EDITORIAL

The Wall of Evidence for Continuity of Care: How Many More Bricks Do We Need?

Otto R. Maarsingh, MD, PhD[1]

[1]Department of General Practice, Amsterdam UMC, Vrije Universiteit Amsterdam, Amsterdam Public Health, Amsterdam, The Netherlands

Ann Fam Med 2024;22:184-186. https://doi.org/10.1370/afm.3116

Continuity of care is a core value of primary health care.[1-4] It is highly valued by patients and general practitioners (GPs).[5,6] According to the late Barbara Starfield, continuity should be both relational and informational to be effective.[7] To date, numerous studies have demonstrated continuity of care to be associated with multiple benefits for patients, doctors, and health systems. These benefits include reduced mortality rates,[8-11] fewer hospital admissions,[8,12,13] fewer emergency department (ED) visits,[14,15] reduced health care costs,[16,17] increased physician productivity,[18] better uptake of preventive care,[19,20] better medication adherence,[21-23] more appropriate prescribing,[24,25] improved quality of life,[26] a better patient clinician relationship,[27,28] improved patient satisfaction,[29-31] and physician satisfaction.[32]

The last decade, these benefits have been consistently demonstrated across different patient populations, including patients with diabetes,[33,34] cardiovascular disease,[35] severe mental illness,[36-38] dementia,[39,40] older patients (ie, 80% or more aged ≥ 65 years),[41,42] and children.[43] The evidence base for continuity of care continues to grow, giving rise to multiple systematic reviews for various outcome measures.[9,10,12,16,17,24,34,37] Also, study results have been reproduced and replicated—using different continuity measures in both comparable and different populations, leading to an increasingly robust wall of evidence.

Despite this wall of evidence, continuity of care in family practice has been in sharp decline over the past decades—both in the United Kingdom and the United States,[44-46] negatively affecting health outcomes for patients, doctors, and society. Previously, this decline was mainly explained qualitatively or narratively: eg, patients and doctors are increasingly mobile, solo practice is becoming rare, the number of patients with chronic diseases—and corresponding multiple professionals employed by different organizations—is rising, family physicians (FPs) tend to reorganize themselves in large-group practices, other health care workers such as the practice nurse have entered family practice, on-call services are increasingly organized on a large scale, and patients prefer to prioritize access over continuity.[1,2,47-50] Only recently, Kajari-Montag et al used a data set of primary care consultations corresponding to 10% of England's population over 10 years and found that approximately 45% of the decline in continuity of care can be explained by the increasing fragmentation of the workforce, caused by FPs shifting to part-time work patterns and greater dependence on temporary staff, and a sustained increase in workload caused by greater patient volumes without a proportionate increase in physician hours.[51]

In this issue of *Annals of Family Medicine*, Terrence McDonald and colleagues provide—to quote Pink Floyd—"another brick in the wall" of evidence supporting continuity of care.[52] They conducted a retrospective cross-sectional study of FPs and their patients in Alberta, Canada, from 2015-2018 to explore the impact of primary care clinic continuity, distinct from relational continuity with an individual FP, on patient health outcomes. Separating the relative continuity contributions of a practice and an individual provider is an approach I have not encountered before. The researchers found higher physician continuity to be associated with lower ED use across all levels of patient complexity and lower hospital utilization at a high level of patient complexity. Given the used continuity measure—ie, known provider continuity index (KPC), an outcome measure almost identical to the usual provider of care (UPC) measure,[53] the found inverse association between physician continuity and ED and hospital use was not unexpected.[8,12-15] Perhaps more importantly, however, McDonald et al also demonstrated the benefit of clinic continuity, showing the strongest association with reduced ED and hospital use for patients who always saw either their own FP or one of her/his partners. Such a "buddy system" has been previously suggested as a way to promote continuity,[54,55] but has never actually been investigated for its added value. Scientific evidence like this is crucial, because it provides a glimpse into possible solutions that are feasible and future proof. Similarly, physicians should become more aware of the demonstrated dose-dependent association between continuity and key outcomes like hospitalization and mortality.[8,56,57]

Conflicts of interest: author reports none.

CORRESPONDING AUTHOR

Otto R. Maarsingh
De Boelelaan 1117
1081 HV Amsterdam, The Netherlands
o.maarsingh@amsterdamumc.nl

Such dose-dependency also provides hope for feasible solutions, ie, continuity of care is not a binary problem that needs to be solved by a binary solution, but a societal challenge that asks for continuity awareness and multiple, partial solutions that all contribute to overall improvement of continuity of care. Examples of such solutions, in addition to a buddy system, may include personal lists, implementation of e-health (consultation by video call, e-mail or chat), structural education of FP trainees on the benefits of continuity and how to deliver it,[5,58] and, if possible, using a stepwise, structured approach to implement selected solutions.[55]

At the beginning of the 1980s, my dad and granddad—both solo FPs in a small village—told me "although we cannot prove it, we are convinced that knowing your patient is crucial for health outcomes." They were right, because—despite being a core value—the empirical evidence for continuity was still anecdotal at the time. Forty years later, the constantly growing wall of evidence for continuity cannot be ignored, leading to the question: how many more bricks before we—patients, physicians, health insurers, and policy makers—fully commit to promoting continuity in primary care?

Read or post commentaries in response to this article.

Key words: primary care issues; continuity of care; family medicine values

Submitted March 25, 2024; accepted March 25, 2024.

References

1. Stokes T, Tarrant C, Mainous AG, III, et al. Continuity of care: is the personal doctor still important? A survey of general practitioners and family physicians in England and Wales, the United States, and The Netherlands. *Ann Fam Med* 2005;3(4):353-59. 10.1370/afm.351
2. Guthrie B, Saultz JW, Freeman GK, Haggerty JL. Continuity of care matters. *BMJ*. 2008;337:a867.
3. Freeman GK, Olesen F, Hjortdahl P. Continuity of care: an essential element of modern general practice? *Fam Pract*. 2003;20(6):623-627.
4. Arvidsson E, Švab I, Klemenc-Ketiš Z. Core values of family medicine in Europe: current state and challenges. *Front Med (Lausanne)*. 2021;8:646353. 10.3389/fmed.2021.646353
5. Groot L, Te Winkel M, Schers H, et al. Optimising personal continuity: a survey of GPs' and older patients' views. *BJGP Open*. 2023;7(2): BJGPO.2022.0099. 10.3399/bjgpo.2022.0099
6. Kearley KE, Freeman GK, Heath A. An exploration of the value of the personal doctor-patient relationship in general practice. *Br J Gen Pract*. 2001;51(470): 712-718.
7. Starfield B, Horder J. Interpersonal continuity: old and new perspectives. *Br J Gen Pract*. 2007;57(540):527-529.
8. Sandvik H, Hetlevik Ø, Blinkenberg J, Hunskaar S. Continuity in general practice as predictor of mortality, acute hospitalisation, and use of out-of-hours care: a registry-based observational study in Norway. *Br J Gen Pract*. 2022; 72(715):e84-e90. 10.3399/bjgp.2021.0340
9. Baker R, Freeman GK, Haggerty JL, Bankart MJ, Nockels KH. Primary medical care continuity and patient mortality: a systematic review. *Br J Gen Pract*. 2020;70(698):e600-e611. 10.3399/bjgp20X712289
10. Pereira Gray DJ, Sidaway-Lee K, White E, Thorne A, Evans PH. Continuity of care with doctors-a matter of life and death? A systematic review of continuity of care and mortality. *BMJ Open*. 2018;8(6):e021161-e61. 10.1136/bmjopen-2017-021161
11. Maarsingh OR, Henry Y, van de Ven PM, Deeg DJ. Continuity of care in primary care and association with survival in older people: a 17-year prospective cohort study. *Br J Gen Pract*. 2016;66(649):e531-e539. 10.3399/bjgp16X686101
12. Kao YH, Lin WT, Chen WH, Wu SC, Tseng TS. Continuity of outpatient care and avoidable hospitalization: a systematic review. *Am J Manag Care*. 2019; 25(4):e126-e134.
13. Barker I, Steventon A, Deeny SR. Association between continuity of care in general practice and hospital admissions for ambulatory care sensitive conditions: cross sectional study of routinely collected, person level data. *BMJ*. 2017;356:j84. 10.1136/bmj.j84
14. Surbhi S, Chen M, Shuvo SA, et al. Effect of continuity of care on emergency department and hospital visits for obesity-associated chronic conditions: a federated cohort meta-analysis. *J Natl Med Assoc*. 2022;114(5):525-533. 10.1016/j.jnma.2022.07.001
15. Kohnke H, Zielinski A. Association between continuity of care in Swedish primary care and emergency services utilisation: a population-based cross-sectional study. *Scand J Prim Health Care*. 2017;35(2):113-119. 10.1080/02813432.2017.1333303
16. Bazemore A, Merenstein Z, Handler L, Saultz JW. The impact of interpersonal continuity of primary care on health care costs and use: a critical review. *Ann Fam Med*. 2023;21(3):274-279. 10.1370/afm.2961
17. Nicolet A, Al-Gobari M, Perraudin C, Wagner J, Peytremann-Bridevaux I, Marti J. Association between continuity of care (COC), healthcare use and costs: what can we learn from claims data? A rapid review. *BMC Health Serv Res*. 2022; 22(1):658. 10.1186/s12913-022-07953-z
18. Kajaria-Montag H, Freeman M, Scholtes S. Continuity of care increases physician productivity in primary care. *Manage Sci*. 2024. 10.1287/mnsc.2021.02015
19. Saultz JW, Lochner J. Interpersonal continuity of care and care outcomes: a critical review. *Ann Fam Med* 2005;3(2):159-66. 10.1370/afm.285
20. Cabana MD, Jee SH. Does continuity of care improve patient outcomes? *J Fam Pract* 2004;53(12):974-80.
21. Chen CC, Tseng CH, Cheng SH. Continuity of care, medication adherence, and health care outcomes among patients with newly diagnosed type 2 diabetes: a longitudinal analysis. *Med Care*. 2013;51(3):231-237. 10.1097/MLR.0b013e31827da5b9
22. Kerse N, Buetow S, Mainous AG III, Young G, Coster G, Arroll B. Physician-patient relationship and medication compliance: a primary care investigation. *Ann Fam Med*. 2004;2(5):455-461. 10.1370/afm.139
23. Kim D, Cha J. Association between medical complications according to continuity of care and medication adherence in patients with hypertension in Korea: a national population-based cohort study. *BMJ Open*. 2023;13(6): e073404. 10.1136/bmjopen-2023-073404
24. Lampe D, Grosser J, Gensorowsky D, et al. The relationship of continuity of care, polypharmacy and medication appropriateness: a systematic review of observational studies. *Drugs Aging*. 2023;40(6):473-497. 10.1007/s40266-023-01022-8
25. Te Winkel MT, Damoiseaux-Volman BA, Abu-Hanna A, et al. Personal continuity and appropriate prescribing in primary care. *Ann Fam Med*. 2023;21(4): 305-312. 10.1370/afm.2994
26. Chen HM, Tu YH, Chen CM. Effect of continuity of care on quality of life in older adults with chronic diseases: a meta-analysis. *Clin Nurs Res*. 2017;26(3): 266-284. 10.1177/1054773815625467
27. Frederiksen HB, Kragstrup J, Dehlholm-Lambertsen B. Attachment in the doctor-patient relationship in general practice: a qualitative study. *Scand J Prim Health Care*. 2010;28(3):185-190. 10.3109/02813432.2010.505447
28. Schers H, van den Hoogen H, Bor H, Grol R, van den Bosch W. Familiarity with a GP and patients' evaluations of care: a cross-sectional study. *Fam Pract*. 2005;22(1):15-19. 10.1093/fampra/cmh721
29. van Walraven C, Oake N, Jennings A, Forster AJ. The association between continuity of care and outcomes: a systematic and critical review. *J Eval Clin Pract*. 2010;16(5):947-956. 10.1111/j.1365-2753.2009.01235.x
30. Adler R, Vasiliadis A, Bickell N. The relationship between continuity and patient satisfaction: a systematic review. *Fam Pract*. 2010;27(2):171-178. 10.1093/fampra/cmp099
31. Saultz JW, Albedaiwi W. Interpersonal continuity of care and patient satisfaction: a critical review. *Ann Fam Med*. 2004;2(5):445-451. 10.1370/afm.91

32. Ridd M, Shaw A, Salisbury C. 'Two sides of the coin'—the value of personal continuity to GPs: a qualitative interview study. *Fam Pract*. 2006;23(4):461-468. 10.1093/fampra/cml010

33. Cho KH, Lee SG, Jun B, Jung BY, Kim JH, Park EC. Effects of continuity of care on hospital admission in patients with type 2 diabetes: analysis of nationwide insurance data. *BMC Health Serv Res*. 2015;15:107. 10.1186/s12913-015-0745-z

34. Chan KS, Wan EY, Chin WY, et al. Effects of continuity of care on health outcomes among patients with diabetes mellitus and/or hypertension: a systematic review. *BMC Fam Pract*. 2021;22(1):145. 10.1186/s12875-021-01493-x

35. Choi D, Choi S, Kim H, et al. Impact of continuity of care on cardiovascular disease risk among newly-diagnosed hypertension patients. *Sci Rep*. 2020;10(1):19991. 10.1038/s41598-020-77131-w

36. Maoz H, Sabbag R, Mendlovic S, Krieger I, Shefet D, Lurie I. Long-term efficacy of a continuity-of-care treatment model for patients with severe mental illness who transition from in-patient to out-patient services. *Br J Psychiatry*. 2024;224(4):122-126. 10.1192/bjp.2024.9

37. Li C, Wu M, Qiao G, et al. Effectiveness of continuity of care in reducing depression symptoms in elderly: a systematic review and meta-analysis. *Int J Geriatr Psychiatry*. 2023;38(3):e5894. 10.1002/gps.5894

38. Ride J, Kasteridis P, Gutacker N, et al. Impact of family practice continuity of care on unplanned hospital use for people with serious mental illness. *Health Serv Res*. 2019;54(6):1316-1325. 10.1111/1475-6773.13211

39. Leniz J, Gulliford M, Higginson IJ, et al. Primary care contacts, continuity, identification of palliative care needs, and hospital use: a population-based cohort study in people dying with dementia. *Br J Gen Pract*. 2022;72(722):e684-e692. 10.3399/bjgp.2021.0715

40. Delgado J, Evans PH, Gray DP, et al. Continuity of GP care for patients with dementia: impact on prescribing and the health of patients. *Br J Gen Pract*. 2022;72(715):e91-e98. 10.3399/bjgp.2021.0413

41. Bayliss EA, Ellis JL, Shoup JA, et al. Effect of continuity of care on hospital utilization for seniors with multiple medical conditions in an integrated health care system. *Ann Fam Med* 2015;13(2):123-29. 10.1370/afm.1739

42. Dyer SM, Suen J, Williams H, et al. Impact of relational continuity of primary care in aged care: a systematic review. *BMC Geriatr*. 2022;22(1):579. 10.1186/s12877-022-03131-2

43. Enlow E, Passarella M, Lorch SA. Continuity of care in infancy and early childhood health outcomes. *Pediatrics*. 2017;140(1):e20170339. 10.1542/peds.2017-0339

44. Tammes P, Morris RW, Murphy M, Salisbury C. Is continuity of primary care declining in England? Practice-level longitudinal study from 2012 to 2017. *Br J Gen Pract*. 2021;71(707):e432-e440. 10.3399/bjgp.2020.0935

45. Levene LS, Baker R, Walker N, Williams C, Wilson A, Bankart J. Predicting declines in perceived relationship continuity using practice deprivation scores: a longitudinal study in primary care. *Br J Gen Pract*. 2018;68(671):e420-e426. 10.3399/bjgp18X696209

46. Fletcher KE, Sharma G, Zhang D, Kuo YF, Goodwin JS. Trends in inpatient continuity of care for a cohort of Medicare patients 1996-2006. *J Hosp Med*. 2011;6(8):438-444. 10.1002/jhm.916

47. Schers HJ. *Continuity of Care in General Practice. Exploring the Balance Between Personal and Informational Continuity* [dissertation]. Nijmegen: KUN Katholieke Universiteit; 2004.

48. Uijen AA. *Continuity of Care. Perspective of the Patient With a Chronic Illness* [dissertation]. Nijmegen: Radboud Universiteit; 2012.

49. Haggerty JL, Roberge D, Freeman GK, Beaulieu C. Experienced continuity of care when patients see multiple clinicians: a qualitative metasummary. *Ann Fam Med* 2013;11(3):262-71. 10.1370/afm.1499

50. Guthrie B, Wyke S. Personal continuity and access in UK general practice: a qualitative study of general practitioners' and patients' perceptions of when and how they matter. *BMC Fam Pract*. 2006;7:11. 10.1186/1471-2296-7-11

51. Kajaria-Montag H, Freeman M. Explaining the erosion of relational care continuity: an empirical analysis of primary care in England. Insead. Published Sep 28, 2020. Updated Jan 22, 2021. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3699385

52. McDonald T, Ronksley PE, Cook LL, et al. The impact of primary care clinic and family physician continuity on patient health outcomes: a retrospective analysis from Alberta, Canada. *Ann Fam Med*. 2024;22(3):xxx-xxx. 10.1370/afm.3107

53. Ejlertsson G, Berg S. Continuity of care in health care teams. A comparison of continuity measures and organisational solutions. *Scand J Prim Health Care*. 1985;3(2):79-85. 10.3109/02813438509013921

54. Stange K, Burge F, Haggerty J. RCGP Continuity of Care Toolkit: promoting relational continuity [published correction appears in *Br J Gen Pract*. 2014 Oct;64(627):502]. *Br J Gen Pract*. 2014;64(623):274-275. 10.3399/bjgp14X679957

55. Improving continuity: a toolkit for gp practices. Royal College of General Practitioners. https://elearning.rcgp.org.uk/pluginfile.php/174198/mod_book/chapter/536/Improving%20Continuity%20of%20Care%20Toolkit%20V2.1.pdf?time=1652177755507

56. Khazen M, Abu Ahmad W, Spolter F, et al. Greater temporal regularity of primary care visits was associated with reduced hospitalizations and mortality, even after controlling for continuity of care. *BMC Health Serv Res*. 2023;23(1):777. 10.1186/s12913-023-09808-7

57. Winkel MTT, Slottje P, de Kruif AJ, et al. General practice and patient characteristics associated with personal continuity: a mixed-methods study. *Br J Gen Pract*. 2022;72(724):e780-e789. 10.3399/bjgp.2022.0038

58. Fox MN, Dickson JM, Burch P, Hind D, Hawksworth L. Delivering relational continuity of care in UK general practice: a scoping review. *BJGP Open*. [published online ahead of print Mar 6, 2024]. 10.3399/bjgpo.2024.0041

THANK YOU AND WELCOME

Ann Fam Med 2024;22:186. https://doi.org/10.1370/afm.3115

We are ever grateful for and indebted to our community. Peer reviewers are key to advancing scholarship and contributing to the quality of a research journal. Please see the **full list** for the names of our 2023 peer reviewers. And, as ever, *Annals of Family Medicine* is enriched by those who contribute e-Letters (comments). In 2023, we posted many e-Letters reflecting on a wide range of published articles. Our sincere thanks to those who participated in this stimulating dialog. To read or contribute comments, click on the e-Letters tab from any article or click on "**e-Letters**" from the "Engage" menu on the *Annals* **home page**. We look forward to working with and serving you all in years to come.

Annals of Family Medicine is delighted to announce the addition of the following people to our Editorial Advisory Board: Jeffrey Borkan, MD, PhD; Felicity Goodyear-Smith, MD; Paul James, MD; Alex H. Krist MD, MPH, FAAFP. We wish them welcome!