'data driven' used by policymakers and instead inspire clinicians to become data *informed*.

BACKGROUND: DATA USE IN CLUSTERS

The cluster concept exists in different forms in various countries (Kousgaard et al., 2022; Stanciu et al., 2020). In Denmark, clusters replaced a mandatory GP accreditation program, which may have increased the resources GPs invest in quality improvement, but it was criticised by the GPs for being too externally controlling, bureaucratic and negatively affecting their job enthusiasm (Pedersen et al., 2018; Waldorff et al., 2016). Now, instead, each GP can choose between joining a cluster or continuing accreditation. Within the first year, 98% of all GPs joined a cluster. Some of the remaining chose to retire. Four years after initiation, 114 practice clusters existed, the average containing 29 GPs equal to 48.000 patients, with the smallest and biggest cluster containing 10 and 73 GPs, respectively. In a survey published in 2022%, 30% of the GPs considered cluster participation highly useful, 40% found it moderately useful and 30% found it to be of little use (Madsen et al., 2022).

The Danish cluster concept was agreed upon by the GPs' union and The Regions, which are the five Danish regional councils who are politically responsible for providing health services. Though describing the aim as becoming 'data driven', the agreement and reports do not define the concept as such. In a report from 2020 about the implementation of the clusters, Søndergaard et al. (2020) highlighted the need to specify data and data driven as the clusters interpreted these terms differently, which could have consequences for the outcomes of the clusters. The GPs are allowed to work with data 'understood very broadly' as the involved parties also highlight that 'it is crucial that the participants in the individual cluster have methodological freedom in relation to the concrete actions to improve quality. It is the development that is decisive—not the method' (RLNT and PLO, 2022, p. 113, our translation). The clusters can get technical and analytical data support from the above-mentioned central quality organisation, KiAP, and from the five regional quality units.

In a qualitative study by Kousgaard et al. (2022, p. 8), the cluster's coordinators considered that '[e]asy access to relevant and comprehensible data is crucial if the visions of data driven quality improvement in the clusters are to be realised'. A final evaluation report summarising the quantitative and qualitative studies, concludes that data 'contribute to insights into the GPs' own behaviour compared to other doctors in the cluster and help to open a conversation about different approaches to patient treatment' (Madsen et al., 2022, p. 6, our translation). In short, clusters are seen by policymakers and clinicians as a positive development, but the reasons for the embrace are not that clearly described.

THEORETICAL PERSPECTIVE ON USING DATA TO EVALUATE QUALITY

The ability for doctors to assess if they do their job well has been studied within the research field of medical education (Bearman et al., 2021). In this literature, scholars talk about *evaluative judgement* as 'the capability to make decisions about the quality of work of self and others' (Tai et al., 2018, p. 471). The ability to develop evaluative judgement is known to be especially

influenced by personal feedback and workplace learning (Bearman et al., 2021). Feedback can be conceptualised as an interpersonal process achieved as doctors learn through clinical practice as they take cues from others doctors to 'continually recalibrate their notion of what constitutes quality practice, over time and across different contexts' (Bearman et al., 2021, p. 207). It is, for example, necessary for doctors to consider their work in the context of what is possible within the clinic and the feedback they get from patients, and then interpret clinical guidelines in light of the patient's circumstances, preferences or available resources. The need to interpret the evidence to accommodate specific situations is also a key principle of evidence-based medicine (EBM) (Guyatt et al., 2015), which the GPs and The Regions agree upon is the medical approach to be used in general practice (RLNT and PLO, 2022). However, this tradition has paid more limited attention to how doctors take cues from data.

From a data studies perspective, the notion of data in the described reports can be characterised as *representational* (Leonelli, 2015b, 2016, 2019). According to Leonelli, data are seen as a representation when they are believed to refer to specific, stable pieces of information that are context independent. If data are representational, they are fixed in their content: they are referring to one particular idea of information irrespective of time and place. They are thought of as something that can be assessed objectively as correct or incorrect. A representational view of data suggests that, once data are properly produced, they can easily be circulated and shared with other actors for a new type of analysis. If the GPs combine 'easy access to comprehensible data' with supplemental support, one would—from a representational view of data—expect that concrete quality improvement can relatively easily be realised and shared with external partners.

However, according to Leonelli, data are not representational. They are *relational*. This means 'what counts as data depends on who uses them, how and for which purposes' (Leonelli, 2015b, p. 817). Data are not fixed in their content; they can refer to various elements depending on the analysis. It is still possible for data to represent something, but they do not 'carry' a fixed representation irrespective of how they are used. Data require additional work to be shared with other actors for new purposes, before they facilitate a valid analysis. Rather than emphasising an inherent data value, the relational view of data implies considering when data hold *evidential value,* meaning the extent to which data can be used to support specific new claims (Leonelli, 2016). With a relational view of data, it is therefore not enough to circulate what one may think is specific, well-produced and relevant data. Relational data have a component of subjectivity. They are not knowledge, but by supporting claims they can *potentially* provide the users with knowledge (Leonelli, 2019). A concept of data having evidential value enables an understanding of what it takes for GPs to use data to evaluate themselves and others.

Insights into how professionals imbue data with authority and trust are increasingly important because data interact with power relations and provide new means to monitor and understand people's behaviour. Data interact with power relations as they provide means to monitor and understand people's behaviour (van Dijck, 2014). Professionals must increasingly do data work that reconfigures their jobs and notions of what counts as knowledge (Bossen, Chen, et al., 2019, Bossen, Pine, et al., 2019; Hoeyer & Wadmann, 2020). We therefore need to better understand the basic questions of how and when professionals trust data.

METHODS

The study originates from an investigation of GPs' experiences with new data types in their clinical work such as wearables data from patients (Haase et al., 2023). When the GPs in the pilot

interviews for that study were asked about data that they considered relevant in general practice, we were surprised how they consistently talked about cluster data. We therefore began asking systematically about the cluster concept and the cluster data.

Sample and recruitment

We sent invitations for interview participation to 80 GPs by email. 23 accepted the invitation and all of them were interviewed. The informants were 13 women and 10 men, aged 39–75 years. They varied in terms of primary patient groups (dominant health issues and socio-demography) and location of the clinic, where some were in a large city and others in smaller towns or rural areas, see Table 1. Some informants worked in clinics with multiple doctors, nurses, secretaries and medical laboratory technologists, while others worked alone with a secretary. All informants were associated with the University of Copenhagen to varying extent, as some were intermittently hosting medical students and others employed as external lecturers. The study protocol, including the recruitment process and informed consent, was approved by the Faculty of Arts and Education's Human Ethics Advisory Group at Deakin University.

TABLE 1 Study participant characteristics.

Pseudonym	Gender	Age	GP's own description of patient group's dominant health issues and socio-demography
Annemarie	Woman	59	Mixed health issues, mixed income
Benedicte	Woman	52	Multimorbidity, lower income
Bodil	Woman	55	Mixed health issues, mixed income
Carsten	Man	65	Mixed health issues, lower income, multi-ethnic
Finn	Man	67	Mixed health issues, mixed income
Henrik	Man	55	Mixed health issues, mixed income
Jesper	Man	53	No special description
Johnny	Man	64	Mixed health issues, mixed income
Leif	Man	46	No special description
Lene	Woman	49	Mixed health issues, middle income
Lisbeth	Woman	54	Less severe health issues, mixed income
Lotte	Woman	41	Mixed health issues, mixed income
Mads	Man	71	Less severe health issues, high income
Mai	Woman	50	Multimorbidity, lower income, multi-ethnic
Mia	Woman	39	Multimorbidity, mixed income
Miriam	Woman	62	Multimorbidity, lower income, multi-ethnic
Morten	Man	40	Mixed health issues, mixed income
Nanna	Woman	40	No special description
Poul	Man	63	Less severe health issues, high income
Thomas	Man	54	Mixed health issues, mixed income, multi-ethnic
Torben	Man	68	Mixed health issues, middle income
Viggo	Man	75	Multimorbidity, lower income, multi-ethnic
Xander	Man	43	Mixed health issues, mixed income

Abbreviation: GPs, general practitioners.

Data collection

CBH conducted semi-structured, one-to-one, in-depth interviews. We pilot tested our interview guide on three doctors specialising in general practice prior to the interviews. The guide was based on open-ended questions and follow-up questions probing concrete experiences where possible. The interviews were conducted from March to May 2021. Besides one interview that was performed at the informant's house, the remaining were performed in the informants' clinics. The interviews lasted between 46 and 96 min, 1 h on average. They were conducted in Danish, recorded and transcribed verbatim. Pseudonyms were used in transcripts. Transcription and analysis were initiated by [author] after the first interview to improve the interview guide in terms of reformulations and additional questions to reach deeper into the informants' experiences and descriptions. We asked them to describe the cluster concept in general, their own cluster practices and to compare this with accreditation.

Data analysis

We performed thematic coding to analyse our material (Madden, 2010), using a Word-formatted coding scheme. First, the interviews were categorised in overall topics, such as understanding, attitudes and usefulness of data, and whom they would share data with. When interpreting the interviews, we remained aware that doctors may not remember accurately what they did. Our focus was on their impressions and justifications, and we did not seek to verify their actual actions. We were surprised how the GPs described data as enabling insights while at the same time questioning certain data and claims, just as we noticed that they talked about data as both impersonal and very sensitive. Therefore, we began a second analysis, inspired by Mills' (2000) invitation to explore contradictions in the material to identify contextual factors that could help us understand variations in the cases. Based on this analysis, we recoded the material based on the identification of how GPs talk about and act on data in general: when data do not stimulate action, which types of claim data are used to support, reflections on who should have access to data and how clusters compare to accreditation. These categories serve as the structure for the analysis below.

RESULTS

GPs talk about 'seeing' with data

Asked about data in clusters, the GPs described how data allowed them to 'see'. The GPs explained a typical cluster meeting like this: before the meeting, the GPs would have agreed upon a topic. Topics were, for example, how much broad-spectrum antibiotics or strong painkillers such as morphine each of the GPs prescribed last year, or how often they referred certain patient groups to other specialists, or the ratio of chronic patients who have yearly check-ups, or things like how often certain blood samples were used for specific diagnoses. The GPs created data to be used for these topics by downloading registrations from their clinical computer system. They would send the data to a secretary working for the cluster, who pseudonymised them. Before or in the beginning of the cluster meeting, the GPs would look at their own data. They would then look at the distribution of the numbers from all participating GPs, knowing only which data set

came from their own clinic. Together, or in smaller groups, they would then seek to analyse why and how their own clinic compared to the average for the group, and in some instances, what would count as a desirable level and possible approaches to reach it in different situations. At this point, the GPs often disclosed their own data to ease the comparison and discussion of data. 'Seeing' as a visual metaphor for understanding, was dominant in all these descriptions (Lakoff & Johnson, 2003) As Jesper, 50, described it:

> First [at the meeting] you sit and look at your own numbers, right? And then afterwards, you look at a screen and then see how we [the GPs], you could say, are almost normally distributed, right? [laughs] So, that's how it is. And then you can see where you belong or where you thought you belong, but clearly don't. That is why data appear so "hands-on".
>
> (Jesper)

Note how Jesper describes the GPs ('we')—not the data—as distributed on a curve similar to the usual statistical normal distribution. Jesper's understanding of data in this quote thereby comes across as representational: data 'showed' almost directly—'hands-on'—how GPs were positioned to each other. In many cases, GPs spoke about these data representations as so convincing that they overruled any former experiences or opinions. Elaborating on the role of data, Jesper explained:

> There are some topics, which data can illuminate in a completely different way, right? An example is the use of e.g. annual asthma check-ups, where you can extract data, how much you use it, do you use it enough, what percentage of your asthma category has had an annual check-up and things like that, and then you can discuss whether an annual check-up is necessary and things like that. You get that discussion and make a focus, and who sets that focus? We do that ourselves.
>
> (Jesper)

For Jesper, each data point represented a specific action that would not be 'visible' without data. Through their representations, data thereby 'revealed' what was otherwise 'invisible'. For Jesper, it did not seem to be a question whether data represented the GPs' performance well. It was only a question why the GPs acted as 'shown' by the data.

Bodil, 55, explained how she really enjoyed looking at the data and how she started additional small assessment projects in her clinic to evaluate herself. She explained:

> Well, it's because I always think that um, that it's fun to look at yourself… I think it's interesting that you think you are like this or that, or you think you do this or that, and then you investigate things. Then you can be confirmed "yes you are just as good as you thought you were" [laughs] but it can also be that you think "oh, that wasn't good enough", right? And what is interesting is: why is it like that? And what can be changed?
>
> (Bodil)

Like Jesper, Bodil talked about data in representational terms—she could 'look' at herself and 'confirm' how she 'is'. Xander, 40, explained how they had compared data about drug prescription in his cluster:

> All [GPs] had a colour and then one could see where one was on the curve. And then we were told afterwards […] which colour was ours. Then you could choose for

yourself whether you wanted to flash yours. It doesn't bother me, it's just numbers and it is reality, so there's no reason not to show them.

(Xander)

Like the other GPs, Xander thus described data as representing 'reality'. Xander continued explaining the consequences this representation of data could have:

And then you could see that we [the doctors in his clinic] were a bit high, also in [benzodiazepines] and painkillers. So, it was like an eye opener, because we actually had the impression that we were quite restrictive there. And then we had to sit down, we were three doctors at the time, and just look at each other and say: "What? This isn't alright. How did it tip? Are we too relaxed or are there some things we can do differently?" And then we also brought the staff into a staff meeting and said: "what, now you have to come up with some inputs on how we can kind of get this under control again".

(Xander)

Because Xander in these cases did not doubt the ability of data to represent 'reality', they worked like a revelation for him and his colleagues—and as a reason to rethink their practices. He let data overrule his previous impression. He was convinced that they had to change. The elements of workplace learning, feedback, and notion of quality, otherwise involved in what Bearman et al. (2022) term evaluative judgement, were bypassed by data when they were considered to represent 'reality'.

When GPs in this way took data to represent their clinical reality, they would not consider whether their particular clinic could be different for valid reasons, such as different registration practices or patient populations. From an EBM perspective, which the GPs stated to follow, the lack of contextualising data can involve risks of misinterpretation. While Xander described a clear example of changes *driven* by data, it might work against the intended purpose of the quality assessments: to ensure optimal treatment for all patients.

Seeing with data is not always enough for GPs to act

Though 'seeing' with data in this way could lead to change in practices, several GPs explained how it rarely was enough to modify their clinical work. Despite talking about the ability to 'see' with data, as outlined above, the GPs also described uncertainties and reservations acting on data. Henrik, 55, gave an example of his cluster's work with drug prescriptions. He did not question what data represented as such, but what this meant in terms of what to do:

Nobody tells us that it is wrong to prescribe morphine or what the number of prescriptions should be. [...] We have had some training in [use of painkillers], and then we have some national averages, and where is the pain centre located, for example? And what is the regional average? What is the national average? [...] You can't fixate on a certain level, apart from saying that if we calculate the national average, but who says that the national average is right?

(Henrik)

Henrik described how he was uncertain about what the data meant. Most GPs did so. Like Jesper before, they described how they were certain about what they considered data to represent, but

also how uncertain they were in what that would imply in clinical practice. Data were considered to represent the GPs' past actions well but were unable to determine the appropriate future action. What they needed, the GPs explained, were norms/rules, averages or benchmarks to create meaning of their own data in order to act on them.

Another frequently described reservation to acting on data was about awareness of the production of data. The GPs explained how they coded data differently due to different clinical systems. They even used the same phrase 'super difficult' when describing how to produce data. Bodil, 55, explained:

> And I realised that [our clinic] had, if you searched [in the system], 7XX [last two digits omitted for anonymisation] on polypharmacy, and I thought "ah, okay, I know my patients are sick though [laughs] but that sounds a bit much", around 7XX I actually think it was. And then it turned out that it was because [the former owner of the clinic] hadn't updated the medication list for all those patients, right? [...] Last time I did the search, we were below 500 patients, so we have reduced the number of patients on polypharmacy with 2XX, just by cleaning up, right?
>
> (Bodil)

By simply updating the patients' medical lists Bodil's data about her clinic changed significantly. Several GPs explained how they had reached conclusions together in the cluster, which they then individually rejected afterwards when looking again at how they had produced their own data. In this way, the cluster's quality work could just as well lead to changes in registrations, rather than clinical performance (see also Harrison & Dowswell, 2002). They further described the positive feeling of updating and correcting data in their systems that made their numbers look better without necessarily having any effect for the patients. Quality improvement can come from better data habits, not just clinical work.

In other cases, clusters could make GPs question the notion of the average being the best. Annemarie, 59, for example, questioned a data representation *after* a cluster meeting:

> Well, I thought [during the meeting] that I was way too high in terms of the number of performed lung function tests, and that I was too high in prescribing inhaled steroids. So, I thought I was doing something wrong. [...] So, I tried to go home and look at the individual data to see what kind of patients they were. How were they actually? [...] When we examined the patients, it turned out that it was probably not as bad as I had just thought.
>
> (Annemarie)

The cluster analysis represented her work quality as 'below average', but it just stimulated her to reassess her patient population and come to the conclusion that they needed special care. This type of awareness of the potential specificity of a clinic's patient population was missing in the examples above where averages were used to change behaviour.

Did Henrik, Bodil, and Annemarie, become sceptical or critical about data use when they experienced lack of interpretation, incorrect production, or misrepresentation of data, respectively? Surprisingly, on the contrary: all three, and most of the other GPs, described much appreciation of using data. They valued the use of data because of the ways in which data could serve as support for various claims.

GPs use data to support three types of claims

GPs typically considered data useful to support three different claims: the need for discussing with colleagues, to install a change without having a defined goal and to articulate reflections on individual practices. This means that data gain evidential value in relation to particular agendas.

After Henrik described the uncertainty in understanding and acting on the data, he explained why he still valued them:

> We know that one practice here has many chronic patients, and they are usually a bit high [in painkillers], but apart from that why are there these differences? We have then had a good talk about it and then [the prescription rate] flattened. It will never become exactly equal, but it has been a good process.
>
> (Henrik)

For Henrik, data were mainly useful for initiating discussions. Discussions could strengthen evaluative judgements by making GPs consider how colleagues viewed quality. What data were considered to represent became less relevant than their use in supporting the need of sharing evaluative judgement among colleagues. In such cases, data interact with traditional means of evaluative judgement. Data did not have to be correct or represent something with certainty, but just point at something that the GPs could pick up and discuss—if they wanted to. Viggo, 75, explicitly explained the main value of data in the cluster in this way:

> Well, it's to discuss with colleagues, right? That's what is positive. Yes, what we GPs need is to exchange experiences, attitudes, and knowledge. And we do that best with colleagues. Yeah, well, education by other specialists, we don't value that very much. It should preferably be colleagues who can sort of problematise a certain theme and then they will discuss it in groups. That is useful and educational. And for that we need data of course.
>
> (Viggo)

For Viggo, data were essential support for colleagues to educate each other. As we will see later on, this was the main difference to accreditation as well; with support from data, the GPs were allowed and even encouraged to solve their own problems instead of being told what to do by outsiders.

Bodil explained another value of data that several GPs described:

> Regarding antibiotics, in general the consumption should get lower, right? So low is good, but clearly there is no right or wrong answer. And that's how it is with quality improvements, right? That it is more of a path than it is a goal. We are moving in a different direction, to do something better. Uh, but of course you must decide which way to go, right? I also can't say how much painkillers my patients should get before it is good or bad. I can't say that.
>
> (Bodil)

Bodil described the concept of quality as ambiguous. Other GPs described how they were uncertain what quality meant or that quality was 'many things'. Their point is also found in reports of the Danish health-care system in which different quality indicators can be conflicting with each other, such as effective treatment compared to safety for the patient and cost effectiveness

compared to equity (Dansk Selskab for Kvalitet i Sundhedssektoren, 2022). Like with Henrik, data alone were not enough to create knowledge of what would be the 'right' answer. Instead of a 'no right or wrong answer', data were useful to support in which direction one should be 'moving'.

Annemarie, who we saw above had realised she has misinterpreted her data, later explained why the data were still useful to her:

> It made us perhaps a little more mindful about who actually benefits from steroids and who does not benefit from steroids. [...] I think it gave a lot of afterthoughts.
>
> (Annemarie)

For Annemarie, it was not as much about what data represented as it was about the attentiveness that followed: even an invalid data analysis could be useful when it made her rethink the way she treated her patients. Data helped articulate reflections.

All three examples explained the same overall value of data: data were not useful for what they—potentially—represented but for how they prompted further actions. They supported questions and reconsiderations of what to do and they could support a direction to aim for. Perhaps partly for that reason, the GPs also considered the data too valuable to share with others.

GPs are concerned about authorities gaining access to data

In contrast to the GPs' embrace of data analysis when they were in control of the data, they expressed concern and scepticism towards sharing the cluster data with others. External analysis of the data was talked about as involving a risk of negative judgement and false accusations. The GPs highlighted one particular actor whom they feared would get their data: the Danish Patient Safety Authority (DPSA). In recent years, individual doctors as well as the Danish Medical Association have stated their mistrust to this authority's ability to assess doctors' clinical work, which includes several open letters from the Danish Medical Association to the Danish minister of Health (Boston Consulting Group et al., 2022; Jessen, 2021). The GPs in our interviews described DPSA with strong metaphors, such as KGB and Stasi—the former security agencies for the Soviet Union and East Germany. Lene, 49, described them as 'Big Brother'. After the end of accreditation, she explained how DPSA performed risk-based inspections before the cluster concept started. She was happy that the GPs themselves now had taken over the quality assessment:

> We [the GPs] do know, after all, what we are doing and what makes sense to do. Instead of someone coming and controlling us who doesn't know how to work in general practice. I've tried that, um... and I just have to say that the woman [from DPSA] who came and did a risk-based inspection in the clinic, hasn't been in a clinic for many, many years, so it was the strangest thing in my professional life. I mean, she knew very little about what it's like to work in practice [...] So, I think that it might be better that we do it internally, because we know how we work, rather than someone who has never set foot in a clinic, it is difficult for them to point out what quality is.
>
> (Lene)

Lene had no confidence in DPSA's ability to assess clinical quality. She believed in the need for clinical governance of general practice, but she considered it best if the GPs took care of it. Asked to elaborate about 'the strangest thing', she explained how she had felt that it was an April's fool joke when she was dictated by the DPSA inspector to say out loud the instructions that the inspector dictated her to do for the future. Furthermore, it was an instruction that Lene

considered practically impossible to do in general practice. Lene felt intimidated by DPSA. She thought DPSA had insufficient competence but nevertheless the authority to judge her and that it was intimidating how they could raise serious accusations and even punishments, including being reported to the police and revoking her medical licence immediately.

Bodil explained how she had taken over a clinic recently. When she finally had a chance to look more deeply into her patient data, she panicked, she said, fearing that DPSA would look at the data about the number of patients being treated with morphine. These treatments were initiated by the former doctor of the clinic. Bodil was afraid of DPSA judgement though she could document that the questionable prescription patterns originated from the previous manager of her clinic. She could not hinder DPSA's access to the prescription data, but she could produce additional data. And she did, to have support for her claim of being a thorough and good doctor, such as elaborate notes for every patient, prescription plans, standardised policy plans for how often to see these patients etc. These data were not mainly produced for what they represented to her. They were produced as evidential value if DPSA would make accusations against her. Asked why she was so concerned about DPSA, Bodil explained:

> I think I know pretty well what is right and wrong, right? But DPSA is such a joker, right? You can't really handle them, eh? I don't really know if I'm home safe and sure, or if I'm not at all, right? So, it's because they are a joker that I don't feel comfortable. I don't feel like "bring it on".
>
> (Bodil)

Bodil first described data as representational (see above), but here assign them evidential value in specific situations in relation to specific actors. Like Lene, Bodil had no trust in the DPSA. Therefore, any data, and especially data shared with the cluster, possessed a danger in the hands of external actors such as DPSA.

GPs clearly favour clusters over accreditation

While a few GPs were unsure if the cluster meetings were worth the time (in the survey mentioned above it was 30%), the GPs in our study consistently compared the cluster with the accreditation and described the cluster much more positively. This should come as no surprise in light of the analysis presented so far: in clusters, the GPs control the analytical process of what claims data support. In accreditation programs, other actors such as DPSA can use the data as support for their own claims. A few GPs were not against accreditation, mainly because they have learnt to comply with the monitoring demands in relatively efficient ways. But most GPs were happy that the cluster had taken over. Henrik explained:

> The cluster was set up as a replacement for accreditation, and there we had some who came and surveyed us. We should have everything ready with guidelines for one thing, documentation for something else, and instructions for this and that. So, since it has been cancelled, it depends more on trust, and we are really happy about that. But we have to provide some data, and it is my responsibility as the cluster coordinator that I – in case a surveyor wants to see what it is we are doing – can lay out the maps and show that I have made reports and everything. There is data in place and here is what we have done.
>
> (Henrik)

It was not necessarily the workload but the purpose and method from the accreditation GPs were against. The GPs felt that they had to do data work so others could 'survey' them—that they were subject to other actors' judgement based on data. With the cluster concepts, Henrik and other GPs explained, they instead experienced to be trusted and to be able to pursue data use in relation to topics of relevance to their own practice. They felt obliged to live up to the trust by producing and using data. From a Foucauldian perspective, one could say that data had a disciplinary effect on Henrik and his colleagues so that they really did assess themselves (Foucault, 2020). Whether this is enough external guarantee of quality is beyond this paper to assess.

DISCUSSION

We have described how most GPs found cluster participation to be a positive experience. They showed great interest in assessing and using data to improve clinical quality. In contrast to accreditation, which GPs only partly accepted and where they tried to minimise their data work, almost all the GPs we interviewed found the use of data in the clusters meaningful. They said it led to changes in behaviour, which they themselves associated with higher quality. This positive embrace is in line with existing studies of the cluster concept where 70% of the GPs considered the cluster moderately or highly useful, as well as the fact that 98% chose a cluster instead of accreditation (Bundgaard et al., 2022; Kousgaard et al., 2022; Madsen et al., 2022). The cluster concept has almost from the start changed the GPs' perception of quality improvement from something externally dictated and potentially unfair to something internally initiated and beneficial.

The cluster program is a new form of clinical governance in primary care. Clinical governance, understood as the overall framework for health-care service improvements and standardisation (Travaglia et al., 2011), has been criticised for focusing on groups of patients instead of individual patients (Checkland, 2004). Clinical governance initiatives in other European countries that are comparable to clusters include 'quality circles', 'peer review groups' and 'primary care networks' (Rohrbasser et al., 2018). They typically consist of 6 to 12 GPs, while concepts such as 'primary care groups' (PCG) and 'primary care trusts' have up to one hundred GPs. Like Danish clusters, PCG enables individual GPs to benchmark their work with colleagues (Sheaff et al., 2003). In line with our findings, studies of the PCG also found that the GPs considered some kind governance inevitable (Harrison & Dowswell, 2002) and that by participating voluntarily in a PCG, the GPs expect to avoid being enrolled in clinical governance programs they considered to be worse (Sheaff et al., 2003). The effect of GP clusters in Wales is so far uncertain due to slow progress (Mercer et al., 2020). In 2016, it turned mandatory in Scotland for all GPs to join a GP cluster (Smith et al., 2017), and in a survey from 2018, more than 70% of the Scottish GPs perceived no positive changes in quality improvement, though the cluster was '"up and running" with regular meetings that were friendly, well organised and well facilitated, but not always productive' (Mercer et al., 2020, p. 7). In line with Bundgaard et al. (2022), we found instead that the GPs in the Danish cluster concept stated to change behaviour immediately due to the cluster. Our findings suggest that the use of data intensifies such change of clinical behaviour. In contrast to these other programs, the Danish cluster concept is the first to explicitly use data as a mandatory managerial technique. This suggests that data can inspire GPs productively when used with care.

With a relational data concept, we have provided new understandings of *how* Danish doctors understand and use data to evaluate themselves. Our findings suggest that instead of registering and judging health professionals externally, as in accreditation programs, it can be beneficial to let the involved actors assess themselves. This has implications beyond general practice. Yet, the findings show how difficult it can be for health professionals to understand their own data. In

some cases, for example, the GPs make changes without considering the specificity of their own patient population. Though GPs in some cases lacked training in how to use data, they still did use them. Sometimes it would be to spark discussions with colleagues, but in other cases it would install actual changes. Such actions are not always in accordance with the EBM principles that the GPs are supposed to follow. The ways in which the GPs embrace clusters have similarities with GPs' behaviour when EBM clinical guidelines were introduced: the GPs were positive of using it, yet the GPs used the guidelines in unexpected ways by involving discussion with their network of GP colleagues (Checkland, 2004; Gabbay and May 2004). GP satisfaction is not enough to declare a quality initiative a success. Specifically, the GPs need training in how to critically judge when statistical information, such as normal distributions, are useful for the individual patient and when they are not, as well as what notion of quality they are looking for (Guyatt et al., 2015).

If the GPs aim to use data with an EBM approach, they need to be more systematic. The GPs must critically consider what type of quality they are looking for, how the specific data were produced and which background population the specific data are to be compared with—if the data are to be compared at all. If the quality is about the GPs' individual patients, comparison with population data is not necessarily useful. If the GPs look at data about their own patient populations, they must know how their populations differ from the populations that they compare with. The GPs must also consider whether their patients agree with the implied notion of quality.

In addition, the GPs and other actors involved in the cluster can benefit from acknowledging a relational concept of data. The GPs can become more aware of when they use data as support for claims just as the cluster support staff can pay more attention to context and differences between involved clinics. The clusters can benefit from working explicitly with the concept of evaluative judgement as well. The GPs can actively consider how data interact with feedback, workplace learning and notions of quality. In return, the medical education literature can benefit from insights about how GPs self-monitor themselves within clusters and how data might influence their evaluative judgement.

Finally, these findings about the potential benefits and pitfalls associated with data sharing for quality monitoring purposes can prove useful in relation to current global ambitions of creating, sharing and reusing health data across national borders. One such initiative is the European Commission's 'European health data space', which aims to make data available across country borders and professional fields (European Commision, 2022). It is to facilitate external analysis, monitoring, research and planning. However, the need for contextual understanding described above, should provoke serious questions about the feasibility of stimulating productive learning through these means. Before the European Commission gets too enthusiastic about using data as unambiguous representations that can travel and facilitate insights into best practices across borders, they should perhaps look carefully at how difficult it is to compare even just the performance of two GP clinics in the same municipality in the same country. They also need to consider the social factors that bring health professionals on board (Marelli et al., 2023). A relational data concept might be useful for these aims.

CONCLUSION

A new clinical governance program called clusters has been introduced in Denmark and positively received by the GPs, who are now to evaluate themselves and each other through comparisons. The positive attitudes, and the ways in which data stimulate reflections on quality, suggest opportunities for using data to improve patient outcomes. However, unguided data uses can

also lead to unfounded changes in practice. A more reflective use of data could be stimulated by explicitly moving for a representational understanding of data to a relational one. Our findings also suggest the need to acknowledge the social dynamics involved when external actors are given access to data. This includes careful consideration before external actors assess health professionals based on data that the professionals have produced themselves. These findings may have significant implications for the political ambitions of increasing the production and circulation of data as well as the expanding of the cluster concepts as a governance tool.

Furthermore, the need for careful analyses should give rise to questions about the branding of cluster work as being data *driven*. We have shown the risks associated with being driven by data without sufficient reflections. GPs can both be 'data driven' and 'data informed', but the two options are not equally desirable. It is not enough to collect more 'relevant' and 'operational' data, as in current policies described in the background section. Data are likely to remain ambiguous. The usefulness of data lies in how they can stimulate careful and critical thinking in a clinical context where uncertainties are inevitable. Data can inform and encourage health professionals to ask difficult questions to wicked problems, which can be more useful than erasing doubts with easy answers. By combining these effects of data with a more active use of EBM principles and the concepts of relational data and evaluative judgement, cluster participation can result in practices that are *data informed,* rather than data driven. Such an understanding of the interplay between social, political and epistemic dynamics in medical practices, suggests an important future role for the sociological engagement with data analysis in everyday medical practices.

AUTHOR CONTRIBUTIONS

Christoffer Bjerre Haase took lead in the conceptualization with suggestions from all authors on choice of methodology and planning. Christoffer Bjerre Haase conducted the investigation. All authors were significantly involved in the analysis. Christoffer Bjerre Haase wrote the initial draft of the manuscript with feedback from Klaus Hoeyer. All authors were involved in the subsequent review and editing.

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CONFLICT OF INTEREST STATEMENT

No conflict of interest.

DATA AVAILABILITY STATEMENT

Research data are not shared due to data protection.

ETHICS STATEMENT

The study protocol, including the recruitment process and informed consent, was approved by the Faculty of Arts and Education's Human Ethics Advisory Group at Deakin University.

PATIENT CONSENT STATEMENT

N/A.

PERMISSION TO REPRODUCE MATERIAL FROM OTHER SOURCES

N/A.

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