

National Program Locator Tools for Arthritis- Appropriate Evidence-Based Interventions

Needs Assessment and Usability Results Report

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Executive Summary

Introduction

An estimated 54 million adults—one in five American adults—have self-reported, doctor-diagnosed arthritis, making it one of the most common diseases in the United States. There is growing evidence that arthritis-appropriate evidence-based interventions (AAEBIs) reduce pain, disease progression and improve functional limitations and quality of life for people with arthritis. The National Association of Chronic Disease Directors (NACDD), in partnership with CDC's Arthritis Program, engaged Westat to conduct a usability and needs assessment of national program locator tools for AAEBIs. The purpose of the study was to expand understanding and inform CDC strategy about AAEBI program locator tools.

Methods

The study was conducted in two phases: needs assessment in-depth interviews (IDIs) and an expert review. For the needs assessment, Westat conducted six (6) stakeholder IDIs with national and state arthritis program grantees between August 30, 2018 and September 14, 2018. Participants were current CDC Arthritis Program grantees, identified collaboratively by NACDD, CDC, and Westat.

The objective of the expert review was to identify strengths and weakness of existing program locator tools from an end user perspective (i.e., patients or caregivers). For the expert review, two Westat usability experts reviewed four AAEBI locator tools:

- Evidence-Based Leadership Council (EBLC) Tool (<http://www.eblcprograms.org/evidence-based/map-of-programs/>)
- CDC's Diabetes Prevention Program (DPP) Tool (https://nccd.cdc.gov/DDT_DPRP/Programs.aspx)
- Arthritis Foundation's Resource Finder (<http://resourcefinder.arthritis.org/>)
- Workshop Wizard Tool (<http://pathstohealthnm.net>)

Findings: Needs Assessment

Current activities

Current locator tools used. Of the six grantees interviewed, three were currently using Compass by QTAC. In addition to using Compass's program locator tool, grantees were using Compass as a database to keep track of workshops offered and tabulate reach numbers. Another grantee was working with its own research department to maintain a locator tool that was available on its website. The remaining two grantees were not currently using a locator tool.

Grantee needs. Grantees perceived two end user audiences for their work: 1) the public and 2) implementation partners. While grantees were engaged in developing and implementing strategies to increase access to AAEBIs, grantees were generally not implementing AAEBIs themselves; they relied upon their partners to do this. In this context, the program locator tool could not only help members of the public identify a program near them, it could also help a partner assess need for AAEBIs in their local community. All grantees emphasized that a locator tool was one, small piece of a larger suite of data solutions they needed to manage their programs. Further, all grantees expressed a strong desire that the tool accommodate, at a minimum, all AAEBIs.

Experience using Compass by QTAC. For the most part, grantees using Compass were satisfied with their experience. At the same time though, there was a growing concern among some grantees that Compass may not be able to meet future state arthritis program needs (e.g., bidirectional physician referral; accommodating more than just self-management programs).

Audience needs. Grantees noted that the target public audience for AAEBIs was older, potentially visually impaired, often not web-savvy, and often with limited access to transportation. Therefore, it was very important that the website be easy to use, the search tool streamline the ability to locate a program, and potential participants have the ability to register for a class in the same search session.

Four of the six grantees interviewed tasked their implementation partners with entering workshop data into their system. These data included dates and times of workshops and reach counts. This second audience needed a clean interface for both search and data entry.

After open-ended discussion, grantees were asked to rate the importance of various program locator characteristics. Though all presented characteristics were rated highly, grantees assigned the most importance to “frequency with which the listed information is updated” and “user friendliness.” “Cost” and “maintenance or support of the tool” also rated highly. In an open-ended other specify item, two grantees mentioned information related to informational details about the program (e.g., contact information), and three grantees mentioned the need to include bidirectional physician referral.

Attitudes towards a national locator tool. All grantees were enthusiastic about the idea of national locator tool. Potential advantages included the ability to search for programs across state lines and, more importantly, standardization of CDC expectations for tracking and data collection. Potential disadvantages included management logistics. More specifically, grantees were concerned about introducing pipelines or gatekeepers that could delay data entry, limiting the system’s ability to provide current, accurate information. Several grantees added that the system should be able to be integrated with electronic health records (EHRs) because of CDC’s new grant requirements for bidirectional referral with health care professionals.

Future Strategy

Feasibility of a national locator tool. Five grantees felt that a national locator tool was feasible, and one grantee was unsure. Though the benefits of a national tool were clear to grantees, grantees indicated the tool would need to offer features and functionality that “match or surpass what we have” in order for them to buy in. Grantees that relied on partners for data entry also emphasized that the project should be to build one, comprehensive system because partners should not be asked to enter program information in more than one place. They also recognized to be successful the comprehensive tool would need to bring together many national stakeholders, extending beyond CDC’s Arthritis Program (i.e., Arthritis Foundation, Sound Generations, NCOA, other CDC chronic disease programs, Administration for Community Living (ACL)).

CDC’s role. Grantees agreed that CDC has a significant role to play in the development of a national locator tool. CDC was seen as having the financial resources to support the tool, the ability to bring together various stakeholders that can provide input in the development of the national tool, and the authority to determine which programs should be included in the tool. Grantees also expressed a strong sentiment that—through a data collection system—CDC set common parameters on reporting

measures, which in turn would allow them to better meet their grant deliverables and share information.

Organization to house a national tool. Grantees were less confident that the tool should be housed at CDC. Though CDC was seen as having the capacity to handle a national database, some grantees were concerned that “red tape” could delay data entry and compromise the accuracy of the information. National organizations like NACDD or COAW were mentioned as possible alternatives because they had greater flexibility. In particular, NCOA’s Domo system was suggested as having the possible foundation for expansion on which a program locator could be built, because it already has a back end database and is able to connect with states’ existing Compass databases.

Tools Review

Each grantee viewed and discussed their opinions of four existing program locator tools. For each tool, the interviewee was asked to complete a basic search task (e.g., find an AAEBI near you), and then answer subsequent questions about the strengths and weaknesses of each tool, as well as provide their suggestions for improvement. Grantees were provided the opportunity to examine the tools prior to the interview.

Usability results for the four tools. The EBLC tool was rated highly for its clean design and ability to filter by multiple AAEBI programs, but grantees were worried about the accuracy of its information and the recent addition of a fee to list programs. CDC’s DPP tool was regarded as easy to use and grantees thought CDC sponsorship gave it legitimacy, but they found it had limited or was missing necessary information end users would need to register. Grantees liked the level of detail in the search results of the Arthritis Foundation’s Resource Finder, but they were challenged by the tool’s non-intuitive layout and the difficulty end users had narrowing searches by program. Lastly, grantees found the content of the Workshop Wizard tool to be thorough, relevant, and useful to their work, but expressed concern with how the resources were laid out and how difficult it was to navigate searches.

Other program locator tools. When the grantees were asked to suggest other program locator tools they were aware of that they found effective and/or promising, they mentioned the YUSA EnhanceFitness Program Locator, Well Connect Southeast Minnesota Partnership Program Locator, and the Wisconsin Institute for Healthy Aging Program Locator.

Comparison across tools. Following the review of each of the program locator tools, grantees were asked to draw comparisons across the various tools to identify: 1) which tool they thought was most relevant or useful to them, and 2) which tool they thought was easiest to use. Three grantees found Workshop Wizard the most relevant or useful to their work. Other grantees selected Well Connect, EBLC, and one grantee did not select any of the tools. Three grantees identified EBLC as the easiest tool to use, while two selected CDC’s Diabetes Prevention Program tool, one selected Workshop Wizard, and one selected Well Connect.

Findings: Expert Review

Two usability experts conducted a review on the four program locator tools discussed in the needs assessment. Expert reviews were based on Nielsen’s usability principles and severity level (i.e., the potential difficulty users might have if they encounter the issue). For each program locator, expert reviewers examined the homepage, search function, results page, and made other observations where relevant. Positive comments were also noted for each locator tool.

Tables i–iv present an at-a-glance view of the expert assessment for each program locator tool.

Table i. Evidence-Based Leadership Council Tool*: Summary of expert review findings

Locator Tool Section	Severity Level		
	High Severity	Moderate Severity	Low Severity
Homepage		<ul style="list-style-type: none"> • Affiliate Log In button • Map of Licensed Organizations link • Map • Buttons for program administrators 	<ul style="list-style-type: none"> • Page title
Search Function	<ul style="list-style-type: none"> • Search parameters • Wait time • Search parameter persistence 	<ul style="list-style-type: none"> • Distance options 	<ul style="list-style-type: none"> • Select Programs button • Search buttons
Results Page		<ul style="list-style-type: none"> • Message for No results • Results message • Map message 	<ul style="list-style-type: none"> • Map Legend • Search radius • Program information
Other Observations		<ul style="list-style-type: none"> • Search Results Listing 	
<p>Positive Comments</p> <ul style="list-style-type: none"> • The starting page has a clean and inviting look, with a simple search area and a map. • This site provides very broad geographic coverage (worldwide). • The fill box will likely provide users with a sense that there are flexible options for searching, given that entry of zip codes, city & state, state only, or country is allowed. • When entering a state name into the search box, the “Search Entire State” radio button is the default for Distance, and entering a country name sets a default of “Search Entire Country.” These defaults may be useful shortcuts for users who wish to conduct those types of searches. • As noted above, the site provides key information for each search result (location name, the type of program(s), a phone number, contact name, and address) and provides the means to send an email to the contact person, view the location on a larger map, and get directions to the location. 			

* <http://www.eblcprograms.org/evidence-based/map-of-programs/>

Table ii. Diabetes Prevention Program Tool*: Summary of expert review findings

Locator Tool Section	Severity Level		
	High Severity	Moderate Severity	Low Severity
Homepage		<ul style="list-style-type: none"> • Map 	<ul style="list-style-type: none"> • Color palette • Layout
Search Function		<ul style="list-style-type: none"> • Options for finding an in-person class • Select Location Search 	
Results Page		<ul style="list-style-type: none"> • Results page for zip code search • Location information • Mobile access • Results page for map-based search • Results page for Find an Online Program • Information for online programs 	<ul style="list-style-type: none"> • City page
<p>Positive Comments</p> <ul style="list-style-type: none"> • The site offers users the flexibility of conducting searches in different ways. • The interactive map works in a similar way as maps offered on other sites. Users’ knowledge will easily transfer to this site; they are likely to be familiar with how the map works and find it easy to interact with. • The increments for distance (5–50) align well with the likely needs of users. • Having a Go button on the City results page allows a user to avoid backtracking to modify search. • When returning to the Find an In-person Class page after conducting a search by zip code, the prior zip code is offered for autofill when the user clicks the zip code box. Since the prior search parameters are not retained when returning to that page, the autofill is a helpful alternative. • Links are provided to websites for most of the online programs. The icon that indicates the user will leave the site is a helpful visual cue. 			

* [https://nccd.cdc.gov/DDT DPRP/Programs.aspx](https://nccd.cdc.gov/DDT_DPRP/Programs.aspx)

Table iii. Arthritis Foundation Resource Finder*: Summary of expert review findings

Locator Tool Section	Severity Level		
	High Severity	Moderate Severity	Low Severity
Homepage			<ul style="list-style-type: none"> • Tagline
Search Function		<ul style="list-style-type: none"> • Name (Optional) box • Resource options to search 	
Results Page		<ul style="list-style-type: none"> • Visual support for search results 	<ul style="list-style-type: none"> • Results message • Repetition of listings • Program listings
Other Observations: Individual Program Page		<ul style="list-style-type: none"> • Back link • Program information • Working with results 	<ul style="list-style-type: none"> • Arthritis Foundation logo and name
<p>Positive Comments</p> <ul style="list-style-type: none"> • The site has an inviting, modern look and uses good color contrast to facilitate readability. • The name of the tool clearly conveys its purpose. • The introductory text on the homepage clearly describes and sets expectations for what users can do with this tool. • The most important content is centered and salient, as well as streamlined and presented in an easily readable way. • The user controls (i.e., navigation buttons, radio buttons, reveal/hide arrows) are intuitive (do not require instructions) and present clear visual clickability cues. • The increments offered as options for distance seem to fit with likely user needs. • The map feature (which shows on each page that presents results for a specific program) is interactive; this will align with user needs and expectations. • Error messages are provided in red font at their exact location, to easily draw attention. • On the results page, a user can easily select different options in the Refine Your Search area to modify the search without having to backtrack to the prior page. The New Search option link is also provided within that same area; its close proximity to the Search button clearly provides the key options users will want to consider at that point. • If a user clicks the New Search link to return to the Arthritis Resource Finder page after conducting a search, the prior search parameters are retained. This makes it easy for the user to refine or change the search, vs. having to start from scratch. • Site visitors can provide feedback about the search function (e.g., what they were not able to find), desired additional resources, and whether they would like to provide and read ratings. These opportunities are likely to make users feel that the Arthritis Foundation cares about its site visitors, which may help to increase likelihood of returning to the site. 			

* <http://resourcefinder.arthritis.org/>

Table iv. Workshop Wizard Tool*: Summary of expert review findings

Locator Tool Section	Severity Level		
	High Severity	Moderate Severity	Low Severity
Homepage		<ul style="list-style-type: none"> • Site audiences • Top navigation vs. left navigation <ul style="list-style-type: none"> ○ Top navigation tabs ○ Left navigation area • Color contrast 	<ul style="list-style-type: none"> • Homepage layout
Search Function	<ul style="list-style-type: none"> • Functionality 	<ul style="list-style-type: none"> • Scrollbar • Curriculum filter 	
Results Page		<ul style="list-style-type: none"> • Workshops vs. trainings • List of Workshops • Map • Pop-ups • Forms page • Future classes • Class information pages • Location visual information • Content for provider audiences • Table format 	<ul style="list-style-type: none"> • Capitalization • Request for a class site • Contact page icons • Class information
<p>Positive Comments</p> <ul style="list-style-type: none"> • This site provides comprehensive information about class content/topics, which users are likely to find valuable in making choices about what will be appropriate for them. Within the class topics, some of the options give very specific information (such as who to contact, phone number, email address) that users are likely to need and appreciate as they make decisions about which one(s) to investigate further or attend. • A nice feature is the “Don’t see a class in your area? Let us know” link that opens a page where the user can submit a city name and any comments. The message makes it sound like classes could be added. This feature will likely make users feel that Paths to Health values its site visitors. However, if Paths to Health is unable to add classes, users may be disappointed. • The map feature is interactive; this will align with user needs and expectations. For example, users may wish to take advantage of the option of using labels for the Satellite view. • The Forms tab provides access to various forms that users could fill out ahead of time for attending a class that they have located via the list of classes. 			

* <http://pathstohealthnm.net>

Discussion and Recommendations

Needs Assessment

Grantee needs/priorities. All the grantees interviewed perceived a locator tool as the proverbial “tip of the iceberg” for their data reporting needs, which involves working with community partners to support AAEBI implementation and track reach. Indeed, several grantees had already invested substantial effort in setting up comprehensive data management systems that performed multiple, interconnected functions, program location being one of them. Therefore, to get buy in for a new national tool, it would have to match or surpass what grantees already have. Key features identified by grantees for a program locator tool included accuracy, a clean, simplified design, the capability to take participants from

discovery to registration, flexibility in who can enter data into the system, and coverage of multiple evidence-based interventions.

Feasibility of a national tool. In general, grantees were receptive to the idea of a national tool. However, their receptivity was primarily driven by a desire for increased standardization of program reporting requirements. In this respect, a program locator—and the engine behind it—would provide a needed structure that the grantees could use to make sure they were meeting CDC’s reporting requirements. NCOA may provide a viable platform on which to build a national locator tool, because its system interfaces with Compass, so these databases already have the ability to communicate and share information).

CDC’s role. This needs assessment indicates there are several ways in which CDC can contribute to the development of a national program tool, should it decide to continue these efforts. First, CDC should articulate a vision for a national tool. Next, CDC needs to communicate this vision to gain buy-in from the grantees. Because tool development will require significant investment of resources and coordination, it is necessary for CDC to secure buy-in cooperation and engage external partners. Potential partners include other Federal agencies (e.g., ACL), nonprofits (e.g., NCOA, NACDD), other CDC chronic disease programs (e.g., diabetes, heart disease and stroke, falls prevention) and intervention developers (e.g., the Arthritis Foundation, Sound Generations Following that, through a funding mechanism, CDC can award funds to build the system and/or partner with another agency to augment an existing system. Finally, in the development of the system, CDC can establish standards for reporting that grantees can use to benchmark progress of their grant and share lessons learned with others.

Introduction

1.1 Background

An estimated 54 million adults—one in five American adults—have self-reported, doctor-diagnosed arthritis, making it one of the most common diseases in the United States. There is growing evidence that arthritis-appropriate evidence-based interventions (AAEBIs) reduce pain, disease progression and improve functional limitations and quality of life for people with arthritis.¹ CDC maintains a list of recommended and promising physical activity and self-management education programs that are proven to improve the quality of life for people with arthritis.² Program locator tools can help connect people with arthritis to AAEBIs in their community.

The National Association of Chronic Disease Directors (NACDD), in partnership with CDC's Arthritis Program, engaged Westat to conduct a usability and needs assessment of national program locator tools for AAEBIs. This document reports the results of stakeholder interviews that were conducted with current CDC Arthritis Program grantees and an expert review that was conducted on four currently available national program locator tools for AAEBIs.

1.2 Research Objectives

The purpose of the study was to expand understanding and inform CDC strategy about AAEBI program locator tools. The study assessed the following:

- Effective/important features of AAEBI program locator tools
- Strengths and weaknesses of selected existing AAEBI program locator tools
- Recommended improvements for selected existing AAEBI program locator tools
- The feasibility of developing and/or improving a national locator tool

Methods

2.1 Needs Assessment

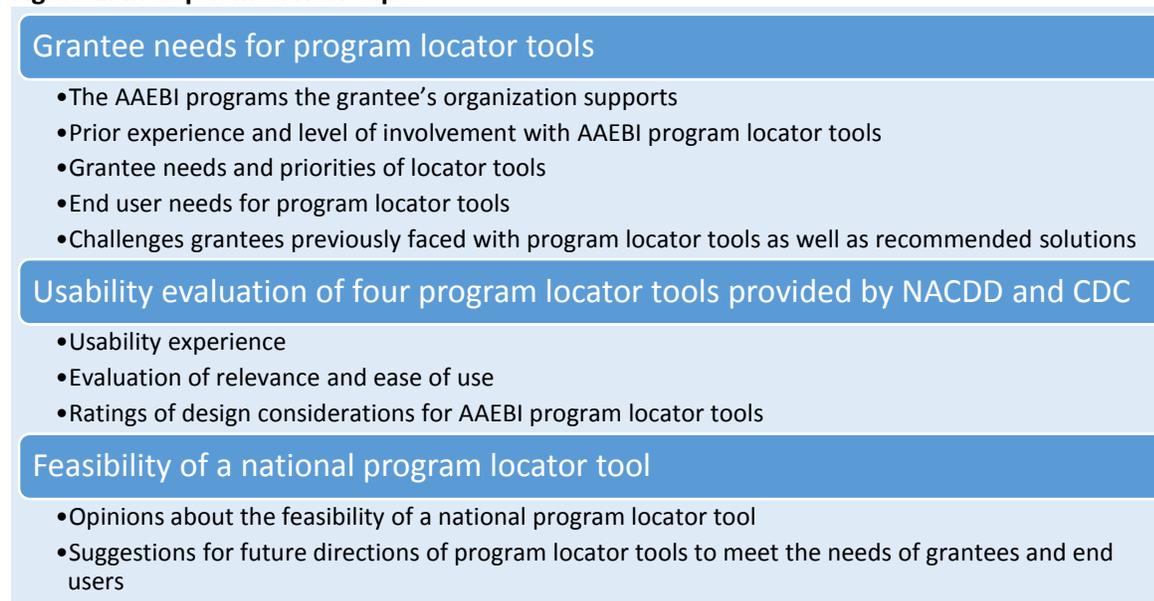
Westat conducted six (6) stakeholder in-depth interviews (IDIs) with national and state arthritis program grantees. The needs assessment IDIs were approximately 75 minutes long and took place between August 30, 2018 and September 14, 2018. Consent was obtained prior to beginning each interview. The interview was divided into several sections: a discussion of grantee needs for program locator tools; a discussion about usability of four program locator tools provided to participants in advance of the interview; and a discussion of the feasibility of a national program locator tool (Figure 1). The full interview protocol is provided in Appendix A.

The IDIs were conducted online using the screen-sharing software WebEx, which enabled the research team to audio record the interview as well as video capture the screen movements of participants as they completed the usability portion of the IDI.

¹ Hootman, J. M., Helmick, C. G., and Brady, T. J. (2012). A public health approach to addressing arthritis in older adults: The most common cause of disability. *American Journal of Public Health*, 102(3): 426-433.

² <https://www.cdc.gov/arthritis/interventions/index.htm>

Figure 1. In-depth interview topics



Participants were current CDC Arthritis Program grantees, identified collaboratively by NACDD, CDC, and Westat. Participants represented a mix of returning grantees and new grantees who had not previously received CDC Arthritis Program funding. The following grantees participated:

- Missouri Arthritis Program, University of Missouri
- National Recreation and Park Association
- New York State Department of Health
- Oregon Health Authority Public Health Division, Chronic Disease Section
- Utah Department of Health, Utah Arthritis Program
- Virginia Department of Health, Prevention and Health Promotion

2.2 Expert Review

The objective of the expert review was to identify strengths and weakness of existing AAEBI program locator tools from an end user perspective (i.e., patients or caregivers). NACDD and CDC identified the following locator tools for the review:

- Evidence-Based Leadership Council (EBLC) Tool (<http://www.eblcprograms.org/evidence-based/map-of-programs/>)
- CDC’s Diabetes Prevention Program (DPP) Tool (https://nccd.cdc.gov/DDT_DPRP/Programs.aspx)
- Arthritis Foundation’s Resource Finder (<http://resourcefinder.arthritis.org/>)
- Workshop Wizard Tool (<http://pathstohealthnm.net>)³

Two Westat usability experts jointly reviewed and discussed the four program locator tools in August–September 2018. As we interacted with each of the first three sites listed above, we took the role of a person searching for AAEBIs using the Westat office in Rockville, Maryland area as the focal location. For

³ New Mexico’s Paths to Health was used as an example of Workshop Wizard for the purposes of this study.

the fourth site, we searched for a Chronic Disease Self-Management Program (CDSMP) workshop in Albuquerque, New Mexico.

We conducted basic searches with each site, which exposed us to a homepage (or other page within a larger site that presented the start page for a search) and a results page. If the site provided the means to filter or narrow search results, we reviewed those capabilities/steps. We also looked at any additional features the site offered to support the user task of locating programs.

Findings: Needs Assessment

Insights from the stakeholder IDIs are presented in the following sections:

- Grantee organization's current program locator tool activities.
- General observations of grantee needs and priorities.
- Grantee thoughts about the feasibility of a national AAEBI program locator tool.
- Grantee perspectives on the role CDC should have, related to facilitating a national program locator tool.
- Review of the content and user experience of the four pre-selected tools and one other tool of the grantee's choosing if they had an example of one they found effective or promising.

3.1 Current Activities

3.1.1 Current Locator Tools Used

Of the six grantees interviewed, three were currently using Compass by QTAC. In addition to using Compass's program locator tool, these programs were using Compass as a database to keep track of workshops offered and tabulate reach numbers. Two grantees said that they had engaged a contractor to enhance Compass's program locator feature.

Another grantee was working with its own research department to maintain a locator tool that was available on its website. However, they primarily viewed the purpose of this locator tool to support its partnerships, as opposed to helping the public locate new programs.

Once we have a new set of grantees roll in we get it together and put it on the map. We get questions, who are you funding for research opportunities. Like AMA asks, 'what programs are in our area' so I can establish a partnership, to facilitate those connections.

The remaining two grantees were not currently using a locator tool. One of these grantees had previously used Compass—including its program locator tool—but their program had since migrated over to Workshop Wizard for their data management. The other grantee, a new state arthritis program, was currently in the process of identifying a tool.

3.1.2 Grantee Needs

Grantees perceived two end user audiences for their work: 1) the public, and 2) implementation partners. While grantees were engaged in developing and implementing strategies to increase access to AAEBIs, grantees were generally not implementing AAEBIs themselves; they relied upon their partners to do this. In this context, the program locator tool could not only help members of the public identify a program near them, it could also help their partners assess need for AAEBIs in their local communities.

All grantees emphasized that a locator tool was one, small piece of a larger suite of data solutions they needed to manage their programs.

On the front end, public facing, [we need] calendar information. On the back end, peer leaders can use it, and they can add time date location and a data repository. A location tool is icing on the cake, good only to an extent.

Two of grantees interviewed said internal staff conducted the data entry. However, the other four grantees relied on their partners to update current workshop and class information in their systems. For these grantees, their partners needed access to the database so they could input the information.

Several grantees noted that they wanted to do more to incorporate bidirectional physician referral into their database solution. Compass's technology in this respect was seen as "rudimentary" and "outdated." These grantees discussed the need for better integration with provider electronic health records (EHRs), especially with widely used EHR software packages like Epic.

[Compass] doesn't have a lot of communication back to the provider and it doesn't connect with reimbursement or invoicing.

The feedback [from healthcare providers] has been 'if the system were a little better we'd use it, but we wouldn't use the system because it's not built into our EHR and it's not that easy to do.'... If you can't integrate it in with Epic or the three largest ones you're probably never going to do it.

All grantees expressed a strong desire that the tool accommodate multiple evidence-based interventions. Some grantees mentioned that they had been disappointed with Compass's focus on self-management programs. At minimum, grantees wanted a tool that could accommodate all AAEBIs. Grantees in states with strong collaboration across chronic disease programs wanted even broader coverage: AAEBIs and other evidence-based programs offered by their organization.

I think it needs to be broad, inclusive of multiple programs. We wouldn't want just one locator tool for diabetes programs, and arthritis programs. But one tool at the state level, providing data to the local level, that could be useful.

3.1.3 Experience Using Compass by QTAC

For the most part, grantees using Compass were satisfied with their experience. They described Compass as "easy to use" and an "excellent data management source." They had also invested (or were in the process of investing) considerable time and effort to set up the system and shape it into a product that met their myriad needs.

At the same time, there was a growing concern among some grantees that Compass may not be able to meet future state arthritis program needs. A couple grantees had experienced challenges with QTAC's responsiveness when seeking technical support. One grantee expanded on this point, discussing the mismatch in vision between QTAC and their state arthritis program.

The Compass tool is great as far as they have built it, but it's not where we want it to be. We want to be integrated with Tobacco Quitline referrals, cancer screenings within the tool...an all in one place, Living Well, Epic. When we got that question going, even adding DSMP, [they said] we don't want to go that direction, just self-management

programs. Even adding Walk With Ease and AFEP are problematic because it's not the vision or direction. We've grown, [looking for] more health care physician referral and QTAC doesn't fill that need for the future. It's done. It is what it is, and we need more.

Two grantees also indicated that Compass was not well set up for partners to enter in data from their own workshops. One grantee described Compass as “not flexible” and “difficult to customize to state needs.” Another grantee disliked that her partners were unable to easily generate reports from the data they had inputted.

3.1.4 Audience Needs

Grantees emphasized that the program locator tool has two audiences: the public (i.e., potential participants) and their implementation partners. Grantees felt somewhat removed from the public audience; one described arthritis program coordinators as “strategists for strengthening the linkages to promote chronic disease care.” Therefore, they said they rely upon their partners for information about how workshops are being disseminated and for feedback about such products as locator tools. Grantees felt that these two audiences had different sets of needs for a program locator tool.

For the public, grantees noted that the target audience was older, potentially visually impaired, often not web-savvy, and often with limited access to transportation. Therefore, it was very important that the website be easy to use. Also, grantees felt it was important that the search tool streamline the ability not only to locate a program, but to be able to register for a class in the same search session. A common set of themes emerged about important features for the public end user:

- Simple, intuitive website.
- Results presented on a map.
- Plain language, minimal verbiage.
- In addition to program location, provides times and dates of classes and a way to get more information (e.g., a contact person).
- Provides an easy way to sign up for classes.
- Provides general information about the AAEBI.

Partners, in contrast, needed a clean interface for both search and data entry. One grantee said that “we can’t separate one from the other.” For search display, two grantees said they used locator tools when engaging new grantees to identify programs in their local area and identify opportunities to offer further services or enable cross-referral. For partners, the following program locator features were mentioned as desirable, in addition to those needed for the general public:

- All AAEBI classes/workshops offered by the state should be listed in one place.
- Contact information available, so a partner can follow up with the organization offering the program.
- Ability to embed the locator tool on a partner’s website.

Four of the six grantees interviewed tasked their partners with entering workshop data into their system. These data included dates and times of workshops and reach counts. They anticipated that inputs about workshop locations, dates, and times would be recalled during a program locator search. States who asked partners to directly enter this information also had back-end needs for the system:

- Ability to grant read/write access to multiple users

- Ability for partners to retrieve their own data for evaluation purposes
- Simple back-end interface that streamlines the data entry process

After open-ended discussion, grantees were asked to rate the importance of various program locator characteristics (Table 1). Though all presented characteristics were rated highly, grantees assigned the most importance to “frequency with which the listed information is updated” and “user friendliness.” “Cost” and “maintenance or support of the tool” also rated highly. In an open-ended other specify item, two grantees mentioned information related to informational details about the program (e.g., contact information), and three grantees mentioned the need to include bidirectional physician referral.

Table 1. Importance of AAEBI program locator tool characteristics

Locator Tool Characteristic	Average Rating*
Frequency with which listed information is updated	3
Amount of program information in the search results	2.67
User friendliness	3
Ability to filter search results	2.5
Cost	2.67
Maintenance or support of the program locator tool	2.67
Ability to share or embed the tool on your partners’ websites	2.5
Other, please specify: _____ <ul style="list-style-type: none"> • Additional detail including frequency, contact info • Program contact information • Referral and registration mechanism • EHR/EMR integration (Bidirectional referrals) • Ability to make referrals, collect back-end data 	3**

*Averages based on the following scale values: 1 = Not at all important, 2 = Moderately important, 3 = Very important.

** One interviewee did not give an answer response for this question, so the average is based on 5 responses.

3.1.5 Attitudes Toward a National Locator Tool

All grantees were enthusiastic about the idea of national locator tool. Potential advantages of such a tool included the ability to search for programs across state lines and, more importantly, standardization of CDC expectations for tracking and data collection.

I think that would be amazing, it’s needed. Consistency is key to ensuring that all grantees working with evidence-based interventions are collecting the same type of information, it’s necessary... There’s an expectation that we are collecting the same data. It will make it easier for us to manage and collect the same information.

For a national tool to succeed, grantees felt the tool should be comprehensive, covering multiple evidence-based programs. At minimum, grantees felt all AAEBIs should be included, while those in states with highly integrated chronic disease programs indicated a need for broad inclusion of AAEBIs and other evidence-based interventions (e.g., EBIs for persons with diabetes, Administration for Community Living (ACL) programs, etc.) Several grantees added that the system should be able to be integrated with electronic health records (EHRs). These participants mentioned CDC’s new grant requirements for bidirectional referral with health care professionals and felt that integration with EHRs was important to their ability to meet that grant requirement.

Grantees also identified potential disadvantages with a national tool. Management logistics were the most frequently mentioned concern. Grantees were concerned about introducing pipelines or gatekeepers that could delay data entry, limiting the system's ability to provide current, accurate information. One grantee felt that it would be expensive to develop such a system, and another worried about the sustainability of such a big project. Finally, another grantee was concerned that a national approach could limit states' flexibility to add special features.

3.2 Future Strategy

3.2.1 Feasibility of a National Tool

Five grantees felt that a national locator tool was feasible, and one grantee was unsure. Though the benefits of a national tool were clear to grantees—especially regarding standardization of reporting requirements—two grantees said, for their part, the tool would need to offer features and functionality that “match or surpass what we have” in order for them to buy in.

Grantees that relied on partners for data entry also emphasized that the project should be to build one, comprehensive system. Partners, they felt, should not be asked to enter program information in more than one place. Said one grantee, “I don't think we could convince them to enter data twice.” From a marketing and dissemination perspective, too, the tool would have a higher likelihood of being used if all the programs were listed.

They also recognized to be successful the comprehensive tool would need to bring together many national stakeholders, extending beyond CDC's arthritis program. Examples of these stakeholders included the Arthritis Foundation, Sound Generations (which owns the rights to EnhanceFitness), NCOA, other CDC chronic disease programs, and ACL.

3.2.2 CDC's Role

Grantees agreed that CDC has a significant role to play in the development of a national locator tool. At the simplest level, CDC was seen as having the financial resources to support the tool. Grantees also pointed out that CDC is able to bring together the various stakeholders that can provide input in the development of the national tool. Moreover, it is CDC who reviews the literature and determines which AAEBIs are recommended; CDC, therefore, has the authority to determine which programs should be included in the tool.

Grantees also expressed a strong sentiment that—through a data collection system—CDC set common parameters on reporting measures, which in turn would allow them to better meet their grant deliverables. Setting common parameters and measures also facilitates information sharing, as it becomes easier to compare outcomes across grantees.

The standardization isn't in finding the programs as much as how the data is collected, how it can be merged and compared, the ease of entering that data, and helping partners link to health systems for referrals. If that is standardized then we can track its effectiveness across states, or else different states will have a different way of collecting their data. [That makes it] hard to compare, learn what's effective, [and makes it difficult for us] to learn from one another.

3.2.3 Organization to House a National Tool

Though grantees agreed that CDC had an important leadership role to play in facilitating the development of a national tool, they were less confident that the tool should be housed at CDC. Though CDC was seen as having the capacity to handle a national database, some grantees were concerned that “red tape” could delay data entry and compromise the accuracy of the information. National organizations like NACDD or COAW were mentioned as possible alternatives because they had greater flexibility.

A private organization or a public, non-governmental organization would be better able to house the tool than a government organization, because they have more freedom to do things that a governmental organization may not have due to red tape.

In particular, NCOA’s Domo system was suggested as having the possible foundation for expansion, on which a program locator could be built. Two grantees mentioned that NCOA is already able to connect with states’ existing Compass databases, and one of these grantees noted that it may be possible for Domo to add on a front-facing user interface.

I think they have an awesome base and it surprised me they didn't have that in the beginning but I get it...they wanted to be a data repository. But I think they are missing so much with Domo. It could be back end database system with a program locator in front.

3.3 Tools Review

Each grantee viewed and discussed their opinions of four existing program locator tools. For each tool, the interviewee was asked to complete a basic search task (e.g., find an AAEBI near you). Subsequent discussion focused on their reactions to the tool, its strengths, weaknesses, and suggestions for improvement. Grantees were provided the opportunity to examine the tools prior to the interview.

3.3.1 Evidence-Based Leadership Council Tool

<http://www.eblcprograms.org/evidence-based/map-of-programs/>

Most grantees said they had some exposure to EBLC’s tool prior to this research; one grantee said she was “quite familiar” with it, four grantees were only a little familiar with it, and one grantee was not familiar with it at all. The grantees who were a little familiar with the EBLC tool had heard about it through a webinar while looking for a new tool or through the CDC Arthritis Council calls.

Strengths. Grantees responded favorably to EBLC’s clean design and the availability to filter by multiple programs. The following are specific strengths mentioned about the EBLC program locator tool:

- Nice presentation; it’s “pretty obvious what I need to do.”
- “User-friendly, aesthetically pleasing, not a lot of noise.”
- Permits users to search using various types of search data (e.g., zip code, city, state, country, distance, program type).
- Provides “a wide array of program offerings listed,” including AAEBIs and other evidence-based interventions.
- Has an “intuitive map.”
- Easy to use map to “drill down and be specific.”
- Allows a grantee to “embed the tool on an existing website.”

Weaknesses. Grantees, however, noted several weaknesses of the EBLC tool. Several were very concerned with the accuracy of content on EBLC’s website. One participant, for example, noted the listings were “blatantly out-of-date,” while another noted that license holders were listed as program sites, even though they were not offering workshops. A couple grantees who were familiar with the tool also mentioned EBLC’s recent addition of a fee to list the program on their website. Grantees mentioned the following weaknesses of the EBLC tool:

- “License holders” are listed as program locations, even though they are not holding programs themselves.
- The types of information provided is not consistent across each program listed.
- The system for updating the program information is “clunky.”
- The fee to have programs listed (“\$20 to list an agency”) is “problematic” and a “deterrent” from using the tool, because it would be a “barrier for smaller organizations” with limited financial resources. The cost was perceived as too expensive for grantees with many partners.
- The costs of posting are not worthwhile, “especially since the information listed does not direct users to specific programs.”
- During search, if a user only selects programs and does not enter a city and state or zip code, the little searching pinwheel appears and remains, returning no results. The same issues occur when searching the entire country.

Suggestions for changes. When asked what they would like to see changed, grantees offered a number of suggestions. These included:

- Regularly updating the program information so it remains correct and relevant.
- Improving the system for updating information, so it is a smoother process.
- Having program listings provide further details such as:
 - a. The dates and times of the programs.
 - b. An indicator of distance from the zip code entered.
 - c. Information stating whether or not the program is free or has a fee.
- Providing information consistently across programs (e.g., email address, phone number, address of the actual program).
- Providing “a direct link for registration or referral.”
- Offering “multiple ways to register, including online.”
- Adding a description of what the programs are to prevent users from being “deterred easily” because they do not readily know the correct program name.
- Though it is included on the list of Self-Management programs during the program search, Tomando Control de su Salud (Spanish CDSMP) should also be categorized as a CDC Arthritis Appropriate Evidence Based Intervention.

3.3.2 Diabetes Prevention Program Tool

(https://nccd.cdc.gov/DDT_DPRP/Programs.aspx)

The majority of grantees reported at least some exposure to CDC’s Diabetes Prevention Program (DPP) tool prior to this research. One grantee was familiar with the tool, three grantees had some familiarity with the tool, but did not use it directly, and two grantees were not familiar with the tool at all. The grantee who was familiar with the tool said she did not use it that often, but was “familiar with it from

other funding opportunities,” and from “a programmatic standpoint.” The three grantees who were somewhat familiar with the tool had encountered it when working with diabetes prevention programs in their respective states.

Strengths. Grantees liked CDC’s DPP tool’s user-friendly interface, the ease with which end users could find the information provided, and that CDC sponsorship gives legitimacy to the resource. Strengths of this tool included:

- Being simple and easy to use. The information available is seen as “easy to find.”
- Providing the distance of a program from the zip code provided and giving a contact phone number.
- Being “authoritative.” Because it is a CDC tool, on the CDC website, it “provides the public with confidence in what they are looking for.”
- CDC making efforts to keep the tool updated.
- Grantees being able “to pull up and see what diabetes programs are available” and “do cross-referrals,” which is a grant deliverable.
- Having information about the program on the left navigation.
- Having a “great” testimonials section so users “can learn about others’ experiences.”
- Being “targeted” to a specific audience “who is supposed to use the tool.”
- Having information about screening, “thinking from the provider perspective.”

Weaknesses. Some overarching concerns of CDC’s DPP tool related to there being “limited” or not the right kind of information provided, as well as a lack of quick and easy ways to sign up for classes. For instance, one grantee mentioned that “location is only a small part of knowing the availability,” while another grantee explained that providing only a phone number or email address to sign up for a class “decreases the chances a person will follow-up.” Grantees mentioned the following weaknesses of the CDC DPP tool:

- Key pieces of information are missing from the listings (e.g., a contact person, when classes are offered, program/class specific information), requiring “extra steps” on the part of end users. “Every step the user takes, the fewer users will follow through.”
- Only able to search by zip code, and not city and state, so it would be difficult for people who want to do classes in other areas to get the information they need.
- Many people are “navigating outside of business hours,” so providing a phone number would force people to wait to get more information.
- There is “no back-end,” so there is “no way to report the data,” such as contact information.
- Only provided a phone number to register rather than the option to register online. One grantee perceived this as the tool’s “biggest downfall.”
- It is unclear how often the information in the tool is updated, especially since the tool has CDC as its gatekeeper.
- The tool is an organization locator and “not a tool for an end user or for a healthcare provider to make a referral.”
- “When I wanted to look for a new class, [the tool] backed me out completely of the whole thing, starting again.” In other words, it started the user “from zero,” rather than offering the option of going back one step.
- Some results found showed a gym, which made the user wonder if they “have to be a member to participate?” and if the program was free to them or not.

- The “landing page feels cold, looks like a government site.”

Suggestions for changes. Grantees offered a number of suggestions when asked what they would like to see changed. These included:

- Showing the frequency and when classes are being held.
- Adding, at a minimum, a link to the organization’s website with a link to their classes.
- Adding an email and/or contact person as well as an online registration option, so potential participants would “know who to ask for” or “be able to find a class and register on the website all in the same experience.” This would also reduce the amount of time “between when a person finds a class and when they actually sign up.”
- Having the icons on the map match the listing provided to the left.
- Making it as easy as possible for participants to sign up for classes, such as maybe working with states to set up programs where participants “referred to a program by a healthcare provider, can sign up for a class at check-out [at the doctor’s office].”
- Creating a more interactive referral process rather than just a printed list of classes.
- Having individual programs available on the locator tool, and “not just the organizations sponsoring the programs.”
- Making the maps interactive, so users “can get directions to the particular locations.”
- Allowing end users to search by city and state rather than zip code. Friends or family members trying to help a potential participant “may not remember” that individual’s zip code, but they likely know their city and state.
- Incentivizing community-based partners to provide their own information by “providing them with data management.”

3.3.3 Arthritis Foundation Resource Finder

(<http://resourcefinder.arthritis.org/>)

Almost all of the grantees had at least some familiarity with the Arthritis Foundation Resource Finder prior to this study. One grantee was “quite familiar” with the tool, explaining her organization has a “partnership with the Arthritis Foundation” and provides them with “data to populate their resource.” Four of the grantees reported some familiarity with this tool, having recently used it for their grant applications, or exploring it to see “how it would fit as a supplement” to the organization’s current program locator tool. Only one grantee had never seen this tool previously.

Strengths. Grantees responded favorably to the Arthritis Foundation Resource Finder’s level of detail in search results for classes, the fact that it serves the needs of its audience (adults with arthritis) well, and its perceived legitimacy because it has the Arthritis Foundation name attached to it. The following specific strengths were mentioned by the grantees:

- Has a “simple, basic presentation,” good “search functionality,” and was “easier to find classes and class schedules compared to other tools.”
- Serves its target audience, adults with arthritis, well, and “creates a place where they would come for support.”
- Does a nice job to “segment to specific audiences.”
- Provides important details in search results, such as distance, specific days and times of some classes, and overviews of specific classes.

- Divided into topical areas.
- Has legitimacy, because it has the Arthritis Foundation name attached to it.
- Program providers know how to update the data.
- Has the foundation helpline available for end users.

Weaknesses. However, grantees remarked on a number of weaknesses they found with the Arthritis Foundation Resource Finder. Because the program locator is one of several resources included on the tool, interviewees thought the “layout [was] not intuitive,” and it was unclear of what the tool was “trying to do.” Additionally, a number of grantees thought it was difficult to find specific classes. There was no indication which classes would be available through the tool, and one grantee thought the resource finder was “extremely limited in scope” because it only offered Arthritis Foundation programs. Grantees mentioned the following weaknesses of the Arthritis Foundation Resource Finder:

- The resource finder, which provides access to several types of resources, lacks a clear focus of its purpose.
- The terminology “resource finder” does not effectively communicate to an end user this is how they can “find a workshop or class.”
- The design of the tool, with expandable options is confusing. “Confusing as to which main tab to click on.”
- Tool is “not as user-friendly or straightforward,” and the interface is kind of “clunky.”
- Tool returns an error when the full state name is entered and not just the two-letter state abbreviation.
- The end user needs to know the city or zip code for where they want to search. “There’s not a broader search by state.”
- Zip code and city-based tools are problematic, because they do not ensure “programs are available in rural areas.” In other words, if a program is not in the zip code or near where that person lives, then “that person doesn’t have any options.”
- Unclear what “Name (optional)” means in the search criteria. Grantees asked:
 - Is it referring to the individual’s name or the workshop name?
 - Would end users know the names of programs?
 - Do program names need to be exact or would more general terms yield results?
- Tool returns back “a lot of different programs and classes which are not all evidence-based,” the AAEBIs are buried.
- Not readily apparent when multiple pages of results are returned to the end user.
- Cannot search and filter based on program.
- Does not link end user to outside website for more information, it keeps you on the Arthritis Foundation website.
- “Not clear what program options are available in the tool.”
- The tool, focusing only on Arthritis Foundation programs, is limited in scope. “Only helpful if you’re looking for arthritis programs, not others.” Another grantee felt the foundation is “only pitching their products.”
- As a regular end user, one interviewee thought that the ‘Fitness Programs & Professionals’ tab was for instructors and not for a person with arthritis.
- Unclear as to what qualifications and certifications the professional health coaches listed possess.

Suggestions for changes. When grantees were asked what they would like to see changed, they offered a number of suggestions. These included:

- Make sure the AAEBI programs are not buried under other less relevant and/or appropriate classes.
- Add the ability to filter searches by program.
- Create a “mechanism for registration” rather than relying on “the end user to make another call.”
- Integrate arthritis programming with programming for other health conditions. Because arthritis is a “comorbid condition,” both the public as well as referrers may not be “looking for a class” specifically for arthritis.
- Change the ‘Name (optional)’ text search field to a “dropdown box of all the programs the Arthritis Foundation does feature.”
- “Rethink this entire tool. It needs a bit of an overhaul.” Redundancies need to be reduced (i.e., having ‘local offices’ in two places), the number of icons needs to be reduced, because “it is way too busy,” and the page just needs to be “streamlined” so it is “much easier to navigate.”

3.3.4 Workshop Wizard Tool

(<http://pathstohealthnm.net>)

There was a wide range of familiarity with the Workshop Wizard Tool; two grantees were “quite familiar” with it, two grantees had “only heard of it,” and two grantees had no familiarity with it at all. Of the two grantees who were “quite familiar” with Workshop Wizard, one mentioned her organization had received “demos a couple of different times,” while the other mentioned her organization currently uses it as a data repository for CDSMP, because it is the “only thing similar to what Compass used to be.”

Strengths. Grantees liked that the Workshop Wizard tool was “all-encompassing” and offered a great deal of detail about specific workshops. One grantee described Workshop Wizard as being closer to what she would consider a “one-stop-shop program locator.” Another grantee expressed that Workshop Wizard “gives you everything that the public needs, and also provides everything the peer leaders need in order to share the information publicly, but also report that data.” Furthermore, several grantees were impressed with the provider referral component of the tool. One grantee, however, did not find any strengths with this tool, because it was “confusing” to her. Strengths of this tool included:

- Providing program locations, dates, times, descriptions, contact names, contact phone numbers, and contact emails, as well as information on how to register.
- Detailing sites currently offering classes and those that will offer classes in the future.
- The state can name the locator tool whatever they want (e.g., New Mexico decided to call it Paths to Health).
- All of the “pertinent information is given in one location.”
- Offering a wide variety of classes and programs.
- Ease of finding a class.
- Offering a referral mechanism for healthcare providers.
- Having registration forms available online.
- Providing a lot of resources under the “Forms” tab. This “gives participants an overview of what to expect when they get to the class.”

Weaknesses. When asked to comment on Workshop Wizard’s weaknesses, the majority of grantees experienced navigational and search issues. They felt there were “not a lot of options to drill down your search,” and the map was “not high functioning.” One grantee found the tool to be “very rudimentary,” and she did not understand how “to search for a class without clicking on the map.” Another grantee stated, “This locator is really missing the mark. Web technology has come so far and this is so far behind.” Grantees mentioned the following weaknesses of the Workshop Wizard program locator tool:

- Generally, it is confusing to the end user as how to search. “It could be more straightforward.”
- There is “no overall search functionality.”
- The search function only takes the end user to the list of classes. “It does not allow the end user to type in a zip code or city to pull up a list near them.”
- There is “no narrowing, you have to scroll through all the programs to select the one you are looking for.”
- The process of getting to the program an end user is looking for is “clunky” because it requires you to scroll through all the programs.
- Users “have to work to find the schedule” when clicking on the map.
- A map is not the best presentation tool for the information, because sometimes an end user “just wants to see a list,” and having to zoom in and out on the map is “hard to figure out.”
- The map does not show how to get to the classes in a given locale.
- When an end user zooms in and mouses over a dot, he/she receives a prompt that instructs him/her to click for more information. “I think that would frustrate a user. I don’t want to have to click anything, I just want you to present it to me as easy as possible.”
- To find a certain class in a particular area, the user has to “look at the legend down below,” click one of the “green” dots, because those are the only current classes, and then he/she has to proceed to click each green dot to find the class he/she desires.
- When an end user clicks on a green dot on the map, it tells you when the class starts, but not how to register.
- The “only way you can find the details [about programs] is if you click on ‘classes,’ so it is not super intuitive, especially with the title being ‘Find a Class.’”
- The only clickable portion on the program description page is the email address.
- “It would require a lot of time to keep the program provider information up-to-date on the tool, because ... that sort of information changes weekly if not daily.”
- The materials are helpful, but “do not need to live on the same webpage as the locator tool.”
- The ‘Get Information about Our Programs’ link is not intuitive. An end user may think that will take you “to a page about the programs offered, but it actually takes you to an email link.”
- It is easier to click through the classes than it is to use the map to find a class.
- “The name of these programs can be problematic for attracting members of the public and making them good about attending these classes. They seem more for referrers.”
- The end user needs to know what class he/she is looking for, because he/she can only look at one class at a time.
- “Curriculum” is an odd way to say “class” for the general public.
- Concerns about how flexible the tool can be if it covers an entire state or country.
- Providers may have concerns about whether or not they will get communication back from the programs about their patients.

Suggestions for changes. When grantees were asked what they would like to see changed, they offered a number of suggestions:

- Redesigning the tool “with less clicks.” End users “have to click 4 times to get the details.”
- Cleaning up the homepage. “What is the purpose of having both [the ‘Improve your health with a class’ button and the search button] when they go to the same place?”
- Aesthetically, increasing the font size and eliminating the banner of pictures at the top, because “they are kind of noisy.”
- Adding the frequency of the classes.
- Adding addresses for the future sites on the map.
- Having “the data that pops up for each dot [on the map] be a hot link to get specific information. The fact that you have to go through a different avenue to get the information needed to sign up would probably lead to a disconnect by an end user.”
- Creating functionality so end users could register or contact someone through the website to register, so it is more of a “one-stop-shop.” This includes having a phone number or link to register to reduce the burden on the end user.
- Having Google Maps or some other option pop up so end users can get directions to the desired location.
- Making registration and referral forms electronic and automated to reduce the amount of paperwork as well as back and forth.
- Adding links to details about what the programs are to the providers section.

3.3.5 Other Program Locator Tools Recommended by Grantees

Grantees were asked to suggest other program locator tools they were aware of that they found effective and/or promising. Of the six grantees, three identified an additional program locator tool. Each of these tools is discussed below, along with the grantee’s perceptions of the tool’s strengths and weaknesses.

YUSA EnhanceFitness Program Locator (<http://www.ymca.net/enhancefitness>). The Y’s program locator tool is located on the bottom of their EnhanceFitness page. The grantee who mentioned this liked that “it’s user-friendly, it’s simple design, it’s so straight-forward. I don’t have to click through a bunch of different icons to get to that page.” The grantee also liked that it was a national tool, and “basically tells you and shows you everything a lay person needs to know.” The main critique of this tool the grantee had was that the Y listing should be an active link and not just a physical address. Without these active links the tool is “making me do more steps as a public person.” The grantee also wanted the tool to include the days and frequency in which the program meets as well as a contact phone number for individuals interested to call.

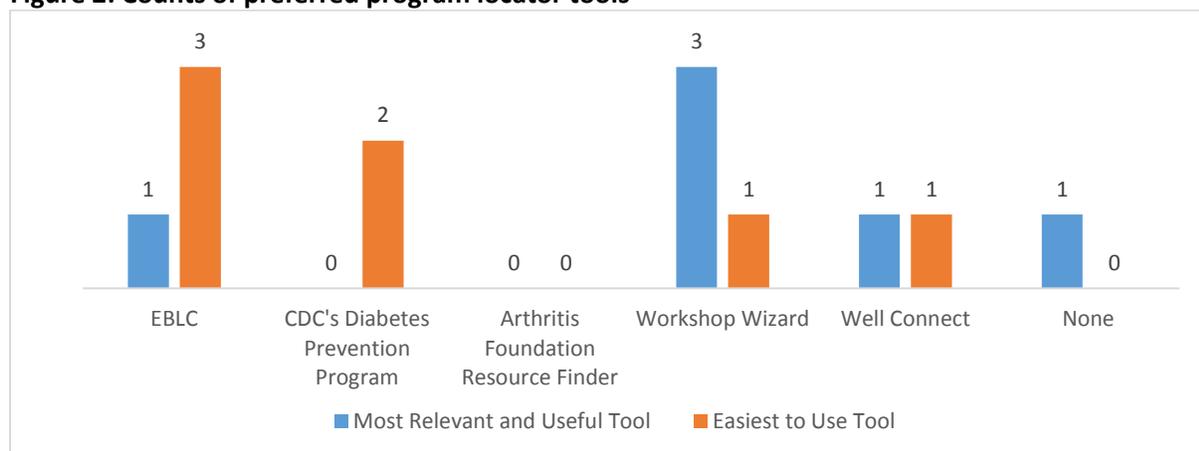
Well Connect Southeast Minnesota Partnership Program Locator (<http://www.wellconnectseminn.org/>). The Well Connect program locator tool can be found by clicking the “FIND A PROGRAM NEAR YOU!” button prominently displayed on the homepage. The grantee who mentioned this site found this tool to be very relevant, because “it is completely mobile-friendly. It’s non-device dependent, which is really important for us going forward.” In addition, the grantee said that the developer does her own demonstrations and is open to considering enhancements that a grantee may want or need. Furthermore, the developer “has the forethought to know that EHR integration is coming,” and knows if her company does not provide that “they will be left behind.” Furthermore, this tool’s database on the back-end is very “flexible and scalable,” while their program locator front-end piece is “far and above anything we have ever seen.” The one downside of this tool is “the cost is prohibitive for states. They can’t bear that cost themselves.”

Wisconsin Institute for Healthy Aging Program Locator (<https://wihealthyaging.org/workshops>). The Wisconsin Institute for Healthy Aging program locator tool can be found by clicking the “Find a Workshop” link on the right side of the “Find a Program” page. The grantee who mentioned this tool found this program locator tool to be promising, because it allows the end user to “select a specific program, select a specific county, ... [or] look at programs for the entire state, and then it gives a very succinct table of the dates the classes are offered, the location and time, and how to contact somebody to either register or to know how much the class costs.” Due to time limitations during the interview, the grantee did not elaborate any further about this program locator tool.

3.3.6 Comparison of Program Locator Tools

Following the review of each of the program locator tools, grantees were asked to draw comparisons across the various tools to identify: 1) which tool they thought was most relevant or useful to them, and 2) which tool they thought was easiest to use. Figure 2 displays the number of times each tool was mentioned in response to these two questions.

Figure 2: Counts of preferred program locator tools



Of the six grantees, half found Workshop Wizard the most relevant or useful. Reasons for their selection included that Workshop Wizard “has the most features end users and administrators are looking for,” and it provides “a description, of programs, [allows you to] register, and [it has] a provider component as well.” Among the other three grantees, one grantee selected Well Connect “if cost were not an issue, because it’s flexible, going to solve the EHR/EMR problem, mobile-friendly, and heading in the direction of adding more enhancements and features.” Another grantee chose EBLC because “it has the most potential” since it offers “a listing of the programs, and you can drill down to the program you want to engage in.” Finally, the last grantee said she could not select any of the tools, because none of them “are incentivizing partners to enter their own data.”

Meanwhile, three grantees identified EBLC as the easiest to use, saying it was “pretty user-friendly, easy to navigate, seemed more intuitive, [allowed users to] filter down by program type,” “was quick,” and allowed you to “customize what [you] are looking for.” Grantees who selected CDC’s Diabetes’s Prevention Program said it was the “easiest not necessarily the best. You put in your zip an you’re good to go.” The grantee who selected Well Connect did so because it “has an amazing workshop search and back-end database, is easy to use, and mobile-friendly.” Finally, the grantee who chose Workshop Wizard liked its comprehensiveness; “you had to click four times, but it gives you information.”

Findings: Expert Review

As noted previously, two Westat usability experts conducted a review on the four program locator tools discussed in the needs assessment. For each program locator, expert review observations are organized into the following sections:

- Positive comments
- Homepage (presentation, layout, and structure)
- Search function
- Results page
- Other observations, where relevant (additional capabilities, features, etc.)

After the description of each observation, we provide in brackets the following two judgments:

- The applicable usability principle(s), based on Nielsen’s 10 heuristics (Table 2), and
- The severity level (high, moderate, or low, Table 3)—the potential difficulty users might have if they encounter the issue.

Table 2. Usability heuristics*

1. Visibility of system status	The system should always keep users informed about what is going on, through appropriate feedback within reasonable time.
2. Match between system and the real world	The system should speak the user’s language, with words, phrases and concepts familiar to the user, rather than system-oriented terms. Follow real-world conventions, making information appear in a natural and logical order.
3. User control and freedom	Users should be free to select and sequence tasks (when appropriate), rather than having the system do this for them. Users often choose system functions by mistake and will need a clearly marked "emergency exit" to leave the unwanted state without having to go through an extended dialogue. Support undo and redo.
4. Consistency and standards	Users should not have to wonder whether different words, situations, or actions mean the same thing. Follow platform conventions.
5. Error prevention	Even better than good error messages is a careful design which prevents a problem from occurring in the first place.
6. Recognition rather than recall	Make objects, actions, and options visible. The user should not have to remember information from one screen to another. Instructions for use of the system should be visible or easily retrievable whenever appropriate.
7. Flexibility and efficiency of use	Accelerators—unseen by the novice user—may often speed up the interaction for the expert user such that the system can cater to both inexperienced and experienced users. Allow users to tailor frequent actions.
8. Aesthetic and minimalist design	Dialogues should not contain information which is irrelevant or rarely needed. Every extra unit of information in a dialogue competes with the relevant units of information and diminishes their relative visibility.
9. Help users recognize, diagnose, and recover from errors	Error messages should be expressed in plain language (no codes), precisely indicate the problem, and constructively suggest a solution.
10. Help and documentation	Even though it is better if the system can be used without documentation, it may be necessary to provide help and documentation. Any such information should be easy to search, focused on the user’s task, list concrete steps to be carried out, and not be too large.

* Nielsen, J. (1994). *Usability engineering*. Elsevier.

Table 3. Severity ratings

High severity	Issues that have the potential to interfere with task completion and may lead to abandoning the task (or leaving the site).
Moderate severity	Issues that have the potential to cause slower performance and/or frustration, but do not prevent the user from completing a task and moving on. (Collectively, these types of issues may contribute to perceptions of lower usability and/or utility of the site.)
Low severity	Issues that have the potential to cause temporary confusion or hesitation, but are not likely to interfere with task completion. (Cumulatively, these types of minor issues may still add to user frustration.)

As a caveat, we note that the observations are not exhaustive; additional positive points and issues might surface with more intensive interaction with a tool (e.g., using additional approaches to search or based on the likely needs of another target audience). Issues noted during an expert review might not occur when members of the target population use a locator tool. However, it is reasonable to assume that real users in similar circumstances might have similar difficulties when using the tools to locate programs in their own communities.

An at-a-glance view of the assessment for each program locator tool reviewed is provided in Tables 4–7.

Table 4. Evidence-Based Leadership Council Tool*: Summary of expert review findings

Locator Tool Section	Severity Level		
	High Severity	Moderate Severity	Low Severity
Homepage		<ul style="list-style-type: none"> Affiliate Log In button Map of Licensed Organizations link Map Buttons for program administrators 	<ul style="list-style-type: none"> Page title
Search Function	<ul style="list-style-type: none"> Search parameters Wait time Search parameter persistence 	<ul style="list-style-type: none"> Distance options 	<ul style="list-style-type: none"> Select Programs button Search buttons
Results Page		<ul style="list-style-type: none"> Message for No results Results message Map message 	<ul style="list-style-type: none"> Map Legend Search radius Program information
Other Observations		<ul style="list-style-type: none"> Search Results Listing 	
Positive Comments			
<ul style="list-style-type: none"> The starting page has a clean and inviting look, with a simple search area and a map. This site provides very broad geographic coverage (worldwide). The fill box will likely provide users with a sense that there are flexible options for searching, given that entry of zip codes, city & state, state only, or country is allowed. When entering a state name into the search box, the “Search Entire State” radio button is the default for Distance, and entering a country name sets a default of “Search Entire Country.” These defaults may be useful shortcuts for users who wish to conduct those types of searches. As noted above, the site provides key information for each search result (location name, the type of program(s), a phone number, contact name, and address) and provides the means to send an email to the contact person, view the location on a larger map, and get directions to the location. 			

* <http://www.eblcprograms.org/evidence-based/map-of-programs/>

Table 5. Diabetes Prevention Program Tool*: Summary of expert review findings

Locator Tool Section	Severity Level		
	High Severity	Moderate Severity	Low Severity
Homepage		<ul style="list-style-type: none"> • Map 	<ul style="list-style-type: none"> • Color palette • Layout
Search Function		<ul style="list-style-type: none"> • Options for finding an in-person class • Select Location Search 	
Results Page		<ul style="list-style-type: none"> • Results page for zip code search • Location information • Mobile access • Results page for map-based search • Results page for Find an Online Program • Information for online programs 	<ul style="list-style-type: none"> • City page
<p>Positive Comments</p> <ul style="list-style-type: none"> • The site offers users the flexibility of conducting searches in different ways. • The interactive map works in a similar way as maps offered on other sites. Users' knowledge will easily transfer to this site; they are likely to be familiar with how the map works and find it easy to interact with. • The increments for distance (5–50) align well with the likely needs of users. • Having a Go button on the City results page allows a user to avoid backtracking to modify search. • When returning to the Find an In-person Class page after conducting a search by zip code, the prior zip code is offered for autofill when the user clicks the zip code box. Since the prior search parameters are not retained when returning to that page, the autofill is a helpful alternative. • Links are provided to websites for most of the online programs. The icon that indicates the user will leave the site is a helpful visual cue. 			

* https://nccd.cdc.gov/DDT_DPRP/Programs.aspx

Table 6. Arthritis Foundation Resource Finder*: Summary of expert review findings

Locator Tool Section	Severity Level		
	High Severity	Moderate Severity	Low Severity
Homepage			<ul style="list-style-type: none"> • Tagline
Search Function		<ul style="list-style-type: none"> • Name (Optional) box • Resource options to search 	
Results Page		<ul style="list-style-type: none"> • Visual support for search results 	<ul style="list-style-type: none"> • Results message • Repetition of listings • Program listings
Other Observations: Individual Program Page		<ul style="list-style-type: none"> • Back link • Program information • Working with results 	<ul style="list-style-type: none"> • Arthritis Foundation logo and name
<p>Positive Comments</p> <ul style="list-style-type: none"> • The site has an inviting, modern look and uses good color contrast to facilitate readability. • The name of the tool clearly conveys its purpose. • The introductory text on the homepage clearly describes and sets expectations for what users can do with this tool. • The most important content is centered and salient, as well as streamlined and presented in an easily readable way. • The user controls (i.e., navigation buttons, radio buttons, reveal/hide arrows) are intuitive (do not require instructions) and present clear visual clickability cues. • The increments offered as options for distance seem to fit with likely user needs. • The map feature (which shows on each page that presents results for a specific program) is interactive; this will align with user needs and expectations. • Error messages are provided in red font at their exact location, to easily draw attention. • On the results page, a user can easily select different options in the Refine Your Search area to modify the search without having to backtrack to the prior page. The New Search option link is also provided within that same area; its close proximity to the Search button clearly provides the key options users will want to consider at that point. • If a user clicks the New Search link to return to the Arthritis Resource Finder page after conducting a search, the prior search parameters are retained. This makes it easy for the user to refine or change the search, vs. having to start from scratch. • Site visitors can provide feedback about the search function (e.g., what they were not able to find), desired additional resources, and whether they would like to provide and read ratings. These opportunities are likely to make users feel that the Arthritis Foundation cares about its site visitors, which may help to increase likelihood of returning to the site. 			

* <http://resourcefinder.arthritis.org/>

Table 7. Workshop Wizard Tool*: Summary of expert review findings

Locator Tool Section	Severity Level		
	High Severity	Moderate Severity	Low Severity
Homepage		<ul style="list-style-type: none"> • Site audiences • Top navigation vs. left navigation <ul style="list-style-type: none"> ○ Top navigation tabs ○ Left navigation area • Color contrast 	<ul style="list-style-type: none"> • Homepage layout
Search Function	<ul style="list-style-type: none"> • Functionality 	<ul style="list-style-type: none"> • Scrollbar • Curriculum filter 	
Results Page		<ul style="list-style-type: none"> • Workshops vs. trainings • List of Workshops • Map • Pop-ups • Forms page • Future classes • Class information pages • Location visual information • Content for provider audiences • Table format 	<ul style="list-style-type: none"> • Capitalization • Request for a class site • Contact page icons • Class information
<p>Positive Comments</p> <ul style="list-style-type: none"> • This site provides comprehensive information about class content/topics, which users are likely to find valuable in making choices about what will be appropriate for them. Within the class topics, some of the options give very specific information (such as who to contact, phone number, email address) that users are likely to need and appreciate as they make decisions about which one(s) to investigate further or attend. • A nice feature is the “Don’t see a class in your area? <u>Let us know</u>” link that opens a page where the user can submit a city name and any comments. The message makes it sound like classes could be added. This feature will likely make users feel that Paths to Health values its site visitors. However, if Paths to Health is unable to add classes, users may be disappointed. • The map feature is interactive; this will align with user needs and expectations. For example, users may wish to take advantage of the option of using labels for the Satellite view. • The Forms tab provides access to various forms that users could fill out ahead of time for attending a class that they have located via the list of classes. 			

* <http://pathstohealthnm.net>

4.1 Evidence-Based Leadership Council Tool

<http://www.eblcprograms.org/evidence-based/map-of-programs/>

4.1.1 Positive Comments

- The starting page has a clean and inviting look, with a simple search area and a map.
- This site provides very broad geographic coverage (worldwide).
- The fill box will likely provide users with a sense that there are flexible options for searching, given that entry of zip codes, city & state, state only, or country is allowed.
- When entering a state name into the search box, the “Search Entire State” radio button is the default for Distance, and entering a country name sets a default of “Search Entire Country.” These defaults may be useful shortcuts for users who wish to conduct those types of searches.
- As noted above, the site provides key information for each search result (location name, the type of program(s), a phone number, contact name, and address) and provides the means to send an email to the contact person, view the location on a larger map, and get directions to the location.

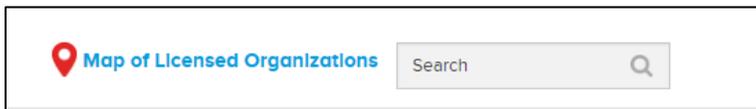
4.1.2 Homepage (start page for the locator tool)

Affiliate Log In button: What additional content do Affiliates see if they log in? Could the site content be targeted to user audience segments, so as to reduce the potential for confusion (for patients/caregivers) and also simplify what users from each segment would see on the screen?

As a way to (1) simplify what users see, (2) provide only relevant information, and (3) reduce the potential for confusion, some sites use tabs or some other method to separate content for audience segments with different needs.

[2. Match between system and the real world; 8. Aesthetic and minimalist design] [Moderate]

Map of Licensed Organizations link:



The intended purpose of this link (which shows in the upper right area of the homepage screen) is not intuitively obvious. The text is blue, a color used on this site to indicate which elements are active (clickable). Mousing over the text gives a slight clickability cue (a very short underline appears between the pin icon and the word “Map”). Clicking on this just refreshes the page (or if clicked when on another page, returns the user to the main page).

There is no explanation of what a “licensed” organization is. A user might not know the difference between a licensed and an unlicensed organization.

If users need to know the criteria for licensed organizations to evaluate and make decisions about programs, provide a concise explanation. Write the label as active an active verb, e.g., “Find licensed organizations.”

[1. Visibility of system status; 4. Consistency and standards] [Moderate]

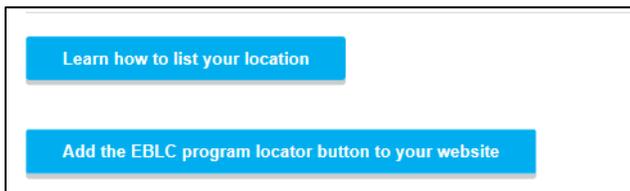
Map: On the map, it is possible to zoom out, but not in. Showing a map here—with states labeled—may give users the impression that they can click on a state as a way to start conducting a search.

Expanding the map does show all continents, and pins are given for locations in other countries. However, some of the links to those websites yield a “Can’t reach this page” message. Keeping information up-to-date for a worldwide network likely requires a lot of resources.

It would be helpful to match the map experience on this site with users’ experience with maps and search functionality on other widely-known sites, so that they can transfer their prior experiences with using maps to this site.

[2. Match between system and the real world; 4. Consistency and standards; 8. Aesthetic and minimalist design] [Moderate]

Buttons for program administrators: These two buttons are intended for those who offer programs and those who operate websites related to those programs.



There are several potential issues:

- The wording on the buttons may confuse patients/caregivers who are looking for potential programs, e.g., a user may wonder “Why must I list my location?” when they are already asked to enter a zip code/city/state in the area above.
- The buttons may not be noticed, given their low position on the screen (perhaps only visible by scrolling) and visual separation from the main focus of this screen.
- These should not look like buttons; they are too similar to two other buttons (Select Programs and Search) that show on the page, which have a very different function.
- The reverse out text does not provide sufficient contrast to support readability.

Consider providing these as links instead of buttons. Also, consider only showing these when a user logs into the site via the Affiliate Log In (provided in upper right corner) or providing these buttons on a specific page or section of the site intended only for program providers, so that patients/caregivers would not see them.

[2. Match between system and the real world; 4. Consistency and standards; 8. Aesthetic and minimalist design] [Moderate]

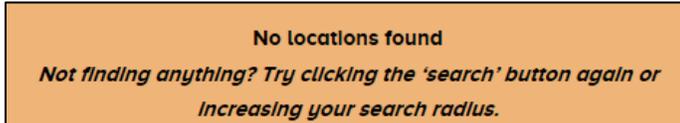
Page title: The title of the page is “Find EBLC Programs and Workshops Worldwide,” but the map shows only the United States. This may cause some users to question whether the target audience is just the U.S. or worldwide.

[2. Match between system and the real world] [Low]

4.1.3 Search Function

Search parameters: It is not clear how many of the search parameters have to be used at one time to get any results at all.

- For example, it seems that typing a zip code, keeping the default of 50 miles for Distance, then clicking the Search button should yield results. The screen does not change to show a results page, and instead shows the following message under the map.



Clicking the Search button again and increasing the search distance both yield the same message.

Despite setting parameters, the results do not always seem to match those selections.

- For example, when entering in a Virginia zip code and selecting "Search Entire State," the map and results list show locations in approximately 7 different states and a city in Canada.

Consider separating out searching by the distance options from searching entire country and entire state, since these are conceptually different types of searches.

For any searches where the user is required to do 3 distinct actions/steps (fill in the box, select a distance, and select programs) before clicking the Search button, consider making a change such as:

- Use asterisks (the convention for "required") to mark what the user must select/specify.
- Number these as three distinct steps (Step 1, Step 2, Step 3) or parts (A, B, C) to clearly show that the user must select/specify all three.
- Gray out and deactivate the Search button until the user has selected/specified all parameters.

[5. Error prevention; 9. Help users recognize, diagnose, and recover from errors] [High]

Wait time: Several searches led to a very long wait, and no results are returned. It is unclear whether there are no programs in that country, or there is some sort of site performance issue.

[1. Visibility of system status; 5. Error prevention] [High]

Search parameter persistence: After finishing a search and starting a different one, we found that what was selected for programs persist – these were not even ones we chose.

[5. Error prevention] [High]

Distance options: These options may cause users to hesitate.

- The order of the options makes it seem that "Search Entire Country" is a distance between 250 miles and 500 miles.

- The options are skewed to longer distances; there are no options for less than 50 miles. It seems likely that users may want to locate options within 10, 20, 30, etc., miles more often than the longer distances.

Re-think the increments offered. Consider using distances more similar to users' likely experiences with other sites, such as 10 miles or 25 miles.

Perhaps only users affiliated with programs or healthcare professionals would want to search the entire country or a region, so if the site structure is changed to target the needs of specific audiences, consider the possibility of providing different search distance options for each audience.

[2. Match between system and the real world] [Moderate]

Select Programs button: When mousing over the Select Programs button, why is the word "Select" underlined, but not "Programs?" The button changes its blue color as the clickability cue (indicating the state change); the additional cue of underlining is not needed.

- Make the button label consistent; either eliminate the underline of "Select" or underline both words (without a color change).

[4. Consistency and standards] [Low]

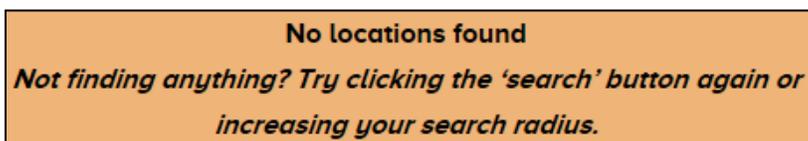
Search buttons: Why are there two separate Search buttons? (The second one shows in the area revealed by clicking the Select Programs button.)

Consider making just one search area with all options showing on screen at the same time, vs. making it into a two-step process. Users may wish to view all search parameters at the same time.

[4. Consistency and standards; 8. Aesthetic and minimalist design] [Low]

4.1.4 Results Page

No results message: The message that shows when no locations are found is confusing. Why would a user need to click the Search button again – without making changes to the search parameters?

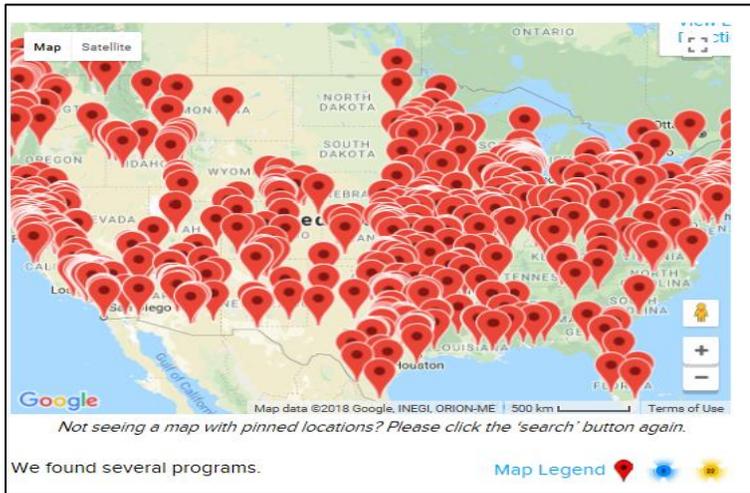


If possible to prevent users from having to repeat the action of clicking the Search button, change the programming so that results are displayed after a first click.

[9. Help users recognize, diagnose, and recover from errors] [Moderate]

Results message: The same text "We found several programs" shows -- no matter how many results are returned. To judge the extent of results, it's necessary to scroll the page, or -- if any pins show on the map -- to try to add up the number(s) for individual pins.

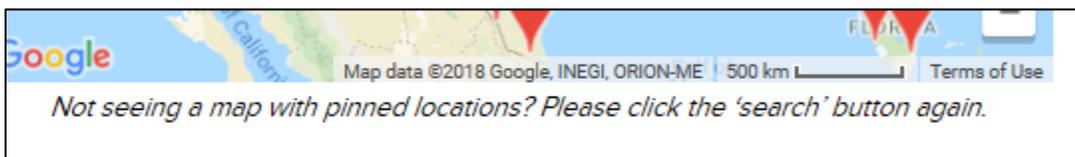
As an example, the results below show an overwhelming number of pins, but the message still says “several programs.”



Consider providing the number of results at the top of the results list, as a dynamic fill within the “We found __ programs” text. A best practice for locator tools is to show a count of the number of results, to help orient the user to the search outcome. Another best practice is to provide a way to filter or narrow further, when there is a large number of results.

[1. Visibility of system status] [Moderate]

Map message: Under the map, it is not clear why the message: “Not seeing a map with pinned location? Please click the ‘search’ button again.” needs to be displayed.



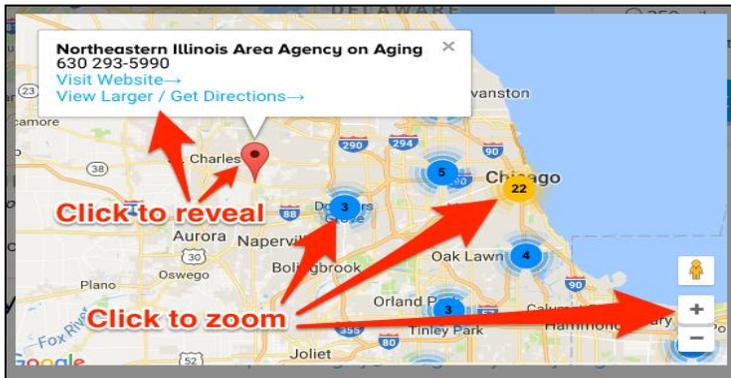
Users are likely to wonder why the button has to be clicked twice, and some users might even interpret that as an instruction that they should double click the Search button (when they want to search) rather than repeat the prior action.

[5. Error prevention] [Moderate]

Map Legend:



Clicking the Map Legend link pops up the image shown below. While this provides a visual cue in context for each of the three icons, it may require more attention to understand than providing information about each icon individually.



A more concise way to convey this information to the user might be to have a tooltip pop up as the user moves the mouse over each of the three colored elements.

Consider exploring alternative treatments that do not require a legend.

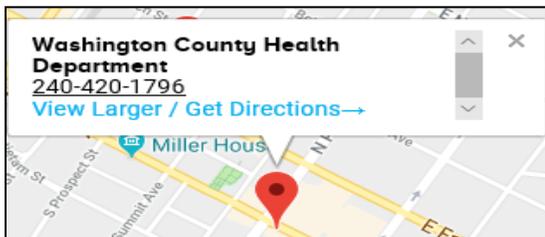
[2. Match between system and the real world; 8. Aesthetic and minimalist design] [Low]

Search radius: The suggestion to increase the search radius is clear, but the gradations increase by so many miles (100 instead of 50, 250 instead of 100, etc.), that a user may find changing the radius to not be a desirable strategy to fix this issue.

The message uses the term “radius” but the term “Distance” is used in the search area.

[4. Consistency and standards] [Low]

Program information: Clicking a pin pops up a box with the location name and a phone number.



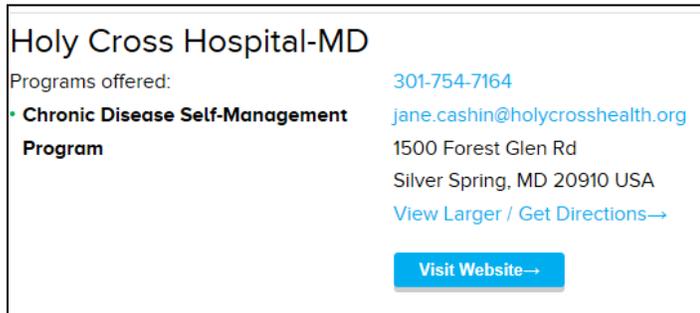
- It is not clear whether the phone number is for the location or for the specific program of interest.
- Some of the pop-ups provide a link to a website, but the links seem to go to the homepage of the website rather than a page with specific information about the program of interest, so the user will likely have to do additional digging once there to find relevant information.

Pointing to a pin (without clicking on it) pops up a box with some numbers that have no meaning. Why are these numbers shown?

[2. Match between system and the real world; 8. Aesthetic and minimalist design] [Low]

4.1.5 Other Observations

Search Results Listing: The site offers a location, the type of program(s), a phone number, contact name, and address. In addition, it is possible to send an email to the contact person, view the location on a larger map, and get directions to the location. This is all very useful information.



However, in order to make informed judgments and/or comparisons of search results, users are likely to want additional information, including when and how often the classes meet, and they may want a description of the class content.

[3. User control and freedom] [Moderate]

4.2 Diabetes Prevention Program Tool

https://nccd.cdc.gov/DDT_DPRP/Programs.aspx

4.2.1 Positive Comments

- The site offers users the flexibility of conducting searches in different ways.
- The interactive map works in a similar way as maps offered on other sites. Users' knowledge will easily transfer to this site; they are likely to be familiar with how the map works and find it easy to interact with.
- The increments for distance (5–50) align well with the likely needs of users.
- Having a Go button on the City results page allows a user to avoid backtracking to modify search.
- When returning to the Find an In-person Class page after conducting a search by zip code, the prior zip code is offered for autofill when the user clicks the zip code box. Since the prior search parameters are not retained when returning to that page, the autofill is a helpful alternative.
- Links are provided to websites for most of the online programs. The icon that indicates the user will leave the site is a helpful visual cue.

4.2.2 Homepage (start page for the locator tool)

Map: The map does not look clickable for several reasons. It is the same color as the background of other areas of the page, and the states do not change status when mousing over. The user must notice that the arrow changes to a pointer when mousing over a state.

Consider a design improvement: change the color of the map to better differentiate it from the other areas on the page. Program a mouse rollover to create a more salient clickability cue for states/territories, such as a bolded border or a change in appearance/intensity.

[8. Aesthetic and minimalist design] [Medium]

Color palette: The color palette is bland and monochromatic instead of inviting. Adding another color or two to differentiate the left navigation area from other areas of the page would help users to focus on the tasks that this site supports.

[8. Aesthetic and minimalist design] [Low]

Layout of the homepage: The areas of the homepage that introduce the two main types of programs (in-person classes and online programs) are not given prominent visual treatment. The online program area might not even be noticed.



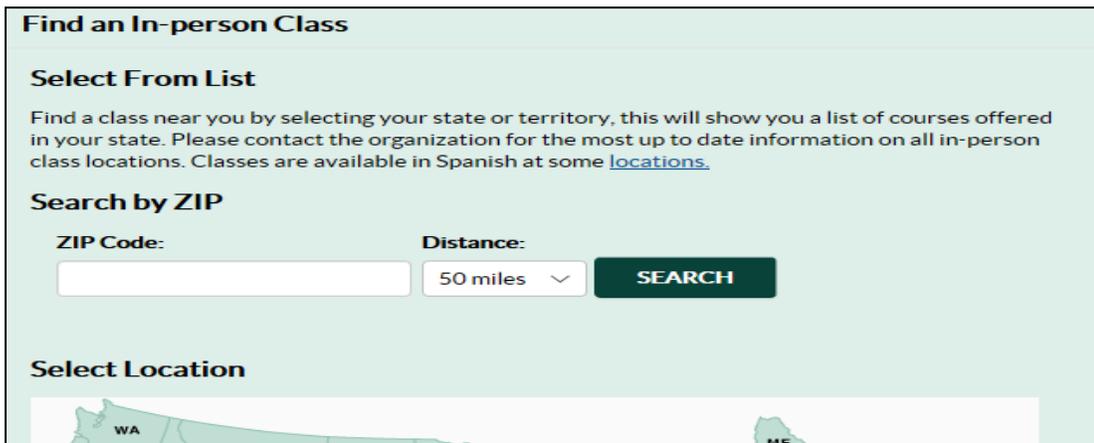
Headings could be made more prominent, to draw attention to the online programs and to more clearly convey that there are two types of programs. For example, the “Find an In-person Class” heading should be larger than the 3 headings under it, and the “Find an Online Program” heading should have a corresponding larger font as well.

Because this page serves as a Search page, consider adapting it to follow best practices for a search page. Streamline the page content so that it presents just the search box and/or map with minimal instructions or other text.

[8. Aesthetic and minimalist design] [Low]

4.2.3 Search Function

Options for finding an in-person class: On first glance, users may think that there are 3 ways to search. The structure of the central area (screenshot below) has a title “Find an In-person Class” followed by three headings that all appear to be at the same level, as indicated by font size.



However, under the first heading is introductory text about the ways to search (selecting a state/territory), which would be done by using one of the following two approaches (by zip or location).

Consider moving the first sentence of that text to under the top-level “Find an In-person Class” heading where the more general information belongs, or just delete it, to reduce the potential for confusion. However, if the real purpose of the current text paragraph is to provide a link to just the Spanish classes, change the wording of that heading (e.g., to “Find Classes in Spanish”) to clearly convey that purpose. Or move the link to Spanish classes to a page that is in Spanish or a Spanish version of the site, where a person seeking a class in Spanish would expect to look for it. To support mobile access, keep a link to classes offered in Spanish in the body of a page, rather than as a left navigation option.

[8. Aesthetic and minimalist design; 5. Error Prevention] [Moderate]

Select Location Search: Some users may overlook the Location drop-down box under the map, since the map is more prominent and users are likely to be drawn to the visual image. The button next to the Location drop-down box is labeled “Go” instead of “Search,” which may not be as obvious to users as the “Search” button associated with the zip code search. Users may also perceive the map as a faster way (one click) to get to results for a state or territory, vs. clicking into a drop-down box, selecting from a very long vertical list, then clicking the Go button (three steps/clicks).

The button next to the Location drop-down box could be changed to “Search” to make it more apparent that this is another search option. Making the map’s clickability cues more salient (as explained above) applies here, as well.

[7. Flexibility and efficiency of use] [Moderate]

4.2.4 Results Page

Results page for search by zip code: This page has a heading (e.g., “Locations within 50 miles of 20850”), which verifies for the user that these results apply to the desired search. However, depending on the distance selection, there may be a very long list and a map with many pins in it. It is helpful to have the locations listed in the order of shortest to longest distance, but there are no direct ties or cues to indicate which pins on the map relate to the locations listed to the left of the map.

Users might be confused by the breadcrumb “<<Back to Map” since they used a search by zip code to get to this page, and there is already a big map showing on the page of results, next to the location list.

Providing the number of results would be helpful to orient the user to the breadth of the search results. For example, the heading could be: “XX locations within XX miles of 12345.” Another visual element to help orient users would be numbering both the listed locations and the corresponding map pins, based on the current order (proximity).

[1. Visibility of system status] [Moderate]

Location information: Users may expect that clicking the location link will take them to the website for the specific program or the organization that provides the program. (Perhaps CDC uses the current approach of maintaining location information in-house for web analytic or other reasons.) If they wish to get more information than the phone number, address, and map location, they will need to do an additional step to find the organization’s/program’s website.

Consider providing a link to the website of the organization, vs. presenting that information within the CDC site. Although this change would require periodic checks to ensure the links are not dead, the current information (i.e., address and phone number) also requires checking for currency.

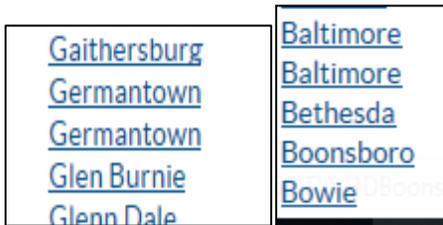
Consider using “<<Back to Search” as the breadcrumb instead of Back to Map – from the zip code results page.

[3. User control and freedom] [Moderate]

Mobile access: The phone number seems to be linked only for iOS, not Android phones. Provide equal functionality for phone users.

[4. Consistency and standards] [Moderate]

Results page for map-based search: The way the results are presented may make it difficult for users to quickly scan the list of cities and make a selection. The city list is single-spaced, and some are listed twice, which may confuse users.



The “Show all” link at the top of the list may confuse users. That might be interpreted as a way to yield a longer list of cities than currently showing, when clicking it really shows all the information for each of the programs (which is alphabetically by program, not by city).



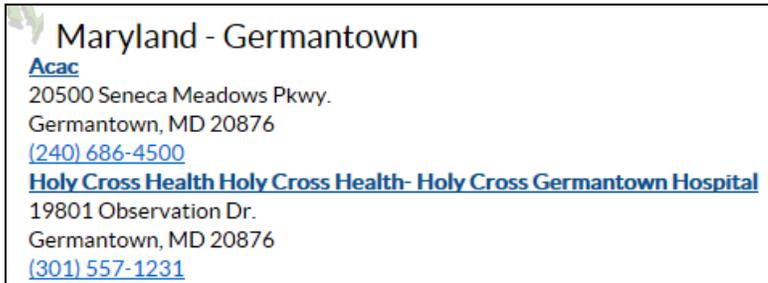
Consider making one of the following changes to improve the design of the result page:

- Present the letters of the alphabet to the left of the listed cities, with the city names aligned with the starting letter, to make it easier to quickly locate the desired city. Alternatively, the alphabet could be presented at the top of the page horizontally, so that a user could click a letter and reveal a list of only the cities that start with that letter.
- Present cities that start with each letter in a chunk, with space between, to facilitate scanning.
- Present city names in groupings of approximately 5, with white space between, to facilitate scanning.
- If there are multiple locations for one city, list the city only once. This will make the list seem less burdensome to scan.

Making such a change is especially important to help users when their search result is a long list of cities.

[2. Match between system and real world; 8. Aesthetic and minimalist design; 5. Error Prevention] [Moderate]

City page: The results are difficult to scan and read. The list is presented alphabetically, which may not align with users' needs or expectations.



Left justify the State name. Add space between locations so it's easy to see which address and phone number correspond to a program.

Providing some type of filter(s) on the organizations results page would provide users with a way to narrow their search results to a more manageable set.

If possible, consider providing a map on the page that shows city results.

[8. Aesthetic and minimalist design; 3. User control and freedom] [Low]

Results page for Find an Online Program: This listing has two main sections – National Providers and Other Providers. Within each of these sections, providers are listed alphabetically. For users, these may not be useful or intuitive ways to view the programs.

There is no breadcrumb on this results page, when similar pages do.

Consider what factors users will have in mind when they want to review online programs, and match the listing order to user needs. Another alternative is to provide some type(s) of filters on the prior starting page, so that users can set criteria to yield a more appropriate set of results. A third alternative is to provide some type of filters on the results page so that users can further narrow the results at that point.

To be consistent with the other results pages, provide a breadcrumb for easy return to the starting page.

[4. Consistency and standards] [Moderate]

Information for online programs: Icons are used to indicate whether each listing is an online program or a distance learning program. Users may not know the difference between these two terms. The placement of the icon and associated wording as a separate line takes up space, which translates to more scrolling to view the page contents.

Boston Heart Diagnostics
 175 Crossing Blvd.
 Framingham, MA 01702
[\(508\) 877-8711](tel:(508)877-8711)
<http://info.bostonheartdiagnostics.com/diabetes-prevention-program>  
 Distance Learning Program

Clearly indicate/explain the difference between an online program and a distance learning program. If this is something that will matter to users when selecting a program, it is critical to explain what each is. If this distinction will not be important to users, leave it off.

To streamline the page, consider the following options if it is important for users to be able to differentiate online from distance learning programs.

- Delete the extra line (to reduce the page length and need to scroll), and separate the page entries into two headings/groupings based on distance vs. online learning.
- Remove the icons and just indicate at the top of the page that these are distance learning or online programs.

[8. Aesthetic and minimalist design; 10. Help and documentation] [Moderate]

4.3 Arthritis Foundation Resource Finder

<http://resourcefinder.arthritis.org/>

4.3.1 Positive Comments

- The site has an inviting, modern look and uses good color contrast to facilitate readability.
- The name of the tool clearly conveys its purpose.
- The introductory text (see screenshot below) clearly describes and sets expectations for what users can do with this tool.

Through this specialized search tool, you can locate helpful resources, obtain key contact information, and learn more detailed information such as specific services offered.

- The most important content is centered and salient, as well as streamlined and presented in an easily readable way.
- The user controls (i.e., navigation buttons, radio buttons, reveal/hide arrows) are intuitive (do not require instructions) and present good visual clickability cues.
- The increments offered as options for distance seem to fit with likely user needs.
- The map feature (which shows on each page that presents results for a specific program) is interactive; this will align with user needs and expectations.
- Error messages (see examples below) clearly instruct a user exactly what to do so that they can quickly correct an error and move on. The message is provided at the exact location of the error, in red font, to easily draw user attention to it.

- Please enter a ZIP Code, a City, State or a County, State.
- Please select a category to search.

- On the results page, a user can easily select different options in the Refine Your Search area to modify the search without having to backtrack to the prior page. The New Search option link is also provided within that same area; its close proximity to the Search button clearly provides the key options users will want to consider at that point.
- If a user clicks the New Search link to return to the Arthritis Resource Finder page after conducting a search, the prior search parameters are retained. This makes it easy for the user to refine or change the search, vs. having to start from scratch.
- The “Share Your Feedback” link on the Results page gives users the opportunity to comment on whether they found what they were looking for, and if not, what they were not able to find. Users can also comment on several additional topics (i.e., additional resources they would like to see on the site, whether they would like to be able to rate the listings and read ratings on the finder tool, how they found out about the tool). This is a nice feature to make users feel that the Arthritis Foundation cares about its site visitors, which may help to increase users’ likelihood of returning to the site.

4.3.2 Homepage (start page for the locator tool)

Tagline: It is not clear why the words “TO LIVE BETTER” within the tagline “FIND LOCAL RESOURCES TO LIVE BETTER” are green. Green is used on this site to indicate available user controls, such as the Search button and the expand/hide headings on the start page. On the results page, green identifies the links to programs. This is an inconsistency and may confuse users who might think those words are clickable.



To improve readability and consistency, make the tagline the same color, and use mixed case, rather than all caps.

[4. Consistency and standards] [Low]

4.3.3 Search Function

Note: to locate arthritis programs using this site, we selected Group Fitness Programs within the Fitness Programs and Professionals resource area.

Name (Optional) box: It is not immediately clear what the user is supposed to type into this box. Without some type of example or instruction, users are not likely to know whether they can enter a place name, a program name, an organization name, a person’s name, etc. Given the lack of clarity and that it is optional, users are unlikely to use this box for their initial search.



Provide a feature (such as an “i” or a question mark as a tool tip icon near the Name box) that a user could mouse over to reveal a tip/example for what to enter into the Name box. This could save time in several ways: it could help prevent users from making errors (if they guess wrong when entering a name), or it could reduce the need to further refine the search on the results page.

[5. Error prevention; 7. Flexibility and efficiency of use] [Moderate]

Resource options to search: The site provides a simple search, not an advanced search: the four resource options can only be revealed one at a time. The show/hide arrows do not allow looking at two types of resources at the same time. A user might want to view two or more resource types simultaneously to make a better choice of category to select for their search.



If possible, change the programming to allow more than one of the resource areas to be revealed at the same time.

[7. Flexibility and efficiency of use] [Moderate]

4.3.4 Results Page

Visual support for search results: This page does not have a map to supplement the list of programs that the search yields. Some users may expect to see a map at this stage, to help decide on programs of interest based on proximity. If users wish to view the different program locations on a map, they will have to do that for each individual program, vs. view multiple locations simultaneously on a map. It is more time-consuming to click on each individual program name to view that program on a map, then backtrack to select and view the map for a different program.

Consider providing a map feature on the results page, to enhance the user experience and support those who benefit from visual display of results.

[3. User control and freedom; 7. Flexibility and efficiency of use] [Moderate]

Results message: This page does not provide the number of results returned. However, it does provide a cue about the number of results, by showing the current page and page count (example below). While not optimum, this is helpful.



A best practice for a locator tool is to provide the number of results on the search page, to orient the user.

[1. Visibility of system status] [Low]

Repetition of listings: Some of the program names are listed twice, with only minor differences in information (such as “Drive” vs. “Dr.” (as in the screenshot below). This takes up space and requires more scrolling to view the results.



Review the database to clean up and eliminate duplicate program listings.

[4. Consistency and standards] [Low]

Program listings: There is useful information about the location and the class itself, but on this page, there is no phone number to call for additional information.

Since the numbers are provided on the next page, consider also providing them within the listings for specific programs.

[7. Flexibility and efficiency of use] [Low]

4.3.5 Individual Program Page

There is a “Back” navigation option offered on the individual program pages (see screenshot below), but it doesn’t seem to work. Users are likely to expect that clicking Back will return them to the Results page (list of programs meeting their search criteria – the page they viewed just prior to the page for the individual program).



Make the Back link to the Results page, so that on each individual program page, users will have the option to click Back to return one page or New Search to return to the search starting page.

[7. Flexibility and efficiency of use] [Moderate]

Program information: There is lengthy text provided about a class, but it seems generic. There is useful information about the location and the class itself, but there is no phone number to call for additional information. The “Note” says that class offerings vary by location and to contact the location or click the website link above. However, a website link is not provided for every program (see example below) and some are missing a phone number.

Arthritis Resource Finder
FIND LOCAL RESOURCES TO LIVE BETTER

Back | New Search

Zumba - LONG BRANCH SENIOR CENTER
8700 PINEY BRANCH ROAD
SILVER SPRING, MD 20901
Distance: 1.9 miles

POWERED BY Car

Overview

Note: Classes offered vary by location. Please contact location or click the website link above to learn more.

ZUMBA GOLD and ZUMBA GOLD TONING

These dance-based classes have been modified from the original Zumba classes to be lower intensity and lower impact. They focus on balance, range of motion, coordination and strength training. Some of the hip-twisting and hopping movements involved in dancing can be difficult for people with lower-body arthritis. Adapt the movements to accommodate your pain and ability. Some of the routines are fairly fast paced, be sure to go at a comfortable pace for you. Step on every-other beat instead of every beat, for example. Check with your doctor before beginning any new exercise program and seek advice if you've had a joint replacement, other recent surgery or if you have serious neck or back problems. Speak with your Zumba instructor before starting class so he or she is aware of your needs and can help guide you through appropriate adjustments to the movements.

If there is no website link provided for a program, do not show that text in the Note. Provide up-to-date information for all listings, so that users will not have to take further steps to locate another source of information. The phone numbers are provided on the pages that provide information about the individual programs, so it would be easy to provide them on the results page where users are likely to expect to find useful/standard contact information.

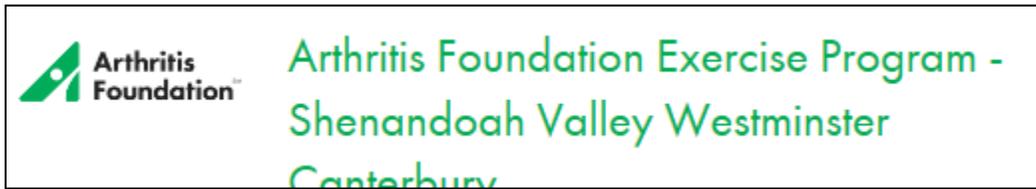
[2. Match between system and the real world] [Moderate]

Working with results: One of the other resource options (i.e., Health Care Professional Resources) provides an additional way to work with the results on the search results page: Sort by distance or alphabetically (high to low or vice-versa). A user may wonder why the program locator does not also provide this way to sort results.

If feasible, extend the sorting capability to the fitness programs area, to facilitate users’ reviewing and refining their searches as they have likely learned from other sites.

[2. Match between system and the real world; 7. Flexibility and efficiency of use] [Moderate]

Arthritis Foundation logo and name: This (see screenshot below) is given to the left of programs in the list that seem to have “Arthritis Foundation” within their name.



Mouseover text just shows the program name, so some users may wonder what this actually means. For instance, is the program approved by the foundation, sponsored by the foundation, or in the listing if they are not in some way endorsed by the sponsor of this site?

Seeing the Arthritis Foundation logo and name may make some visitors wonder if this means that only certain programs have been through a vetting process. If the site plans to do that in the future, it should be explained and some means to sort on that might be helpful to users. If the difference between vetted programs and not vetted programs is negligible, do not designate vetted programs (since it may raise questions).

Clarify the meaning of the logo and name associated with certain programs. If it means approved, providing text such as “approved” or “top picks” would be more obvious.

Provide a feature such as an “i” or a question mark (to reveal tool tip text when a user rolls the mouse over the icon) to indicate the meaning of the logo/endorsement.

[10. Help and documentation] [Low]

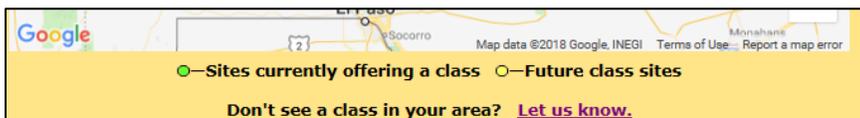
4.4. Workshop Wizard Tool

<http://pathstohealthnm.net>

This tool offers more than just a way to find AAEBI programs. We offer additional comments about the site navigation and functionality as these are likely to relate to users’ experiences of using this tool.

4.4.1 Positive Comments

- This site provides comprehensive information about class content/topics, which users are likely to find valuable in making choices about what will be appropriate for them. Within the class topics, some of the options give very specific information (such as who to contact, phone number, email address) that users are likely to need and appreciate as they make decisions about which one(s) to investigate further or attend.
- A nice feature is the “Don’t see a class in your area? Let us know” link that opens a page where the user can submit a city name and any comments.



- The message makes it sound like classes could be added. This feature will likely make users feel that Paths to Health values its site visitors. However, if Paths to Health is unable to add classes, users may be disappointed.
- The map feature is interactive; this will align with user needs and expectations. For example, users may wish to take advantage of the option of using labels for the Satellite view.
- The Forms tab provides access to various forms that users could fill out ahead of time for attending a class that they have located via the list of classes.

4.4.2 Homepage (start page for the locator tool)

Site audiences: There appear to be three main audiences for this site: those who have some sort of health condition and want to take a class, those who want to become a trainer for such classes, and healthcare providers who could connect their patients with appropriate classes. However, the homepage structure and navigation options do not clearly target and support those three audiences and communicate which sections within the site will apply to each audience.

Consider restructuring the navigation and pages of the site based on audiences and their information needs.

[2. Match between system and the real world; 3. User control and freedom; 7. Flexibility and efficiency of use; 8. Aesthetic and minimalist design] [Moderate]

Top navigation vs. left navigation: The top navigation tabs and left navigation options overlap, which may confuse users. For a small website, it is not necessary to provide the users with multiple options for navigating to pages. Until they fully understand the overlaps, users may feel like they are going in circles, as they encounter the same page multiple times.

The left navigation could be eliminated and alternative content could be featured on the homepage.

[8. Aesthetic and minimalist design] [Moderate]

Top navigation tabs



- There is a “Providers” top navigation tab, which goes to a page of prevention and self-management program information specifically targeted for providers. There are not parallel tabs for other audiences.
- The “Classes” tab goes to a page that provides a centered long scrollable list of both “Workshops”—which appear to be for patients, and “Trainings”—targeted to those who will train patients. While the site sponsors know the difference, the distinction between workshops and trainings may not be clear to those who visit this website.

So that users do not have to discover this on their own, differentiate more clearly the classes for individuals/patients vs. classes for those who want to lead classes. Consider replacing “Workshops” and “Trainings” with labels that clearly indicate the intended audiences for these.

Perhaps provide two separate audience-appropriate lists: one clearly marked for patients (or class participants) and one for leaders/trainers. Decisions about site structure and navigation options will apply here.

- There is inconsistency in cues given to the user to indicate which page the user is currently viewing. The Home, Providers, and Contact tabs are green when active, but the Classes and Forms tabs do not provide that same cue when active.

Make all tab visual cues work in a consistent way.

[4. Consistency and standards; 8. Aesthetic and minimalist design] [Moderate]

Left navigation area



- The three options provided in the left navigation area of the homepage function differently. Clicking either of the top two takes the user to a page with information, whereas clicking the third area opens an email. Users may expect to see a page with information about programs, not a pop-up asking about opening an email program so as to send an email. Users might instead expect to get to an email opportunity through a Contact Us link, the usual convention that websites use to cue users they can send an email. That area essentially duplicates the action users will take if they click the link provided on the Contact Us page.

The third option can be eliminated since the contact capability is already provided via the Contact tab in the top navigation area.

[8. Aesthetic and minimalist design] [Moderate]

Color contrast: The contrast of white on a colored background (i.e., on button labels) presents a possible accessibility issue.

Test the contrast with one of the available online checkers, and if needed, modify the color scheme to follow color conventions and improve readability.

[4. Consistency and standards] [Moderate]

Homepage layout: There is a lot of unused area on this page (and on most pages of this site). The area with all the images (below the top tabs) seems to set the width of the page, with other elements squeezed into the middle area.

Consider changing to a design and layout that would be more balanced and make better use of the screen real estate. Other content could be featured on the homepage. For example, if a new type of class is offered, or new sites for existing classes are periodically added, these could be featured in an area of the homepage so as to generate interest.

Also consider adding a concise statement about the purpose of the website, so that users will immediately understand what they can accomplish.

[8. Aesthetic and minimalist design] [Low]

4.4.3 Search Function

Functionality: The Search button under the map on the homepage implies that the site offers a search function. Clicking the button provides a scrollable list, and each entry on the list provides a “See Schedule” button (which yields additional information about the specific workshop/training). Users likely expect the Search button to provide a page where they enter/select search criteria and get a set of results specific to those criteria.



Consider re-labeling the Search button to more clearly indicate its actual function, such as “Show List” or “View Class List.”

[2. Match between system and the real world; 4. Consistency and standards] [High]

Scrollbar: An internal scrollbar is used for the list of Workshops and Trainings. Internal scrollbars are not recommended for website design due to their potential to confuse users.

Consider modifying the site design to provide one vertical scrollbar—a browser-provided scrollbar.

[4. Consistency and standards; 8. Aesthetic and minimalist design] [Moderate]

Curriculum filter: When a user enlarges the map, the Curriculum filter appears on the screen. However, it is not very noticeable due to its placement (wedged between the images and the map) and likely to be overlooked.

Create more area or “padding” around the Curriculum filter to make it more salient, and perhaps use an explanatory label, such as “Filter by curriculum” to make its use more explicit.

[7. Flexibility and efficiency of use] [Moderate]

4.4.4 Results Page

Workshops vs. trainings: A user might not know the difference between “Workshops” and “Trainings”—which are used as the general headings for the two main groupings of the long scrollable list of results. Those who are trainers might know and understand this distinction, but patients or caregivers who are searching for programs might not.

[2. Match between system and the real world] [Moderate]

List of Workshops: Although the Spanish workshops are easy to identify, there is not a Spanish version of the site. The information about the program is not in Spanish. This makes the information less accessible for some end users, although it may be useful for “infomediaries” (those who assist others to find relevant information).

Also, it would be desirable to show on the map which are Spanish classes. These could be shown on a Spanish version of the site, or a filter could be provided to allow users to select all programs or Spanish-language programs.

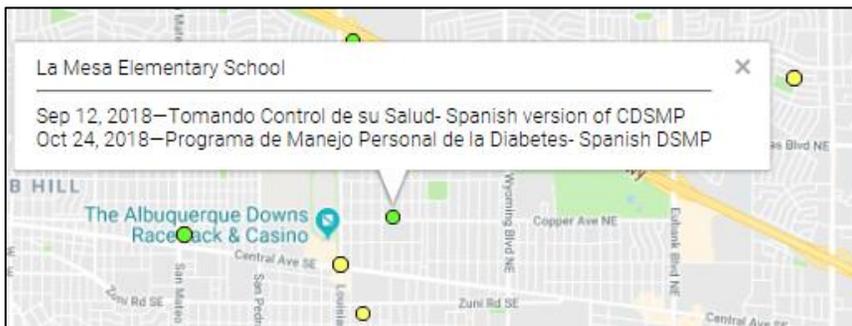
[7. Flexibility and efficiency of use] [Moderate]

Map: Some users will likely want to point to a location on the map, and at that point, be able to access more information about the individual class(es) available at that location.

Make the pop-ups provide a link to the same class information that is viewable through the “See Schedule” buttons on the listing of classes.

[7. Flexibility and efficiency of use] [Moderate]

Pop-ups: It is not clear within the pop-up what the dates are for. Are these meant to indicate the class start dates? Users are likely to expect to see an address in a pop-up instead of dates, and may wonder why this level of detail is provided via a pop-up.



[2. Match between system and the real world] [Moderate]

Forms page: The naming conventions are not very clear.

Name each form to tell users its purpose. Indicate which forms are required. Streamline the forms with better headings, action-oriented titles, or better explanations. Do not use the name of the file as the hyperlink. Instead, use descriptive language for the links. The PDF versions could have the PDF icon.

[2. Match between system and the real world] [Moderate]

Future classes: Since the future classes do show, users are likely to wonder what the window/timing is for future classes.

Provide users with contact information so that they can find when the classes will start.

[2. Match between system and the real world] [Moderate]

Class information pages: Only the start and end dates are provided. However, users are likely to want to see class frequency and/or class meeting day(s), which are not provided.

[2. Match between system and the real world] [Moderate]

Location visual information: On a specific program page, there is no link to a map, which would be useful here.

[2. Match between system and the real world] [Moderate]

Content for provider audiences: There are resources such as flyers available—but perhaps these could be put on a page for just the appropriate target audience, to reduce the potential for confusing members of the patient audience. Or, the page that provides forms could be restructured: instead of organizing it based on form type, consider basing the page contents on the audiences, with headings or areas more clearly marked for each audience.

[2. Match between system and the real world] [Moderate]

Table format: Using a table to format the content makes it hard for screen readers to navigate unless the content is coded properly.

Location	Date	Register
UNM NE Heights Family Health Clinic 7801 Academy NE Albuquerque, NM 87109	Class: Oct 22, 2018—Nov 26, 2018 Time: 9:00 AM—11:30 AM	If you have questions about this workshop or would like to register for it, please contact: Catherine Offutt (505) 884 - 8389 catoff@msn.com

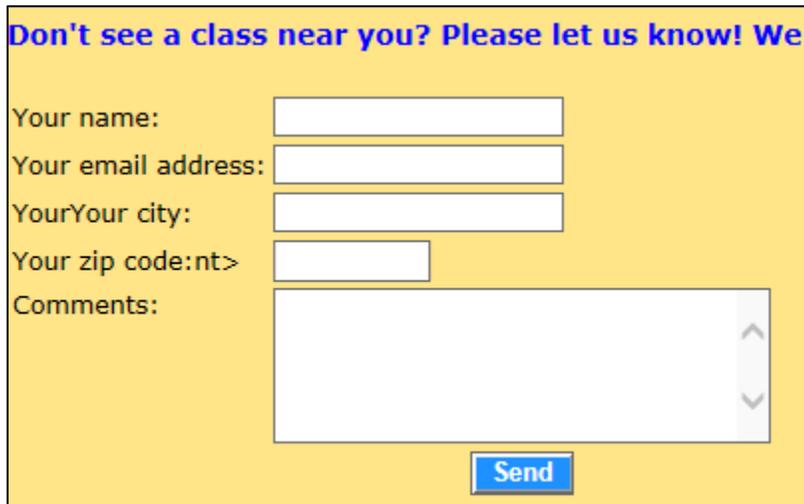
Modify the format and presentation of these pages so as to use tables only to present tabular information.

[8. Aesthetic and minimalist design] [Moderate]

Capitalization: The areas labeled in the map background are in all caps, which makes them harder for users to read.

[2. Match between system and the real world] [Low]

Request for a class site: Tweaks are needed to correct “YourYour city” and “Your zip code: nt>” that are shown in the screenshot below. This appears to be programming language and should not be visible to users.



Don't see a class near you? Please let us know! We

Your name:

Your email address:

YourYour city:

Your zip code:nt>

Comments:

Send

[8. Aesthetic and minimalist design] [Low]

Contact page icons: These icons make the site look very dated.



Consider using other icons to make the site look more modern.

[8. Aesthetic and minimalist design] [Low]

Class information: If class meeting days are known, provide these, since they may be important for users to consider when reviewing class options and making decisions.

[2. Match between system and the real world] [Low]

Discussion and Recommendations

5.1 Needs Assessment

5.1.1 Grantee Needs/Priorities

All the grantees interviewed perceived a locator tool as the proverbial “tip of the iceberg” for their data reporting needs, which involves working with implementation partners to reach public audiences. Indeed, several grantees had already invested substantial effort in setting up comprehensive data management systems that performed multiple, interconnected functions, program location being one of them. Therefore, to get buy in for a new national tool, grantees were clear: “it would have to match or surpass what we have.”

Key features identified by grantees for a program locator tool included the following:

- **Accuracy.** The information should be accurate and current.
- **Clean, simplified design.** Mindful that those in need of AAEBIs are older, the tool needs to have a clean, streamlined design with simple visual elements. Text should be minimal, and when used, should be written in plain language.
- **Takes participants from discovery to registration.** Grantees want a locator tool that can remove barriers to enrollment. Thus, the tool should not only provide location information, but it should also offer information about the time and date of the class, a contact person, and information about how to register. The locator tool should provide sufficient information such that the possible participant does not need to exit the site to get more information.
- **Flexibility.** The tool needs to be flexible in terms of who can access it. Grantees adopt different strategies to data entry; some take on the task themselves, others rely on their implementation partners. For those who ask their implementation partners to use the database, partners need to be able to update the information.
- **Covers multiple EBIs.** Grantees seek a “one stop shop” for the public and their partners, where information about all the programs they support is included in one place. This provides convenience to those searching for the programs and ensures that partners have only one place to go to enter data. Because the tool should cover multiple EBIs, it is also important to have basic information about the programs somewhere on the website, as well as a way to filter search results by program.

Specific recommendations for program locator tool design from a usability perspective are discussed in section 5.2 below.

5.1.2 Feasibility of a National Tool

In general, grantees were receptive to the idea of a national tool. However, their receptivity was primarily driven by a desire for increased standardization of program reporting requirements. In this respect, a program locator—and the engine behind it—would provide a needed structure that the grantees could use to make sure they were meeting CDC’s reporting requirements. For new grantees, any guidance and structure they could connect to would be welcomed. For renewed grantees, there is opportunity for CDC to provide further leadership and guidance around the bidirectional referral reporting requirement. Though these grantees have already established data tracking systems, they have not yet established reliable strategies for integrating with EHRs and tracking provider referral.

NCOA may provide a viable platform on which to build a national locator tool. Two grantees pointed out that NCOA's system interfaces with Compass, so these databases already have the ability to communicate and share information.

5.1.3 CDC's Role

This needs assessment indicates there are several ways in which CDC can contribute to the development of a national program tool, should it decide to continue these efforts:

- **Vision.** First, CDC should articulate a vision for a national tool. As part of this effort, CDC can set a blueprint for the tool's content, such as key usability features, AAEBIs that will be included, and how the tool should be integrated with current state systems and clinic EHRs. Establishing and then communicating this vision is a critical step to gaining buy-in from the grantees.
- **Partnerships.** Next, tool development will require significant investment of resources and coordination with multiple agencies. In addition to its own grantees, it is therefore necessary to secure buy-in cooperation from external stakeholders. As part of this process, CDC can bring together partners necessary for the successful development of the tool. Potential partners include other Federal agencies (e.g., ACL), other CDC chronic disease programs (e.g., diabetes, heart disease and stroke, falls prevention), nonprofits (e.g., NCOA, NACDD), and intervention developers (e.g., the Arthritis Foundation, Sound Generations). Some of these partnerships are already in place, such as through the EBLC, but additional partnerships may be needed.
- **Funding.** Through a funding mechanism, CDC can award funds to build the system, or partner with another agency to augment an existing system.
- **Standardization.** Finally, in the development of the system, CDC can establish standards for reporting that grantees can use to benchmark progress of their grant and share lessons learned with others.

5.2 Best Practices for Program Locator Tools

The following recommendations outline best usability practices to consider when developing an AAEBI locator tool.

User Controls

- Within the user interface, provide the user with controls (buttons, links, expand/hide arrows, icons) that are intuitive. The controls should not need to be explained or require accessing some type of help to determine how to use them.
- Refrain from using icons if text more clearly conveys the intended meaning. If icons are used, make sure they are self-explanatory and universally understood.
- Use clear and concise wording on buttons to state their function.
- Clearly convey which screen elements are clickable (e.g., mouse-over causes links to change status, buttons provide visual cues) so that the user can clearly differentiate those elements from elements that are not clickable.

Search Page

- Design the page to be streamlined to the extent possible, e.g., with just the search box and/or a map with minimal instructions or other text.
- If certain minimum search parameters are required in order to run a search and return results, clearly provide users with clear text and/or visual cue(s) about what those minimum

requirements are. For example, a red asterisk positioned in close proximity to a fill box is the convention for a required field.

- After a user has conducted a search, retain those search parameters if the user returns to a prior Search page, and give the user the option to clear the search parameters.

Results Pages

- If a map is provided, make it interactive.
- If pins are used to show program locations, number the pins based on proximity (to whichever search parameter drives the distance).
- Provide the user with the number of results from the search.
- Provide the website and phone number for each program in the search results. If not available for a certain result in the list, state that.
- Allow for further filtering on the results page so that a user can easily refine the search from that page.
- Allow for quick and easy changing of parameters of the search on the search results page.
- Provide an option to start a new search (in close proximity to the controls for any provided refining option) on the results page, so that the user does not have to backtrack to a prior page. (Give users both options in close proximity; this saves time and affects perceptions of search ease.)
- If there is an “overwhelming” number of results, provide ways to filter or manage the results. For example, provide a filter on the results page so that users can narrow down to fewer results or provide an instructive message such as: “Your search yields ____ results. Please select a shorter distance and search again.”)
- Provide in-depth information that would benefit users, such as class descriptions, if it is available.

Presentation and Labeling

- Use an inviting color scheme with good contrast of colors, e.g., for the button labels on color buttons, for the numbers of the pins on a map.
- When naming the tool or the link to the tool, use wording/naming that clearly indicates its function.

Error messaging

- Clearly indicate what the problem is and how to fix it. For example, if the problem is null results: There are no results for this search. Please {expand your search distance or ...}.

Other Features

- Provide a mechanism for visitors to provide feedback about their experience (of the content, what was not found, etc.)

Appendix A: Needs Assessment Interview Protocol

Stakeholder Interview Protocol

Target Audience: National and state arthritis program grantees who use program locator tools to connect people to arthritis-appropriate evidence-based interventions (AAEBIs) in their communities.

I. INTRODUCTION (8 MINUTES)

Hello, my name is _____. I work for Westat, a research organization based in Rockville, MD. Thank you for taking the time to participate in this interview. Before we start, I want to clarify that Westat is an independent contractor hired by the National Association of Chronic Disease Directors (NACDD).

We are working with the Centers for Disease Control and Prevention (CDC) Arthritis Program and NACDD. The purpose of this project is to expand CDC's understanding of locator tools that help people find arthritis-appropriate evidence-based intervention (AAEBI) programs. Program locator tools may include features such as an interactive map or a list that a participant can use to find AAEBI programs in their area. CDC will use the results of this project to inform their strategies for program locator tools.

Today, we will first ask you about your needs, as well as end-user needs, for locator tools; desired features of locator tools; and any challenges you have previously encountered when using locator tools. Then we will look at a few specific locator tools and ask you to complete a task using each one. To wrap up, we will discuss your opinions about the future direction and needs related to AAEBI program locator tools.

SHOW CONSENT LANGUAGE SHOW CARD

In the advance letter, we mentioned some considerations to keep in mind about your rights as a participant in this research. Did you have any questions about any of that?

There are a few things I want to underscore.

- Your participation is voluntary. You can stop the interview at any time.
- The interview will take approximately 75 minutes. We have a lot to cover, so I may have to interrupt you or cut a question short to make sure we get through everything.
- With your permission, we would like to audio record and video capture what shows on the monitor screen I'll be sharing with you. The recording will be used to help us recall exactly what was said during our conversation as well as highlight where you navigated while exploring each program locator tool. The recordings and any notes we have will be stored on Westat's server. They will be accessible only to the project team. We will destroy the recordings after the study is complete. Are you okay with us audio and video recording through WebEx?

IF PERMISSION WAS GIVEN TO RECORD: I'd like to start the audio and video recording now.

TURN ON WEBEX RECORDER: For the purposes of the recording, I am going to repeat my requests to participate in the interview and to allow the recording so I have your permission on tape.

Are you willing to participate in the interview? **PAUSE FOR RESPONSE.**

May I record audio and also the screen actions?

II. BACKGROUND (2 MINUTES)

1. Can you tell me what organization you work for, and what your role is there?
2. What AAEBIs does your program support?

III. NEEDS ASSESSMENT (15 MINUTES)

1. What do you currently use for a program locator tool, if any?
 - **[IF NEEDED]:** Are there any other program locator tools that you have used?
2. What is your level of involvement with the tool?
 - **[IF NEEDED]:** Do or did you have any decision-making authority with choosing the locator tool to use for your arthritis activities? How much have you been involved in making the decision about which tool to use?
 - **What factors were considered in choosing a tool?**
3. **IF CURRENTLY USING A PROGRAM LOCATOR TOOL, ASK:** What's been your experience working with [tool they currently use]?
 - **[PROBES]:**
 - What features does it have that you like? (e.g., sharability, database functionality, reach tracking, search and retrieval)
 - How easy or difficult is it to use?
 - How easy or difficult is it to update information?
 - Let's think about your target audience. Have you heard of any difficulties they have had in using the tool to locate your programs?
 - What do you wish your current tool did better? What improvements would you suggest?
4. **IF CURRENTLY USING A PROGRAM LOCATOR TOOL, ASK:** How much setup was needed? What were the costs? What does it cost to maintain? **[PROBE:** annual fees and level of effort]
5. Based on the end users you interact with, what do you think they need in a program locator tool? **[PROBES:** ease of use, types of information provided, features]
6. As a grantee, what do you need from a program locator tool? What are the priorities for you?
7. What are your thoughts on a national program locator tool?
 - What are the potential advantages of such a tool?
 - What are the potential disadvantages of such a tool?

IV. USABILITY ASSESSMENT (40 MINUTES – 5-7 MINUTES PER TOOL)

Now we are going to shift gears and spend 5-7 minutes discussing the program locator tools I sent you prior to this interview. Please have your pre-interview worksheet in front of you as a reference for this portion of the interview.

1. Program Locator Tool of Participant's Choice:

- Before we get into that, are you aware of any other program locator tools that were not listed on the worksheet but that you consider effective or promising?
 - **IF YES:** What is the tool you are thinking of? **[IF COMPASS BY QTAC IS MENTIONED THEN SKIP TO EBLC]**
 - Why is that tool useful for you? (What makes it relevant?)
 - **[IF WELL-CONNECT IS MENTIONED]:** [Well connect](#)
- Let's go to that tool now, and use it to **search for [an AAEBI in your area/[IF WELL CONNECT] an Arthritis Foundation Exercise Program in Steele County, Minnesota].**
 - What's your reaction to what you've found here?
[PROBE AS NEEDED: met or unmet expectations, search capabilities, clarity of results, presentation of results, features for narrowing or filtering, etc.]
- What do you most like about this tool?
- What do you most dislike about this tool?
- What would you recommend to improve this tool?

2. [EBLC Program Locator Tool](#):

- How familiar were you with the EBLC program locator tool prior to this interview?
 - **IF MODERATELY OR VERY FAMILIAR:** How have you used it prior to this interview?
- Please click the link for the EBLC program locator tool now, and **search for a CDC Arthritis-Appropriate Evidence-Based Intervention in your area.**
 - What are your reactions to what you've found?
- What are your overall impressions of this program locator tool?
- What do you consider to be the strengths of this tool?
- What would you like to see changed?
- For this tool, is there anything that you marked on your worksheet that we haven't talked about?

3. [CDC's Diabetes Prevention Program Locator Tool](#):

- How familiar were you with CDC's Diabetes Prevention program locator tool prior to this interview?
 - **IF MODERATELY OR VERY FAMILIAR:** How have you used it prior to this interview?
- Please click the link for CDC's Diabetes Prevention program locator tool now, and **search for an in-person class close to you.**
 - What are your reactions to what you've found?
- What are your overall impressions of this program locator tool?

- What do you consider to be the strengths of this tool?
- What would you like to see changed?
- For this tool, is there anything that you marked on your worksheet that we haven't talked about?

4. [Arthritis Foundation Resource Finder](#):

- How familiar were you with the Arthritis Foundation program locator tool prior to this interview?
 - **IF MODERATELY OR VERY FAMILIAR:** How have you used it prior to this interview?
- Please click the link for the Arthritis Foundation program locator tool now, and **search for a Group Fitness Program in your area.**
 - What are your reactions to what you've found?
- What are your overall impressions of this program locator tool?
- What do you consider to be the strengths of this tool?
- What would you like to see changed?
- For this tool, is there anything that you marked on your worksheet that we haven't talked about?

5. [Workshop Wizard Program Locator Tool](#). For purposes of this interview, we're using New Mexico's Paths to Health as an example of Workshop Wizard:

- How familiar were you with Workshop Wizard prior to this interview?
 - **IF MODERATELY OR VERY FAMILIAR:** How have you used it prior to this interview?
- Please click the link for the Paths to Health (Workshop Wizard) program locator tool now, and **search for CDSMP in Albuquerque, New Mexico**
 - What are your reactions to what you've found?
- What are your overall impressions of this program locator tool?
- What do you consider to be the strengths of this tool?
- What would you like to see changed?
- For this tool, is there anything that you marked on your worksheet that we haven't talked about?

6. Comparison of Locator Tools (5 MINUTES):

- Now that we've looked at and talked about [4/5] tools, let's talk about your overall opinions of them.
 - Which tool(s) do you consider to be most relevant/useful for you? Why?
 - Which tool(s) do you consider to be easiest to use? Why?

V. CHALLENGES, SOLUTIONS, AND FUTURE DIRECTIONS OF ARTHRITIS PROGRAM LOCATOR TOOLS (10 MINUTES)

1. **SHOW APPENDIX B:** Here's a list of some design considerations you and others have mentioned. This is a fillable PDF, so I will turn over control of the screen, and you can select the answer response that best represents your opinion. How important is each of the following in an effective AAEBI program locator tool:

- Frequency with which listed information is updated
 - Amount of program information in the search results
 - User friendliness
 - Ability to filter search results
 - Cost
 - Maintenance or support of the program locator tool
 - Ability to share or embed the tool on your partners' websites
 - Other, please specify: _____
2. In the future, what else could program locator tools do to better connect people to programs?
 3. Do you think a national program locator tool is feasible? Why/why not?
 - **IF FEASIBLE:**
 - To be effective for {grantee name/organization} what features should a national program locator tool have?
 - What organization should house the tool?
 - **IF NOT FEASIBLE:**
 - To be effective for {grantee name/organization}, what features should a state-based program locator tool have?
 4. What should CDC's role be, if any, in facilitating a locator tool or tools?

Those are all the questions I have for you today.

Is there anything we have not talked about that you would like to tell me?

Thank you so much for your time!

AAEBI Program Locator Tool Project Informed Consent Show Card

INFORMED CONSENT

Today's interview will cover your needs, as well as end-user needs, for locator tools; desired features of locator tools; and any challenges you have previously encountered when using locator tools. Then we will look at a few specific locator tools, and ask you to complete a task using each one. To wrap up, we will discuss your opinions about the future direction and needs related to AAEBI program locator tools.

Before we get started, a few things to know:

- Your participation is voluntary. You can stop the interview at any time.
- If there are any questions you do not want to answer, just let me know, and I will move on.
- For our report, the comments you share will be grouped with comments from other people like you who are participating.
- The interview will take approximately 75 minutes.
- There are no known risks associated with participation.
- If you have any questions about the study, please contact Jennifer Berktold at Westat or Heather Murphy at NACDD.
- This project has been approved by Westat's Institutional Review Board. If you have any questions about your rights and welfare as a research participant, please call the Westat Human Subjects Protections Office at 1-888-920-7631. Please leave a message with your full name, the name of the research study that you are calling about (the AAEBI Program Locator Tool Project), and a phone number beginning with the area code. Someone will return your call as soon as possible.
- With your permission, we would like to audio record and capture what shows on the monitor screen I'll be sharing with you. The recording will be used to help us recall exactly what was said during our conversation with the interviewer as well as highlight where you navigated while exploring each program locator tool. The recordings and any notes we have will be stored on Westat's server. They will be accessible only to the project team. We will destroy the recordings after the study is complete.

Appendix B: AAEBI Program Locator Tool Project Fillable PDF

How important is each of the following in an effective AAEBI program locator tool:			
	Not at All Important	Moderately Important	Very Important
Frequency with which listed information is updated	○	○	○
Amount of program information in the search results	○	○	○
User friendliness	○	○	○
Ability to filter search results	○	○	○
Cost	○	○	○
Maintenance or support of the program locator tool	○	○	○
Ability to share or embed the tool on your partners' websites	○	○	○
Other, please specify: _____	○	○	○

AAEBI Program Locator Tool Pre-Interview Worksheet

Before your interview, please spend **2-5 minutes** exploring the following diverse set of arthritis-appropriate evidence-based intervention (AAEBI) program locator tools. As you explore each tool, think about your needs, as well as end-user needs, for locator tools and please consider each of the questions listed in the left column. You do not have to share this worksheet with Westat, but we will discuss your responses during our interview. There are no right or wrong answers. We are simply interested in your opinions, perspectives, and suggestions.

Locator Tool	Evidence-Based Leadership Council (EBLC)	CDC's Diabetes Prevention Program	Arthritis Foundation	Workshop Wizard
Link	http://www.eblcprograms.org/evidence-based/map-of-programs/	https://nccd.cdc.gov/DDT_DPRP/Programs.aspx	http://resourcefinder.arthritis.org/	http://pathstohealthnm.net
What are your overall impressions of this tool?				
What do you <u>like</u> about this tool or see as its strengths?				
What do you <u>dislike</u> about this tool or see as its limits?				
What would you recommend to improve this tool?				