



Assuring Healthy Caregivers

*A Public Health Approach to
Translating Research into Practice:
The RE-AIM Framework*





Executive Summary

The issue of caregiving—with the exponential growth in the number of caregivers; the huge costs to society, families, and individuals; and the development of effective interventions to address caregiver burden and health—has become a public health priority of national concern. It is imperative that research and practice communities work together to translate evidence-based programs and policies into widespread practice. Application of the RE-AIM Framework can facilitate successful translation efforts and make a positive difference in the lives of caregivers and their families and friends.

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Foreword

One of the Centers for Disease Control and Prevention's (CDC) highest priorities is to efficiently and effectively translate science into meaningful public health practice, recognizing this is a reciprocal process. CDC's National Center for Chronic Disease Prevention and Health Promotion is pleased to co-sponsor the monograph, *Assuring Healthy Caregivers, A Public Health Approach to Translating Research into Practice: The RE-AIM Framework*. To accelerate translational efforts, it is critical that practitioners and researchers work together. This monograph describes the need to intensify research translation efforts related to caregiving and the value of the RE-AIM Framework in planning, conducting, and evaluating caregiver interventions and policies. CDC looks forward to working with our partners to close the gap between research and practice for those providing care for family members and other loved ones.



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In keeping with Kimberly-Clark's mission to enhance the health, hygiene and well-being of people every day, everywhere, we recognize the critical role caregivers play in the welfare of individuals and our communities. These same themes resonate throughout the monograph *Assuring Healthy Caregivers, A Public Health Approach to Translating Research into Practice: The RE-AIM Framework*. As a nation, it is critical that we develop and offer effective programs to meet the needs of caregivers. This report presents information and recommendations on what practitioners, policy makers, and researchers can do to ensure caregiver programs and policies are put into widespread practice. All of us at Kimberly-Clark are honored to play a supporting role in helping call attention to the need to take action now to enhance the lives of caregivers and their loved ones.



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Introduction

In spring 2007, the Centers for Disease Control and Prevention and Kimberly-Clark Corporation forged a new partnership to promote the health and well-being of caregivers. As part of this effort, we have explored the challenges inherent in translating research into practice and implementing evidence-based caregiver interventions in “real-world” settings. This monograph introduces a useful tool for addressing those challenges: the RE-AIM Framework (www.re-aim.org). Disciplined and continuous application of this framework can help practitioners and researchers anticipate pertinent issues as they engage in planning, conducting, or evaluating caregiver intervention programs and policies.

We begin by examining caregiving as a public health priority of national concern. We then explore why moving research on caregiver interventions into widespread community practice is critical and of utmost urgency. Next, the monograph focuses on the RE-AIM Framework, describing in detail each of its five core elements: *Reach, Effectiveness, Adoption, Implementation, and Maintenance*. Here we suggest key questions and methods to help program developers, planners, and evaluators use the framework in their work on caregiving.



The following two sections offer case examples in which we apply the RE-AIM Framework to a caregiver intervention program and a policy intervention. The program case illustrates the application of RE-AIM to a current caregiver intervention program, the Alabama Alzheimer's Disease Demonstration Project, and suggests ways to use the framework prospectively to identify possible future directions. The second case proposes some innovative ways for practitioners and researchers to extend the RE-AIM Framework as it applies to an illustrative public policy that allows and encourages family caregiver assessments.

We conclude by summarizing resources that can assist in applying RE-AIM for planning, evaluating, selecting, or enhancing caregiver support programs and policies. We hope that the RE-AIM Framework will help develop a set of common terms to describe the process of translating research into practice. More specifically, we hope that this monograph will assist in establishing and sustaining strategies for moving effective caregiving interventions into widespread practice and ultimately promoting the health and well-being of our nation's caregivers.

Collaborating on this document were: Russell E. Glasgow, Ph.D., Institute for Health Research, Kaiser Permanente Colorado; Louis D. Burgio, Ph.D., Center for Mental Health and Aging, University of Alabama; Lisa C. McGuire, Ph.D., Healthy Aging Program, Centers for Disease Control and Prevention; Lynda A. Anderson, Ph.D., Healthy Aging Program, Centers for Disease Control and Prevention; Michelle R. Brown, Healthy Aging Program, Centers for Disease Control and Prevention; William F. Benson, Andersen Benson Consulting Services (consultant to the Healthy Aging Program, Centers for Disease Control and Prevention); and Paula McNeil, M.S.N., R.N., Professor, University of Wisconsin Oshkosh College of Nursing. Dr. Glasgow has been instrumental in the initial development and ongoing revision and testing of RE-AIM. Dr. Burgio, the recipient of the 2007 Rosalynn Carter Leadership in Caregiving Award, is an expert on interventions for caregivers of adults with a cognitive impairment. Ms. McNeil also has expertise in caregiving; Ms. Brown provided critical technical assistance; Drs. McGuire and Anderson and Mr. Benson have extensive knowledge and experience in the field of aging.



Caregiving:

A Public Health Priority



Caregiving plays a unique and valuable role in our society. As the number of caregivers grows, the issues surrounding caregiving have gained national attention from a variety of sectors. Only recently, however, has caregiving received increased attention as an important public health issue (Family Caregiver Alliance, 2005).

National adoption of public health priorities is guided by specific principles (Rao, Anderson, & Smith, 2002). These principles include large *burden*, major *impact* with respect to health costs or consequences, and *potential for prevention*. In this section, we apply these principles to caregiving and state the case for caregiving as a public health priority of national concern.



Burden

Caregivers provide assistance to someone who is, in some degree, incapacitated and needs help (Family Caregiver Alliance, 2005). The recipients of care live in both residential and institutional settings, and range from children to older adults. Typically, they have a chronic illness or disabling condition and need ongoing assistance with everyday tasks to function on a daily basis (Family Caregiver Alliance, 2006a).

Caregivers are present in one of every five households (National Alliance for Caregiving & AARP, 2004). The majority (83%) are family caregivers—unpaid persons such as family members, friends, and neighbors of all ages who are providing care for a relative (Family Caregiver Alliance, 2005). The balance are professional caregivers, who are paid providers associated with a service system.

In 2004, there were approximately 44 million American family caregivers (21% of the U.S. population) who were at least 18 years old and providing care for an adult (National Alliance for

Caregiving & AARP, 2004). The majority of these caregivers (an estimated 34 million or 16% of the U.S. population) provided care to someone at least 50 years old (National Alliance for Caregiving & AARP, 2004), and some provided care for more than one person.

These numbers are expected to grow as the demand for family caregivers increases in the years ahead. In fact, it is estimated that the number of family caregivers will increase by 85% from 2000 to 2050 (Department of Health and Human Services and Assistant Secretary for Planning and Evaluation, 2003). Much of this increase can be attributed to changes in the healthcare system: medical advances, shorter hospital stays, limited discharge planning by hospitals, and expansion of home care technology. A substantial portion of supportive care services rendered today is provided outside of the formal medical care system, having been transferred to the community where families now serve as primary caregivers in the home (Family Caregiver Alliance, 2006b).

Caregiver demand is also driven by the steady increase in our older adult population. As the number of older

“At the core of our country’s community-based, long-term care system are family caregivers. Family caregivers freely give their support and carry out their tasks but it is a role that requires recognition, education, and support through evidence-based caregiver programs and policies.”

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Americans rises, so does the number of needed caregivers (Talley & Crews, 2007). In 2030, when all baby boomers will be at least 65 years old, the population of adults in this age group is projected to be 71 million (Administration on Aging, 2007). The number of people 65 years old and older is expected to rise by 101% between 2000 and 2030, at a rate of 2.3% each year. Unfortunately, over that same 30-year period, the number of family members who are available to provide care for these older adults is expected to increase by only 25%, at a rate of 0.8% per year (Mack & Thompson, 2001).

Impact

Caregiving exacts a tremendous toll on caregivers’ health and well-being, and accounts for significant costs to families and society as well. Family caregiving has been associated with increased levels of depression and anxiety as well as higher use of psychoactive medications, poorer self-reported physical health, compromised immune function, and increased mortality (Kiecolt-Glaser & Glaser, 2001; Light & Martin, 1996; Schulz, O’Brien, Bookwala, & Fleissner, 1995; Schulz & Beach, 1999). Over half (53%) of

caregivers indicate that their decline in health compromises their ability to provide care (Evercare & National Alliance for Caregiving, 2006).

The complexity of the issues caregivers face is increasing as well. A prime example is Alzheimer’s disease, a disabling condition related to increasing age, which will affect an estimated 13.2 million older Americans by 2050 (Hebert, Scherr, Bienias, Bennett, & Evans, 2007). Currently, the vast majority of individuals with Alzheimer’s disease are cared for at home by family members. In fact, an estimated 25-29% of caregivers of persons age 50 or older provide assistance to someone with a cognitive impairment, a memory problem, or a disorder like Alzheimer’s disease or other dementia (National Alliance for Caregiving & AARP, 2004; Alzheimer’s Association, 2007). Providing care for individuals with dementia has profound consequences for family caregivers, who may be called upon to manage behavioral disturbances, attend to physical needs, and provide seemingly constant vigilance (Gold et al., 1995; Vitaliano, Russo, Young, Teri, & Maiuro, 1991; Wright, Clipp, & George, 1993).

“Since long-term care in America is dependent on family members caring for their loved ones, establishing and strengthening policies that support caregivers is fundamental to the nation’s long-term care policy.”

William F. Benson
*Former Principal Deputy Assistant
Secretary for Aging*

In addition to understanding the perceived challenges of caregiving, it is also important to note that caregiving is usually undertaken willingly and may bring personal fulfillment to family caregivers (Family Caregiver Alliance, 2006a). The perceived benefits may include satisfaction from helping a family member, development of new skills and competencies, and improved family relationships (Family Caregiver Alliance, 2006a). Research studies are documenting the positive aspects and consequences of caregiving. For example, in a recent study of 211 caregivers, Cohen and colleagues (2002) reported that 73% could identify at least one specific positive aspect of caregiving. Moreover, positive feelings about caregiving were associated with lower depression symptom scores, lower perceived burden of being a caregiver, and better self-assessed health.

Potential for Prevention

Research over the past several decades has yielded a wealth of information on interventions to support caregivers and improve their health and well-being. A number of excellent reviews in the literature describe these intervention programs and their effectiveness (e.g., Ducharme, Levesque, Giroux, & Lachance, 2005; Schulz, Martire, & Klinger, 2005; Roberts, Brown, & Gafni, 2007; Schulz, 2000). Some important examples relate to family caregivers for persons with Alzheimer’s disease (Belle et al., 2006; Mittelman, Haley, Clay, & Roth, 2006). In addition, we now have national policies designed to support caregivers such as: the Administration on Aging’s Alzheimer’s Disease Demonstration Grants to States (ADDGS) program (www.aoa.gov/ALZ/Public/alzabout/2007%20ADDGS%20Fact%20Sheet.pdf); the Family and Medical Leave Act (<http://www.dol.gov/esa/whd/fmla/>); and the Cash and Counseling Demonstration (<http://www.hhp.umd.edu/AGING/CCDemo/overview.html>). The scientific and social foundation for improving the lives of caregivers exists; the challenge is to translate that foundation into widespread practice.





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"The importance of translational research is underscored
by the resources dedicated in recent years to efforts to understand and promote this emerging discipline."

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Translating

Research into Practice



Calls to expand the dissemination of research and to document its translation into practice have escalated in recent years (Green & Stoto, 1997; Zerhouni, 2005). This movement has been driven by the recognition that research findings should benefit the public as rapidly as possible, yet it is challenged by the often lengthy lag time between development and application of research discoveries (Berwick, 2003; Glasgow, Lichtenstein, & Marcus, 2003). Efforts to address this delay in research translation have gained heightened visibility from public health, medical care, and aging services networks.

At the same time, calls for initiatives to move caregiver interventions into public health practice are also being voiced (Covinsky & Johnston, 2006). Such initiatives would yield systematic reviews of caregiver programs, and help identify and describe the current state of caregiver programs and the conditions under which they are likely to be successful. They would also facilitate a broader collective understanding of the translation processes necessary to move effective programs into widespread use. Ultimately, the objective is to reach more people with effective evidence-based programs, and to improve the health and quality of life of caregivers and their families.

The need to understand how to move caregiver interventions rapidly into practice presents challenges and opportunities for the field of public health and caregiving (Talley & Crews, 2007). Meeting this challenge is critical to addressing the needs of caregivers and, in turn, the needs of the recipients of their care.



An Illustrative Scenario

To illustrate the challenges of translating research into practice, consider the following scenario. Assume that you manage a community health agency. While watching the evening news, you learn of a recently published study in the *Journal of Public Health* documenting a new, highly effective intervention for adult caregivers. The encouraging results from this well-controlled, randomized trial indicate that, after six months, 40% of participating caregivers achieve dramatic, clinically significant reductions in stress and burden, and measurable improvements in quality of life. After reading the published article, you are even more impressed with the program and want to implement it for the caregivers in your region. Let's anticipate what might happen as you proceed to translate this excellent new program into widespread practice in your region. There are four steps involved (as shown on Table 1).

Table 1: Scenario for Translating An Effective Evidence-Based Caregiver Program into Practice

Translational Step	Success Rate	Overall Regional Impact
Given: Potential program results	40%	40%
1. Obtain participation of settings	40%	40% x 40% = 16%
2. Secure participation of eligible caregivers	40%	40% x 16% = 6.4%
3. Implement program consistently	40%	40% x 6.4% = 2.6%
4. Maintain program over time	40%	40% x 2.6% = 1%

Challenges of Translation

Step 1: Obtain participation of settings. Assume that you focus on area agencies on aging as the primary delivery setting for your program, and are able to convince an uncharacteristically substantial percentage (40%) of these agencies to participate. Thus, your success rate for this step (as shown in the second column of Table 1) is 40%. However, if you multiply this success rate times the potential program result (40%, as reported from the research study and noted in the first row of Table 1), you realize that only 16% of the caregivers who need the program will potentially benefit ($40\% \times 40\% = 16\%$).

Step 2: Secure participation of eligible caregivers. In this step, your delivery settings (area agencies on aging) begin enrolling caregivers in the program. Let's assume that an unprecedented 40% of all eligible caregivers served by these agencies agree to participate in the program. Again, your success rate for securing participation is 40%, yet the potential overall impact of your program is now down to 6.4% of caregivers who could benefit ($40\% \times 16\% = 6.4\%$).

Step 3: Implement the program consistently. Now, program implementation begins. Unfortunately, as often happens due to competing demands, only about 40% of the regional agencies consistently implement the caregiver intervention as designed in the research study. So your potential regional impact decreases even further, to 2.6% of caregivers ($40\% \times 6.4\% = 2.6\%$).

Step 4: Maintain the program over time. A full year passes and you assess the levels of stress and burden among participating caregivers. Good news: An encouraging 40% of caregivers who achieved initial positive results were able to maintain improvements over the entire year.

Yet, when you calculate the ultimate regional outcome of these four steps, as shown in the bottom right of Table 1, you discover that only about 1% of the caregivers in the region will achieve lasting benefit ($40\% \times 2.6\% = 1\%$). This outcome is not at all what you expected, given the 40% success rate of the highly touted research study.

We present this scenario not to discourage you and other planners and decision makers from adopting evidence-based programs, but rather to encourage all of us to think about the full array of steps involved in translating interventions into real-world programs. Typically, we focus primarily—often exclusively—on the effectiveness of results reported in an initial research trial. As the scenario portrays, this approach fails to appreciate all of the steps involved in applying those research results in a community setting. Examining other elements of translation—the delivery settings, audience participation, consistent implementation, and maintenance over time—affords multiple opportunities to affect ultimate outcome and enhance success.

“Possibly the most helpful use of the RE-AIM model to caregiving programs and policies is the proactive application during planning stages to anticipate potential limitations and make adjustments to maximize the public health impact of these vitally important programs.”

Russell E. Glasgow, Ph.D.
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Let’s revisit our scenario and make a few changes to show that even small improvements in one or two of the elements can dramatically improve the overall public health impact. Let’s assume that you wish to increase the number of sites participating in the program, and decide to expand the delivery settings to include YMCAs, recreation and community centers, and housing developments. As a result, your setting participation rate doubles, from 40% to 80% (as shown in the second row of Table 2). Even if the success rate for all other steps remains the same, your overall regional impact—in terms of participation of eligible caregivers, consistent program implementation, and ultimate outcome over time—increases by 200% (from 1% in the original scenario to 2%).

Table 2: Scenario – Variation A

Translational Step	Success Rate	Overall Regional Impact
Given: Potential program results	40%	40%
1. Obtain participation of settings	80%	80% x 40% = 32%
2. Secure participation of eligible caregivers	40%	40% x 32% = 12.8%
3. Implement program consistently	40%	40% x 12.8% = 5.1%
4. Maintain program over time	40%	40% x 5.1% = 2%

As further evidence of the impact you can have by making minor modifications, assume that in addition to increasing setting participation to 80%, you are able to enroll 60% of the eligible caregivers. As shown in Table 3, you have essentially tripled the overall regional impact (from 1% to 3.1%). Further improvements might be achieved by providing more personal alternatives for reaching caregivers (such as phone- and home-based programs), which in turn might encourage more settings (such as senior citizens centers and religious affiliations) and staff to consider adopting the program. More caregivers might also consider joining the program if they were uncomfortable with the group programs. Thus, the overall performance of a program can be improved by systematically thinking about the overall program target populations of settings, staff, and participants.

These scenarios underscore the need for a framework that draws attention to important translation issues. Such a framework would promote a comprehensive approach and include external validity or generalizability of programs and policies to move research into practice. The RE-AIM Framework is a valuable tool for this purpose and can enhance the overall impact of a program. We introduce this framework and explore its major elements—**Reach, Effectiveness, Adoption, Implementation,** and **Maintenance**—in the following section.

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Table 3: Scenario – Variation B

Translational Step	Success Rate	Overall Regional Impact
Given: Potential program results	40%	40%
1. Obtain participation of settings	80%	80% x 40% = 32%
2. Secure participation of eligible caregivers	60%	60% x 32% = 19.2%
3. Implement program consistently	40%	40% x 19.2% = 7.7%
4. Maintain program over time	40%	40% x 7.7% = 3.1%

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“The RE-AIM model has been successfully used as a planning and evaluation framework in many different health and lifestyle programs. It is most timely to have RE-AIM applied to caregiving issues with examples that will resonate with both researchers and practitioners. As suggested in this monograph, community partners find it most helpful to meet together and discuss what can be done to enhance specific RE-AIM elements—bringing life and reality to this framework.”

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The RE-AIM

Framework



The RE-AIM Framework bridges the gap between research and practice by specifying key steps involved in successful application of programs and policies in real-world settings. It provides critical questions to help program planners, evaluators, and policy makers maximize their chances for successful translation of evidence-based interventions.

RE-AIM was originally developed as a framework for consistent reporting of research results (Glasgow, Vogt, & Boles, 1999; Glasgow, Whitlock, Eakin, & Lichtenstein, 2000), and later used to review existing literature on health promotion and disease prevention in different settings (Glasgow, Klesges, Dzewaltowski, Bull, & Estabrooks, 2004; Glasgow, Bull, Piette, & Steiner, 2004). More recently, RE-AIM has been used to help plan programs to improve their chances of working in real-world settings (Klesges, Estabrooks, Glasgow, & Dzewaltowski, 2005; Glasgow et al., 2006) and to help plan, evaluate, and select health policies (Jilcott et al., 2007). The framework has also been used to understand the relative strengths and weaknesses of different approaches to health promotion and chronic disease self-management—such as in-person counseling, group education classes, telephone counseling, and Internet resources (Glasgow, McKay, Piette, & Reynolds, 2001).

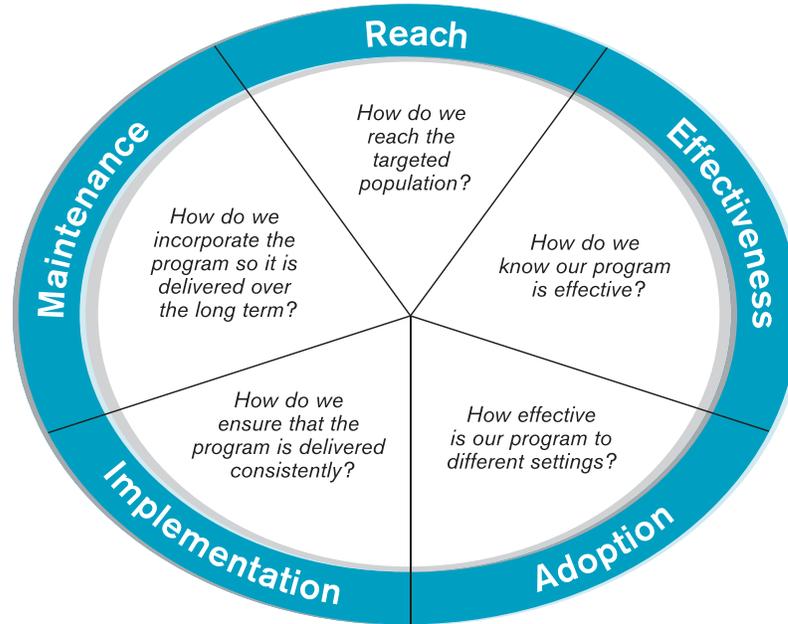
The overall goal of the RE-AIM Framework is to focus attention and critical thinking on essential program elements that can improve the sustainable adoption and implementation of effective, evidence-based programs and policies (Green & Glasgow, 2006).

RE-AIM Elements

RE-AIM consists of five core elements, as depicted in Figure 1.

They are: *Reach*, *Effectiveness*, *Adoption*, *Implementation*, and *Maintenance*.

Figure 1
RE-AIM Elements



Reach is the extent to which a program attracts its intended audience.

Reach is defined as the participation rate among the target audience and the representativeness of those participants. Different program options may have varying degrees of attractiveness among diverse audiences, based on factors such as cost, access, benefits, familiarity, and time requirements. Of special concern is whether the program reaches those most in need.

Reach addresses the overall question:

How do we reach the targeted population?

Applying Reach: A Program Example

Suppose you initiate a support group program for caregivers. Of all eligible caregivers, 47% of those invited to participate agree to enroll in the program. The participating caregivers include a higher percentage of women and younger caregivers than in the community's population as a whole.

Key questions to promote Reach

- What percentage of the targeted population (those who are intended to benefit from the program) will participate in the program as described?
- How might we address the most common barriers to participation?
- How can our program reach those most in need?

Effectiveness is the extent to which program outcomes are achieved.

Effectiveness is defined as the impact on health and disease, as well as broader outcomes such as quality of life. It also captures any adverse consequences that may occur as a result of the program, and emphasizes impact among vulnerable subgroups of the overall target population.

Effectiveness addresses the overall question:

How do we know our program is effective?

*Applying Effectiveness:
A Program Example*

As a result of participation in support groups, 59% of caregivers reduce their stress level by 50% or more, and two-thirds of them show measurable improvements in quality of life.

Key questions to promote Effectiveness

- Are we achieving the outcomes that we had set?
- Is our program equally effective for racial and ethnic minorities?
- How confident are we that our intervention is being implemented without adverse consequences?

Adoption is the extent to which intended settings (such as community-based organizations and clinics) are involved in a program.

Adoption is defined as the participation rate and representativeness of delivery settings (and delivery staff) that take part in a program. It is similar to Reach but focuses on the setting (for example, the agency or organization) rather than the participants. A major concern is whether a program can be adopted by most intended settings, especially those having few resources, rather than by only those funded by studies or academic institutions. The key to both Reach and Adoption is identifying the whole “universe” of eligible persons or settings invited to participate. This figure represents the denominator for calculating participation rates, and can be estimated using several available approaches and tools (www.re-aim.org).

Adoption addresses the overall question:

How attractive is our program to different settings?

*Applying Adoption:
A Program Example*

After promoting your support group program to senior centers throughout the community, 62% of the centers agree to offer it. Two-thirds of the centers that agreed to offer the program have small budgets and serve disadvantaged areas.

Key questions to promote Adoption

- What percentage of appropriate settings do we estimate will participate in our program?
- How do we develop organizational support to deliver our intervention?
- How does our program align with the mission of our target delivery settings?
- What are the benefits to the target settings of participating in our program?



Implementation, sometimes referred to as intervention fidelity, is the extent to which different components of a program or policy are delivered as intended. It also includes the time and cost of program delivery.

Implementation is concerned with the consistency of intervention delivery in different settings, by different complements of staff. It also examines the extent to which programs are adapted or modified over time. Local modifications that significantly alter essential components of a program can adversely affect outcomes, particularly if they fail to preserve the theoretical principles or “active ingredients” of the original program design. RE-AIM uses both qualitative and quantitative approaches to understand and assess implementation (Besculides, Zaveri, Farris, & Will, 2006).

Implementation addresses the overall question:

How do we ensure that the program is delivered consistently?

*Applying Implementation:
A Program Example*

After one year of operation, 80% of the case managers in the participating senior centers deliver the support groups as outlined in the program design. Program cost averages \$280 per participant, including overhead.

Key questions to promote Implementation

- Which program components will be most challenging to deliver as intended?
- Can staff with different sets of expertise implement the program so that it is delivered consistently?
- What parts of the program can be omitted or adapted, without compromising program efficacy (and which cannot)?

This last question brings up the issue of core or critical program elements. Most programs have central features that must be delivered to be true to the spirit of the program and the principles on which it is based (e.g., goal setting, development of action plans, or homework assignments). If these are not specified in program guidelines, a conversation with program developers or experienced users is often helpful to identify these essential ingredients. Other features—such as recruitment methods, the program name, and the number of participants per session—can usually be adapted.

Maintenance is the extent to which the program: 1) continues to be effective over time for participants; and 2) is continued or modified by adopting settings.

Maintenance applies to both the individual program participant and to the setting or organization delivering the program. For the individual participant, maintenance is concerned with the long-term effects of the intervention on both targeted outcomes and quality-of-life indicators. For delivery settings or organizations, maintenance refers to the program’s institutionalization, or the extent to which a program or policy is sustained (or modified or discontinued) over time.

Maintenance addresses the overall question:

How do we incorporate the program so it is delivered over the long term?

*Applying Maintenance:
A Program Example*

At the one-year follow-up visit, two-thirds of all participating caregivers continue to report sustained benefit from reduced stress and burden levels. In addition, three of the six senior centers that initially offered the program continue to do so as originally designed. One of the centers has modified the program by having community volunteers conduct home visits.

Key questions to promote Maintenance

- Does the intervention produce lasting effects (1-2 years or longer) in participants?
- Can organizations sustain the program over time—even after initial funding and enthusiasm are gone?

Taken together, these elements shape the overall public health impact of a program or policy. To maximize overall impact, a program must perform well across all five RE-AIM elements; significant weakness in any of the elements may compromise results. Despite some overlap, each of the elements provides guidance for improving your chances of successfully adopting, implementing, and sustaining an evidence-based program.

“If we are to make a real difference in closing the gap between research and practice, we need a framework that can help scientists, practitioners, and decision-makers in developing, evaluating, and selecting among public health interventions and policies.”

Lynda A. Anderson, Ph.D.
*Director, Healthy Aging Program
Centers for Disease Control and Prevention*

Applying RE-AIM Elements

How can you use RE-AIM to plan, enhance, or evaluate your project? Start by asking yourself the questions identified within each of the elements. These questions can help you select and shape programs and policies early in the planning stage, as well as monitor and evaluate ongoing efforts to identify needed improvements. Most likely, you will be able to answer some, but not all, of the questions with available data or experience. Don't be afraid to make an educated guess when you lack sufficient information by taking into account what you know about the program, your settings, and your participants.

Collaborate with colleagues and partnering organizations to brainstorm potential ways to strengthen your program within each RE-AIM element. Select those strategies that seem most appropriate to your needs and circumstances. Some will resonate with your organization and program goals, while others may be less relevant or even counterproductive. At the end of this monograph, we have identified a set of resources and tools to assist you.

For more detailed help in applying RE-AIM to a real-world project, visit www.re-aim.org. If you are in a planning phase, you will find a practical self-assessment exercise, automated scoring, and immediate feedback at www.re-aim.org/database_quiz/intro.html. If you are in an evaluation phase and interested in using RE-AIM as a quality-improvement tool, members of your project team can answer the self-rating quiz questions and record their resulting scores, taking note of the elements on which they rated the program highest and lowest. You can then discuss the results as a group and generate ideas for improvement. Table 4 suggests indicators for evaluation, along with common challenges and remedies for disseminating and translating research.

Table 4. Indicators, Common Challenges, and Possible Remedies for Translating Research into Practice

Indicator	Challenge	Remedy
REACH		
<ul style="list-style-type: none"> Divide the number of participants by the number invited to participate 	<ul style="list-style-type: none"> Not including a relevant, high-risk, or representative sample or not being able to evaluate representativeness 	<ul style="list-style-type: none"> Use population-based recruitment or over-recruit high-risk subgroups
<ul style="list-style-type: none"> Compare those participating with those who are not (or with the entire local population) on characteristics such as age, gender, education, and illness 		<ul style="list-style-type: none"> Report on participation rate, exclusions, and representativeness Avoid too many exclusion criteria
EFFECTIVENESS		
<ul style="list-style-type: none"> Calculate the percentage achieving clinically significant improvement on well-validated measures 	<ul style="list-style-type: none"> Not thoroughly understanding outcomes or how they come about: <ul style="list-style-type: none"> No knowledge of mediators No assessment of moderator variables Conflicting or ambiguous results Inadequate control conditions to rule out alternative hypotheses 	<ul style="list-style-type: none"> Assess a broad set of outcomes, including possible negative ones
<ul style="list-style-type: none"> Determine impact on a quality-of-life measure that is appropriate for the intervention and invited participants 		<ul style="list-style-type: none"> Include measures of hypothesized mediators Conduct subgroup analyses to identify moderator effects Design a control condition to fit your question
ADOPTION		
<ul style="list-style-type: none"> Divide the number of settings that begin participation by the number invited to participate 	<ul style="list-style-type: none"> Program studied only in high-functioning, optimal settings 	<ul style="list-style-type: none"> Involve potential settings beginning with initial design phase
<ul style="list-style-type: none"> Interview setting staff to identify reasons for agreeing or declining to participate 	<ul style="list-style-type: none"> Program never adopted or endorsed—or used only in academic settings 	<ul style="list-style-type: none"> Approach a representative or broad group of settings early on, when revision is still possible, and report on setting exclusions, participation, and representativeness
IMPLEMENTATION		
<ul style="list-style-type: none"> Design checklists for program staff to record program delivery processes 	<ul style="list-style-type: none"> Protocols not delivered as intended 	<ul style="list-style-type: none"> Assess whether treatment is too complicated, too intensive, or too incompatible with other duties to be delivered consistently Systematically vary staff characteristics and evaluate staff impact as well as costs Specify <i>a priori</i> the critical theoretical components Identify essential elements that cannot be changed and those that can be adapted
<ul style="list-style-type: none"> Periodically observe delivery by different staff members and discuss implementation rates in supervision meetings 	<ul style="list-style-type: none"> Not knowing how to determine whether a program adaptation or customization is positive or negative 	
MAINTENANCE		
<ul style="list-style-type: none"> Conduct phone calls to assess status of participants on key outcomes and quality of life at 6, 12, or more months after final intervention contact 	<ul style="list-style-type: none"> Program or effects not maintained over time 	<ul style="list-style-type: none"> Include maintenance phase in both protocol and evaluation plans
<ul style="list-style-type: none"> Interview program managers to discuss actions concerning program continuance or modification and elicit reasons for their decisions 	<ul style="list-style-type: none"> Substantial attrition of settings, delivery staff, and/or participants over time 	<ul style="list-style-type: none"> Plan for institutionalization, sustainability, and dissemination and their evaluation Take steps to minimize attrition, address it when it occurs using appropriate methods, and evaluate and report its impact
		<ul style="list-style-type: none"> Assure buy-in at all levels

“Carefully documenting the process of translating psychosocial caregiving interventions from research settings to the community is critical to their widespread use, to the benefit of caregivers and their family members nationwide.”

Mary Mittelman, Dr.P.H.
*Silberstein Institute for Aging and Dementia
New York University School of Medicine*

Important Lessons

Past experience with the RE-AIM Framework has yielded some important lessons. We encourage you to keep a few in mind as you identify opportunities to apply the framework to caregiving.

Involve stakeholders. Take care to involve community partners, program delivery staff, and other stakeholders throughout the planning process (Klesges et al., 2005). Use participatory methods (Green & Kreuter, 2005) to obtain buy-in, anticipate potential challenges, and enhance program or policy feasibility and appropriateness for local participants and settings. If possible, conduct either formative evaluations (such as focus groups or structured interviews with potential participants) or a small feasibility pilot to ascertain cultural sensitivity, literacy levels, implementation challenges, and reactions to program materials. Asking key questions, such as those presented earlier in this section, and discussing them with a planning or advisory group can uncover challenges and sharpen planning. Collectively, such efforts have been referred to as “Pre-Aim” to emphasize that they need to happen early in the process.

Consider sustainability from the beginning. It is never too soon to begin planning for sustainability. Consider who will sponsor and implement the program in the long term, the level of resources required, and possible sources of support. Include these individuals and organizations throughout the planning and implementation stages. If possible, share implementation reports and periodic evaluations with both quantitative and qualitative information to provide important feedback for program refinement and keep funders and stakeholders engaged in the process.

Know and appreciate your audience. Many individuals who fit the definition of a caregiver may not think of themselves in a caregiving role. Only by self-identifying, however, are they able to locate available services and be identified by professionals trying to provide them with information or resources. The distinction between providing support for someone and becoming a true “caregiver” is often blurred. Three triggers are likely to cause family caregivers to initially self-identify (National Family Caregivers Association, 2001):

- 1) provision of personal care (dressing, transferring,

toileting/continence, etc.); 2) their loved one's diagnosis; and 3) interaction with the healthcare system (National Family Caregivers Association, 2001). Caregiver self-identification has been shown to make a positive difference in the lives of both family caregivers and their loved ones (National Family Caregivers Association, 2001). Self-identified caregivers are more proactive in seeking resources and skills to assist the care recipient and more confident when speaking with healthcare professionals about the care recipient's healthcare (National Family Caregivers Association, 2001). Keeping this issue in mind as you select and design interventions will help you to be sensitive to the unique needs and challenges of your audience.

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“The Alabama REACH Demonstration project illustrates how the REACH interventions can be successfully translated into practice by community organizations.”

Rick C. Greene, M.S.W.
Administration on Aging

Case Example:

Applying RE-AIM to a Caregiving Program



In July 2004, the Commissioner on Aging for the Alabama Department of Senior Services (ADSS) received good news: The federal Administration on Aging (AoA) had agreed to fund Alabama’s proposal for addressing the stress and burden of caregivers of family members with Alzheimer’s disease (AD). Developed jointly by ADSS and the University of Alabama (UA), the approved proposal committed the state’s Area Agencies on Aging (AAA) to implement an intervention known as REACH II (Resources for Enhancing Caregiver Health). Tested in a well-funded randomized clinical trial, REACH II uses home visits and telephone calls to deliver education, training, and support to AD caregivers and their care recipients (known as “dyads”). Results from the trial, sponsored by the National Institutes of Health (NIH), showed that the intervention significantly reduces depression and improves quality of life for AD caregivers of all races.

The Alabama demonstration team’s challenge was to translate the REACH II intervention into a successful program in real-world, community settings. Team members used a planning process that, while not a strict application of the RE-AIM Framework, posed many of the questions inherent to the model. Through this illustrative case, we first examine “the real story” as it relates to each RE-AIM element. Secondly, we suggest additional considerations for each element that could further enhance the impact of the REACH interventions and other caregiver programs.



Issues in Translation

Reach: The participation rate among the target audience and the representativeness of those participants

Just the facts. One of the first steps for the Alabama team upon notification of funding was formation of a small Advisory Committee to guide program design. This group consisted of: the Commissioner on Aging; the Principle Investigator and Project Manager from UA; and Area Agencies on Aging (AAA) directors, supervisors, and care managers.

The Advisory Committee members selected 4 of Alabama's 13 AAA regions—2 rural and 2 urban—to implement the REACH II intervention. The target audience thus became the caregiver-care recipient dyads served by the four participating AAA regions. These regions were selected based on data from an annual state survey, which showed a high prevalence of death due to Alzheimer's disease in the counties in these regions

(14.6 to 42.5 per 100,000). The Advisory Committee believed that these rates underestimated actual deaths due to Alzheimer's disease, but were reasonable proxies for the number of Alzheimer's patients living in the community and being cared for by family and friends.

The dyads in the target audience were already part of the Alabama care managers' existing caseloads. Thus, the care managers were familiar with their clients' basic needs and afforded maximal leeway on choosing dyads to recruit into the program. They decided to invite all caregivers who were providing primary care for an individual with some degree of cognitive deficits and who had basic needs that were unmet. A diagnosis of dementia or AD was not required, and no formal exclusionary criteria were established.

Results and next steps. Over 27 months, 272 dyads were enrolled in the program; 97% of them attended all four home visits. Care managers utilized a Treatment Fidelity Form that allowed the recording of number of home visits and therapeutic phone calls, and also listed all treatment components to be "checked off" if used during a visit.

More About REACH I and II

In 1995, NIH recognized that, although the scientific community had acquired considerable knowledge about Alzheimer's disease (AD) caregivers and their burdens, knowledge about interventions to ease caregivers' burdens lagged far behind. Consequently, the NIH's National Institute on Aging (NIA) and National Institute for Nursing Research (NINR) funded the first of two multi-site trials to examine strategies for assisting AD caregivers in managing the stress and burden of caregiving.

In the first trial (REACH I), six sites were awarded 5-year cooperative agreements to investigate different interventions to ease caregiver burdens. A different intervention was tested at each site using common outcome measures.

A meta-analysis (Belle et al., 2003) from the findings of these six sites, together with the group's five years of experience, assisted the REACH group in designing a new intervention that was tested across five different sites in a randomized clinical trial (REACH II). This intervention, funded by NIH in 2001, assumed that caregiver stress and burden are rarely the result of a single problem; rather, they are caused by multiple problems of varying degrees of severity (e.g., depression and care recipient problem behaviors). To address these problems, "interventionists" working with caregivers received education on AD and caregiving and "active" skills training on techniques for: pleasant events/relaxation (for depression); making the physical environment safer; improved physical self-care; accessing social support; and writing "behavioral prescriptions" for managing various Activities of Daily Living (ADL), Instrumental Activities of Daily Living (IADL), and behavior problems. They also learned how to conduct an initial risk assessment to determine the order of intervention components and the intensity of their application.

The intervention was delivered to AD caregivers and their care recipients (known as "dyads") through 12 in-home and telephone sessions over six months. Findings showed significantly greater improvements in quality of life and depression in the intervention group (Belle, Burgio et al., 2006).

On average, 95.2% of the caregivers received all of the treatment components during at least one session. The demographics of the caregivers were similar to participants in prior caregiver intervention studies in Alabama.

To further understand and promote Reach, RE-AIM tells us to ask:

- What was the participation rate among dyads invited?
- What are the characteristics of those caregivers who participate versus those who decline?
- How might we address the most common barriers to participation?
- How can our program reach those most in need?

Care managers were not asked to track caregivers who refused the Alabama REACH intervention or to collect demographics on refusers. Thus, it is difficult to ascertain the participation rate, reasons for refusal, or differences between those who participated and those who did not. Such information about the denominator is key to taking the program to scale. In the future, this information should be gathered to inform program planners of barriers to participation and to ensure that AAA care managers continue to serve as effective gatekeepers, restricting the program to those most in need. To increase future participation, promotional materials, mailings, and other outreach strategies might be considered.

Effectiveness: The impact on health, disease, and quality of life

Just the facts. Significantly positive pre-post effects were found on measures of caregiver health and well-being, namely: decreased burden, depression, and frequency of behavior problems; increased perception of social support; and enhanced caregiver/care manager satisfaction with the program. No notable differences in outcome were found between white/Caucasian and black/African American caregivers.

Results and next steps. Alabama experienced outcomes much like those resulting from the REACH clinical trials. To further understand and promote Effectiveness, RE-AIM tells us to ask:

- What characteristics of caregivers or care managers are associated with outcomes?
- How confident are we that the intervention is being implemented without adverse consequences?

Perhaps the program could be shortened even further if an analysis were conducted identifying the key components of the intervention. Similarly, understanding any caregiver characteristics associated with positive (or negative) outcomes would allow better targeting of caregivers for the program.

Adoption: The participation rate and representativeness of delivery settings that take part in a program

Just the facts. The Advisory Committee and the four selected AAAs examined the “fit” of the intensive REACH II intervention, as tested in the clinical trial, to identify any modifications that might enhance feasibility. Committee members found that AAA care



managers and supervisors were nearly saturated with the services they were already providing, and thus modified the intervention to be more reasonable but remain congruent with the intervention used in REACH II.

The resulting Alabama REACH intervention design reduced available treatment components (from 7 to 5), required fewer home visits (from 12 to 4), shortened the duration of the intervention (from 6 months to 3-4 months), and retained the same number of therapeutic phone calls interspersed among the home visits (3).

The five intervention components selected were:

1. A risk assessment tool to help tailor training and consultation to emergent sources of stress and burden
2. Education and training about AD, caregiving, and stress
3. A “Health Passport” for caregivers to record pertinent information and questions, and a home tour to identify safety risks
4. A standard form for managing behavioral prescriptions
5. Teaching breathing technique for stress management.

More About Alabama's REACH Intervention Components

- 1. Risk Assessment:** This clinical tool queries caregivers about 21 common sources of stress and burden. Possible responses are “often,” “sometimes,” and “never.” Results assist the care manager in tailoring training and consultation to emergent problems.
- 2. Education about AD, Caregiving, and Stress:** Care managers are trained to share information with caregivers about the nature of AD (e.g., progression and expected deficits), the caregiving role, the stress associated with intensive caregiving, and the adverse effects of stress on the human body.
- 3. Caregiver Health and Home Safety:** Highly stressed and burdened dementia caregivers often neglect their own health in their endeavor to provide for the needs of their care recipient. Using the America’s Health Guide for Seniors and Caregivers, a small booklet commonly called the Health Passport, caregivers can record symptoms, questions for their physicians, and prescribed medications—and can carry this information with them at all times in their pocket or purse. In addition, with the caregiver’s permission, the care manager completes a quick tour of the physical environment to identify safety concerns. At each subsequent contact, the care manager performs a “check in” to ascertain whether suggested corrective measures were taken.
- 4. Behavior Management:** The REACH intervention employs the ABC approach (Teri, Logsdon et al., 1997), which places behavior management procedures within a problem solving context. Caregivers are taught to use a common form for all behavioral prescriptions, emphasizing a specific definition of the problem, the overall goals of the prescriptions, strategies for preventing the behaviors, and therapeutic responses when the problem occurs. These and all programs are tailored to the specific needs of the dyad.
- 5. Stress Management:** Dementia caregiving is, by its very nature, stressful. However, caregivers can learn to relax even in the most stressful situations. To simplify the teaching of stress management, caregivers are taught a deep breathing technique called “Signal Breath.”

Results and next steps. Alabama proudly reported that all four of the invited AAAs participated fully in the program. To further understand and promote Adoption, RE-AIM tells us to ask:

- What are the specific characteristics of the settings that participated in the project?
- What characteristics of the settings constitute minimal requirements for delivering the program successfully?
- Are there any reasons that settings may choose not to participate (e.g., lower prevalence of AD in the county)?
- What are the reasons that some settings are more successful than others?

- What are the benefits to an AAA of participating in the program?
- How do we develop organizational support to deliver the intervention?

A next step to enhance program adoption might be to expand the program to the nine remaining AAAs and/or to other types of settings, such as senior centers, adult daycare settings, or community centers. Expanding to other settings might require added sponsorships from religious groups, foundations, or other interested organizations. A group’s commitment to collecting meaningful data would facilitate close examination of the issues that contribute to successful Adoption.

Implementation: The consistency of intervention delivery across program components, by different staff, over time

Just the facts. Although the Alabama REACH intervention was administered and implemented by the AAAs, UA’s Center for Mental Health and Aging (CMHA) played a major role in training and consultation for the care managers (the “interventionists”) in the four participating AAAs. This encompassed: 1) a two-day training workshop for care managers; 2) workbooks to guide intervention sessions; 3) a hotline for technical assistance; 4) conference calls to share information and insights; and 5) data management to track progress.

Results and next steps. Ten care managers were trained over the course of the project. Nearly all trained care managers (97%) completed the required four home visits to their assigned caregivers-care recipient dyads, and 98% completed three phone contacts. Based on goal monitoring by the Project Manager, most of the care managers maintained criterion performance throughout the 27 months of the program, and consistency across care managers was considered excellent.

More About Alabama’s Training
and Consultation Activities

A Training Workshop: CMHA provided training in the intervention and project procedures to AAA care managers and their supervisors during a 12-hour workshop over a two-day period. The curriculum emphasized active learning: questions were encouraged; workshop leaders modeled desired behaviors; and participants engaged extensively in role play. As a condition of certification, care managers were required to successfully role play all components of the intervention to established criterion as informally judged by the Project Manager.

Workbooks: Extensive training and caregiver workbooks provided reference guides to help care managers conduct intervention sessions in the home and assist caregivers to engage in therapeutic activities properly during the week.

Hotline: A CMHA-run hotline was available to care managers during two half-days per week. During these times, either the Project Manager or the Principle Investigator was available to discuss unusual or difficult cases.

Conference Calls: Monthly conference calls were held for sharing information among the Advisory Committee, the care managers, and their supervisors.

Data Management: CMHA designed a treatment implementation form not only to track the number of home visits and phone calls, but also to record therapeutic activities conducted during each of these interactions (Burgio, Corcoran et al., 2001).



To further understand and promote Implementation, RE-AIM tells us to ask:

- Which program components are most challenging to deliver as intended?
- Can staff with different sets of expertise implement the program?
- What parts of the program can be omitted or adapted without compromising program efficacy (and which cannot)?
- What is the cost to deliver the essential components of the intervention?

The RE-AIM model suggests using both quantitative and qualitative analyses to make these judgments. From available data, it appears that implementation

consistency was a key strength of the Alabama REACH intervention. As a next step, the Alabama team is revising the workbooks based on feedback received during a focus group with care managers. Moreover, treatment implementation data are being examined to see if some treatment components were delivered more often than others. For example, if care manager characteristics are found to be positive predictors of consistent implementation, teaching these characteristics to all care managers should improve effectiveness. These data will help shape decisions regarding whether some components should be modified or even dropped. Another important next step is to determine the program costs, including start up and maintenance.

“The time has come to apply translational science to caregiver support services and programs, and by so doing, to ensure the delivery of efficacious interventions to strengthen America's caregivers.”

Ronda Talley, Ph.D., M.P.H.
Disability and Health Team
Centers for Disease Control and Prevention

Maintenance: The long-term effects of the program at the individual level, and the sustainability of the program over time

Just the facts. During the last therapeutic session, care managers provided caregivers with a written maintenance plan. This plan summarized the components that had been most effective in helping the caregiver reduce stress and burden. An example of a maintenance instruction might be: “Don’t forget to practice your signal breath when you feel yourself becoming stressed.” Maintenance sessions were usually followed-up by two or three check-in phone calls by the therapists for additional fine-tuning of the maintenance program.

Also required are final home visits for post-treatment assessment, which were conducted six and twelve months after the last home visit.

Maintenance also involves the sustainability of the program over the long term. Impressed by the program’s proven beneficial effects for AD dyads, the Alabama Commissioner on Aging decided to incorporate the Alabama REACH intervention into the long-standing AoA-funded CARES program. This state-wide program already offered a menu of services including respite care, assistance in obtaining services, and information about services. Yet, in June 2007, all care managers and their supervisors were required to attend a two-day workshop very similar to that offered during the initial Alabama REACH project. They also received trainer and caregiver workbooks and are now incorporating the Alabama REACH intervention caregiver training into their standard array of routine services.

Results and next steps. Of the 265 caregivers who completed all four home visits, 29 did not complete the post-treatment assessment, for a total discontinuation rate of 13%. The reasons for discontinuation were: nursing home placement (n = 12); care recipient death (n = 7); and unknown (n = 17).

To further understand and promote Maintenance, RE-AIM tells us to ask:

- Does the intervention produce lasting effects in participants?
- Can organizations sustain the program over time?
- How many AAAs continued using the Alabama REACH intervention after the evaluation was completed?
- What were the characteristics of those agencies that continued and those that did not?
- How long did agencies keep Alabama REACH “active” within the CARES program?

One way to enhance sustainability of Alabama’s REACH intervention is to consider possible ways of forming linkages with other community resources, such as home health care. Another strategy may be to produce a low-cost newsletter featuring “success stories” from the program. This newsletter could be sent to the settings and caregivers, and might provide an effective means of periodically updating key stakeholders.

Lessons and Implications

While this case study “retrofits” the RE-AIM Framework to actual decisions and events occurring in the Alabama REACH demonstration program, it reveals the value of this framework in raising relevant questions for improving intervention design in the early planning stages through assessment of impact. Of note is the utility of the framework, even after programs are up and running, to apply a systematic approach for identifying adaptations that could significantly improve reach, adoption, implementation, maintenance—and ultimately effectiveness.



References

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- Burgio, L., Corcoran, M., et al. (2001). Judging outcomes in psychosocial interventions for dementia caregivers: The problem of treatment implementation. *The Gerontologist*, 41: 481-489.
- Teri, L., Logsdon, R. G., et al. (1997). Behavioral treatment of depression in dementia patients: A controlled clinical trial. *Journal of Gerontology*, 52B(4): 159-166.

“The RE-AIM Framework and concepts can help federal, state, and other public policy makers analyze the likely effects of policies intended to translate research to practice. The RE-AIM questions about the Reach, Effectiveness, Adoption, Implementation, and Maintenance of a program can help policy makers and public program administrators anticipate and avoid or minimize problems that could make the real-world outcomes of a program much less impressive than expected based on the original research findings.”

Katie Maslow, M.S.W.
Public Policy Division
Alzheimer’s Association

Extending RE-AIM:

Example of a Caregiving Policy



In 2006, the economic value of family caregiving was estimated to be at least \$350 billion, which is more than total spending for Medicaid, including federal and state contributions and medical and long-term care that totaled \$300 billion in 2005 (Gibson & Houser, 2007). The Evercare®/National Alliance for Caregiving *Study of Caregivers – What They Spend, What They Sacrifice* (2007) provides an important

in-depth look at the financial and other “personal costs” of caregiving; it documented that as many as 17 million people, or 51% of the 34 million caring for a loved one 50 years or older, are spending on average more than 10% of their annual income on caregiving expenses. The report also revealed that family caregivers, who have annual median income of \$43,026, spend an average \$5,531 a year on caregiving. Further, the study reported that at lower income levels the annual average costs remained about \$5,500—making the financial burden even greater. According to the survey, many family caregivers are involved in both providing hands-on care and paying for needed goods and services.

“Working together with researchers, service providers and policymakers across many fields, I am very optimistic about our prospects for creating, implementing and expanding policies to address the needs of family caregivers in the United States.”

*Lynn Friss Feinberg, M.S.W.
John Heinz Senate Fellow in Aging
Office of Senator Barbara Boxer*

Family caregivers have great economic value as an “unpaid labor force” critical to long-term care. The work of family caregivers is essentially irreplaceable, partially because providing an alternate source of care is difficult and costly (Maslow, Levine, & Reinhard, 2006). Without family caregivers, the present level of long-term care could not be sustained. Supporting family caregivers and their ability to provide care at home or in the community is crucial to our long-term care system (Family Caregiver Alliance, 2006). Of particular concern is that the continued reliance on family caregivers, without clear recognition of or response to their own support needs, could negatively affect the ability of family caregivers to provide sustained care and result in even greater emotional, physical, and financial strain (Family Caregiver Alliance, 2006). These negative effects would in turn affect the quality of care and the quality of life for care recipients, their families, and society at large.

The goal of family caregiver policy is to meet the needs of care recipients by promoting the well-being and financial security of family caregivers (Riggs, 2004). Most federal and state government programs

support family caregivers indirectly, by paying for coverage for services for care recipients. Since 2000, however, publicly funded services intended to support family caregivers directly have increased, in part due to the Older Americans Act’s National Family Caregiver Support Program, which was the first federal government program to recognize family caregivers explicitly and provide funding for services to support them (Maslow, Levine, & Reinhard, 2006).

As the policy arena for caregiving continues to evolve, effective tools are needed to guide policy development and assess policy options. The RE-AIM Framework is one such tool with the potential to help conceptualize and draft policies, evaluate and compare alternatives, and review published literature on policy impact (Glasgow, 2006). Jilcott and colleagues (2007) applied the RE-AIM elements to a variety of public health policies. In this section, we rely heavily on their definitions and descriptions but extend them to an illustrative, hypothetical caregiving policy. Note that each RE-AIM element must be modified slightly when used in the policy context.



Our Hypothetical Policy

We have chosen to apply the elements of the RE-AIM Framework to an illustrative public policy that focuses on caregivers. This hypothetical policy (see box at right) allows and encourages assessment of family caregivers in public programs such as Home and Community-Based Services (HCBS). Maslow and colleagues (2006) identified several goals that could be served by such family caregiver assessments: 1) determining and improving the capacity of family caregivers; 2) maintaining the provision of care by family caregivers; 3) protecting recipients from neglect and abuse; 4) helping to evaluate the effectiveness of programs; 5) responding to caregiver needs; and 6) improving the lives of families and supporting community care. Their work on caregiver assessment was part of a larger National Consensus Development Conference on *Caregiver Assessment: Principles, Guidelines and Strategies for Change* (Family Caregiver Alliance, 2006).

Caregiver Assessment Policy Example

The state in which you live adopts a new policy that allows and encourages its Home and Community-Based Services (HCBS) Demonstration program to implement a family caregiver assessment. The HCBS demonstration includes programs designed for eligible adults over the age of 65 and adults with disabilities. Under the new policy, HCBS care managers can now offer and conduct a standardized caregiver assessment at any HCBS entry point. The caregiver screening process and subsequent assessment form has been tested and aligns with the recommended domains identified in the Family Caregiver Alliance Report from a National Consensus Development Conference (2006). It is understood that the assessment is designed to maintain and support family caregivers and enhance emotional and physical health of caregivers and care recipients.



Applying RE-AIM to Policy

In this section, we briefly describe each of the RE-AIM elements as it pertains to policy in general, and then examine its application to our specific hypothetical caregiver assessment policy example.

Reach: How many people are affected and are they representative of those most at risk?

Reach in the context of policy is concerned with impacting all individuals associated with or under the jurisdiction of the policy-making entity. Reach examines the number, percent, and representativeness of those affected by the policy. Of special concern is whether the policy has the potential to reach all individuals equally regardless of age, gender, education, or racial and ethnic background.

In the case of caregiving, because of the unique relationship between caregivers and care recipients (i.e., “the dyad”), caregiving policies will ultimately impact both members of the care dyad, albeit to varying degrees.

Reach in our example . . .

The intended reach of the family caregiver assessment policy is all adults over the age of 18 who are primary caregivers for eligible recipients of HBCS services.

To enhance policy **Reach**, we might ask:

- What proportion of eligible caregivers is affected by the policy (the “reach rate”)?
- Are the caregivers affected by the policy representative of the population in need (primary caregiver versus other informal caregivers)? Do minority and lowest income caregivers participate at equal levels to other groups?

We calculate the “reach rate” by dividing the number of eligible primary caregivers who have completed an initial caregiver assessment by the total number of caregivers eligible for the program during the first 12 months of the demonstration.

Determination of eligible caregivers would require standardized screening tools for care managers to reliably identify primary caregivers. We could also examine the number of potential primary caregivers screened; the number of caregivers who were offered the assessment; and the percent who completed the assessment.

The program may have differential reach for certain sub-populations who may be less inclined to self-identify as “primary caregivers” or may be reluctant to participate in screening for fear of affecting their care recipients’ eligibility for services.

Effectiveness: How do we know the policy is effective?

Effectiveness is the change in anticipated outcomes of a policy and any adverse effects that occur as a result of implementing that policy. These outcomes should be measurable and have realistic time frames to facilitate monitoring and evaluation. Fortunately, there is a growing body of evidence on different methods that can be used to evaluate policy change (Jilcott et al., 2007).



Effectiveness in our example . . .

The intent of the new policy is to maintain the provision of care by family caregivers and improve the health and quality of life of caregivers and their care recipients.

To enhance policy **Effectiveness**, we might ask:

- Is the policy resulting in the anticipated outcomes?
- What is the impact on quality of life?
- How confident are we that the policy does not result in adverse consequences?

Some key **outcome measures** we could use are: how does the program impact the duration of caregiving or the quality or types of care provided?

Measures to evaluate the short-term impact on caregiving roles, health, and quality of life include: improved caregiver willingness to assume care; care recipient willingness to accept care; increased caregiving satisfaction with caregiving role; reduced caregiver stress levels; and higher levels of personal control among care recipients (e.g., as evidenced by self reports of increased self-efficacy). For **long-term impact**, we could examine: development of new skills and competencies of caregivers to provide desired care; reductions in level of depression; and decreases in nursing home placements.

We could also consider whether some care recipients require multiple caregiver assessments because they have a core group of caregivers who are all deemed “primary.” We might also track some unintended consequences, such as the potential conflicts between the needs of care recipient and caregivers, confidentiality of sharing and releasing information and other privacy issues, impact of diverting care managers’ attention from other needed services, and the unwillingness of some caregivers to be assessed.



Adoption: How many target organizations participate?

Adoption refers to the number, percent, and representativeness of organizations, institutions, or governing bodies that decide to pass or implement a policy, including allocation of resources for oversight or enforcement, if applicable. Adoption is similar to Reach but focuses primarily on the organization or agency staff rather than the participants. Of utmost concern with policies is whether they can be written, passed, and implemented by a legislature or organization. The key to adoption is identifying the whole “universe” of eligible organizations. This is particularly important when the policy requires an organization or governing body to determine eligibility criteria as well as oversight or enforcement mechanisms.

Adoption in our example . . .

The state HCBS programs are the target organizations for the new caregiving policy. In addition, adoption can be applied to the program care managers who will screen, enroll, and conduct the caregiver assessment among primary caregivers of eligible HCBS beneficiaries.

To enhance policy **Adoption**, we might ask:

- How many (or what percent) of the target organizations use the assessment form?
- How do we influence organizational and legislative policy decisions to write, pass or adopt, and institute policies?
- What are the costs and benefits to the target organizations of the policy?

To answer the last question, we could examine the adoption of the program among a broad group of care managers to determine the types of training, participation rates, and characteristics of care managers who adopt the assessment versus those who do not.

Implementation: How do we ensure that the policy is delivered and enforced consistently?

Implementation is concerned with applying the policy as planned, adequately enforcing it, and ensuring consistent compliance with its core components. Policy implementation occurs at several levels. For example, implementation of seat belt policy includes: 1) state enforcement and monitoring by the police; and 2) consumer compliance with the use of seat belt devices. Enforcement and adherence to policies are interrelated and are clearly tied to effectiveness. Cost is also an important aspect of implementation, especially since policies often are not funded at levels necessary for consistent implementation, thus compromising their potential impact.



Implementation in our example . . .

HCBS programs are responsible for implementing and enforcing the new policy.

To enhance policy **Implementation**, we might ask:

- Which policy components (screening, enrolling, assessment, care planning, reassessment) are the most challenging to deliver and monitor?
- Do care managers receive uniform training on assessment techniques and family care issues?
- Do care managers complete the assessment form in a consistent manner?
- Can care managers and caregivers with different skill sets and experience implement the policy so that it is delivered consistently?
- What parts of the policy can be adapted without compromising outcomes (and which cannot)?
- What does it cost to deliver the program?

In light of these questions, we may decide to: 1) design checklists to record the screening and implementation process and, after the policy is implemented for one year, determine the percentage of programs that completed different aspects of the policy; and 2) monitor the consistency of compliance with the policy across population subgroups to understand the context and reasons that some programs may not implement the policy.



Maintenance: How do we incorporate the policy so it is sustained over the long term?

Maintenance applies to both the individual program participant affected by the policy and the setting or organization delivering the program under that policy. It is the extent to which the policy continues to be: 1) effective for individuals in the target population; and 2) enacted by organizations or legislative bodies. For individuals, maintenance is concerned with the long-term effects of the policy on targeted outcomes and quality-of-life indicators. For organizations, maintenance refers to the continued enforcement of and adherence with the policy over time. Policy maintenance may also involve expanded adoption by additional organizations or policy-making bodies, as well as modifications to the original policy (re-invention) and examination of variation in policy interpretation.

Maintenance in our example . . .

To enhance long-term **Maintenance** of the family caregiver assessment policy, we might ask:

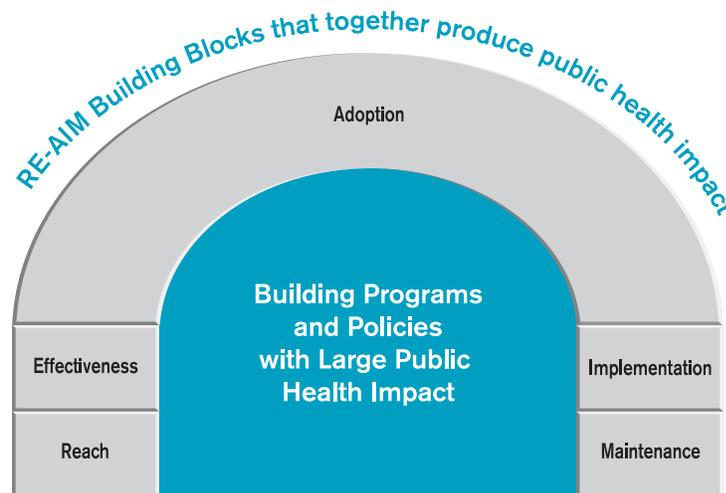
- Does a one-time caregiver assessment produce lasting effects longer than 12 months? How is assessment linked to services?
- Can organizations sustain the policy over time—even after initial funding and enthusiasm are reduced or gone?
- Does the HCBS program support the use of the caregiver assessment over time? Do care managers continue to screen, enroll, and use the assessment form? Are systems in place to monitor the program?

Closing

In conclusion, we hope that through these descriptions of the RE-AIM elements and the two examples, it is apparent that the five elements of RE-AIM are interdependent. No one element alone will provide the needed insight into program or policy change. Instead, it is important to examine all five elements for program

planning when conducting ongoing program and policy evaluations. True and lasting public health impact hinges on our commitment and dedication to the RE-AIM building blocks shown in Figure 2—expanding reach and adoption of strong, feasible, and effective policies and programs that document strong potential for implementation and maintenance.

Figure 2
RE-AIM Building Blocks
for Public Health



References

Evercare® in collaboration with National Alliance for Caregiving (2007). *Evercare® study of family caregivers – what they spend, what they sacrifice*. Findings from a National Survey.

Family Caregiver Alliance (2006). *Caregiver assessment: Principles, guidelines, and strategies for change. Report from a National Consensus Development Conference. Volume I*, San Francisco, CA: Family Caregiver Alliance.

Gibson M.J. & Houser A.N. (2007). AARP Public Policy Institute. *Valuing the invaluable: A new look at the economic value of family caregiving*. Available at: <http://www.aarp.org/ppi>.

Glasgow R.E. *Planning for and evaluating the impact of public health programs and policies: Applying RE-AIM to dissemination issues*. Presentation at the Centers for

Disease Control and Prevention, November 11, 2006. Available at: <http://www.reaim.org/Documents/CDC%20Policy%20Talk%20-%20Glasgow%20-%20Nov%202006.ppt>; accessed on November 20, 2007.

Jilcott, S., Ammerman, A., Sommer, J., & Glasgow, R.E. (2007). Applying the RE-AIM Framework to access the public health impact of policy change. *Annals of Behavioral Medicine* 34(2): 105-114.

Maslow, K., Levine, C., & Reinhard, S. (2006). Assessment of Family Caregivers: A public policy perspective. In: Family Caregiver Alliance. *Caregiver Assessment: Principles, guidelines, and strategies for change. Report from a National Consensus Development Conference. Volume I*, San Francisco, CA: 58-89.

Riggs, J.A. (2004). A family caregiver policy agenda for the twenty-first century. *Generations*, 27(4): 68-73.

Resources

and Tools

Please note that this list is not a comprehensive inventory but should assist you in identifying select resources and tools related to research translation. Research citations are restricted to those that can be accessed through the Internet without special fees.

Caregiving Resources*

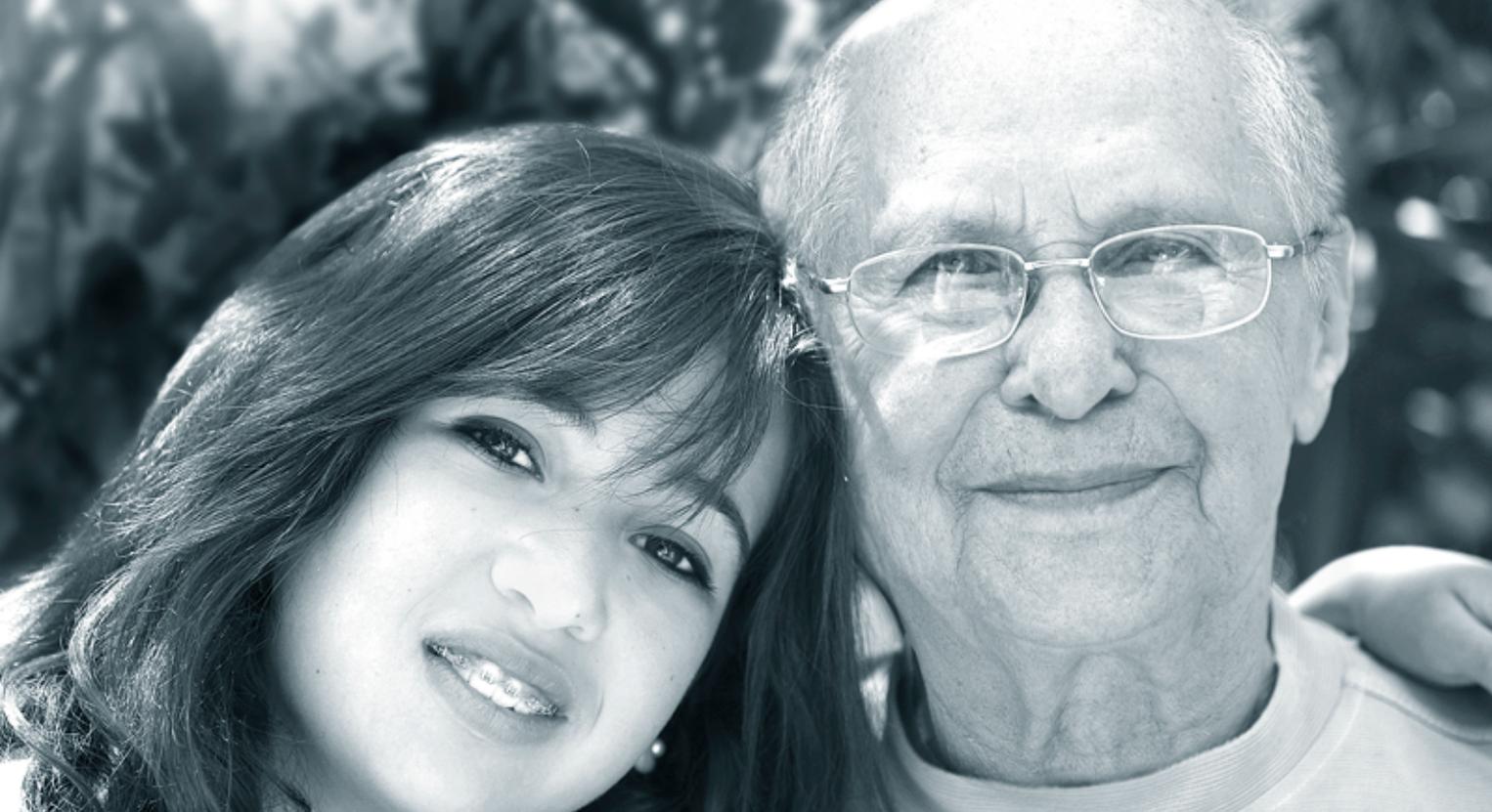
Caregiving Background Information

A background article on caregiving that establishes it as an issue for women, provides definitions, and describes some of the implications (McGuire, L.C., Anderson, L.A., Talley, R.C., & Crews, J.E. (2007).

Journal of Women's Health, 16(6), 784–789. doi:10.1089/jwh.2007.CDC6).

<http://www.liebertonline.com/doi/abs/10.1089/jwh.2007.CDC6>

* The resources and tools listed that refer to non-federal organizations are provided solely as a service to the readers of this monograph. Citation and description do not constitute an endorsement of any organization by CDC or the federal government, and none should be inferred. The CDC is not responsible for the content of the individual organization Web pages.



General information about caregivers and caregiving including characteristics of those receiving care, characteristics of caregivers, the cost of caregiving, trends in caregiving, and the plight of informal caregivers. <http://www.longtermcarelink.net/eldercare/caregiving.htm>

An abstract of a peer-reviewed article examining caregiving as a public health issue (Talley, R.C. & Crews, J.E. (2007). Framing the public health of caregiving. *American Journal of Public Health*, 97(2), 224-228). www.ajph.org/cgi/content/abstract/97/2/224

Dissemination of public information, outreach, and education goals related to older adults by the National Institute on Aging. <http://www.nia.nih.gov/AboutNIA/StrategicPlan/PublicInformationHD.htm>

A Learning Network is an internet-based, interactive resource for communities and Active Aging professionals. The Network is designed to bridge research to practice to build healthy communities for Active Aging. <http://www.linactiveaging.org/>

Caregiving Organizations

AARP provides information on a wide variety of caregiving issues.

<http://www.aarp.org/families/caregiving/>

The **Administration on Aging** provides a Web page on research studies and national surveys. These links to studies and surveys provide useful information to providers and professionals in developing caregiver support programs.

<http://www.aoa.gov/prof/aoaprogram/caregiver/careprof/proguidance/research/research.asp>

The Administration on Aging provides a compilation of resources for professionals and care providers.

http://www.aoa.gov/prof/aoaprogram/caregiver/careprof/resources/caregiver_resources.asp

The **Caregiver Resource Room** is where families, caregivers, and professionals can find information about The National Family Caregiver Support Program, including where you can turn for support and assistance, and providing services to caregivers.

<http://www.aoa.gov/prof/aoaprogram/caregiver/caregiver.asp>

The **Alzheimer's Association** Web site provides useful information on providing care for someone with Alzheimer's disease.

http://www.alzheimersassociation.com/living_with_alzheimers_caring_for_alzheimers.asp

The **Family Caregiver Alliance** provides information on public policy and research, caregiving information and advice, as well as fact sheets and publications.

<http://www.caregiver.org/caregiver/jsp/home.jsp>

The **National Alliance for Caregiving** provides many resources for caregivers. <http://www.caregiving.org/>

A list of **National Alliance for Caregiving** publications designed for programs and survey research is available at:

<http://www.caregiving.org/pubs/data.htm>

The **National Family Caregivers Association** is described as providing support, empowering, educating, and speaking up for the more than 50 million Americans who provide care for a chronically ill, aged, or disabled loved one.

<http://www.nfcacares.org>

The **National Council on Aging** provides a document describing "A National Survey of Health and Supportive Services in the Aging Network."

http://206.112.84.147/attachments/cbo_report.pdf

The **Rosalynn Carter Institute for Caregiving** provides a variety of information about many aspects of caregiving. <http://www.rosalynncarter.org/>

Selected Interventions
and Reviews for Caregivers

The **Resources for Enhancing Alzheimer's Caregiver Health** (REACH) Web site provides updates, information on the REACH intervention, related sites, and a complete bibliography of REACH publications. <http://www.edc.gsph.pitt.edu/reach/>

The **New York University Counseling and Support Intervention for Caregivers** is described in this paper, which includes information on the background, intervention, evidence of effectiveness, and resources for replication.

<http://www.aoa.gov/alz/public/alzprof/ADDGS/PROGRAMS/Mary%20Mittelman%20Summary.doc>

An abstract of a peer-reviewed article that is a systematic review of interventions for family caregivers who have dementia. (Selwood, A., Johnston, K., Katona, C., Lyketsos, C., & Livingston, G. (2007). Systematic review of the effect of psychological interventions on family caregivers of people with dementia, *Journal of Affective Disorders*, 101, 75–89.) [http://www.jad-journal.com/article/S0165_0327\(06\)00465-4/abstract](http://www.jad-journal.com/article/S0165_0327(06)00465-4/abstract)

An abstract of a peer-reviewed article that is a review of evidence-based interventions for family caregivers who have dementia. (Gallagher-Thompson, D. & Coon, D., (2007), *Psychology and Aging*, 22, 37-51.) <http://content.apa.org/journals/pag/22/1/8>

Alabama Alzheimer's Disease
Demonstration Project Materials

The trainer and caregiver manuals used for the Alabama REACH demonstration project are available at: <http://cmha.ua.edu/resources.html>

The health passports used in the Alabama REACH demonstration project are available for purchase at: www.securitec.com/products

The Alabama aging statistics by county can be found at: <http://cmha.ua.edu/Alabama%20Aging%20Statistics%20by%20County.pdf>

Policy Documents Related to Caregiving

The **National Alliance for Caregiving** summary of caregiving legislation in the United States.
<http://www.caregiving.org/intcaregiving/US/unitedstates.htm>

Links for the National Alliance for Caregiving summary information of caregiving legislation in Australia, the Netherlands, Canada, Sweden, Israel, the United Kingdom, Japan, and the United States.
<http://www.caregiving.org/legislation/>

The **Cash and Counseling Program** Web site describes the program and provides materials on the Cash and Counseling Program that are designed to help consumers direct and manage their personal assistance services according to their own specific needs sponsored by The Robert Wood Johnson Foundation, the Office of the Assistant Secretary for Planning and Evaluation in the United States Department of Health and Human Services, and the Administration on Aging.
<http://www.cashandcounseling.org/>

The New Jersey Cash and Counseling Program: Practical Issues (PowerPoint presentation by George Murray) is available at:
www.cashandcounseling.org/resources/20060126-165103/NJPracticalIssues.pdf

Caregiving Policy Digest from the Family Caregiver Alliance's National Center on Caregiving offers a fresh look at the rapidly changing environment of caregiving. It contains briefings on key legislation, news on innovative public programs, and the latest information on caregiving and long-term care policy at national and state levels.
http://www.caregiver.org/caregiver/jsp/content_node.jsp?nodeid=467

The Road to Recognition: International Review of Public Policies to Support Family and Informal Caregiving is a policy report.
www.caregiver.org/caregiver/jsp/content/pdfs/op_2003_the_road_to_recognition.pdf

National Policies and Programs Designed to Support Caregivers

Administration on Aging's Alzheimer's Disease Demonstration Grants to States (ADDGS) program:
www.aoa.gov/ALZ/Public/alzabout/2007%20ADDGS%20Fact%20Sheet.pdf

The Family and Medical Leave Act:
<http://www.dol.gov/esa/whd/fmla/>

Cash and Counseling Demonstration:
<http://www.hhp.umd.edu/AGING/CCDemo/overview.html>

A special issue of the peer-reviewed journal, *Health Services Research*, was published in February 2007.
<http://www.hret.org/hret/publications/volume42/ss107.html>

Statistics on Caregivers and Caregiving

Statistics on Family Caregivers and Family Caregiving:
<http://www.thefamilycaregiver.org/who/stats.cfm>

Fact Sheets and Publications from the Family Caregiver Alliance:
<http://www.caregiver.org/caregiver/jsp/publications.jsp?nodeid=345>

"Caregiving in the U.S.: Findings From the National Caregiver Survey" conducted by the National Alliance for Caregiving and AARP:
www.caregiving.org/data/04finalreport.pdf

The **MetLife Mature Market Institute**[®] commissions studies and polls, working with academic institutions and independent research organizations to analyze trends and patterns related to the aging of America.
<http://www.metlife.com/Applications/Corporate/WPS/CDA/PageGenerator/0,4773,P8895,00.html>

RE-AIM

RE-AIM Applications and Planning Tools

Active for Life program. The Robert Wood Johnson Foundation funded the Active for Life program which used the RE-AIM Framework to help plan and evaluate the application of evidence-based physical activity programs for older adults in many different settings across the United States. They used a participatory approach and among other findings, concluded that “RE-AIM provides the best blueprint we have for defining and improving evidence-based community-participatory interventions that meet the needs both of the scientist or public health officer and of the community.” www.activeforlife.info

Moving Ahead: Strategies and Tools to Plan, Conduct, and Maintain Effective Community-Based Physical Activity Programs for Older Adults.

This monograph describes the application of the RE-AIM Framework to evidence-based physical activity programs. (Belza, B., PRC-HAN Physical Activity Conference Planning Workgroup (2007). *Moving Ahead: Strategies and Tools to Plan, Conduct, and Maintain Effective Community-Based Physical Activity Programs for Older Adults*. Centers for Disease Control and Prevention: Atlanta, GA) <http://depts.washington.edu/harn/monograph.pdf> or http://www.cdc.gov/aging/press_room.htm

A peer-reviewed journal article that describes how the RE-AIM (Reach, Effectiveness, Adoption, Implementation, and Maintenance) Framework can be used to evaluate a physical activity intervention in churches. (Bopp M, Wilcox S, Laken M, Hooker SP, Saunders R, Parra-Medina D, et al.(2007). Using the RE-AIM Framework to evaluate a physical activity intervention in churches. *Preventing Chronic Disease*, 4(4). http://www.cdc.gov/pcd/issues/2007/oct/06_0155.htm; accessed 1-16-08.

RE-AIM for Program Planning: Overview and Applications.

This National Council on Aging monograph introduces the RE-AIM Framework: Reach, Effectiveness, Adoption, Implementation, and Maintenance. These five elements are critically important for service providers and decision-makers to consider when selecting an evidence-based health promotion program, or when making choices among alternative programs.

[http://www.healthyagingprograms.org/resources/Issue\(Brief_ReAim_Final.pdf\)](http://www.healthyagingprograms.org/resources/Issue(Brief_ReAim_Final.pdf))

WISEWOMAN Best Practices Toolkit: Lessons Learned from Selected WISEWOMAN Projects.

This toolkit is organized around the five elements of the RE-AIM Framework.

<http://www.cdc.gov/wisewoman/toolkit/>

RE-AIM Specific Tools and Checklists

Checklist for Study and Planning Interventions

http://www.re-aim.org/2003/ck_sip.html

Questions to Ask About RE-AIM Elements When Evaluating Health Promotion Programs and Policies

http://www.re-aim.org/2003/m_1.html

Calculating Impact helps to choose among different programs and provides methods to calculate an overall summary RE-AIM score. The site lets you explore individual and organizational impact.

http://www.re-aim.org/2003/calc_impact.html

An article describing a multi-site effort by the Treatment Fidelity Workgroup of the National Institutes of Health Behavior Change Consortium to identify treatment fidelity concepts and strategies in health behavior intervention research. The work group reviewed treatment fidelity practices, identified techniques used within the Consortium, and offered recommendations for incorporating these practices more consistently. (Bellg, A.J., Borrelli, B., Resnick, B. et al. (2004). Enhancing treatment fidelity in health behavior change studies: best practices and recommendations from the NIH Behavior Change Consortium. *Health Psychology*, 23(5), 443-451.) <http://www.healthyagingprograms.org/content.asp?sectionid=66&ElementID=337>

Resources to Promote REACH

The **RE-AIM** Web site provides specific information on how to calculate reach and provides a link to help locate ways to various sources of data. <http://www.re-aim.org/2003/calculate-reach.html>

Maibach, E.W., Van Duyn, M.A., & Bloodgood, B. (2006). A marketing perspective on disseminating evidence-based approaches to disease prevention and health promotion. *Preventing Chronic Disease*, 3(3), A97. http://www.cdc.gov/pcd/issues/2006/jul/05_0154.htm

National Council on Aging Center for Healthy Aging Issue Brief: Recruiting Older Adults into Your Physical Activity Programs. <http://www.healthyagingprograms.org/content.asp?sectionid=92&ElementID=384>

Community Tool Box. Chapter 45. Social Marketing of Successful Components of the Initiative. <http://ctb.ku.edu/en/>

Resources to Examine EFFECTIVENESS

Effect size calculations. Methodology for calculating Cohen's d effect sizes from published experiments that use t-tests and F-tests. (Thalheimer W. & Cook S. (2002). How to calculate effect effect-size estimation, *Psychological Science*, 11, 446-453.) Accompanying this article is a spreadsheet to speed your calculations. http://www.worklearning.com/effect_size_download.htm and http://www.work-learning.com/effect_sizes.htm

Health-Related Quality of Life (HRQOL).

The CDC Web site describes the questions and provides information on the validity, reliability, and responsiveness of the HRQOL questions. The HRQOL measures and data are routinely collected in the Behavioral Risk Factor Surveillance System and the examination component of the National Health and Nutrition Examination Survey. Provides links to other resources. <http://www.cdc.gov/hrqol/methods.htm#origins>

The IQOD Programme is developing databases of item responses, clinical, and socio-demographic data from multiple sources of Health-related Quality of Life (HRQoL) studies conducted worldwide. This database is called the **International Health-related Quality of Life Outcomes Databases (IQOD)**. <http://81.252.163.179:8085/>

Resources to Promote ADOPTION

The **RE-AIM** Web site provides specific information on how to calculate adoption and provides a link to help locate potential settings. <http://www.re-aim.org/2003/calculate-adoption.html>

The **Community Toolbox** Web site describes methods to increase participation and involvement of people and organizations in a community. This section provides a framework and supports for increasing participation and membership in your community initiative or organization. http://ctb.ku.edu/tools/tk/en/tools_tk_8.jsp

Resources to promote IMPLEMENTATION

The **RE-AIM** Web site provides information on implementation of health behaviors research and specific research examples.

http://www.reaim.org/2003/researchers/implementation_res.html

Multiple interventions toolkit on implementation

http://www.miptoolkit.com/index.php?option=com_content&task=blogcategory&id=20&Itemid=32

National Council on Aging Tools and Checklist of program implementation and maintaining fidelity.

The document contains a self-assessment for readiness for implementation, a tool to track similarities and differences in implementation, cultural competency, tool for maintaining program fidelity, and sustainability.

http://www.healthagingprograms.org/resources/CHA_Tools_Checklists.pdf

Resources related to MAINTENANCE

WISEWOMAN Best Practices Toolkit. Chapter 6 focuses on maintenance strategies used in the program and provides a checklist titled “Action Checklist: Adoption—Engaging and Retaining WISEWOMAN Sites.”
http://www.cdc.gov/wisewoman/toolkit/chapter_six.htm

General Resources on Program Development and Evaluation

CDC Framework for Program Evaluation. Martin, S.L. & Heath, G.W. (2006). A six-step model for evaluation of community-based physical activity programs. *Preventing Chronic Disease, 3(1)*, A24.
http://www.cdc.gov/pcd/issues/2006/jan/05_0111.htm

Community Health Status Indicators (CHSI), Health Resources and Services Administration (HRSA). This online project provides reports of health status indicators for every U.S. county for use in characterizing the overall health of a county and its citizens to support health planning. Information for understanding, interpreting, and using the reports is available at 888-ASK-HRSA and <http://www.hrsa.gov>

Community Toolbox. The Tool Box provides more than 7,000 pages of practical information to support your work in promoting community health and development. This Web site is created and maintained by the Work Group on Health Promotion and Community Development at the University of Kansas in Lawrence, Kansas.

<http://www.ctb.ku.edu/>

Federal Statistics. FedStats provides official statistical information available to the public from the federal government. The site provides linking and searching capabilities to track economic and population trends, health care costs, aviation safety, foreign trade, energy use, farm production, and more. Access is provided to official statistics collected and published by more than 70 federal agencies without having to know in advance which agency produces them.

<http://www.fedstats.gov/>

U.S. Department of Health and Human Services.

Healthy People 2010. 2nd edition. With Understanding and Improving Health and Objectives for Improving Health. 2 vols. Washington (DC): U.S. Government Printing Office; 2000 Nov.

<http://www.healthypeople.gov/>

Disparities Information

Kaiser Health Disparities Report: A Weekly Look at Race, Ethnicity, and Health

http://www.kaisernetwork.org/daily_reports/rep_disparities.cfm

Measuring Health Disparities

Free CD-ROM from Michigan Public Health Institute
https://www.sph.umich.edu/iscr/mphtc/site.php?module=courses_one_online_course&id=248

Social Justice and Health Equity

The National Association of County and City Health Officials has a Web site focusing on the broader issues of Social Justice and Health Equity.

<http://www.naccho.org/topics/justice/index.cfm>



Centers for Disease Control and Prevention

The Centers for Disease Control and Prevention, as the sentinel for the health of people in the United States and throughout the world, strives to protect people's health and safety, provide reliable health information, and improve health through strong partnerships. CDC's mission is to promote health and quality of life by preventing and controlling disease, injury, and disability.



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