Re-AIMing for the Target: A Case Study in Diabetes HIT

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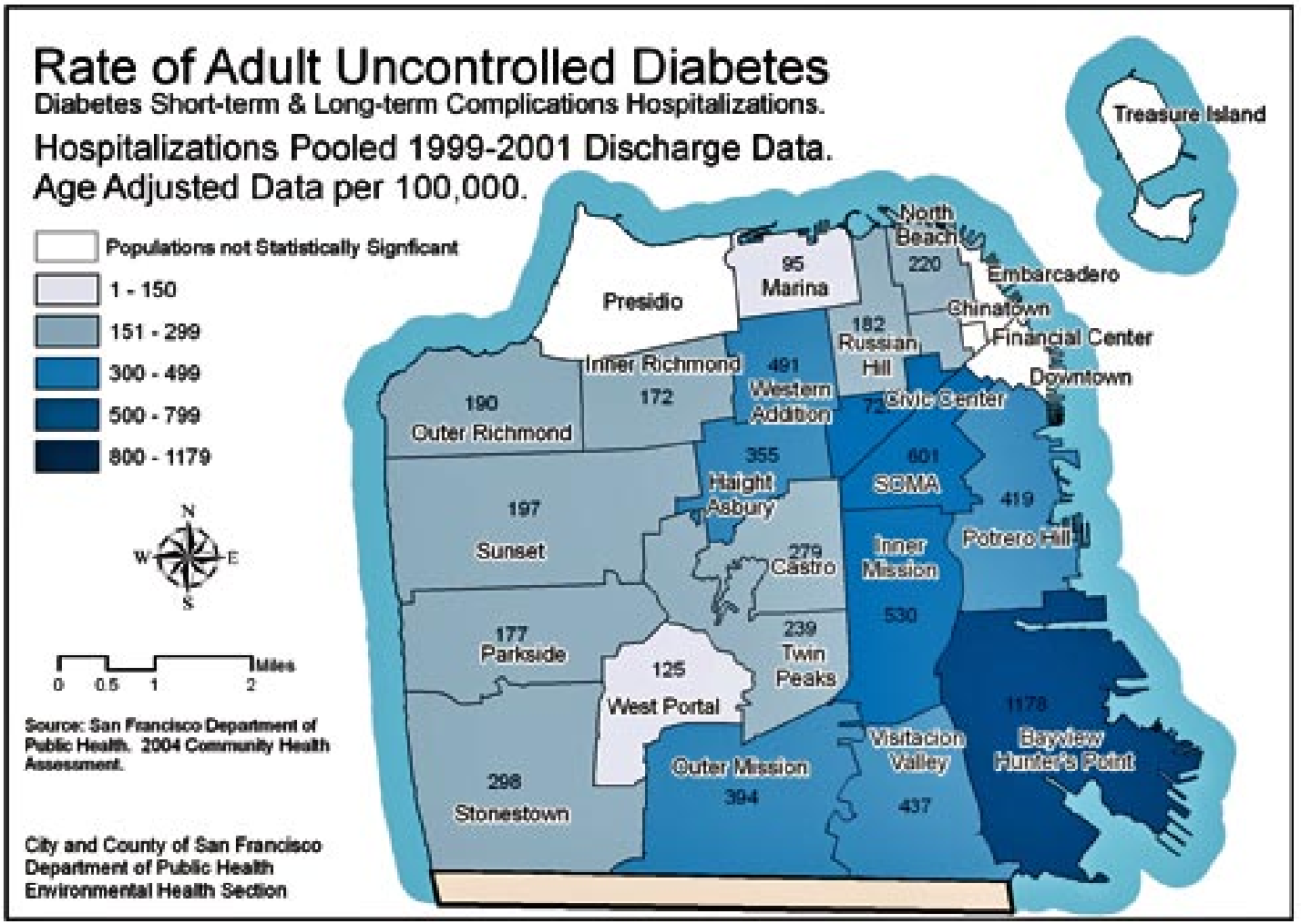
Vulnerabilities Cluster within Individuals and Neighborhoods



RE-AIM TO HELP PLAN, EVALUATE, AND REPORT STUDIES

R	→	Increase	Reach
E	→	Increase	Effectiveness
A	→	Increase	Adoption
I	→	Increase	Implementation
M	→	Increase	Maintenance

Glasgow, et al. *Ann Behav Med* 2004;27(1):3-12

“The law of halves” … a story

ULTIMATE IMPACT OF MAGIC DIET PILL

Dissemination Step	Concept	% Impacted
50% of Clinics Use	**Adoption**	**50%**
50% of Clinicians Prescribe	**Adoption**	**25%**
50% of Patients Accept Medication	**Reach**	**12.5%**
50% Follow Regimen Correctly	**Implementation**	**6.2%**
50% of Those Taking Correctly Benefit	**Effectiveness**	**3.2%**
50% Continue to Benefit After 6 Months	**Maintenance**	**1.6%**

PURPOSES OF RE-AIM

- To broaden the criteria used to evaluate programs to include external validity
- To evaluate issues relevant to program adoption, implementation, and sustainability
- To help close the gap between research studies and practice by
  - Informing design of interventions
  - Providing guides for adoptees
  - Suggesting standard reporting criteria

RE-AIM DIMENSIONS AND DEFINITIONS

Individual Level

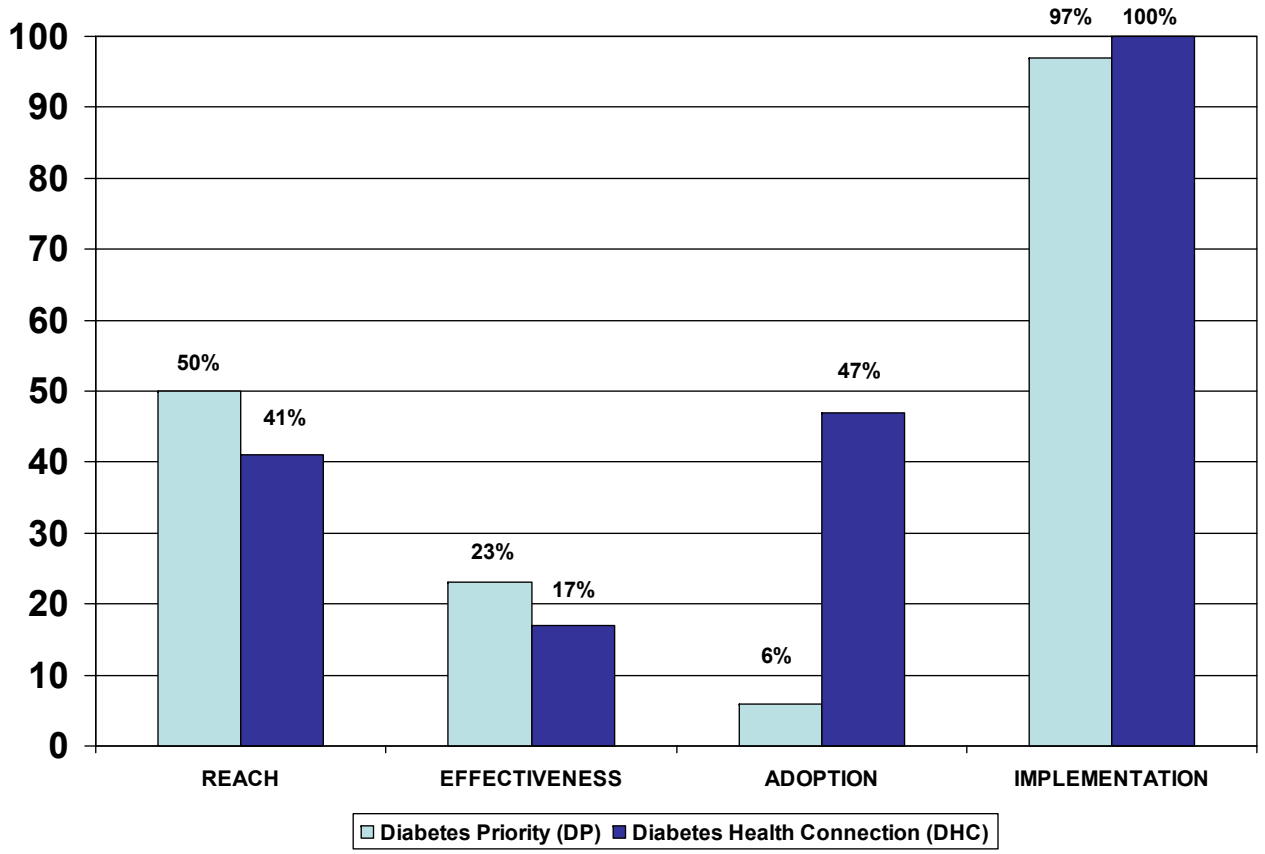
DIMENSION	DEFINITION
REACH	1. **Participation rate among eligible individuals** 2. **Representativeness of participants**
EFFICACY / EFFECTIVENESS	1. **Effects on primary outcome of interest** 2. **Impact on quality of life and negative outcomes**

www.re-aim.org

RE-AIM DIMENSIONS AND DEFINITIONS (cont.)

	DIMENSION	DEFINITION
Setting Level	ADOPTION	1. Participation rate among possible settings 2. Representativeness of settings participating
Setting Level	IMPLEMENTATION	1. Extent to which intervention delivered as intended 2. Time and costs of intervention
Both	MAINTENANCE	1. (Individual) Long-term effects of intervention (≥ 6 months) 2. (Individual) Impact of attrition on outcomes 3. (Setting) Extent of continuation or modification of treatment

WHICH PROGRAM IS BETTER?



See www.re-aim.org for displays and evaluation questions

Glasgow et al. *AJPM* 30(1):67-73

RE-AIM PRIORITIES:

- Health disparities – e.g., who participates and who benefits
- Costs and cost-effectiveness
- Effects of different interventionists
- Combining different factors to produce composite outcomes

Glasgow, et al. Using RE-AIM Metrics to Evaluate Diabetes…*AJPM* 2006;30(1):67-73

Self-Management Support and Communication

Interest in Self-Management Support

Research questions

1. Are vulnerable diabetes patients interested in self-management support?
2. Do they perceive a benefit to improved communication?

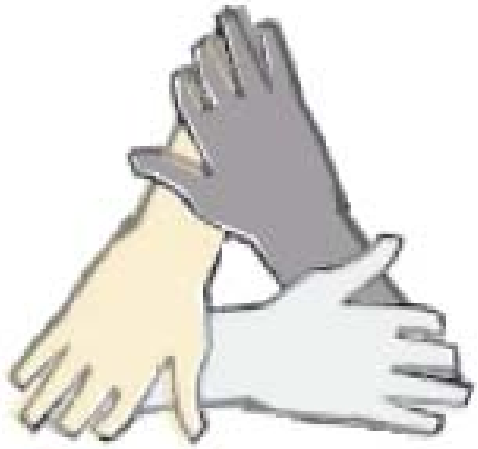
40% perceived a benefit from **better** provider communication, higher for racial/ethnic minority and limited health literacy (70%)

Conclusion: Vulnerable diabetes patients desire self-management support and perceive a benefit to improved communication.

Sarkar et al., *Patient Education and Counseling* 2008

IDEALL Project:

Improving Diabetes Efforts Across Language and Literacy



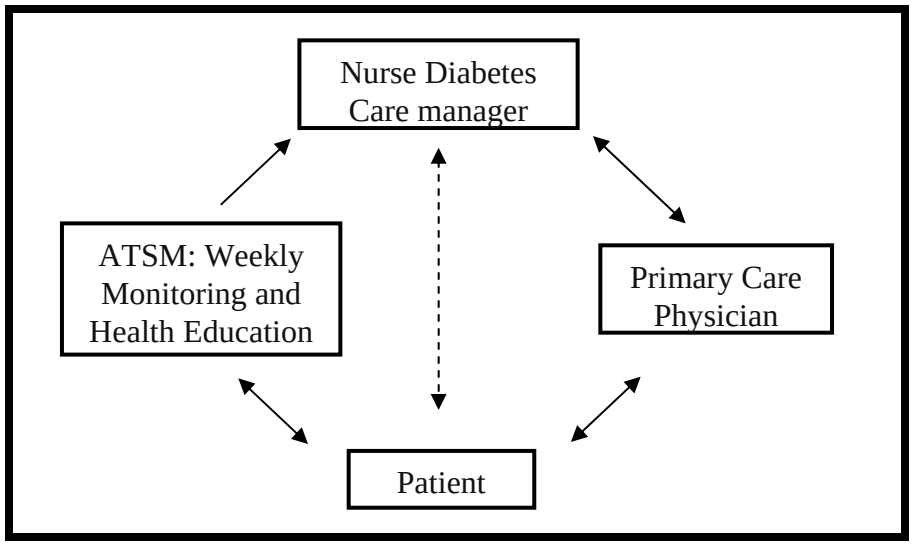
EL PROYECTO DE SALUD IDEALL

理想健康計劃

IDEALL HEALTH PROJECT

- **Community Health Network of SF/DPH**
- **AHRQ, CMWF**
- **TCE, CHCF**

Automated Telephone Diabetes Self-Management (ATSM)



- Interactive health technology, touch tone response
- Weekly surveillance & health education (39 weeks=9 mos)
- In patients' preferred language (English, Spanish or Cantonese)
- Generates weekly reports of out of range responses
- Live phone follow-up through a bilingual nurse ->**behavioral action plans**

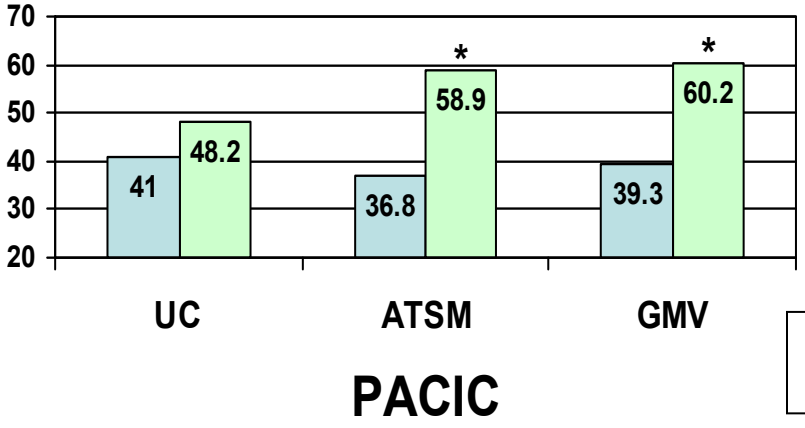
Key Findings of IDEALL Program
Estimating Public Health "Reach" of Programs

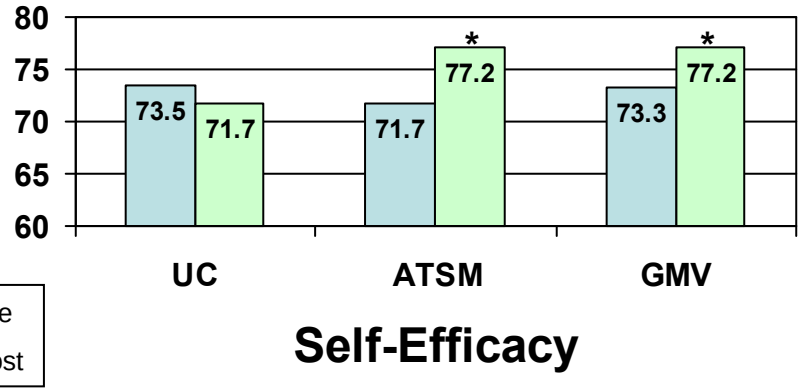
Composite reach product

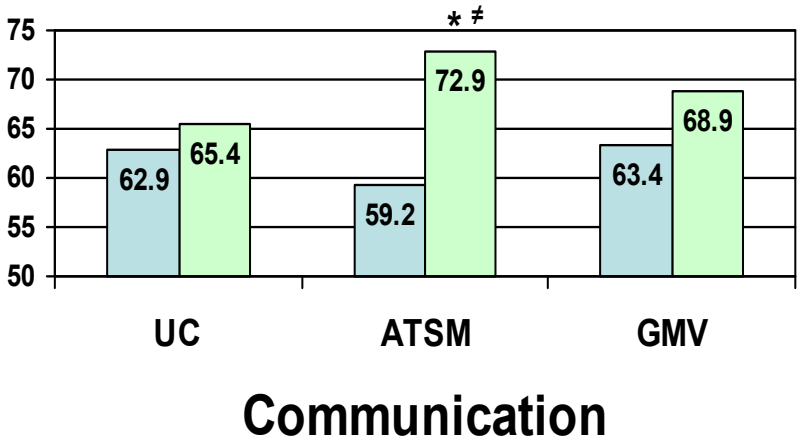
	ATSM	GMV
▪ Overall	22.1	4.8
▪ English	20.0	6.4
▪ Chinese	22.0	2.7
▪ Spanish	24.3	4.0
▪ Adequate Literacy	15.6	7.6
▪ Limited Literacy	28.0	3.6

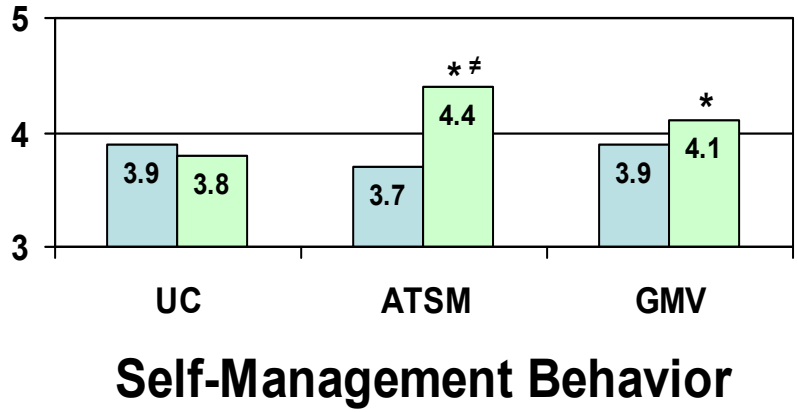
Schillinger, et al.Health Ed and Behavior 2007

Results:
Structure and Process Measures





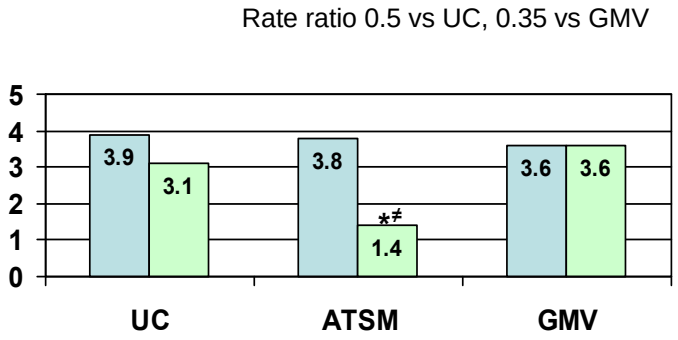




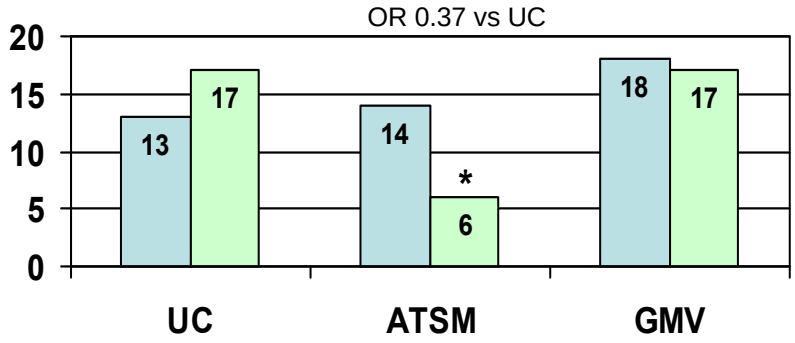
*P<.05.

Schillinger, in press Diabetes Care

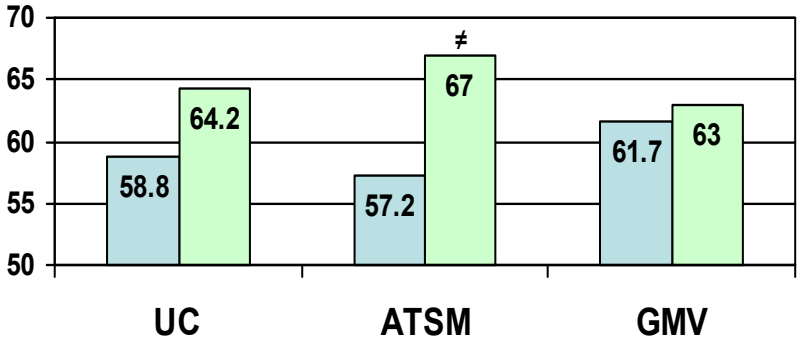
Results: Functional Outcomes



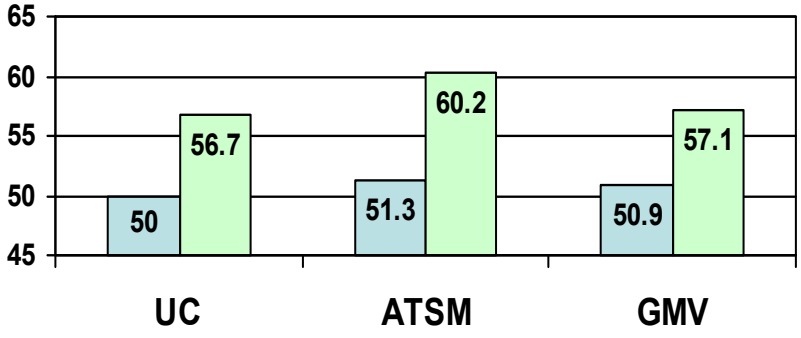
Bed Days



Diabetes Interference



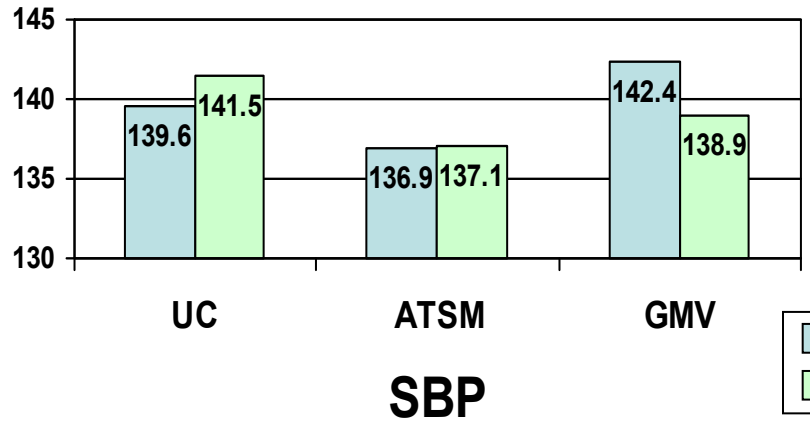
SF12 - Mental Health

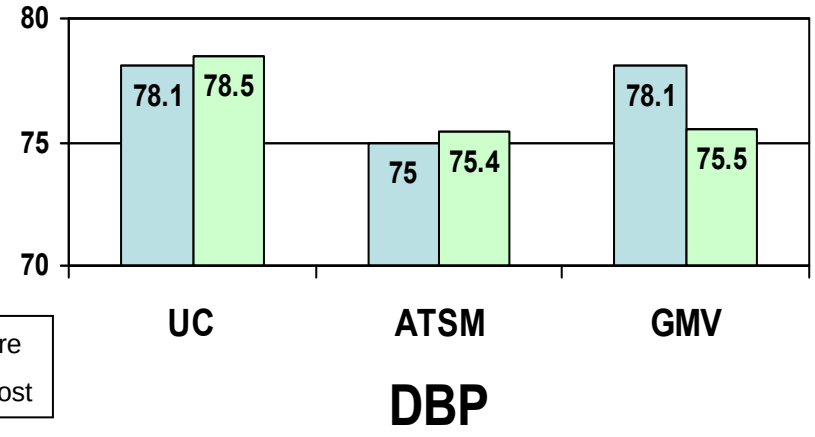


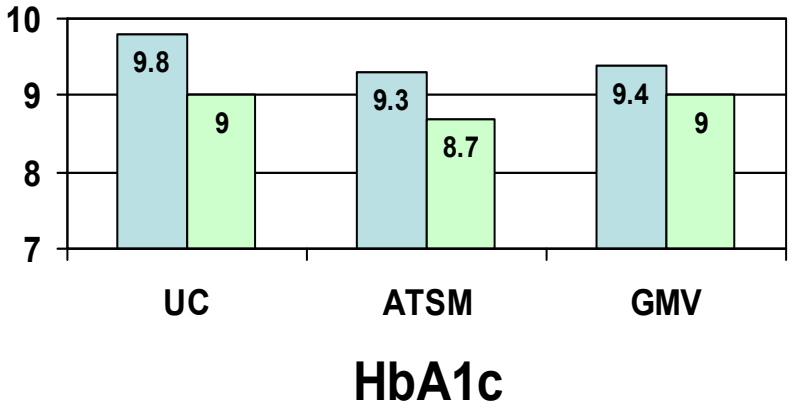
SF12 - Physical Health

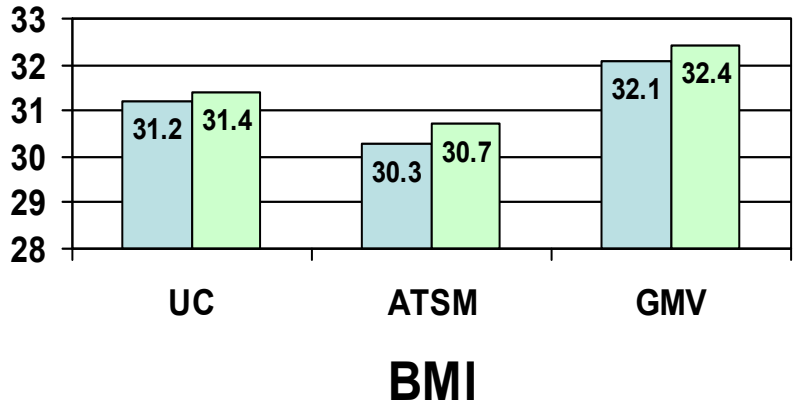
*P<.05

Results: Physiologic Outcomes



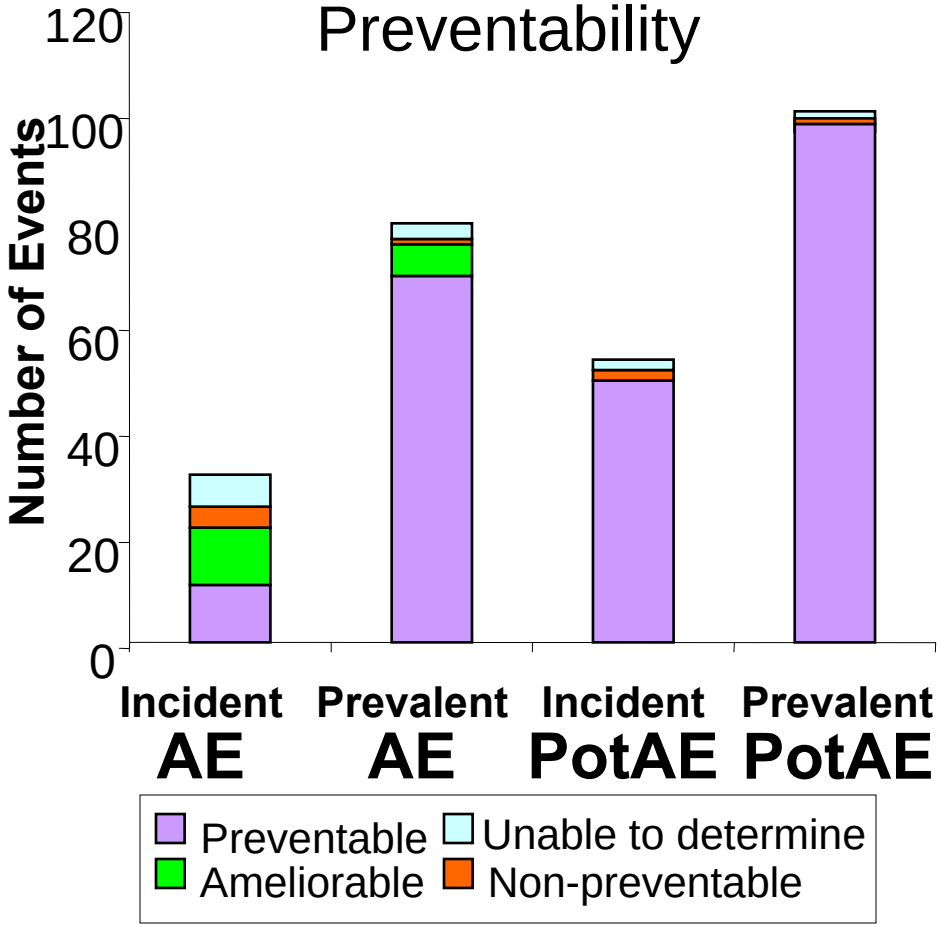






Automated telephony provides safety surveillance function

- 111 participants, 54% inadequate health literacy
- 264 events among 93 participants (86%)
- 111 AE's and 153 PotAE's



Sarkar, Schillinger et al. 2008 *JGIM*

Clinician Survey Findings N=87/113

- Compared to UC, patients exposed to ATSM were perceived as more likely to be **activated** to create and achieve goals for chronic care (standardized effect size, ATSM vs. UC, +0.41, p=0.05).
- Over half of physicians reported that ATSM helped overcome 4 of 5 common barriers to diabetes care
- Physicians rated **quality** of care as higher among patients exposed to ATSM compared to usual care (OR 3.6, p=0.003), and compared to GMV (OR 2.2, p=0.06)
- The majority felt ATSM should be **expanded** to more patients with diabetes (88%)

Bhandari, Schillinger SGIM 2008

Health System Findings: Cost-Effectiveness; Health Plans

- Based on functional improvements, we estimated that the cost per QALY for ATSM was:
  - >$65,000 for both set-up and ongoing costs
  - >$ 32,000 for ongoing costs only

- Cost effectiveness could be further improved with (a) scaling up or (b) metabolic outcomes improved

- A large majority of CA Medicaid health plans reported an interest in employing ATSM-like technology

Handley, Schillinger, in press Ann Fam Med 2008
Goldman, Schillinger et al. Am J Man Care 2007

Key Findings of IDEALL Program

- Reach significant, especially for lower literacy, non-English speaking, Medi-Cal, uninsured.
- Interactive health technology improves patient –centered care, health behaviors, functional status and promotes safety, due to
    - proactive nature
    - heirarchical logic
    - communication tailoring
- For physiologic effects to be achieved, need medication intensification
- Health plans and clinicians favorably inclined
- A challenge for individual clinics to implement

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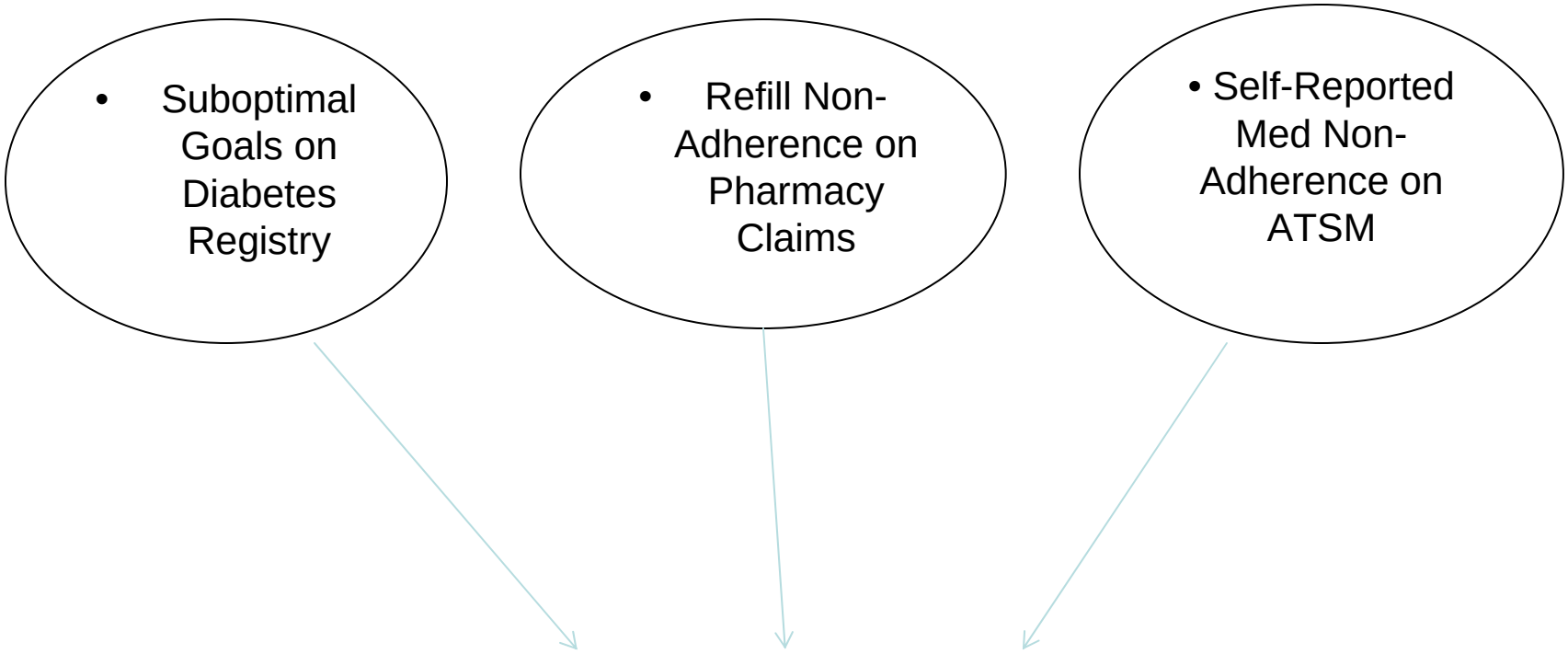
"My question is: Are we making an impact?"

Current Project

- Partner with a local Medicaid health plan: San Francisco Health Plan
  - SFHP care managers will make ATSM response calls
- Test effectiveness when implemented in 'real-world'
- Compare ATSM-ONLY with ATSM-PLUS (medication activation)
- ATSM-PLUS involves merging pharmacy claims data with ATSM data to enable care manager counseling

Design and Outcomes

- Wait List Design, with randomization among exposed participants. Total N=520
- Outcomes (wait-list vs. ATSM vs. ATSM-Plus):
  - -communication
  - -behavior
  - -functional status
  - -metabolic indicators
  - -patient safety (prevalence and root causes)



SFHP Care Manager Call to Patient:

- Check understanding and educate regarding diabetes goals
- Elicit barriers to adherence
- Inform about current data & goals
- Assess understanding of discussions with PCP
- Assess willingness to increase or add new medication to meet goals
- Develops action plan using motivational interviewing principles

SFHP Pre- Enrollment Post Card
English

SAN FRANCISCO
HEALTH PLAN
Here for you

AN IMPORTANT MESSAGE ABOUT YOUR HEALTH

INSIDE:

An important message about your health

SAN FRANCISCO
HEALTH PLAN
Here for you

Help is here.

Diabetes is an important health condition that requires careful monitoring.

We have a program that can help you control your diabetes. You will get information about diabetes and ways to better control it.

A nurse who speaks your language will be available to answer your questions and help you manage your diabetes.

The program is **FREE** and it can help you feel better!

We will be **calling you** in a few weeks to tell you more about this program.

If you have questions, you may call us at **(415) 615-4522.**

We look forward to speaking with you soon!

6188 0508

Spanish

HEALTH PLAN
Here for you

AN IMPORTANT MESSAGE ABOUT YOUR HEALTH
Un mensaje importante acerca de su salud

INSIDE:
An important message about your health

SAN FRANCISCO
HEALTH PLAN
Here for you

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La ayuda esta aqui.

La Diabetes es un estado de salud importante que require monitoreo cauteloso.

Tenemos un programa que puede ayudarle a controlar su diabetes.

Usted recibira información sobre la diabetes y la mejor manera de controlarla.

Una enfermera quien habla su idioma estara disponible para contestar sus preguntas y ayudarle a controlar su diabetes.

¡ El programa es **GRÁTIS** y puede ayudarle a sentirse mejor!

Estaremos **llamandole** en unas semanas para decirle más sobre este programa.

Si usted tiene preguntas, puede llamarnos al **(415) 615-4522.**

¡Esperamos hablar con usted proximamente!

6188 0506

Cantonese

SAN FRANCISCO
HEALTH PLAN
Here for you
201 THIRD STREET, 7TH FLOOR
SAN FRANCISCO, CA 94103
www.sfhp.org

AN IMPORTANT MESSAGE ABOUT YOUR HEALTH
有關您的健康的重要訊息

INSIDE:

An important message about your health

內文：
有關您的健康的重要訊息

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我們可為您提供協助。

糖尿病是一種嚴重疾病，需要密切監控病情。

我們提供一項可協助您控制糖尿病的計劃。
您將獲得有關糖尿病及如何更好地控制病情的資料。

本計劃將安排一位能夠講您的語言的護士解答您的疑問，並協助您控制糖尿病。

本計劃完全**免費**，並有助於您改善健康！

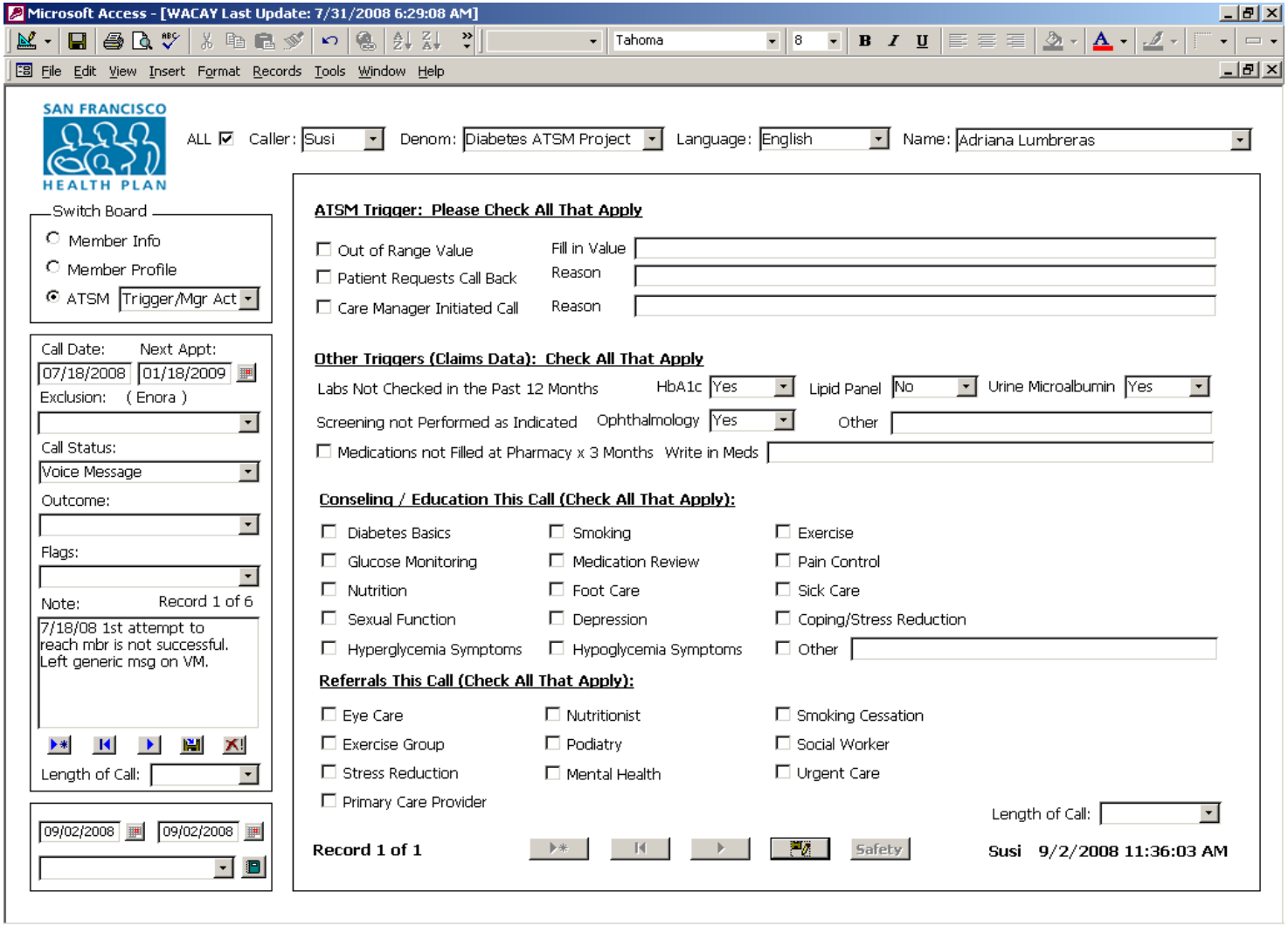
我們將在幾週內**致電閣下**，告訴您有關本計劃的詳情。

如有疑問，請致電 **(415) 615-4522**。

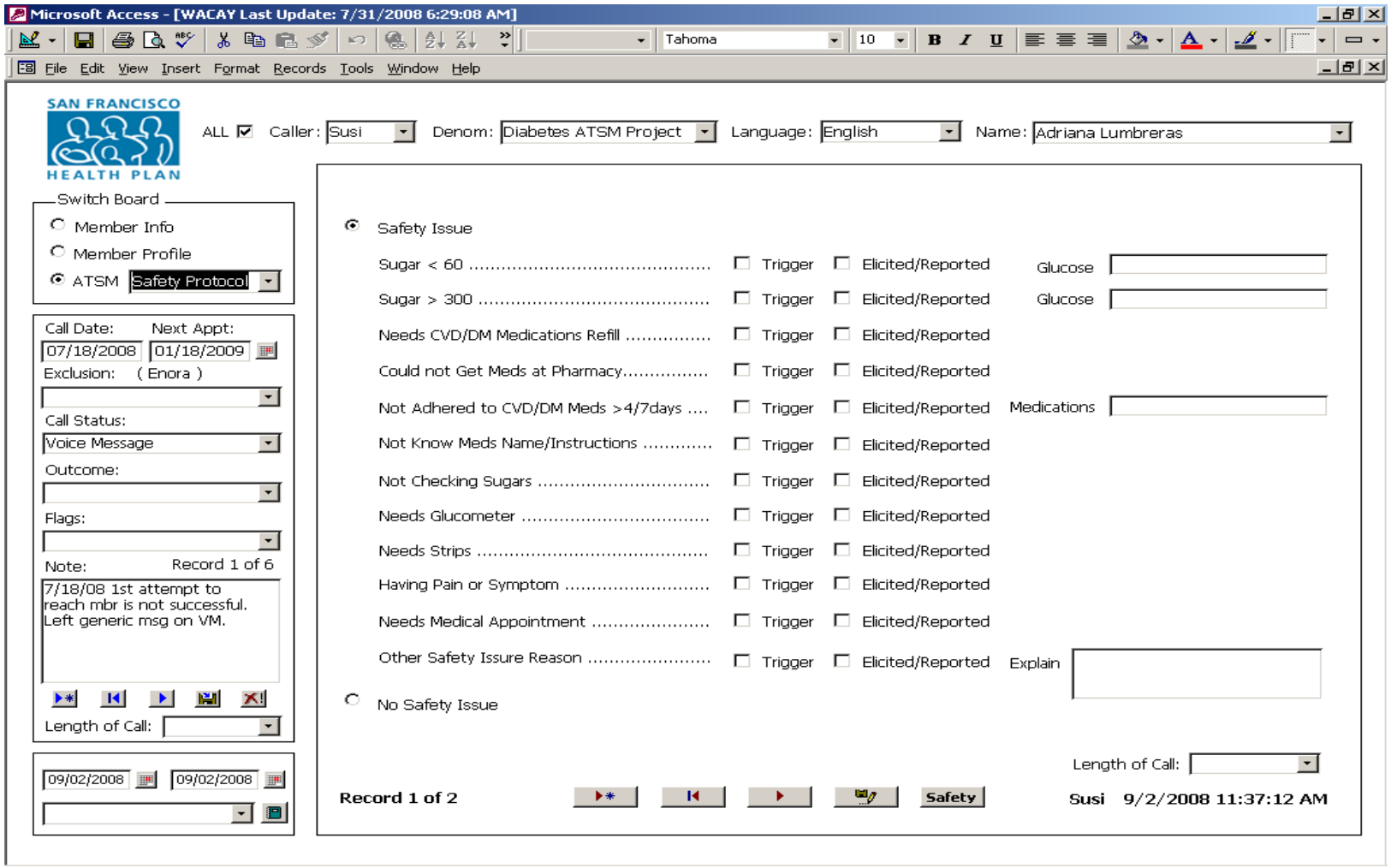
我們期待儘早與您交談！

6188 0508C

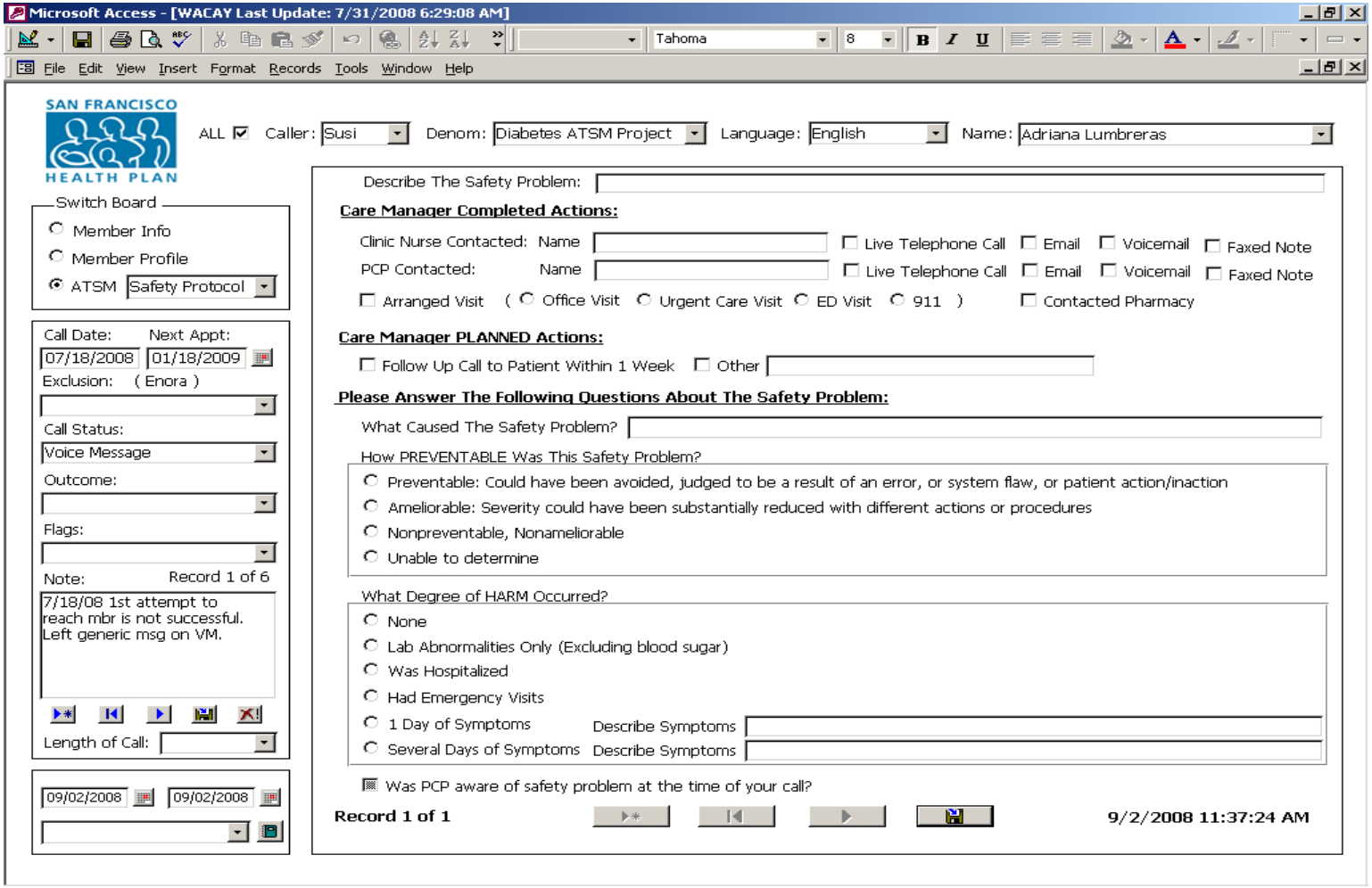
Care manager field



Potential Safety Event



Safety event assessment



Preliminary Findings

Cohort 1 (1st 12 weeks)–

- 68 of the 77 completed at least 1 call (88%), 9 did not complete a call (12%).
- Of the 68 who did at least 1 call, the majority (n=59, or 87% of the 68) did 3 or more calls.
- An additional 5 did 2 calls (7%) and 4 (6%) did only one call.
- This would suggest that only 13% had limited engagement with the intervention (only 1-2 calls), while 87% had moderate or significant engagement (3 or more calls).

TABLE : Willingness to Intensify Regimen Among SMART Steps Participants To Date (n=143)

Baseline Prescriptions		Willingness To Intensify	
Antihypertensive, taking	95 (66)	→ Would intensify	90 (95)
Antihypertensive, not taking	48 (34)	→ Would start	34 (71)
Insulin, taking	28 (20)	→ Would intensify	26 (93)
Insulin, not taking	115 (80)	→ Would start	62 (54)
Diabetes pills, taking	125 (87)	→ Would intensify	118 (94)
Diabetes pills, not taking	18 (13)	→ Would start	13 (72)
Cholesterol pills, taking	111 (78)	→ Would intensify	104 (94)
Cholesterol, not taking	32 (22)	→ Would start	21 (66)

Improvements/Threats

- Improvements to future dissemination:
  - Care manager—health coach
  - Harnessing pharmacy claims data
  - Marketing and outreach
  - Trusted health plan
  - Potentially sustainable
  - Development of detailed training manual/QA processes

- Threats to implementation:
  - Delays in implementation
  - Staff turnover @health plan
  - Maintaining fidelity to intervention processes
    - Care mgr processes; claims data/registry data incomplete
  - Coordinating treatment preferences/medication activation with PCP

Through the RE-AIM Lens: TRANSLATION/EFFECTIVENESS RESEARCH in Health IT/health literacy

We need to develop and appropriately evaluate interventions that can:

- Reach large numbers of people, especially those who can most benefit
- Be widely adopted by different settings
- Be consistently implemented by staff members with moderate levels of training and expertise
- Produce replicable and long-lasting effects (and minimal negative impacts) at reasonable cost