



ZENTRALINSTITUT FÜR DIE
KASSENÄRZTLICHE VERSORGUNG
IN DEUTSCHLAND

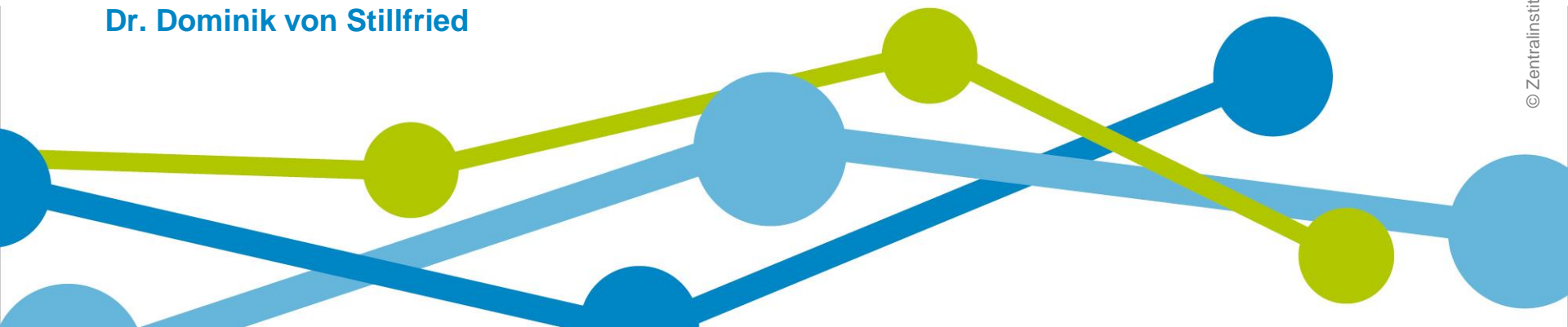
Wennberg International Collaborative Spring Policy Meeting 2018,
Zurich - April 13, 2018

Patient Sharing Networks

- a new concept to support
outcome-oriented health policy interventions?

Introduction

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Is geography really destiny and is there a key to the quality conundrum?

ever since Wennberg/Gittelsohn's article in Science 1973
geographic variation in health and healthcare has been with us ...
... so has the question of *how to effectively reduce unwarranted variation*

but there may be hope ...

... the concept of *patient-sharing networks* may provide tools
to analyze and affect variation at the root ...

... and help to *improve the quality of care of populations*

What are patient sharing networks?

- a **new concept**, therefore, most work is still experimental
- based on the assumption that most **health care takes place in networks**
- i.e. **whenever a patient is treated by two or more physicians** / providers they form a patient sharing network
- it is **not important that they intend to share** or cooperate, nor that they know of each other
- therefore most networks are to a large degree **created by patients** as a result of their decisions to contact certain providers

How many patients have seen two or more office-based physicians in Germany during 2016 – and what was their share of cost?

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How many patients have seen two or more office-based physicians in Germany during 2016 – and what was their share of cost?

84.5% of all patients have seen two or more physicians; they account for 97.6% of the cost of ambulatory care

What is the expectation?

The **processes / results** of sharing a patient population **can be compared** across populations (networks) ...

... and based on this information **networks could act**

- to reduce unwarranted variation and/or
- to improve care for their patient population

If unwarranted variation is not evenly spread across a region, but somehow concentrated in certain patient populations or their provider networks, specific networks could be targeted to improve the region's overall average.

The importance of patient sharing networks with respect to outcome

example: quality of ambulatory diabetes care in the US

Bynum J et al (2010) Measuring Racial Disparities in the Quality of Ambulatory Diabetes Care Medical Care 48(12): 1057-1063

TABLE 1

National Rates and Racial Disparity in Ambulatory Diabetes Quality for Fee-for-Service Medicare Beneficiaries With Diabetes

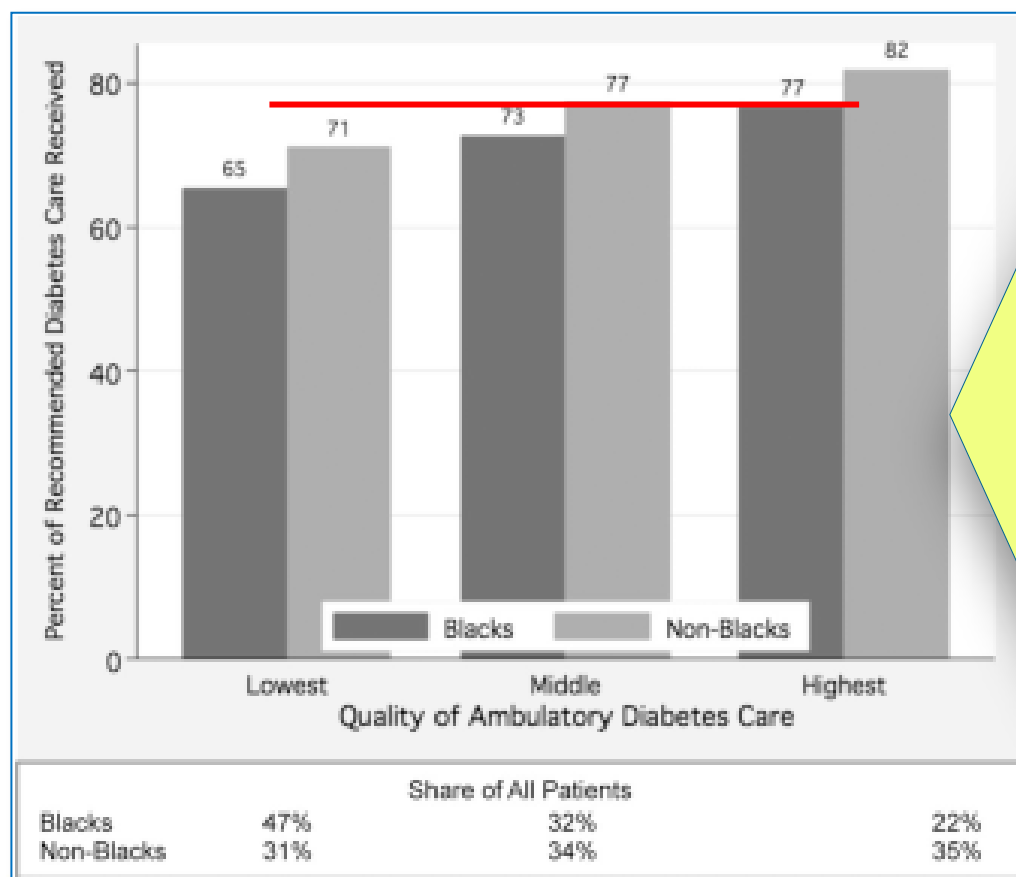
Diabetes Quality Measure	Black Diabetic Patients N = 205,665 Beneficiary-yr Percent Receiving Recommended Care (25th Percentile, 75th Percentile)	Non-Black Diabetic Patients N = 1,399,273 Beneficiary-yr Percent Receiving Recommended Care (25th Percentile, 75th Percentile)	Absolute Disparity*
Eye examination	60.9 (55.4, 66.7)	67.5 (63.4, 72.2)	-6.6
Hemoglobin A1C	73.1 (68.0, 79.1)	78.5 (75.0, 83.0)	-5.4
Cholesterol testing	76.5 (71.6, 82.3)	84.7 (82.1, 88.4)	-8.2
Composite quality measure	70.0 (65.7, 75.2)	76.9 (74.2, 80.3)	-6.9

* All Black-White differences are statistically significant different ($P < 0.0001$).

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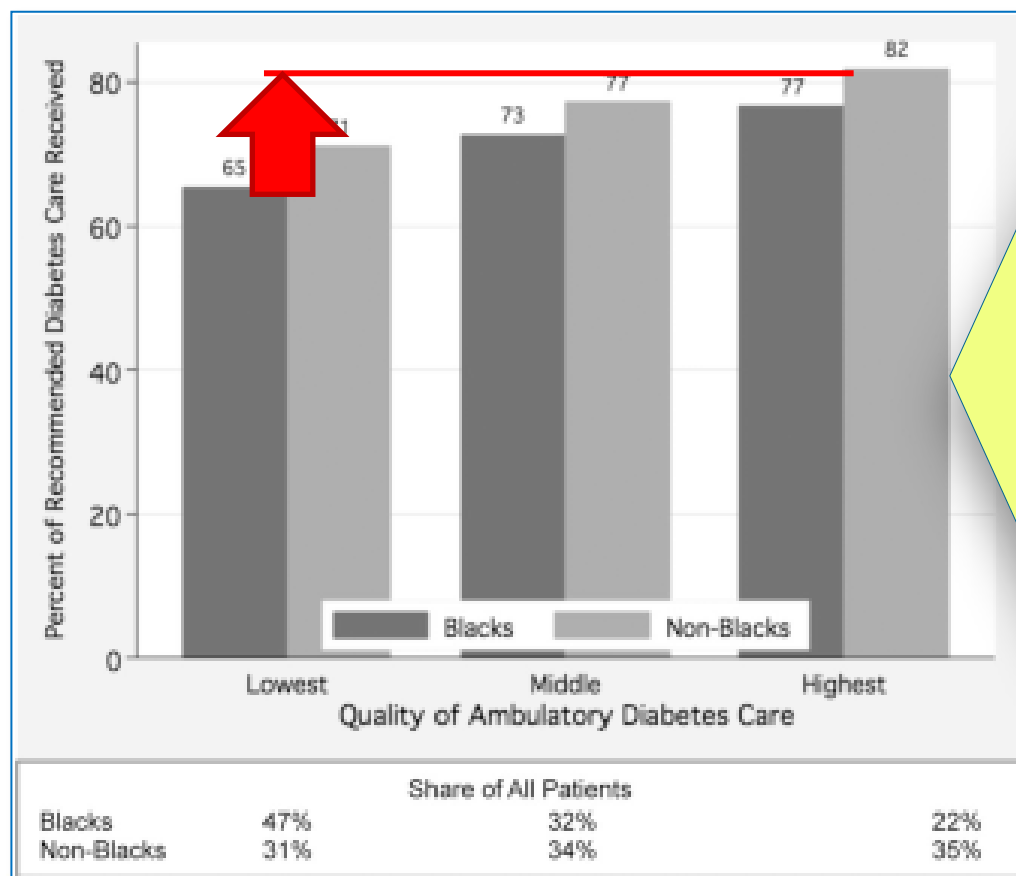


- 3 groups of patient sharing networks according to mean overall performance
- average results for each ethnic patient subgroup (color of columns)
- race (social status?) remains a systematic confounder but best practice networks demonstrate **‘achievable standard’**

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Hypotheses:

- apparently quality improvement **within** the same system / legal framework is possible
- if **low performing networks** in any region could be **targeted** for change the **average quality of care** in the region would be **improved**

At this point: many open questions

How to describe / identify patient sharing networks?

Methods depend on the research questions (i.e. a perspective on health care affected by the available data base), e.g.

- **Can diabetes/CHF care be improved by cooperation between GPs and specialists?** ([Pollack CE et al \(2012\) J Gen Intern Med 28:459-465](#))
- **Can cooperation between GPs and specialists in ambulatory care avoid hospital admissions?** ([Pham HH et al 2009 Ann InternMed 150:236-242](#))
- **Which group of providers (physicians and one or more hospitals) has been responsible for all care provided to a certain patient population?** ([Bynum J et al 2007 Health Serv Res 42:45-62](#); [Stillfried D, Czihal t 2014 Bundesgesundheitsblatt 57:197-206](#))
- **Are different physician networks associated with different health care spending, utilization, and quality of care?** ([Landon B et al 2012 JAMA 308\(3\):265-273](#); [Landon B et al 2018 JAMA 178\(1\):66-73](#))

Core issue: normative or analytic approach?

which provides a better understanding of the nature of networks?

normative approaches

defining **expected cooperation**, e.g.

- GP/cardiologists (CHF, diabetes care)
- surgeons/oncologists (treatment of colon carcinomas)

defining a **network center** to create accountability for a patient population, e.g.

- GP
- specialist
- hospital

analytic approaches

- using **graph-theory** on large data sets (community detection algorithms identify networks of various sizes and compositions without a specific center)
- taking account of other **shared social network characteristics** (age, sex, alma mater, employer, specialization, ...)
- using patient satisfaction and outcomes to evaluate effects of collaboration between varying **team members** (e.g. shifts)

Findings often show remarkable geographic variation in network characteristics

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Pollack C
et al 2012

Husain T
et al 2015

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Hackl F
et al 2015

Carson M
et al 2016

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Some challenges

- **identify cooperation:** how to differentiate intended collaboration from unintended or even unknown patient sharing? *Which indicators do we have?*
- **influence:** who affects whom? Who is an opinion leader among the professionals? Are outcomes / processes shaped more by a common medical standard or by patient expectation? *Which indicators do we have?*
- **effect of networks on patients:** is complete accountability required (all services received by a given patient population)? *How to keep track of confounders? Acceptable cut-offs?*
- **time trends:** are networks structures stable over time? Do effects on patients vary within / between networks over time?
- **real life resemblance:** do the detected networks need to reflect the individual experience of providers (e.g. if used in feedback)? *How important is understanding complexity of networks compared to creating accountability?*
- **what constitutes best practice:** Are specific network constellations typically 'better' than others?
- **response to intervention:** What are interventions (feedback; collecting PROMs)? *Can patient sharing networks learn act as an organisation? Does size of network affect effective intervention? Do patients need to be involved, too? What about adjusting for confounders?*

Perspectives in this session

- **Alessandro Lomi, Zurich:** Inter-hospital patient referral networks – what we know and what we would like to know
- **James O'Malley, Dartmouth (Harvard):** Social Network Analysis – Explanations for Health Care Variation
- **Thomas Czihal, Berlin:** Patient sharing networks in ambulatory care in Germany
- **Jonathan Skinner, Dartmouth:** A recipe for good ACOs
- **Therese Stukel, Toronto:** Measuring and Evaluating the Performance of Integrated Health Systems for Complex Chronic Disease Patients
- **Ronja Flemming, Munich:** Accountable Care in Germany (project title) – using ambulatory networks to reduce avoidable hospitalizations in 4 German regions

Therese Stukel presented in Session Integrated Care