Patients’ Perspective of a Multifaceted Intervention with a Focus on Technology: A Qualitative Analysis
“Not everything that can be counted counts and not everything that counts can be counted”

Albert Einstein
Background

Hypertension (HTN)
High Blood Pressure

- Risk factor for:
  - heart attack;
  - stroke;
  - kidney disease;
  - death
- HTN affects about 76.4 million people in U. S.
- Prevalence increases with advancing age
- Only 48-50% are controlled
Treatment usually involves:
- medication therapy
- lifestyle changes

And depends on patients’ health behavior
Intervention Study

“Improving Blood Pressure in Colorado”
Multifaceted Interventions

- Pharmacist Lead
- Interactive Voice Response Technology (IVR)
- Home BP Monitoring
# Table 1 - Study Population Distribution

<table>
<thead>
<tr>
<th></th>
<th>Total Participants</th>
<th>N= 146</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Veterans Affairs</strong></td>
<td>Total number</td>
<td>87</td>
</tr>
<tr>
<td></td>
<td>Intervention</td>
<td>46</td>
</tr>
<tr>
<td></td>
<td>Usual Care</td>
<td>41</td>
</tr>
<tr>
<td><strong>Denver Health</strong></td>
<td>Total number</td>
<td>59</td>
</tr>
<tr>
<td></td>
<td>Intervention</td>
<td>32</td>
</tr>
<tr>
<td></td>
<td>Usual Care</td>
<td>27</td>
</tr>
</tbody>
</table>
BP Reduction

Systolic BP
- Intervention: 13.4
- Usual Care: 7.1

Diastolic BP
- Intervention: 6.5
- Usual Care: 5.9
Why do interventions succeed or fail?

Ask the participants-
Theoretical and Empirical Framework

- *Evidence Based Policy: A Realist Perspective* by Ray Pawson
  and
- *The Medical Research Council’s framework*
  for designing and evaluating multifaceted interventions
Qualitative Study Methods

- 16 semi-structured, open-ended questions
  - Patients’ overall experience during the study
  - Effect of the study on the patients’ visits with their PCPs
Used an iterative, inductive, and deductive toolkit of analytical strategies, drawing primarily on qualitative content analysis, and consultative and reflexive team analysis.
Additional Analyses

- Accountability
  - Comparison between patient reported use of the IVR and actual use
  - Participants’ self report of a positive impact of the intervention and achieving BP goals
  - Member Checking
## Results
### Baseline Characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Intervention Group N= 78</th>
<th>Usual Care Group N= 68</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male sex, N (%)</td>
<td>64 (82)</td>
<td>55 (81)</td>
</tr>
<tr>
<td>Mean Age, y (SD)</td>
<td>61.7 (10.1)</td>
<td>61.0 (11.5)</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
</tr>
<tr>
<td>White, N (%)</td>
<td>41 (53)</td>
<td>35 (51)</td>
</tr>
<tr>
<td>Non White, N (%)</td>
<td>37 (47)</td>
<td>33 (49)</td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hispanic, N (%)</td>
<td>18 (23)</td>
<td>23 (34)</td>
</tr>
<tr>
<td>Non–Hispanic, N (%)</td>
<td>59 (76)</td>
<td>44 (65)</td>
</tr>
<tr>
<td>Co–morbidities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DM/CKD</td>
<td>45 (58)</td>
<td>50 (74)</td>
</tr>
</tbody>
</table>
# Positive Experience

<table>
<thead>
<tr>
<th>Group</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>75</td>
</tr>
<tr>
<td>Intervention Group</td>
<td>86</td>
</tr>
<tr>
<td>Usual Care Group</td>
<td>62</td>
</tr>
<tr>
<td>Women</td>
<td>82</td>
</tr>
<tr>
<td>Men</td>
<td>73</td>
</tr>
<tr>
<td>African American</td>
<td>89</td>
</tr>
<tr>
<td>Hispanic</td>
<td>71</td>
</tr>
<tr>
<td>Non–Hispanic White</td>
<td>74</td>
</tr>
</tbody>
</table>
Six Main Themes

1. Improved relationships with medical personnel

32% of the intervention patients

In the words of one participant “Oh, it was great, you got me spoiled there for a minute it was like somebody really cared for…my high blood pressure …”
2. Increased knowledge of hypertension

78% of the intervention patients

As one participant put it, “…..when they take my blood pressure I didn’t know what the numbers meant at all and now I know what they mean so that’s helped me a lot…..

Interestingly, 60% of the Control group
3. Increased participation in their healthcare and personal empowerment

47% of the intervention patients became active participants in their healthcare
27% of the int. patients expressed that the knowledge and experience empowered them to facilitate a bi-directional conversation.

As one patient said, “So it’s made me have a two way street with my PCP.”
10% of UC agreed
In the words of one such usual care patient, “Well, after reading the book that you gave me, I realized that things weren’t looking, … good for me ‘cause I have an aneurysm in my brain that is inoperable and I realized after reading that I could blow my head off and I started going to my doctor every two weeks to get the blood pressure under control, and I started losing weight, going on a diet. I started walking, I started eating healthier and I’ve lost quite a few pounds.”
4. Greater understanding of the impact of health behavior on BP

36% of the intervention patients

As one participant said, “I think taking my BP regularly really made me show that I did need to take the medication and that was somewhat motivating, … I often thought … I don’t think this might be doing anything…so it did show that the medication was important.”
5. Satisfaction with IVR Technology and Home BP Monitoring

94% reported having no problems with taking their blood pressure at home.

A couple people said that they “enjoyed” taking their blood pressures at home.
90% found the IVR system very user-friendly

As one participant said, “the fact is, if they [the IVR] hadn’t called a lot of times I probably wouldn’t have done as well as I did.”
A couple of the patients even enjoyed something akin to a “relationship” with the IVR system:

“She [the IVR] would say you reached your goal congratulations, and I was elated to hear that so I worked that much harder the next time so I could hear those words again.”
6. Healthcare Utilization:

Some patients reported less urgent care visits.

Others increased their visits with their PCP.
When considering the generalizability of the intervention:

“Great program. Should expand it because … the Latin community, we just naturally eat bad and could use more help like this.”
“Really, I think it could make a huge difference in problems with compliance. I think that kind of personalization would really help. And it would take a lot of pressure off the medical system itself.”
Frustration and Concern

- When the system was unavailable to report BP results.
- Difficulty pushing the buttons on cell phones.
- System was cumbersome initially.
IVR became tedious – suggested a website

Cost of the minutes on their cell phones.
Not So Positive

11 intervention patients who had not worked with the study pharmacist did not report a positive experience.

1 pt. who never used the IVR system, did not like being contacted when he did not report his BP measurements.
1 patient was fearful the pharmacist would replace his PCP and the study would:

“get this doctor in trouble because my blood pressure’s been up.”

However, he noted improving his medication adherence had resulted in a positive effect:

“… it proved it right there in my readings this morning. It’s working.”
Personal issues such as financial problems, pharmacy rules, and transportation issues.

“What makes it difficult to take your medicines?”

“If the water was shut off.”

“Just when I can’t afford them.”
Additional Analyses
Triangulate

The association between program impact and **BP control**:

Positive experience with the program

Lower BP and co-morbidities
As one participant said, “...you’re going to save a lot of lives and it’s going to prevent a lot of strokes and heart attacks ‘cause ... they don’t seem to realize and neither did I until I got more education about blood pressure ... how important this is to monitor your blood pressure....And ... I think it’s going to help diabetes people ... I’ve noticed my [A1C] level dropped some too with the blood pressure ...”
Patients self-report use of the IVR system was verified.

Member Checking results concluded that we correctly heard and reported what the patients believed and opinions were.
Discussion
The importance of:
The patients’ desire to be cared about.
The personal relationship between the provider and the patients.
Educational information and technology can support patients.
The empowerment of patients when they become active participants in their healthcare.

~An additional thought provoking finding ~
In Summary

- Establishing bi-directional conversations and empowering patients to participate in their health decisions is crucial to successful hypertension management.

- Technology facilitates these factors for both patients and providers.
The Theoretical Model of a Hypertension Management

Uncontrolled Hypertensive Patients

Multifaceted Intervention

**Patients**
- Patient feels cared about
- Patient more confident to converse with medical personnel

**IVR System**
- Facilitates patients interactions with the medical personnel regarding outcomes

**Medical Personnel**
- Builds Relationships thru Bi-Directional conversations with patients

**Knowledge**
- Understands the disease and it’s consequences

**Physiological**
- Feels better and sees results

**Surrogate Outcome**
- Patients report results to IVR system or directly to medical personnel

**Behavioral Changes**
- Takes Medications - Changes Diet – Increases Activity Levels - Visit’s PCP – Monitors Surrogate Outcome

Resulting in Control of Clinical Issue
Potential Limitations

- Possible attribution and social desirability biases.
- Interview data only
- There were a greater number of UC patients with DM or CKD
Thank You

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Questions