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Title	The association between payment model and specialist physicians' selection of patients with diabetes: a descriptive study
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Reviewer 1	Steven Lewis
Institution	Access Consulting Ltd., Saskatoon, Sask.
General comments (author response in bold)	1) This is a potentially interesting paper that in its present form raises more questions than it answers. The subject of the paper is differences in observed patient characteristics seen by FFS vs. salaried specialists (in this case diabetic patients). The paper is candid about being a descriptive study and the penultimate paragraph lists a number of explanations for the differences besides the payment modality, all of which are thoughtful and plausible. For these reasons, the claim that the observed differences are "striking" and the conclusion that " Specialists reimbursed under fee-for-service were more likely to see patients for whom management could have continued in primary care, suggesting that physician payment policy may offer an opportunity to improve the quality and value of chronic disease care" seem stronger than warranted. **Thank you. We agree the goal of this paper is descriptive, and as noted in the response to the comment by the editor, we have toned down the conclusions substantially.** 2) The paper is based solely on administrative data, and even robust administrative data are unlikely to yield precise estimates of whether, e.g., patients truly could be managed successfully by primary care, and whether patients lumped plausibly into the same severity category are indeed clinically identical. Administrative data cannot tell us about the nature and capabilities of the primary care physician community or the specialists. As the authors note, specialists may self-select into the payment modalities that best reflect their preferred practice style and/or their personal financial priorities. Hence finding some correlation may be mildly interesting, but to be relevant to policy and structural conversations, it is important to try to get at least within hailing distance of a modest degree of causation. **Thank you. As noted in the response to the editors, this paper is one is a series of articles aiming to better understand the impact of alternate payment models for specialist physicians. In a subsequent qualitative analysis, we will have a better understanding of physician's perspectives (both primary care and specialists) on the different payment models, including how it impacts patient selection, as well as why primary care physicians choose to refer patients to one group of specialists or another.** 3) Nonetheless it is important and useful to mine administrative data for preliminary insights into practice patterns. My suggestion here is that the authors try to dig a little deeper in an attempt either to verify or reject some of the alternative explanations for the observed differences. Among these might be: (a) Are there differences in wait times from referral to specialist consult? I would assume that the salaried cohort, being primarily academics, would have less clinical time available given their teaching and research responsibilities. Perhaps there is a perception among the referring family physicians that wait time are longer and therefore only patients requiring a greater level of expertise should be sent to the FFS specialists. If true, this may suggest an efficient division of labour between the two specialist groups rather than an implied financial incentive system at work. (It may also confirm that there is less incentive to see patients in a timely manner under salary, although presumably that would irk patients and their family physicians.) (b) As noted in the paper, referral patterns may be conditioned by previous experience. If, for example, the salaried diabetic specialists have refused referrals because the indications are deemed insufficient to warrant a consultation, referring physicians may well opt for paths of lesser resistance. In a sense this would tend to support the hypothesis that the payment system matters in that FFS specialists have an incentive to serve less sick patients. However, this is the case only where there is excess capacity in the system, and declining a referral would reduce income. If there is any way to explore the capacity issue, we might learn more about these incentives. **In response to both of these comments, these are exactly the kind of themes that our qualitative paper will explore, and which we are unfortunately not able to address with our current study methodology.** (c) The percentage of referrals categorized as rural seem unusually low. Could it be that rural family physicians are as a group more likely to be willing to manage more complex patients than their urban counterparts because they do not have a locally available array of specialists to whom they can refer patients easily, and without much inconvenience to the patients? At the very least can the authors confirm or refute that rural referrrals are disproportionately low, and if they are, might the authors suggest a reason? **We have only included visits to urban specialist physicians in this analysis because of notable difference in specialists in rural vs. urban Alberta, including rural Albertan specialists are only paid fee-for-service and access to emergency care is different in rural and urban Alberta. Moreover, as per the definition used by Statistics Canada, the definition of rural included anyone living in a town with a population <1000 people, Thus, the proportion of rural patients is low in our study population. This was noted in the Results and Interpretation section previously, but has now been added to the methods in order to clarify.** 4) Finally, much of the paper hangs on the notion that we have a good understanding of whether a case should be manageable by primary care. The criteria for categorization seem plausible (I am not a clinician), but I wonder whether they are precise enough to support a preliminary inference that there are more unnecessary referrals to FFS. If the observed magnitude of the differences were huge, it would be reasonable to conclude that there is something important going on here. But they are not huge, and whether patients can be managed well in primary care depends a lot on the capabilities and comfort levels of primary care physicians - and possibly their financial incentives. Since especially type 2 diabetes is very common, one would think that diagnosing and managing it should be core primary care work. All of which is to say that the concept of a "legitimate referral" is on the surface contestable, and one would want it to be pretty airtight if it is to be (partly) relied on as an independent variable in analyses such as this. **We agree this is an important limitation of our paper. As a proviso, we should note that we sought to identify indicators for referral that all could agree were appropriate, rather than the compliment focusing on "inappropriate" referrals, since this is a value-laden term, and indeed it's much more difficult using administrative health data to identify referrals that were truly "inappropriate" (without talking with both the primary care and specialty physician.** **As noted, since we did not have information on the reason for referral provided at the time of the consultation request, we used health administrative data (including laboratory, medication, and clinical data) to infer the indication for the visit. We convened a panel of diabetes specialists, including the heads of the 2 endocrinology programs in Calgary and Edmonton, and a priori sought definitions for "appropriate indications for specialist care" in people with diabetes. This was based on a review of clinical practice guidelines and through consensus. The**

	indications are described in Table 1. In summary, in its current form this paper is a curiosity; my hope is that with some further but not too labour-intensive additional thinking and analysis, it could command more attention. At the very least I think readers would appreciate a more extensive discussion section that would if nothing else suggest what the next step of analysis should be to reject or confirm the hypothesis that payment method is significantly in play here. **Thank you. I think it is actually a compliment that a descriptive paper can be labelled a curiosity, as this will springboard additional studies that will seek the explanation for these interesting findings. We have elaborated in the discussion section, and hope the additional explanation is helpful.**
Reviewer 2	Maude Laberge
Institution	Département d'opérations et systèmes de decision, Faculté des sciences de l'administration Université Laval, Québec, Que.
General comments (author response in bold)	The paper examines the characteristics of patients referred to specialists from family physicians for diabetes care and provides a comparison between patients of specialists paid fee-for-service and those paid through an academic alternative payment plan resembling salary. 1) Although it is relevant to understand how payment could affect physician behaviour and specifically quality of care, the study does not provide such information. Instead, the study provides a description of the characteristics of patients. The reader may question how physicians decided on their payment model and how such a decision might reflect their preference in their practice style. If physicians can select their payment mechanism, then the patients that they see may reflect their preferences, rather than the influence of a payment model on their practice. **Thank you. We agree the goal of this paper is descriptive, and that physician characteristics (as well as funding model) may explain the differences noted. As noted in the response to the comment by the editor, we have toned down the conclusions substantially.** 3) Noting differences in patient characteristics between payment models does not infer causality. **Thank you. As noted in the response to the editors, this paper is one is a series of articles aiming to better understand the impact of alternate payment models for specialist physicians. In a subsequent qualitative analysis, we will have a better understanding of physician's perspectives (both primary care and specialists) on the different payment models, including how it impacts patient selection, as well as why primary care physicians choose to refer patients to one group of specialists or another.** 4) The results that salary-based physicians see sicker patients is consistent with empirical evidence from numerous other studies on physician payment models in Canada (see papers from Rudoler, Laberge, Sarma, Kantaravic for a few examples from Ontario). **Thank you for pointing us to these interesting studies. We have referenced and discussed several of these articles in our introduction and discussion sections.** 5) The authors mention that specialists could provide written feedback but that there is no fee associated. Hence, one could expect that FFS physicians would not provide such a service and instead provide either a verbal feedback or face-to-face consultation to ensure receiving a compensation for their services, which may not always be necessary whereas salaried physicians would not have such an incentive. However, the study does not provide any information on written feedback in terms of the quantity of such services provided, maybe because there is no data. **Thank you. This is a limitation of our study. Providing written feedback is not a compensated service and a billing claim code does not exist for this type of service. We have included this as a limitation.** 6) The study design and methods limit the value of the results. These results can hardly provide information that could support policy makers in the design of payment models for specialist physicians. The interpretation becomes hypothetical and it makes the reader wonder how the hypotheses could not have been explored initially so that the study could have been designed in a way that could answer some of the questions raised. **Thank you. As noted within the response to the editors, this is a descriptive study – the first in a series of studies. The goal was not to attribute causation, nor to match patients across the two funding models. Please see response to editors' comments.** 7) The literature on payment models and incentives to physicians is very rich and a good knowledge and understanding of this literature could help the authors in contributing significantly to the evidence. **We have added additional references to the literature in the introduction and interpretation sections. Much of the literature in this area is related to primary care, rather than specialty care. We hope our studies in this area contribute to the evidence around payment models and specialty care.** 8) The study, as currently designed, is very descriptive, and adds little to improve care for patients living with a chronic condition, such as diabetes. **As noted, this is a descriptive study, the first in a series of studies to understand the impact of alternate funding models on specialist care. We are also in the midst of a systematic review looking at the impact of a different funding models for specialists on care and outcomes of patients. As such, we are well aware of the thin evidence base in this area. Acknowledging the limitations of our study, we believe our results and this paper make an important contribution to the knowledge in this area.**