



MASTERCLASS 1

What is medication adherence?
Why is it a priority?
How can behavioral science
help understand it?

Dr. Kate Wolin



Masterclass 1

Introduction to medication adherence



Introduction to medication adherence

Topics



01

MEDICATION ADHERENCE DEFINITIONS



02

ADHERENCE DRIVERS



03

**PATIENT BEHAVIORAL DRIVERS OF
NON-ADHERENCE**



04

STRATEGIES FOR IMPROVING ADHERENCE

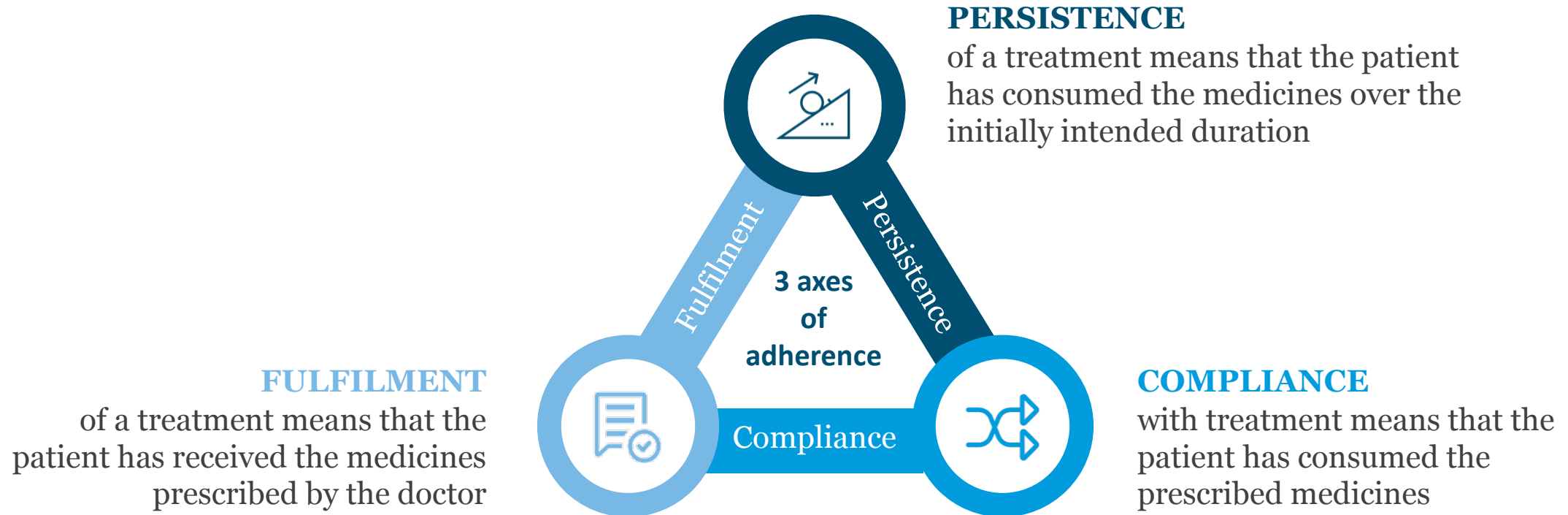


05

BEHAVIORAL ECONOMICS THEORIES

Adherence definition

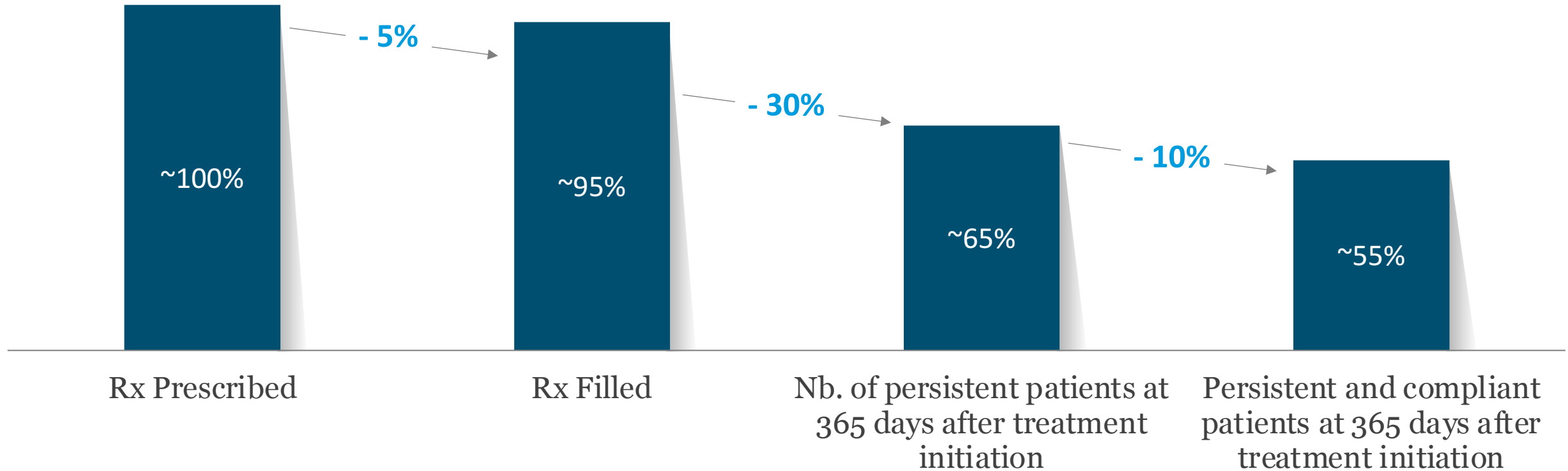
“The degree to which the person’s behaviour corresponds with the agreed recommendations from a health care provider.”¹



1. Charlotte A. Kenreigh, Medication Adherence: A Literature Review, Oct 2005, [Accessed 25 May 2020], <https://www.medscape.com/viewarticle/514164>

Non-adherence is real

U.S patients do not take medication as prescribed²



2. . Adapted Blascke & al, Adherence to Medications: Insights Arising From Studies on the Unreliable Link Between Prescribed and Actual Drug Dosing Histories, 2012

The importance of adherence

Non-adherence is a global issue driving negative outcomes and increased costs



\$290 billion in costs³



2x cost per patient⁴



10% of hospitalizations³

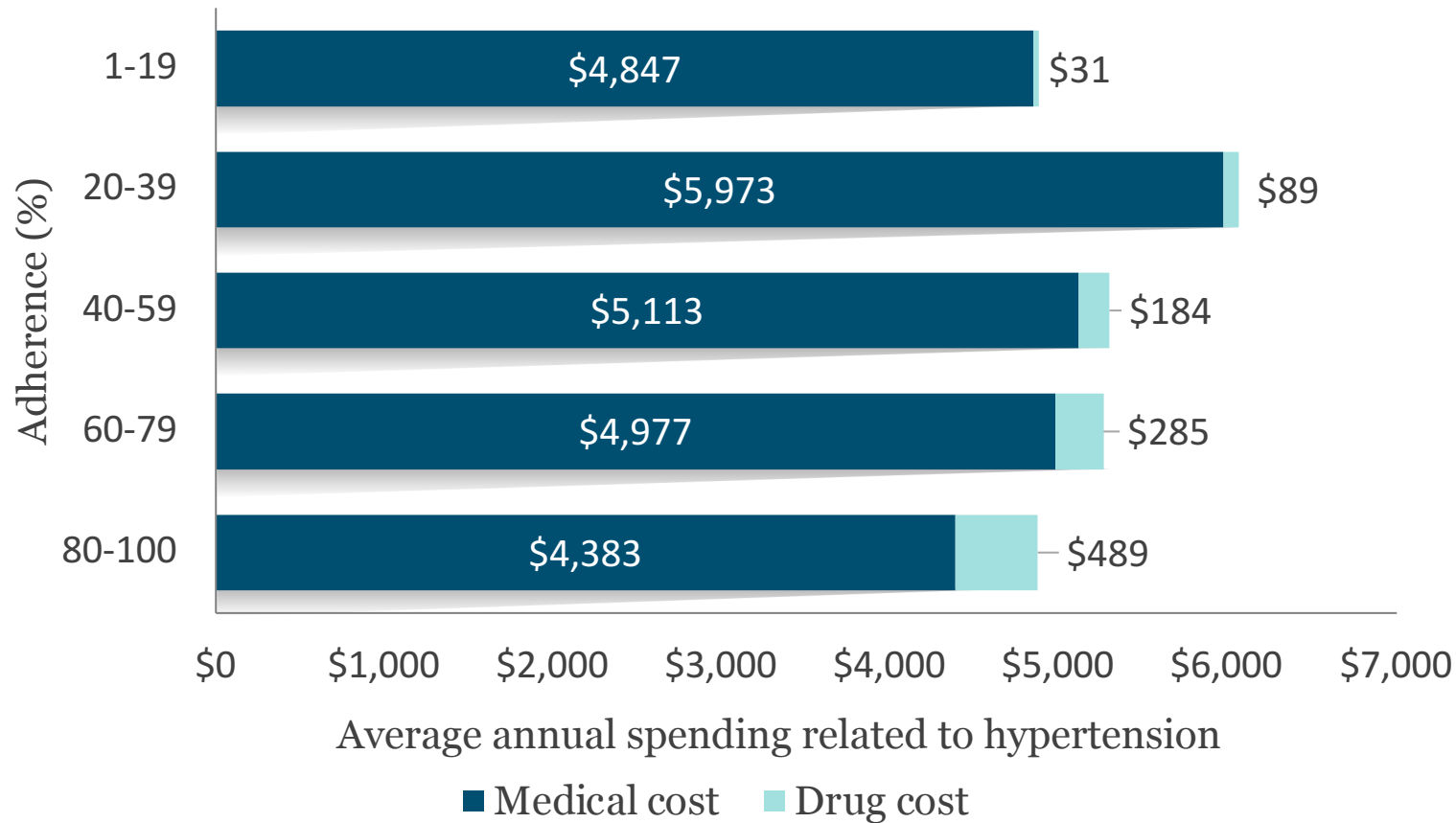
3. Rachelle Louise Culter et al.: Economic impact of medication non-adherence by disease groups: a systematic review, BMJ open vol. 8,1 e016982, Jan. 2018, [doi: 10.1136/bmjopen-2017-016982](https://doi.org/10.1136/bmjopen-2017-016982) [Accessed 29 June 2020],

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5780689/>

4. Rabia Khan and Karolina Socha-Dietrich: Investing in medication adherence improves health outcomes and health system efficiency: Adherence to medicines for diabetes, hypertension, and hyperlipidaemia , OCDE Study, Sep 2018, <https://doi.org/10.1787/18152015> [Accessed 29 June 2020], https://www.oecd-ilibrary.org/social-issues-migration-health/investing-in-medication-adherence-improves-health-outcomes-and-health-system-efficiency_8178962c-en

Impact of non-adherence on direct costs

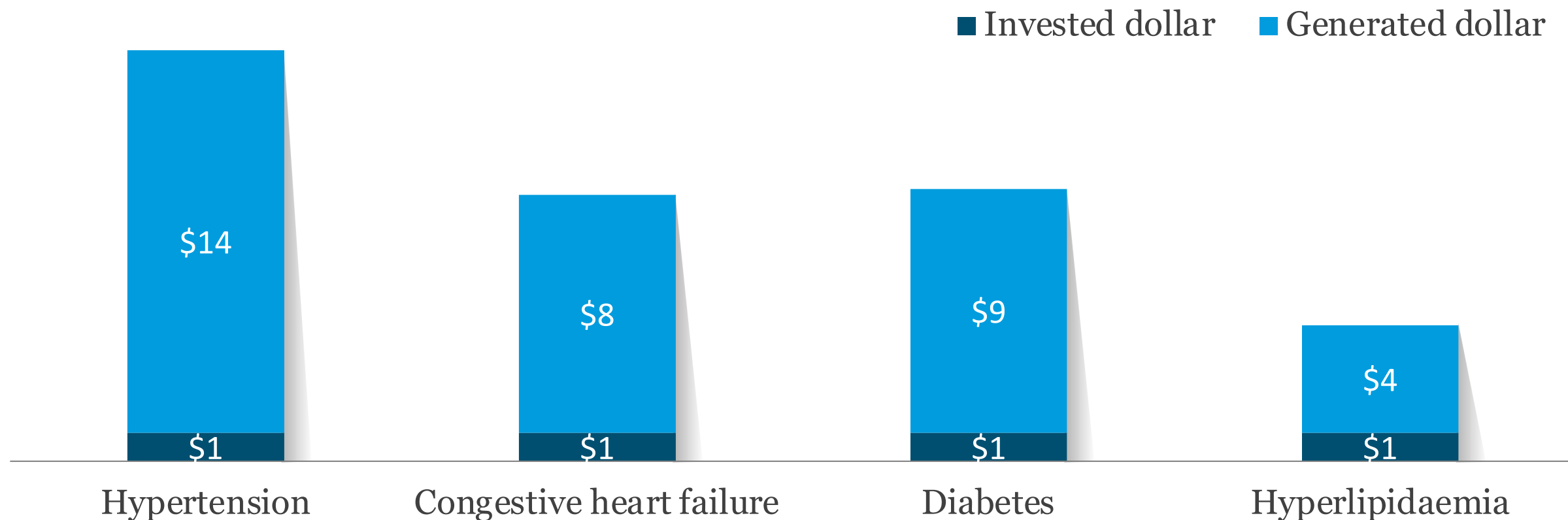
Hypertension average spending by adherence level⁵



5. Adapted Michael C. Sokol, MD, MS, and others, Impact of Medication Adherence on Hospitalization Risk and Healthcare Cost, June 2005, [Accessed 29 June 2020] <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.566.9487&rep=rep1&type=pdf>

Medication adherence is cost effective

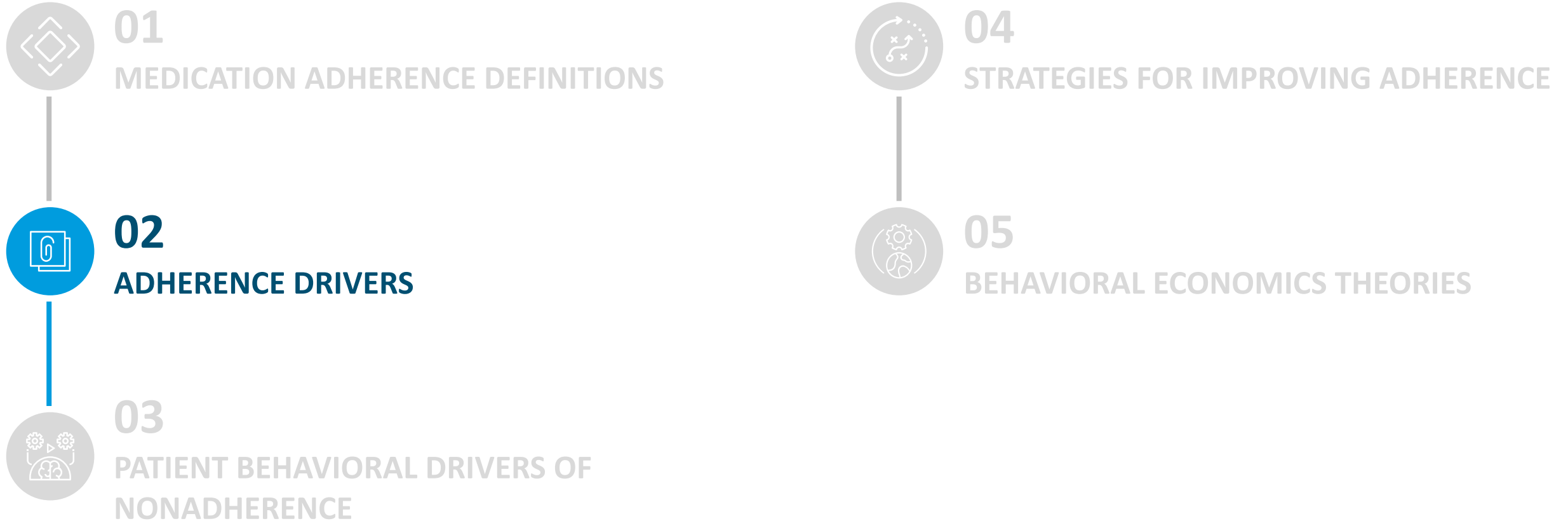
The average cost-benefit ratios from adherence⁶



6. Adapted. Rabia Khan and Karolina Socha-Dietrich: Investing in medication adherence improves health outcomes and health system efficiency: Adherence to medicines for diabetes, hypertension, and hyperlipidaemia , OCDE Study, Sep 2018, <https://doi.org/10.1787/18152015> [Accessed 29 June 2020], , https://www.oecd-ilibrary.org/social-issues-migration-health/investing-in-medication-adherence-improves-health-outcomes-and-health-system-efficiency_8178962c-en

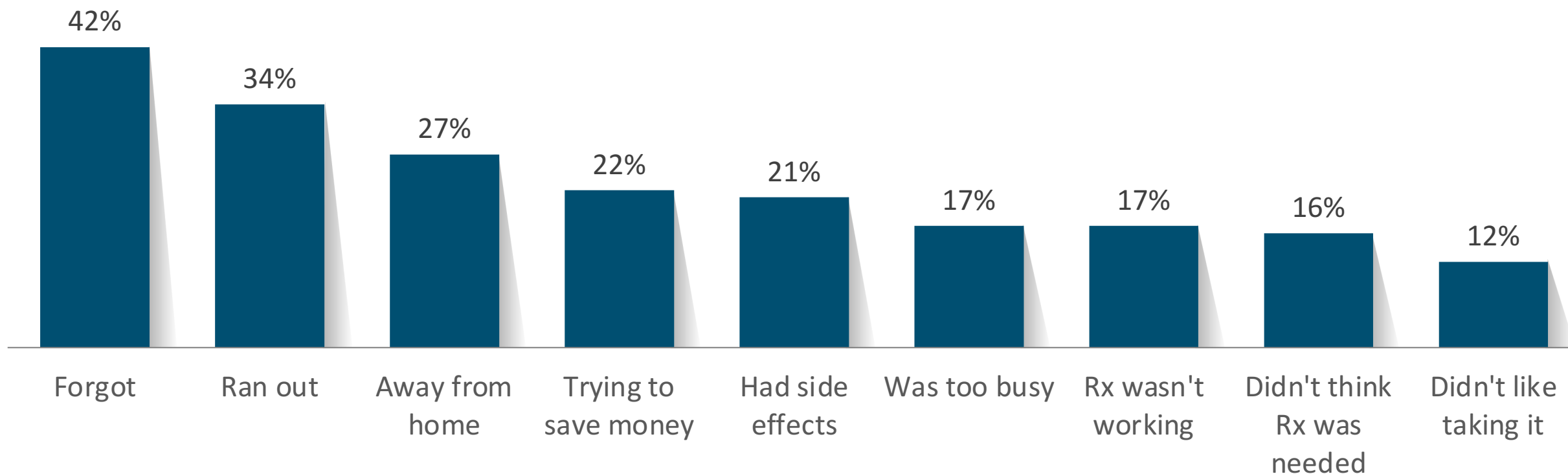
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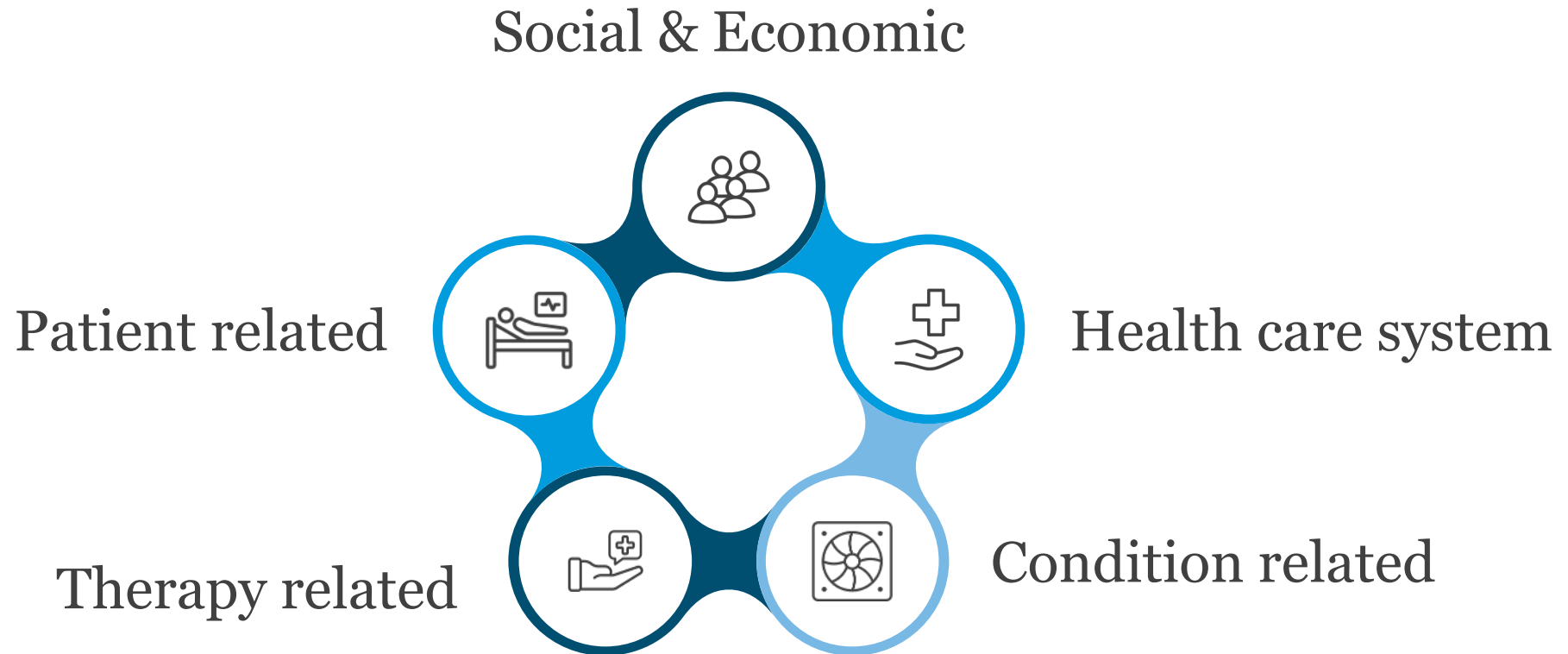
Common causes of non-adherence

Self-reported reasons of non-adherence⁷



7. National Community Pharmacists Association: Medication Adherence in America, 2009 [Accessed 29 June 2020], http://www.ncpa.co/adherence/AdherenceReportCard_Full.pdf

WHO multidimensional adherence model⁸



8. Adapted. Suliman AlGhurair , Christine A. Hughes , Scott H. Simpson, Lisa M. Guirguis: A Systematic Review of Patient Self-Reported Barriers of Adherence to Antihypertensive Medications Using the World Health Organization Multidimensional Adherence Model, The Journal of Clinical Hypertension, 14(12), Aug 2012 [Accessed 29 June 2020], <https://onlinelibrary.wiley.com/doi/full/10.1111/j.1751-7176.2012.00699.x>

Physicians play an important role in adherence

Relative influence on medication adherence⁹

Prescriber: 34%



Pharmacist: 26%



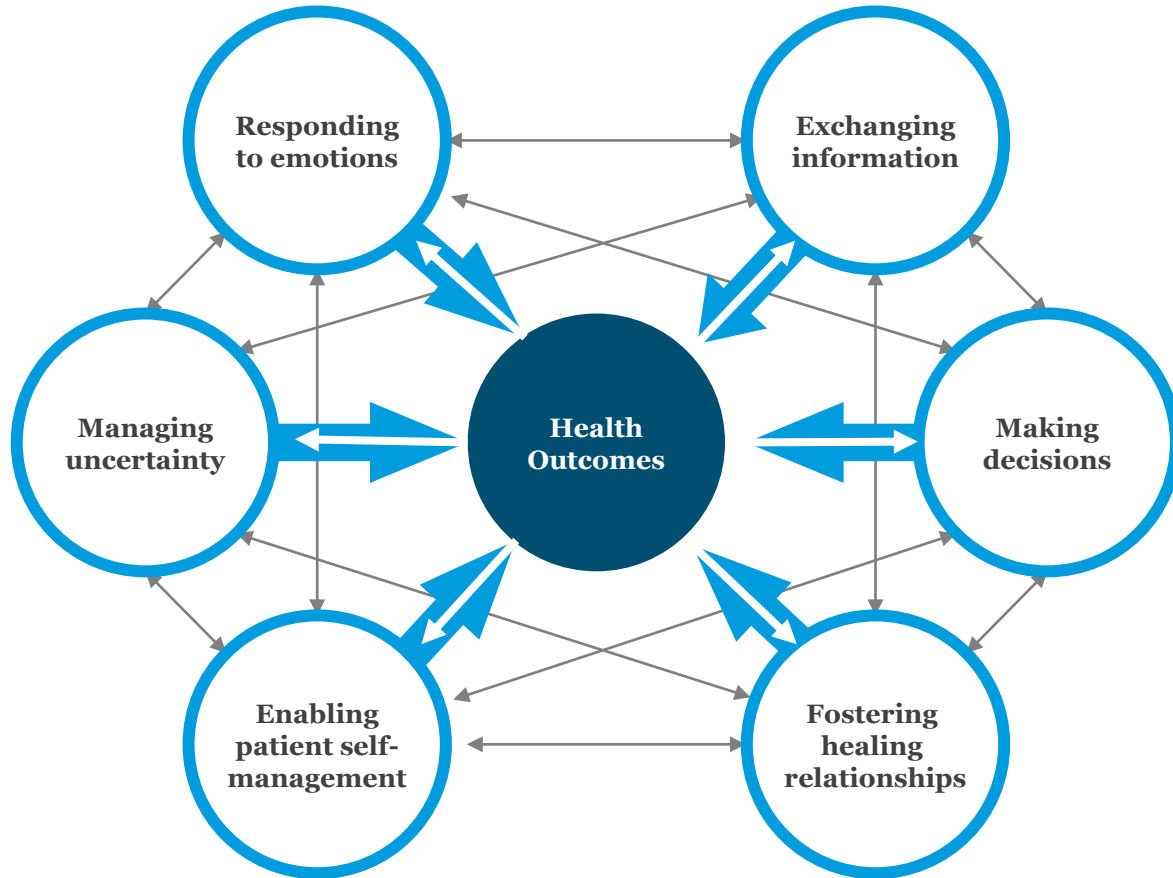
Patient: 40%



9. Adapted. Anita Allemand, A Prescription for Savings: Medication Management and Improved Adherence , 2014, (accessed 01.07.2020) https://nchc.org/wp-content/uploads/2015/09/NCHC-Forum_2014_FINAL_wotp.pdf

Physicians play an important role in adherence

Patient-centered communication: six overlapping functions¹⁰



10. Ronald M. Epstein and Richard L. Street: Patient-centered communication in cancer care! Promoting healing and reducing suffering. NCI, NIH publication #07-6225, Bethesda MD, 2007 [Accessed 29 June 2020], https://cancercontrol.cancer.gov/brp/docs/pcc_monograph.pdf

Providers strategies



Multifaceted
and tailored



Shared goal and
responsibility with patient



Iterate
and evaluate

Health systems play a role



Systems direct
appointment length and
duration of treatment¹¹



Health systems
determine
fee structures



Systems
determine
continuity of care



Systems direct
information
sharing

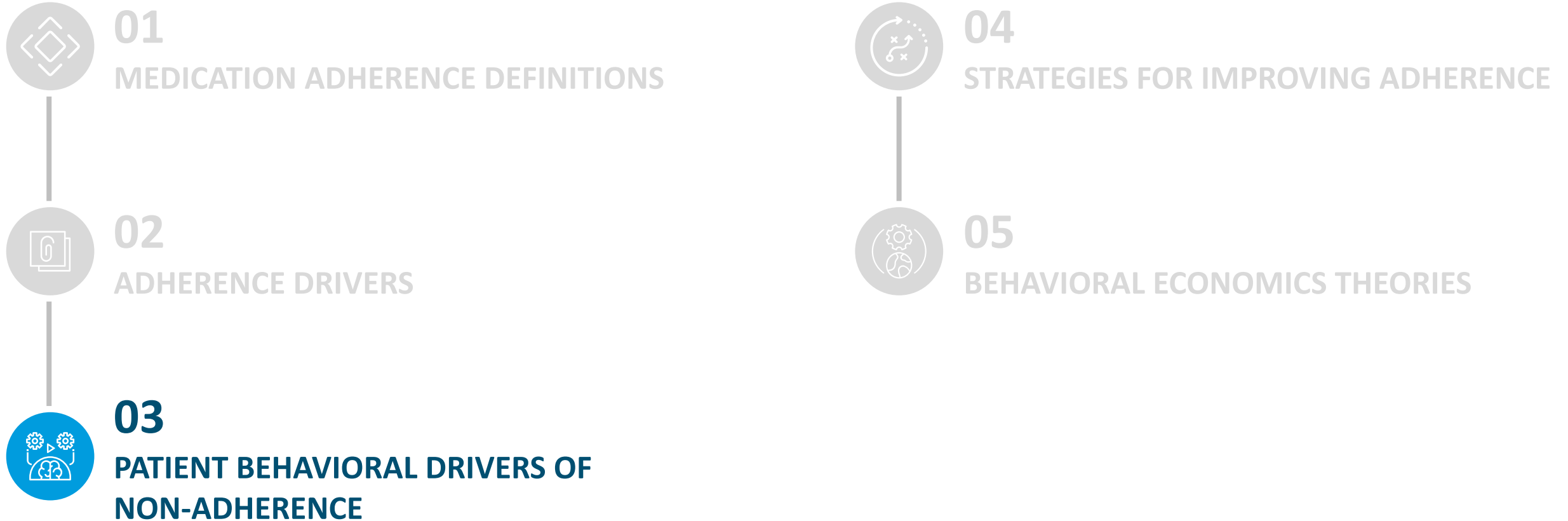


Systems determine the
level of **communication**
with patients

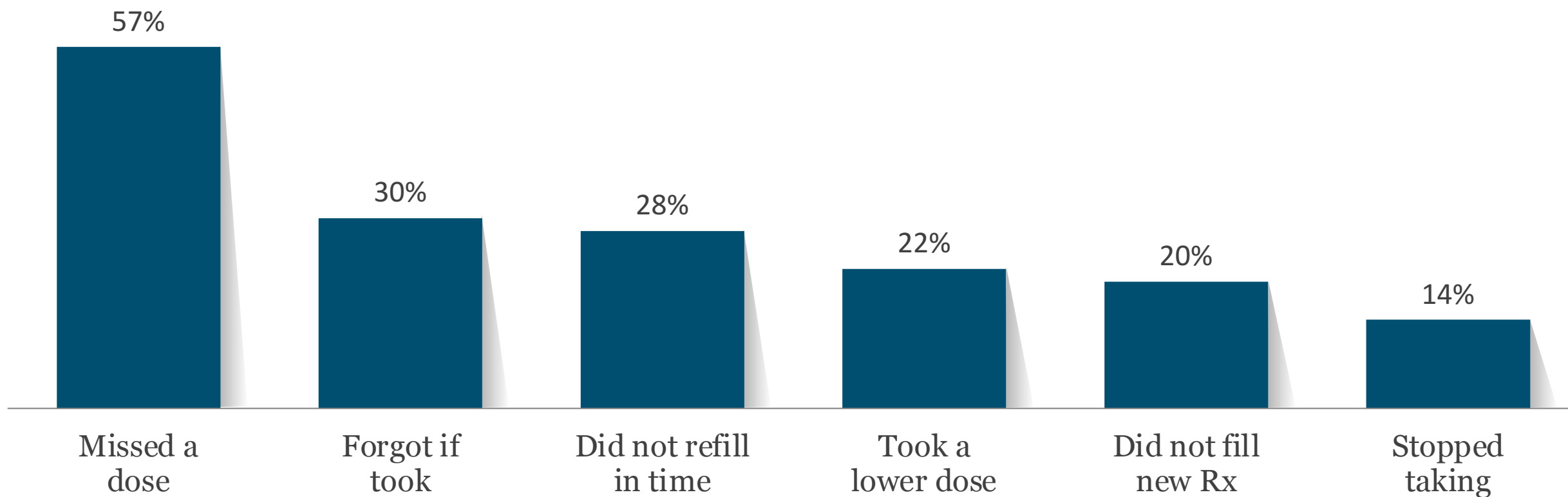
11. Kamil F. Faridi, Eric D. Peterson and Lisa A. McCoy: Timing of First Postdischarge Follow-up and Medication Adherence After Acute Myocardial Infarction, JAMA Cardiol, 1(2), May 2016, doi:10.1001/jamacardio.2016.0001 [Accessed 29 June 2020], <https://jamanetwork.com/journals/jamacardiology/fullarticle/2505212?linkid=22606557>

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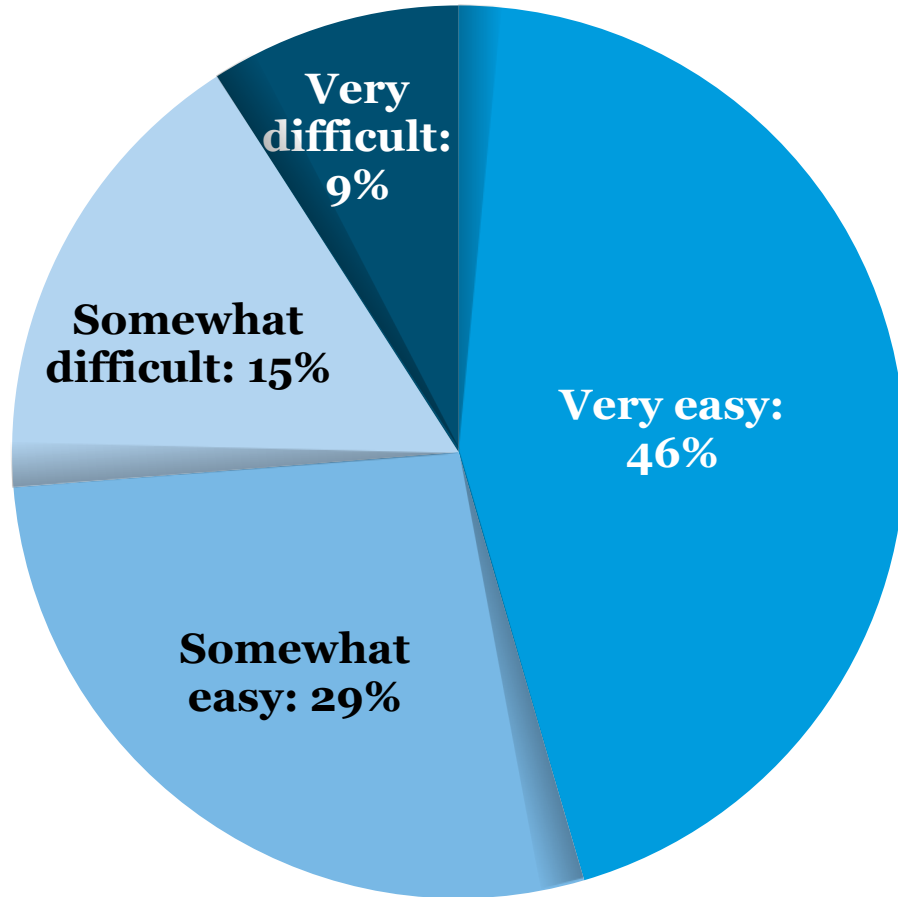


Non-adherence behaviors, past 12 months¹²



12. National Community Pharmacists Association: Medication Adherence in America, 2020 [Accessed 29 June 2020], http://www.ncpa.co/adherence/AdherenceReportCard_Full.pdf

Ability to afford medication¹³



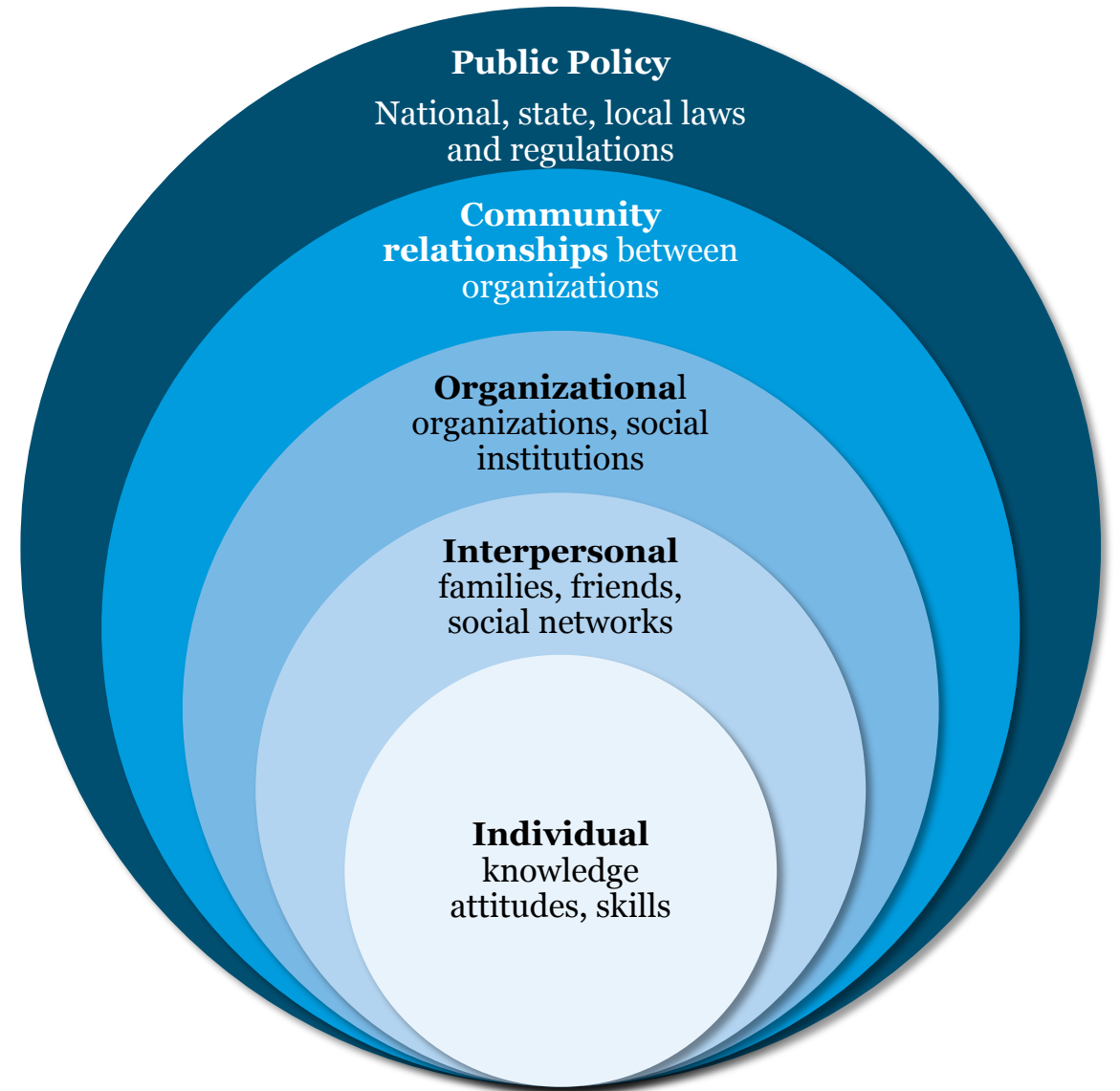
13. Rabah Kamal, Cynthia Cox Twitter, and Daniel McDermott-KFF Health System Tracker: What are the recent and forecasted trends in prescription drug spending? Feb 2019 [Accessed 29 June 2020], <https://www.healthsystemtracker.org/chart-collection/recent-forecasted-trends-prescription-drug-spending/#item-among-adults-who-currently-take-any-prescription-medicine-percent-who-report-ease-or-difficulty-affording-to-pay-the-cost-of-their-prescription-medicine>.



Proprietary and confidential : Do not distribute



Complex problems aren't solved with simple solutions¹⁴



14. Adapted. Eduardo Sabate: Adherence to long-term therapies: Evidence for action, WHO study, 2003 [Accessed 29 June 2020], https://www.who.int/chp/knowledge/publications/adherence_full_report.pdf?ua=1

Identified behavioral factors influencing the HIV treatment¹⁵



Acceptance of the disease



Negotiation of stigma



Perception of the regimen as needed/ helpful



Regimen effects



Positive attitudes

15. K. Rivaet Amico, M. Mugavero, Marie A. Krousel-Wood, Hayden B. Bosworth and Jessica S. Merlin: Advantages to Using Social-Behavioral Models of Medication Adherence in Research and Practice, J Gen Intern Med, 33(2):207-215, Dec 2017, doi: 10.1007/s11606-017-4197-5 [Accessed 29 June 2020], <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5789100/>



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Strategies for improving medication adherence

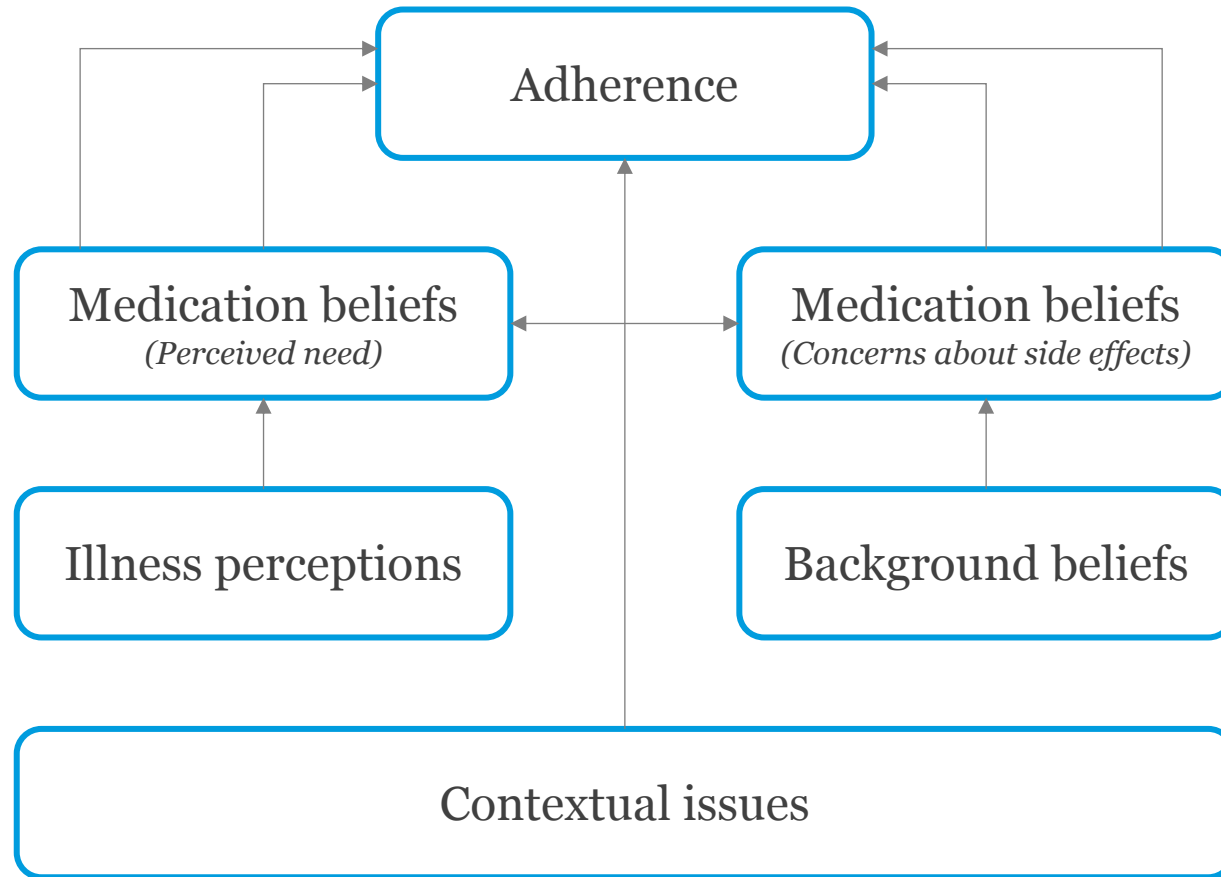
	Component	Examples
Patient	Education	Patient counseling by physicians or other health care personnel
	Engage social network	Family members can provide reminders and feedback. This is particularly helpful for patients with psychiatric disease
	Reminders	Automated alerts, telemonitoring
Provider	Improve relationship with patients	Training physicians to improve their communication skills, patient activation by improving patient- physician communication
External factors	Simpler regimen	Medications with long half-life or extended release
	Auto delivery systems	E.g. Auto-injections, pumps
	EMR based	Electronic prescribing
	Team based cure, care coordination	Patient centered medical homes; case management; engagement of nursing staff, pharmacists
	Value based insurance designs	Lowering copayments can improve adherence

Abbreviation: EMR, electronic medical records



Proprietary and confidential : Do not distribute

Why behavioral models matter¹⁶



16. Adapted. Ted Klok, Adrian A. Kaptein, Paul L. P. Brand: Improving adherence in paediatric respiratory disease, *Breathe*, 9(4):268-277, 2013, DOI: 10.1183/20734735.002513 [Accessed 29 June 2020], <https://breathe.ersjournals.com/content/9/4/268>



Components of medication adherence interventions (1/2)¹⁷

01.

Knowledge-based

General information about behavior related to:

- Health consequences
- Use of individualized information
- Increase in understanding/ memory enhancement

02.

Awareness based

Risk communication, self-monitoring, reflective listening, behavioral feedback

03.

Social influence

Information about peers or social influence of peers

04.

Attitudes

Information about peers or social influence of peers

05.

Self-efficacy

Modeling, practice, verbal persuasion, coping responses, graded tasks, reattribution of success/failure

06.

Self-monitoring skills

Teaching skills in self-monitoring and self-management

07.

Intention formation

General intention, medication schedule, goals, behavioral contract

08.

Action control

Cues/reminders, self-persuasion, social support

17. Agency for Healthcare Research and Quality, Medication Adherence Interventions: Comparative Effectiveness Closing the Quality Gap: Revisiting the State of the Science [Accessed 1 July 2020], https://effectivehealthcare.ahrq.gov/sites/default/files/pdf/medication-adherence-interventions_research.pdf

Components of medication adherence interventions (2/2)¹⁷

09.

Maintenance

Ex. Maintenance goals, relapse prevention

10.

Facilitation

- Ongoing professional support
- Dealing with adverse effects
- Individualizing/simplifying regimen (fewer pills, fewer medications, less frequent dosing, timing of dosing to fit individual schedule),
- Reducing environmental barriers)

11.

Contingent reward

Payment or other reward for conducting behavior

12.

Motivational interviewing

Client-centered yet directive counseling style that facilitates behavior change through helping clients resolve ambivalence

13.

Stress management

Methods to reduce or manage stress, such as biofeedback

14.

Organizational learning strategies

Use of implementation toolkits or learning collaboratives

15.

Systems change – clinical champion

Use of clinician patient advocate

16.

Systems change – quality

Continuous quality improving system

17. Agency for Healthcare Research and Quality, Medication Adherence Interventions: Comparative Effectiveness Closing the Quality Gap: Revisiting the State of the Science [Accessed 1 July 2020], https://effectivehealthcare.ahrq.gov/sites/default/files/pdf/medication-adherence-interventions_research.pdf

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The shortcut approach

Human brain uses “heuristics”, or behavioral shortcuts to drive rapid behavioral decisions. There are many, but some of the most important include:



Availability

we assess the likelihood of something not based on facts, but on how easy it is to imagine it ¹⁸



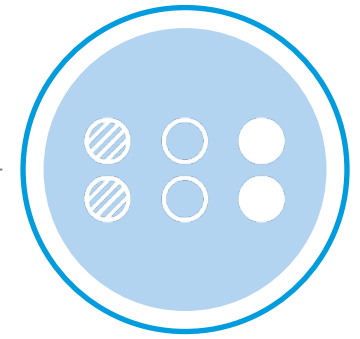
Anchoring

we are strongly influenced by other, even unrelated messages, presented at the same time ¹⁹



Loss aversion

we value what we already have much more than that we might gain ¹⁹



Representativeness

we judge the likelihood of an event or choose an action based on its similarity to something else we know ¹⁹

18. Adapted. Astrid Groenewegen, Kahneman Fast And Slow Thinking Explained, 7(2), [Accessed 01 June 2020], <https://suebehaviouraldesign.com/kahneman-fast-slow-thinking/>

19. Adapted. J. van der Pligt, Decision Making, Psychology of, International Encyclopedia of the Social & Behavioral Sciences, 2001 [Accessed 01 June 2020], <https://www.sciencedirect.com/topics/computer-science/availability-heuristic>

Factors that affect medication non-adherence²⁰



Demographic

- Age, sex
- Education
- Employment, income
- Family size
- Marital status



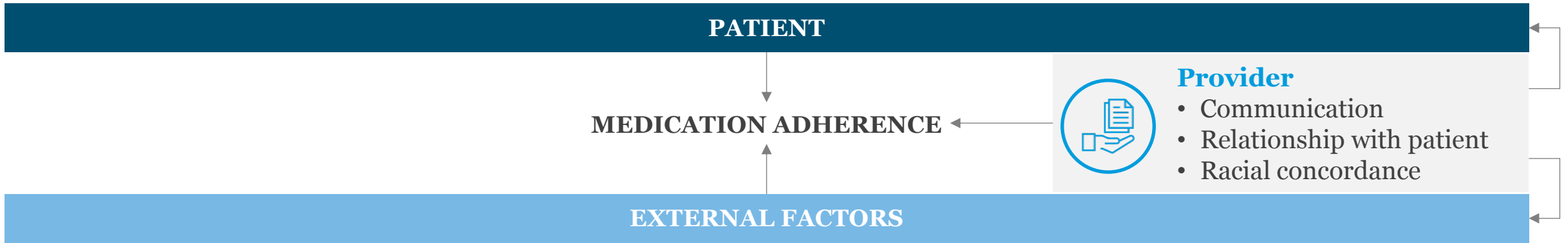
Sociocultural

- Health literacy
- Medication beliefs
- Perceived threat
- Social network



Behavioral

- Cognitive function
- Mental illness
- Stress
- Substance abuse



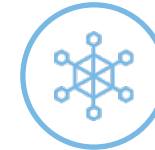
Diseases

- Quiescence/severity
- Duration
- Response to treatment



Medication

- Adverse events
- Regimen complexity
- Storage requirements



System

- Access to care
- Cost/copay
- Health insurance
- Transitions of care

20. Iuga A, McGuire M, Adherence and health care costs, 2014 [Accessed 01 June 2020] <https://www.dovepress.com/adherence-and-health-care-costs-peer-reviewed-fulltext-article-RMHP>

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