# বিজয়ের মাস






# NON-ADHERENCE TO ANTIHYPERTENSIVE THERAPY

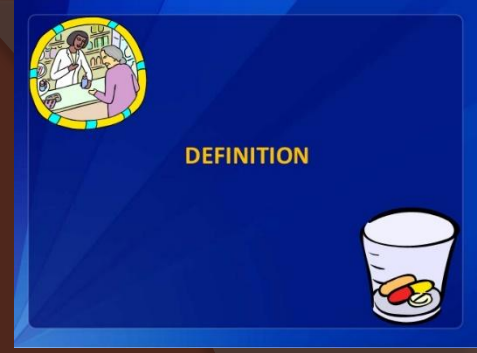
Dr. Syed Zakir Hossain
Asso. Prof. of Medicine
Shaheed Syed Nazrul Islam Medical College
Kishoreganj

# Objectives

At completion of this presentation the audience will understand:

1. Adherence or Non-adherence to medication & co-morbidity
2. Present Global & Local status of Hypertension
3. Prevalence of Non-adherence effect to antihypertensive
4. How to Improve non-adherence: According WHO five dimension
5. Physicians Role for improving Adherence to antihypertensive
6. Recommendation

# Adherence?




- Cluster of behaviors
- Simultaneously affected by multiple factors
- The extent to which a person' s behavior—taking medication, following a diet, or making healthy lifestyle changes—corresponds with agreed-upon recommendations from a health-care provider. also called **compliance.**

  ▪World Health Organization, 2003

- **Persistence**: The duration of treatment (ie, the length of time a patient fills his/her prescriptions)

1. http://apps.who.int/iris/bitstream/10665/42682/1/9241545992.pdf


# PATTERN OF COMPLIANCE TO ANTI-HYPERTENSIVE MEDICATIONS IN HYPERTENSIVE PATIENTS IN A TERTIARY CARE HOSPITAL IN BANGLADESH

HOSSAIN SZ[1], ISLAM MR[1], BISWAS S[1], HOSSAIN MZ[2], BISWAS PK[1], ISLAM N[3], HOSSAIN MA[3], RAHAMAN MH[3]

**Abstract**

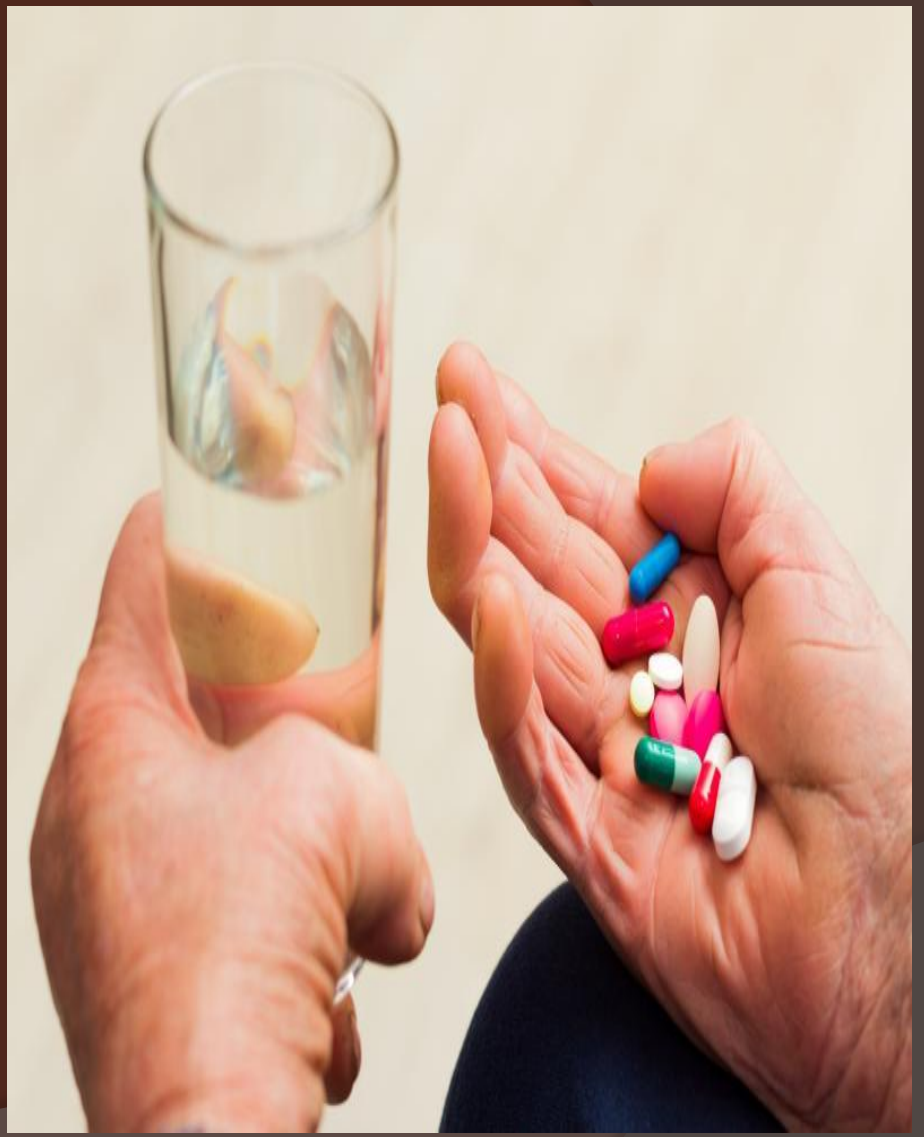
***Background:*** *Non-adherence to anti-hypertensive medications can have a negative impact on long term cardiovascular outcome. Various studies have been conducted on this issue but factors are not yet explored properly, particularly in Bangladesh. This study was conducted to find out the prevalence and factors associated with pattern of compliance to anti-hypertensive medications in a tertiary level hospital.*

***Methods:*** *This descriptive study was done on 146 indoor hypertensive patients, included by purposive sampling in july'2015 who were taking anti-hypertensive for last 6 months. Data were collected through a questionnaire after obtaining informed consent.*

***Results:*** *This study revealed that 55.47% patients were compliant and 44.53% were non-compliant. Age >60 yrs. are more non-compliant (56.6%). Female (65.11%), house wife and urban population are more compliant. Population, with longer duration of hypertension are more non-compliant. Among the co-morbidities diabetic patients are more non-compliant. Population taking two anti-hypertensive are more compliant (76.47%).*

# Non-adherence?

- **Nonadherence** with medication is a complex and multidimensional health care problem.
- **Patient nonadherence** can be a pervasive threat to health and wellbeing and carry an appreciable economic burden as well. In some disease conditions, more than 40% of **patients** sustain significant risks by misunderstanding, forgetting, or ignoring healthcare advice.



https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3711878/pdf/ppa-7-675.pdf

# Global Medication Adherence is 50%

# Nonadherence to Therapy: A Major Challenge

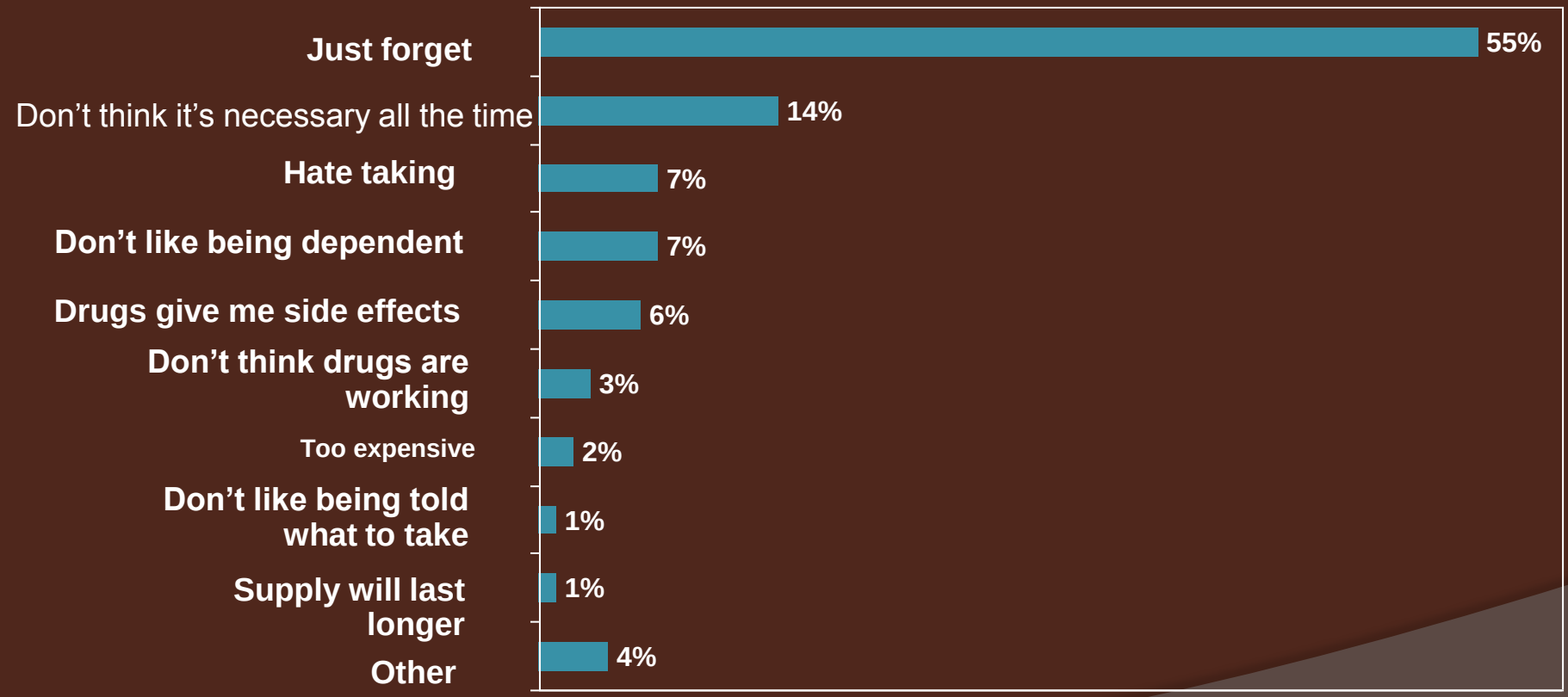
- Nonadherence ( noncompliance, no persistence, etc.) is a major problem
- Within 1 year, ~50% of patients overall discontinue use of drugs
- An additional ~35% discontinue treatment within 2 years

*"Current methods of improving adherence for chronic health problems are mostly complex and not very effective."*

Cochrane Database Systematic Review (2008)
Haynes RB et al

National Council on Patient Information and Education, 1997. US

# Patient Reasons for Nonadherence

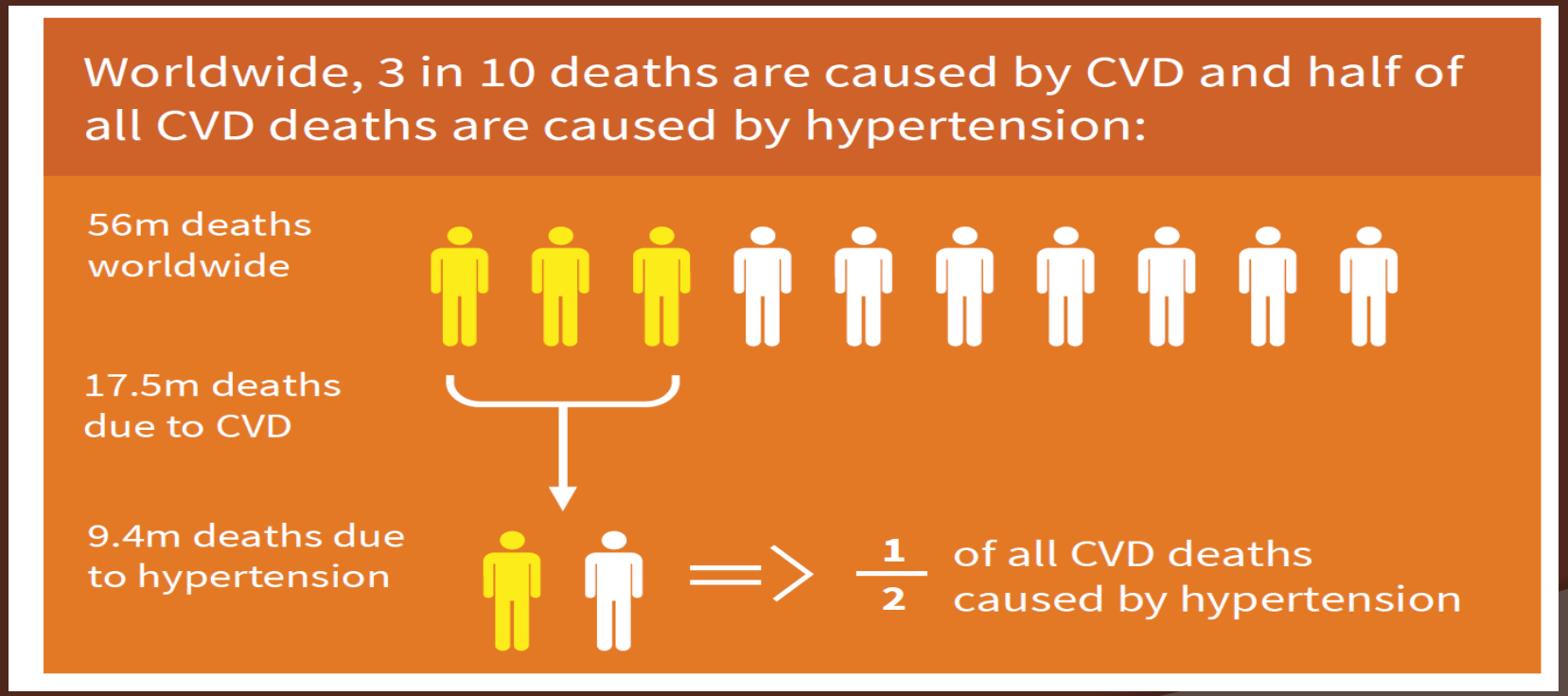



Prospective, open-label, interview-based study in metropolitan New York area pharmacies (N=821).

Cheng JWM et al. *Pharmacotherapy.* 2001;21:828-841.

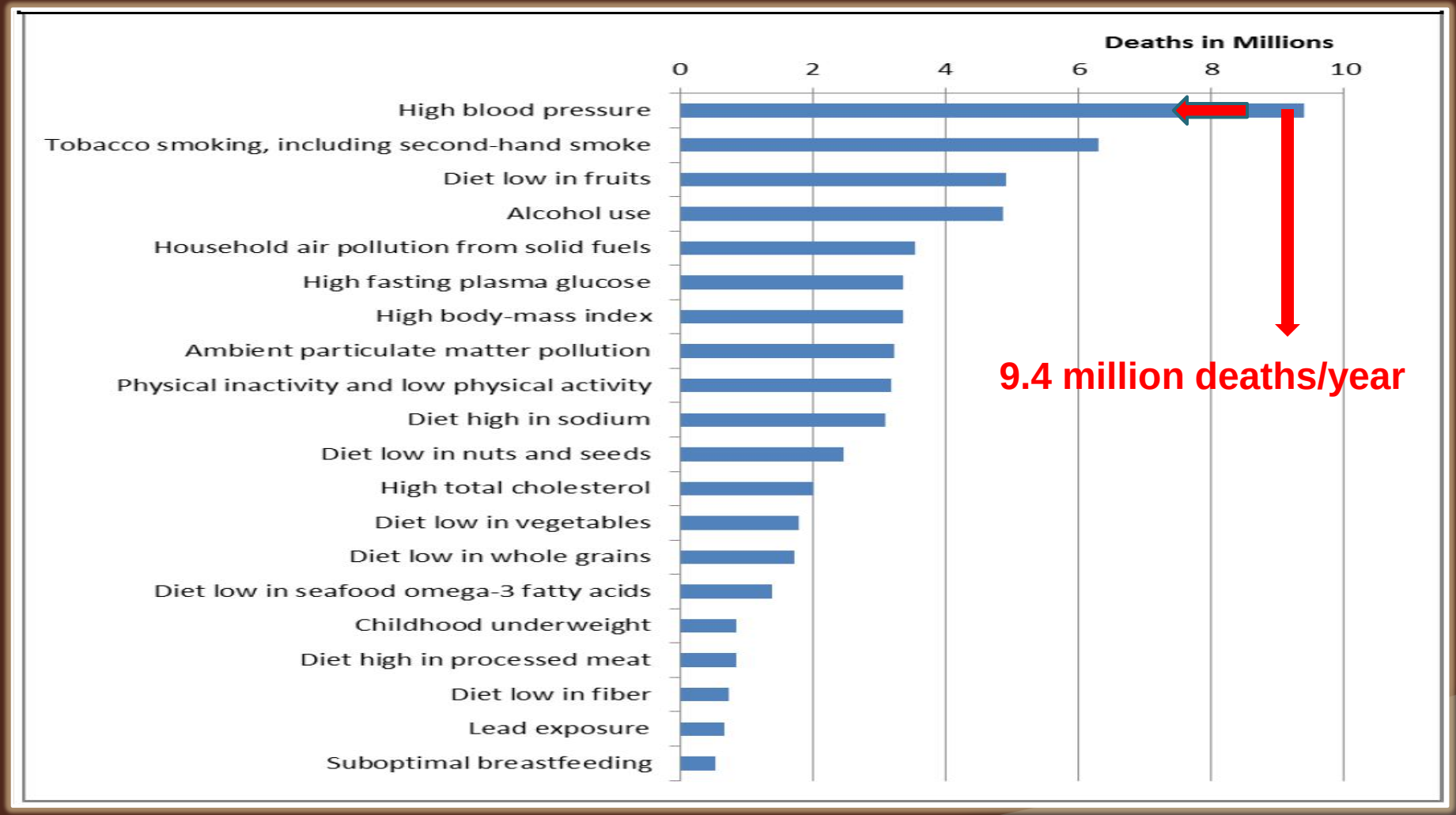
# Global Prevalence of Hypertension


- Hypertension is the leading risk factor for death and for disability globally




http://www.who.int/mediacentre/factsheets/fs310/en/index2.htm
http://www.world-heart-federation.org/cardiovascular-health/cardiovascular-disease-risk-factors/hypertension/

# Global Leading Risks for Death




Global Burden of Disease Study 2010 , *Lancet* 2012; 380: 2224–60

# HYPERTENSION: Attributable Risk

54% stroke

47% IHD

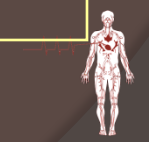
25% other CVD

13.5% Total mortality

- Only half of the burden seen in people with hypertension

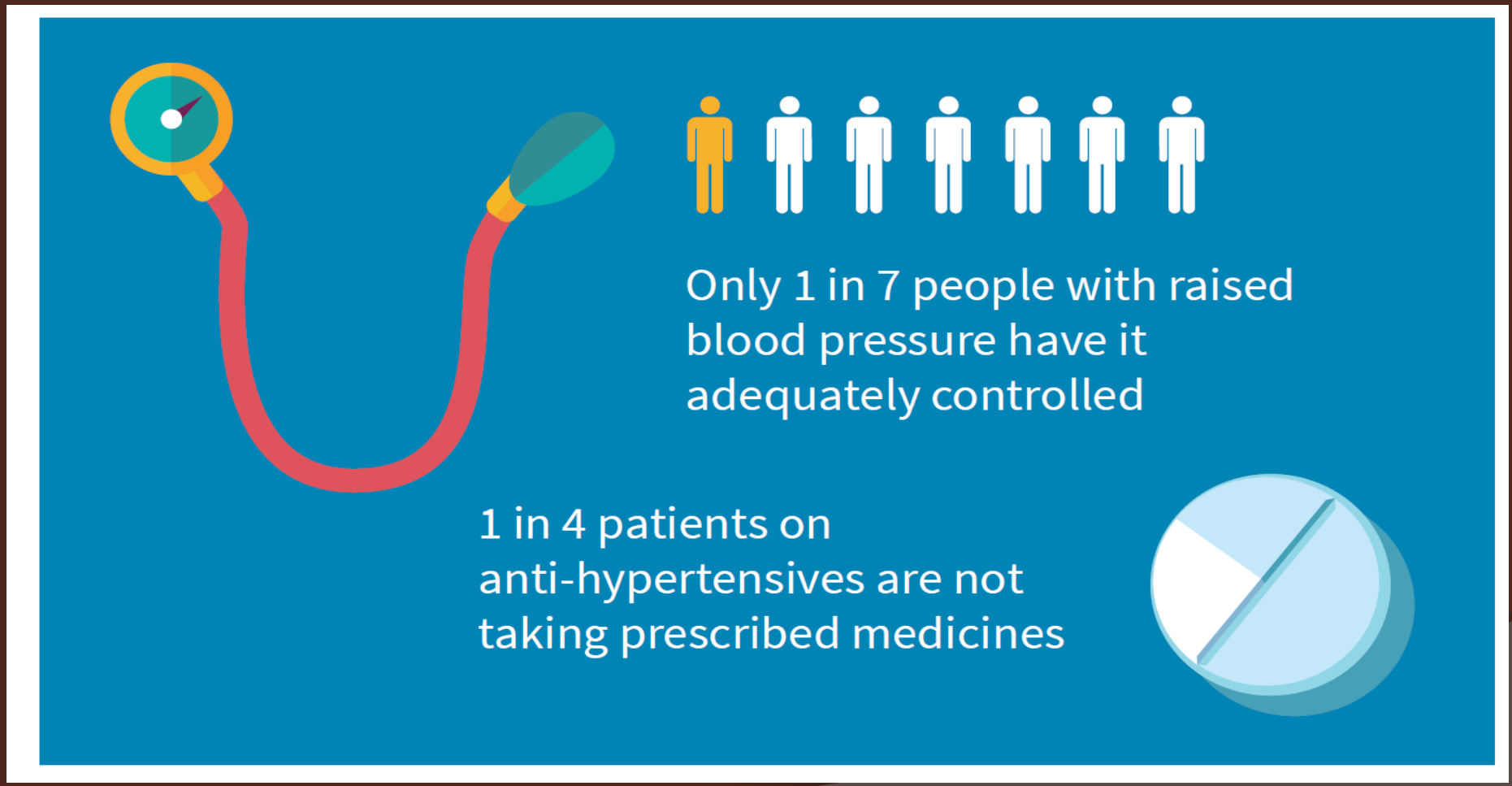
(BP ≥ 140 mmHg); remainder in prehypertensives (BP ≥ 115mmHg)

- > 80% of the burden seen in low-income and middle-income regions
- Over half occurred in people aged 45-69 yrs



*Study by Int Society of hypertension; Lancet May 2008;371:1513-8*

# Global non-adherence to antihypertensive medication



# Hypertension in Bangladesh

## Overall Prevalence

**18%**

**Urban > Rural**

| Age Group (both sexes) | % of hypertensive patients (BP ≥ 140/90 mmHg) |
|---|---|
| 25-34 yrs | 6.4% |
| 35-44 yrs | 15.2% |
| 45-54 yrs | 24% |
| 55-64 yrs | 33% |
| 65+ yrs | 41% |

Non-communicable disease risk factor survey, Bangladesh 2010

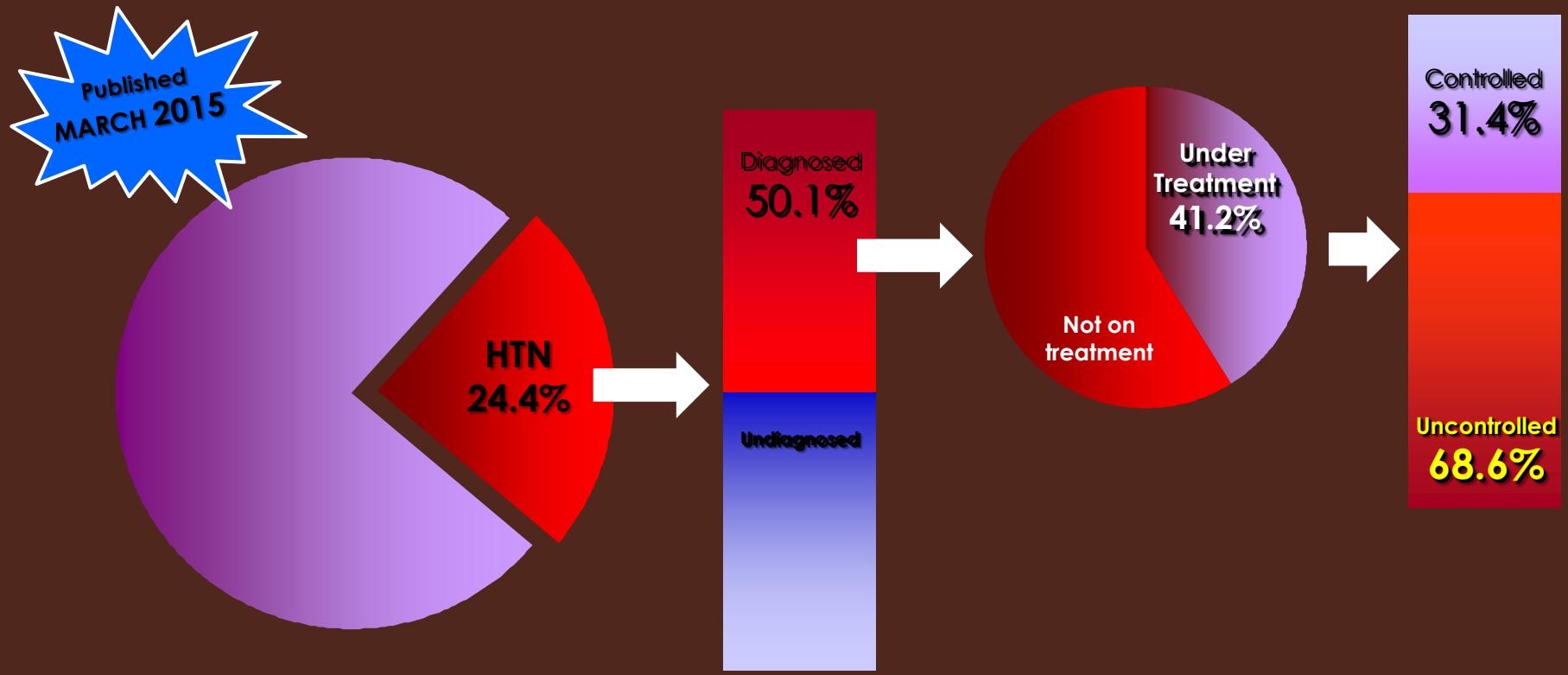
Bangladesh Society of Medicine

World Health Organization
Country Office for Bangladesh

N.C.D
Directorate General of Health Services

Ministry of Health & Family Welfare

# Hypertension Control in Bangladesh

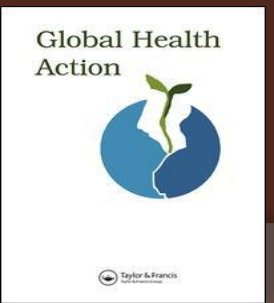



***7 out of 10*** *hypertensive patients are having uncontrolled hypertension.*


*Journal of Hypertension, Issue 33, Volume 3, March 2015, p 465-472*

# Hypertension: adherence to treatment in rural Bangladesh findings from a population based study

- The study population included 29,960 men and women aged 25 years and older
- The prevalence of hypertension was 13.67%.
- Qualified providers diagnosed only 53.5%
- the unqualified providers, village doctors diagnosed 40.7%.
- 26% discontinued the use of medication.
- Non-adherence was 52 % greater when hypertension was diagnosed by unqualified providers.




ISSN: 1654-9716 (Print) 1654-9880 (Online) Journal homepage: 2014 Masuma Akter Khanam et al. http://www.tandfonline.com/loi/zgha20

# Prevalence of Non-adherence effect to antihypertensive

- Patients with cardiovascular comorbidity were also less likely to be non-adherent to antihypertensive medication.
- For years, emphasis has been placed on the problem of medication non-adherence
  - $290 billion a year in direct and indirect costs = 13% of total health care spend
  - 125,000 deaths that result from not taking medication correctly
  - 69% of medication-related hospital admissions due to poor adherence
  - 50% of new statin patients will discontinue medication after 6 months

NEHI. Thinking Outside the Pillbox: A System-wide Approach to Improving Patient Medication Adherence for Chronic Disease. 2009
World Health Organization. Adherence to long-term therapies: Evidence for action. 2003
Benner JS, Glynn RJ, Mogun H. Long-term Persistence in Use of Statin Therapy in Elderly Patients. *JAMA.* 2002;288(4):455-461

# Study on Adherence when Patients are well aware about hypertension

- Dropouts from BP Treatment Hard to Find in Population Studies

Harris poll

➢ 91% of aware hypertensives on medication

Moser M, J Clin Hypertension 2007

NHANES 2003-2004

➢ 94% of persons who ever took any BP med still take one

Houston Population Survey

# When Non-adherence to antihypertensive

- Non-adherence to antihypertensive increased relative risk for mortality (~12% to 25%)
- Non-adherence to cardio protective medications increased risk of cardiovascular hospitalizations (10% to 40%) and mortality.
- For elderly patient-

  Approximately 7.1 million die of complications of uncontrolled hypertension

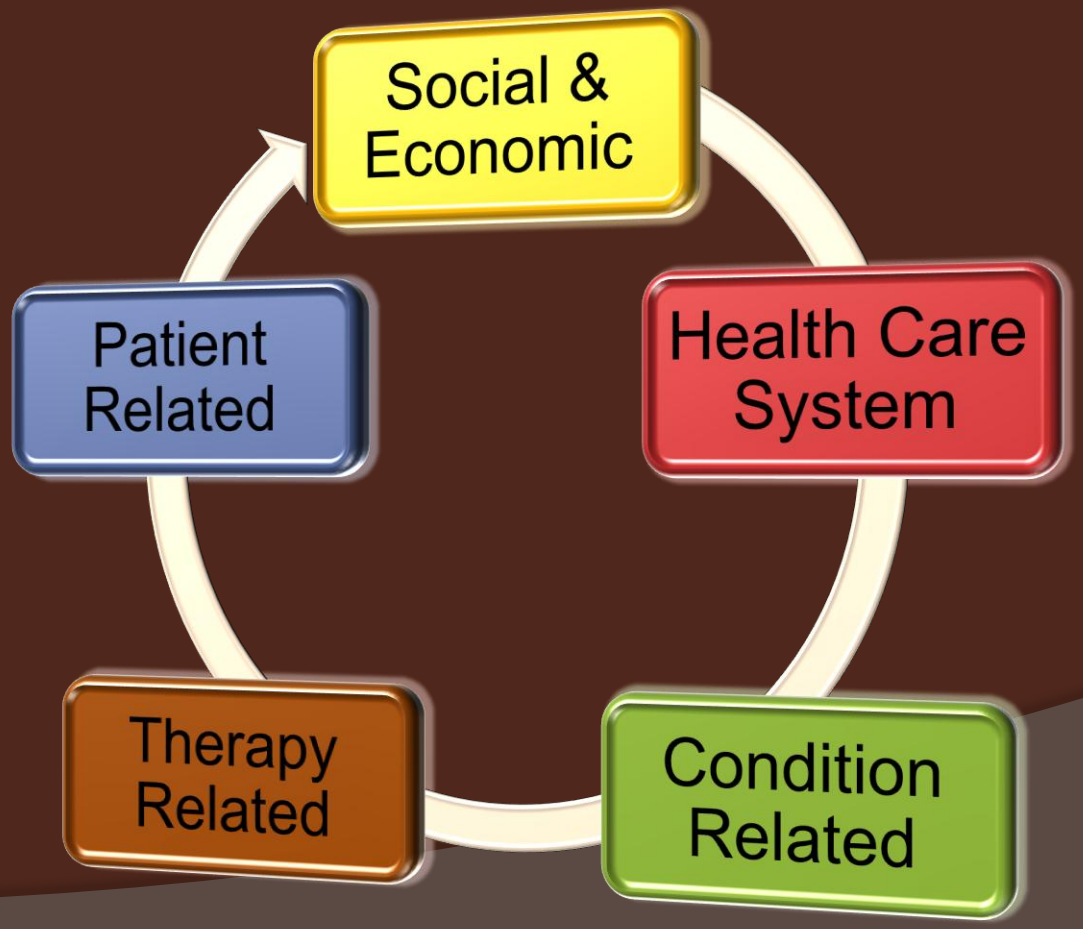
  » Adherence rates in the elderly vary from 26% to 59%

Sources: Ho 2009, Circulation; Edmondson 2013, Br J of Health Psychology;

***Michaela Jones, AGPCNP-BC,*** *is a DNP candidate at Columbia University*

# Improve non-adherence: According WHO five dimension

- WHO's Five Interacting Dimensions of Non-Adherence




http://apps.who.int/iris/bitstream/10665/42682/1/9241545992.pdf

- 1. Economical & social factors

- ✓ Low Socioeconomic status
- ✓ Poverty
- ✓ Illiteracy
- ✓ Low level of education
- ✓ Unemployment
- ✓ Medication cost Source

- ✓ Belief about illness & treatment
- ✓ Organizational variables
- ✓ Race
- ✓ Age
- ✓ Lack of family or social support
- ✓ Unstable living conditions

http://apps.who.int/iris/bitstream/10665/42682/1/9241545992.pdf

- 2. Health-care team & system related factors

✓ Good patient- provider relationship
✓ Poorly developed health services
✓ Poor medication distribution system
✓ Lack of knowledge and training for health care provider on managing chronic diseases

✓ Overwork health-care providers
✓ Lack of incentives & feedback on performance
✓ Short consultation time
✓ Weak capacity of the system to educate the patients

http://apps.who.int/iris/bitstream/10665/42682/1/9241545992.pdf

- 3. Condition Related

✓ Chronic conditions such as hypertension, that lack symptoms highly impact the level of adherence

✓ Rate of progression & severity of the disease

✓ Availability of effective treatment

✓ patient's risk perception ability

✓ Co-morbidities improve the adherence behavior

http://apps.who.int/iris/bitstream/10665/42682/1/9241545992.pdf

# 4. Therapy Related

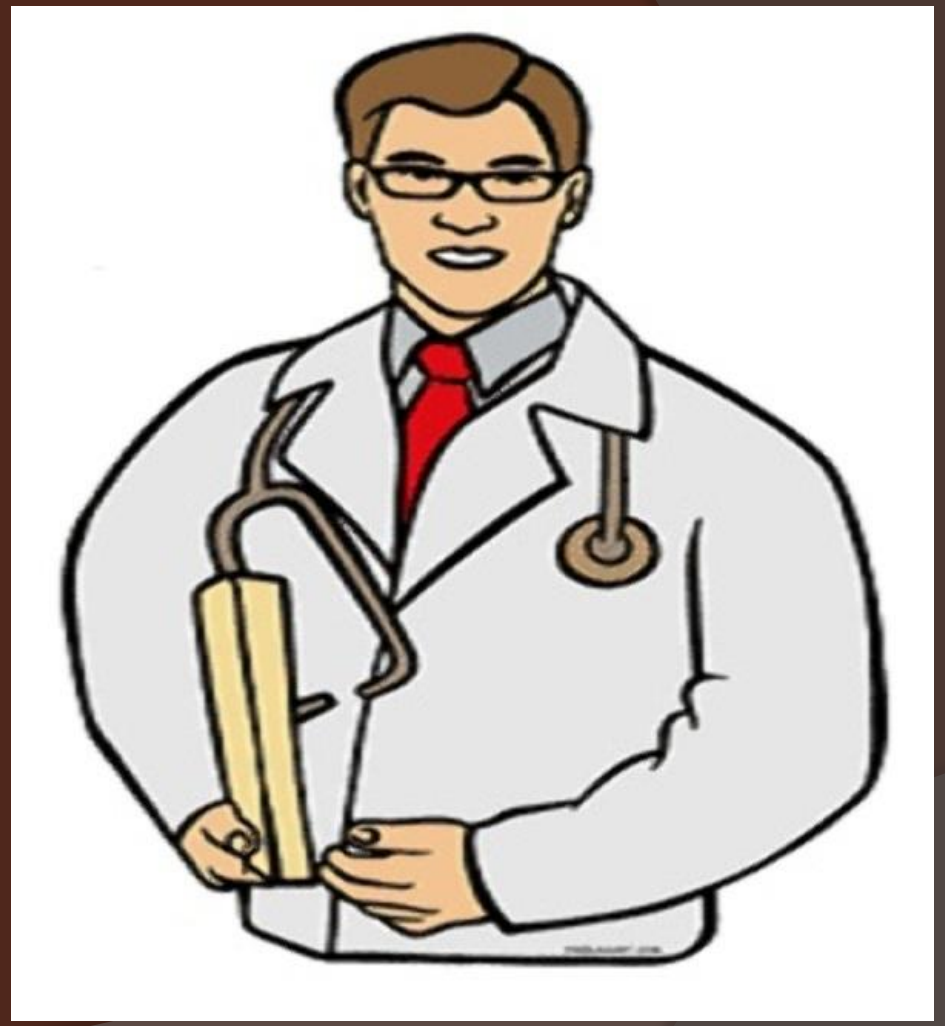
- ✓ Complexity of medication
- ✓ Unpleasant side effects.
- ✓ Frequent changes in regimen
- ✓ Previous treatment failure
- ✓ Duration of therapy
- ✓ Dosing several times a day may contribute to non-adherence.
- ✓ Lack of immediate benefit of therapy

1. http://apps.who.int/iris/bitstream/10665/42682/1/9241545992.pdf

# Cont……

## Therapy Provider/ Doctors Factors –

- ✓Communication skills
- ✓Knowledge of health literacy issues
- ✓Lack of empathy
- ✓Lack of positive reinforcement
- ✓Number of comorbid conditions
- ✓Number of medications needed per day
- ✓Types or components of medication
- ✓Amount of prescribed medications or duration of prescription



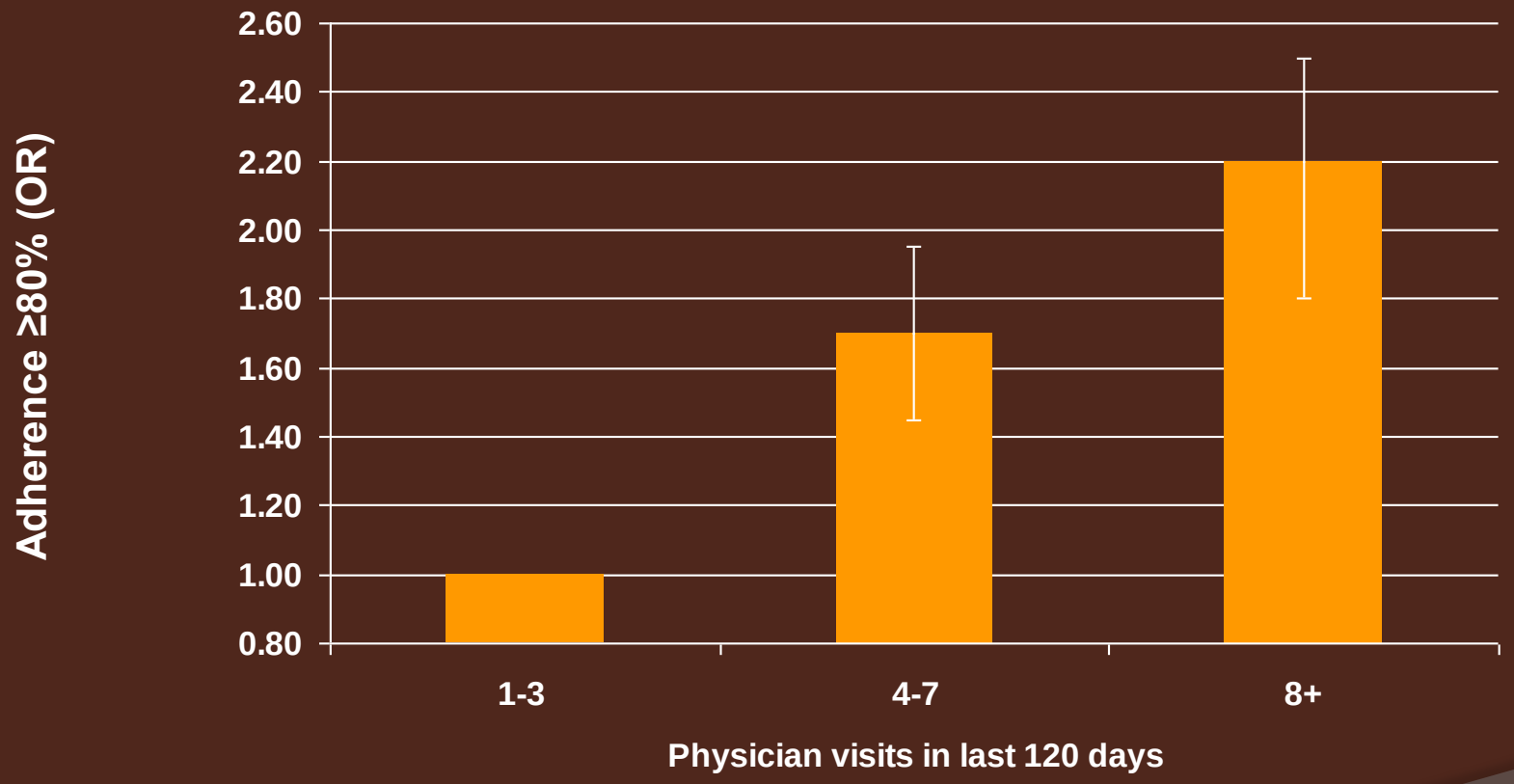
1. Source: Haynes RB, Ackloo E, Sahota N, McDonald HP, Yao X. Interventions for enhancing medication adherence. Cochrane Database Syst Rev 2008;(2):CD000011

# • 5. Patient Related

- Patient's knowledge & beliefs about their illness
- Patient's understanding about the consequences of poor adherence
- Forgetfulness
- Psychological stress
- Feeling stigmatized by disease

- Anxiety about possible adverse effects
- low motivation
- Lack of self perceived need for treatment
- Negative believe regarding the efficacy of the treatment
- Low attendance in follow-up visit

# More Frequent Physician Visits Improved Adherence

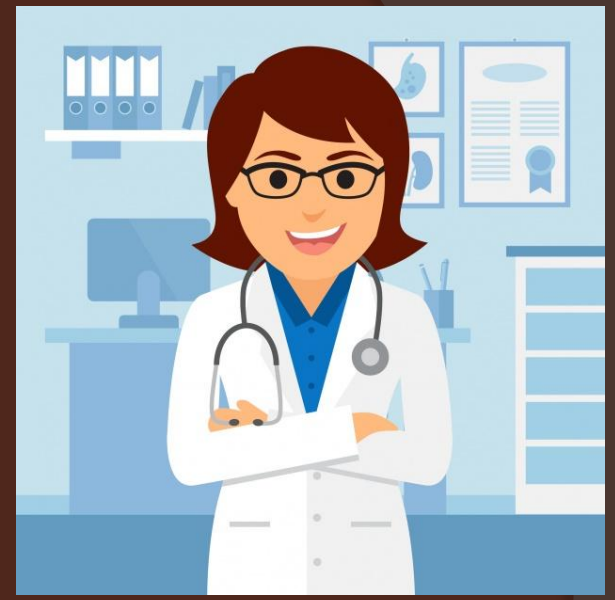



Retrospective study of elderly (aged 65 to 99 years) members of the New Jersey Medicaid and Medicare populations (N=8643).

Monane M et al. *Am J Hypertens.* 1997;10:697-704.

# Physicians Role for improving Adherence to antihypertensive

- Improved adherence can lead to:
  - Higher rates of treatment success
  - Fewer diagnostic procedures
  - Fewer hospitalizations
  - Lower mortality rates



What May Providers Do to Overcome These Challenges?

- ❑ Communication is key!
- ❑ Effective interventions
- ❑ Measure medication adherence

Benner JS et al. *JAMA*. 2002;288:255-261.
Insull W. *J Intern Med.* 1997;241:317-325.
World Health Organization. World Health Organization; Geneva, Switzerland. 2003.

Ratanawongsa 2012 Arch Intern Med ; Bramley 2006 J Manag Care Pharm 12(3):239-245;

## ❑ INTERVENTIONS-

- SIMPLE
- S— Simplify the regimen
- I — Impart knowledge
- M—Modify patient beliefs and behavior
- P —Provide communication and trust
- L —Leave the bias
- E —Evaluate adherence

# ❑ Measure medication adherence

➢ Interventions of medication Should be Patient-Tailored -

❖ Behavior-related

♣ Forgetfulness of patients

- Daily alerts
- 90 days medication supplies
- Automatic renewals

❖ Clinical—Questions or concerns about medication

♣ Pharmacist consultation

♣ Linguistically and culturally appropriate

❖ Cost-related

♣ Payment assistance programs

♣ Lower cost medication alternatives

♣ Lower cost pharmacy option (e.g. , home delivery)

# General Guide to Choosing Medication Adherence Scales Based on Disease of Interest

| Therapeutic Area | Medication Adherence Scales |
|---|---|
| Metabolic Disorders: hypertension, dyslipidemia, diabetes | MAQ (shortest to administer)<br>SEAMS (assesses self-efficacy)<br>BMQ (diabetes only)<br>Hill-Bone Compliance Scale (hypertension in predominantly black populations) |
| Mental Health: schizophrenia, psychosis, depression | MARS (schizophrenia and psychosis)<br>BMQ (depression) |

Abbreviations used:
BMQ = Brief Medication Questionnaire
MAQ = Medication Adherence Questionnaire (also known as the Morisky-4 or MMAS-4 scale)
MARS = Medication Adherence Rating Scale
SEAMS = Self-Efficacy for Appropriate Medication Use Scale

Source: Lavsa SM et al. J Am Pharm Assoc. 2011;51(1):90-94;

# Effective Strategies for Improving Hypertension Medication Adherence-

- ✓ Team-based care
- ✓ Pharmacist-led multicomponent interventions
- ✓ Education with behavioral support
- ✓ Pill counting
- ✓ Blister packaging
- ✓ Electronic monitoring
- ✓ Telecommunication systems for monitoring and counseling
- ✓ Single dose vs. multiple dose prescribed



1. Sources: Walsh J, McDonald K, Shojania K, et al. Quality improvement strategies for hypertension management: a systematic review. Medical Care 2006;44:646-57; Viswanathan M, Golin CE, Jones CD, Ashok M, Blalock SJ, Wines RC, et al. Interventions to improve adherence to self-administered medications for chronic diseases in the United States: a systematic review. Ann Intern Med 2012; 157(11):785-795.

# How to Overcome Challenges or Barriers by System Change

- Introduce team-based care
  - Collaborate with pharmacists and/or nurses
  - Educate patients on how to take medications
  - Monitor by pill box
- Improve access and communication
  - Offer patients the opportunity to contact the provider's office with any questions
  - Use telemedicine, particularly in rural areas
- Use technologies and analytical services that facilitate measuring and improved adherence

# Last but not the least-

## Script Your Future -

- National multiyear campaign to raise awareness about medication adherence
- This campaign brings together stakeholders in health care, business, and government .
- For health-care professionals, the campaign offers guidance on how to improve communication with patients
- For patients, the campaign offers practical tools to improve medication adherence

http://scriptyourfuture.org/wp-content/themes/cons/m/release.pdf

# US Surgeon General Regina Benjamin, MD (**2009-2013**)

**Regina M. Benjamin**

"Doctors, nurses, pharmacists and other health care professionals can help prevent many serious health complications by initiating conversations with their patients about the importance of taking medication as directed. This is especially important for people with chronic health conditions such as diabetes, asthma and high blood pressure, who may have a number of medicines to take each day."

http://scriptyourfuture.org/wp-content/themes/cons/m/release.pdf

# Take-Home Messages

Take-Home Messages for Providers / Doctors-

- ✓ Display patience and empathy when interacting with patients
- ✓ Be mindful of the number of medications prescribed and their frequency and dosages.
- ✓ Prescribe lower-cost medications and/or provide manufacturer coupons to help lower costs.
- ✓ Explain the consequences of non-adherence and suggest ways to improve adherence.
- ✓ Introduce team-based care to improve medication adherence θ
- ✓ Identify roles and responsibilities in team-based care to deliver improved patient-centered health care
- ✓ Need to develop a Hypertension guideline of ours for patient benefit oriented.


THANK YOU