Designing a system to support and measure the impact of a cardiovascular disease intervention across Colorado

Amy Bubar, MPH
Project Manager, CPC Community Health

Colorado Heart Healthy Solutions is funded by the Cancer, Cardiovascular and Pulmonary Disease grants program at the Colorado Department of Public Health and Environment and the Caring for Colorado Foundation.

Outline

- Colorado Heart Healthy Solutions model
- Description of the Outreach, Screening and Referral system (OSCAR)
- CHHS outcomes to date
- Next Steps

CPC COMMUNITY HEALTH

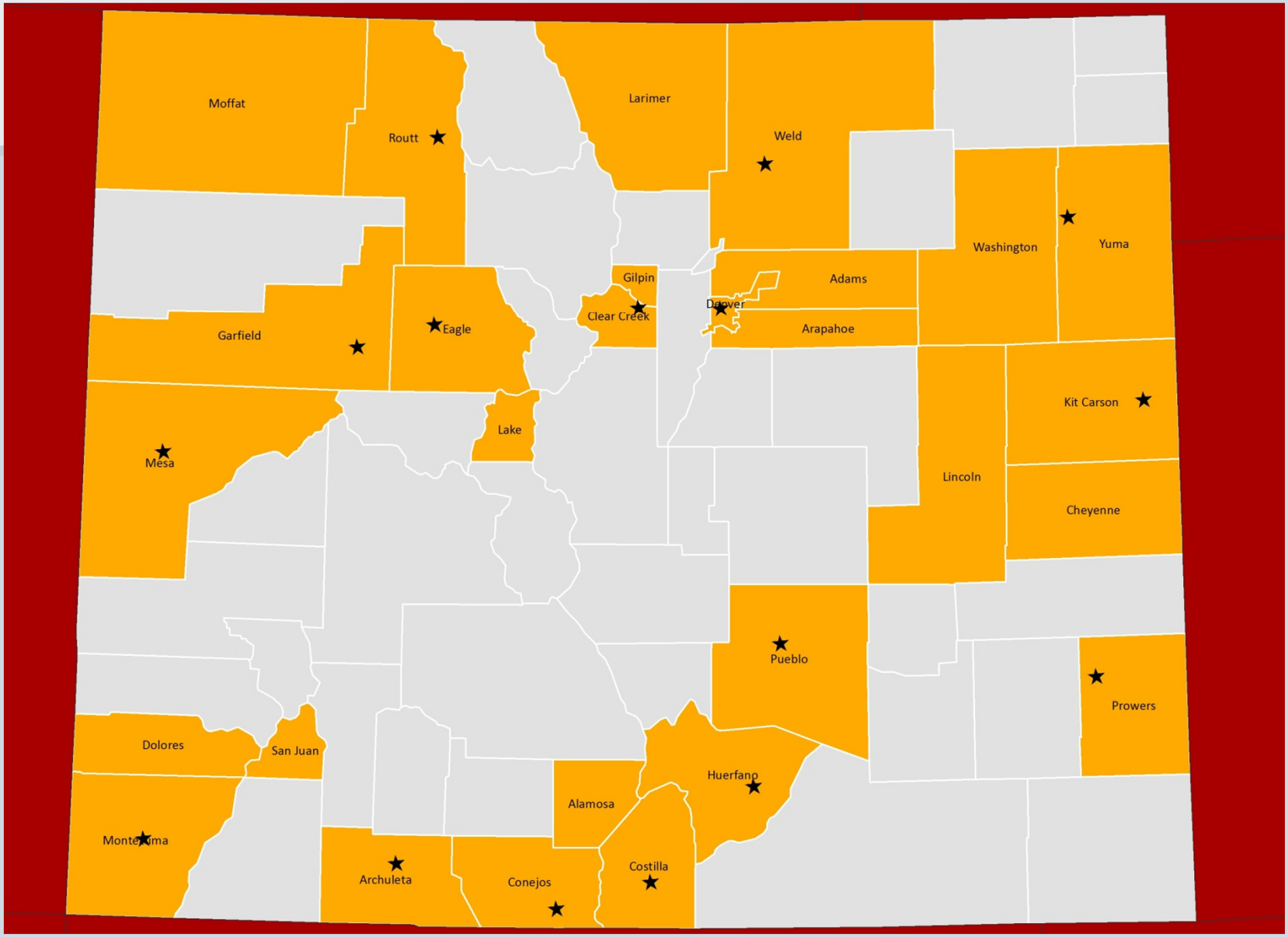
Colorado Heart Healthy Solutions

Keep the Beat

Program Goal

Improve Cardiovascular Health of Adults in Colorado Communities

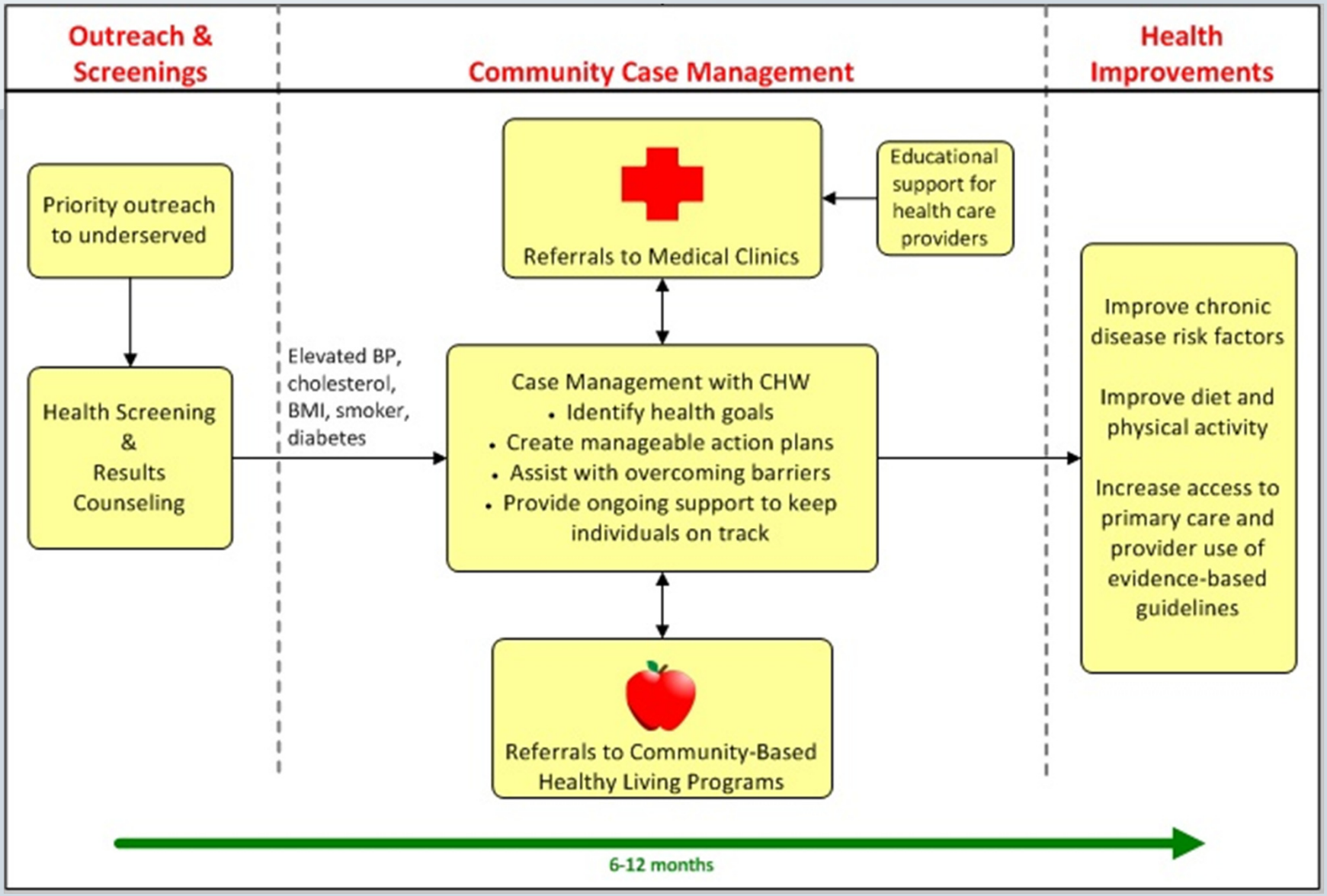
CHHS Communities



CHHS Community Health Workers….

An integral piece of the puzzle

CHHS Model


Outreach & Screenings
Community Case Management
Health Improvements
Priority outreach to underserved
Health Screening & Results Counseling
Elevated BP, cholesterol, BMI, smoker, diabetes
Referrals to Medical Clinics
Educational support for health care providers
Case Management with CHW
• Identify health goals
• Create manageable action plans
• Assist with overcoming barriers
• Provide ongoing support to keep individuals on track
Referrals to Community-Based Healthy Living Programs
Improve chronic disease risk factors
Improve diet and physical activity
Increase access to primary care and provider use of evidence-based guidelines
6-12 months

Community Health Workers conduct screenings and retests

…Individually in the Office

…In Small Groups in the Community such as Barbershops

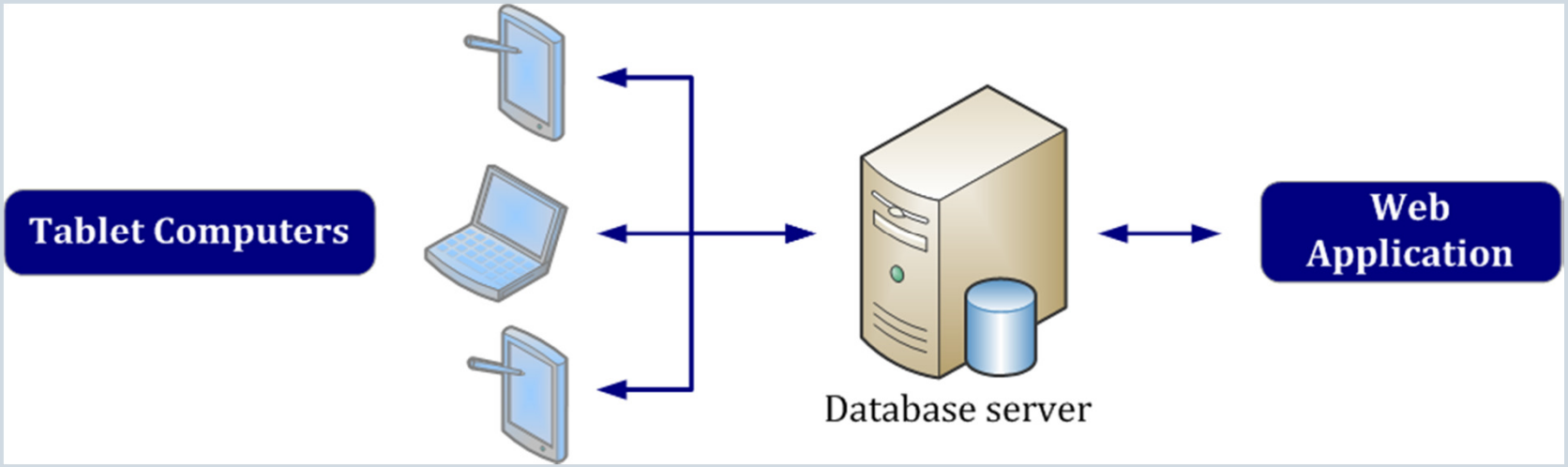
…In Large Groups in the Community

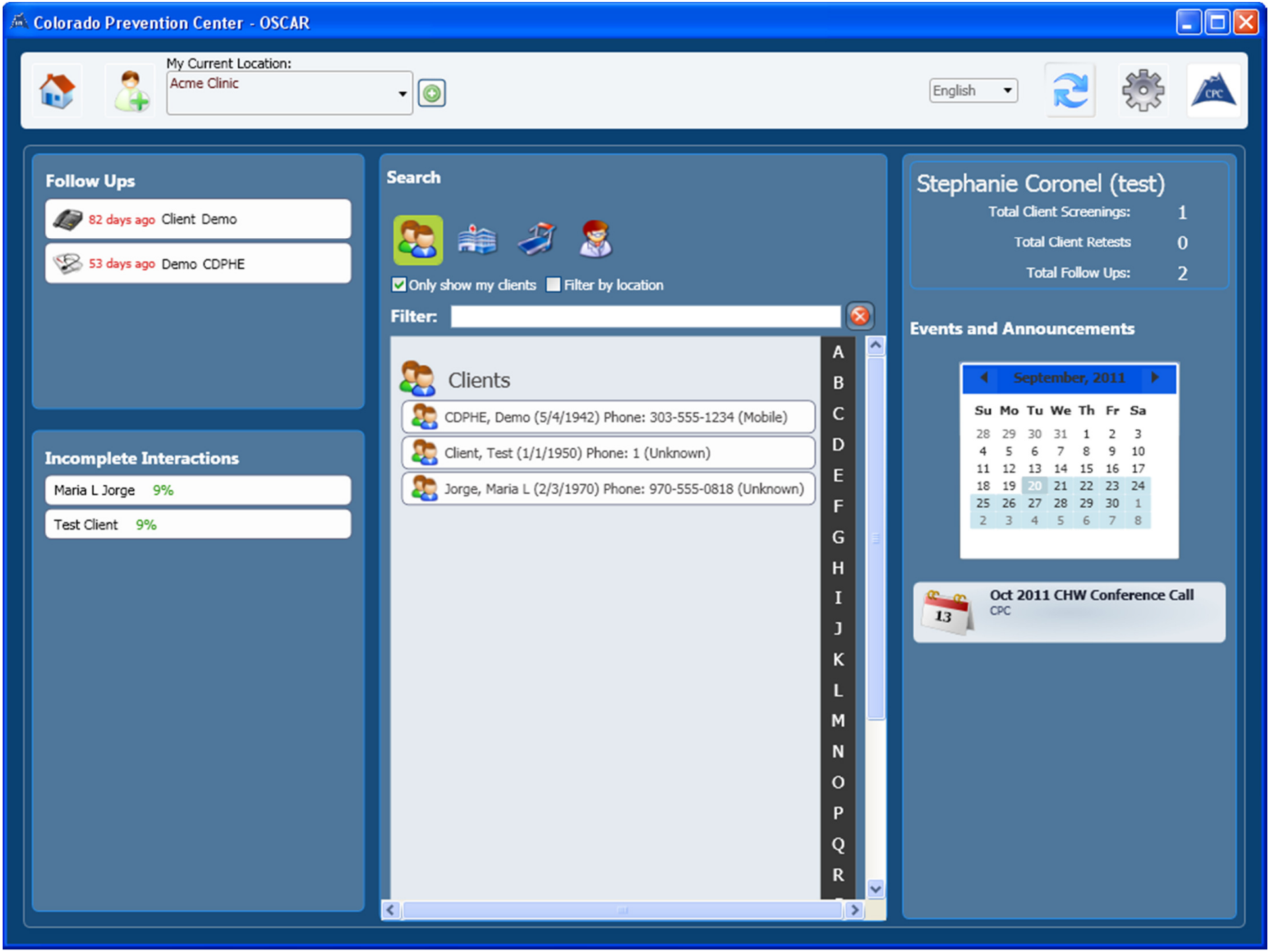
Designing OSCAR system

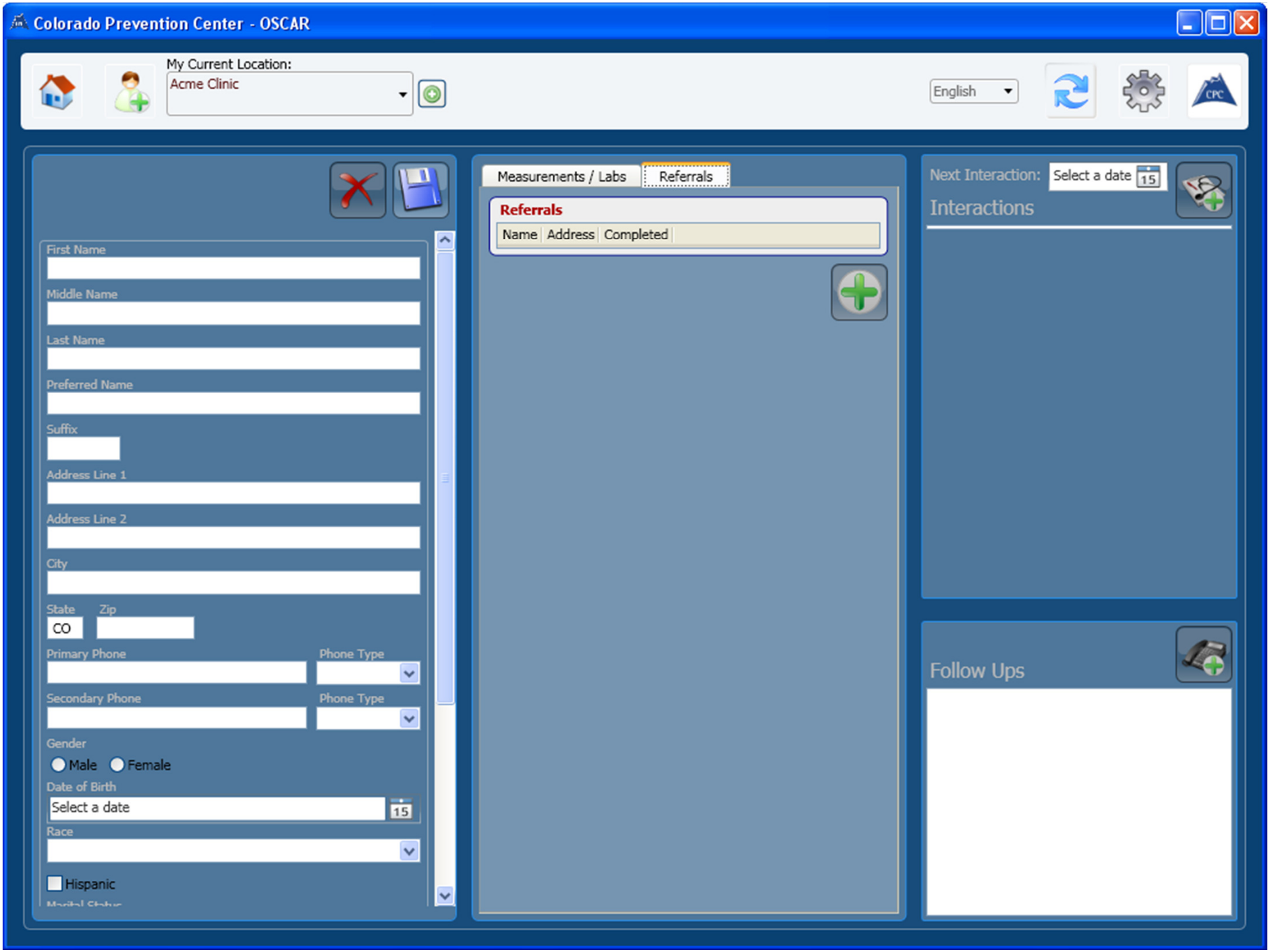
- February 2009 – contracted with Logical Progression, Inc. to design a system that supported objectives of CHHS
- November 2009 – simultaneous launch of OSCAR to 20+ CHWs across Colorado

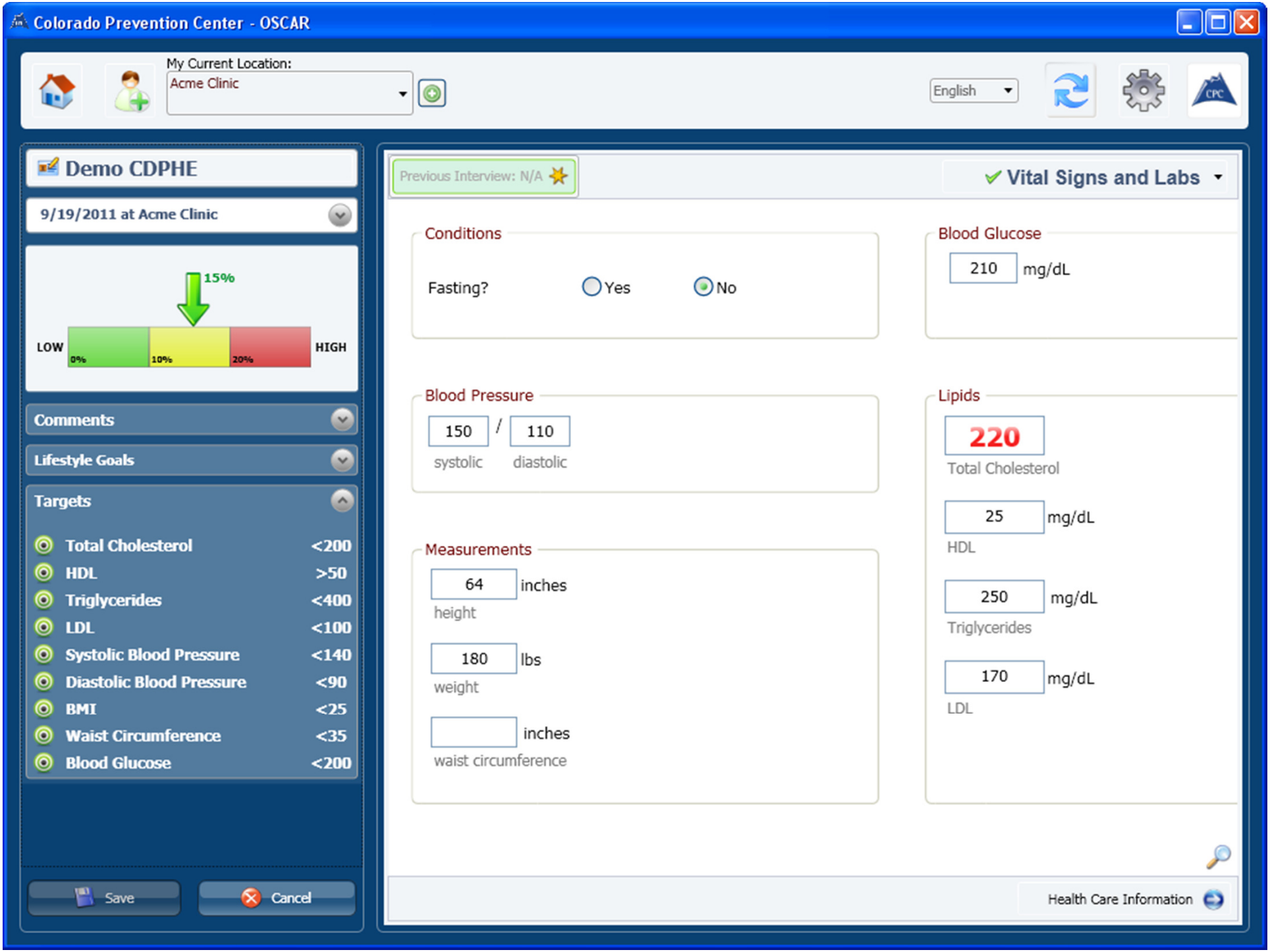
OSCAR Architecture

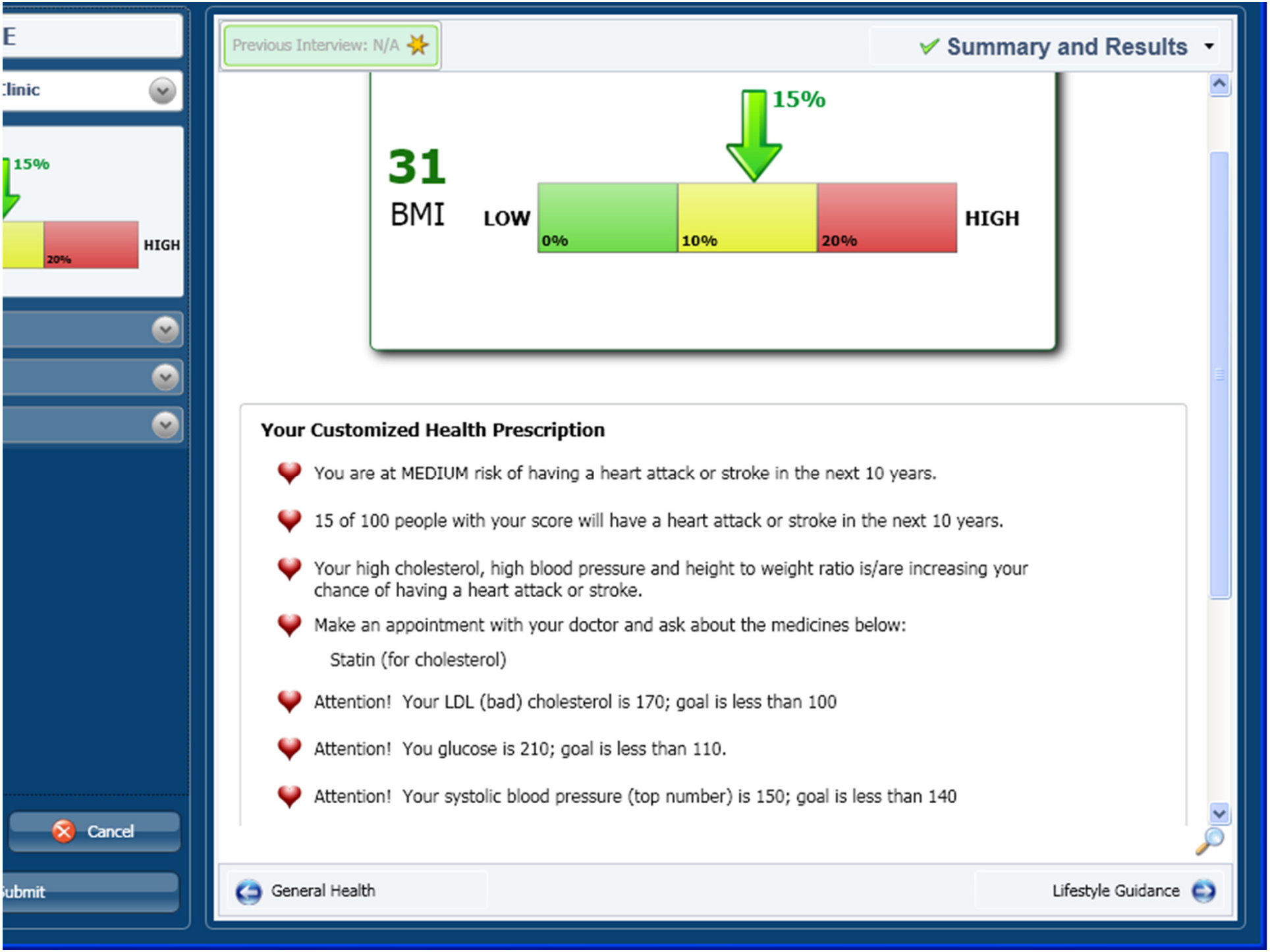
- The OSCAR system consists of:
  - a tablet computer interface for the CHWs in the field,
  - a web service for synchronization between tablets and the master database hosted at CPC, and
  - a web application for program administration and producing reports.




Colorado Prevention Center - OSCAR
My Current Location:
Acme Clinic
English
Follow Ups
82 days ago Client Demo
53 days ago Demo CDPHE
Incomplete Interactions
Maria L Jorge 9%
Test Client 9%
Search
Only show my clients
Filter by location
Filter:
Clients
CDPHE, Demo (5/4/1942) Phone: 303-555-1234 (Mobile)
Client, Test (1/1/1950) Phone: 1 (Unknown)
Jorge, Maria L (2/3/1970) Phone: 970-555-0818 (Unknown)
A B C D E F G H I J K L M N O P Q R
Stephanie Coronel (test)
Total Client Screenings: 1
Total Client Retests 0
Total Follow Ups: 2
Events and Announcements
September, 2011
Su Mo Tu We Th Fr Sa
28 29 30 31 1 2 3
4 5 6 7 8 9 10
11 12 13 14 15 16 17
18 19 20 21 22 23 24
25 26 27 28 29 30 1
2 3 4 5 6 7 8
Oct 2011 CHW Conference Call
CPC

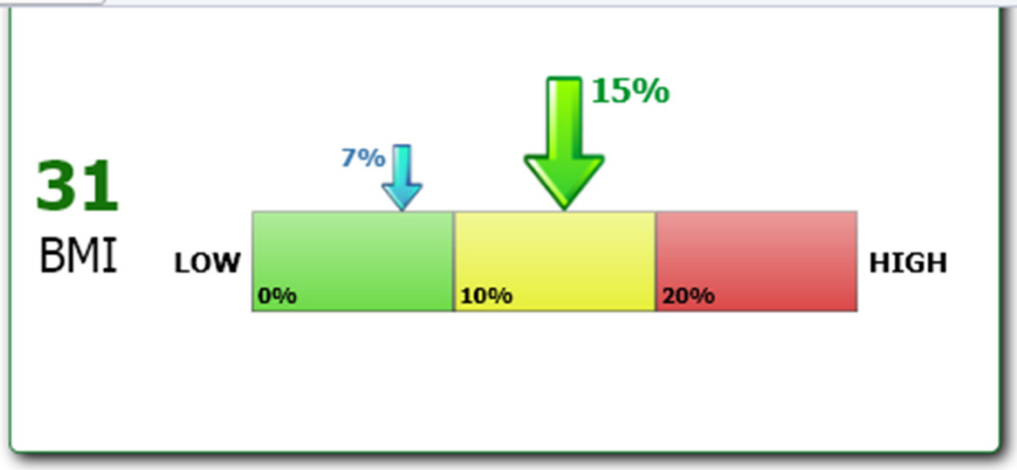

Colorado Prevention Center - OSCAR
My Current Location:
Acme Clinic
English
First Name
Middle Name
Last Name
Preferred Name
Suffix
Address Line 1
Address Line 2
City
State
CO
Zip
Primary Phone
Phone Type
Secondary Phone
Phone Type
Gender
Male
Female
Date of Birth
Select a date
Race
Hispanic
Measurements / Labs
Referrals
Referrals
Name
Address
Completed
Next Interaction:
Select a date
Interactions
Follow Ups


Colorado Prevention Center - OSCAR
My Current Location:
Acme Clinic
English
Demo CDPHE
9/19/2011 at Acme Clinic
15%
LOW
HIGH
0%
10%
20%
Comments
Lifestyle Goals
Targets
Total Cholesterol <200
HDL >50
Triglycerides <400
LDL <100
Systolic Blood Pressure <140
Diastolic Blood Pressure <90
BMI <25
Waist Circumference <35
Blood Glucose <200
Save
Cancel
Previous Interview: N/A
Vital Signs and Labs
Conditions
Fasting?
Yes
No
Blood Glucose
210
mg/dL
Blood Pressure
150
/
110
systolic
diastolic
Lipids
220
Total Cholesterol
25
mg/dL
HDL
250
mg/dL
Triglycerides
170
mg/dL
LDL
Measurements
64
inches
height
180
lbs
weight
inches
waist circumference
Health Care Information


Previous Interview: N/A
Summary and Results
15%
31
BMI
LOW
0%
10%
20%
HIGH
Your Customized Health Prescription
You are at MEDIUM risk of having a heart attack or stroke in the next 10 years.
15 of 100 people with your score will have a heart attack or stroke in the next 10 years.
Your high cholesterol, high blood pressure and height to weight ratio is/are increasing your chance of having a heart attack or stroke.
Make an appointment with your doctor and ask about the medicines below:
Statin (for cholesterol)
Attention! Your LDL (bad) cholesterol is 170; goal is less than 100
Attention! You glucose is 210; goal is less than 110.
Attention! Your systolic blood pressure (top number) is 150; goal is less than 140
Cancel
General Health
Lifestyle Guidance

Previous Interview: N/A

Lifestyle Guidance



How ready are you to make changes to improve your health?

- ○ Not thinking about change
- ◉ Thinking about change
- ○ Preparing for change
- ○ Changing
- ○ Maintaining Change

What would you most like to work on to lower your risks?

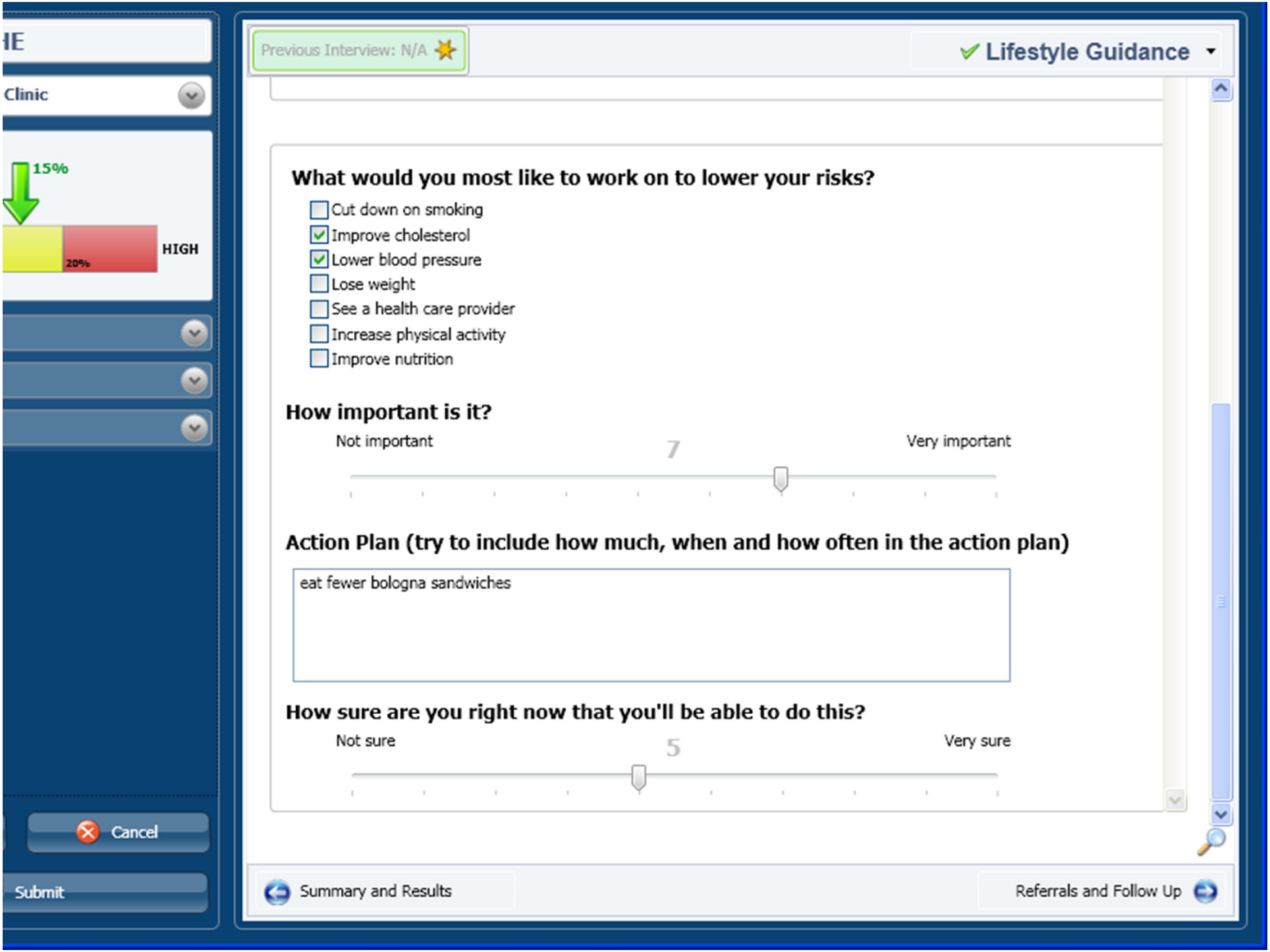
- ☐ Cut down on smoking
- ☑ Improve cholesterol
- ☑ Lower blood pressure
- ☐ Lose weight
- ☐ See a health care provider

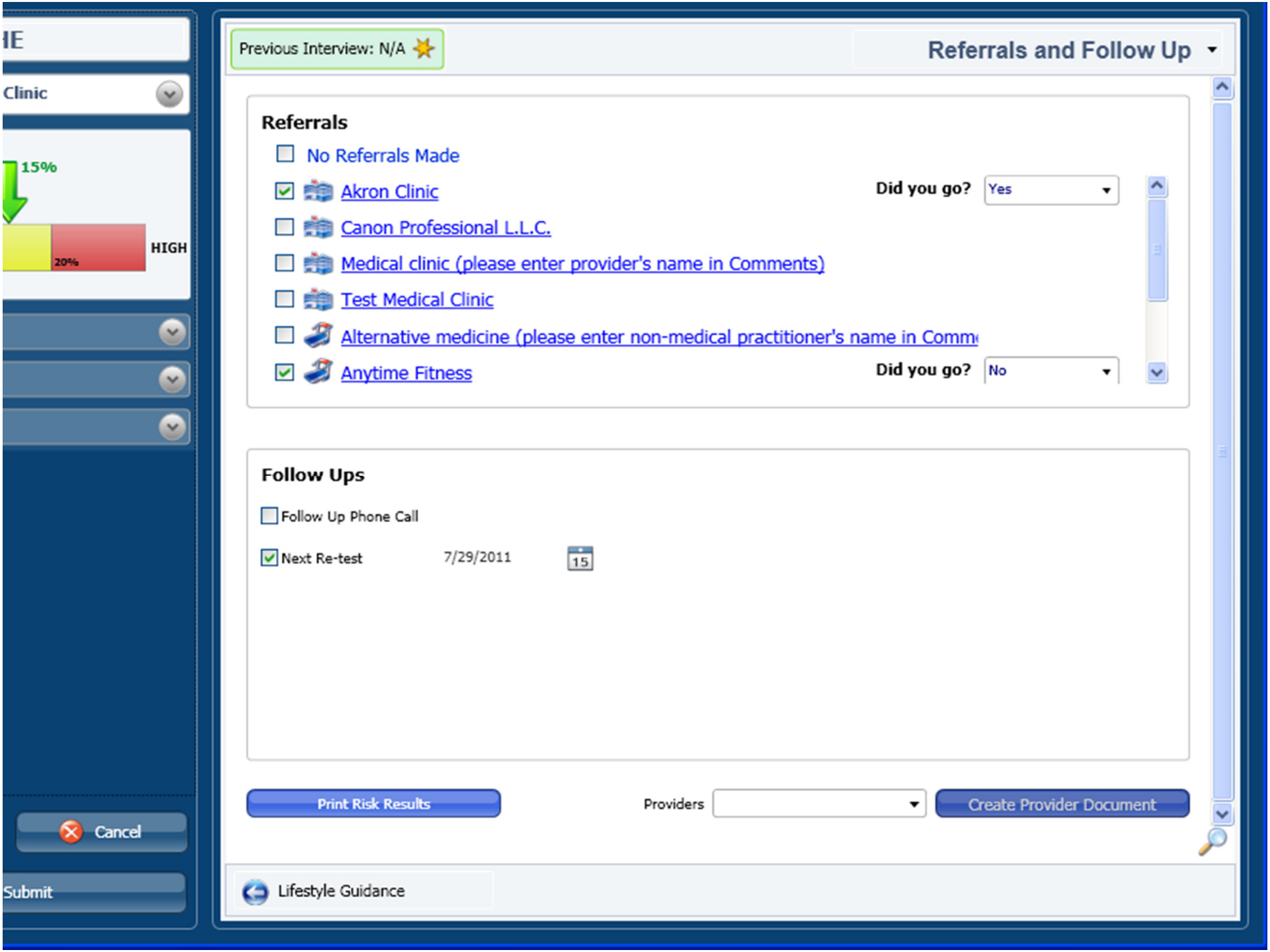
Summary and Results

Referrals and Follow Up

Cancel

Submit


HE
Clinic
15%
20%
HIGH
Cancel
Submit
Previous Interview: N/A
Lifestyle Guidance
What would you most like to work on to lower your risks?
Cut down on smoking
Improve cholesterol
Lower blood pressure
Lose weight
See a health care provider
Increase physical activity
Improve nutrition
How important is it?
Not important
7
Very important
Action Plan (try to include how much, when and how often in the action plan)
eat fewer bologna sandwiches
How sure are you right now that you'll be able to do this?
Not sure
5
Very sure
Summary and Results
Referrals and Follow Up


IE
Clinic
15%
20%
HIGH
Cancel
Submit
Previous Interview: N/A
Referrals and Follow Up
Referrals
No Referrals Made
Akron Clinic
Did you go?
Yes
Canon Professional L.L.C.
Medical clinic (please enter provider's name in Comments)
Test Medical Clinic
Alternative medicine (please enter non-medical practitioner's name in Comm
Anytime Fitness
Did you go?
No
Follow Ups
Follow Up Phone Call
Next Re-test
7/29/2011
15
Print Risk Results
Providers
Create Provider Document
Lifestyle Guidance

Sample Provider Letter

Colorado
Heart Healthy Solutions
Keep the Beat

Health Department

Stephanie Coronel
13199 E. Montview Blvd.
Aurora, CO 80045

Colorado Heart Healthy Solutions Program Directors

Mori Krantz, MD
CPC Community Health
Cardiologist, Denver Health

Liz Whitley, PhD, RN
Director, Community Voices
Denver Health

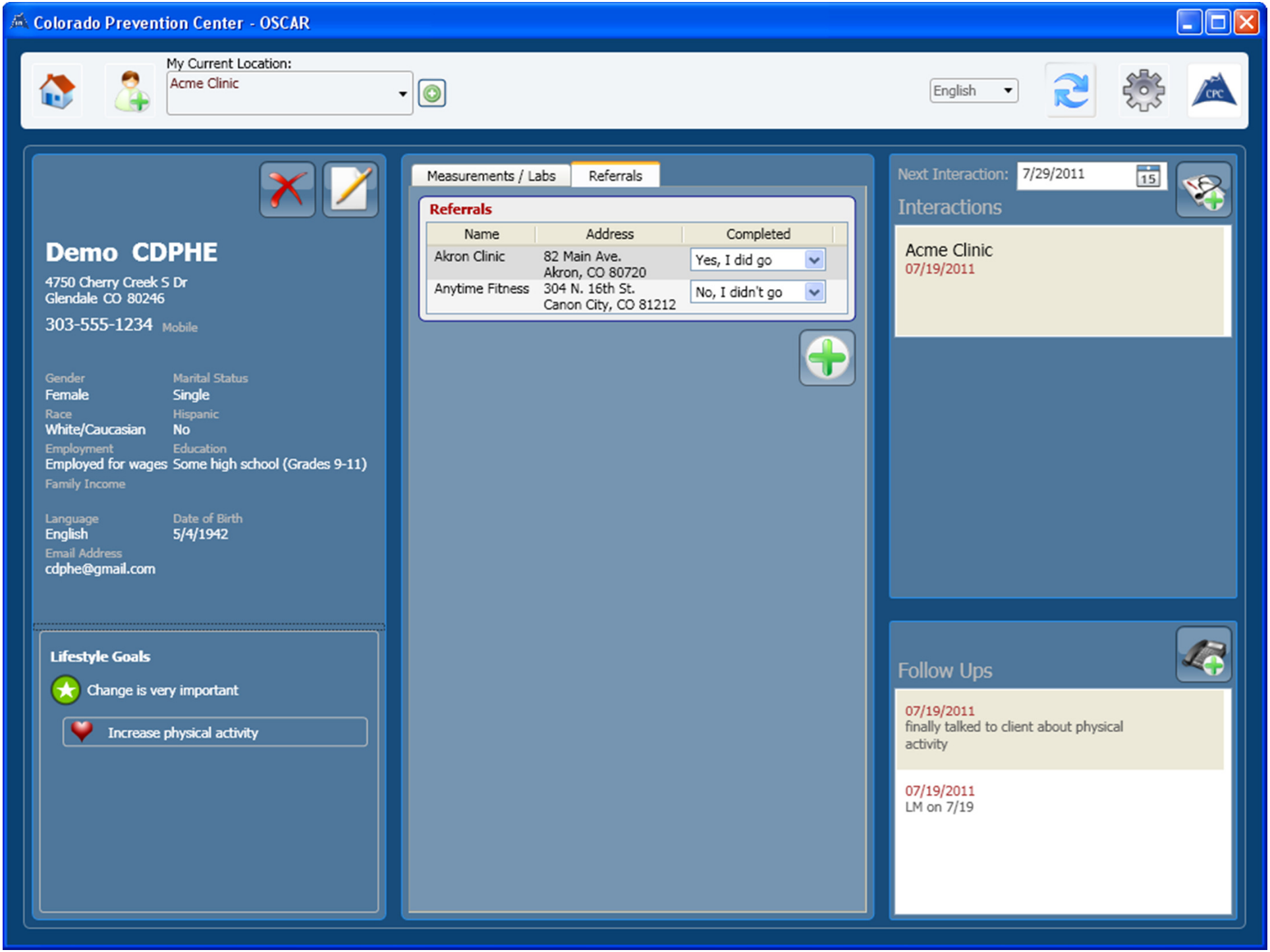
Loveland Community Health Center 8/24/2011
Jim Mockler, M.D.
123 Main St.
Loveland, CO 80720

Regarding: Patient Name **DOB: 5/5/1955**

Dear Dr. Mockler

The above individual participated in a free cardiovascular disease screening on 7/19/2011 and has been identified as having at least one cardiovascular disease risk factor that needs to be addressed by a health care provider. The following are the individual's screening results:

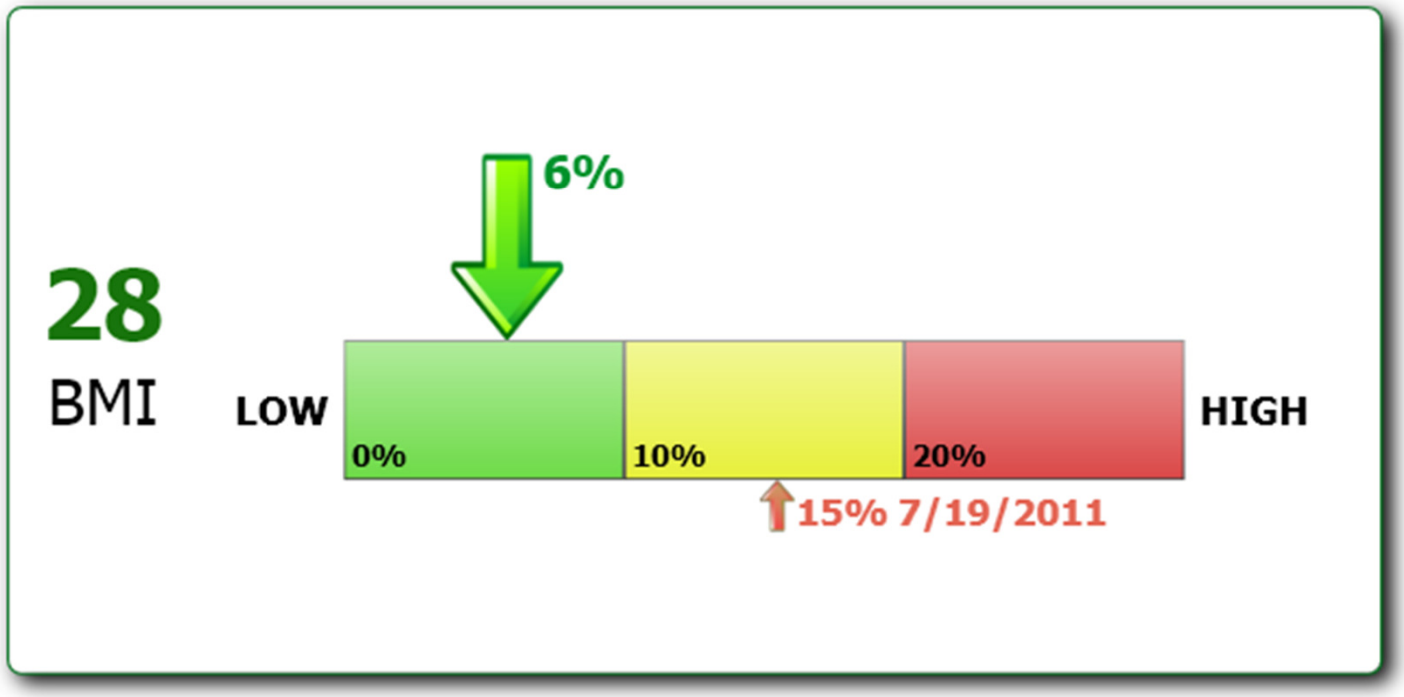
Fasting = No
Blood pressure = 150 / 110
Total cholesterol = 220
HDL = 25
LDL = 170
Triglycerides = 250
Glucose = 210
Smoking status = Not smoking
Framingham risk score = 15% (<10%=low, 10-20%=moderate, >20%=high)


Colorado Prevention Center - OSCAR
My Current Location:
Acme Clinic
English
Demo CDPHE
4750 Cherry Creek S Dr
Glendale CO 80246
303-555-1234 Mobile
Gender
Female
Marital Status
Single
Race
White/Caucasian
Hispanic
No
Employment
Employed for wages
Education
Some high school (Grades 9-11)
Family Income
Language
English
Date of Birth
5/4/1942
Email Address
cdphe@gmail.com
Lifestyle Goals
Change is very important
Increase physical activity
Measurements / Labs
Referrals
Referrals
Name
Address
Completed
Akron Clinic
82 Main Ave.
Akron, CO 80720
Yes, I did go
Anytime Fitness
304 N. 16th St.
Canon City, CO 81212
No, I didn't go
Next Interaction:
7/29/2011
Interactions
Acme Clinic
07/19/2011
Follow Ups
07/19/2011
finally talked to client about physical activity
07/19/2011
LM on 7/19


Previous Interview: 7/19/2011
Vital Signs and Labs
Conditions
Fasting?
Yes
No
Blood Glucose
180 mg/dL
30 from 210
Blood Pressure
120 / 80
systolic diastolic
30 / 30 from 150 / 110
Lipids
199
21 from 220
Total Cholesterol
40 mg/dL
15 from 25
HDL
100 mg/dL
150 from 250
Triglycerides
130 mg/dL
40 from 170
LDL
Measurements
64 inches
from 64
height
165 lbs
15 from 180
weight
inches
waist circumference
Health Care Information
Cancel
85% Cc

Previous Interview: 7/19/2011

Summary and Results



Your Customized Health Prescription

- Congratulations! You are at LOW risk of having a heart attack or stroke in the next 10 y
- 6 of 100 people with your score will have a heart attack or stroke in the next 10 years.

General Health

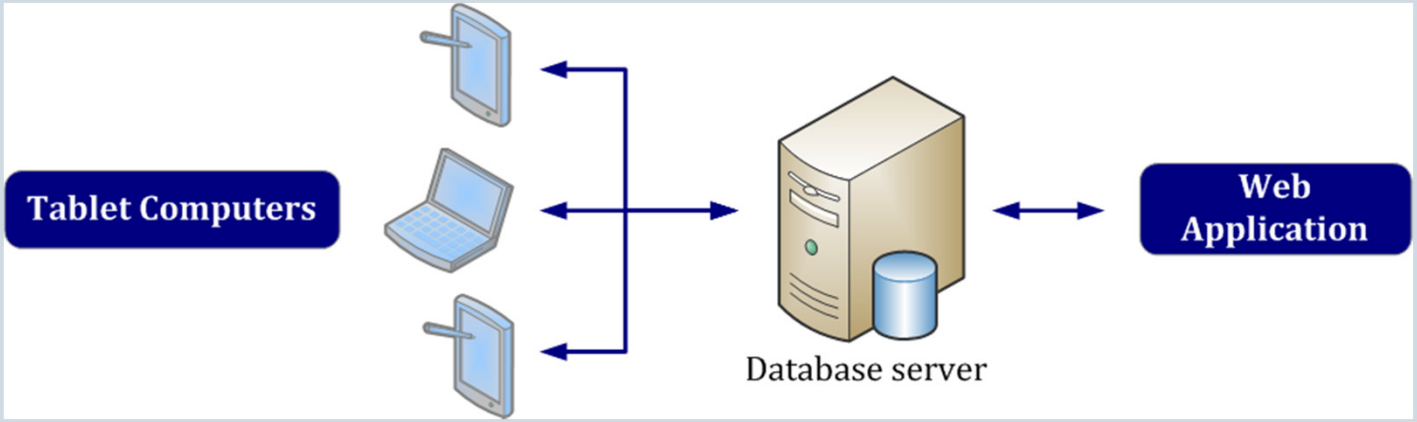
Lifestyle Guidance

Cancel

85% Cc

OSCAR Administrative Web Portal

- Day-to-day management of CHHS staff, resources, and reporting statewide
  - Monitors and supports staff productivity
  - Generates community specific reports
  - Catalogues medical resources, lifestyle resources, and social services for each community



Key Features of the OSCAR System

- **Evaluates effectiveness** of program by measuring improvements in health outcomes on both the individual and community level.
- **Monitors health status** by managing and tracking cholesterol levels, blood pressure, BMI, health history, dietary practices, physical activity levels, and health goals.
- **Informs, educates and empowers people** about health issues by providing risk-appropriate heart health recommendations based upon national guidelines.
- **Links people to needed health services** by generating referral letters to local health care providers, and facilitating access to medical care and healthy living programs in their community.
- **Assures a competent workforce** by providing the CHW with evidence-based health recommendations and guidance on assessing readiness for change and developing appropriate action plans.

Risk Profile of Clients

November 2009 – August 2011

- Clients Screened: 11,462
  - Clients underserved*: 89%
  - At-risk** Clients Identified: 63%
- Risk Profile:

Blood Pressure above normal	26%
Cholesterol above normal	47%
BMI above normal	63%
Smoker	13%

*Underserved=ethnic minorities, the poor, those with less education, un- or under-insured and those who live far from resources in rural and frontier communities.

**At-risk = clients with moderate or high Framingham risk scores (>10%) or those with an abnormal risk factors

CHHS Outcomes

November 2009 – August 2011

- At-risk clients returning for retest: 3,728
  - Mean time from screening to retest: 13 months

- Clinical Outcomes

	Baseline (mean ± SD)	Change from baseline (mean)
Total Cholesterol	211 ± 43 mg/dL	-10.2
LDL Cholesterol	138 ± 42 mg/dL	-16.8
Systolic BP	131 ± 18 mmHg	-4.5
Framingham Risk Score	10 ± 10%	-0.4

CHHS Outcomes

November 2009 – August 2011

- Behavioral Outcomes
  - 27% decreased fat intake
  - 16% increased fiber intake
  - 28% increase physical activity levels
  - 19% of smokers quit smoking

Current Activities & Next steps

- Continue to provide technical assistance to CHWs
- Evaluate operations and solicit input from CHWs to identify enhancements to improve functionality of the system and quality of data collected
- Design enhancements with software developer
- Continually ensure that the design of the OSCAR system complements the overall goals of the program
- Explore possibility of utilization of OSCAR outside of CHHS

CHHS Program Staff

- Mori Krantz, MD, Co-investigator
- Elizabeth Whitley, PhD, Co-investigator
- Stephanie Coronel, MPH, CHES: Senior Program Manager
- Amy Bubar, MPH: Project Manager

For More Information

- www.cpccommunityhealth.org
- Amy Bubar, MPH
  - amy.bubar@cpccommunityhealth.org
  - (303)860-9900