

# CRITICAL FACTORS THAT INFLUENCE ADHERENCE TO THERAPEUTIC MEDICAL REGIMEN AMONG HYPERTENSIVE UNITED STATES VIRGIN ISLANDERS

The seal of Barry University is visible in the background on the right side. It is a circular emblem with a shield in the center. The shield is divided into four quadrants, each containing a different symbol. The text "BARRY UNIVERSITY" is written around the top inner edge of the circle, and "1940" is at the bottom. The word "FLORIDA" is written across the middle of the shield.

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CNRN, SCRNI

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## Barry University

# Domain and Problem of Inquiry

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- Hypertension: Global health crisis
  - Increases preventable deaths and disability
- One billion with disease
  - Highest in African Regions 46%
- 75% do not achieve optimal control
- Adherence to antihypertensive regimen 50-70%
- Mortality
  - 9 million die per year
    - 45% heart disease
    - 51% stroke
- Morbidity
  - heart disease, stroke, kidney disease



# The United States Virgin Islands “America’s Paradise”



# Hypertension and the United States Virgin Islands

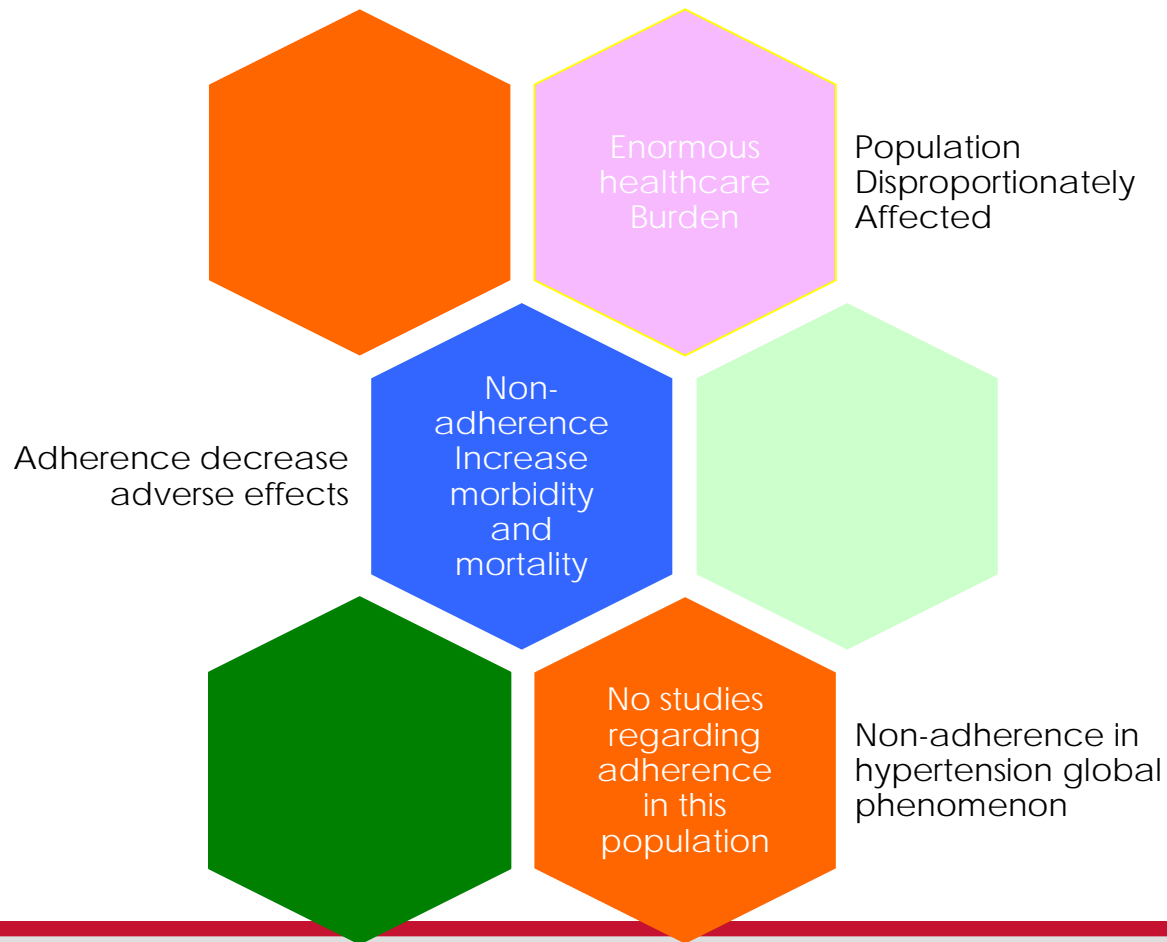
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- Prevalence
  - 26% of US Virgin Islanders are hypertensive
  - 29% persons on St. Croix
  - 23% persons on St. Thomas
  - 28% persons on St. John
  - 27% males vs. 23% females
  - 57% hypertensive population > 65 Y/O
  - 45% less than high school education
  - Highest (39%) among persons with household income 10,000 -15,000
- CDC Behavioral Risk Factor Surveillance Survey
  - Proportion of Virgin Islanders with HTN is higher than 42 of the 51 states



# Statement of the Problem

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# Purpose of the Study

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- Explore factors that impact adherence to hypertensive treatment regimen
- Explore knowledge regarding hypertension
- Present factors that foster or deter adherence
- Afford the opportunity to provide better future assessment of medication adherence among this population

# Research Method and Research Questions

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**Method:** Grounded Theory

**Articulated by:** Strauss and Corbin

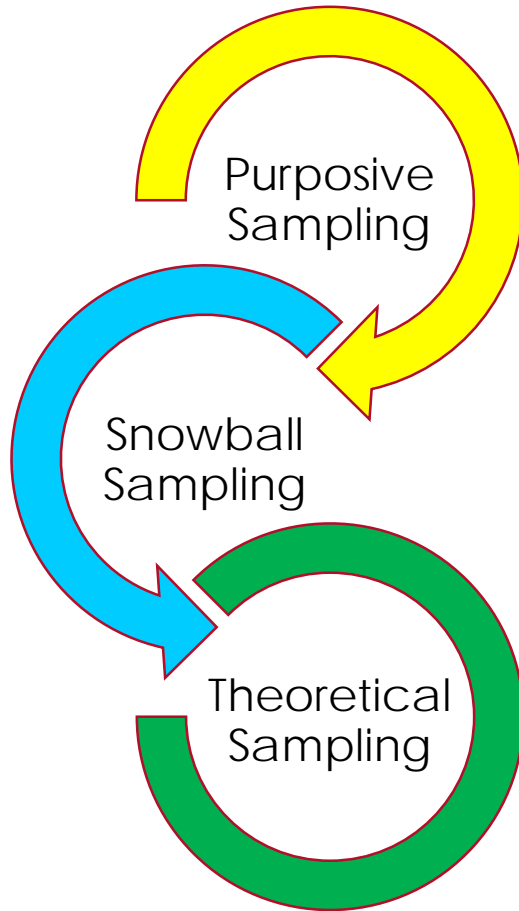
## Research Questions

1. What are the critical factors that influence therapeutic adherence in the hypertensive US Virgin Islander?
2. What are the attitudes, behaviors and beliefs of the US Virgin Islander that directly or indirectly influence adherence to hypertensive therapeutic measures.
3. What are the critical factors of the social structure of the United States Virgin Islands that influence adherence to hypertensive medical therapeutic regimens?



# Sample

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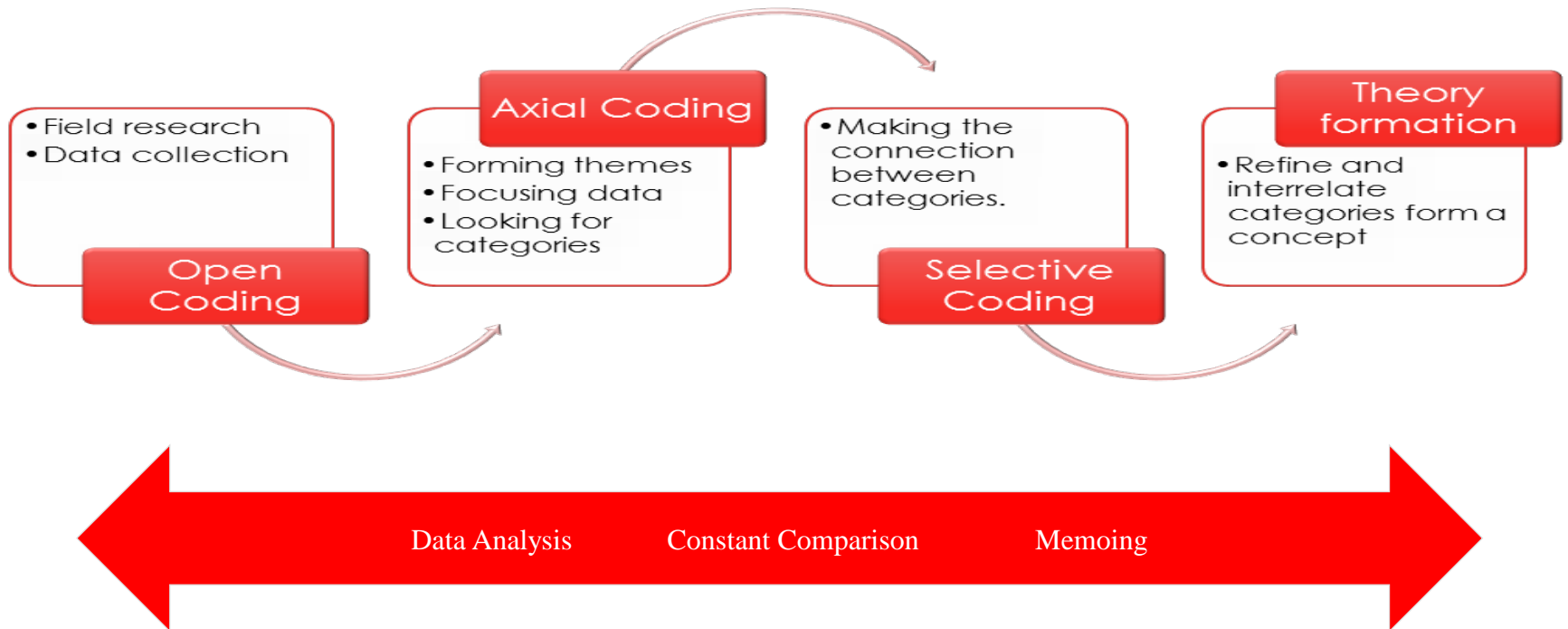


- Individual: 21 participants
- Focus Group: 4 Participants





# Data Analysis Procedure



Adapted from Strauss and Corbin Grounded Theory Method (Morton, J. A. 2016)



# Demographic Characteristics of Phase 1 N=21

Gender		
Male	8	38.1%
Female	13	61.9%
Age Group		
18-30	2	9.5%
31-40	2	9.5%
41-50	3	14.2%
51-60	5	23.8%
61-70	7	33.3%
71-80	2	9.5%
Race/Ethnicity		
Black or African American	19	90.1%
Caribbean Indian	2	9.5%
Employment Status		
Employed for Wages	12	57.1%
Self Employed	4	19.0%
Retired	5	23.8%
Healthcare Insurance		
Yes	16	76.2 %
No	5	23.8 %

Education Completed		
Grades 1-8	3	14.2%
Grades 9-11	1	4.7%
Grades 12 or GED	6	28.6%
College 1-3	7	33.3%
College 4 year	1	4.7%
Graduate School advanced Degree	3	14.2%
Island/Country of Origin		
St. Croix	6	28.6%
St. Thomas	1	4.7%
St. Kitts/Nevis	3	14.2%
Antigua/Barbuda	3	14.2%
Trinidad/Tobago	1	4.7%
St. Lucia	4	19.0%
Monserat	2	9.5%
Dominica	1	4.7%



# Demographic Characteristics of Phase 1 cont.

## Number of Years living in The United States Virgin Islands

11-20	4	19.0%
21-30	2	9.5%
31 and Greater	15	71.4%

## Number of Years with Diagnosis HTN

1-5	5	23.8%
6-10	5	23.8%
11-15	3	14.2%
16-20	2	9.5%
21-25	2	9.5%
26-30	3	14.2%
31 and Greater	1	4.7%

## Primary Care Provider

Yes	21	100%
No	0	

## Number of Antihypertensive Medications Taken Daily

1 Tablet	10	47.6%
2 Tablets	6	28.6%
3 Tablets	4	19.0%
4 tablets	1	4.7%

## Elimination of antihypertensive medications

Yes	17	81%
No	4	19.0%

## Deliberate Elimination of antihypertensive medications

Yes	7	33.3%
No	14	66.6%

## Missed Medications in past week

Yes	7	33.3%
No	14	66.6%

## Other methods of controlling Blood pressure not prescribed by MD

Yes	12	57.1%
No	9	42.9%



# Demographic Characteristics of Phase 2 N=4

Gender		
Female	4	100%
Age Group		
50-60	2	50%
61-80	2	50%
Race/Ethnicity		
Black or African American	3	75%
Latino/Hispanic	1	25%
Employment Status		
Employed for Wages	1	25%
Retired	3	75%
Healthcare Insurance		
Yes	3	75%
No	1	25%
Education Completed		
Grade 12 or GED	2	50%
College 1-3 years	1	25%
College 4 year	1	25%
Island of Origin		
St. Croix	2	50%
St. Thomas	1	25%
St. Kitts	1	25%

Number of Years Living in The United Staes Virgin Islands		
> 31 Years	4	100%
Number of Years with Diagnosis of Hypertension		
16-20 Years	3	75%
> 31 years	1	25%
Primary Care Provider		
Yes	4	100%
Number of Antihypertensive Medications Taken Daily		
1 Tablet	1	25%
2 Tablets	2	50%
5 Tablets	1	25%
Eliminated Antihypertensive Medications		
Yes	2	50%
No	2	50%
Deliberately Eliminate Medications		
Yes	2	50%
No	2	50%
Eliminated Medications in the past week		
yes	2	50%
NO	2	50 %
Use of Other Methods for BP Management not Prescribed by provider		
Yes	2	50%
No	2	50%



# Mistrusting

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# Exemplar Quotes for Mistrusting

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- **Jasmine Guy:** You know here we have a history of being misdiagnosed. So we are not very trusting when they say you have this and you have that. I have to do my own research.
- **Agnes:** We have a broken system here. like I said, you have where people have had family members either go to a physician and the doctor said they were okay..... for them to go to the hospital for one thing and had something else happen and they not recover from that. So it is a broken system here. And then you have those that went away it was so eye opening. Like if you go to the doctor here you have to wait a week or two weeks to get your results, for x-ray, for MRI. When I go to the states I come that day, I do my labs, I do whatever tests they ask and but the time I go upstairs to meet the doctor he have everything there. So I don't have that "*I'm sick. I'm dying? I'm dying.*"



# Exemplar Quotes for Mistrusting

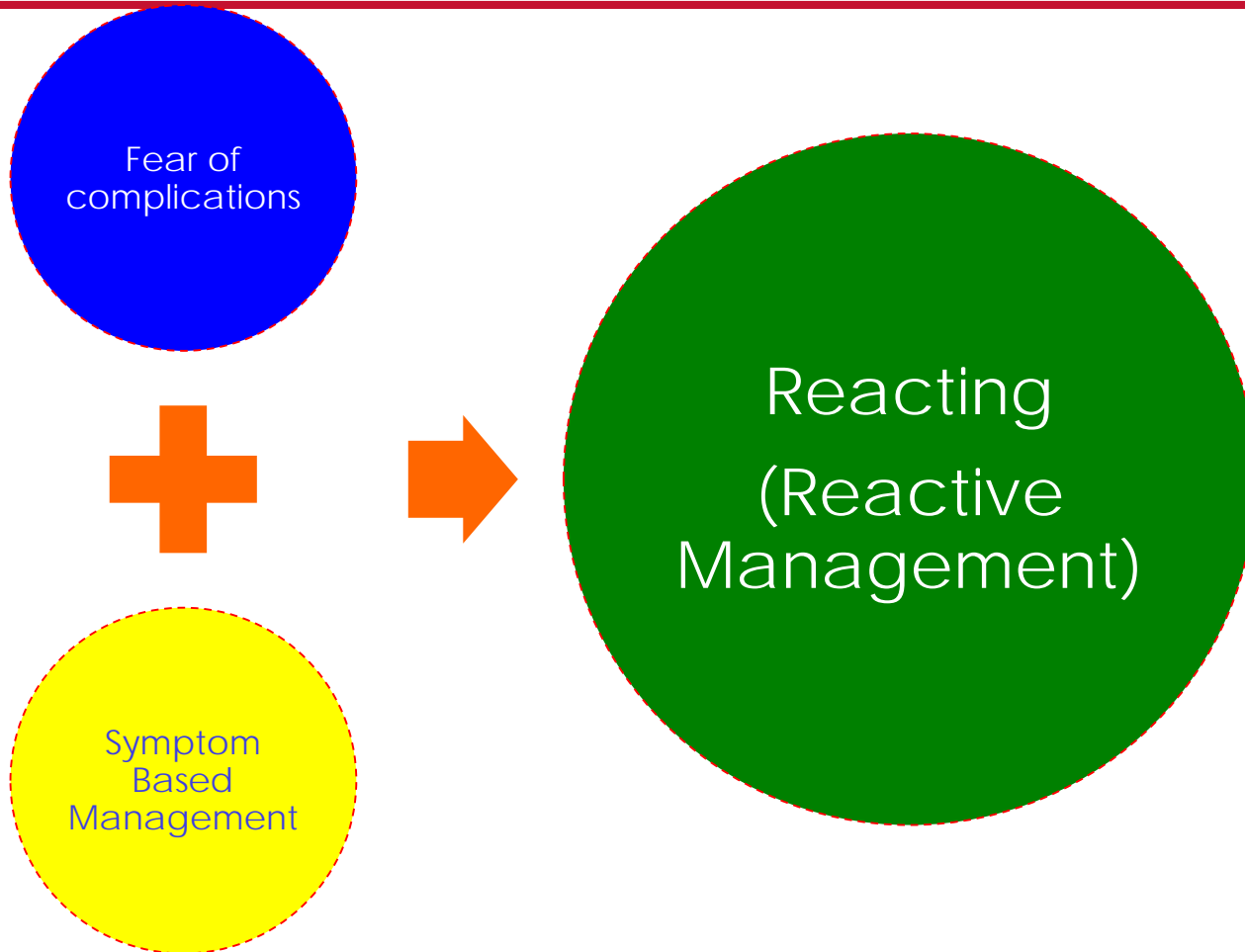
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- **Songbird:** So my wife and me did all the checkups that they said and you know we paid something like 200 and something dollars balance after insurance. You come here; you do an MRI, okay, the MRI is like, I don't know, something ridiculous like \$800, something like that. Cigna pays 350/400. You still left with 400/450. One MRI.... Hence
- **Lisa:** They come with the attitude it's a third world and you know you can tell these people anything, pick the idiots off the tree and you know, shave them down and teach them how to speak and that attitude.
- **Filbert:** Like when people get sick..... a lot of people does find out that they sick when they go to Puerto Rico... ..some of these fellows, a lot of these doctors been coming here and doing work without license.. They have couple of them here without license



# Reacting

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# Exemplar Quotes for Reacting

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- **Agnes:** Age ten I went for a physical, I had borderline hypertension. The physician then told my mom it's hereditary. ....At 17 I got pregnant with my daughter and from the onset of the pregnancy I had hypertension, which led to preeclampsia so...rough pregnancy.....From since then .....I was a stage three. I have always maintained being a stage three. ...it its very rare for a child to have pressure.. so it's like okay and I was a heavy set child. I had this, as a child so it was more lose weight you will get better. Did not follow up. And of course my mom didn't know anything either..... It's not that she understand that to cut back until when it impacted her. And by the time it impacted her she could stop cooking with salt and at that stage .....I want salt in my diet so I still was unaware of the damage that I was doing and I was not maintaining taking my medications when they put me on them either.... Salt intake yes. Lack of water yes. ....Exercise, I don't exercise.... and we really don't follow up with a healthcare provider, until something severe happens, and at that point that's when the doctor is going to say you have high blood pressure, you have diabetes, and you need to do this you need to do that; and that's a lot to tell somebody that doesn't have a relationship with a doctor to start to have a relationship...Nah.
- **Elaine:** I think too and a lot of people do not take their pressure regularly either. A lot of people especially men don't go to a doctor. So people walking around with a high sugar...I mean pressure and they don't even know because they're not paying attention to it at all. Like you say they considering the sugar more important so they don't even bother to check the pressure.



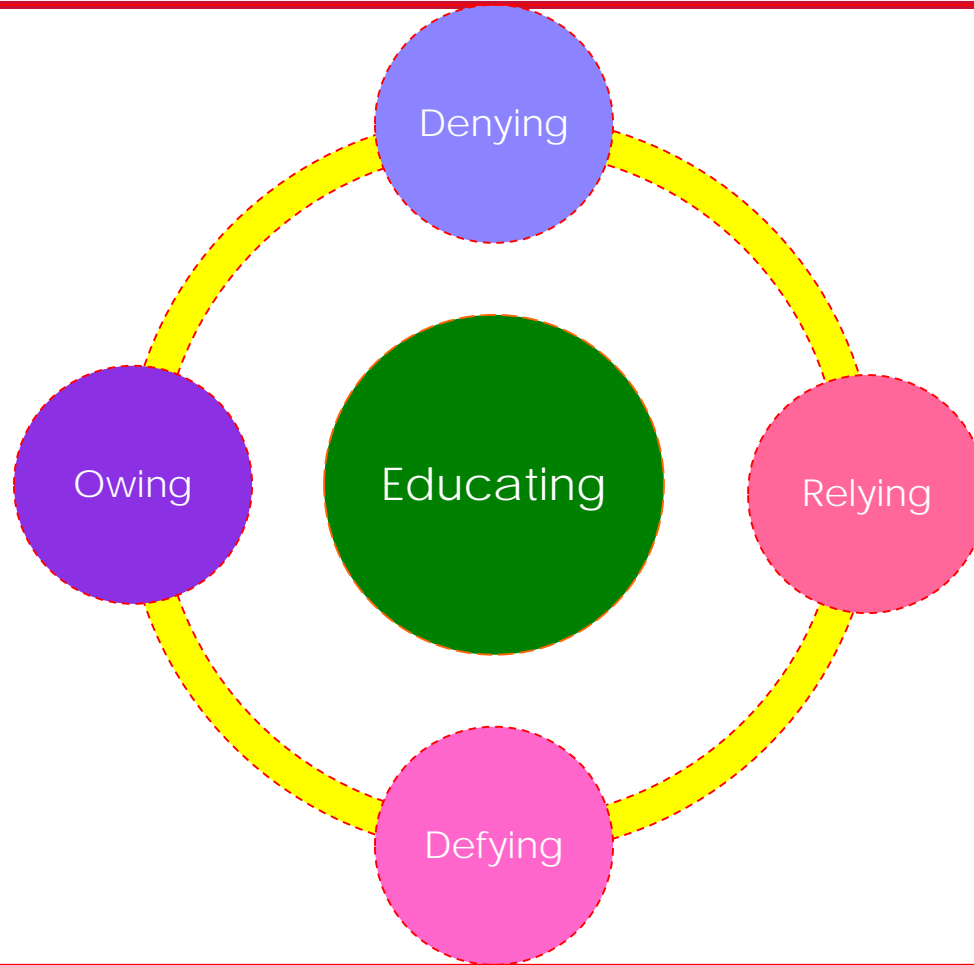
# Exemplar Quotes for Reacting

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- **Songbird:** Last measurements I did, it was just a little bit over, not anything ridiculous, but I haven't monitored it let say for the two months or so I haven't checked it all. But I am a good indicator of my pressure. I know when my pressure is high. I get tense and my shoulders get tense and I get a little lightheaded . . . not lightheaded but I just could feel like a pressure in my head sometimes. So I know and then I would check it and I say oh yes it's high.
- **Faith:** "If I don't feel good I am like wow I got to take my medications".
- **Prince:** A lot of people don't really want to take the medicine. They don't like the medicine but they are afraid of what will happen if they don't. I weaned myself from the medicine.....if I have to take it I will go back on it. I don't have a problem with that. I'm not I'm not totally against it but I feel if I could monitor it and control it, why should I keep swallowing all this stuff? When I feel pain or funny feeling I rush to that monitor one time, to make sure it's not my pressure.



# Educating



# Exemplar Quotes for Educating

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- **Montgomery:** You know basically that is how a lot of the doctors here or maybe in the Caribbean for that matter...treat patients. Now when a white person goes to a doctor they give them all the information in details and blah.... blah.... blah.... blah. But when a black person go in they just say here take three of these two times a day or whatever.... whatever.
- **Faith:** Most of the time I go to the doctor, it's the same day I go for prescription. "you need more refill whatever, whatever?" and I do my mammogram once a year, I don't ask questions, I guess I need to ask more questions.
- **Taylor:** Here in the Virgin Islands that doctor dash period whatever you want to put their but that D.R. means a lot. In the States they think of it as a drive down here once they see that Dr., I am being honest once they see that Dr. or MD or any other type of abbreviations following oh all of a sudden the change will happen.



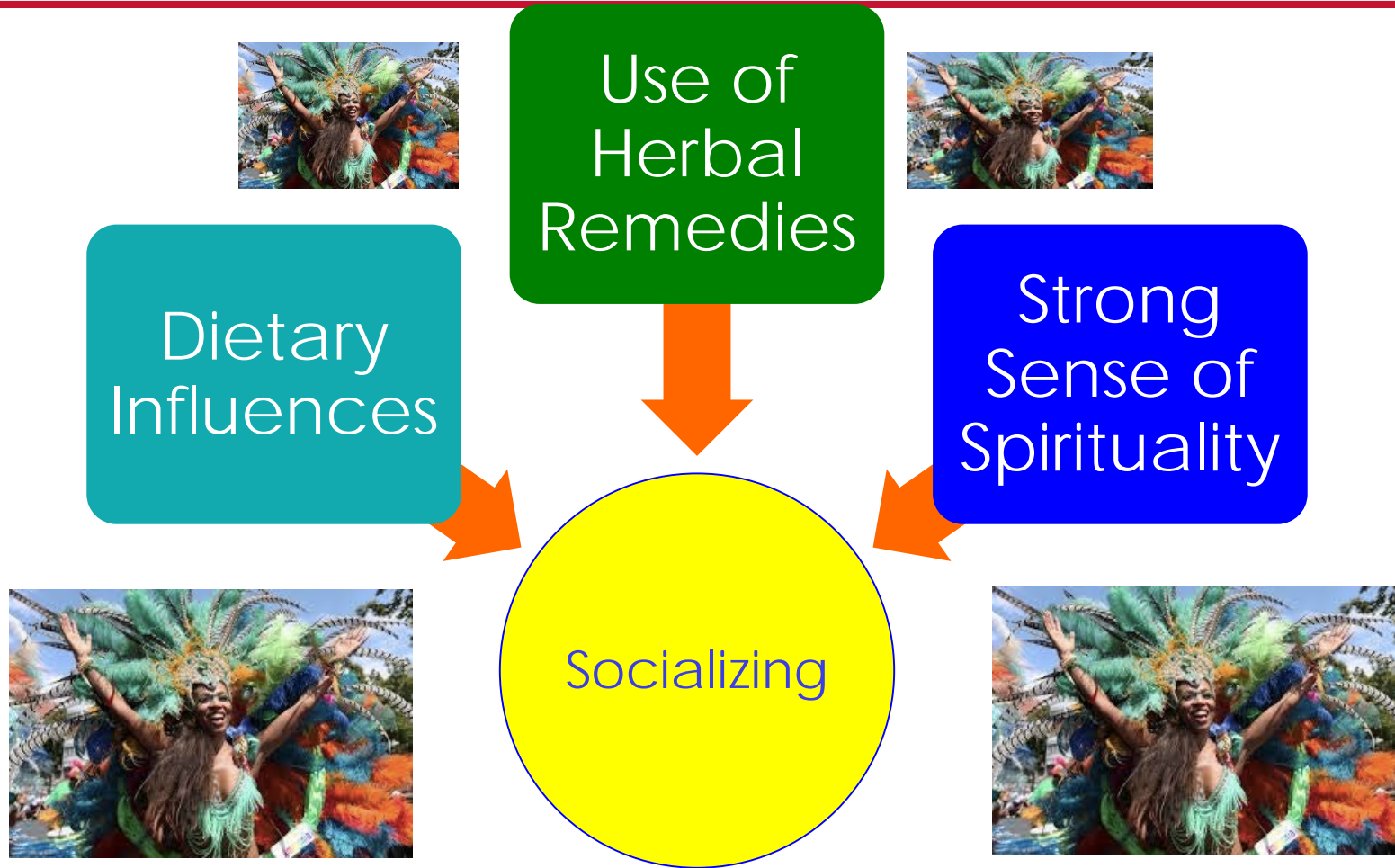
# Exemplar Quotes for Educating

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- **Mr. Indian:** I do take them but not all the time they say to take it; I take it and after I done reach a level, all I doing is poisoning myself. After I solve the problem, why do I continue to take that after I already solve the problem? I don't intend to be stuck on that tablet for the rest of my life... I alleviate the situation and when it's fixed, I don't need to take that no more. Western Culture is pumping tablets into you and it's more poison that they pumping into you.
- **Candy:**... I was 30 lbs over weight....My eating habits were poor. Cholesterol was through the roof, so... he said "you need to lose some weight, exercise, watch what you eat, look at your labels, eat more greens and proteins. And so I decided to join the gym and lose the weight start eating healthier and I did and in 3 months I was able to drop my cholesterol from 246 to 177 I exercised, loss 20 lbs and changed my whole life style.....



# Socializing



# Exemplar Quotes for Socializing

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- **Bernice:** Caribbean people we grew up on bush tea. Well I mean maybe not your generation. We grew up on all of this old thing and especially people from the islands they had the little garden they go outside and pick the fresh things. You know so they grew up with that mentality. That's a cultural thing for them. I know a neighbor she had all these things...diabetes, high blood pressure and something else and they told her she must walk and drink bush and plants. She got all kinds of bush plant. She came right down, lost the weight and she stopped taking the tablets.
- **Mr. Indian:** Once you coordinate your teas or your bush medicine you don't have....side effects as you do if you use western medicine. I do take it you know(referring to his BP pill), not that I refuse I do take it but I don't keep a long stretch with it. I just take it to alleviate the situation. I do have an asthma condition when the puffer doesn't work I go boil some Marijuana leaf and go make tea with it and that works for 1 week at least. I don't smoke it I don't use the bunts. I don't use enhanced plants from America. I use the natural leaves with the chlorophyll and that works for me the asthma gets... I still keep my puffer with me, if I need a quick fix I do a quick fix and then later I get my tea.....





# Exemplar for Socializing





# Exemplar Quotes for Socializing

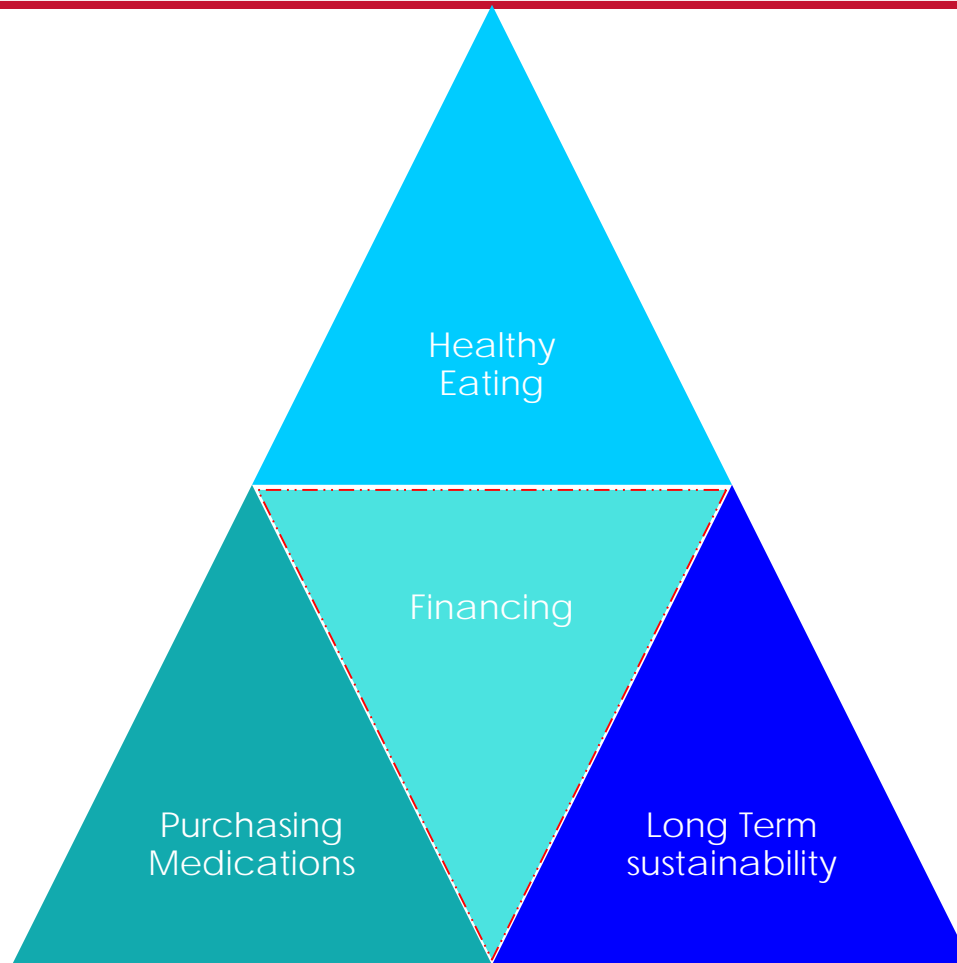
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- **Jasmine Guy:** Because we need to season our food overnight and the food has to have so much taste. Then they use sazón and they want to put chicken bouillon. They want to see their food pretty so you not even seasoning you're decorating the chicken before it's even cooked. You know, so the salt factor and you know a lot of the restaurants too, the salt is so heavy that it burns your tongue. So salt is... you know Hispanics...\*long pause\*...Hispanics and Caribbean people they generally season their food well...We need the seasoning to soak in down to the bone. Every time you dig in a piece of meat you want to taste the seasoning. So you know culturally I think that has doomed us.
- **Albert Cadet:** If you give me something to follow and I am not doing it, that means I'm against myself...This is for my own good...God put these fellers there for that .....well if you believe in doctor, because I believe in him, because God put him there, then you will listen.



# Financing

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# Exemplar Quotes for Financing

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- **Jane:** Every time you go it's money. Sometimes I try to avoid the pharmacy business....the medications.... to spend the extra money. With the insurance it is not that expensive, but still to find the \$100 it's not easy to find..
- **Mr. Joseph:** My lady, let me tell you something it's expensive... and I can't even afford to buy one vial, especially the uumm "Cincepa" is expensive a lot, and how much they giving you.... 11 in a vial for \$1200. That's for the Kidney. Yeah I try to get a little help but they say my wife making enough money and my insurance. The insurance....from the time I leave work the insurance not there, but they insist on telling me the insurance have to help me. But it's no! The insurance not there because it have a year and something that I did not work
- **Donika:** What is healthy for you is the most expensive things here. You gotta sell your soul for you to afford stuff ....We have a little store where you buy fresh produce, but by the time you pick up 1 pound of something, it's like, it's unbelievably expensive.



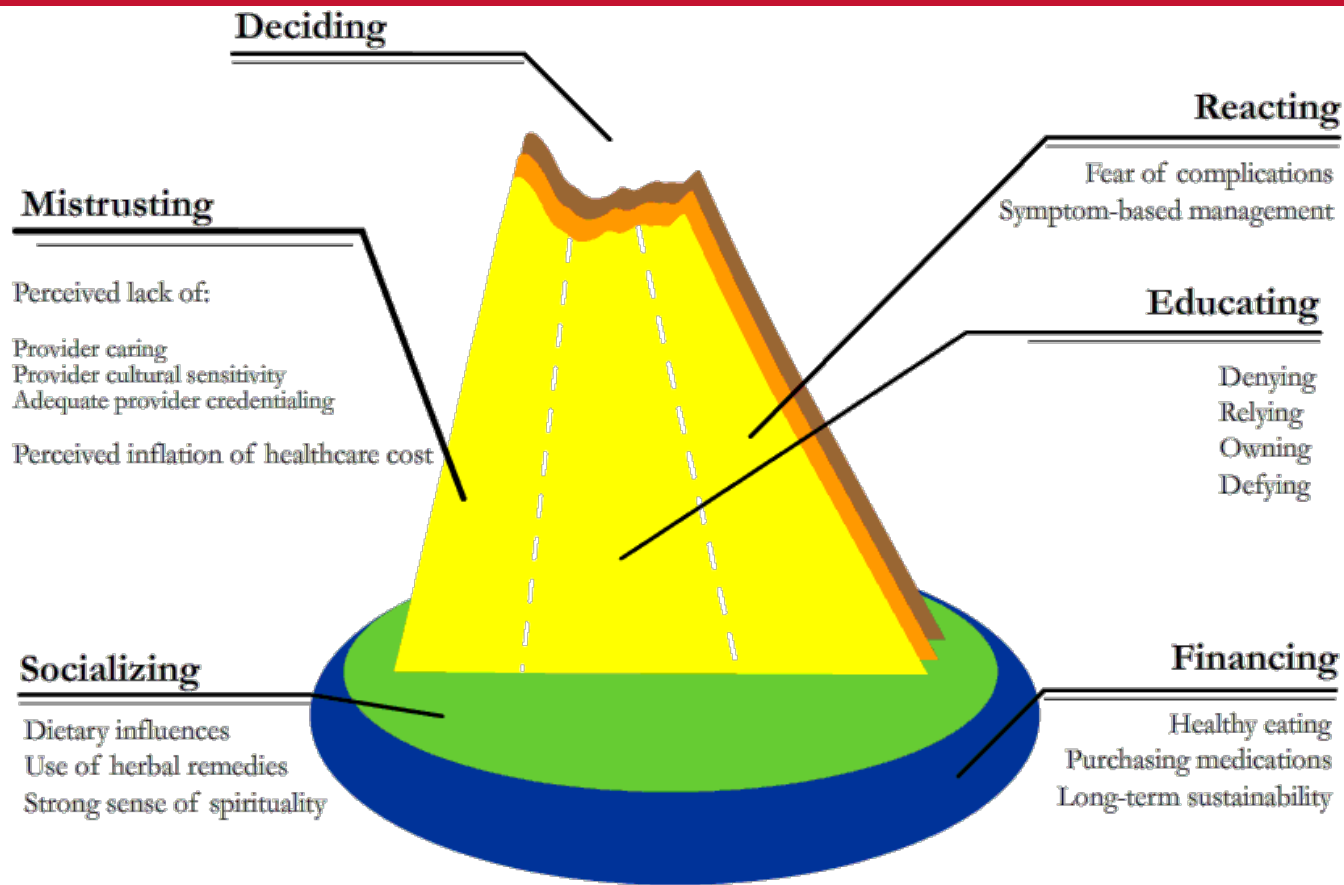
# Exemplar Quotes for Financing

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- **Mr. Indian:** Well here health care cost is high, why? Because insurance companies they don't have large volumes of people to cover....the oil refinery closed down and they lost people... Now they are putting out more than they are getting in.....other health care insurances agencies that are here are facing the same thing. The entire spectrum of living on the Island is always going to be based on that factor, population vs. demand...if your demand is great but you do not have people to support the industry the industry naturally is going to have to raise its rates... and that's what we are facing.



# Conceptual Model of Deciding



# Strengths and Limitations of Study

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- **Strengths**

- Study done in the United States Virgin Islands
- Participants currently live in the United States Virgin Islands
  - 11 years of greater individual participants
- Rich data derived from the participants
- Diagnosis HTN ranged from 1 year to greater than 31 years Phase 1 participants
  - Phase 2 participants diagnosis HTN >20 years
- Engaged in memoing, constant check recheck pattern in data analysis, expert consultation and member checks

- **Weaknesses**

- Loss of time due to researcher travel
  - 2 participants lost to follow up
- Novice researcher
- No participant from the Island of St. John
- Researcher from the USVI had personal tragedy with HTN non-adherence



# Significance of Study

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# Significance of the Study

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- Nursing Practice
  - Multi-dimensions of cultural care
  - Primer study,
  - Platform for establishing guidelines for care in this and like populations
- Nursing Education
  - Inform curricular
  - Develop prospectuses that highlight importance of ethnocultural basis of care
- Nursing Research
  - Platform for like studies in this and similar populations
  - Investigate the properties and efficacy of herbal medicine used
- Health/Public Policy
  - Informs stakeholders, catalyst for health promotion and disease prevention programs
  - Implementation of funding for





# Summary

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- High level of non-adherence hypertension management.
  - 81% admitted to eliminating their blood pressure medications at some point;
  - 33% reported this as deliberate
  - 8% of the participant related this to lack of ability to afford medications
- Adherence major healthcare hurdle leading to morbidity and mortality
- Must understand social, and environmental influences of care
- Must adjust assessments to include evaluation for adherence
- Must institute treatment plans that can be efficacious a deterring non-adherence practices in this and like populations





# References

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- Centers for Disease Control (CDC). (1990). Health beliefs and compliance with prescribed medication for hypertension among black women--new orleans, 1985-86. *MMWR. Morbidity and Mortality Weekly Report*, 39(40), 701.
- Center for Disease Control. (2011). High blood pressure fact sheet. <http://www.CDC.gov/CDChttp://www.cdc.gov/bloodpressure/facts.htm>
- da Silva Barreto, M., Cremonese, I. Z., Janeiro, V., Matsuda, L. M., & Marcon, S. S. (2015). Prevalence of non-adherence to antihypertensive pharmacotherapy and associated factors. *Revista Brasileira De Enfermagem*, 68(1), 54-60. doi:10.1590/0034-7167.2015680109i
- Fletcher, B. R., Hartmann-Boyce, J., Hinton, L., & McManus, R. J. (2015). The effect of self-monitoring of blood pressure on medication adherence and lifestyle factors: A systematic review and meta-analysis. *American Journal of Hypertension*, 28(10), 1209-1221. doi:10.1093/ajh/hpv008
- United States Virgin Islands Department of Health (2003). Healthy Virgin Islands 2010: *Improving Health for all*. Retrieved from: [http://lifestylefestival.com/docs/2008/VIDOH\\_hHEALTHY\\_VI\\_2010\\_Plan\\_March\\_2003.pdf](http://lifestylefestival.com/docs/2008/VIDOH_hHEALTHY_VI_2010_Plan_March_2003.pdf)
- World Health Organization (WHO). (2003). *Improving adherence rates guide for countries*.
- Retrieved from <http://www.who.int/en>
- World Health Organization (WHO) (2013) Why hypertension is a major public health issue. Retrieved from: <http://www.who.int/en>
- World Health Organization (2011) Global atlas on cardiovascular disease prevention and control. Retrieved from: [whqlibdoc.who.int/publications/2011/9789241564373\\_eng.pdf](http://whqlibdoc.who.int/publications/2011/9789241564373_eng.pdf) .
- World Health Organization (2016) Health System: Key Expected results. Retrieved from: <http://www.who.int/healthsystems/about/progress-challenges/en/>

